

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 25 of 2023, which covers the period from 18 June to 24 June 2023.

1. OPERATION SUMMARY:

a. Daily average river flows ranged from 147.4 to 165.6 kcfs. Daily average powerhouse forebay elevation ranged from 75.1' to 76.1' msl. Daily average project tailwater ranged from 12.9' to 14.1' msl. Secchi disk measurements ranged from 5.0 to 7.0'. Daily average water temperature ranged from 63 to 68°F.

b. Daily average spill ranged from 95.8 to 96.1 kcfs.

c. Unit Operation: **PH2** remains the priority powerhouse. Main unit drawdowns are measured every Monday and more frequently as needed.

• **Table 1.** Main Unit Outages

Unit	OOS	RTS	Reason	Duration
4	1631 on 29 Mar	---	F.O., Oil Leak Investigation/5-YR Overhaul	---
3	1105 on 12 Jun	---	F.O., Oil Leaks	---
14	2022 on 17 Jun	0709 on 20 Jun	F.O., STS Ground	2 days, 10 hours, 47 mins
2	0001 on 20 Jun	---	P.O., Annual Overhaul	---
14	0735 on 20 Jun	---	P.O., FGE Gatewell Improvement/Annual Overhaul/QTCI	---
1	0830 on 21 Jun	---	F.O., SEL300G Fail/Omega Sensors	---

d. Fish Units: Second Powerhouse Fish Units provide attraction flow for the Washington Shore (WS) fish ladder.

Fish Unit Outages: Fish Units are periodically paced into reserve service (RS) to float trash when debris differentials become excessive and trash raking is not possible.

• **Table 2.** Fish Unit Outages

Unit	OOS/RS	RTS	Reason	Duration
F2	2229 on 17 Jun	0530 on 18 Jun	R.S., Nighttime Lamprey Ops	7 hours, 1 min
F1	2229 on 18 Jun	0527 on 19 Jun	R.S., Nighttime Lamprey Ops	6 hours, 58 mins
F2	2230 on 19 Jun	0534 on 20 Jun	R.S., Nighttime Lamprey Ops	7 hours, 4 mins
F1	2230 on 20 Jun	0538 on 21 Jun	R.S., Nighttime Lamprey Ops	7 hours, 8 mins
F2	2227 on 21 Jun	0536 on 22 Jun	R.S., Nighttime Lamprey Ops	7 hours, 9 mins
F2	2228 on 22 Jun	0532 on 23 Jun	R.S., Nighttime Lamprey Ops	7 hours, 4 mins
F1	2228 on 23 Jun	0527 on 24 Jun	R.S., Nighttime Lamprey Ops	6 hours, 59 mins
F2	2230 on 24 Jun	---	R.S., Nighttime Lamprey Ops	---

- **Table 3.** Fish Unit Drawdowns, in Feet.

Date	F1	F2
06/18	0.7'	0.3'
06/19	0.3'	0.7'
06/20	0.3'	0.4'
06/21	0.1'	0.9'
06/22	0.9'	0.8'
06/23	1.0'	0.4'
06/24	0.1'	0.7'

2. MAINTENANCE ACTIVITIES:

- Auxiliary Water System Closures: Nothing to report.
- STS/VBS Inspections: Nothing to report.
- Dewatering and Fish Salvages: Fish biologists assisted in fish recovery efforts in U14's scroll case on 20 June and U14's draft tube and gatewells on 21 June. 1 juvenile salmonid was recovered in good condition from U14A Gatewell and was released into U16's gatewell to travel downstream through the DSM. U14 was dewatered as part of FGE Gatewell Improvements.

3. RESEARCH

- Four Peaks Environmental - Fish counting contract: Daytime visual counting (0500 to 2100 PDT) began on 01 April. Night video counting (2100 to 0500 PDT) began on 15 May. Fish counts can be viewed [here](#).
- USFWS – Lamprey Metamorphosis Study: Juvenile lamprey researchers are onsite and the work is underway.
- Pacific States Marine Fisheries Commission - Smolt Monitoring: Sample collections at the Smolt Monitoring Facility (SMF) began at 0700 on 02 March. Debris at the primary dewatering structure (PDS) and fish/debris separator varied from light consisting mostly of sticks and aquatic macrophytes. Fallbacks observed this week: two steelhead, 3 salmon, and 1 unidentified salmonid.
Gas Bubble Trauma (GBT) examinations began on 10 April and are typically performed two days per week through the end of spill. Results of this week's GBT examinations: 200 combined yearling Chinook, subyearling Chinook, and steelhead examined with no GBT symptoms observed. Please follow this link <https://www.fpc.org/currentdaily/gbtsumbybatchdate.pdf> to the FPC web page for further details.
Non-salmonid GBT Monitoring was initiated this week at Bonneville with the start of summer spill operations. This effort is paired in conjunction with salmonid GBT monitoring with the goal of examining up to 50 non-salmonids (native and non-native species) per session using the same procedures and protocols employed in the salmonid GBT Monitoring Program. Non-salmonid GBT exams only occur when TDG levels are above 110% and water temperatures are below 68°F. No GBT exams were performed on non-salmonids this week as forebay TDG levels were below the 110% threshold.
A total of 30 fin clips were obtained from Pacific Lamprey macrophthalmia for Columbia River Inter-Tribal Fish Commission's genetic studies this week.
- USDA – Pinniped and Avian Hazing: Deck-based avian hazing operations are underway.
- USGS TDG Monitoring: USGS placed TDG monitoring equipment back in service on Cascades Island above and below the Main Dam on 04 April. Water-quality data collection will continue through the end of spill season.
- CRITFC – Adult Salmonid Sampling: Adult salmonid sampling in the Adult Fish Facility (AFF) began on 19 April and typically occurs 5 days per week.

g. CRITFC – Lamprey Translocation: Adult lamprey collection and translocation began on 05 June.

4. FISHWAYS:

a. Project Biologists inspected 11 June to 17 June.

b. Fish Passage Plan observations:

- **Table 4.** FPP Items Out of Criteria.

Date	Location	FPP Violation	Cause	Response
PH1				
06/18 – 24	PH1 ITS	S. End Gate Inoperable and Chain Gates 1b Closed	S. End Gate Inoperable, 1b Closed for Safety Reasons	W.O.
06/18 – 24	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
Bradford Island: Nothing to Report				
Cascades Island				
06/18 – 24	CI Fishway	FG 6-6 Open, Should be Closed	Electrical Failure	W.O.
06/18 – 24	CI Fishway	FG 6-7 Partially Open, Should be Closed	Electrical Failure	W.O.
06/18 – 24	CI Fishway	FG 6-8 Open, Should be Closed	Electrical Failure	W.O.
06/18 – 24	CI Fishway	FG 6-10 Open, Should be Closed	Electrical Failure	W.O.
06/21	CI Fishway	UMT Staff Gauge >1.4	Electrical Failure	W.O.
Washington Shore				
06/21	WA Shore Fishway	SDE Ent/TW Diff <1'	Unknown	N/A

- PH1 Collection Channel diffuser FG 2-19 was found mechanically bound in the mostly closed position on 02/24/22 by PH1 Mechanics. No repairs can be made until the PH1CC can be dewatered in the next Oregon Fishway Winter Maintenance Period (winter 2023/2024).
- The Cascades Island Fishway diffuser FG 6-11 is mechanically bound in the closed position due to stripped shaft threads. A work order has been created and repairs will be made during the next full dewater of the Cascades Island Fishway.
- Cascades Island Fishway diffuser FG 6-12 is mechanically bound in the open position for unknown reasons. A work order has been created and repairs will be made during the next full dewater of the Cascades Island Fishway.
- Cascades Island Fishway diffuser FG 6-18 was found stuck in the open position with limiter problems in the fall of 2022. A work order has been created and repairs have been attempted, but full repair requires complete dewatering of the fishway. These repairs will be made during the next full dewater of the Cascades Island Fishway.

c. Adult Fishways:

- (1) The AFF remains in service.
- (2) Sensor calibration checks occurred on 20 June.
- (3) SLEDs are installed at all locations.

(4) Bradford Island, Cascades Island, and Washington Shore Fishways remain in service and were placed into shad mode on 29 May.

d. Juvenile Fishways:

- (1) The ITS remains in service.
 - Auto-chain gates 3B, 6C, & 10B remain operational.
 - Mechanical-chain gate 1A was opened on 10 January 2023 to increase downstream surface passage and reduce trash raking workloads on the FV 1-1 trash racks. For safety measures, an additional (7th) trash rack was installed in the 1A gate slot, extending the height of stacked trash racks to approx. +80' el. Without the 7th trash rack, the existing 6 trash racks extend from the river floor (approx. -2' el) to +68' el. This additional trash rack provides a safety barrier to block accidental sluiceway entry of a person, vessel, or other undesirable object floating uncontrollably downstream.
- (2) The hydro-cannon remains in service.
- (3) The B2CC remains in service.
- (4) The DSM remains in service.
- (5) STSs remain in service.

e. Lamprey Fishways:

- (1) BI, CI, and WA Shore LPS's remain in service.
- (2) The Bradford Island Wetted Wall (BIWW) is in service.
- (3) The PH2 Lamprey Flume Structure (LFS) remains out of service.
- (4) The AFF Lamprey Trap and Cascades Island Lamprey Trap remain in service.
- (5) Avian Monitoring: Avian counts are recorded 01 April – 31 October.

Table 5. Avian Counts for 18 June – 24 June.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
06/18	4	1	0	0	0
06/19	9	3	0	0	0
06/20	4	3	0	1	0
06/21	12	8	0	1	0
06/22	-	-	-	-	-
06/23	8	5	0	0	0
06/24	4	3	0	0	0

5. WATER QUALITY MONITORING:

a. Fishway Temperatures: Fishway temperature monitoring is currently underway.

Table 6. Daily Average Fishway Temperatures for 18 June to 24 June at Bonneville Lock & Dam

Date	A-Branch	B-Branch	BI_Exit	WA_Entrance	WA_Exit	CI_Entrance	AFF	SMF	BI_LPS	CI_LPS	WA_LPS	LFS
18-Jun	63.88	64.07	63.96	63.98	64.12		64.03	64.02	64.00	64.03	64.19	OOS
19-Jun	63.65	63.72	63.78	63.62	63.78		63.69	63.66	63.82	63.67	63.86	OOS
20-Jun	63.41	63.54	63.56	63.45	63.60		63.54	63.50	63.62	63.61	63.75	OOS
21-Jun	63.66	63.78	63.95	63.75	63.91		63.87	63.78	64.08	63.93	64.12	OOS
22-Jun	64.20	64.38	64.26	64.53	64.70		64.66	64.53	64.40	64.65	64.95	OOS
23-Jun	64.82	65.00	65.09	65.18	65.34		65.29	65.19	65.22	65.25	65.55	OOS
24-Jun	65.42	65.58	65.58	65.72	65.90		65.84	65.73	65.69	65.74	66.14	OOS

*The Cascades Island Entrance probe is currently unserviceable

*The LFS is OOS for the unforeseeable future.

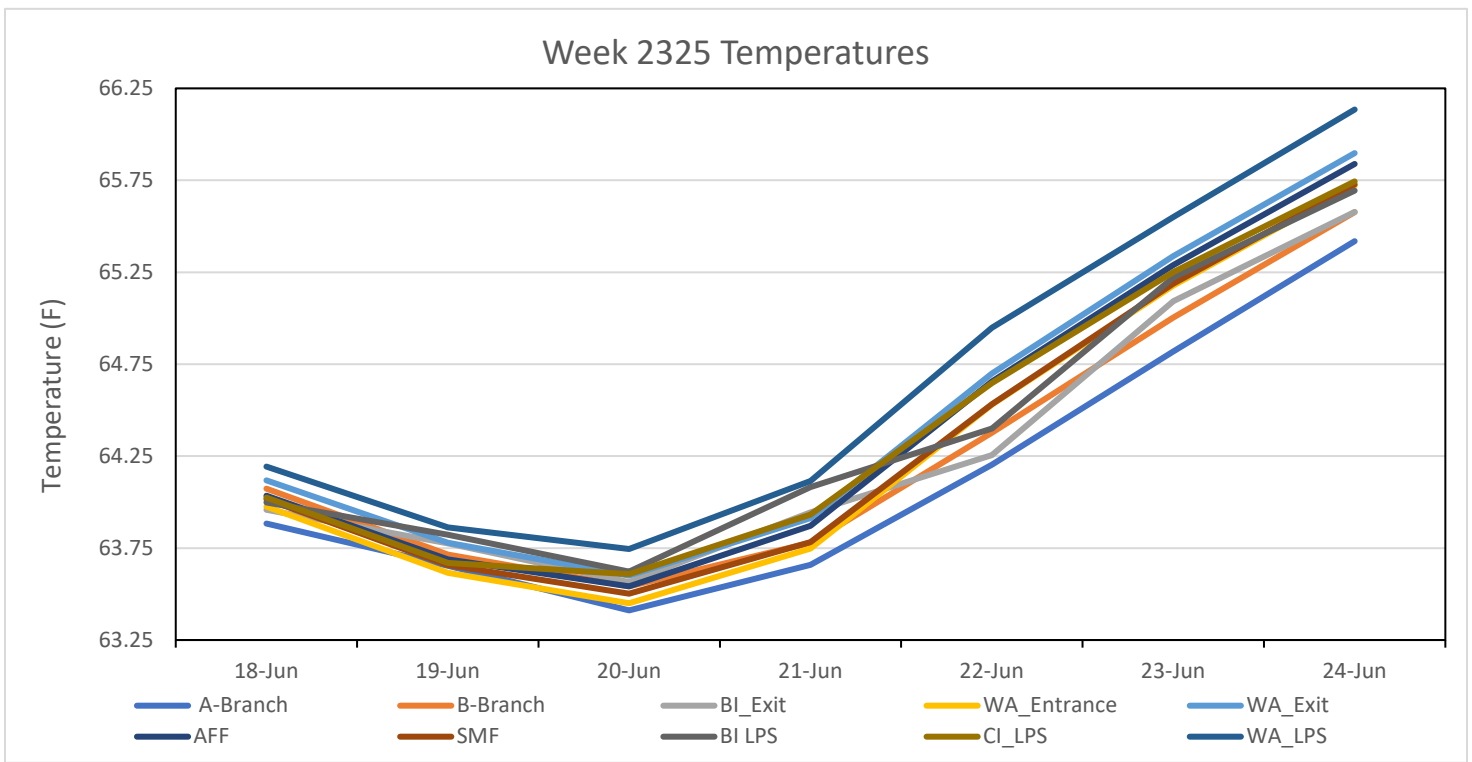


Figure 1. Average Fishway Temperatures for 18 June to 24 June at Bonneville Lock & Dam

b. Zebra Mussel Monitoring: No signs of colonization were observed this reporting week.

7. CONSTRUCTION:

- FGE modification work on U14 gatewells is currently underway.

8. HAZMAT, SPILLS AND CLEANUP: Nothing to report.

9. TELETYPE CURRENTLY IN EFFECT:

- A teletype was distributed on 15 June updates Summer Spill Caps. Effective 0001 hours on June 16, operate Bonneville Dam in accordance with table listed in teletype BON R 061523 0839. Per the FOP (Level 1) spill to 140kcfs, levels beyond that cap spill at 150kcfs.
- A teletype was distributed on 12 June regarding FOP Summer Spill for fish passage. Effective 16 June through 31 August, operate Bonneville Dam in accordance with the 2023 Fish Operations Plan (FOP) to provide summer spill for fish passage, as described below.
 - Pursuant to FOP Table 4, the 2023 Summer Spill operation at Bonneville Dam is as follows:
 - 16 June, 0001 HRS – 14 August, 2359 HRS: Spill 95 kcfs, 24 HRS/DAY
 - 15 August, 0001 HRS – 31 August, 2359 HRS: Spill 50 kcfs, 24 HRS/DAY
 - Distribute spill according to spill patterns in the 2023 Fish Passage Plan (FPP) Table BON-16. Follow the spill pattern that is closest to the intended spill rate. Actual spill may vary up to +/- 3 kcfs from the target due to Project operational limitations described in the FOP sections 3 and 8.8.3.
 - Continue to operate the Powerhouse 2 Corner Collector (B2CC) throughout Summer Spill, then close the B2CC within one hour of the end of spill on 31 August. B2CC operating criteria are defined in FPP Section 2.3.2.5.v (Page BON-20).
 - Maintain spill at the FOP target as long as it does not exceed the spill cap in Level 1 of the most recent spill priority list teletype. Do not spill above the Level 1 spill cap except as required during forced spill, pursuant to the spill priority list teletype.
 - If river flow is too low to maintain FOP spill and minimum generation requirements in FOP Table 1, operate at minimum generation and spill the remainder of outflow. This operation supports power system reliability during low flows.
 - During periods of low flow, it may be necessary to operate outside of the minimum generation range defined in FOP Table 1 in order to maintain reserves for transmission reliability, as defined blow.
 - If notified that BPA has declared a “Transmission System Reliability Need” or “Transmission System Emergency”, adjust operations as instructed by BPA Hydro Scheduling or Transmission Dispatch (per FOP Section 4.4).
 - If the adjustment results in a deviation from the FOP target spill level, or results in operating outside of the minimum generation requirements in the FOP Table 1, describe details of the even in the Project Operator Logbook and provide to RCC upon request for reporting requirements.

Please see teletype BON R 061223 1145 for details.

- A teletype was distributed on 07 June regarding a Bonneville high pool operation for bridge construction. Beginning 24 June at 0600 HRS through 30 June at 1800 HRS, operate Bonneville Forebay above a minimum of 75.5 feet, soft constraint and above 74.5 feet, hard constraint. This request was made to support construction activities for the BNSF Railroad Bridge replacement at River Mile 150 at the mouth of Rock Creek in the Bonneville Pool. Please see teletype BON R 060723 1245 for more details. This teletype was cancelled early as of 30 June at 1010 because the construction finished early.
- A teletype was distributed on 14 June regarding a Bonneville Forebay operation for treaty fishery. It requests that Bonneville Pool operate within a 1.5-ft band, hard constraint for the periods listed below:
From 0600 Monday 19 June to 1800 Wednesday 21 June 2023
From 0600 Monday 26 June to 1800 Wednesday 28 June 2023
The goal of this operation is to limit pool fluctuation to avoid debris in fishing nets, reduce rapid water level drops that entangle nets, minimize boat access problems, and avoid nets being torn from their anchors. Please see teletype BON R 061423 1029 for further details.
- A teletype was distributed on 29 June regarding a Bonneville Forebay operation for treaty fishery. The request is that Bonneville Pool operate within a 1.5-foot band, hard constraint for the following period:

0600 Monday, 03 July to 1800 Thursday, 06 July 2023.

The goal of this operation is to limit pool fluctuation to avoid debris in fishing nets, reduce rapid water level drops that entangle nets, minimize boat access problems, and avoid nets being torn from their anchors. Please see teletype BON R 062923 1515 for further details.

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