

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 53 of 2022, which covers the period from 25 to 31 December 2022.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 115.9 to 158.4 kcfs. Daily average powerhouse forebay elevation ranged from 74.7’ to 75.9’ msl. Daily average project tailwater ranged from 11.8’ to 16.3’ msl. Secchi disk measurements ranged from 2.0 to 7.0’. Daily average water temperature ranged from 37 to 38°F.
- b. Daily average spill ranged from 0.5 to 0.6 kcfs.
 - Spillbay 1 is closed for the 2022-2023 Winter Maintenance Period while Cascades Island Fishway is OOS. Spillbay 18 continues to operate during daytime hours for attraction flow.
- c. Unit Operation: **PH1** became the priority powerhouse on 01 December when Washington Shore and Cascades Island Fish Ladders were dewatered for the 2022-2023 winter maintenance period. Main unit drawdowns are measured every Monday and more frequently as needed.

• **Table 1. Main Unit Outages**

Unit	OOS	RTS	Reason	Duration
13	1628 on 18 Feb	---	F.O., Generator Ground and BPA Work – Grounded Clearance	---
11	0740 on 30 Nov	---	P.O., FGE Gatewell Improvement	---
16	0848 on 28 Dec	1325 on 29 Dec	F.O., TH Pump Oil Leak – Oil on Rotor	1 day, 4 hours, 37 mins
3	0928 on 28 Dec	1009 on 28 Dec	F.O., RC#1 Trip – BPA Relay Maintenance Error	41 mins
4	0928 on 28 Dec	1010 on 28 Dec	F.O., RC#1 Trip – BPA Relay Maintenance Error	42 mins

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

• **Table 2. Fish Unit Outages.**

Unit	OOS/RS	RTS	Reason	Duration
F1	1330 on 01 Dec	---	P.O., 2-Year Overhaul	---
F2	1330 on 01 Dec	---	P.O., Annual Overhaul	---

2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures:
 - FV 3-7 and 3-9 were placed in manual for cleaning from 0747 to 0758 on 27 December.
 - FV 1-1 was closed for cleaning from 1252 to 1408 on 27 December.
 - FV 3-7 and 3-9 were closed for cleaning from 1255 to 1330 on 28 December.
 - FV 1-1 was closed for cleaning from 1520 to 1600 on 29 December.
- b. STS/VBS Inspections: All STSs are pulled and OOS for the winter maintenance period.
- c. Dewatering and Fish Salvages: Nothing to report.

3. RESEARCH:

- a. Four Peaks Environmental - Fish counting contract: Daytime video counting (0400 to 2000 PDT) began on 01 December. Fish counts can be viewed [here](#).
- b. USFWS – Lamprey Metamorphosis Study: Juvenile lamprey researchers are onsite, and the work is underway.
- c. Pacific States Marine Fisheries Commission - Smolt Monitoring: Smolt monitoring operations concluded for the season at Bonneville Juvenile Fish Monitoring Facility at 0700 on Monday, 31 October. The system was placed in bypass mode at that time.

4. FISHWAYS:

- a. Project biologists inspected 27 to 29 December.
- b. Fish Passage Plan observations:

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

Date	Location	FPP Violation	Cause	Response
PH1				
12/25 – 31	PH1 ITS	S. End Gate Inoperable and Chain Gates 1a & 1b Closed	S. End Gate Inoperable, 1a and 1b Closed for Safety Reasons	W.O.
12/25 – 31	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
Bradford Island				
12/28,29	A-Branch	A-Branch Staff Gauge High >1.1'	Unknown	N/A
12/28	A-Branch	FG 3-4 Closed, Should Be Open	Mechanically Bound	W.O.
Cascades Island				
12/25 – 31	Cascades Island Tailrace	1 B2CC Avian Array Line is Broken	High Tailwater Elevations	N/A
Washington Shore: Winter Maintenance Period				

- 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.
- c. Adult Fishways:
- (1) The AFF was taken out of service on Monday, 21 November for the winter maintenance period.
 - (2) Sensor calibration checks occurred on 27 December.
 - (3) SLEDs are installed at all locations.

- (4) Bradford Island Fishway remains in service. Washington Shore Fishway was dewatered to tailwater elevation on 05 December and Cascades Island Fishway was dewatered to tailwater elevation on 06 December.

d. Juvenile Fishways:

- (1) The ITS remains in service (auto-chain gates 3B, 6C, & 10B only).
- (2) The hydro-cannon is out of service for the winter.
- (3) The B2CC was closed for the season 01 September when spill season concluded but remains available to reopen for passing trash or to provide surface passage for fish if spill occurs outside fish passage spill season.
- (4) The DSM dewatered on 21 December.
- (5) STSs are pulled and OOS for the winter maintenance period.

e. Lamprey Fishways:

- (1) BI, CI, and WA Shore LPS's were taken out of service for the season on 01 November.
- (2) The Bradford Island Wetted Wall (BIWW) remains out of service.
- (3) The PH2 Lamprey Flume Structure (LFS) remains out of service for the year.
- (4) The 2022 lamprey trapping and translocation activities have concluded for the year.
- (5) Avian Monitoring: Avian counts are recorded 01 April – 31 October.

5. WATER QUALITY MONITORING:

- a. Fishway Temperatures: Fishway temperature monitoring has concluded for the 2022 season.
- b. Zebra Mussel Monitoring: No signs of colonization were observed this reporting week.

7. CONSTRUCTION:

- U11 outage began on 30 November and Northbank contractors began work in the U11 gatewells on 05 December.

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

9. TELETYPES CURRENTLY IN EFFECT:

- A teletype was distributed on 31 August regarding the Snake and Columbia River Projects fall/winter spill priority list and fall/winter spill caps. This teletype provides the order that projects spill for lack of load conditions and is to be used until further notice. Outside of the fish passage season, all state TDG standards are 110%. The lack of load spill level and the order in which to spill from top to bottom and other details can be found in the teletype BON R 082122 1615.
- A teletype was distributed on 19 October regarding Bonneville tailwater operation for chum spawning. Effective Tuesday, 1 November at 0600 HRS, and until further notice, Bonneville Lock and Dam is to operate its tailwater in the following order of operating ranges as project outflow increases:
 - During all hours, operate project outflow to provide a tailwater elevation in the range of 11.3 ft to 12.0 ft.
 - Then, if necessary to increase project outflow, the tailwater may be operated up to 16.5 ft during

nighttime hours (1700-0600), with concentrating the highest elevations around 2400 HRS.

- Then, if necessary to increase project outflow, the tailwater may be operated up to 18.5 feet during nighttime hours (1700-0600).

- Then, if increasing river flow precludes the ability to manage the tailwater within the steps above, operate to provide a tailwater in the range of 13.0-16.5 ft during daytime hours (0600-1700) and up to the maximum within project 24-HR ramp rate limits during nighttime hours (1700-0600).

The goal of this operation is to improve conditions at the Ives/Pierce Island Complex for chum salmon spawning. Please see teletype BON R 101922 1348 for more details.

- A teletype was distributed on 05 December regarding a Bonneville low pool operation scheduled for 06 December. On 06 December from 0700-1700 HRS, the BON Forebay is to remain below a maximum elevation of 73.0 feet, soft constraint. This low pool operation supports a request from Oregon State Parks to provide low water levels for boat ramp work near Mayer State Park. Please see teletype BON R 120522 1330 for more details.
- A teletype was distributed on 14 December outlining tailwater operations for chum spawning. Effective Saturday, 31 December 2022 at 0001 HRS, until further notice, the Bonneville Dam minimum tailwater elevation will remain at 11.8 ft at all hours. The intent of this operation is to ensure sufficient tailwater elevation to protect chum redds in the Ives/Pierce Island area during the egg incubation period. The official project tailwater elevation gauge is located on the Oregon Shore at River Mile 144.5, 0.9 miles downstream of PH1 and 50 ft upstream of Tanner Creek. This teletype replaces BON R 101922 1348 Tailwater Operation for Chum Spawning 1. Please see teletype BON R 121422 1154 for more details.
- A teletype was distributed on 16 December outlining the Bonneville Dam maximum forebay operation during high flow. Effective immediately and until further notice, when inflows at Bonneville Dam are 376 kcfs or greater, the maximum forebay elevation is 75.5 feet. This limit applies until flows become so great that it is no longer possible to hold the forebay below 75.5 feet which is expected to occur at a flow rate of roughly 950 kcfs, the approximate spillway capacity. When inflows at Bonneville Dam are less than 376 kcfs, operate within the normal forebay range from 71.5-76.5 feet. The purpose of this operation is to minimize impacts to areas upstream of the natural channel restriction near the Bridge of the Gods. Please see teletype BON R 121622 1143 for more details.

MICHAEL ADAMS, P.E.
Operations Project Manager
Bonneville Project