

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 49 of 2023, which covers the period from 03 to 09 December 2023.

1. ITEMS OUT OF CRITERIA (OOC):

- **Table 1.** FPP Items Out of Criteria.

Date	Location	FPP Violation	Cause	Response
PH1: Nothing to Report.				
Bradford Island: Nothing to Report.				
Cascades Island:				
12/05 – 07	CI Fishway	FG 6-12 Closed, Should be Open	Mechanically Bound	W.O.
Washington Shore: Nothing to Report.				

- 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 closed 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 limitorque 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.

2. OPERATION SUMMARY:

- Daily average river flows ranged from 102.3 to 125.7 kcfs. Daily average powerhouse forebay elevation ranged from 73.8’ to 75.7’ msl. Daily average project tailwater ranged from 12.0’ to 12.5’ msl. Secchi disk measurements ranged from 3.0 to 7.0+’. Daily average water temperature remained at 47°F.
- Daily average spill ranged from 0.5 to 0.8 kcfs.
 - Spillbay 1 was closed at 1700 on 01 December as part of the Bradford Island Fishway dewatering and winter maintenance work.
- Unit Operation: **PH2** remains the priority powerhouse. Main unit drawdowns are measured every Monday and more frequently as needed.

- **Table 2. 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 Leak Investigation	---
12	0738 on 25 Sept	---	P.O., FGE Gatewell Improvements/4-YR Overhaul	---
1	0001 on 08 Dec	---	F.O., Thrust Bearing High Lift Pump Not Building Pressure	---

- 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. Single Fish Unit Operations (FPP Table BON-12) began on 04 December when F2 was placed OOS for a 2-YR OH.

Table 3. Fish Unit Outages

Unit	OOS/RS	RTS	Reason	Duration
F2	0001 on 04 Dec	---	P.O., 2-YR Overhaul	---

- **Table 4. Fish Unit Drawdowns, in Feet.**

Date	F1	F2
12/03	0.5'	0.9'
12/04	0.9'	---
12/05	1.8'	---
12/06	2.7'	---
12/07	0.3'	---
12/08	1.2'	---
12/09	0.3'	---

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures:

- FV 6-9 was placed into manual for cleaning from 1313 to 1315 on 04 December.
- FV 6-9 was placed into manual for cleaning from 1330 to 1342 on 07 December.

b. STS/VBS Inspections: Nothing to report.

c. Dewatering and Fish Salvages:

- Fish biologists, BON Project personnel, and other greatly appreciated fish lovers assisted in fish salvage operations of the Bradford Island Fishway from BI Exit to tailwater elevation in A-Branch and B-Branch as part of winter maintenance activities on 05 December. Fish salvaged from each location: BI Flow Control Section: 7 lamprey, 33 salmonids, 3 stickleback, and a mix of about 113 shad, pikeminnow, peamouth, smallmouth bass, and sculpin; A-Branch/B-Branch Junction Pool: 20 adult salmonids, 5 jack salmonids, 10 juvenile salmonids, 2 adult sturgeon, 1 carp, 38 shad, and 21 peamouth; B-Branch to TW: 10 adult salmonids, 25 juvenile salmonids, 13 non-gamefish; A-Branch to TW: 5 adult salmonids, 2 juvenile salmonids. The fish were in good condition. The majority of the adults were released upstream and juveniles were released downstream.
- Fish biologists and Project personnel continued salvage operations in the lower section of the B-

Branch fishway in the afternoon of 06 December. 6 perch, 1 lamprey, and 1 shad were recovered in good condition and released upstream.

- Fish biologists continued fish salvage operations in pits under the diffuser grating in the B-Branch Entrance Bay on the morning of 07 December. 18 juvenile salmonids, 15 smallmouth bass, and a mix of 35 shad and stickleback were recovered in good condition and released downstream.
- Fish biologists assisted in fish salvage operations in the A-Branch diffuser pits above tailwater elevation. 1 adult steelhead, 4 adult coho, and 2 shad were recovered in good condition and released upstream of the dam.

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.

4. FISHWAYS:

- a. Project Biologists inspected 05 to 07 December.
- b. Adult Fishways:
 - (1) The AFF is out of service for the winter maintenance season.
 - (2) Sensor calibration checks did not occur this reporting week.
 - (3) SLEDs are installed at all locations.
 - (4) The Cascades Island and Washington Shore Fishways remain in service. The Bradford Island Fishway was taken out of service for the winter maintenance season on 05 December.
- c. Juvenile Fishways:
 - (1) The ITS remains in service.
 - (2) The hydro-cannon is out of service for the season.
 - (3) The B2CC was closed for the season on 01 September but remains available to flush trash or provide surface passage for fish if involuntary spill occurs outside of fish passage spill season. (**FPP BON Section 2.2.2.**)
 - The B2CC was opened to float trash from 1130 to 1300 on 06 December.
 - (4) The DSM remains in service.
 - (5) STSs remain in service.
- d. Lamprey Fishways:
 - (1) BI, CI, and WA Shore LPS's remain out of service.
 - (2) The Bradford Island Wetted Wall (BIWW) remains out of service.
 - (3) The PH2 Lamprey Flume Structure (LFS) remains out of service.
 - (4) The 2023 lamprey trapping and translocation activities have concluded for the 2023 season.

(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 2023 season.
- b. Zebra Mussel Monitoring: No signs of colonization were observed this reporting week.

7. CONSTRUCTION:

- Trenching work along the B-Branch Fishway for the B-Branch LPS install has been completed. Installation of the B-Branch LPS will occur during the IWWP.

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

9. TELETYPES CURRENTLY IN EFFECT:

- A teletype was distributed on 30 August detailing the 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. Please see teletype BON R 083023 1555 for further details.
- A teletype was distributed on 07 September regarding a Bonneville minimum forebay operation for fish hatchery work. From 15 October through 15 November 2023, Bonneville is to operate its forebay above a minimum of 74 ft, soft constraint. This forebay operation supports a request from the Little White Salmon Fish Hatchery to provide water levels for improved access to the ladder system at the hatchery during the peak of the fall Chinook run. Please see teletype BON R 090723 1315 for more details.
 - A revised teletype was distributed on 29 September regarding a Bonneville minimum forebay for fish hatchery. This teletype revises previous teletype BON R 090723 1325 by changing the start date. The revision states: from 20 October through 15 November 2023, operate the Bonneville Forebay above a minimum of 74 feet, soft constraint. Please see teletype BON R 092923 1252 for further details.
- A teletype was distributed on 06 November with instructions for Bonneville tailwater operations for chum spawning. Effective Wednesday 01 November, at 0600 HRS, and until further notice, Bonneville 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 10.3 – 11.2 FT.
 - Then, if necessary to increase Project outflow, operate Project outflow to provide a tailwater elevation in the range of 11.3 – 13.0 FT. If this elevation is not achieved by Thursday 09 November, at 0001 HRS, then operate Project outflow to provide a tailwater elevation in the range of 11.3 – 13.0 FT
 - Then, if necessary to increase Project outflow, the tailwater may be operated up to 16.5 FT during nighttime hours (1700-0600).
 - Then, if necessary to increase Project outflow, the tailwater may be operated up to 18.5 FT 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 102523 1411 for more details.

A revision to this teletype was distributed on 06 November regarding a clarified end date for increasing the tailwater elevation range. The revision states: “If necessary to increase Project outflow, operate to maintain the tailwater within an elevation range of 11.3 – 13.0 FT. If the tailwater is not operated above 11.2 FT by

Thursday 09 November at 0001 HRS, then transition to an operation to maintain the tailwater within an elevation range of 11.3 – 13.0 feet at all hours.”. Please see teletype BON R 110623 1449 for more details.

- A teletype was distributed on 07 December regarding a debris flushing spill operation at Bonneville Dam. Bonneville is scheduled to perform a debris spill operation on Wednesday 13 December, from 1000 to 1130 HRS while an engineer is onsite. The goal of this operation is to test a flushing procedure with Spillbays 14, 15, 16, and 17 to minimize erosion of the south shore of the spillway. Spillbay 18 must be closed prior to commencing this operation. The operation will be performed as follows. Approximate spill flow shown below is based on a forebay elevation of 74 ft:
 - At 1000, open Spillbay 17 to 6 ft. If debris has not started to move towards Spillbay 16 by 1015, increase Spillbay 17 opening to 8 ft (12-16 kcfs).
 - At 1030, open Spillbay 16 to 6 ft and close Spillbay 17 (12 kcfs)
 - At 1045, open Spillbay 15 to 6 ft and close Spillbay 16 (12 kcfs)
 - At 1100, open Spillbay 14 to 6 ft and close Spillbay 15 (12 kcfs)
 - At 1115, open Spillbay 14 from 6 ft to 24 ft (42 kcfs)
 - At 1130, close Spillbay 14.

Please see teletype BON R 12072023 1200 for more details.

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