

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 50 of 2023, which covers the period from 10 to 16 December 2023.

1. ITEMS OUT OF CRITERIA (OOC):

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

Date	Location	FPP Violation	Cause	Response
12/11, 13, 14	BON	Unit Priority – U3 F.O.	U3 F.O., Oil Leak Investigation	W.O.; Next Available Unit Ran in Place
12/11, 13, 14	BON	Unit Priority – U4 F.O.	U4 F.O., Oil Leak Investigation	W.O.; Next Available Unit Ran in Place
PH1: Nothing to Report.				
Bradford Island: Nothing to Report.				
Cascades Island:				
12/11, 13, 14	CI Fishway	FG 6-12 Closed, Should be Open	Mechanically Bound	W.O.
Washington Shore:				
12/11	WA Shore Fishway	SDE Ent/TW Diff <1.0'	Single F.U. Ops	Ops Notified

- 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 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.

2. OPERATION SUMMARY:

- Daily average river flows ranged from 117.9 to 135.2 kcfs. Daily average powerhouse forebay elevation ranged from 73.7' to 74.7' msl. Daily average project tailwater ranged from 11.8' to 13.4' msl. Secchi disk measurements ranged from 3.0 to 7.0+'. Daily average water temperature ranged from 46 to 47°F.
- Daily average spill ranged from 0.5 to 0.7 kcfs.
 - Spillbay 1 remains closed for the duration of IWWP and winter maintenance activities in the Bradford Island Fishway.
- 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	0827 on 11 Dec	F.O., Thrust Bearing High Lift Pump Not Building Pressure	3 days, 8 hours, 26 mins
10	0002 on 11 Dec	---	P.O., Annual Overhaul	---
18	0002 on 11 Dec	1206 on 14 Dec	P.O., Annual Overhaul	3 days, 12 hours, 4 mins
9	0701 on 11 Dec	0816 on 11 Dec	P.O., In Support of Raking U10 Breakers	1 hour, 15 mins
11	0913 on 11 Dec	1224 on 11 Dec	P.O., STS Removal	3 hours, 11 mins
17	1234 on 11 Dec	1600 on 11 Dec	P.O., STS Removal	3 hours, 26 mins
16	0646 on 12 Dec	0932 on 12 Dec	P.O., STS Removal	2 hours, 46 mins
15	0938 on 12 Dec	1212 on 12 Dec	P.O., STS Removal	2 hours, 34 mins
14	1216 on 12 Dec	1527 on 12 Dec	P.O., STS Removal	3 hours, 11 mins
13	0827 on 13 Dec	1309 on 13 Dec	P.O., STS Removal	4 hours, 42 mins

- 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	---
F1	1758 on 12 Dec	1829 on 12 Dec	R.S., Float Trash	31 mins
F1	1912 on 13 Dec	2209 on 13 Dec	R.S., Float Trash	2 hours, 57 mins

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

Date	F1	F2
12/10	0.3'	---
12/11	1.6'	---
12/12	5.2'	---
12/12	0.3'	---
12/13	7.6'	---
12/13	0.1'	---
12/14	0.2'	---
12/15	0.4'	---
12/16	0.6'	---

2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures:
 - FV 6-9 was placed into manual for cleaning from 1554 to 1601 on 11 December.
 - FV 6-9 was placed in manual for cleaning from 1532 to 1540 on 14 December.
- b. STS/VBS Inspections: STS's were taken OOS and removed from the gatewells this reporting week.
- 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.

4. FISHWAYS:

- a. Project Biologists inspected 11, 13, and 14 December.
- b. Adult Fishways:
 - (1) The AFF is out of service for the winter maintenance season.
 - (2) Sensor calibration checks occurred on 11 December.
 - (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 remains 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 1520 to 1610 on 13 December.
 - (4) The DSM remains in service.
 - (5) STSs were taken OOS and removed from gatewells this reporting week.
- 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:

- Installation of the B-Branch LPS in the B-Branch Entrance Bay is underway.

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 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.

- A teletype was distributed on 20 December regarding a Bonneville high pool operation. On 27 December 2023, from 0800 to 1200 hours, Bonneville is to operate its forebay above a minimum of 75.0 ft, soft constraint. This operation is intended to help support a large boat removal from the Bonneville Pool near Bingen, WA. Please see teletype BON R 122023 0745 for more details.
- A teletype was distributed on 20 December, replacing the previous teletype BON R 110623 1459 Tailwater Operation for Chum Spawning 3. This 4th revision to the teletype states: Effective, Sunday 31 December 2023, at 0001 HRS, until further notice, the Bonneville Dam minimum tailwater elevation is 11.5 ft during all hours. The intent of this operation is to ensure sufficient tailwater elevation to the protect chum redds in the Ives/Pierce Island area during the egg incubation period. Please see teletype BON R 122023 1131 for more details.
- A teletype was distributed on 20 December replacing the previous teletype BON R 122023 1131 Tailwater Operation for Chum Incubation 4. This 5th revision to the teletype states: Effective, Sunday 31 December 2023, at 0001 HRS, until further notice, Bonneville Dam minimum tailwater elevation is 11.3 ft during 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. This 5th revision's updated minimum tailwater elevation was based on an updated WDFW chum salmon survey data that occurred on 20 December. Please see teletype BON R 122023 1340 for more details.

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