

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 03 of 2024, which covers the period from 07 to 13 January 2024.

1. ITEMS OUT OF CRITERIA (OOC):

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

Date	Location	FPP Violation	Cause	Response
01/14 – 20	BON	Less Than 3 Biologist Fishway Inspections Conducted This Week	Inclement Weather/BON Project Shutdown	N/A
01/24	BON	Unit Priority – U3, U6, U9 & U10 F.O.	U3, U6, & U10 F.O., Oil Leak Investigation	W.O.; Next Available Unit Ran in Place
01/24	BON	Unit Priority – U12 F.O.	U12 F.O., Stator Ground	W.O., Next Available Unit Ran in Place
Bradford Island: Nothing to Report.				
Cascades Island:				
01/24	CI Fishway	FG 6-12 Closed, Should be Open	Mechanically Bound	W.O.
Washington Shore:				
01/24	WA Shore Fishway	Weir 37 High, >1.1'	Weir 37 Blowdown Valve OOS	W.O.
01/24	WA Shore Fishway	Weir 38 High, >1.1'	Weir 37 Blowdown Valve OOS	W.O.

- 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.
- PH1 Unit Priority: Multiple oil sheens have been observed in the Powerhouse 1 tailrace by Bonneville Staff on several occurrences over the past year:
 - Sheens were observed on 07, 09, and 11 March 2023. The source of the sheens were believed to be biological at this point, but an investigation was started. Between 14 and 30 March, multiple investigation methods including: reviewing oil accountability reports; manipulating Unit operation to produce a collectable sample in the tailrace which was sent to the laboratory for analysis; visual inspections and monitoring; and the use of a source dye in Unit 4 during operation. Results from these investigations forced Bonneville to take Unit 4 out of service on 29 March 2023 and later Unit 3 out of service on 12 June 2023. These Units will remain OOS until a full investigation and inspection of each Unit has been completed and the source of the oil leak has been determined.
 - On 03 January 2024 an oil sheen was observed at the North end of the PH1 tailrace. Unit 6 and Unit

10 were both running and taken out of service at that time as potential sources for the oil leak. Both Units will remain OOS until a full investigation and inspection of both Units has been completed and the source of the oil leak has been determined.

- On 11 January 2024, Unit 9 was slowly brought up to speed for station service operations. During this short period of time, another oil sheen was observed on the North end of the PH1 tailrace. Unit 9 was forced out of service immediately and will remain OOS until a full investigation and inspection of the Unit has been completed and the source of the oil leak can be determined.
- On 23 January 2024, Unit 3 was slowly brought under load with the intention of returning the Unit back to service after an oil leak investigation determined no loss. No indication of oil loss was observed in the tailrace as the Unit was brought online or during Unit operation. As the Unit was brought back down to remain in standby, sporadic strings of oil were observed in the tailrace. Unit 3 has since been forced back out of service until a full investigation of the Unit has been completed and the source of the oil leak can be determined.

2. OPERATION SUMMARY:

a. Daily average river flows ranged from 115.4 to 132.5 kcfs. Daily average powerhouse forebay elevation ranged from 73.2’ to 74.4’ msl. Daily average project tailwater ranged from 11.5’ to 11.9’ msl. Secchi disk measurements remained at 7.0+’. Daily average water temperature ranged from 36 to 38°F.

b. Daily average spill ranged from 0.5 to 0.6 kcfs.

- Spillbay 18 remains closed for the duration of IWWP and winter maintenance activities in the Bradford Island Fishway.

c. 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 2023	---	F.O., Oil Leak Investigation/5-YR Overhaul	---
3	1105 on 12 Jun 2023	---	F.O., Oil Leak Investigation	---
6	1714 on 03 Jan	---	F.O., Oil Leak Investigation	---
10	1714 on 03 Jan	---	F.O., Oil Leak Investigation	---
12	0731 on 05 Jan	---	F.O., Stator Ground	---
9	1220 on 11 Jan	---	F.O., Oil Leak Investigation	---

- 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 shutdown (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	1731 on 14 Jan	1820 on 14 Jan	R.S., Float Trash	49 mins
F1	1754 on 15 Jan	1845 on 15 Jan	R.S., Float Trash	51 mins
F1	1809 on 16 Jan	1900 on 16 Jan	R.S., Float Trash	51 mins
F1	1850 on 19 Jan	1953 on 19 Jan	R.S., Float Trash	1 hour, 3 mins

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

Date	F1	F2
01/14	14.1'	---
01/14	0.4'	---
01/15	0.1'	---
01/16	8.2'	---
01/16	0.2'	---
01/17	0.4'	---
01/18	0.9'	---
01/19	4.4'	---
01/20	N/A	---

2. MAINTENANCE ACTIVITIES:

- Auxiliary Water System Closures:
 - FV 6-9 was closed for cleaning from 0845 to 0900 on 16 January.
- STS/VBS Inspections: STS's remain OOS for the winter maintenance season.
- Dewatering and Fish Salvages: Nothing to report.

3. RESEARCH

- Four Peaks Environmental - Fish counting contract: Daytime video counting (0400 to 2000 PDT) began on 01 December. Fish counts can be viewed [here](#).
- USFWS – Lamprey Metamorphosis Study: Juvenile lamprey researchers are onsite and the work is underway.

4. FISHWAYS:

- Project Biologists inspected on 16 January.
- Adult Fishways:
 - (1) The AFF remains out of service for the winter maintenance season.
 - (2) Sensor calibration checks were unable to occur this 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.
- 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.)**

(4) The DSM was taken out of service on 18 December for the winter maintenance season.

(5) STSs remain out of service for the winter maintenance season.

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:

- On 23 January, Bonneville Operations began to slow roll Unit 10 as part of FPP required dewatering procedures to encourage fish to exit the draft tube prior to placing tail logs and dewatering U10. Upon shutdown at approximately 1037, very small string-like globs were noticed to be surfacing in the PH1 tailrace. The globs fanned out upon making contact with the surface and dissipated within 30 seconds. Tail logs were placed and the unit has been taken out of service for investigation and inspections.

Also on 23 January, Unit 3 was slowly brought under load with the intent to return the unit to service after an oil leak investigation determined no loss. No indication of oil loss was observed in the tailrace as the unit was brought online or during unit operation. As the unit was brought back down to standby mode, it was observed that some sporadic, very small strings of oil were surfacing. The globs fanned out upon making contact with the surface and dissipated within 30 seconds. Due to limited resources, Bonneville crews were unable to place tail logs, but the unit has been removed from service for future investigation. The leak has been isolated and no further sheen has been observed. At this time, Units 3, 4, 6, 9, and 10 all remain OOS due to concurrent oil leak investigations.

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 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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