

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 42 of 2023, which covers the period from 15 to 21 October 2023.

1. ITEMS OUT OF CRITERIA (OOC):

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

Date	Location	FPP Violation	Cause	Response
10/15 – 16	BON	Unit Priority Order	U18 F.O.	W.O.
PH1:				
10/15 – 21	PH1 ITS	ITS Closed	ITS End Gate Repairs	MOC
10/15 – 21	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
Bradford Island:				
10/15 – 21	B-Branch	B-Branch S. Ent Gate Closed	Electrical Issues	W.O.
10/19	B-Branch	Ent/TW Diff <1.0'	S. Ent. Gate Stuck Closed	W.O./Manually Adjust FVs
Cascades Island:				
10/15 – 21	CI Fishway	FG 6-18 Open, Should be Closed	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 limiter torque 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 81.6 to 91.2 kcfs. Daily average powerhouse forebay elevation ranged from 74.9' to 75.6' msl. Daily average project tailwater ranged from 8.1' to 8.8' msl. Secchi disk measurements remained at 7.0+'. Daily average water temperature ranged from 62 to 63°F.
- Daily average spill ranged from 1.2 to 1.3 kcfs.

- c. Unit Operation: PH2 remains the priority powerhouse. Main unit drawdowns are measured every Monday and more frequently as needed.
- PH1 Units were used for power generation (Out of Turbine Unit Priority Order according to **FPP Table BON-13**) several times while some PH2 Units were placed in Reserve Service (RS) due to a BPA GENCON limiting generation to 334 MW on the 230 kV system. (17 to 20 October)

• **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	---
15	0729 on 10 Jul	1601 on 19 Oct	P.O., 4-Year Overhaul	101 days, 8 hours, 32 mins
12	0738 on 25 Sept	---	P.O., FGE Gatewell Improvements	---
18	1858 on 12 Oct	2141 on 16 Oct	F.O., Failed Brake Switch	4 days, 2 hours, 43 mins
9	1805 on 15 Oct	---	P.O., Annual Overhaul	---
10	0716 on 16 Oct	1510 on 16 Oct	P.O., Breaker Racking	7 hours, 54 mins

- a. 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. There were no Fish Unit outages this reporting week.

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

Date	F1	F2
10/15	0.2'	0.1'
10/16	0.3'	0.3'
10/17	0.3'	0.3'
10/18	0.3'	0.3'
10/19	0.5'	0.2'
10/20	0.7'	0.3'
10/21	0.8'	0.4'

2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures:
- FV 6-9 was placed into manual for cleaning from 0852 to 0900 on 16 October.
 - FV 6-9 was placed into manual for cleaning from 1045 to 1100 on 19 October.
- b. STS/VBS Inspections: Nothing to report.
- c. Dewatering and Fish Salvages: Nothing to report.

3. RESEARCH

- a. 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](#).

- b. USFWS – Lamprey Metamorphosis Study: Juvenile lamprey researchers are onsite and the work is underway.
- c. 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 was light to moderate consisting mostly of aquatic macrophytes, a few sticks, terrestrial vegetation, and dead adult American shad. Fallbacks observed this week: two salmon. Truck releases of summer/fall out-migrants originating from Little Goose and Lower Granite Dams began at Bonneville on 02 August and occur every other day. Gas Bubble Trauma (GBT) examinations have concluded for the season. Please follow this link <https://www.fpc.org/currentdaily/gbtsumbybatchdate.pdf> to the FPC web page for further details. No fin clips were obtained from Pacific Lamprey macrophthalmia or ammocoetes for Columbia River Inter-Tribal Fish Commission's (CRITFC) genetic studies as no juvenile lamprey were sampled this week.
- d. USDA – Pinniped and Avian Hazing: Deck-based pinniped hazing resumed on 15 August.
- e. CRITFC – Adult Salmonid Sampling: Adult salmonid sampling in the Adult Fish Facility (AFF) has concluded for the 2023 season.
- f. State Agency Pinniped Trapping: Sea lion trapping operations are underway.

4. FISHWAYS:

- a. Project Biologists inspected 15 to 21 October.
- b. Adult Fishways:
 - (1) The AFF remains in service.
 - (2) Sensor calibration checks occurred on 18 October.
 - (3) SLEDs are installed at all locations.
 - (4) Bradford Island, Cascades Island, and Washington Shore Fishways remain in service.
- c. Juvenile Fishways:
 - (1) The ITS was taken out of service on Monday 25 September. Bulkheads were placed in all ITS gate slots throughout the week to dewater the ITS. The ITS End Gate installation began on 03 October. Commissioning of the newly installed gate is underway. Please see MOC 23BON002 ITS End Gate Replacement for more details.
 - (2) The hydro-cannon remains in service.
 - (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 from 0740 to 0827 on 17 October to flush trash accumulating in the PH2 Forebay.
 - (4) The DSM remains in service.
 - (5) STSs remain in service.

d. Lamprey Fishways:

- (1) BI, CI, and WA Shore LPS's remain in service.
- (2) The Bradford Island Wetted Wall (BIWW) remains in 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.

Table 4. Avian Counts for 15 to 21 October.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
10/15	10	15	0	0	0
10/16	9	4	0	0	0
10/17	9	21	0	0	0
10/18	13	13	0	0	0
10/19	16	21	0	0	0
10/20	32	36	0	0	0
10/21	16	54	0	0	0

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:

- FGE modification work on the U12 gatewells is ongoing.
- The installation of the PH1 ITS End Gate is currently in process.
- Scaffolding installation in the U4 draft tube began this week as part of an oil leak investigation.

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

9. TELETYPE 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 29 September regarding a forebay operation for the Bonneville Ice and Trash Sluiceway repairs. Effective from Monday 02 October at 0700 HRS, through Thursday 19 October at 1700 HRS, implement the following forebay operation at Bonneville Lock & Dam:
Hard Constraint: 73.0 – 74.5 FT
Soft Constraint: 73.0 – 74.0 FT
The goal of this operation is to minimize fluctuations in the Bonneville Pool to the extent possible to facilitate dewatering of the Powerhouse 1 Ice and Trash Sluiceway for repairs to the south end gate. Pool elevation changes could dislodge cinders and cause leakage into the sluiceway. This operation was coordinated with FPOM via MOC 23BON002 ITS End Gate Installation, dated 12 January 2023. Please see teletype BON R 092923 0745 for more details.
 - This forebay restriction teletype was cancelled on 11 October after the dry commissioning of the ITS End Gate took place. Please see teletype BON R 101123 1300 for more details.

- A teletype was distributed on 19 October regarding a Bonneville Forebay operation for repairs to the BON Ice and Trash Sluiceway. Effective Monday, 23 October from 0700 to 1600 HRS, implement the following forebay operation at Bonneville Dam: Hard constraint: At or below 74.0 feet. This operation takes priority over the forebay operation referenced in CBT message: BON R 101223 0805 (Revision #2) Bonneville minimum forebay for fish hatchery. The goal of this operation on 23 October is to remove bulkheads for the water up of the BON Ice and Trash Sluiceway. This operation was coordinated with FPOM via MOC 23BON002 ITS End Gate Installation, dated 12 January. Please see teletype BON R 101923 1401 for more details.

- A teletype was distributed on 25 October 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 Monday 13 November, at 2359 HRS, then operate Project outflow to provide a tailwater elevation in the range of 11.3 – 13.0 FT, effective, Tuesday 14 November, at 0001 HRS.
 - 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.

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