CENWP-ODB 28 December 2023

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 51 of 2023, which covers the period from 17 to 23 December 2023.

1. ITEMS OUT OF CRITERIA (OOC):

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

Date	Location	FPP Violation	Cause	Response
12/18	BON	Unit Priority – U3 F.O.	U3 F.O., Oil Leak Investigation	W.O.; Next Available Unit Ran in Place
12/18	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:				
12/18, 20, 21	CI Fishway	FG 6-12 Closed, Should be Open	Mechanically Bound	W.O.
12/18, 20, 21	CI Fishway	FG 6-18 Open, Should be Closed	Mechanically Bound	W.O.
12/20	CI Fishway	UMT Staff Gauge Low; <0.9;	Unknown	N/A
Washington Shore:				
12/18, 21	WA Shore Fishway	NDE Ent/TW Diff <1.0’	Single F.U. Ops	Ops Notified, Adjustments Made
12/18	WA Shore Fishway	NUE Ent/TW Diff <1.0’	Single F.U. Ops	Ops Notified, Adjustments Made

- 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:

a. Daily average river flows ranged from 116.0 to 125.1 kcfs. Daily average powerhouse forebay elevation ranged from 73.0' to 74.5' msl. Daily average project tailwater ranged from 11.5' to 11.7' msl. Secchi disk measurements ranged from 5.0 to 7.0+'. Daily average water temperature remained at 45°F.

b. Daily average spill remained at 0.5 kcfs.
- Spillbay 1 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	---	F.O., Oil Leak Investigation/5-YR Overhaul	---
3	1105 on 12 Jun	---	F.O., Oil Leak Investigation	---
12	0738 on 25 Sept	0825 on 20 Dec	P.O., FGE Gatewell Improvements/4-YR Overhaul	86 days, 0 hours, 47 mins
10	0002 on 11 Dec	1108 on 18 Dec	P.O., Annual Overhaul	7 days, 11 hours, 6 mins
9	1041 on 18 Dec	1114 on 18 Dec	P.O., In Support of Racking U10 Breakers	33 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 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	---

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

Date	F1	F2
12/17	1.2'	---
12/18	0.1'	---
12/19	1.3'	---
12/20	0.5'	---
12/21	0.2'	---
12/22	0.3'	---
12/23	0.2'	---

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures: Nothing to report.

b. STS/VBS Inspections: STS's remain OOS for the winter maintenance season. Results of the December STS inspections after removal can be found below.

- **Table 5.** December STS Inspection Results

UNIT	Previous STS HRS	Present readings	STS-A	STS-B	STS-C	HRS RUN	REMARKS
11	74074	74908				834	
12	57256	57256				0	OOS
13	11039	11866				827	
14	26950	27812				862	
15	33299	34142				843	
16	45211	46068				857	
17	15815	16638				823	
18	21108	21934				826	

c. Dewatering and Fish Salvages:

- Fish biologists assisted in fish salvage operations during the removal of the U12 taillogs on the morning of 18 December. 8 sculpin were recovered in good condition and released downstream. U12 was OOS for FGE work and a 4-YR overhaul.
- Fish biologist conducted fish salvage operations in the B-Branch Fishway diffuser pits in the afternoon of 18 December. In FG 3-18 diffuser pit, 22 adult lamprey, 1 juvenile lamprey, 6 juvenile salmonids, 1 stickleback, 2 catfish, and 2 smallmouth bass were recovered in good condition and released downstream. In FG 3-19 diffuser pit, 3 adult lamprey, 2 juvenile salmonids, 8 sculpin, 2 catfish, 1 peamouth, and 1 perch were recovered in good condition and released downstream. A significant amount of sediment was discovered in the diffuser pits, which is planned to be removed this winter maintenance season.
- On 19 December, fish biologists continued fish salvage operations in the B-Branch Fishway diffuser pits. In FG 3-20, 7 adult lamprey, 5 juvenile salmonids, 2 smallmouth bass, 10 sculpin, and 1 peamouth were recovered in good condition and released downstream. In FG 3-21, 6 adult lamprey, 2 juvenile salmonids, and 5 sculpin were recovered in good condition and released downstream. Many heavily decomposed lamprey were discovered stuck in between grating spacing and in the water below the grating of FG 3-21 diffuser pit. In FG 3-22 diffuser pit, 1 bass and 1 catfish were recovered in good condition and released upstream. In FG 3-23 diffuser pit, 11 adult lamprey, 1 bass, 1 sculpin, and 1 catfish were recovered in good condition and released downstream.
- In the afternoon of 21 December, fish biologists completed fish salvage operations in the A-Branch diffuser pits for FG 3-6 and FG 3-5. 10 adult steelhead were recovered at FG 3-6 and 3 adult steelhead were recovered at FG 3-5. All fish were in good conditioning and released upstream.

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 18, 20, and 21 December.

b. Adult Fishways:

(1) The AFF remains out of service for the winter maintenance season.

(2) Sensor calibration checks occurred on 20 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 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: 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 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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