

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for **Week 14** of 2023, which covers the period from **02 to 08 April 2023**.

1. OPERATION SUMMARY:

a. Daily average river flows ranged from 101.8 to 117.5 kcfs. Daily average powerhouse forebay elevation ranged from 73.3’ to 74.8’ msl. Daily average project tailwater ranged from 10.6 to 11.1’ msl. Secchi disk measurements ranged from 5.0 to 6.0’. Daily average water temperature ranged from 43 to 45°F.

b. Daily average spill ranged from 1.0 to 1.6 kcfs.

- Spillbays 1 and 18 were closed from 0730 to 0910 on 04 April to accommodate for avian wire installation.
- Spillbay 1 was closed on 05 April until 1509 to accommodate for CI Fishway Entrance Bay diving operations.
- Spillbays 1 and 18 were closed from 0820 to 1002 on 07 April for avian wire installation.

c. Unit Operation: **PH2** remains the priority powerhouse. Main unit drawdowns are measured every Monday and more frequently as needed

- **Table 1. Main Unit Outages**

Unit	OOS	RTS	Reason	Duration
11	0740 on 30 Nov 2022	1434 on 06 April	P.O., FGE Gatewell Improvement / Annual Overhaul / Extended for Bull Ring Wear	127 days, 6 hours, 54 mins
16	0751 on 15 Mar	---	P.O., FGE Gatewell Improvement / Annual Overhaul	---
4	1631 on 29 Mar	---	F.O., Oil Leak Investigation	---
3	1600 on 30 Mar	---	F.O., Oil Leak Investigation	---

d. Fish Units: Second Powerhouse Fish Units provide attraction flow for the Washington Shore (WS) fish ladder.

- **Table 2. Fish Unit Outages.** Nothing to report.

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

Date	F1	F2
04/02	0.2’	0.2’
04/03	0.2’	0.3’
04/04	0.1’	0.2’
04/05	0.2’	0.4’
04/06	0.1’	0.3’
04/07	0.2’	0.4’
04/08	0.2’	0.5’

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures:

- FV 5-3/5-4 were closed with screen pit bulkheads placed on sill from 0716 to 1342 on 05 April to accommodate for a dive within the CI Fishway Entrance Bay. There was no attraction flow from Bay 1 and no entrance/tailwater differential at the CI Fishway Entrance during this time.
- FV 1-1 was placed into manual for cleaning from 1454 to 1523 on 06 April.

b. STS/VBS Inspections: April STS inspection results: no issues to report.

UNIT	Previous STS HRS	Present readings	STS-A	STS-B	STS-C	HRS RUN	REMARKS
11	69391	69391				0	OOS
12	54129	55056				927	
13	7950	8806				856	
14	23770	24681				911	
15	31273	32157				884	
16	43029	43288				259	OOS
17	12443	13389				946	
18	15891	16052				161	

c. Dewatering and Fish Salvages: Fish Biologists assisted in salvage operations on U11 Taillogs on the morning of 06 April. 75 sculpin, 3 smallmouth bass, and 2 pikeminnow were recovered in good condition and released downstream. U11 was OOS for FGE work and an annual overhaul.

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.
- c. Pacific States Marine Fisheries Commission - Smolt Monitoring: Smolt monitoring operations began at 0700 on 02 March. Debris at the primary dewatering structure (PDS) and fish/debris separator ranged from light to moderate consisting mostly of sticks. Fallbacks observed this week: 4 steelhead. A total of 13 fin clips were obtained from Pacific Lamprey macrophthalmia for Columbia River Inter-Tribal Fish Commission’s genetic studies this week.

4. FISHWAYS:

- a. Project biologists inspected 02 to 08 April.
- b. Fish Passage Plan observations:

• **Table 4.** *FPP Items Out of Criteria.*

Date	Location	FPP Violation	Cause	Response
PH1				
04/02 – 08	PH1 ITS	S. End Gate Inoperable and Chain Gates 1b Closed	S. End Gate Inoperable, 1b Closed for Safety Reasons	W.O.
04/02 – 08	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
Bradford Island				
04/02, 04, 05, 07	A-Branch	A-Branch Staff Gauge High >1.1'	Unknown	N/A
Cascades Island				
04/02 – 08	Cascades Island	FG 6-18 Open, Should Be Closed	Unknown	WOR Created
Washington Shore: Nothing to report.				
04/03-04	WA Shore Fishway	SDE Ent/TW Diff <1'	Unknown	N/A

- 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 open 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.

c. Adult Fishways:

- (1) The AFF remains in service.
- (2) Sensor calibration checks occurred on 05 April.
- (3) SLEDs are installed at all locations.
- (4) Bradford Island, Cascades Island, and Washington Shore Fishways remain in service.
 - FV 5-3/5-4 were closed with screen pit bulkheads placed on sill from 0716 to 1342 on 05 April to accommodate for a dive within the CI Fishway Entrance Bay. There was no attraction flow from Bay 1 and no entrance/tailwater differential at the CI Fishway Entrance during this time.

d. Juvenile Fishways:

- (1) The ITS remains in service.
 - Auto-chain gates 3B, 6C, & 10B remain operational.
 - Mechanical-chain gate 1A was opened on 10 January 2023 to increase downstream surface passage and reduce trash raking workloads on the FV 1-1 trash racks. For safety measures, an additional (7th) trash rack was installed in the 1A gate slot, extending the height of stacked trash

racks to approx. +80' el. Without the 7th trash rack, the existing 6 trash racks extend from the river floor (approx. -2' el) to +68' el. This additional trash rack provides a safety barrier to block accidental sluiceway entry of a person, vessel, or other undesirable object floating uncontrollably downstream.

- (2) The hydro-cannon remains in service.
- (3) The B2CC remains in service.
 - The B2CC was closed from 0745 to 1200 on 04 April for avian wire install.
 - The B2CC was closed from 0700 to 1620 on 07 April for avian wire install.
- (4) The DSM remains in service.
- (5) STSs remain in service.

e. Lamprey Fishways:

- (1) BI, CI, and WA Shore LPS's were placed into service for the season on 10 April.
- (2) The Bradford Island Wetted Wall (BIWW) remains out of service.
- (3) The PH2 Lamprey Flume Structure (LFS) remains out of service.
- (4) The 2022 lamprey trapping and translocation activities have concluded for the year.
- (5) Avian Monitoring: Avian counts are recorded 01 April – 31 October.

Table 5. Avian Counts 02 – 08 April.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
04/02					
04/03	3	0	0	0	0
04/04	2	1	0	0	0
04/05	4	2	0	0	0
04/06	6	2	0	0	0
04/07	3	0	0	0	0
04/08	6	2	0	0	0

5. WATER QUALITY MONITORING:

- a. Fishway Temperatures: Fishway temperature monitoring has concluded for the 2022-2023 cool weather season.
- b. Zebra Mussel Monitoring: No signs of colonization were observed this reporting week.

7. CONSTRUCTION:

- FGE modification work in U16 gatewell slots 16A and 16B is underway.

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

9. TELETYPE CURRENTLY IN EFFECT:

- A teletype was distributed on 04 April for a dive operation occurring in the Cascades Island Fishway to repair a blown diffuser hatch. The teletype states that on 05 April from 0730 to 1200 HRS, Bonneville

Spillbay 1 will be closed, deenergized, and unavailable for spill. Fish Valves 5-3 and 5-4 will be closed and deenergized during this time as well. Please see teletype BON R 040423 1242 for more information.

- A teletype was distributed on 05 April describing a Bonneville Spillway outage and closure of the B2CC for avian wire replacement. On 07 and 08 April, the entire Bonneville Spillway will be tagged out and not available for spill between 0700 and 1700 HRS, daily. The B2CC will also be closed during this time. Please see teletype BON R 040523 1501 for more details.
- A teletype was distributed on 05 April describing Spring Spill for juvenile fish passage at Bonneville. Effective Monday, 10 April at 0001 HRS, through Thursday, 15 June at 2359 HRS, operate Bonneville Dam in accordance with the 2023 Fish Operations Plan (FOP) to provide spring spill for juvenile fish passage as described below:
 - Pursuant to FOP Table 3, the 2023 spring spill operation at Bonneville Dam is as follows: 125% gas cap, 24 HRS/day. During all hours, spill at the rate defined in the Level 2 of the most recent spill priority list teletype. This spill rate is estimated to meet but not exceed 125% total dissolved gas (TDG) in the Bonneville Dam Tailrace (unless otherwise adjusted due to Project constraints or current conditions). The spill cap for Bonneville Dam will not exceed a maximum of 150 kcfs to avoid causing erosion in the spillway stilling basin.Distribute spill according to spill patterns in the 2023 Fish Passage Plan (FPP) Table BON-16. Follow the pattern in the table for the spill rate that is closest to the target. Actual spill may range up to +/- 3 kcfs from the target due to Project operational limitations described in the FOP Sections 3 and 8.8.3. Operate turbine units within the operating ranges defined in FPP Section 4.2.1.1 (PH1) and 4.2.1.2 (PH2), unless otherwise instructed via teletype. During periods of high spill, there may be a need to temporarily reduce spill or modify patterns to maintain safe navigation in the tailrace (per FOP Section 4.6). If river flow is too low to maintain FOP spill and minimum generation requirements in FOP Table 1, operate at minimum generation and spill the remainder of outflow. This operation supports power system reliability during low flows. Please see teletype BON R 040523 1710 for more thorough details.
- A teletype was distributed on 10 April describing tailwater operation for chum incubation (version 4). Effective, Monday 10 April, end reference CBT MSG BON R 030123 1119 Tailwater Operation for Chum Incubation (version 3), and Bonneville Dam may resume normal tailwater operations. Please see teletype BON R 041023 0740 for more details.

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