

**MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)**

**SUBJECT:** Bonneville Lock & Dam, Fishway and Fish Activities for **Week 16** of 2023, which covers the period from **16 to 22 April 2023**.

**1. OPERATION SUMMARY:**

- a. Daily average river flows ranged from 146.0 to 157.2 kcfs. Daily average powerhouse forebay elevation ranged from 75.2’ to 75.6’ msl. Daily average project tailwater ranged from 13.5 to 14.4’ msl. Secchi disk measurements ranged from 3.0 to 6.0’. Daily average water temperature remained at 47°F.
- b. Daily average spill ranged from 101.7 to 113.1 kcfs.
- 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
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.

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.

• **Table 2. Fish Unit Outages.**

Unit	OOS/RS	RTS	Reason	Duration
F1	0419 on 13 Apr	1506 on 17 April	F.O., DC Ground	4 days, 10 hours, 47 mins

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

Date	F1	F2
04/16	---	0.5’
04/17	0.0’	0.4’
04/18	0.1’	0.2’
04/19	0.1’	0.5’
04/20	0.1’	0.5’
04/21	0.1’	0.5’
04/22	0.1’	0.7’

**2. MAINTENANCE ACTIVITIES:**

- a. Auxiliary Water System Closures:
  - FV 1-1 was placed into manual for cleaning from 1004 to 1042 on 18 April.
  - FV 6-9 was placed into manual for cleaning from 0808 to 0813 on 20 April.
- 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. 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 consisting mostly of sticks. Fallbacks observed this week: one steelhead and one salmon.  
 Gas Bubble Trauma (GBT) examinations began on 10 April and are typically performed two days per week through the end of spill. GBT monitoring at Bonneville Dam was suspended this week due to large releases of listed subyearling fall Chinook tules from Spring Creek NFH into Bonneville Pool. GBT sampling will resume when the vast majority of these fish have passed the Project.  
 A total of six fin clips were obtained from Pacific Lamprey macrophthalmia for Columbia River Inter-Tribal Fish Commission’s genetic studies this week.  
 Separation by Code was active for Round Butte Hatchery this week.

### 4. FISHWAYS:

- a. Project biologists inspected 16 to 22 April.
- b. Fish Passage Plan observations:

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

Date	Location	FPP Violation	Cause	Response
04/16-17	BON	F1 Forced OOS	DC Ground	W.O.
<b>PH1</b>				
04/16 – 22	PH1 ITS	S. End Gate Inoperable and Chain Gates 1b Closed	S. End Gate Inoperable, 1b Closed for Safety Reasons	W.O.
04/16 – 22	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
<b>Bradford Island</b>				
04/16 – 22	A-Branch	A-Branch Staff Gauge High >1.1’	Unknown	N/A
04/18 – 19	A-Branch	FG 3-4 Closed, Should Be Open	Tagged Out	W.O.
<b>Cascades Island</b>				
04/18	Cascades Island	FG 6-11 Closed, Should be Open	Mechanically Bound in Closed Position	W.O.
<b>Washington Shore</b>				
04/17, 18	WA Shore Fishway	SUE Ent/TW Diff <1’	Single Fish Unit Ops	Adjust for Single Fish Unit Ops
04/17	WA Shore Fishway Collection Channel	SCCH Velocity <1.5 fps	Single Fish Unit Ops	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 19 April.
  - (3) SLEDs are installed at all locations.
  - (4) Bradford Island, Cascades Island, and Washington Shore Fishways remain in service.
- 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 (7<sup>th</sup>) trash rack was installed in the 1A gate slot, extending the height of stacked trash racks to approx. +80' el. Without the 7<sup>th</sup> 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.
  - (4) The DSM remains in service.
  - (5) STSs remain in service.
- e. Lamprey Fishways:
- (1) BI, CI, and WA Shore LPS's remain in 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 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 16 – 22 April.**

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
04/16	5	1	0	0	0
04/17	12	0	0	0	0
04/18	11	0	0	0	0
04/19	17	0	0	0	0
04/20	13	0	0	0	0
04/21	19	0	0	0	0
04/22	15	1	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 has been completed.

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

**9. TELETYPES CURRENTLY IN EFFECT:**

- 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.

MICHAEL ADAMS, P.E.  
 Operations Project Manager  
 Bonneville Project