

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 37 of 2023, which covers the period from 10 to 16 September 2023.

1. ITEMS OUT OF CRITERIA (OOC) (Previously found under Section 4: Fishways):

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

Date	Location	FPP Violation	Cause	Response
BON:				
09/10	BON	Unit Priority: U5+U9 Ran Out of Order	U3 + U4 F.O.	WOR
09/13	BON	Unit Priority: U6 Ran Out of Order	U3 F.O.	WOR
09/11,12,14	BON	Unit Priority: U9 Ran Out of Order	U3 F.O.	WOR
09/15,16	BON	Unit Priority: U6+U9 Ran Out of Order	U3 F.O.	WOR
PH1:				
09/10 – 16	PH1 ITS	S. End Gate Inoperable and Chain Gates 1b Closed	S. End Gate Inoperable, 1b Closed for Safety Reasons	W.O.
09/10 – 16	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
Bradford Island:				
09/13,15	A-Branch	A-Branch Staff Gauge High, >1.1'	Unknown	N/A
Cascades Island:				
09/10 – 16	CI Fishway	FG 6-18 Open, Should be Closed	Mechanically Bound	W.O.
09/10 – 16	CI Fishway	FG 6-12 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 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.

2. OPERATION SUMMARY:

- a. Daily average river flows ranged from 81.2 to 95.7 kcfs. Daily average powerhouse forebay elevation ranged from 74.7’ to 75.8’ msl. Daily average project tailwater ranged from 7.5’ to 9.4’ msl. Secchi disk measurements ranged from 6.0 to 7.0+’. Daily average water temperature ranged from 68 to 69°F.
- b. Daily average spill ranged from 0.9 to 1.6 kcfs.
 - An ROV survey in the Main Dam Forebay occurred from 0743 to 1300 on 14 September. Spillbays 1 and 18 were carded at 0.5 feet to maintain attraction flows for the B-Branch Fishway Entrance and Cascades Island Fishway Entrance.
- c. **Unit Operation: Split Flow** operations between PH1 and PH2 were initiated on 03 September when adult and jack salmonid passage numbers exceeded 25,000 fish/day. Split flow operations ended on 15 September. 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	---
15	0729 on 10 Jul	---	P.O., 4-Year Overhaul	---
13	0804 on 07 Aug	---	P.O., FGE Gatewell Improvement	---
6	0001 on 14 Aug	0934 on 12 Sept	P.O., Annual Overhaul	29 days, 9 hours, 33 mins
14	0007 on 05 Sept	---	P.O., T11 Transformer Maintenance	---
12	0014 on 05 Sept	---	P.O., T11 Transformer Maintenance	---
11	0023 on 05 Sept	---	P.O., T11 Transformer Maintenance/Thrust Cooler Replacement	---

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

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

Date	F1	F2
09/10	0.7’	0.3’
09/11	0.3’	0.7’
09/12	0.7’	0.3’
09/13	0.5’	0.2’
09/14	0.6’	0.2’
09/15	0.7’	0.4’
09/16	1.0’	0.4’

3. MAINTENANCE ACTIVITIES:

- a. **Auxiliary Water System Closures:**
 - FV 3-9 was closed for cleaning from 1050 to 1101 on 14 September.

- b. STS/VBS Inspections: Nothing to report.
- c. Dewatering and Fish Salvages: Fisheries Biologists assisted in fish salvage operations from the U13 tail logs on the morning of 14 September. A total of 10 sculpin, 2 smallmouth bass, and 1 pumpkinseed were removed in good condition and returned to the river downstream. U13 was OOS for FGE gateway improvements.

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 consisting mostly of aquatic macrophytes, a few sticks, terrestrial vegetation, and dead adult American shad. Fallbacks observed this week: one 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 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) began on 19 April and typically occurs 5 days per week.
- f. WDFW – Bright and Tule Chinook Stock Observation: Observation research of fall Chinook at Bonneville Dam started 02 August.
- g. State Agency Pinniped Trapping: Sea lion trapping operations are underway.

4. FISHWAYS:

- a. Project Biologists inspected 10 to 16 September.
- b. Adult Fishways:
 - (1) The AFF remains in service.
 - (2) Sensor calibration checks occurred on 10 September.
 - (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 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 was carded out of service and unavailable for flow starting Monday 11 September for concrete spalling repairs. After inspection by Project Fisheries and Project Maintenance Crews, concrete repair work took place 11-15 September, focusing on the most damaged horizontal and vertical surfaces. Following a week of curing, the clearance will be released on Thursday 21 September. At this time the B2CC will become available for floating trash and may act as a surface passage route if spill occurs outside fish passage spill season.
- (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 concluded for the season on 06 September.
- (5) Avian Monitoring: Avian counts are recorded 01 April – 31 October.

Table 4. Avian Counts for 10 – 16 September.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
09/10	34	6	0	0	0
09/11	46	3	0	0	0
09/12	45	2	0	0	0
09/13	39	15	0	0	0
09/14	16	6	0	0	0
09/15	65	9	0	0	0
09/16	36	5	0	0	0

5. WATER QUALITY MONITORING:

a. Fishway Temperatures: Fishway temperature monitoring is currently underway.

Table 5. Daily Average Fishway Temperatures for 10 to 16 September at Bonneville Lock & Dam.

Date	A-Branch	B-Branch	BI_Exit	WA_Entrance	WA_Exit	CI_Entrance	AFF	SMF	BI LPS	CI_LPS	WA_LPS
10-Sep	68.74	68.54	68.53	68.46	68.61	---	68.55	68.47	68.62	68.72	68.77
11-Sep	68.67	68.73	68.70	68.66	68.77	---	68.70	68.67	68.78	68.85	68.93
12-Sep	68.66	68.61	68.70	68.56	68.69	---	68.60	68.60	69.62	68.83	68.85
13-Sep	68.78	68.63	68.72	68.54	68.66	---	68.56	68.56	69.06	68.78	68.84
14-Sep	68.70	68.75	68.87	68.66	68.79	---	68.75	68.69	70.34	68.93	68.99
15-Sep	68.83	68.70	68.79	68.59	68.72	---	68.66	68.64	70.31	68.88	68.94
16-Sep	68.63	68.81	68.89	68.74	68.87	---	69.86	68.75	69.86	69.00	69.07

*The Cascades Island Entrance probe is currently unserviceable.

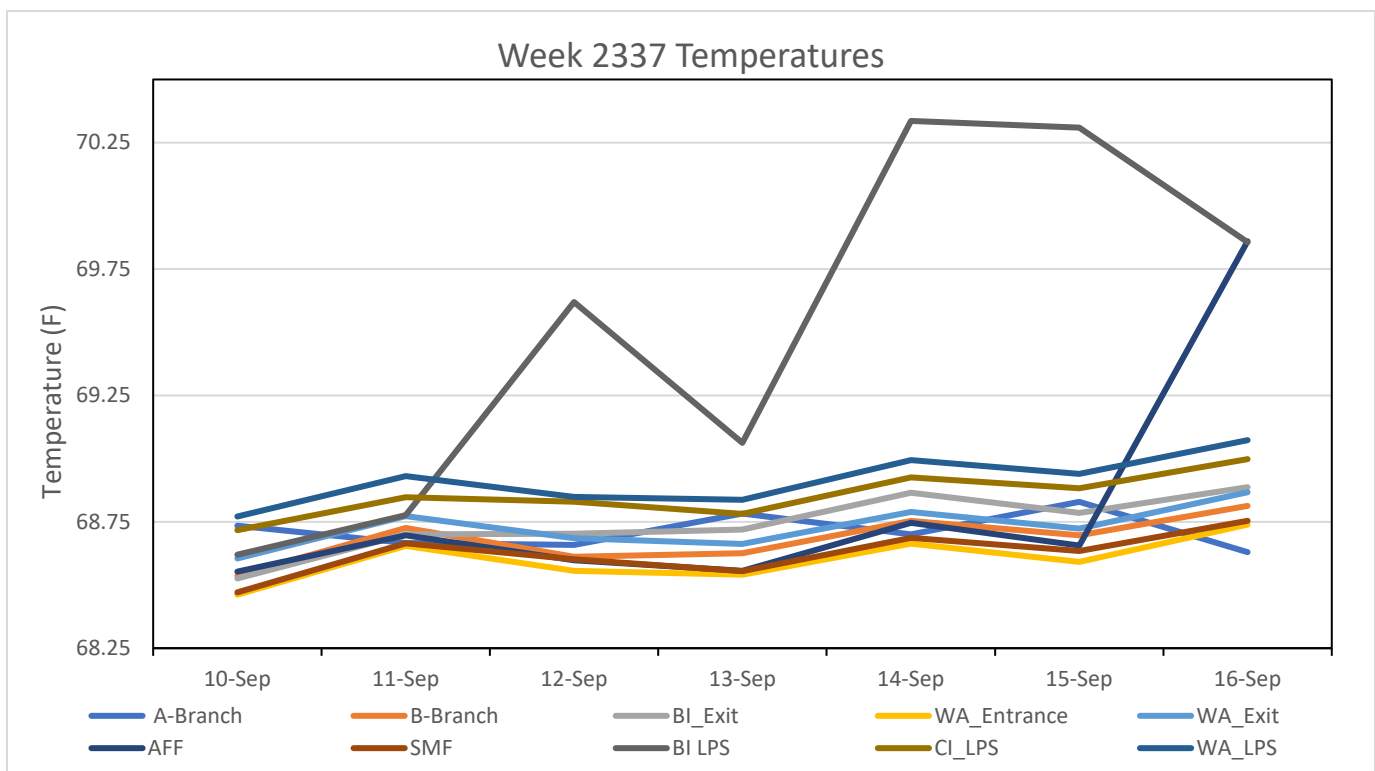


Figure 1. Average Fishway Temperatures for 10 to 16 September at Bonneville Lock & Dam.

b. Zebra Mussel Monitoring: No signs of colonization were observed this reporting week.

7. CONSTRUCTION:

- FGE modification work on the U13 gatewells is underway.
- The B2CC underwent concrete spalling repairs on horizontal and vertical surfaces this reporting week and remains OOS until 21 September for the curing process.

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 07 September describing a Bonneville Forebay operation for the fall treaty fishery. Bonneville Pool is to operate within a 1.5 ft band, hard constraint, for the period listed below:
From 0600 Monday, 11 September to 1800 Friday, 15 September 2023
From 0600 Monday, 18 September to 1800 Friday, 22 September 2023
The goal of this operation is to limit pool fluctuation to avoid debris in the fishing nets, reduce rapid water level drops that may entangle nets, minimize boat access problems, and avoid nets being torn from their anchors. Please see teletype BON R 090723 1445 for more 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 teletype was distributed on 13 September regarding a minimum forebay operation and spillbay outages for a hydrosurvey at Bonneville. On 14 September between 0730-1200 HRS, BON is to operate the Bonneville Forebay above a minimum of 75 feet, hard constraint. Also, between 0730-1200 HRS Spillbays 2-17 will be locked out/tagged out on sill while Spillbays 1 + 18 will be locked out/tagged out at 0.5 FT. This forebay operation supports a post-spill season hydrosurvey around Cascades Island and the Main Dam. Please see teletype BON R 091323 1130 for more details.
- A teletype was distributed on 15 September regarding a Bonneville minimum forebay and spillway outage operation for hydrosurveys and climbing inspections. Bonneville will operate its forebay above a minimum of 75 feet, hard constraint during the following dates and times:
21 September, from 0700 to 1700 HRS
27 September, from 0700 to 1600 HRS
28 September, from 0700 to 1600 HRS
On 21 September, between 0700 and 1700 HRS, Spillway Gates 2-17 will be on sill and carded. Spillbays 1 and 18 will be at 0.5 feet and carded. This forebay operation supports a post-spill season hydrosurvey around Cascades Island and the Main Dam. Spillway outages support climbing inspections of Spillway Gates 7-10. Please see teletype BON R 091523 1100 for more details.
- A teletype was distributed on 20 September regarding a Bonneville Forebay operation for the fall treaty fishery. Bonneville Pool is to be operated within a 1.5 ft band, hard constraint, for the periods listed below:
From 0600 Monday 25 September to 1800 Friday 29 September.
From 0600 Monday 02 October to 1800 Friday 06 October.
The goal of this operation is to limit pool fluctuation to avoid debris in fishing nets, reduce rapid water level drops that entangle nets, minimize boat access problems, and avoid nets being torn from their anchors. Please see teletype BON R 092023 1653 for more details.

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