

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 36 of 2023, which covers the period from 03 to 09 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:				
09/05	BON	Unit Priority: U5+U9 Ran Out of Order	U3 + U4 F.O.	WOR
09/06	BON	Unit Priority: U5,U8,U9 Ran Out of Order	U3 + U4 F.O.	WOR
09/07 – 09	BON	Unit Priority: U9 Ran Out of Order	U3 + U4 F.O.	WOR
PH1:				
09/03– 09	PH1 ITS	S. End Gate Inoperable and Chain Gates 1b Closed	S. End Gate Inoperable, 1b Closed for Safety Reasons	W.O.
09/03 – 09	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
Bradford Island:				
09/09	A-Branch	A-Branch Staff Gauge High, >1.1’	Unknown	N/A
Cascades Island:				
09/03 – 09	CI Fishway	FG 6-18 Open, Should be Closed	Mechanically Bound	W.O.
09/03 – 09	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.
 - Spillbays 1 + 18 were closed on sill and tagged out of service for a spillway stilling basin ROV survey from 0900 to 1415 on 06 September. Attraction flow resumed at 1415. Fish Valves were not affected by this outage and B-Branch/CI entrance differentials remained within criteria through the operation.
- 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. Main unit drawdowns are measured every Monday and more frequently as needed.
 - BPA requested 115kV MW support from BON on 27 August. Units 1 and 10 were run for several hours on this day for this request.

• **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 Leaks	---
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	---	P.O., Annual Overhaul	---
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
09/03	0.5’	0.2’
09/04	0.5’	0.2’
09/05	0.5’	0.1’
09/06	0.6’	0.1’
09/07	0.5’	0.1’
09/08	0.4’	0.0’
09/09	0.7’	0.3’

3. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures: Nothing to report.
- b. STS/VBS Inspections: The September STS inspection report can be found below. There were no issues to report.

• **Table 4: September STS Inspection Report**

UNIT	Previous STS HRS	Present readings	STS-A	STS-B	STS-C	HRS RUN	REMARKS
11	72356	72982				626	
12	56614	57169				555	
13	9961	9961				0	OOS
14	25727	25997				270	
15	33040	33040				0	OOS
16	44044	44218				174	
17	13861	14349				488	
18	19103	19734				631	

- c. Dewatering and Fish Salvages: Fisheries Biologists assisted in fish salvage operations from the U15 tail logs on the morning of 07 September. A total of 33 sculpin were removed in good condition and returned to the river downstream. U15 was OOS for a 4-year overhaul.

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. No fallbacks were observed this week. Higher temperature sampling protocols were initiated on 15 July (sample end-date of 16 July) when daily average river temperatures at Bonneville ascended to 70°F. Modified sampling during higher temperatures means Index/Condition sampling will take place every other day until the average descends to 69.5°F. Sample and bypass mode will occur on alternating 24-hour periods (0700-0700). Normal sampling operations (24-HR sampling everyday) resumed on 04 September (Sample end-date of 05 September) when average daily forebay temperatures descended to 69.5°F. 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. USGS TDG Monitoring: USGS placed TDG monitoring equipment back in service on Cascades Island above and below the Main Dam on 04 April. Water-quality data collection will continue through the end of spill season.
- f. CRITFC – Adult Salmonid Sampling: Adult salmonid sampling in the Adult Fish Facility (AFF) began on

19 April and typically occurs 5 days per week.

- g. CRITFC – Lamprey Translocation: Adult lamprey collection and translocation began on 05 June and concluded on 06 September.
- h. WDFW – Bright and Tule Chinook Stock Observation: Observation research of fall Chinook at Bonneville Dam started 02 August.
- i. State Agency Pinniped Trapping: State agencies are back on site to prepare for the upcoming pinniped trapping season, slated to begin in September.

4. FISHWAYS:

- a. Project Biologists inspected 03 to 09 September.
- b. Adult Fishways:
 - (1) The AFF remains in service.
 - (2) Sensor calibration checks occurred on 04 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 closed for the season on 01 September when spill season ended. During the period of 01 September to 09 April 2024, the B2CC is available to reopen for passing trash or to provide surface passage for fish if spill occurs outside fish passage spill season in accordance with **FPP BON Section 2.2.2.**
 - (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 5. Avian Counts for 03 – 09 September.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
09/03	6	4	0	0	0
09/04	10	8	0	0	0
09/05	41	5	0	0	0
09/06	45	7	0	0	0
09/07	45	16	0	0	0
09/08	62	5	0	0	0
09/09	39	8	0	0	0

5. WATER QUALITY MONITORING:

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

Table 6. Daily Average Fishway Temperatures for 03 to 09 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
3-Sep	70.07	70.09	70.03	69.98	70.17	---	70.00	70.06	70.09	70.12	70.28
4-Sep	69.52	69.58	69.49	69.43	69.58	---	69.18	69.52	69.52	69.57	69.66
5-Sep	68.91	68.93	68.89	68.79	68.93	---	68.86	68.84	68.96	69.00	69.05
6-Sep	68.63	68.62	68.61	68.52	68.65	---	68.60	68.54	68.69	68.77	68.80
7-Sep	68.54	68.53	68.50	68.44	68.57	---	68.52	68.47	68.57	68.60	68.70
8-Sep	68.60	68.57	68.57	68.50	68.62	---	68.57	68.52	68.64	68.68	68.79
9-Sep	68.63	68.59	68.61	68.45	68.59	---	68.55	68.53	68.69	68.76	68.78

*The Cascades Island Entrance probe is currently unserviceable.

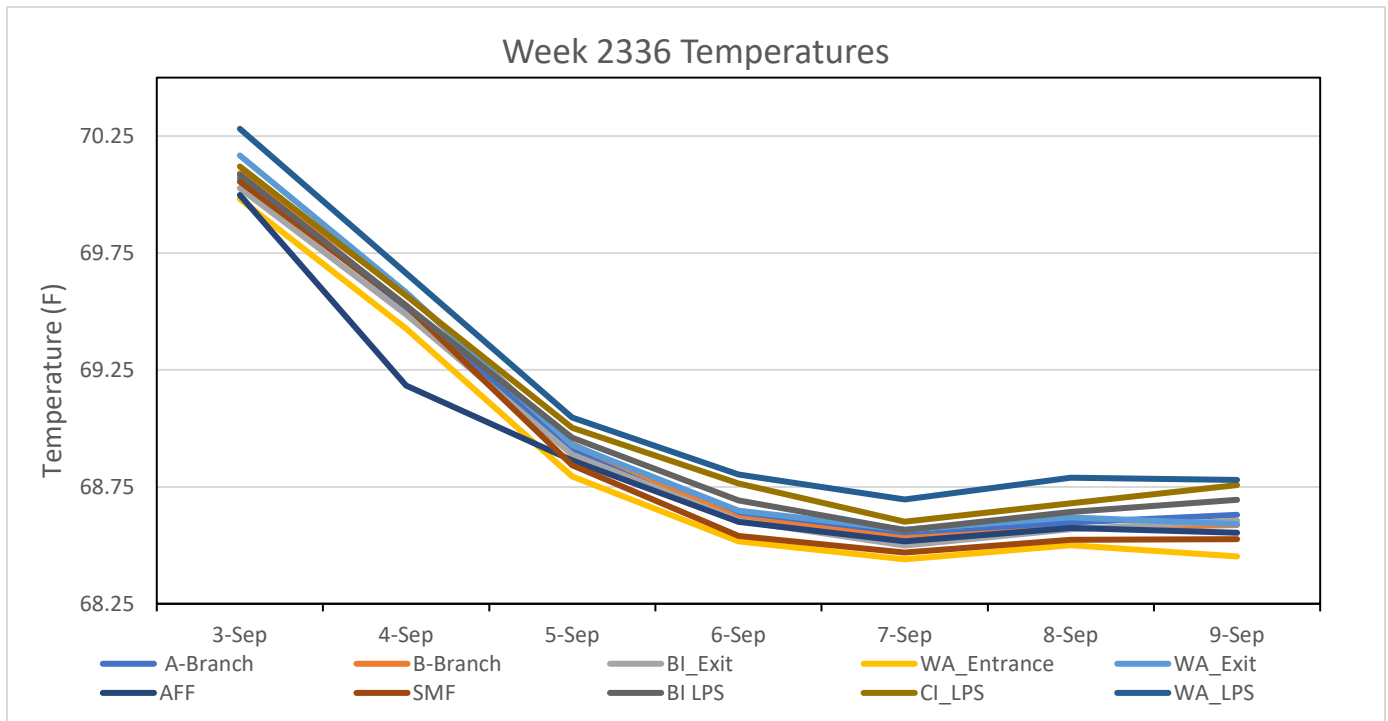


Figure 1. Average Fishway Temperatures for 03 to 09 September at Bonneville Lock & Dam.

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

7. CONSTRUCTION:

- FGE modification work on the U13 Gatewells is underway.

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

9. TELETYPES CURRENTLY IN EFFECT:

- A teletype was distributed on 02 August describing a Bonneville Spillway outage for hydrosurvey operations. On Wednesday, 06 September, from 0800 to 1500 HRS, the entire Bonneville Spillway will be tagged out and not available for spill. The purpose of this operation is for a hydrographic survey in the Bonneville Spillway stilling basin. Surveyors will be in the spillway basin during the date and times listed above. Please see teletype BON R 080223 1200 for further details.
- 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 31 August 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 04 September to 1800 Friday 08 September 2023.
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 083123 0857 for more 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.

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