

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 35 of 2023, which covers the period from 27 August to 02 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
<b>PH1:</b>				
08/27 – 09/02	PH1 ITS	S. End Gate Inoperable and Chain Gates 1b Closed	S. End Gate Inoperable, 1b Closed for Safety Reasons	W.O.
09/01	PH1 ITS	ITS Auto Chain Gate 10B Almost Closed	Forebay Sensor Malfunction	Ops Notified, Sensor Fixed
08/27 – 09/02	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
<b>Bradford Island:</b> Nothing to report				
<b>Cascades Island:</b>				
08/27 – 09/02	CI Fishway	FG 6-18 Open, Should be Closed	Mechanically Bound	W.O.
08/30-31, 09/02	CI Fishway	FG 6-12 Open, Should be Closed	Mechanically Bound	W.O.
<b>Washington Shore:</b>				
08/28 – 29	WA Shore Fishway	SUE Ent/TW Diff <1.0'	Unknown	Ops Notified
08/28	WA Shore Fishway	SDE Ent/TW Diff <1.0'	Unknown	Ops Notified

- 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:

- Daily average river flows ranged from 99.3 to 137.0 kcfs. Daily average powerhouse forebay elevation ranged from 75.1' to 75.7' msl. Daily average project tailwater ranged from 9.7' to 12.3' msl. Secchi disk measurements ranged from 6.0 to 7.0+'. Daily average water temperature ranged from 70 to 71°F.

- b. Daily average spill ranged from 1.5 to 50.9 kcf.
- Spill season ended at 0001 on 01 September. Spillbays 1 and 18 will remain open at 0.5 feet during day hours for attraction flow in accordance with **FPP BON Section 2.2.4.4** and **Table BON-5**.
  - (a) Spillbay 14 would not lower on sill for several hours on the morning of 01 September. Operations, mechanics, and electricians worked on troubleshooting the issue. Spillbay 14 was able to lower on sill at 0835 on 01 September.
  - The B2CC was closed for the season at 0115 on 01 September. From 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**.
- c. **Unit Operation: PH2** remains the priority powerhouse. 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	---
8	0030 on 28 Aug	1305 on 31 Aug	P.O., Annual Overhaul	3 days, 12 hours, 35 mins

- 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 3.** Fish Unit Outages

Unit	OOS/RS	RTS	Reason	Duration
F1	2127 on 26 Aug	0600 on 27 Aug	R.S., Nighttime Lamprey Ops	8 hours, 33 mins
F2	2128 on 27 Aug	0603 on 28 Aug	R.S., Nighttime Lamprey Ops	8 hours, 35 mins
F1	2127 on 28 Aug	0600 on 29 Aug	R.S., Nighttime Lamprey Ops	8 hours, 33 mins
F2	2148 on 29 Aug	0601 on 30 Aug	R.S., Nighttime Lamprey Ops	8 hours, 13 mins
F1	2129 on 30 Aug	0601 on 31 Aug	R.S., Nighttime Lamprey Ops	8 hours, 32 mins
F2	2130 on 31 Aug	0012 on 01 Sept	R.S., Nighttime Lamprey Ops	2 hours, 42 mins

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

Date	F1	F2
08/27	0.2'	0.8'
08/28	0.4'	0.3'
08/29	0.3'	1.0'
08/30	0.4'	0.3'
08/31	0.3'	0.4'
09/01	0.4'	0.1'
09/02	0.3'	0.5'

### 3. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures: Nothing to report.
- 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. 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, 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).  
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 were terminated for the season this week due to current high river temperatures, low TDG levels and inability to meet the 50 fish minimum sample size criteria. The final GBT collection effort occurred on 01 August. Please follow this link <https://www.fpc.org/currentdaily/gbtsumbybatchdate.pdf> to the FPC web page for further details.  
Non-salmonid GBT Monitoring has concluded in conjunction with the end of salmonid GBT monitoring. Please follow this link [https://www.fpc.org/currentdaily/Summer\\_NS\\_gbtsumbybatchdate\\_realtime.pdf](https://www.fpc.org/currentdaily/Summer_NS_gbtsumbybatchdate_realtime.pdf) to the FPC web page for specific 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.
- 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 27 August to 02 September.
- b. Adult Fishways:
  - (1) The AFF remains in service.
  - (2) Sensor calibration checks occurred on 28 August.
  - (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 (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 was closed for the season at 0115 on 01 September when spill season ended. From 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 AFF Lamprey Trap remains in service. The Cascades Island Lamprey Trap was taken out of service for the season on 22 August due to low catch numbers.

(5) Avian Monitoring: Avian counts are recorded 01 April – 31 October.

**Table 5.** Avian Counts for 27 August – 02 September.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
08/27	116	3	0	0	0
08/28	11	2	0	0	0
08/29	32	1	0	0	0
08/30	33	0	0	0	0
08/31	23	0	0	0	0
09/01	64	49	0	0	0
09/02	10	4	0	0	0

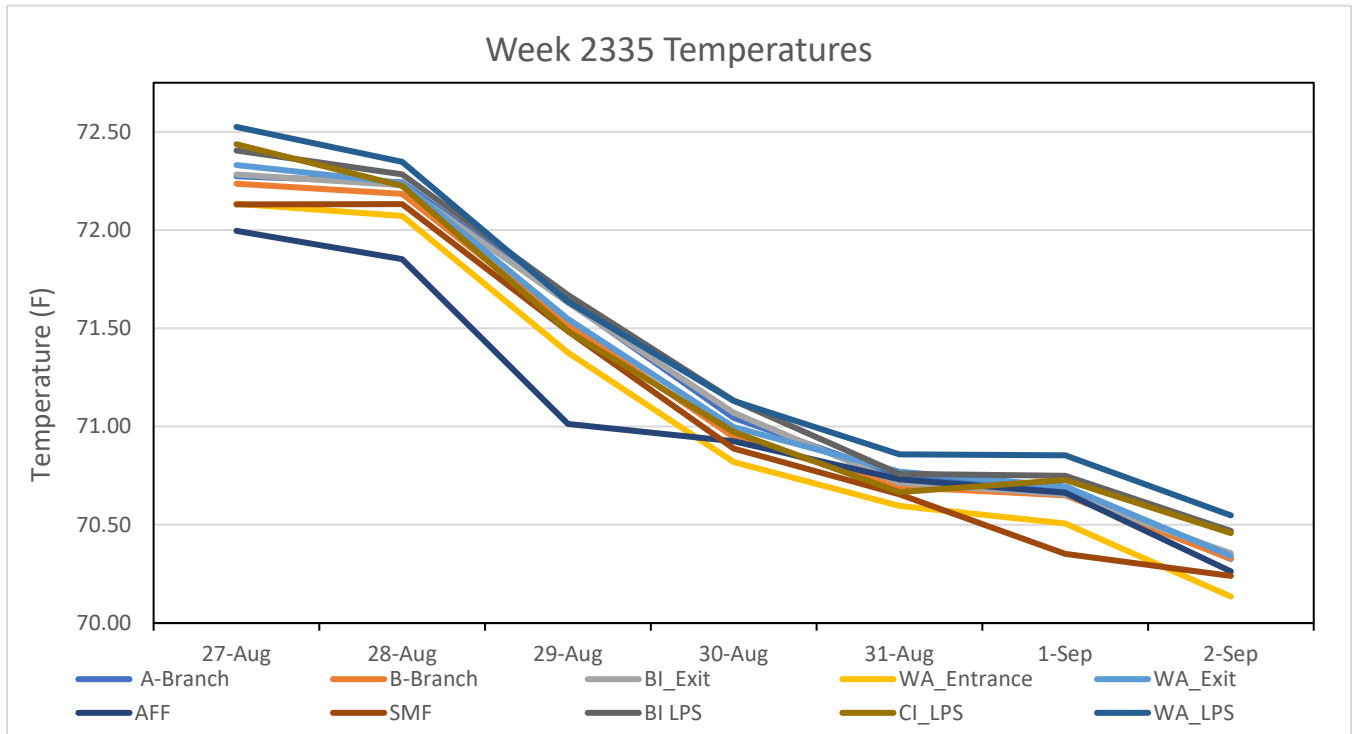
**5. WATER QUALITY MONITORING:**

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

**Table 6.** Daily Average Fishway Temperatures for 27 August to 02 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
27-Aug	72.27	72.24	72.28	72.13	72.33	---	72.00	72.13	72.41	72.44	72.53
28-Aug	72.24	72.18	72.23	72.07	72.24	---	71.85	72.13	72.28	72.23	72.35
29-Aug	71.64	71.52	71.63	71.38	71.55	---	71.01	71.49	71.67	71.49	71.64
30-Aug	71.04	70.95	71.07	70.82	71.00	---	70.93	70.89	71.13	70.97	71.13
31-Aug	70.75	70.69	70.71	70.60	70.77	---	70.73	70.66	70.76	70.67	70.86
1-Sep	70.68	70.65	70.66	70.51	70.70	---	70.66	70.35	70.75	70.73	70.85
2-Sep	70.33	70.33	70.36	70.14	70.34	---	70.26	70.24	70.47	70.46	70.55

\*The Cascades Island Entrance probe is currently unserviceable.



**Figure 1.** Average Fishway Temperatures for 27 August to 02 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 15 June updates Summer Spill Caps. Effective 0001 hours on June 16, operate Bonneville Dam in accordance with table listed in teletype BON R 061523 0839. Per the FOP (Level 1) spill to 140kcfs, levels beyond that cap spill at 150kcfs.
- A teletype was distributed on 12 June regarding FOP Summer Spill for fish passage. Effective 16 June through 31 August, operate Bonneville Dam in accordance with the 2023 Fish Operations Plan (FOP) to provide summer spill for fish passage, as described below.
  - Pursuant to FOP Table 4, the 2023 Summer Spill operation at Bonneville Dam is as follows:
    - 16 June, 0001 HRS – 14 August, 2359 HRS: Spill 95 kcfs, 24 HRS/DAY
    - 15 August, 0001 HRS – 31 August, 2359 HRS: Spill 50 kcfs, 24 HRS/DAY
  - Distribute spill according to spill patterns in the 2023 Fish Passage Plan (FPP) Table BON-16. Follow the spill pattern that is closest to the intended spill rate. Actual spill may vary up to +/- 3 kcfs from the target due to Project operational limitations described in the FOP sections 3 and 8.8.3.
  - Continue to operate the Powerhouse 2 Corner Collector (B2CC) throughout Summer Spill, then close the B2CC within one hour of the end of spill on 31 August. B2CC operating criteria are defined in FPP Section 2.3.2.5.v (Page BON-20).
  - Maintain spill at the FOP target as long as it does not exceed the spill cap in Level 1 of the most recent spill priority list teletype. Do not spill above the Level 1 spill cap except as required during forced spill, pursuant to the spill priority list teletype.
  - 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.
    - During periods of low flow, it may be necessary to operate outside of the minimum generation range defined in FOP Table 1 in order to maintain reserves for transmission reliability, as defined below.
  - If notified that BPA has declared a “Transmission System Reliability Need” or “Transmission System Emergency”, adjust operations as instructed by BPA Hydro Scheduling or Transmission Dispatch (per FOP Section 4.4).
    - If the adjustment results in a deviation from the FOP target spill level, or results in operating outside of the minimum generation requirements in the FOP Table 1, describe details of the event in the Project Operator Logbook and provide to RCC upon request for reporting requirements.

Please see teletype BON R 061223 1145 for details.

- 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 17 August describing a Bonneville Forebay operation for the fall treaty fishery. Bonneville Pool is to operate within a 1.5 foot band, hard constraint, for the periods listed below:  
From 0600 Monday, 21 August to 1800 on Thursday, 24 August 2023  
From 0600 Monday, 28 August to 1800 on Thursday, 31 August 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 081723 0905 for further details.

- A revision to this teletype was distributed on 31 August. The revision extends the second week of fishing to 1800 HRS on Friday 01 September. Please see teletype BON R 083123 0854 for this revision memo.
- 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.

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