

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 29 of 2024, which covers the period from 14 July 2024 to 20 July 2024.

**1. ITEMS OUT OF CRITERIA (OOC):**

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

<b>Date</b>	<b>Location</b>	<b>FPP Violation</b>	<b>Cause</b>	<b>Response</b>
07/17	BON	Unit Priority – U18 F.O.	STS Screen Repair	W.O., Next available Unit Ran in Place
07/16	BON	Unit Priority – U12 F.O.	U12 F.O., Stator Ground	W.O., Next available Unit Ran in Place
<b>PH1:</b>				
07/14 – 07/20	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should be Open	Mechanically Bound	W.O.
07/14 – 07/20	PH1CC	FG 2-21 Closed, Should Be Open	Mechanically Bound	W.O.
07/18	A-Branch	A Branch Staff Gauge > 1.4'	Unknown	N/A
07/14, 07/15, 07/18, 07/20	A-Branch	FG3-4 Open should be closed	Unknown	N/A
<b>Cascades Island:</b>				
<b>Washington Shore:</b>				
07/19 – 07/20	WA Shore Fishway	Weir 38 > 1.2'	Unknown	N/A
07/18	PH2CC	SUE <1.0' Differential	Unknown	Lowered submergence of PH2 Gates
07/20	PH2CC	SDE <1.0' Differential	Unknown	Lowered submergence of PH2 Gates

- PH1 Collection Channel diffuser FG 2-21 was found mechanically bound in the closed position by PH1 Mechanics on 02/24/24. No repairs can be made until the PH1CC can be dewatered.
- 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.
- 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.
- PH1 Unit Priority: Multiple oil sheens have been observed in the PH1 tailrace by Bonneville Staff on several occurrences over the past year. Please refer to MFRs 24BON001, 24BON003, 24BON004, 24BON005, 24BON007, and 24BON009 for details. Consequently, Units 2, 3, 4, 5, 6, 7, 8, 9, and 10 have been forced out of service and will remain OOS until a full dewater, inspection, and investigation of each

Unit has been completed.

**2. OPERATION SUMMARY:**

- a. Daily average river flows ranged from 139.6 to 180.3 kcfs. Daily average powerhouse forebay elevation ranged from 73.2’ to 74.3’ msl. Daily average Project tailwater ranged from 12.5’ to 14.9’ msl. Secchi disk measurements were 7’+ consistently. Daily average water temperature was 69° - 70°F.
- b. Daily average spill ranged from 94.1 to 94.7 kcfs. Summer Spill began on June 21<sup>st</sup>
- c. Unit Operation: **PH2** remains the priority powerhouse. 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 2023	---	F.O., Oil Leak Investigation/5-YR Overhaul	---
3	1105 on 12 Jun 2023	---	F.O., Oil Leak Investigation	---
6	1714 on 03 Jan	---	F.O., Oil Leak Investigation	---
10	1714 on 03 Jan	---	F.O., Oil Leak Investigation	---
12	0731 on 05 Jan	---	F.O., Stator Ground	---
9	1220 on 11 Jan	---	F.O., Oil Leak Investigation	---
7	1409 on 15 Feb	---	F.O., Oil Leak Investigation	---
2	1013 on 26 Feb	---	F.O., Oil Leak Investigation	---
8	1359 on 26 Feb	---	F.O., Oil Leak Investigation	---
5	1433 on 26 Feb	---	F.O., Oil Leak Investigation	---
18	1000 on 17 July	1552 on 17 July	F.O., STS Screen Repair	5 hours, 52 minutes
11	1305 on 18 July	1405 on 18 July	P.O., Trash Raking	1 hour

- 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 shutdown (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	2300 on 13 July	0532 on July 14	R.S., Nighttime Lamprey Ops	6 hours, 32 minutes
F2	2300 on 14 July	0528 on 15 July	R.S., Nighttime Lamprey Ops	6 hours, 28 minutes
F1	2300 on 15 July	0535 on 16 July	R.S., Nighttime Lamprey Ops	6 hours, 35 minutes
F2	2300 on 16 July	0528 on 17 July	R.S., Nighttime Lamprey Ops	6 hours, 28 minutes
F1	2300 on 17 July	0539 on 18 July	R.S., Nighttime Lamprey Ops	6 hours 39 minutes
F2	1828 on 18 July	1856 on 18 July	P.O., Float Trash	28 minutes
F1	2300 on 18 July	0529 on 19 July	R.S., Nighttime Lamprey Ops	6 hours, 29 minutes
F2	2258 on 19 July	0530 on 20 July	R.S., Nighttime Lamprey Ops	6 hours, 32 minutes
F1	2309 on 20 July	---	R.S., Nighttime Lamprey Ops	---

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

Date	F1	F2
07/14	0.2'	0.9'
07/15	0.4'	0.2'
07/16	0.2'	1.5'
07/17	3.6'	0.7'
07/18	0.1'	7.5'
07/18	0.6'	0.3'
07/19	0.2'	1.7'
07/20	0.5'	0.3'

## 2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures:
  - FV6-9 was placed into manual for cleaning from 0713 to 0750 on 15 July
- b. STS/VBS Inspections:

### STS MONTHLY HOURLY REPORT FOR July 2024

UNIT	Previous STS HRS	Present readings	STS-A	STS-B	STS-C	HRS RUN	REMARKS
11	77391	78410				<b>1019</b>	
12	57256	57256				0	oos
13	23252	23722				200	
14	29153	29457				304	
15	35405	35680				275	
16	47309	47453				144	
17	18149	18857				292	
18	24468	25490				1022	

- c. Dewatering and Fish Salvages:
  - Project Biologists fished the Cascades Island LPS after Pump 1 repeatedly tripped and would not reset. A total of 13 lamprey were recovered throughout the system and released into the forebay.

## 3. RESEARCH

- a. Four Peaks Environmental - Fish counting contract: Daytime visual counting started 01 April (0500 to 2100 PDT). 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 on 02 March at 0700. Debris at the primary dewatering structured (PDS) and fish/debris separator was light consisting mostly of sticks and aquatic macrophytes. The Outfall hydro-

cannons are operating.

Gas Bubble Trauma (GBT) examinations began on 13 April and are typically performed two days per week through the end of spill. Results of this week's GBT examinations: 200 subyearling Chinook were examined: one fish (0.5%) was observed with GBT symptoms. Please follow this link <https://www.fpc.org/currentdaily.gbtsunbybatchdate.pdf> to the FPC web page for further details.

Non-salmonid GBT Monitoring was initiated at Bonneville on 19 June with the start of summer spill operations. This effort is paired in conjunction with salmonid GBT monitoring with the goal of examining up to 50 non-salmonids (native and non-native species) per session using the same procedures and protocols employed in the salmonid GBT Monitoring Program. Non-salmonid GBT exams only occur when TDG levels are above 110% and water temperatures are below 68°F. No GBT exams were performed on non-salmonids this week as river temperatures exceeded the 68°F threshold. Please follow this link [https://www.fpc.org/currentdaily/Summer\\_NS\\_gbtsunbybatchdate\\_realtime.pdf](https://www.fpc.org/currentdaily/Summer_NS_gbtsunbybatchdate_realtime.pdf) to the FPC web page for specific details.

Fallbacks observed this week: one salmon.

A total of two fin clips were obtained from Pacific Lamprey macrophthalmia for Columbia River Inter-Tribal Fish Commission's genetic studies.

- d. CRITFC – Adult Salmonid Sampling: Adult salmonid sampling in the Adult Fish Facility (AFF) began on 13 April and typically occurs 5 days per week. On July 15<sup>th</sup> the AFF started >70°F sampling protocol.
- e. Fish Guidance Efficiency – B2FGE PNNL is conducting post construction analysis of the conditions of the gatewells at Powerhouse 2. Spring testing began 20 April and ends 06 June. Summer testing begins 08 June and will end 20 July.
  - B2FGE ended 20 July
- f. State Agency Pinniped Trapping: Sea lion trapping spring management season ended 15 March. Full time pinniped trapping is expected to resume in August or early September.
- g. USGS TDG Monitoring: USGS placed TDG monitoring equipment back in service on Cascades Island above and below the Main Dam. Water-quality data collection will continue through the end of spill season.
- h. USDA – Pinniped and Avian Hazing: Deck-based pinniped and avian hazing operations are underway.
- i. CRITFC – Lamprey Translocation: Adult lamprey collection and translocation began on 03 June.

#### 4. FISHWAYS:

- a. Project Biologists inspected from 14 July – 20 July
- b. Adult Fishways:
  - The AFF remains in service.
  - Sensor calibration checks occurred on 18 July
  - SLEDs are installed at all locations.
  - Bradford Island, Cascades Island, and Washington Shore Fishways remain in service.
- c. Juvenile Fishways:

- The ITS remains in service.
- The hydro-cannon remains in service.
- The B2CC remains in service, operating 24 HRS/day.
- The DSM remains in service.
- STSs remain in service.

d. Lamprey Fishways:

- BI, and WA Shore LPS's remain in service. Cascades Island LPS was taken out of service at 1700 on 16 July. Pump 1 overload heater element repeatedly tripped despite efforts to repair and replace.
- The Bradford Island Wetted Wall (BIWW) remains in service.
- The PH2 Lamprey Flume Structure (LFS) remains out of service.
- B-Branch and AFF Lamprey traps remain in service.
- Cascades Island Lamprey Trap remains out of service.

e. Avian Monitoring: Avian counts are recorded 01 April – 31 October.

f.

**Table 5.** Avian Counts for 14 July – 20 July.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
07/14	8	6	0	0	0
07/15	23	17	0	0	0
07/16	14	17	0	0	0
07/17	4	4	0	0	0
07/18	12	10	0	0	0
07/19	8	14	0	0	0
07/20	4	15	0	0	0

**5. WATER QUALITY MONITORING:**

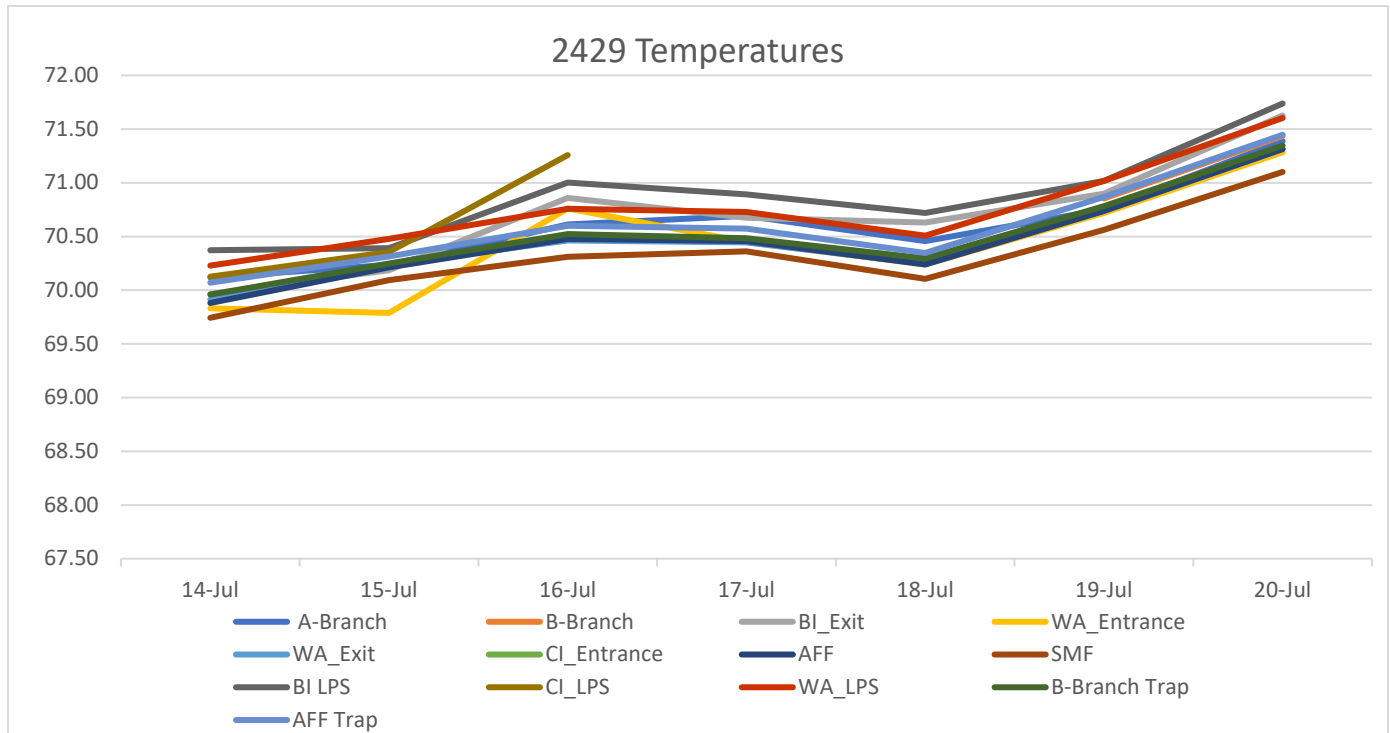
a. Fishway Temperatures: Fishway temperature monitoring is currently underway.

**Table 6.** Daily Average Fishway Temperatures for 14 July to 20 July at Bonneville Lock & Dam.

\*The Cascades Island Entrance probe is currently unserviceable.

Date	A-Branch	B-Branch	BI_Exit	WA_Entrance	WA_Exit	CI_Entrance	AFF	SMF	BI LPS	CI_LPS	WA_LPS	B-Branch Trap	AFF Trap
14-Jul	70.12		69.97	69.83	69.91		69.88	69.74	70.37	70.13	70.23	69.96	70.07
15-Jul	70.24		70.19	69.79	70.24		70.21	70.09	70.39	70.36	70.48	70.25	70.32
16-Jul	70.61		70.86	70.76	70.46		70.48	70.31	71.00	71.26	70.76	70.52	70.60
17-Jul	70.69		70.67	70.45	70.44		70.46	70.36	70.89		70.73	70.48	70.57
18-Jul	70.46		70.63	70.24	70.24		70.24	70.10	70.72		70.51	70.30	70.35

19-Jul	70.75	70.85	70.90	70.72	70.74		70.74	70.56	71.02		71.02	70.78	70.87
20-Jul	71.39	71.44	71.63	71.28	71.31		71.31	71.10	71.74		71.60	71.35	71.45



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

7. **CONSTRUCTION**: Nothing to report.

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

9. **TELETYPES CURRENTLY IN EFFECT:**

- A teletype was distributed on 20 June updates Summer Spill Caps. Effective 0001 hours on 21 June until further notice, operate Bonneville Dam in accordance with table listed in teletype BON R 062024 1213. Per the FOP (Level 1) spill to 140kcfs, levels beyond that cap spill at 150kcfs.
- A teletype was distributed on 10 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 – 31 July, 2359 HRS: Spill 95 kcfs, 24 HRS/DAY
    - 01 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 section 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 in paragraph 8.
- 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 061024 0857 for more details.

- A teletype was distributed on 19 July regarding a Bonneville Forebay operation for treaty fishery. It requests that Bonneville Pool operate within a 1.5-ft band, hard constraint for the periods listed below: From 0600 Monday 22 July to 1800 Wednesday 24 July 2024

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 071124 0809 for further details.

- A teletype was distributed on 16 April describing Operations for Powerhouse Two Gatewell Improvement, Post-Construction Evaluation. Effective during Saturday, April 20 through Thursday, June 6. As well as Saturday, June 8 through Saturday, July 20. Outside of the dates specified above operate in accordance with reference CBT MSG BON R 040523 1237 FOP spring spill for fish passage and the subsequent FOP summer spill operation that will be forthcoming.

Do not operate PH2 Units above the upper 1% during the spring and summer test periods as described on page 61, of the NOAA fisheries 2020 Columbia River System Biological Opinion (2020 CRS BIOP). The BIOP may be found on the following website.

<https://www.salmonrecovery.gov/BiologicalOpinions/FCRPSBiOp.aspx>

The goal of the tests are to evaluate the effectiveness of recent structural modifications to the PH2 gatewells for fish guidance efficiency (FGE). More information associated with PH2 1% operating limits may be found in the 2024 Fish Passage Plan (FPP) on page BON-40 in table BON-15. The 2024 FPP is posted on the website.

<https://pweb.crohms.org/tmt/documents/fpp/2024/>

Additional information on PH2 FGE testing is described in memorandum of coordination (MOC) 24BON010 B2FGE post construction evaluation 2024. The MOC may be found on the following website.

<https://pweb.crohms.org/tmt/documents/fpom/2010/nwp%20mEMOS%20OF%20COORDINATION%20AND%20NOTIFICATION/bon%20moc%20AND%20mfr/>

During the impingement test days identified in the schedule implement the following turbine Unit Priority that is a modification from Unit Priority identified in the 2024 FPP (See page BON-34, Table BON-13) PH2 is the priority Powerhouse during the test operations.

Impingement Test PH2 Unit Priority: 11, 18, 15, 16, 14, 12, 17, 13.

PH1 Unit Priority: 1, 10, 3, 6, 9, 4, 5, 8, 7, 2.

Outside of the dates identified continue operationg in accordance with Unit Priority identified in the 2024 FPP on page BON-34.

Please see teletype BON R 041624 1534 for more thorough details.

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