CENWP-ODB 30 July 2024

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 30 of 2024, which covers the period from 21 July 2024 to 27 July 2024.

1. ITEMS OUT OF CRITERIA (OOC):

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

Date	Location	FPP Violation	Cause	Response
PH1:				
07/21 – 07/27	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should be Open	Mechanically Bound	W.O.
07/21 – 07/27	PH1CC	FG 2-21 Closed, Should Be Open	Mechanically Bound	W.O.
07/25	A-Branch	A Branch Staff Gauge > 1.2’	Unknown	N/A
07/21 – 07/25	A-Branch	FG3-4 Open should be closed	Unknown	N/A
Cascades Island:				
07/26	CI Fishway	FG6-12 Open should be closed	Unknown	N/A
07/25 – 07/27	CI Fishway	FG6-18 Open should be closed	Limitorque	W.O.
Washington Shore:				
07/21, 07/24 – 07/27	WA Shore Fishway	Weir 38 > 1.2’	Unknown	N/A

- 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 119.6 to 151.3 kcfs. Daily average powerhouse forebay elevation ranged from 73.2’ to 74.2’ msl. Daily average Project tailwater ranged from 11.0’ to 13.5’ msl. Secchi disk measurements were 7’+ consistently. Daily average water temperature was 69° - 70°F.

b. Daily average spill ranged from 75.0 to 94.7 kcfs. Summer Spill began on June 21st

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	---
14	0637 on 22 July	---	P.O., 4 Year Overhaul	---

- 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	2309 on 20 July	0532 on 21 July	R.S., Nighttime Lamprey Ops	6 hours, 23 minutes
F2	2300 on 21 July	0526 on 22 July	R.S., Nighttime Lamprey Ops	6 hours, 26 minutes
F1	2258 on 22 July	0531 on 23 July	R.S., Nighttime Lamprey Ops	6 hours, 33 minutes
F2	2239 on 23 July	0530 on 24 July	R.S., Nighttime Lamprey Ops	6 hours, 51 minutes
F1	2301 on 24 July	0534 on 25 July	R.S., Nighttime Lamprey Ops	6 hours, 33 minutes
F2	2300 on 25 July	0530 on 26 July	R.S., Nighttime Lamprey Ops	6 hours, 30 minutes
F1	2300 on 26 July	0531 on 27 July	R.S., Nighttime Lamprey Ops	6 hours, 31 minutes
F2	2258 on 27 July	---	R.S., Nighttime Lamprey Ops	---

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

Date	F1	F2
07/21	0.3’	1.8’
07/22	0.7’	0.4’
07/23	0.2’	4.0’
07/24	3.7’	0.8’
07/25	0.4’	2.9’

07/26	0.3’	0.8’
07/27	0.6’	0.4’

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures:
- FV6-9 was placed into manual for cleaning from 0740 to 0750 on 25 July

b. STS/VBS Inspections: Nothing to report.

c. Dewatering and Fish Salvages:
- Project Biologists fished Unit 14’s scroll case and draft tube when it went down for its 4 year overhaul. 10 juvenile Carp and 2 Sturgeon were recovered and released downstream.

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.

The trigger to initiate High Temperature Sampling Protocols, when river temperatures reach 70°F at Bonneville was achieved on 15 July. However, per regional agreement, implementation of High Temperature Sampling Protocols was delayed to allow for completion of the Powerhouse 2 Fish Guidance Efficiency Post-Construction Evaluation which concluded 20 July. At that point, these protocols were initiated. This means Index/Condition sampling will take place every other day until the daily average river temperature descends to 69.5°F. Sample and bypass mode will occur on alternating 24-hour periods (0700-0700).

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: 56 subyearling Chinook were examined: with no GBT symptoms observed. Please follow this link https://www.fpc.org/currentdaily.gbtsumbybatchdate.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_gbtsumbybatchdate_realtime.pdf to the FPC web page for specific details.

Fallbacks observed this week: None.

A total of one fin clip was obtained from Pacific Lamprey macrophthalmia for Columbia River Inter-Tribal

Fish Commision'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 15th 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 21 July – 27 July

b. Adult Fishways:

- The AFF remains in service.
- Sensor calibration checks occurred on 24 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 put back into service 23 July.
- 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 was put into service the morning of 23 July

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

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

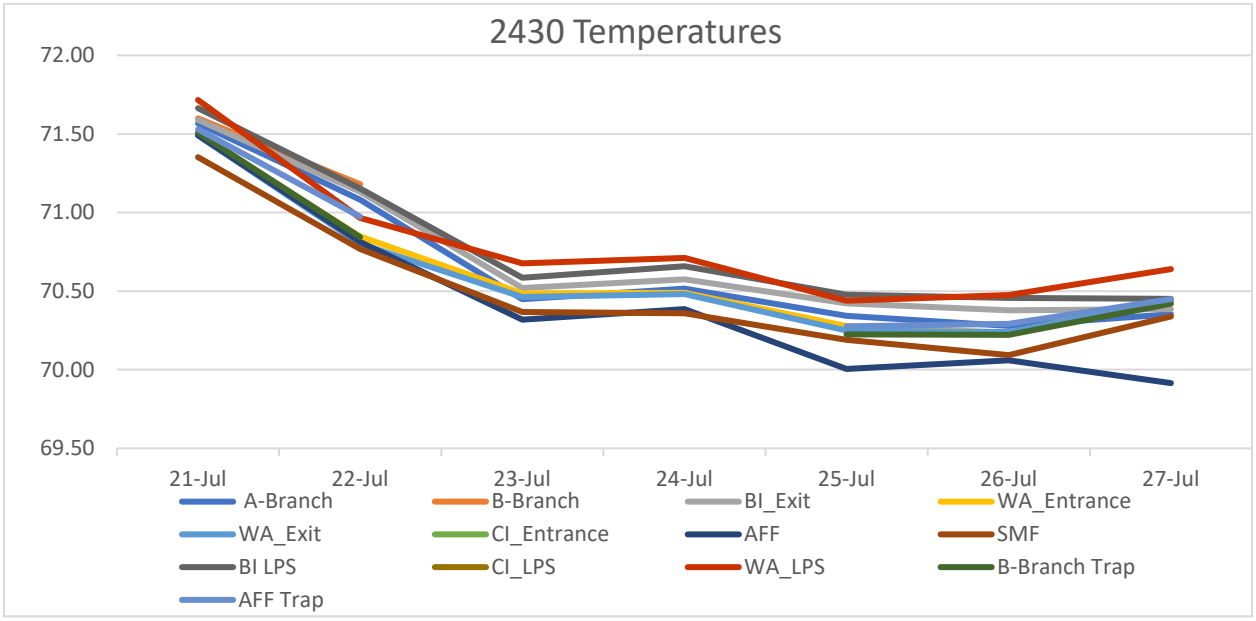
Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
07/21	5	6	0	0	0
07/22	2	8	0	0	0
07/23	6	11	0	0	0
07/24	18	18	0	0	0
07/25	23	13	0	0	0
07/26	7	13	0	0	0
07/27	6	13	0	0	0

5. WATER QUALITY MONITORING:

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

Table 6. Daily Average Fishway Temperatures for 21 July to 27 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
21-Jul	71.57	71.60	71.59	71.50	71.49		71.49	71.35	71.66		71.72	71.51	71.53
22-Jul	71.08	71.18	71.13	70.85	70.80		70.81	70.77	71.15		70.97	70.84	70.97
23-Jul	70.45		70.52	70.49	70.46		70.32	70.37	70.59		70.68		
24-Jul	70.52		70.58	70.49	70.48		70.39	70.36	70.66		70.71		
25-Jul	70.34		70.42	70.28	70.25		70.01	70.19	70.48		70.44	70.23	70.28
26-Jul	70.28		70.38	70.24	70.24		70.06	70.09	70.46		70.48	70.22	70.29
27-Jul	70.35		70.39	70.45	70.44		69.92	70.34	70.45		70.64	70.42	70.45



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 even 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.

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