CENWP-ODB 17 July 2024

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 28 of 2024, which covers the period from 07 July 2024 to 13 July 2024.

1. ITEMS OUT OF CRITERIA (OOC):

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

Date	Location	FPP Violation	Cause	Response
07/09, 07/13	BON	Unit Priority – U12 F.O.	U12 F.O., Stator Ground	W.O., Next available Unit Ran in Place
PH1:				
07/07 – 07/13	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should be Open	Mechanically Bound	W.O.
07/07 – 07/13	PH1CC	FG 2-21 Closed, Should Be Open	Mechanically Bound	W.O.
7/11, 7/12	A-Branch	A Branch Staff Gauge > 1.4’	Unknown	N/A
07/07, 07/08, 07/11 – 07/13	A-Branch	FG3-4 Open should be closed	Unknown	N/A
Cascades Island:				
Washington Shore:				
07/07 – 07/10	WA Shore Fishway	Weir 67 Staff Gauge <1.2’	Unknown	Investigation
07/09	WA Shore Fishway	Weir 37 > 1.4’	Unknown	N/A
07/08, 07/12 – 07/13	PH2CC	SUE&SDE <1.0’ Differential	Unknown	Lowered submergence of PH2 Gates
07/11	WA Shore Fishway	Weir 38 SG >1.4’	Unknown	

- 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 145.7 to 183.5 kcfs. Daily average powerhouse forebay elevation ranged from 73.7' to 75.2' msl. Daily average Project tailwater ranged from 12.7' to 15.6' msl. Secchi disk measurements were 7'+ consistently. Daily average water temperature was 67° - 69°F.

b. Daily average spill ranged from 94.5 to 96.1 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	---

- 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
F2	2301 on 06 July	0534 on 07 July	R.S., Nighttime Lamprey Ops	6 hours, 33 minutes
F1	2300 on 07 July	0530 on 08 July	R.S., Nighttime Lamprey Ops	6 hours, 30 minutes
F2	2301 on 08 July	0530 on 09 July	R.S., Nighttime Lamprey Ops	6 hours, 29 minutes
F2	1520 on 09 July	1626 on 09 July	F.O., Repair Thrust Water Cooler Leak	1 hour, 6 minutes
F2	1642 on 09 July	1816 on 09 July	F.O., Repair Thrust Water Cooler Leak	1 hour, 34 minutes
F1	2301 on 09 July	0528 on 10 July	R.S., Nighttime Lamprey Ops	6 hours, 27 minutes
F2	2257 on 10 July	0529 on 11 July	R.S., Nighttime Lamprey Ops	6 hours, 32 minutes
F2	2315 on 11 July	0526 on 12 July	R.S., Nighttime Lamprey Ops	6 hours, 11 minutes
F2	2300 on 12 July	0530 on 13 July	R.S., Nighttime Lamprey Ops	6 hours, 30 minutes
F1	2300 on 13 July	---	R.S., Nighttime Lamprey Ops	---

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

Date	F1	F2

07/07	0.7’	0.5’
07/08	0.8’	2.9’
07/09	2.3’	0.1’
07/10	0.2’	2.1’
07/11	0.2’	0.2’
07/12	0.2’	0.2’
07/13	0.3’	0.2’

2. 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 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.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. Results of this week’s Non-salmonid Gas Bubble Trauma (GBT) examinations: two fish in total were examined with no GBT symptoms observed. 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 and one from a Pacific Lamprey ammocoete 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.

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.

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 07 July – 13 July

b. Adult Fishways:

- The AFF remains in service.
- Sensor calibration checks occurred on 11 July
- SLEDs are installed at all locations.
- Bradford Island, Cascades Island, and Washington Shore Fishways remain in service.
  - All fishways were taken out of Shad Mode 1215 on 11 July

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, CI, and WA Shore LPS's remain in service.
- 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 07 July – 13 July.

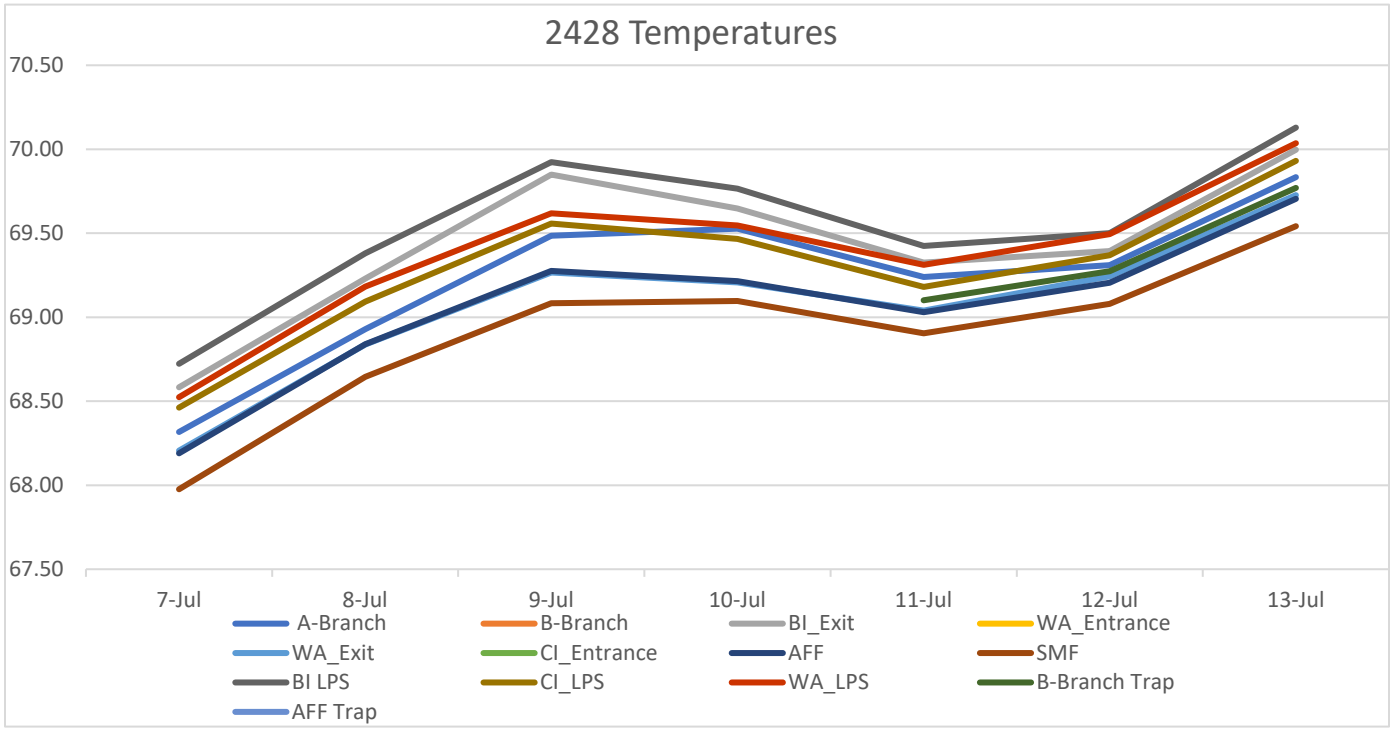
Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
07/07	1	18	0	0	0
07/08	4	48	0	0	0
07/09	5	17	0	0	0
07/10	13	9	0	0	0
07/11	9	9	0	0	0
07/12	10	5	0	0	0
07/13	10	10	0	0	0

5. WATER QUALITY MONITORING:

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

Table 6. Daily Average Fishway Temperatures for 07 July to 13 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
7-Jul	68.32		68.58		68.21		68.19	67.98	68.72	68.46	68.52		
8-Jul	68.93		69.23		68.84		68.84	68.65	69.38	69.09	69.18		
9-Jul	69.49		69.85		69.27		69.28	69.08	69.92	69.56	69.62		
10-Jul	69.53		69.65		69.21		69.22	69.10	69.77	69.47	69.55		
11-Jul	69.24		69.33		69.04		69.03	68.90	69.42	69.18	69.31	69.10	
12-Jul	69.31		69.39		69.24		69.21	69.08	69.50	69.37	69.49	69.27	
13-Jul	69.83	70.00	69.73		69.73		69.71	69.54	70.13	69.93	70.04	69.77	69.86



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 26 June detailing Bonneville high pool for a canoe paddling event.
    1. Request BPA operate the Bonneville Forebay above 74.0 feet, soft constraint, beginning as soon as practicable during the following dates and times: 11-12 July, 100-1700 hours daily

  See teletype BON R 062624 1000 for more detailed information

- 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 11 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 15 July to 1800 Wednesday 17 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. Effectve 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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