

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 37 of 2022, which covers the period from 04 September to 10 September 2022.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 96.7 to 140.7 kcfs. Daily average powerhouse forebay elevation ranged from 74.5’ to 75.0’ msl. Daily average project tailwater ranged from 9.0’ to 12.7’ msl. Secchi disk measurements remained at 7.0+’. Daily average water temperature ranged from 70 to 71°F.
- b. Daily average spill ranged from 1.3 to 1.5 kcfs.
- c. Unit Operation: Split Flow Operation began on 01 September in accordance with FPP guidelines (**BON 2.1.5**) and will remain in effect until total adult and jack salmonid counts fall below 20,000 fish. The unit priority is currently:
 - **PH1:** 1,10 (or top two available PH1 priority units)
 - **Then PH2:** 11,18,12,17,13,14,15,16
 - **Then PH1:** 3,6,9,4,5,8,7,2

• **Table 1. Main Unit Outages**

Unit	OOS	RTS	Reason	Duration
13	1628 on 18 Feb	---	F.O., Generator Ground and BPA Work – Grounded Clearance	---
7	0857 on 11 July	---	P.O., 5-Year Overhaul	---
8	0002 on 25 July	---	P.O., Annual Overhaul	---
16	0729 on 22 Aug	---	P.O., Annual Overhaul/Shaft Sleeve Repair	---
15	0001 on 29 Aug	---	P.O., T12 Maintenance	---
17	0001 on 29 Aug	---	P.O., T12 Maintenance	---
18	0002 on 29 Aug	---	P.O., T12 Maintenance	---

- d. Fish Units: Second Powerhouse Fish Units provide attraction flow for the Washington Shore (WS) fish ladder.

Fish Unit Outages: Fish Units are periodically placed into reserve service (RS) to float trash when debris differentials become excessive and trash raking is not possible.

• **Table 2. Fish Unit Outages.**

Unit	OOS/RS	RTS	Reason	Duration
F2	2209 on 03 Sep	0408 on 04 Sep	R.S., Float Trash	5 hours, 59 mins
F1	2213 on 03 Sep	0406 on 04 Sep	R.S., Float Trash	5 hours, 53 mins
F2	0008 on 05 Sep	0355 on 05 Sep	R.S., Float Trash	3 hours, 47 mins
F1	0013 on 05 Sep	0350 on 05 Sep	R.S., Float Trash	3 hours, 37 mins
F1	1741 on 10 Sep	1819 on 10 Sep	R.S., Float Trash	38 mins

- **Table 3. Fish Unit Drawdowns, in Feet.**

Date	F1	F2
09/04	3.0'	2.6'
09/05	3.5'	3.1'
09/05	3.6'	3.0'
09/06	0.1'	.1'
09/07	0.3'	0.3'
09/08	0.9'	0.8'
09/09	1.3'	1.1'
09/10	3.6'	2.7'

2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures: Nothing to report.
- b. STS/VBS Inspections: Results of September's STS inspections: no issues to report.

UNIT	Previous STS HRS	Present readings	STS-A	STS-B	STS-C	HRS RUN	REMARKS
11	66878	67355				477	
12	51440	51919				479	
13	7950	*****				0	OOS
14	21215	21682				467	
15	29436	29699				263	
16	41786	41903				117	
17	10331	10604				273	
18	13510	13787				277	

- 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, terrestrial vegetation, and dead adult American shad. One salmon fallback was observed this week. Higher temperature sampling protocols were initiated on 28 July (sample end-date of 29 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 daily average descends to 69.5°F. Sample and bypass mode occurs on alternating 24-hour periods (0700-0700). 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 more details. For research purposes, a total of 1 fin clip was obtained from a Pacific Lamprey macrophthalmia for Columbia River Inter-Tribal Fish Commission's (CRITFC) genetic studies this week. Truck releases of summer/fall out-migrants originating from Little Goose and Lower Granite dams began at

Bonneville on 03 August and occur every other day.

- d. USDA – Pinniped and Avian Hazing: Deck-based pinniped hazing started 14 March and concluded for the Spring season on 31 May. Fall pinniped hazing started on 15 August. Avian hazing started 01 April and ended 31 July.
- e. USGS TDG Monitoring: USGS placed TDG monitoring equipment back in service on Cascades Island above and below the Main Dam on 31 March. Water-quality data collection continued through the end of spill season.
- f. CRITFC – Adult Salmonid Sampling: Adult salmonid sampling in the Adult Fish Facility (AFF) began on 21 April and typically occurs 5 days per week. High water temperature sampling protocols started on 28 July.
- g. CRITFC – Lamprey Translocation: Adult lamprey collection concluded on September 7th.
- h. ODFW – Adult Steelhead Sampling: Steelhead sampling in the AFF began on 05 July and occurs in conjunction with CRITFC Adult Salmonid Sampling. High water temperature sampling protocols started on 28 July.
- i. WDFW – Bright and Tule Chinook Stock Observation: Observation research of fall Chinook at Bonneville Dam started 01 August.

4. FISHWAYS:

- a. Project biologists inspected from 04 September to 10 September.
- b. Fish Passage Plan observations:

• **Table 4. FPP Items Out of Criteria.**

Date	Location	FPP Violation	Cause	Response
09/04 – 10	BON	Unit Priority	U13 Forced Outage	W.O.
PH1				
09/04 – 10	PH1 ITS	S. End Gate Inoperable and Chain Gates 1a & 1b Closed	S. End Gate Inoperable, 1a and 1b Closed for Safety Reasons	W.O.
09/04 – 10	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
Bradford Island: Nothing to report				
Cascades Island				
09/04 – 10	Cascades Island Tailrace	1 B2CC Avian Array Line is Broken	High Tailwater Elevations	N/A
Washington Shore				
09/04 – 10	PH2CC	A2 Diffuser Stuck Mid-Travel	Unknown	W.O.
09/09	A Branch	A Branch Staff gauge >1.1'	Unknown	N/A

- 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 Washington Shore/Cascades Island Fishway Winter Maintenance Period (winter 2022/2023).

c. Adult Fishways:

- (1) The AFF remains in service.
- (2) Sensor calibrations were conducted on 06 September
- (3) SLEDs are installed at all locations.
- (4) Bradford Island, Cascades Island, and Washington Shore Fishways remain in service.

d. Juvenile Fishways:

- (1) The ITS remains in service (auto-chain gates 3B, 6C, & 10B only).
- (2) The hydro-cannon remains in service.
- (3) The B2CC was closed for the season 01 September when spill season ended. The B2CC is available to reopen for passing trash or to provide surface passage for fish if spill occurs outside fish passage spill season.
- (4) The DSM remains in service.
- (5) STSs remain in service.

e. Lamprey Fishways:

- (1) BI, CI, and WA Shore LPS's remain in service.
- (2) The Bradford Island Wetted Wall (BIWW) remains out of service.
- (3) The PH2 Lamprey Flume Structure (LFS) remains out of service for the year.
- (4) The AFF lamprey trap and CI lamprey trap were both taken out of service on 07 September. The 2022 lamprey translocation activities have concluded for the year.
- (5) Avian Monitoring: Avian counts are recorded 01 April – 31 October.

Table 5. *Avian Counts 04 September – 10 September.*

Date	Gulls	Cormorants	Terns	Wh. Pelicans		Grebes
09/04	8	3	0	0		0
09/05	2	1	0	0		0
09/06	3	3	0	0		0
09/07	5	27	0	0		0
09/08	51	12	---	---		---
09/09	22	10	0	0		0
09/10	14	16	0	0		0

5. WATER QUALITY MONITORING:

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

Table 6. Fishway Temperatures for 04 to 10 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	LFS
4-Sep	71.30	71.37	71.37	71.22	71.35		71.26	71.27	71.44	71.54	71.60	OOS
5-Sep	71.01	71.10	71.06	70.93	71.06		70.95	71.27	71.13	71.25	71.28	OOS
6-Sep	70.84	70.92	70.91	70.78	70.92		70.84	70.83	71.00	71.09	71.17	OOS
7-Sep	70.93	70.98	71.00	70.86	70.99		70.89	70.91	71.08	71.16	71.22	OOS
8-Sep	70.65	70.74	70.72	70.59	70.71		70.60	70.65	70.78	70.83	70.89	OOS
9-Sep	70.35	70.43	70.40	70.29	70.42		70.30	70.40	70.48	70.64	70.67	OOS
10-Sep	69.86	69.94	69.93	69.82	69.94		69.83	69.90	70.01	70.10	70.18	OOS

** The Cascade Island Entrance probe is currently unserviceable.

** The LFS was taken out of service on 16 June.

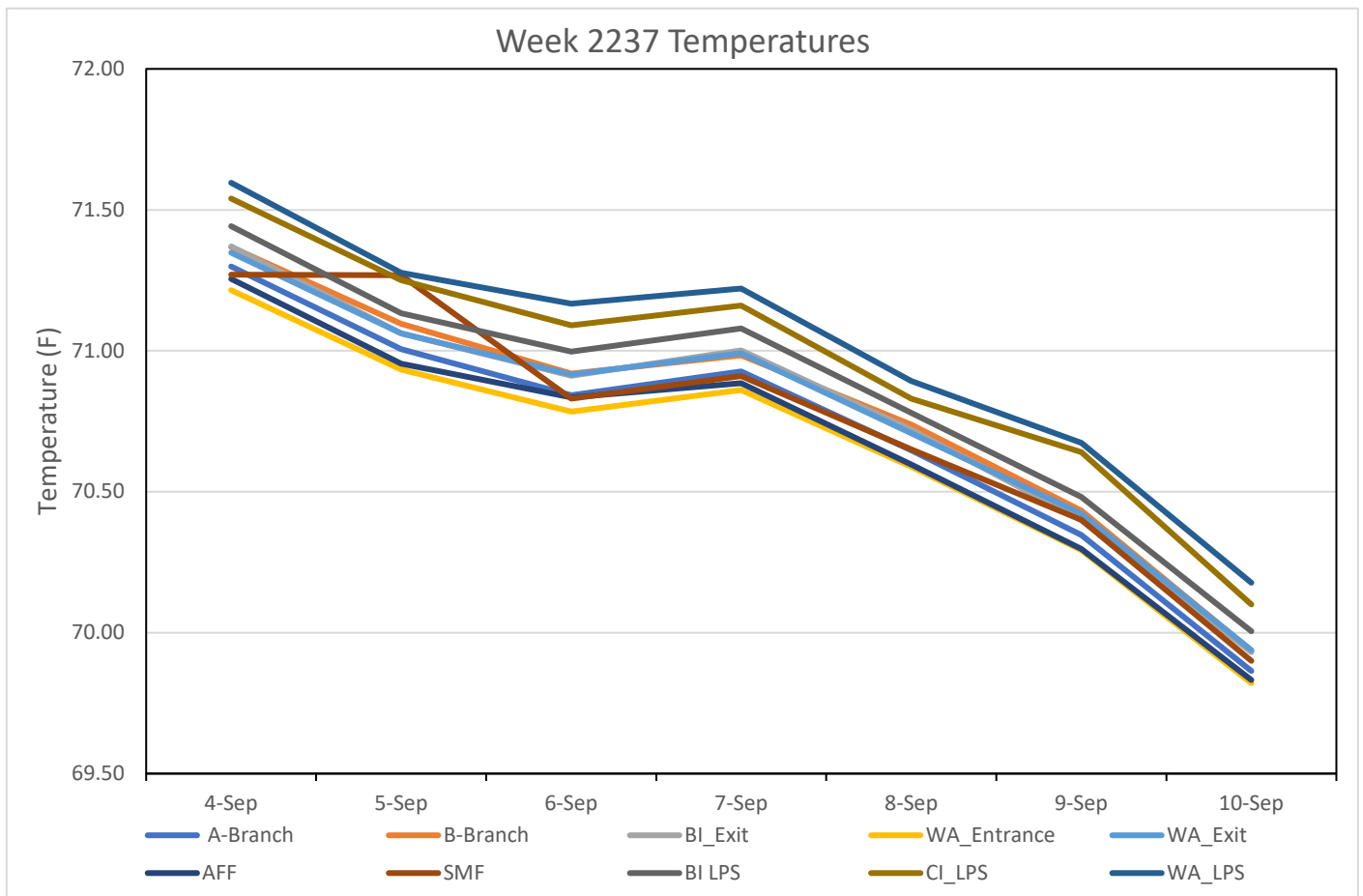


Figure 1. Average fishway temperatures for 04 to 10 September at Bonneville Lock & Dam.

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 sent out on 09 September regarding Bonneville Forebay operation for fall treaty fishery. This teletype requests that Bonneville Pool operate within a 1.5-foot band, hard constraint, for the periods listed below:
 - From 0600 Monday, 12 September to 1800 Saturday, 17 September 2022The 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 being torn from their anchors. Please see teletype BON R 090922 0946 for more details.
- A teletype was distributed on 31 August regarding the Snake and Columbia River Projects 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. Outside of the fish passage season, all state TDG standards are 110%. The lack of load spill level and the order in which to spill from top to bottom and other details can be found in the teletype BON R 082122 1615.
- A teletype was sent out on 14 September regarding Bonneville Forebay operation for fall treaty fishery. This teletype requests that Bonneville Pool operates within a 1.5-foot band, hard constraint, for the periods listed below
 - From 0600 Monday, 19 September to 1800 Thursday, 22 September 2022.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 being torn from their anchors. Please see teletype BON R 091422 1217 for more details.

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