

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 23 of 2023, which covers the period from 04 June to 10 June 2023.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 189.8 to 232.6 kcfs. Daily average powerhouse forebay elevation ranged from 74.2' to 75.1' msl. Daily average project tailwater ranged from 16.1.' to 18.6' msl. Secchi disk measurements ranged from 4.0 to 5.0'. Daily average water temperature ranged from 60 to 62°F.
- b. Daily average spill ranged from 142.5 to 150.4 kcfs.
- c. Unit Operation: **PH2** remains the priority powerhouse. Main unit drawdowns are measured every Monday and more frequently as needed.

• **Table 1.** Main Unit Outages

Unit	OOS	RTS	Reason	Duration
4	1631 on 29 Mar	---	F.O., Oil Leak Investigation	---
3	1600 on 30 Mar	---	F.O., Oil Leak Investigation	---
17	0729 on 01 May	1411 on 06 June	P.O., FGE Gatewell Improvement	36 Days, 6 Hours

- 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 2.** Fish Unit Outages

Unit	OOS/RS	RTS	Reason	Duration
F2	2230 on 03 Jun	0531 on 04 Jun	R.S., Nighttime Lamprey Ops	7 hours, 1 min
F2	2227 on 04 Jun	0533 on 05 Jun	R.S., Nighttime Lamprey Ops	7 hours, 6 mins
F1	2227 on 05 Jun	0532 on 06 Jun	R.S., Nighttime Lamprey Ops	7 hours, 5 mins
F2	2252 on 06 Jun	0532 on 07 June	R.S., Nighttime Lamprey Ops	6 hours, 40 minutes
F1	2232 on 07 Jun	0531 on 08 June	R.S., Nighttime Lamprey Ops	6 hours, 59 minutes
F2	2230 on 08 June	1326 on 09 June	R.S., Nighttime Lamprey Ops	14 hours, 56 minutes
F1	2230 on 09 June	0533 on 10 June	R.S., Nighttime Lamprey Ops	7 hours, 3 minutes

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

Date	F1	F2
06/04	0.5'	0..1'
06/05	0.5'	0..2'
06/06	0.2'	0.6'
06/07	0.4'	0.4'
06/08	0.3'	0.6'
06/09	0.2'	0.2'
06/10	0.2'	0.2'

2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures:
 - FV 3-9 was placed into manual for cleaning from 1035 to 1041 on 08 June.
 - FV1-1 was placed into manual for cleaning on 08 June at 1254
- b. STS/VBS Inspections: Nothing to report.
- c. Dewatering and Fish Salvages: Fish Biologists assisted in fish salvage operations in the Unit 4 Scroll Case and draft tube on the afternoon of 07 June. One juvenile catfish and one lamprey were recovered in good condition and released upstream. U4 was unwatered for a 5 year overhaul/oil leak investigation.

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 varied from light to moderate consisting mostly of sticks and aquatic macrophytes. Fallbacks observed this week: two steelhead and four salmon.
Gas Bubble Trauma (GBT) examinations began on 10 April and are typically performed two days per week through the end of spill. Results of this week's GBT examinations: 200 combined yearling Chinook, subyearling Chinook, and steelhead examined: 3 fish (1.5%) was observed with GBT symptoms. Please follow this link <https://www.fpc.org/currentdaily/gbtsumbybatchdate.pdf> to the FPC web page for further details.
A total of 130 fin clips were obtained from Pacific Lamprey macrophthalmia for Columbia River Inter-Tribal Fish Commission's genetic studies this week.
- d. USDA – Pinniped and Avian Hazing: Deck-based pinniped and avian hazing operations are underway.
- e. State Agency Pinniped Trapping: Sea lion trapping operations are underway.
- f. 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.
- g. CRITFC – Adult Salmonid Sampling: Adult salmonid sampling in the Adult Fish Facility (AFF) began on 19 April and typically occurs 5 days per week.
- h. CRITFC – Lamprey Translocation: Adult lamprey collection and translocation began on 05 June.

4. FISHWAYS:

- a. Project Biologists inspected 04 June to 10 June.

b. Fish Passage Plan observations:

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

Date	Location	FPP Violation	Cause	Response
PH1				
06/04 – 06/10	PH1 ITS	S. End Gate Inoperable and Chain Gates 1b Closed	S. End Gate Inoperable, 1b Closed for Safety Reasons	W.O.
06/04 – 06/10	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
06/06	PH1CC	N. Ent/TW Diff < 1'	Unknown	N/A
Bradford Island				
05/30	BI Fishway	B-Branch Ent/TW Diff >2'	Unknown	N/A
Cascades Island				
06/04 – 06/10	CI Fishway	FG 6-11 Closed, Should be Open	Mechanically Bound in Closed Position	W.O.
06/04 – 06/10	CI Fishway	FG 6-6 Open, Should be Closed	Electrical Failure	W.O.
06/04 – 06/10	CI Fishway	FG 6-7 Partially Open, Should be Closed	Electrical Failure	W.O.
06/04 – 10	CI Fishway	FG 6-8 Open, Should be Closed	Electrical Failure	W.O.
06/04 – 10	CI Fishway	FG 6-9 Open, Should be Closed	Electrical Failure	W.O.
06/04	CI Fishway	CI Ent/TW Diff <1'	Unknown	Adjustments Made
Washington Shore				
06/05 – 06/07	WA Shore Fishway	Weir 37 High, >1.4'	Unknown	Ops Notified
06/05	WA Shore Fishway	SUE Ent/TW Diff <1'	Unknown	N/A
06/06	WA Shore Fishway	SDE Ent/TW Diff <1'	Unknown	N/A
PH2				
06/09	PH2	1 Fish Unit Operating until 1326	Human Error	Ops Notified F2 Started

- 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 limiterque 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.

c. Adult Fishways:

- (1) The AFF remains in service.
- (2) Sensor calibration checks occurred on 06 June.
- (3) SLEDs are installed at all locations.
- (4) Bradford Island, Cascades Island, and Washington Shore Fishways remain in service and were placed into shad mode on 29 May.

d. 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 (7th) trash rack was installed in the 1A gate slot, extending the height of stacked trash racks to approx. +80' el. Without the 7th 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 remains in service.
- (4) The DSM remains in service.
- (5) STSs remain in service. STS inspections occurred on 06 June no issues were discovered.

e. Lamprey Fishways:

- (1) BI, CI, and WA Shore LPS's remain in service.
- (2) The Bradford Island Wetted Wall (BIWW) is in service.
- (3) The PH2 Lamprey Flume Structure (LFS) remains out of service.
- (4) The AFF lamprey trap was placed into service on 05 June. The CI lamprey trap will be placed into service on 12 June.
- (5) Avian Monitoring: Avian counts are recorded 01 April – 31 October.

Table 5. Avian Counts for 04 June – 10 June.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
06/04	44	2	0	0	0
06/05	10	1	0	0	0
06/06	05	0	0	0	0
06/07	14	1	0	0	0
06/08	24	5	0	0	0
06/09	12	3	0	0	0
06/10	12	3	0	0	0

5. WATER QUALITY MONITORING:

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

Table 6. Daily Average Fishway Temperatures for 04 June to 10 June 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-Jun	61.06	61.15	61.25	60.91	61.07		61.01	60.92	61.35	61.22	61.30	OOS
5-Jun	61.46	61.58	61.69	61.34	61.50		61.45	61.35	61.82	61.70	61.77	OOS
6-Jun	61.96	62.06	62.00	61.83	62.00		61.95	61.84	62.17	62.29	62.30	OOS
7-Jun	62.52	62.65	62.74	62.43	62.59		62.55	62.43	62.89	62.81	62.88	OOS
8-Jun	62.87	62.94	63.02	62.69	62.85		62.79	62.72	63.12	62.98	63.09	OOS
9-Jun	62.70	62.70	62.78	62.47	62.63		62.54	62.52	62.82	62.62	62.75	OOS
10-Jun	62.47	62.55	62.69	62.34	62.51		62.45	62.37	62.79	62.61	62.72	OOS

*The Cascades Island Entrance probe is currently unserviceable

*The LFS is OOS for the unforeseeable future.

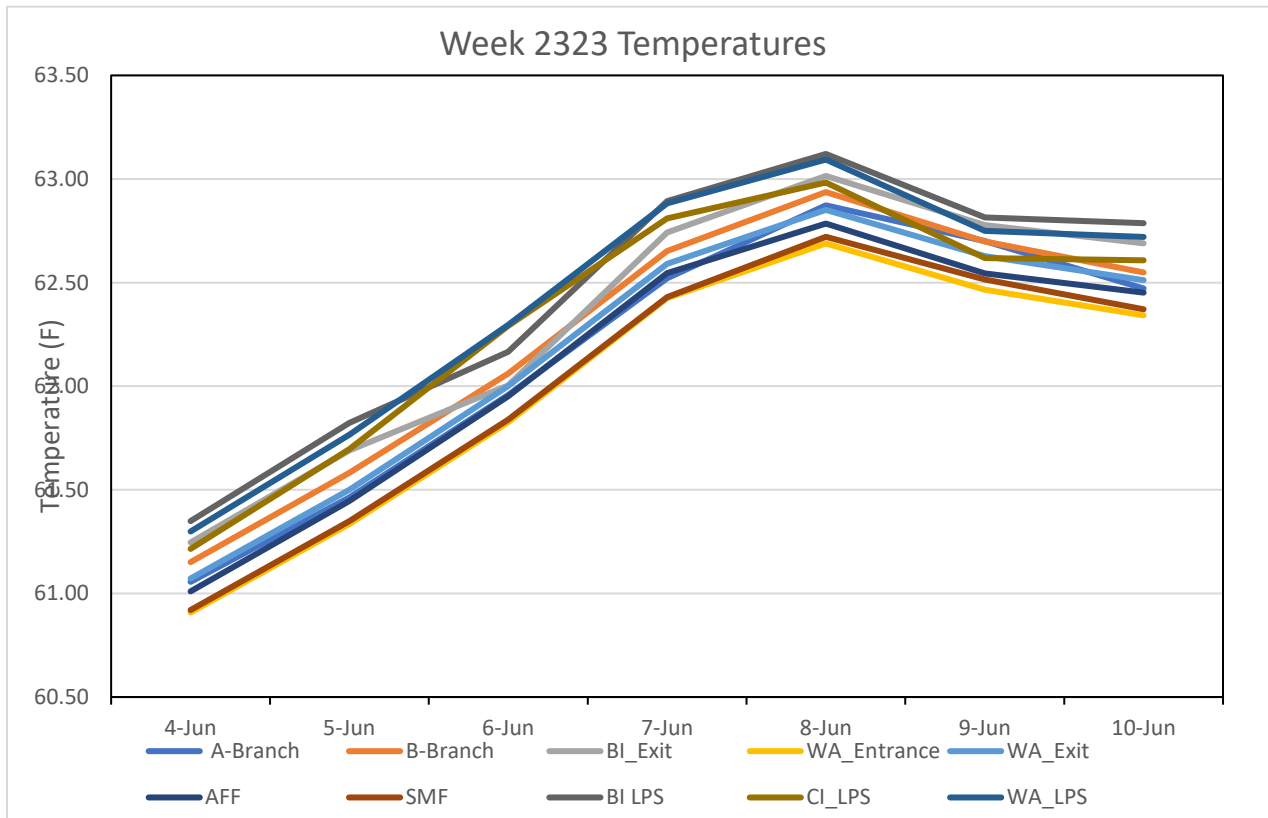


Figure 1. Average Fishway Temperatures for 04 June to 10 June at Bonneville Lock & Dam

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

7. CONSTRUCTION:

- FGE modification work finished for U17 and work on U14 began.

8. HAZMAT, SPILLS AND CLEANUP:

- U3 oil investigation occurred this week with U3 and U4 OOS since 30 March due to a suspected oil leak. U3's scroll case was dewatered and no oil sheen or remnants were observed during the fish salvage operations of the scroll case on 31 May. After exercising the runner blades, the draft tube hatch was opened to observe for any oil leakage evidence in the remaining safety pool of water or near the hub. No evidence of oil leakage was observed in the draft tube on 31 May or 01 June. Oil samples will be delivered to a lab for a second round of testing. U4 is now under investigation.

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 sent out on 07 June regarding a Bonneville high pool operation for bridge construction. Beginning 24 June at 0600 HRS through 30 June at 1800 HRS, operate Bonneville Forebay above a minimum of 75.5 feet, soft constraint and above 74.5 feet, hard constraint. This request was made to support construction activities for the BNSF Railroad Bridge replacement at River Mile 150 at the mouth of Rock Creek in the Bonneville Pool. Please see teletype BON R 060723 1245 for more details.
- Teletype BON R 061423 1029 sent 14 June dictates Bonneville Forebay Operation for Treaty Fishing. Operate within a 1.5' band, hard constraint, from 19-21 June and 26 to 28 June.

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