

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 52 of 2021, which covers the period from 19 to 25 December 2021.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 133.7 to 193.1 kcfs. Daily average powerhouse forebay elevation ranged from 73.2’ to 73.9’ msl. Daily average project tailwater ranged from 14.3’ to 17.0’ msl. Secchi disk measurements ranged from 4.0 to 6.0’. Daily average water temperature ranged from 43 to 45°F.
- b. Daily average spill ranged from 0.5 to 0.6 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
11	0713 on 06 Dec	---	P.O., 4-Year Overhaul	---

- 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	0010 on 13 Dec	---	P.O., Bi-annual maintenance	---
F1	1009 on 20 Dec	1131 on 20 Dec	R.S., Repair HC #1 BKR	1 hour, 22 mins

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

Date	F1	F2
12/19	2.2’	---
12/20	0.4’	---
12/21	0.5’	---
12/22	0.1’	---
12/23	0.3’	---
12/24	0.3’	---
12/25	0.4’	---

2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures:
 - Fish Valves 1-1, 3-7, 3-9, 4-3 and 4-4 were closed on 06 December to facilitate the dewatering of the Bradford Island Fishway for the 2021/2022 winter maintenance season.
- b. STS/VBS Inspections: All STSs were removed for winter maintenance on 15-17 December. See 21BON097 MOC Early STS Removal for details.
- c. Dewatering and Fish Salvages:

• **Table 4. Fish Removals from Dewatering and Salvages.**

Date	Location	Fish Salvaged	Release Site
20 Dec	A Branch, FG3-9 Diffuser Chamber	≈ 10 <i>O. mykiss</i> , 1 juvenile salmonid, 3 sculpin, 8 minnows (mix of peamouth & suckers).	Upstream of Nav Lock
21 Dec	AFF	≈ 25 adult salmonids (including 15 steelhead and 1 chum), 10 <i>O. mykiss</i> /adult rainbow trout, 1 juvenile salmonid, 1 White Sturgeon, ≈ 600 various minnows and suckers.	Upstream of Nav Lock

3. RESEARCH:

- a. Four Peaks Environmental - Fish counting contract: Daytime video counting (0400 to 2000 PDT) began on 01 December. 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: Smolt monitoring operations concluded for the season at the Bonneville SMF at 0700 on Sunday, 31 October. The system was put into bypass mode at that time. Full flow PIT tag interrogation will remain active until the 2-mile pipe is dewatered for winter.

4. FISHWAYS:

- a. Project biologists inspected 20-22 December.
- b. Fish Passage Plan observations:

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

Date	Location	FPP Violation	Cause	Response
PH1				
12/19-25	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.
Bradford Island, nothing to report				
Cascades Island, nothing to report				
Washington Shore				
12/20	PH2	PH2 North Monolith Ent/TW Difference Low <1.0'	Single Fish Unit Ops	N/A
12/20-22	PH2	PH2 South Monolith Ent/TW Difference Low <1.0'	Single Fish Unit Ops	N/A

- 5 avian lines were cut from the B2CC avian line array on 02 September. Avian lines are installed by 10 April every year and normally remain up as a form of avian abatement through the start of winter when they may be taken down if winter maintenance activities require. These 5 lines were damaged and hanging extremely low to the water, creating a hazard for a survey vessel entering BON BRZ for a hydrosurvey on 03 Sept. These avian arrays are slated to be re-installed during the 1st or 2nd week of March 2022.

- c. Adult Fishways:

- (1) The AFF was taken out of service on 21 December.
- (2) Sensor calibrations were conducted on 21 December.
- (3) SLEDs are installed at all locations.
- (4) Cascades Island and Washington Shore Fishways remain in service.
- (5) The Bradford Island Fishway was dewatered on 06 December as part of winter maintenance operations.

d. Juvenile Fishways:

- (1) The ITS remains in service (auto-chain gates 3B, 6C, & 10B only).
- (2) The hydro-cannon remains out of service.
- (3) The B2CC was closed for the season 01 September when spill season ended.
- (4) The DSM was taken out of service at 1355 on 20 December.
- (5) All STSs were removed for winter maintenance on 15-17 December.

e. Lamprey Fishways:

- (1) BI, CI, and WA Shore LPS's remain out of service.
- (2) The Bradford Island Wetted Wall (BIWW) remains out of service.
- (3) The PH2 Lamprey Flume Structure (LFS) remains out of service.
- (4) The AFF lamprey trap and CI lamprey trap remains out of service.

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

5. WATER QUALITY MONITORING:

- a. Fishway Temperatures: Temperature monitoring began on 28 February and concluded on 09 October.
- b. Zebra Mussel Monitoring: No signs of colonization were observed this reporting week.

6. CONSTRUCTION: Nothing to report.

7. HAZMAT, SPILLS AND CLEANUP: At approximately 0700 on 21 December, a visible oil sheen was reported in gate well 18C on the intake deck of Powerhouse 2. The quantity of oil spilled was less than 1 cup and contained within the gate well. An absorbent boom was deployed, and oil sheen was no longer present in gate well as of 22 December.

8. TELETYPES CURRENTLY IN EFFECT:

- A teletype sent out on 01 September with revisions to fall/winter spill priority list and fall/winter spill caps provided the order that projects spill for lack of load conditions. This order is to be used until further notice. Please see teletype BON R 090121 1544 for details.
- A teletype was sent out on 27 October outlining BON tailwater operations for chum spawning. Effective 01 November at 0600 hours until 24 December at 0000 hours, the Bonneville Dam must maintain tailwater in

the following order of operating ranges as project outflow increases:

1. During all hours, operate project outflow to provide a tailwater elevation in the range of 11.3 to 13.0 feet.
2. Then, if necessary to increase project outflow, the tailwater may be operated up to 16.5 feet during the nighttime hours (1700-0600) with highest elevations concentrated around 2400 HRS.
3. Then, if necessary to increase project outflow, the tailwater may be operated up to 18.5 feet during nighttime hours (1700-0600)
4. Then, if increasing river flow precludes the ability to manage the tailwater within the step above, operate to provide a tailwater in the range of 13.0 to 16.5 feet during daytime hours (0600-1700) and up to the maximum within project 24-HR ramp rate limits during nighttime hours (1700-0600).

The goal of this operation is to improve spawning conditions at the Ives/Pierce Island Complex for chum salmon. Please see teletype BON R 102721 1011 for further details.

- A teletype was sent out on 22 December outlining BON tailwater operations for chum spawning. This teletype replaces BON R 102721 1011 for Chum Spawning 1. Please see teletype BON R 121521 1449 for further details.
 1. Effective Friday, December 24, 2021, at 0001 hours, until further notice, the Bonneville Dam minimum tailwater elevation is 13.0 feet during all hours.
 2. The intent of this operation is to ensure sufficient tailwater elevation to protect chum redds in the Ives/Pierce Island area during the egg incubation period.
 3. The official project tailwater elevation gauge is located on the Oregon shore at river mile 144.5, 0.9 miles downstream of Powerhouse 1 and 50 feet upstream of Tanner Creek.
- A teletype distributed on 18 November stated a Bonneville forebay restriction. The document requests that BPA operate the Bonneville forebay below a maximum of 74.0 feet, soft constraint during the following dates and times:
 1. 29 Nov – 03 Dec, 0600-1800 HRS
 2. 06 Dec – 10 Dec, 0600-1800 HRS
 3. 13 Dec – 17 Dec, 0600-1800 HRS
 4. 20 Dec – 22 Dec, 0600-1800 HRS

This forebay operation supports marine construction in the Bonneville Pool near the mouth of Rock Creek in the Columbia River, river mile 150. Please see teletype BON R 111821 1135 for more details.

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