

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 51 of 2021, which covers the period from 12 to 18 December 2021.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 186.2 to 198.5 kcfs. Daily average powerhouse forebay elevation ranged from 73.0’ to 74.9’ msl. Daily average project tailwater ranged from 16.2’ to 16.9’ msl. Secchi disk measurements ranged from 2.0 to 7.0+’. Daily average water temperature ranged from 45 to 47°F.
- b. Daily average spill ranged from 0.5 to 8.9 kcfs.
 At 1810 on 13 December, BPA requested spill to be at 25 kcfs
 At 1950 on 13 December, BPA requested spill to be at 40 kcfs
 At 0155 on 14 December, BPA requested spill to be at 15 kcfs
 At 0300 on 14 December, BPA requested spill to be at 0 kcfs.
 Normal Day/Night schedule spill operations for the remainder of the #2151 Weekly reporting period.
- 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	---
14	0802 on 08 Dec	1230 on 17 Dec	P.O., BPA Work	9 days, 4 hours, 28 mins
13	0804 on 08 Dec	1254 on 17 Dec	P.O., BPA Work	9 days, 4 hours, 50 mins
12	0808 on 08 Dec	1406 on 17 Dec	P.O., BPA Work	9 days, 5 hours, 58 mins
18	0708 on 15 Dec	1017 on 15 Dec	P.O., STS removal	3 hours, 9 mins
17	1021 on 15 Dec	1338 on 15 Dec	P.O., STS removal	3 hours, 17 mins
16	1352 on 15 Dec	1619 on 15 Dec	P.O., STS removal	2 hours, 27 mins
15	0703 on 16 Dec	1021 on 16 Dec	P.O., STS removal	3 hours, 18 mins

- 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	2021 on 15 Dec	2225 on 15 Dec	R.S., Float Trash	2 hours, 4 mins

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

Date	F1	F2
12/12	2.0’	---
12/13	0.3’	---
12/14	1.0’	---

12/15	4.6'	---
12/16	0.1'	---
12/17	0.5'	---
12/18	1.6'	---

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. STS removal process started on Wednesday, 15 December and concluded on Friday, 17 December. This FPP deviation was coordinated and approved through FPOM. See 21BON097 MOC Early STS Removal for details.

c. Dewatering and Fish Salvages.

- The dewatering of the **Bradford Island Fishway** for the 2021/2022 winter maintenance period began on the morning of Monday, 06 December. The dewatering past tailwater level of **A-Branch/ North Collection Channel Entrance** began on Thursday, 16 December. The following is a summary of the fish salvaged during this operation:

A-Branch Fish Gate 3-5 to Weir Gate 64/ Collection Chanel Transverse Bulkheads: Morning of 16 December

No fish observed.

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 in December.

4. FISHWAYS:

a. Project biologists inspected 13 to 15 December.

b. Fish Passage Plan observations.

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

Date	Location	FPP Violation	Cause	Response
PH1				
12/12-18	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				
12/12-14	Cascades Island	FG 6-18 Closed, Should be Open	Manual, placed in auto, see response.	Control Notified: Discovered to be in manual, placed in

				auto and operating correctly on 12/15
Washington Shore				
12/13	PH2	PH2 Monoliths Ent/TW Diff Low	Single Fish Unit Ops	N/A
12/13	WA Shore	Weir 38 Staff Gauge HIGH	AFF Orifice Flow	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 to orifice flow on 08 December.
- (2) Sensor calibrations conducted on 13 December.
- (3) SLEDs are installed at all locations.
- (4) Cascades Island and Washington Shore Fishways are in service. 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 remains in service.
- (5) The STS annual removal process started on 15 December and was completed on 17 December for winter maintenance. See 21BON097 MOC Early STS Removal for details.

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 logs 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:** Nothing to report.

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 HRS, and until further notice, 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 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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