

**MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)**

**SUBJECT:** Bonneville Project, Fishway and Fish Activities for **Week 50** of 2021, which covers the period from **05 to 11 December 2021**.

**1. OPERATION SUMMARY:**

- a. Daily average river flows ranged from 168.7 to 181.0 kcfs. Daily average powerhouse forebay elevation ranged from 73.3' to 73.9' msl. Daily average project tailwater ranged from 15.2' to 15.7' msl. Secchi disk measurements ranged from 4.0 to 7.0+'. Daily average water temperature ranged from 47 to 48°F.
- b. Daily average spill ranged from 0.5 to 2.0 kcfs.
- Involuntary spill pattern was initiated on 09 December for rock removal in the stilling basin. Spillbays 15, 16, and 17 were raised to 13' for about 20 minutes each, midday. Please see the teletype explanation at the end of this document for more information.
- 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
3	0006 on 07 Sept	1137 on 08 Dec	P.O., Annual Overhaul/PT Install	92 days, 11 hours, 31 mins
4	0006 on 07 Sept	1154 on 08 Dec	P.O., Annual Overhaul/PT Install	92 days, 11 hours, 48 mins
11	0713 on 06 Dec	---	P.O., 4-Year Overhaul	---
14	0802 on 08 Dec	---	P.O., BPA Work	---
13	0804 on 08 Dec	---	P.O., BPA Work	---
12	0808 on 08 Dec	---	P.O., BPA Work	---
3	1149 on 08 Dec	1340 on 08 Dec	P.O., Annual Overhaul/Testing	1 hour, 51 mins
4	1324 on 08 Dec	1342 on 08 Dec	P.O., Annual Overhaul/Testing	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
F1	0001 on 29 Nov	1619 on 09 Dec	P.O., Annual Overhaul	10 days, 16 hours, 18 mins
F2	2106 on 08 Dec	2237 on 08 Dec	R.S., Float Trash	1 hour, 31 mins
F2	1621 on 09 Dec	---	R.S.	---

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

Date	F1	F2
12/05	---	0.9'
12/06	---	1.0'
12/07	---	0.6'
12/08	---	3.3'
12/08	---	0.5'
12/09	0.2'	---
12/10	0.2'	---
12/11	1.2'	---

## 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. Nothing to report.

### 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 following is a summary of the fish salvaged during this operation:

#### (a) **Serpentine Section (BI Fishway exit to fish count crowder):** *Morning of Monday 06 December*

- 9 adult salmonids including: 2 Chinook, 1 coho, and 6 steelhead
- <20 juvenile salmonids
- 4 adult lamprey
- ~ 150 miscellaneous non-gamefish (minnows, sculpin, shad, etc)

These fish were found in great condition and released upstream at the Bradford Island Service Building primitive boat launch.

#### (b) **A-Branch/B-Branch Junction Pool:** *Morning of Monday 06 December*

- 6 adult salmonids including: 3 Chinook, 1 coho, 2 clipped steelhead
- <10 juvenile salmonids
- <100 miscellaneous non-gamefish

These fish were found in great condition and released upstream at the Bradford Island Service Building primitive boat launch.

#### (c) **Bradford Island A-Branch Diffuser Pools FG 3-9 to FG 3-6 (tailwater level):** *Afternoon of Monday 06 December*

- 7 sturgeon
- 1 adult Chinook salmon
- 1 smallmouth bass

These fish were found in great condition and released downstream at the Hamilton Island Boat Launch

#### (d) **Bradford Island B-Branch Diffuser Pools FG 3-18 and FG 3-19:** *Afternoon of Monday 06 December*

- 17 adult sturgeon

These fish were found in great condition and released downstream in the spillway

#### (e) **Bradford Island B-Branch Diffuser Pools FG 3-19 to FG 3-22 (tailwater level):** *Morning of Tuesday 07 December*

- 9 adult sturgeon

- 15 steelhead
- 5 juvenile salmonids
- ~ 100 peamouth and suckermouth minnows

All fish were in great condition. The sturgeon were released downstream in the spillway. All other fish were released upstream at the Bradford Island Service Building primitive boat launch.

(f) **B-Branch Entrance Bay:** *Afternoon of Wednesday 08 December*

- 1 adult lamprey
- 1 juvenile salmonid
- 2 sculpin

All fish were found in good condition and released downstream at the Hamilton Island Boat Launch

- Unit 11 was placed out of service for a planned 4-year overhaul on 06 December. Project biologists entered the scroll case in the afternoon and found no fish.
- On the morning of 07 December, the Unit 11 draft tube was dewatered. Project biologists entered the draft tube and salvaged 1 large sculpin in great condition. This fish was released to the forebay.

**3. RESEARCH:**

- Four Peaks Environmental - Fish counting contract: Daytime video counting (0400 to 2000 PDT) began on 01 December. Fish counts can be viewed [here](#).
- USFWS – Lamprey Metamorphosis Study: Juvenile lamprey researchers are onsite, and the work is underway.
- 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 mid-December.

**4. FISHWAYS:**

- Project biologists inspected 07 to 09 December.
- Fish Passage Plan observations.

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

Date	Location	FPP Violation	Cause	Response
PH1				
12/05-11	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				
Cascades Island				
12/07-09	Cascades Island	FG 6-18 Closed, Should be Open	Unknown	Mechanics Notified
Washington Shore. Nothing to Report.				
12/07-09	PH2	PH2 Monoliths Ent/TW Diff Low	Single Fish Unit Ops	N/A
12/08	WA Shore	Weir 37	AFF Orifice Flow	N/A
12/08	WA Shore	Weir 38 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 1<sup>st</sup> or 2<sup>nd</sup> week of March 2022.

c. Adult Fishways.

- (1) The AFF was taken to orifice flow on 08 December.
- (2) No sensor calibrations were conducted this week.
- (3) SLEDs are installed at all locations.
- (4) Cascades Island and Washington Shore Fishways are in service. The Bradford Island Fishway was dewatered to tailwater 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) STS's remain in service.

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 remain out of service.

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

- (1) On 02 September, 5 avian lines were cut from the B2CC avian line array. 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 1<sup>st</sup> or 2<sup>nd</sup> week of March 2022.

**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.

- A teletype was sent out on 08 December regarding involuntary spill pattern for rock removal. The teletype states on Thursday 09 December from 0100 to 2400 HRS, Bonneville Lock & Dam and BPA were to implement the following spill pattern if there was any involuntary spill.
  1. Bay 15, gate opening of 13 feet (approximately 29.7 kcfs), for 15 minutes.
  2. Bay 16, gate opening of 13 feet (approximately 29.7 kcfs), for 15 minutes.
  3. Bay 17, gate opening of 13 feet (approximately 29.7 kcfs), for 15 minutes.

The total spill during this operation would be approximately 18 kcfs over approximately one hour. The goal of this operation was to use the specific spill pattern above to move rocks from the stilling basin if there was any involuntary spill.

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