

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

**SUBJECT:** Bonneville Project, Fishway and Fish Activities for Week 23 of 2022, which covers the period from 29 May to 04 June 2022.

**1. OPERATION SUMMARY:**

- a. Daily average river flows ranged from 306.0 to 361.3 kcfs. Daily average powerhouse forebay elevation ranged from 72.3’ to 73.4’ msl. Daily average project tailwater ranged from 22.8’ to 25.2’ msl. Secchi disk measurements ranged from 4.0’ to 5.0’. Daily average water temperature ranged from 55 to 56°F.
- b. Daily average spill ranged from 148.1 to 150.2 kcfs.
  - *\*\*\* The following includes information for the next reporting week, but provides relevant information to be distributed ASAP via this Weekly Report \*\*\**
  - At 1955 on 05 June, BPA requested BON to increase spill to 180 kcfs to assist in high flow conditions
  - At 0038 on 06 June, BPA requested BON to increase spill to 200 kcfs to assist in high flow conditions
  - These operations followed FPP Guidelines found in BON Section 4.2.2.2.b and Table BON-14.
- c. Unit Operation: **PH2** remains the priority powerhouse. Main unit drawdowns are measured every Monday and more frequently as needed.
  - *\*\*\* The following includes information for the next reporting week, but provides relevant information to be distributed ASAP via this Weekly Report \*\*\**
  - BON PH2 Units increased their operation above the mid-range to the 1% upper limit per BPA request for high flow conditions from:
    - (a) 2300 on 04 June to 0200 on 05 June (3 HRS)
    - (b) ~0700 on 05 June to 1955 on 05 June (~13 HRS)
  - These operations followed FPP Guidelines found in BON Section 4.2.2.2.b and Table BON-14.

- **Table 1. Main Unit Outages**

Unit	OOS	RTS	Reason	Duration
13	1628 on 18 Feb	---	F.O., Generator Ground	---
17	0719 on 18 Apr	---	P.O., 4-Year Overhaul	---
11	(RS) 2117 on 04 June	2217 on 04 June	Forced into Reserve Service to Float Trash	(RS) 1 hour

- 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	0140 on 01 June	0545 on 01 June	R.S., Nighttime Lamprey Ops	4 hours, 5 mins
F2	2232 on 01 June	0533 on 02 June	R.S., Nighttime Lamprey Ops	7 hours, 1 min
F1	2235 on 02 June	0535 on 03 June	R.S., Nighttime Lamprey Ops	7 hours
F2	2230 on 03 June	0529 on 04 June	R.S., Nighttime Lamprey Ops	6 hours, 59 mins
F1	2252 on 04 June	---	R.S., Nighttime Lamprey Ops	---

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

Date	F1	F2
05/29	0.2'	0.4'
05/30	0.9'	0.5'
05/31	0.8'	1.5'
06/01	0.5'	0.7'
06/02	0.6'	0.4'
06/03	0.5'	1.1'
06/04	0.9'	0.6'

## 2. MAINTENANCE ACTIVITIES:

- Auxiliary Water System Closures:
  - FV 6-9 was closed for cleaning from 1000 to 1020 on 31 May.
  - FV 3-9 was closed for cleaning from 1215 to 1221 on 01 June.
  - FV 3-7 was closed for cleaning from 1335 to 1410 on 02 June.
- STS/VBS Inspections: Nothing to report.
- Dewatering and Fish Salvages:
  - On the morning of 01 June, Bradford Island LPS was dewatered for the installation of FFU supported optic counters. No fish were salvaged during this operation. Bradford Island LPS was watered back up on 02 June.
  - On the morning of 02 June, WA Shore LPS was dewatered for maintenance activities. 1 lamprey was salvaged from the WA Shore AWS LPS Rest Box 1 and released upstream in good condition. During this operation, the WA Shore Fishway flow control section and upper AWS was brought to orifice flow from 1003 to 1148. The Project maintained sufficient water levels through the operation, avoiding the need for fish salvage operations within the ladder.

## 3. RESEARCH:

- 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](#).
- USFWS – Lamprey Metamorphosis Study: Juvenile lamprey researchers are onsite, and the work is underway.
- 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 to light-moderate consisting mostly of sticks. 5 steelhead and 2 salmon fallbacks were observed this week.  
Gas Bubble Trauma (GBT) examinations began on 12 April and are typically performed two days per week through the end of spill. Results of this week’s GBT examinations: 200 yearling Chinook and steelhead examined: ten fish (5.0%) were observed with GBT symptoms. 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 76 fin clips were obtained from Pacific lamprey macrophthalmia for Columbia River Inter-Tribal Fish Commission’s (CRITFC) genetic studies this week.
- USDA – Pinniped and Avian Hazing: Deck-based pinniped hazing started 14 March and avian hazing started 01 April.
- 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 will continue through the end

of spill season.

- f. CRIFC – Adult Salmonid Sampling: Adult salmonid sampling in the Adult Fish Facility (AFF) began on 21 April and typically occurs 5 days per week.

**4. FISHWAYS:**

- a. Project biologists inspected from 29 May – 04 June.  
 b. Fish Passage Plan observations:

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

Date	Location	FPP Violation	Cause	Response
05/29 – 06/04	BON	Unit Priority	U13 F.O., Generator Ground	Repairs in Process
PH1				
05/29 – 06/04	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.
05/29 – 06/04	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should Be Open	Mechanically Bound	W.O.
06/04	PH1CC	North Entrance/TW Diff <1.0'	WG 1 & 65 Not Operating Correctly	W.O.
06/04	PH1CC	South Entrance/TW Diff <1.0'	WG 1 & 65 Not Operating Correctly	W.O.
06/04	PH1CC	WG 1 & 65 Not Responding to TW	Electrical and Mechanical Issues	W.O.
06/04	PH1CC	Velocity <1.0 fps	WG 1 & 65 Not Operating Correctly	W.O.
Bradford Island				
05/29-30, 06/02	A-Branch	Weir Staff Gauge >1.1'	Unknown	N/A
Cascades Island				
05/29 – 06/04	CI Fishway	FG 6-11 Mechanically Bound in the Closed Position, Should Be Open	Mechanically Bound	W.O.
Washington Shore				
05/29 – 06/04	PH2CC	A2 Diffuser Stuck Mid-Travel	Unknown	W.O.
05/29, 06/01	WA Shore Fishway	Weir 38 Low, <1.2'	Unknown	Adjusted Valve 2 in AFF

- 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 30 May.
- (3) SLEDs are installed at all locations.

- (4) Bradford Island, Cascades Island, and Washington Shore Fishways remain in service and have been placed into “Shad Mode” due to current fish passage numbers.
- The Washington Shore Fishway upper flow control section and AWS was taken into orifice flow from 1003 to 1148 on 02 June to remove a broken flume of the WA Shore AWS LPS. The operation was a success and fishway returned to normal operating conditions.

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 remains in service.
- (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.
  - BI LPS was taken out of service for FFU optic sensor installation from 0800 on 01 June to 1536 on 02 June.
  - WA Shore LPS was taken out of service from 0830 to 1148 on 02 June for maintenance activities. The north entrance ramp for the WA Shore AWS LPS was damaged and failing, requiring removal urgently. After removal of the ramp, the WA Shore LPS was watered back up for lamprey passage.
- (2) The Bradford Island Wetted Wall (BIWW) remains out of service.
- (3) The PH2 Lamprey Flume Structure (LFS) remains in service.
- (4) The AFF and CI lamprey traps remain out of service.
- (5) Avian Monitoring: Avian counts are recorded 01 April – 31 October.

**Table 5.** *Avian Counts 29 May to 04 June.*

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
05/29	14	2	0	0	0
05/30	32	3	0	0	0
05/31	18	4	0	0	0
06/01	10	0	0	0	0
06/02	8	4	0	0	0
06/03	14	2	0	0	0
06/04	14	2	0	0	0

**5. WATER QUALITY MONITORING:**

- Fishway Temperatures: Fishway temperature monitoring has started but is currently undergoing programming issues for this reporting week.
- 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 was sent out 07 April regarding Bonneville Spring Spill for Juvenile Fish Passage. This teletype is a revision to the original Spring Spill for Juvenile Passage teletype (BON R 040422 1038) with revisions to include the current location of the 125% gas cap spill rate, which is now in the Level 2 of the spill priority list.

Effective Sunday 10 April at 0001 HRS through Wednesday 15 June at 2359 HRS, Bonneville Dam is to operate in accordance with the 2022 Fish Operations Plan (FOP) to provide spring spill for juvenile fish passage, as described below:

- Pursuant to FOP Table 3, the 2022 spring spill operation at Bonneville is as follows:
  - 125% gas cap, 24 HRS/Day:
    - The spill rate for the 125% gas cap is defined in the current spill priority list teletype, Level 2. This spill rate is estimated to meet but not exceed 125% TDG in the Bonneville Dam Tailrace, unless otherwise determined based on current conditions or Project constraints. The spill cap for BON will not exceed a MAX of 150 kcfs to avoid causing erosion in the spillway stilling basin.
- Distribute spill according to spill patterns in the 2022 Fish Passage Plan (FPP) Table BON 16. Actual spill may range up to +/- 3 kcfs from the target due to project operational limits described in the FOP Sections 3 and 8.8.3.
- Operate PH2 Units within the restricted operating ranges defined in the FPP Section 4.2.2.2, unless otherwise instructed via teletype.
- During periods of high spill, there may be a need to temporarily reduce spill or modify patterns to maintain safe navigation in the tailrace (per FOP Section 4.6).
  - Spill adjustments for navigation safety may be made at the discretion of the Project Operator based on current conditions and the navigation situation. Make best efforts to minimize the magnitude and duration of the adjustment to the extent possible.
  - Coordinate all spill adjustments with BPA Hydro Scheduling
- If river flow is too low to maintain FOP spill and minimum generation requirements in FOP Table 1, operate at minimum generation and spill the remainder of outflow.
- If notified that BPA has declared a “Transmission System Reliability Need” or “Transmission System Emergency”, adjust operations as instructed by BPA Hydro Scheduling or Transmission Dispatch (per FOP Section 4.4)

Please see teletype BON R 040722 1620 for more details of this teletype. Please see teletype BON R 04072022 1525 for specifics on the 125% Gas Cap in Level 2 for fish passage projects pursuant to the 2022 FOP.

- A teletype was sent out on 27 April for the Columbia and Snake River Projects and BPA regarding revisions to the order of lack of load spill priority. Please see teletype BON R 04272022 1439 for more details.
- A teletype was sent out on 27 May updating the previous teletype BON R 051322 1058 Operational Specs for U14 and 15 Testing. This new CBT message replaces the previous as U14 testing is complete and U15 testing is ahead of schedule. The remaining ops for the testing of U15 are included below.
  - Wednesday, 1 June, through Thursday 2 June, daily from 0700 to 2100 HRS, for U15 pressure/velocity testing:
    - Forebay Ops:
      - Operate BON Forebay within the following constraints: Hard constraint 71.5 – 73.0 ft during the daytime hours of 0700 to 2100. Outside these hours, BON may operate in accordance with the normal forebay operating range of 71.5 to 76.5 ft.
    - Powerhouse Priority:
      - PH2 revised turbine unit priority for U15 testing: 11, 18, 15, 14, 16, 12, 17, 13.
      - PH1: No change from 2022 FPP.

- U15 Ops:
    - For BPA hydro-scheduling purposes, U15 will not be on AGC during this time but U15 will be online and used for testing.
  - Adjacent Unit Operations:
    - During the U15 test, operate the adjacent units at the midpoint of the 1%.
- Monday, 6 June, through Thursday, 9 June, daily from 0700 to 2100 HRS, for U15 pressure/velocity testing (daily VBS cleaning required).
  - Forebay Ops:
    - Operate BON Forebay within the following constraints: 71.5 to 73.0 ft during the daytime hours of 0700 to 2100 HRS. Outside these hours, BON may operate within the normal forebay operating range of 71.5 to 76.5 ft.
  - Powerhouse Priority:
    - PH2 revised turbine unit priority order for U15 testing: 11, 18, 15, 14, 16, 12, 17, 13.
    - PH1: No change from 2022 FPP.
  - U15 Ops:
    - For BPA hydro-scheduling purposes, U15 will not be on AGC during this time but U15 will be online and will be used for testing.
  - Adjacent Unit Ops:
    - During U15 test, operate the adjacent units at the midpoint of the 1%.
- The goal of this operate is to maintain a project head of 57 ft or less in order to provide hydraulic conditions to facilitate the testing of U14 and U15. Additional information on U14 and U15 test operations are described in Memorandum of Coordination 22BON007 U14 and U15 B2FGE Hydraulic Testing. This may be found on the FPOM website: <https://pweb.crohms.org/tmt/documents/FPOM/2010/NWP%20Memos%20of%20Coordination%20and%20Notification/BON%20MOC%20and%20MFR/> Outside the dates and times of this CBT message, ensure BON continues operating in accordance with reference to CBT message BON R 040422 1038 Spring Spill for Juvenile Fish Passage 4/10 – 6/15. Please see teletype BON R 052722 1338 for more details of this updated operation.
- A teletype was sent out on 07 June regarding operational specifications for unit 14 and 15 testing for FGE work. This CBT message replaces reference CBT message BON R 052722 1338. Due to current high project outflows, there is no longer a request for a low forebay operation. Bonneville Dam may return to operating within the normal operating range of 71.5 to 76.5 feet. Please see teletype BON R 060722 1109 for more details.

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