

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for **Week 33** of 2021, which covers the period from **08 to 14 August 2021**.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 108.8 to 161.9 kcfs. Daily average powerhouse forebay elevation ranged from 74.2' to 75.2' msl. Daily average project tailwater ranged from 10.1' to 14.0' msl. Secchi disk measurements remained at 7.0'. Daily average water temperature ranged from 71 to 73°F.
- b. Daily average spill ranged from 65.7 to 94.7 kcfs. Summer spill season began on 16 June and will continue through 31 August in accordance with FOP guidelines.
- 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
5	0911 on 14 June	1432 on 12 Aug	P.O., 5-Yr Overhaul/PT Install/Transformer Maint	59 days, 5 hours, 21 mins
6	0003 on 12 July	1453 on 12 Aug	P.O., Annual Overhaul/PT Install/Transformer Maint	31 days, 14 hours, 50 mins
2	0012 on 09 Aug		P.O., Annual Overhaul	
1	0200 on 09 Aug	0206 on 09 Aug	P.O., Support Racking Out XJ2	6 mins
1	0630 on 09 Aug		P.O., BPA Work	
9	0630 on 09 Aug		P.O., BPA Work	
10	0630 on 09 Aug		P.O., BPA Work	
13	0112 on 10 Aug	1542 on 13 Aug	P.O., QTCI	3 days, 14 hours, 30 mins
3	0850 on 11 Aug	1511 on 13 Aug	P.O., ZM 234 Maint	2 days, 6 hours, 21 mins
4	0850 on 11 Aug	1511 on 13 Aug	P.O., ZM 234 Maint	2 days, 6 hours, 21 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	2244 on 07 Aug	0601 on 08 Aug	R.S., Nighttime Lamprey Ops	7 hours, 17 mins
F1	2244 on 08 Aug	0602 on 09 Aug	R.S., Nighttime Lamprey Ops	7 hours, 18 mins
F2	2245 on 09 Aug	0611 on 10 Aug	R.S., Nighttime Lamprey Ops	7 hours, 26 mins
F1	2246 on 10 Aug	0556 on 11 Aug	R.S., Nighttime Lamprey Ops	7 hours, 10 mins
F2	2244 on 11 Aug	0559 on 12 Aug	R.S., Nighttime Lamprey Ops	7 hours, 15 mins
F1	2244 on 12 Aug	0558 on 13 Aug	R.S., Nighttime Lamprey Ops	7 hours, 14 mins
F2	2244 on 13 Aug	0608 on 14 Aug	R.S., Nighttime Lamprey Ops	7 hours, 24 mins
F1	2242 on 14 Aug	---	R.S., Nighttime Lamprey Ops	---

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

Date	F1	F2
08/08	0.4'	0.3'
08/09	0.2'	0.5'
08/10	0.4'	0.3'
08/11	0.2'	0.6'
08/12	0.8'	0.2'
08/13	0.2'	1.0'
08/14	0.7'	0.5'

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures.

- FV 3-7 (Bradford Island) was placed in manual and pinched down to reduce flow in the BI AWS to prevent blown diffuser grating and further damage to FG 3-3, FG 3-4, FG 3-5, and FG 3-6 are all OOS due to mechanical failure. These settings for the A-Branch AWS and diffusers will likely remain until the problems can be addressed during the 2021-2022 winter maintenance period. Please see 21BON014 MFR A-Branch FV 3-7 and FG 3-4,5,6 OOC for further explanation.
<http://pweb.crohms.org/tmt/documents/FPOM/2010/>

b. STS/VBS Inspections. Nothing to report.

c. Dewatering and Fish Salvages.

- Project biologists assisted in fish salvage from the U5 tail logs on the morning of 09 August. A total of 4 pumpkinseed and 29 sculpin were recovered in good condition and returned to the river downstream. Unit 5 was out of service for a planned outage for its 5-year overhaul and PT maintenance.
- On the morning of 14 August river temperatures exceeded 74°F, forcing BON to take all lamprey traps out of service due to warm water trap operation protocols. A project biologist dewatered and fished the AFF, LFS, and Cascades Island traps with assistance from BON Operators. A total of 12 lamprey were salvaged from the AFF trap and 2 lamprey were salvaged from the LFS trap. All fish were found in good condition and returned to the river.

3. RESEARCH:

- Four Peaks Environmental - Fish counting contract: Daytime visual counting (0500 to 2100 PDT) began on 01 April. Night video (2100 to 0500 PDT) counting began 15 May. Fish counts can be viewed [here](#).
- 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 SMF began at 0700 on 02 March. Debris at the primary dewatering structure (PDS) and fish/debris separator was light consisting mostly of aquatic macrophytes, a few sticks and dead adult American shad. Higher temperature sampling protocols were initiated on 07 July (sample end-date of 08 July) when water temperatures ascended to 70°F. Modified sampling during higher temperatures means Index/Condition sampling will take place every other day until the daily average descends to 69.5°F. Sample and bypass mode will occur on alternating 24-hour periods (0700-0700). Gas Bubble Trauma (GBT) examinations concluded for the season as of 25 July due to high river temperatures, low TDG levels and the inability to meet the 50 fish minimum sample size criteria. No fallbacks were observed this week. Truck releases of summer/fall out-migrants originating from Little Goose and Lower Granite dams continued at Bonneville every other day. No fish collections for research purposes were conducted this week. More details can be found on the [FPC web page](#).
- d. USDA – Pinniped and Avian Hazing: Deck-based hazing continues for the late summer/fall season.
- e. WDFW/ PSMFC – Pikeminnow Sampling: Hook and line angling activities continue for native non-salmonid fish species within the BON BRZ as a constituent of Gas Bubble Trauma (GBT) monitoring.
- f. CRITFC – Adult Salmonid Sampling: Adult Salmonid sampling in the AFF began on 20 April and typically occurs 5 days per week. High water temperature sampling protocols are in place.
- g. WDFW – Bright and Tule Chinook Stock Observation: Observation research of fall Chinook at Bonneville Dam started on 01 August.

4. FISHWAYS:

- a. Project biologists inspected 08 to 14 August.
- b. Fish Passage Plan observations.

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

Date	Location	FPP Violation	Cause	Response
PH1				
08/08-14	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.
08/10,12	PH1CC South	South Ent/TW Diff <1.0'	PLC Communication Issues	Troubleshooting
Bradford Island				
08/08-14	A-Branch	FG 3-4 Partially Open	FG 3-4 Mechanically Bound Partially Open/Closed	W.O.
08/12-13	A-Branch	Weir Staff Gauge >1.1'	NA	NA
08/09	B-Branch	FG 3-27 Open, Should be Closed	FG 3-27 Mechanically Bound in the Open Position	Caution Order
08/08-14	BI Exit	FV 3-7 High	Currently in Manual	Caution Order
Cascades Island.				

08/11	CI Entrance	CI Entrance Bay/TW Diff <1.0'	PLC Issues	W.O.
Washington Shore. Nothing to Report.				

- FV 3-7 (Bradford Island) was placed in manual and pinched down to reduce flow in the BI AWS to prevent blown diffuser grating and further damage to FG 3-3. These settings for the A-Branch AWS and diffusers will likely remain until the problems can be addressed during the 2021-2022 winter maintenance period.
- FG 3-4 (A-Branch) was found mechanically bound and unable to move from the "almost closed" position in December of 2020. This diffuser will likely remain in this position until the 2021-2022 winter maintenance period.
- FG 3-5 (A-Branch) was not operating correctly on 07 June 2021 and was banging heavily underwater due to an assumed broken fish gate. To prevent further damage to the fishway and equipment, a clearance has been issued for FG 3-5 to be closed and taken out of service until the winter maintenance period.
- FG 3-6 (A-Branch) was found mechanically bound in the closed position on 07 June 2021. This diffuser will likely remain in this position until the 2021-2022 winter maintenance period.

c. Adult Fishways.

- (1) The AFF remains in service.
- (2) Sensor calibration occurred on 10 August.
- (3) SLEDs are installed at all locations.
- (4) Cascades Island Fishway and Washington Shore Fishways are in service.
- (5) Bradford Island Fishway is in service.

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.
- (2) The Bradford Island Wetted Wall (BIWW) remains out of service.
- (3) The PH2 Lamprey Flume Structure (LFS) was taken out of service on 14 August due to warm water trap operation protocols.
- (4) The AFF lamprey trap was taken out of service on 14 August due to warm water trap operation protocols.
- (5) The CI Lamprey trap was taken out of service on 14 August due to warm water trap operation protocols.

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

Table 5. Avian Counts for 08 to 14 August.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
08/08	97	56	0	0	0
08/09	45	71	0	0	0
08/10	312	100	0	0	0
08/11	166	83	0	0	0
08/12	44	67	0	0	0
08/13	71	60	0	0	0
08/14	83	113	0	0	0

5. WATER QUALITY MONITORING:

- a. Fishway Temperatures. Temperature logs began on 28 February and will continue through 30 November.

Table 6. Bonneville Fishway Temperatures for 08 to 14 August.

The Cascades Island temp probe was not logging data correctly 08-09 August

The LFS Trap was dewatered and taken out of service on the morning of 14 August

Date	A-Branch	B-Branch	BI_Exit	WA_Entrance	CI_Entrance	WA_Exit	CI_LPS	WA_LPS	BI_LPS	AFF	LFS	SMF	Forebay
8-Aug	72.1	72.0	72.2	72.0		71.9	72.0	72.1	72.4	71.8	72.1	72.0	72
9-Aug	71.7	71.7	72.0	71.7		71.7	71.8	71.9	72.2	71.6	71.8	71.6	72
10-Aug	71.8	71.8	72.0	71.9	71.9	71.9	72.1	72.2	72.2	71.6	72.1	71.8	71
11-Aug	72.7	72.9	73.0	73.0	73.0	73.0	73.2	73.2	73.3	72.8	73.1	72.8	71
12-Aug	73.3	73.4	73.4	73.5	73.4	73.4	73.7	73.7	73.7	73.3	73.6	73.3	72
13-Aug	73.8	73.9	74.0	74.0	74.0	74.0	74.2	74.3	74.3	73.9	74.2	73.9	73
14-Aug	74.1	74.1	74.3	74.2	74.2	74.2	74.3	74.4	74.5	74.1		74.1	73

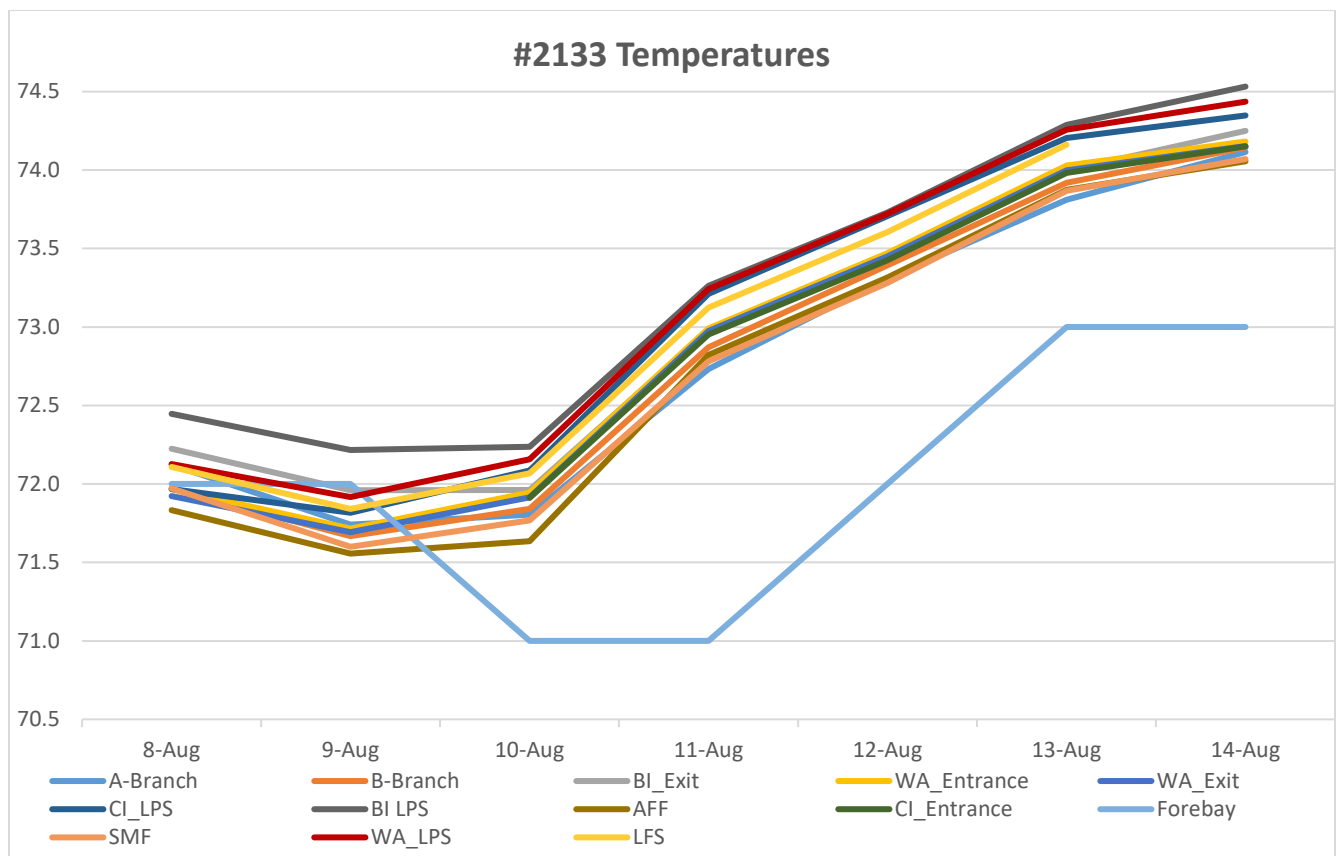


Figure 1. Average fishway temperatures for 08 to 14 August.

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 11 June stating effective 16 June at 0001 hours through 31 August at 2359 hours, Bonneville Dam is to operate in accordance with the 2021 Fish Operations Plan to provide summer spill for fish passage. Please see teletype BON R 061121 1732 for more details.
- A teletype sent out on 15 June provided guidance for summer spill caps for MCN, JDA, TDA, and BON starting at 0001 on 16 June and until further notice. Please see teletype BON R 061521 1307 for more details.
- A teletype was sent out on 18 August requesting that Bonneville pool operate at a 1.5 ft band, hard constraint for the following periods:
 From 0600 HRS Monday August 23 to 1800 HRS Thursday August 26 2021
 From 0600 HRS Monday August 30 to 1800 HRS Thursday September 2 2021
 The purpose of this operation is for treaty fishery. Please see teletype BON R 08182021 1405 for more details.

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 Bonneville Project