

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for **Week 31** of 2021, which covers the period from **25 to 31 July 2021**.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 123.9 to 149.8 kcfs. Daily average powerhouse forebay elevation ranged from 73.7' to 75.2' msl. Daily average project tailwater ranged from 11.0' to 13.1' msl. Secchi disk measurements remained at 7.0'. Daily average water temperature ranged from 70 to 72°F.
- b. Daily average spill ranged from 80.7 to 94.3 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	---	P.O., 5-Yr Overhaul/PT Install/Transformer Maint	---
6	0003 on 12 July	---	P.O., Annual Overhaul/PT Install/Transformer Maint	---
9	0624 on 12 July	1104 on 27 July	P.O., 115 kV Switchyard Maint.	15 days, 4 hours, 40 mins
7	0653 on 12 July	---	P.O., 115 kV Roof Disconnect Maint/Transformer Maint/Annual Overhaul	---
8	0653 on 12 July	---	P.O., 115 kV Roof Disconnect Maint./Transformer Maint/Annual Overhaul	---
17	2202 on 27 July	1119 on 29 July	F.O., PLC Issue/Break Status	1 day, 13 hours, 17 mins
18	0830 on 28 July	0908 on 28 July	P.O., Trash Raking	38 mins
11	0912 on 28 July	1154 on 28 July	P.O., Trash Raking	2 hours, 42 mins
12	1223 on 28 July	1342 on 28 July	P.O., Trash Raking	1 hour, 19 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	2258 on 24 July	0532 on 25 July	R.S., Nighttime Lamprey Ops	6 hours, 34 mins
F1	2259 on 25 July	0534 on 26 July	R.S., Nighttime Lamprey Ops	6 hours, 35 mins
F2	2255 on 26 July	0551 on 27 July	R.S., Nighttime Lamprey Ops	6 hours, 56 mins
F1	2259 on 27 July	0532 on 28 July	R.S., Nighttime Lamprey Ops	6 hours, 33 mins
F2	2300 on 28 July	0528 on 29 July	R.S., Nighttime Lamprey Ops	6 hours, 28 mins
F2	2300 on 29 July	0536 on 30 July	R.S., Nighttime Lamprey Ops	6 hours, 36 mins
F1	2259 on 30 July	0530 on 31 July	R.S., Nighttime Lamprey Ops	6 hours, 31 mins
F2	2259 on 31 July	---	R.S., Nighttime Lamprey Ops	---

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

Date	F1	F2
07/25	0.3'	0.3'
07/26	0.2'	0.5'
07/27	0.2'	0.2'
07/28	0.2'	0.3'
07/29	0.1'	0.1'
07/30	0.4'	0.3'
07/31	0.2'	0.3'

2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures.
- FV 3-9 was placed into manual for cleaning from 1543 to 1554 on 28 July.
 - FV 1-1 was placed into manual for cleaning from 0732 to 0747 on 28 July.
 - 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. Nothing to report.

3. RESEARCH:

- a. 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](#).
- b. 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 began on 10 April and are typically performed 2 days/week through the end of spill season. Results from this week's GBT examinations: 2 subyearling Chinook were examined with no GBT symptoms observed. Please note: GBT sampling at Bonneville was terminated for the 2021 season this week due to current high river temperatures, low TDG levels, and the inability to meet the 50 fish minimum sampling 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.
- 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.

4. FISHWAYS:

- a. Project biologists inspected 25 to 31 July.

b. Fish Passage Plan observations.

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

Date	Location	FPP Violation	Cause	Response
PH1				
07/25-31	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.
07/29-30	PH1CC North	North Ent/TW Diff <1.0'	PLC Communication Issues	Troubleshooting
07/29-31	PH1CC South	South Ent/TW Diff <1.0'	PLC Communication Issues	Troubleshooting
Bradford Island				
07/25-31	A-Branch	FG 3-4 Partially Open	FG 3-4 Mechanically Bound Partially Open/Closed	W.O.
07/25-27	A-Branch	Weir Staff Gauge >1.1'	NA	NA
07/31	B-Branch	FG 3-27 Open, Should be Closed	FG 3-27 Mechanically Bound in the Open Position	Caution Order
07/27-31	BI Exit	FV 3-7 High	Currently in Manual	Caution Order
Cascades Island. Nothing to Report.				
Washington Shore				
07/26	WA Shore Fishway	Weir 37 Low <0.9'	Valve 2 at AFF Needed Adjusting	Adjusted Valve 2 at AFF
07/27	PH2 SUE Monolith	SUE Ent/TW Diff <1'	Unknown	N/A

- 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 26 July.

- (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) remains in service.
 - (4) The AFF lamprey trap remains in service.
 - (5) The CI Lamprey trap remains in service.
- f. Avian Monitoring. Avian counts are recorded 01 April – 31 October.

Table 5. *Avian Counts 25 to 31 July.*

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
07/25	2	10	0	0	0
07/26	4	1	0	0	0
07/27	1	5	0	0	0
07/28	7	3	0	0	0
07/29	12	5	0	0	0
07/30	8	5	0	0	0
07/31	2	21	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 25 to 31 July.

Please note: WA Shore LPS temp logger did not log any data this week and has been reset/reprogrammed.

Date	A-Branch	B-Branch	BI Exit	WA Entrance	CI Entrance	WA Exit	CI LPS	WA LPS	BI LPS	AFF	LFS	SMF	Forebay
25-Jul	71.3	71.4	71.4	71.4	71.4	71.4	71.6		71.7	70.8	71.6	71.3	70
26-Jul	71.8	71.8	71.9	71.9	71.9	71.9	72.0		72.2	71.3	72.0	71.8	70
27-Jul	71.9	72.0	72.1	72.0	72.0	72.0	72.1		72.3	71.9	72.2	71.8	71
28-Jul	72.2	72.1	72.4	72.2	72.1	72.2	72.3		72.6	72.0	72.3	72.0	72
29-Jul	72.3	72.2	72.6	72.3	72.2	72.3	72.5		72.8	72.1	72.4	72.1	71
30-Jul	72.4	72.3	72.5	72.3	72.2	72.3	72.4		72.8	72.2	72.5	72.2	72
31-Jul	72.1	72.0	72.3	72.0	71.8	71.9	72.1		72.5	71.8	72.1	71.9	72

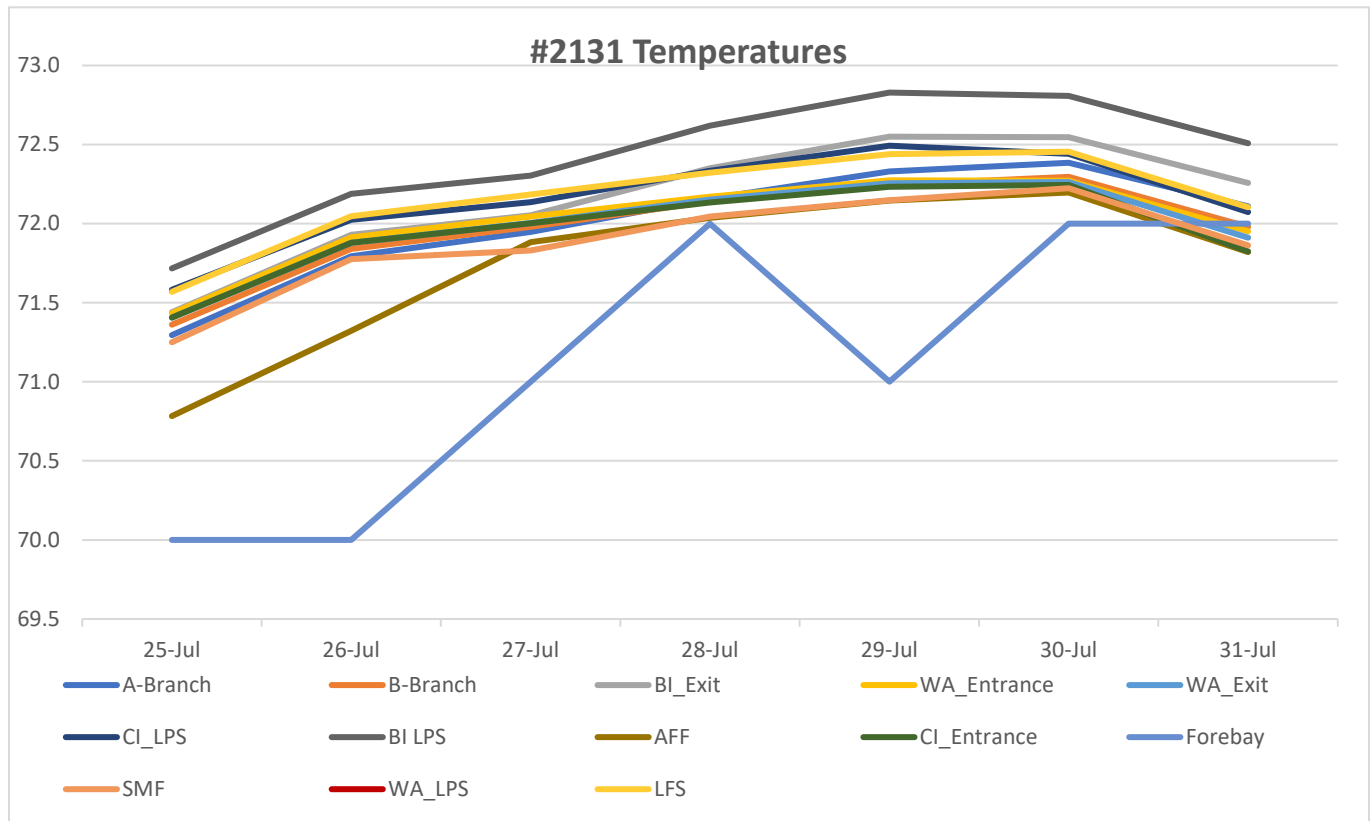


Figure 1. Average fishway temperatures for 25 to 31 July.

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.

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