

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 41 of 2021, which covers the period from 03 to 09 October 2021.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 83.3 to 116.2 kcfs. Daily average powerhouse forebay elevation ranged from 75.2' to 75.3' msl. Daily average project tailwater ranged from 7.8' to 10.7' msl. Secchi disk measurements remained at 7.0+'. Daily average water temperature ranged from 64 to 65°F.
- b. Daily average spill ranged from 1.2 to 1.3 kcfs.
- 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	---	P.O., Annual Overhaul/PT Install	---
4	0006 on 07 Sept	---	P.O., Annual Overhaul/PT Install	---
5	0839 on 04 Oct	---	P.O., BPA Work	---
6	0839 on 04 Oct	---	P.O., BPA Work	---
7	0839 on 04 Oct	---	P.O., BPA Work	---
8	0839 on 04 Oct	---	P.O., BPA Work	---
18	0733 on 05 Oct	0814 on 05 Oct	P.O., Trash Raking	41 mins
17	0821 on 05 Oct	0900 on 05 Oct	P.O., Trash Raking	39 mins
12	1253 on 05 Oct	1325 on 05 Oct	P.O., Trash Raking	32 mins
11	1330 on 05 Oct	1607 on 05 Oct	P.O., Trash Raking	2 hours, 37 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*. Nothing to report.

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

Date	F1	F2
10/03	0.2'	0.2'
10/04	0.1'	0.1'
10/05	0.1'	0.1'
10/06	0.1'	0.1'
10/07	0.1'	0.1'
10/08	0.1'	0.1'
10/09	0.1'	0.1'

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. No issues 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 to moderately heavy consisting mostly of aquatic macrophytes, sticks and leaves. Gas Bubble Trauma (GBT) examinations concluded for the season. Two salmon and one steelhead 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. Normal 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.
- h. State Agency Pinniped Trapping: Sea lion trapping is in progress.

4. FISHWAYS:

- a. Project biologists inspected 03 to 09 October.
- b. Fish Passage Plan observations.

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

Date	Location	FPP Violation	Cause	Response
PH1				
10/03-09	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				
10/03-09	A-Branch	FG 3-4 Partially Open	FG 3-4 Mechanically Bound Partially Open/Closed	W.O.
10/03,04,06,07	A-Branch	Weir Staff Gauge Diff >1.1'	Unknown	N.A.
10/03-09	B-Branch	FG 3-27 Open, Should be Closed	FG 3-27 Mechanically Bound in the Open Position	Caution Order
10/05-09	BI Exit	FV 3-7 Low	Currently in Manual	Caution Order
Cascades Island: Nothing to Report.				
Washington Shore				
10/04-05	WA Shore	Weir 37 High >1.1'	Unknown	N.A.

- Bonneville Dam is no longer in compliance with fishway temperature monitoring protocols set in the FPP (**BON 2.4.2.11**). Two of the twelve temperature probes at specified locations are unserviceable (B-Branch Entrance and Washington Shore LPS). One of the remaining ten serviceable temp. probes (Cascades Island Entrance Bay) is not accurately portraying current fishway temperatures when tailwater is below 10 feet. There appears to be an issue in this probe's stillwell near the bottom of the fishway. We hope to remedy this issue during the 2021-2022 winter maintenance period. Until that time, the temperature data collected from the CI Entrance Bay probe is only reliable when tailwaters are around 10 feet and above. FPC has been notified of these issues as they arise.
- 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.
- 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 05 October.
- (3) SLEDs are installed at all locations.
- (4) Bradford Island, Cascades Island, and Washington Shore Fishways are 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 was closed for the season 01 September when spill season ended. The B2CC was opened to float trash downstream during trash raking operations from 1330 to 1615 on 05 October.
- (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 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.

Table 5. *Avian Counts for 03 to 09 October.*

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
10/03	21	34	0	0	0
10/04	34	24	0	0	0
10/05	16	47	1	0	0
10/06	11	37	0	0	0
10/07	27	36	0	0	0
10/08	43	27	0	0	0
10/09	15	6	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 Lock & Dam Fishway Temperatures for 03 to 09 October.

Date	A-Branch	B-Branch	BI_Exit	WA_Entrance	CI_Entrance	WA_Exit	CI_LPS	WA_LPS	BI LPS	AFF	SMF	Forebay
3-Oct	65.0		65.1	65.1	65.0	65.0	65.1		65.4	64.9	65.1	65
4-Oct	64.9		65.0	65.0	64.9	64.9	65.0		65.2	64.8	64.9	65
5-Oct	64.6		64.7	64.8	64.6	64.7	64.6		64.8	64.6	64.7	65
6-Oct	64.1		64.2	64.2	64.2	64.2	64.1		64.4	64.1	64.2	64
7-Oct	63.8		63.9	64.0	63.8	63.9	63.9		64.1	63.8	63.9	64
8-Oct	63.6		63.7	63.8	63.7	63.7	63.7		63.9	63.6	63.7	64
9-Oct	63.4		63.5	63.4	63.4	63.4	63.4		63.7	63.3	63.4	64

B-Branch Entrance temp. probe is no longer serviceable. We are currently working on finding a replacement temp. probe

The WA Shore LPS temp. probe is no longer transmitting data. We are working to find a replacement probe

The Cascades Island temp. probe has not been collecting data correctly at low tailwaters.

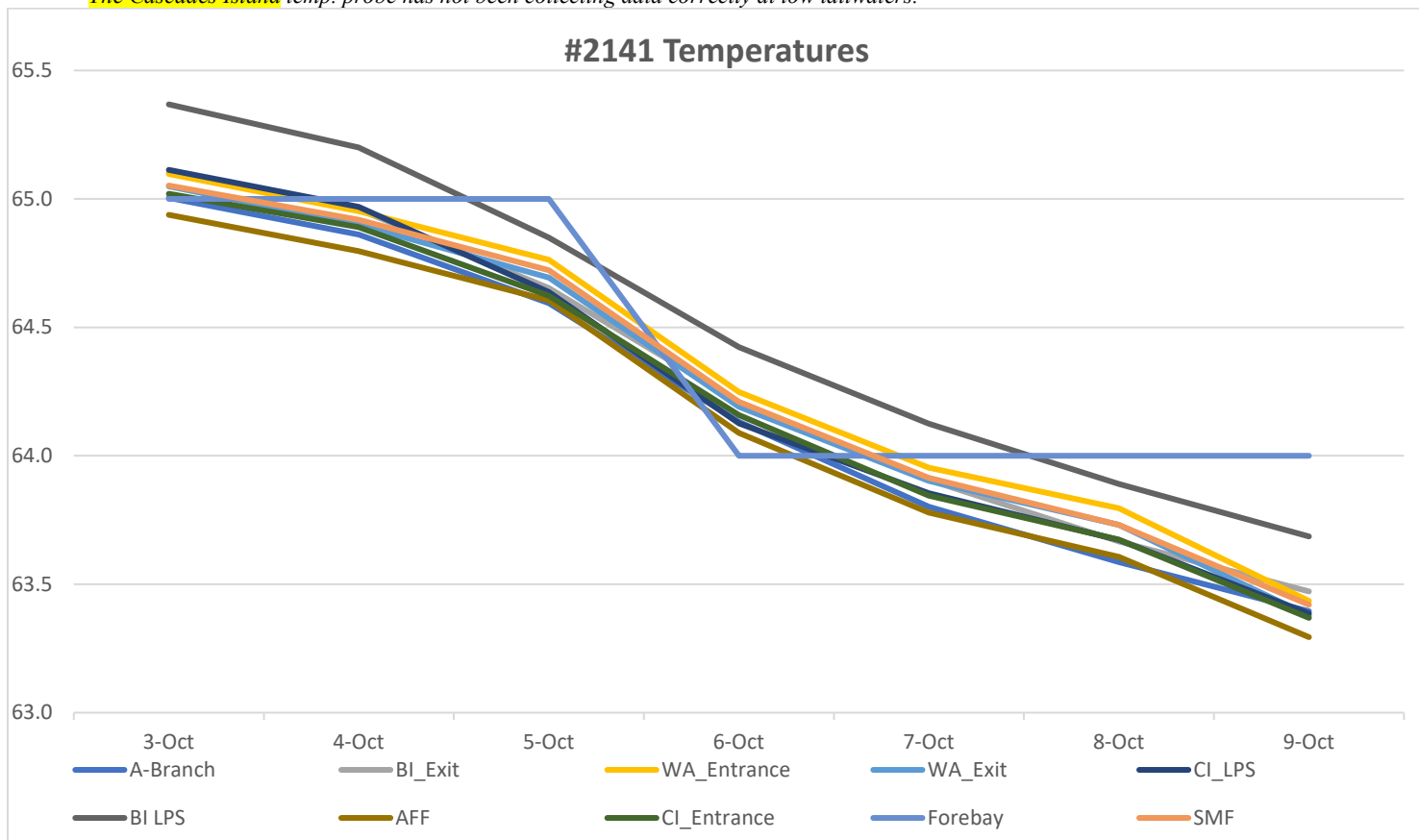


Figure 1. Average fishway temperatures for 03 to 09 October at Bonneville Lock & Dam.

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. TELETYPE 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 23 September requesting that Bonneville pool operate within a 1.5 ft band, hard constraint for the following period:
0600 HRS Monday 27 September to 1800 HRS Friday 01 October
The purpose of this operation is to limit pool fluctuation for treaty fishery. Please see teletype BON R 092321 1150 for more details.

- A teletype was sent out on 30 September requesting that Bonneville pool operate within a 1.5 band, hard constraint for the following periods:
From 0600 HRS Monday 04 October to 1800 HRS Thursday 07 October
From 0600 HRS Monday 11 October to 1800 HRS Thursday 14 October
The purpose of this operation is to limit pool fluctuation for treaty fishery. Please see teletype BON R 093021 1004 for further details.

- A teletype was sent out 06 October requesting a specific Bonneville Dam forebay operating range for sluiceway work. Effective 0600 HRS on 12 October to 1800 HRS on 29 October, Bonneville Dam is to operate their forebay within the following ranges:
 1. Soft Constraint: 73.5 – 74.5 ft (1 ft operating range)
 2. Hard Constraint: 73.0 – 74.5 ft (1.5 ft operating range)Please see teletype BON R 100621 0845 for more details.

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