

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

**SUBJECT:** Bonneville Project, Fishway and Fish Activities for Week 37 of 2021, which covers the period from 05 to 11 September 2021.

**1. OPERATION SUMMARY:**

- a. Daily average river flows ranged from 75.7 to 101.4 kcfs. Daily average powerhouse forebay elevation ranged from 75.2' to 76.1' msl. Daily average project tailwater ranged from 7.6' to 9.5' msl. Secchi disk measurements remained at 7.0'. Daily average water temperature ranged from 68°F to 69°F.
- b. Daily average spill remained at 1.4 kcfs.
- c. Unit Operation. Split Flow Operation began on 01 September in accordance with FPP guidelines (**BON 2.1.5**) and remained in effect until total adult and jack salmonid counts fell below 20,000 fish per day. BON returned to normal unit priority on the morning of 11 September with **PH2** becoming to 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	---
15	0006 on 08 Sept	1615 on 08 Sept	P.O., QTCI	16 hours, 9 mins
8	1445 on 08 Sept	---	F.O., Cooling Water Discharge Valve Failed	---

- 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
09/05	0.1'	0.1'
09/06	0.1'	0.1'
09/07	0.2'	0.1'
09/08	0.2'	0.1'
09/09	0.4'	0.2'
09/10	0.2'	0.1'
09/11	0.3'	0.2'

**2. MAINTENANCE ACTIVITIES:**

- a. Auxiliary Water System Closures.
  - FV 3-9 was closed for cleaning from 1045 to 1553 on 06 September.

- 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/>

- STS/VBS Inspections. No issues to report.
- Dewatering and Fish Salvages. Nothing to report.

### 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. Researchers are installing lights on tanks for photoperiod.
- 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 light-moderate consisting mostly of aquatic macrophytes, a few sticks and dead adult American shad. Normal sampling operations (24-hour sampling, everyday) resumed on 24 August (Sample end-date of 25 August) when average daily forebay temperatures descended to 69.5°F. 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. Three salmon 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](#).
- USDA – Pinniped and Avian Hazing: Deck-based hazing continues for the late summer/fall season.
- 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.
- 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.
- WDFW – Bright and Tule Chinook Stock Observation: Observation research of fall Chinook at Bonneville Dam started on 01 August.

### 4. FISHWAYS:

- Project biologists inspected 05 to 11 September.
- Fish Passage Plan observations.

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

Date	Location	FPP Violation	Cause	Response
PH1				
09/05-11	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				
09/05-11	A-Branch	FG 3-4 Partially Open	FG 3-4 Mechanically Bound Partially Open/Closed	W.O.
09/06-07,09-11	A-Branch	Weir Staff Gauge Diff >1.1'	Unknown	
09/05-11	B-Branch	FG 3-27 Open, Should be Closed	FG 3-27 Mechanically Bound in the Open Position	Caution Order
09/05-11	BI Exit	FV 3-7 High	Currently in Manual	Caution Order
Cascades Island: Nothing to Report.				
09/05	CI Entrance Bay	Ent/TW Diff >2.0'	PLC and Sensor Issues	W.O.
Washington Shore				
09/07	WA Shore Fishway	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 07 September.
  - (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 is available to reopen for passing trash or to provide surface passage for fish if spill occurs outside fish passage spill season.
  - (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 for the season 09 September.
  - (4) The AFF lamprey trap was taken out of service for the season 09 September.
  - (5) The CI Lamprey trap was taken out of service for the season 09 September.
- 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 05 to 11 September.*

<b>Date</b>	<b>Gulls</b>	<b>Cormorants</b>	<b>Terns</b>	<b>Wh. Pelicans</b>	<b>Grebes</b>
09/05	22	2	0	0	0
09/06	15	1	0	0	0
09/07	35	10	0	0	0
09/08	36	12	0	0	0
09/09	24	24	0	0	0
09/10	42	24	0	0	0
09/11	17	7	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 05 to 11 September.**

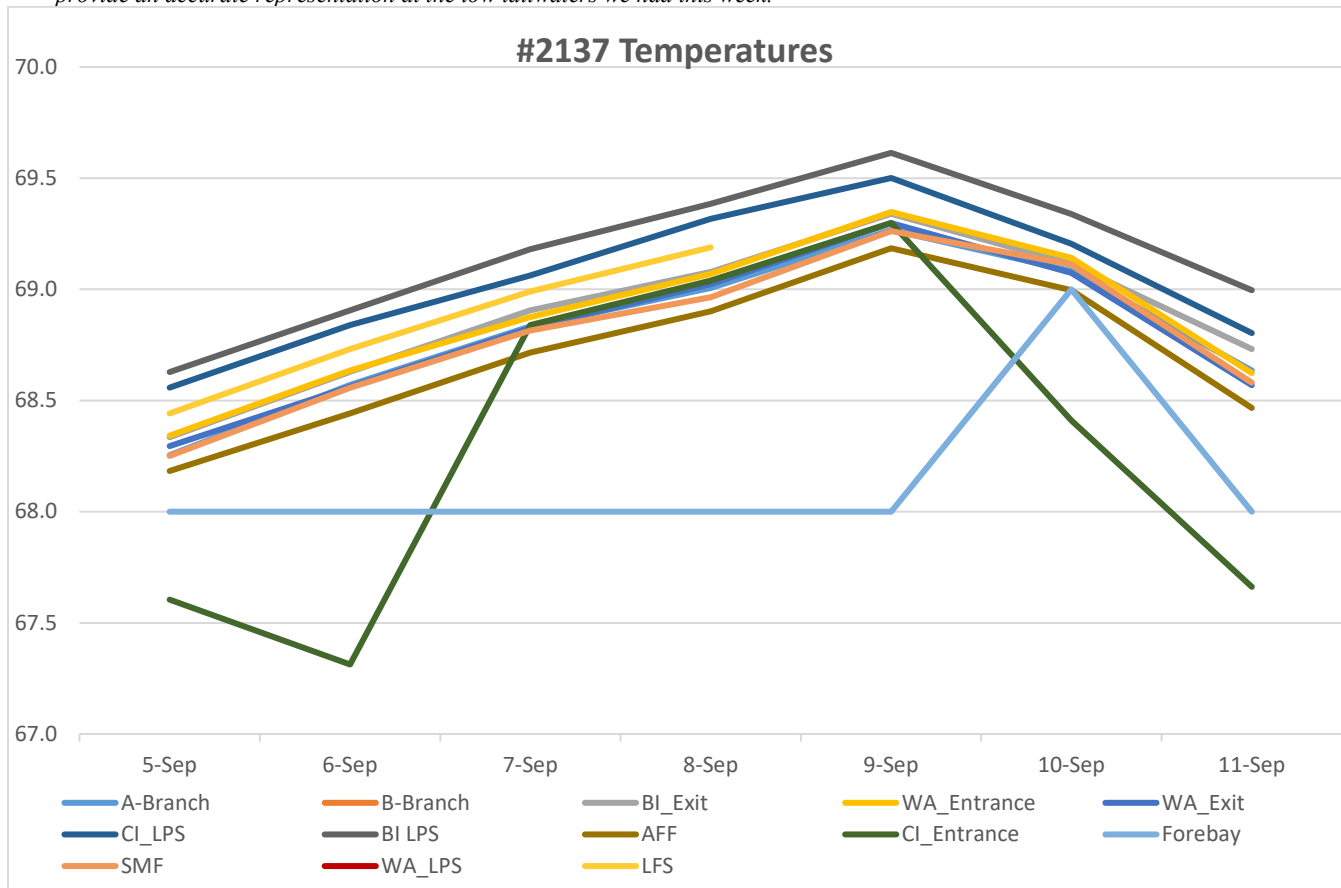
Date	A-Branch	B-Branch	BI_Exit	WA_Entrance	CI_Entrance	WA_Exit	CI_LPS	WA_LPS	BI_LPS	AFF	LFS	SMF	Forebay
5-Sep	68.3		68.3	68.3	67.6	68.3	68.6		68.6	68.2	68.4	68.3	68
6-Sep	68.6		68.6	68.6	67.3	68.6	68.8		68.9	68.4	68.7	68.6	68
7-Sep	68.8		68.9	68.9	68.8	68.8	69.1		69.2	68.7	69.0	68.8	68
8-Sep	69.0		69.1	69.1	69.0	69.0	69.3		69.4	68.9	69.2	69.0	68
9-Sep	69.3		69.3	69.3	69.3	69.3	69.5		69.6	69.2		69.3	68
10-Sep	69.1		69.1	69.1	68.4	69.1	69.2		69.3	69.0		69.1	69
11-Sep	68.6		68.7	68.6	67.7	68.6	68.8		69.0	68.5		68.6	68

\*\*\*The LFS Trap was taken out of service for the season on 09 September\*\*\*

\*\*\*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. The data collected does not provide an accurate representation at the low tailwaters we had this week.\*\*\*



**Figure 1. Average fishway temperatures for 05 to 11 September 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. 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 03 September requesting that the Bonneville pool operate at a 1.5 ft band, hard constraint for the following period:  
From 0600 HRS on 06 September to 1800 HRS on 10 September.  
The purpose of this operation is to limit pool fluctuation for treaty fishery. Please see teletype BON R 090321 1200 for more details.
- A teletype was sent out on 09 September requesting that Bonneville pool operate at a 1.5 ft band, hard constraint for the following period:  
From 0600 HRS Monday 13 September to 1800 HRS Friday 17 September 2021  
The purpose of this operation is for treaty fishery. Please see teletype BON R 090921 1450 for more details.
- A revised teletype sent out on 14 September stated that there will be a Bonneville spillway outage for climbing inspections on 16 and 17 September. The climbing inspections will require spillway closures during the specific dates and times listed below:
  - (1) 16 September from 0800 to 1200 HRS:
    - (a) Spillgates 1-18 will be tagged out
    - (b) Spillgates 2-17 will be closed and unavailable for spill
    - (c) Spillgates 1 and 18 will be open
  - (2) 16 September from 1200 to 1600 HRS:
    - (a) Spillgates 1-18 will be tagged out
    - (b) Spillgates 2-18 will be closed and unavailable for spill
    - (c) Spillgate 1 will be open
  - (3) 17 September from 0800 to 1600 HRS:
    - (a) Spillgates 1-18 will be tagged out
    - (b) Spillgates 2-17 will be closed and unavailable for spill
    - (c) Spillgates 1 and 18 will be openPlease see teletype BON R 091421 1055 for further details.

MICHAEL ADAMS, P.E.  
Operations Project Manager  
Bonneville Project