

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)
 SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 34 of 2018, which covers the period from 19 - 25 August.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 112.4 to 156.6 kcfs. Daily average powerhouse forebay elevation ranged from 74.4' 75.8' msl. Daily average project tailwater ranged from 10.2' to 13.4' msl. Secchi disk measurements ranged from 6.0' to 7.0'. Daily average water temperature ranged from 71°F to 72°F.
- b. Daily average spill ranged from 69.5 to 97.9 kcfs.
- c. Unit Operation. PH2 remains the priority powerhouse. Main unit drawdowns are measured every Monday and more frequently as needed.

(1) Table 1. Unit Outages.

Unit	OOS Date	RTS Date	Reason
01	1130 on 20 Aug	1410 on 21 Aug	Turbine Bearing Oil Pump
05	1654 on 23 July	1613 on 23 Aug	Bank 7/8 Disconnect Failure
06	1654 on 23 July	1613 on 23 Aug	Bank 7/8 Disconnect Failure
07	0922 on 05 Apr	1613 on 23 Aug	Underrated Disconnect
08	0921 on 05 Apr	1613 on 23 Aug	Underrated Disconnect
09	0002 on 20 Aug	1722 on 22 Aug	North Main Bus Proximity Repairs
10	0002 on 20 Aug	1722 on 22 Aug	North Main Bus Proximity Repairs
11	1430 on 23 Aug	1644 on 23 Aug	PO, Rake Trash Rack
12	1343 on 23 Aug	1429 on 23 Aug	PO, Rake Trash Rack
14	0002 on 20 Aug	1650 on 24 Aug	FGE / Thrust Collar Inspection
18	1245 on 23 Aug	1340 on 23 Aug	PO, Rake Trash Rack

- d. Fish Units. Second Powerhouse fish units provide attraction flow for the Washington Shore (WS) fish ladder.

(1) F2 goes into RS nightly from 2200-0400 for regular spill season PH2 Lamprey ops (per FPP 2.4.2.13.c.).

e. Table 2. Fish unit drawdowns, in feet.

Date	F1	F2
8/19	---	---
8/20	0.1'	0.2'
8/21	0.1'	0.3'
8/22	0.1'	0.9'
8/23	0.3'	0.5'
8/24	0.2'	0.9'
8/25	0.4'	0.7'

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures.

(1) FV1-1 was closed for cleaning from 0716 until 0725 on 21 August.

b. STS/VBS Inspections. Nothing to report.

c. Dewatering and Fish Salvages. Nothing to report.

3. RESEARCH:

a. Normandeau – Fish counting. Daytime visual counting (0500 to 2100) began on 01 April. Nighttime video recording (2100-0500) began on 15 May. Fish counts can be viewed [here](#).

b. PSMFC – Smolt Monitoring. Debris at the primary dewatering structure and fish/debris separator was light consisting mostly of algae, aquatic macrophytes, a few sticks and dead adult shad. Avian hazing concluded for the season on 31 July. Higher temperature sampling protocols were initiated on 25 July (sample end-date of 26 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 15 April and are typically performed two days per week through the end of spill. Due to extremely low fish numbers present during our GBT collection effort, GBT exams were not attempted this week. Please follow this [link](#) to the FPC web page for further details. Truck releases of summer/fall out-migrants originating from Snake River dams began on 16 August and occur every other day. No fallbacks were observed this week. No fish were collected for research this week.

- c. CRITFC – Adult Salmonid Sampling. Adult salmonid sampling in the adult fish facility (AFF) began on 25 April and typically occur 5 days per week. At water temperatures of 70–72°F, sampling will be permitted for up to four days per week from 0600-1030 to allow for U.S. v Oregon requirements. This operation will remain in effect until daily average water temperature drops to $\leq 69.9^\circ\text{F}$. High temperature sampling protocols went into effect on 24 July. Restrictive sampling protocols were in effect this reporting week.
- a. University of Idaho. Evaluation of adult Pacific Lamprey passage behavior in relation to lower Columbia River dam modifications, AFEP Study Code LMP-P-17-1 began on 11 May.
- b. NOAA – Northwest Fisheries Science Center (Frick). Development and evaluation of an adult lamprey wetted wall structure at Bradford Island Fishway 2017-2019 began on 08 May.
- c. USFWS – Lower Columbia River Fish Health Center. Adult and juvenile American Shad will be collected from the project as part of the annual National Wild Fish Health Survey. BON mortalities will also be sent to the USFWS for pathogen analysis and potential causes of death.

4. FISHWAYS:

- a. Project biologists inspected from 19-25 August.
- b. Fish passage plan observations.

(1) Table 3. FPP out of criteria items.

Date	Location	FPP Violation	Cause	Response
Bradford Island				
8/19,21,23-24	A-branch	Differential > 1.1	None	None
8/19,21,23-24	B-branch Entrance	Differential > 2.0	Unknown	WOR follow-up
8/19,21,23-24	WG-2	Submergence <8.0'	Unknown	Ops adjusted
8/19,21,23-24	WG-64	Submergence <8.0'	Unknown	Ops adjusted
Cascades Island – Nothing to Report.				
Washington Shore				
8/22-23	NUE	Differential < 13.0'	Possible AWS sand	NA
8/22	NDE	Differential < 13.0'	Possible AWS sand	NA
8/22	SUE	Differential < 13.0'	Possible AWS sand	NA
8/22	SDE	Differential < 13.0'	Possible AWS sand	NA

- (2) On 01 May, FG6-11 was found broken partially open. The diffuser shaft had broken away from the motor. Due to the subsidence issues at Cascades Island, repairs can not occur until crane support is allowed in the vicinity.

- (3) Bonneville had the majority of its avian lines broken due to ice storms during the 2016/17 winter. All zones had been installed besides PH2. PH2 lines are awaiting installation. Numerous lines have since been broken again by high flows and debris at CI and Spillway locations.
- (4) PH2 diffuser B4 was discovered to have its stem bent on 24 May 2017. This likely occurred while trying to close and the valve is believed to be open. It should be closed at tailwaters above 31.0' and below 11.0' msl.
- (5) The South Downstream Entrance (SDE) and North Downstream Entrance (NDE) gates will not lower past 4' and 6', respectively. It is believed the gates pits are obstructed with sediment. They will be addressed during the winter maintenance period.
- (6) On 18 August, FG6-12 was found to be mechanically bound in the open position. FG6-12 should only be open with tailwaters ranging from 11.0'-33.0'. Due to the subsidence issues at Cascades Island, repairs can not occur until crane support is allowed in the vicinity.

c. Adult Fishways.

- (1) The AFF remains in service.
- (2) Sensor calibration did not occur this reporting week.
- (3) SLEDs are installed at all entrances.

d. Juvenile Fishways.

- (1) The ITS remains in service.
- (2) The hydro-cannon remains in service.
- (3) The B2CC remains in service.
- (4) The DSM remains in service.
- (5) STSs are installed.

e. Lamprey Fishways.

- (1) The Bradford Island, Cascades Island, and WA Shore AWS LPSs remain in service.
- (2) The NDE Lamprey Flume Structure (LFS) remains in service.

(3) AFF lamprey trap remains in service.

(4) The Bradford Island Lamprey Wetted Wall remains in service.

f. Avian Monitoring. Bird counts are recorded between 01 April and 31 October.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
8/19	23	5	0	0	0
8/20	15	1	0	0	0
8/21	3	1	0	0	0
8/22	5	2	0	0	0
8/23	0	0	0	0	0
8/24	0	0	0	0	0
8/25	27	0	0	0	0

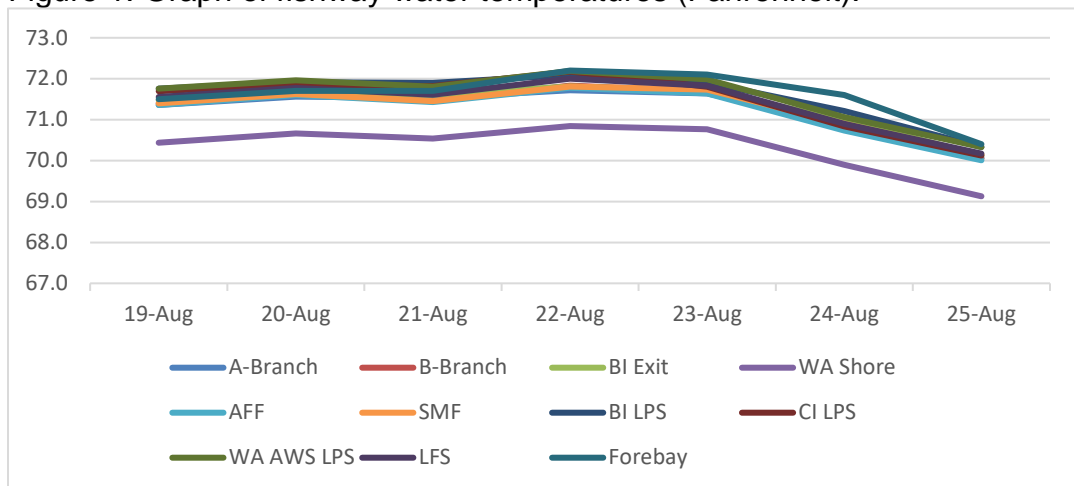
5. WATER QUALITY MONITORING:

a. Fishway Temperatures. Temperatures are taken from 01 March through 30 November.

(1) Table 4. Average daily fishway water temperatures (Fahrenheit).

Date	A-Branch	B-Branch	BI Exit	WA Shore	AFF	SMF	BI LPS	CI LPS	WA AWS LPS	LFS	Forebay
19-Aug	71.4	71.4	71.5	70.4	71.4	71.4	71.8	71.7	71.8	71.6	71.5
20-Aug	71.6	71.6	71.6	70.7	71.6	71.6	71.9	71.9	72.0	71.8	71.7
21-Aug	71.5	71.5	71.6	70.5	71.4	71.5	71.9	71.8	71.8	71.6	71.7
22-Aug	71.7	71.8	71.8	70.8	71.8	71.8	72.1	72.2	72.2	72.0	72.2
23-Aug	71.6	71.7	71.7	70.8	71.6	71.7	71.9	71.8	72.0	71.8	72.1
24-Aug	70.9	70.8	71.0	69.9	70.7	70.9	71.2	70.8	71.1	70.9	71.6
25-Aug	70.1	70.1	70.1	69.1	70.0	70.1	70.3	70.1	70.3	70.2	70.4

(2) Figure 1. Graph of fishway water temperatures (Fahrenheit).



b. Zebra Mussel Monitoring. No signs of colonization were observed this reporting week.

6. CONSTRUCTION:

- a. The PH2 roofing project continues.

7. HAZMAT, SPILLS AND CLEANUP: Nothing to report.

8. TELETYPES CURRENTLY IN EFFECT:

- a. A teletype sent on 13 June outlines the summer spill schedule related to fish passage. Effective 0001 on 16 June until 2359 on 31 August, operate Bonneville dam in accordance with the 2018 summer fish operations plan to provide spill for fish passage.
- b. A teletype sent on 19 July updating Bonneville spill caps.
- c. A teletype sent on 21 August requests that Bonneville operate within a 1.5 foot band for the Treaty Fishery during the periods of 0600 Monday, 27 August, to 1800 Thursday, 30 August and 0600 Monday, 3 September, to 1800 Friday, 7 September.
- d. A teletype sent on 22 August states that Bonneville will operate gates 5-12 will be out of service from 0600 – 1800 daily from 5 September through 7 September. These outages facilitate climbing inspections on spill gates 7-10. Gates 5-12 will be taken OOS for safety reasons.
- e. A teletype sent on 24 August requests that Bonneville outflows be maintained as low and as constant as possible from 0430 – 1200 Monday, 3 September. Request flows not exceed 150 kcfs, hard constraint. Low flows are requested to reduce currents in the river during the Roy Webster cross channel swim near Hood River.

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