

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)
 SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 32 of 2018, which covers the period from 05-11 August.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 138.6 to 161.8 kcfs. Daily average powerhouse forebay elevation ranged from 73.1' 75.1' msl. Daily average project tailwater ranged from 12.3' to 14.1' msl. Secchi disk measurements ranged from 7.0' to 7+'. Daily average water temperature ranged from 72°F to 74°F.
- b. Daily average spill ranged from 90.2 to 100.6 kcfs.
- c. Unit Operation. PH2 remains the priority powerhouse. Main unit drawdowns are measured every Monday and more frequently as needed.

(1) During the complete PH2 outage coordinated through [18BON05 MOC T12 Outage for Roof Repair](#) PH1 was the priority powerhouse (6-9 August).

(2) Table 1. Unit Outages.

Unit	OOS Date	RTS Date	Reason
05	1654 on 23 July	---	Forced out, ZM278 failure
06	1654 on 23 July	---	Forced out, ZM278 failure
07	0922 on 05 Apr	---	FO, Underrated Disconnect
08	0921 on 05 Apr	---	FO, Underrated Disconnect
11	0730 on 06 Aug	1611 on 09 Aug	PO, BPA Maintenance
12	0730 on 06 Aug	1610 on 09 Aug	PO, BPA Maintenance
13	0730 on 06 Aug	1610 on 09 Aug	PO, BPA Maintenance
14	0730 on 06 Aug	1610 on 09 Aug	PO, BPA Maintenance
15	0009 on 06 Aug	---	T12 Outage, PH2 Roof Repairs
16	0009 on 06 Aug	---	T12 Outage, PH2 Roof Repairs
17	0009 on 06 Aug	---	T12 Outage, PH2 Roof Repairs
18	0009 on 06 Aug	---	T12 Outage, PH2 Roof Repairs

- 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.).
 - (2) F1 was out of service (oos) from 0730 on 06 Aug until 09 Aug as part of the T11 / T12 outage.

(3) F2 went out of service at 0730 on 06 August as part of the T11 / T12 outage. Please see [18BON59 MFR PH2 F2 OOS](#)) for more information.

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

Date	F1	F2
8/5	0.1'	0.5'
8/6	---	---
8/7	---	---
8/8	---	---
8/9	0.2'	---
8/10	0.2'	---
8/11	0.5'	---

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures.

(1) FV1-1 was closed from 1038 until ~1600 on 09 August for the bi-annual PH1 ROV inspection.

(2) FV3-7 was closed from 1047 until ~1600 on 09 August for the bi-annual PH1 ROV inspection.

(3) FV4-3 and FV4-4 were placed in manual and non operating diffusers (FG3-4 through FG3-9) were flushed as part of the bi-annual PH1 ROV inspection.

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. Sample collections at the SMF began on 02 March. The Smolt Monitoring Facility was placed in bypass mode from 6-9 August due to a complete PH2 unit outage to facilitate roof replacement. Debris at the primary dewatering structure and fish/debris separator was light consisting mostly of 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. However, due to higher water temperatures and decreased TDG levels, GBT exam effort has been reduced to one day per week. Results of this week's GBT examinations: 6 subyearling Chinook examined with no GBT symptoms observed. Please follow this [link](#) to the FPC web page for further details. 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 as defined below for up to four days per week from 0600-1030 hours to allow for U.S. v Oregon requirements. This operation will remain in effect until daily average water temperature drops to ≤ 69.9°F. High temperature sampling protocols went into effect on 24 July. CRITFC did not sample during 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 05-08 & 10-11 August.
- b. Fish passage plan observations.

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

Date	Location	FPP Violation	Cause	Response
8/9	BON	No Inspection	ROV Survey	NA
Bradford Island- Nothing to Report.				
Cascades Island – Nothing to Report.				
Washington Shore				
8/5-11	SDE, NDE	Not fully lowered	Assumed sand accumulation	Clean during winter maint
8/8	Weirs 37,38	Staff guage <0.9'	unknown	monitor

- (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.

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.
- (4) ROV Inspection:
 - (a) All PH2 entrances, PH2 collection channel, LFS entrances (upper and lower), Fish unit trash rakes, PH2 AWS (via diffuser B4) were all inspected as part of the summertime bi-annual ROV inspection on 07-09 August.

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) The 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
8/5	0	24	0	0	0
8/6	0	3	0	0	0
8/7	0	4	0	0	0
8/8	0	2	0	0	0
8/9	-	-	0	0	0
8/10	20	20	0	0	0
8/11	6	30	0	0	0

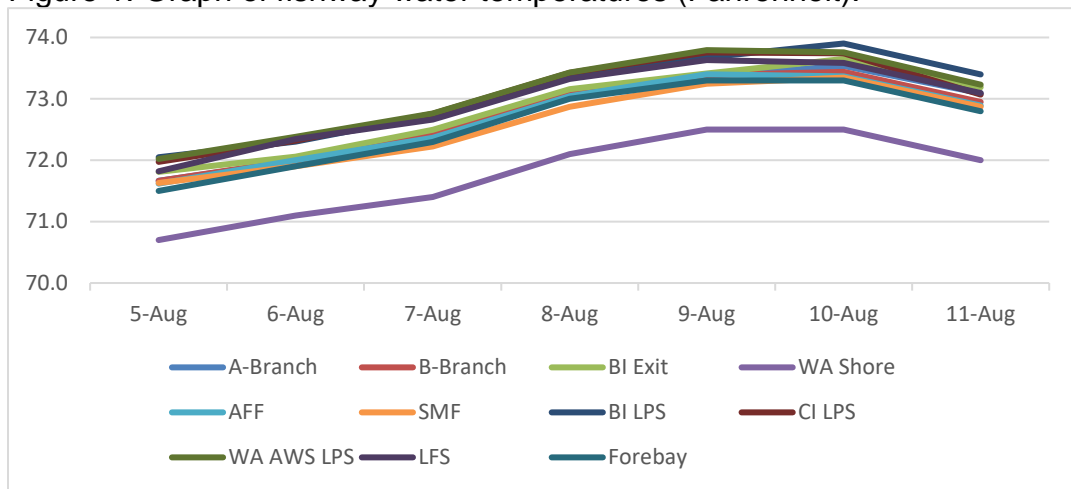
5. WATER QUALITY MONITORING:

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
5-Aug	71.7	71.7	71.8	70.7	71.6	71.6	72.0	72.0	72.0	71.8	71.5
6-Aug	72.0	72.0	72.1	71.1	72.0	71.9	72.3	72.3	72.4	72.3	71.9
7-Aug	72.4	72.5	72.5	71.4	72.4	72.2	72.7	72.8	72.8	72.7	72.3
8-Aug	73.1	73.1	73.2	72.1	73.0	72.9	73.4	73.4	73.4	73.3	73.0
9-Aug	73.4	73.4	73.4	72.5	73.4	73.2	73.7	73.8	73.8	73.6	73.3
10-Aug	73.5	73.4	73.7	72.5	73.4	73.3	73.9	73.7	73.8	73.6	73.3
11-Aug	73.1	73.0	73.2	72.0	72.9	72.9	73.4	73.1	73.2	73.1	72.8

(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 26 July states that Bonneville forebay will be operated above 74 feet from 1400 to 2200 on 09 and 12 August for sailboat races.
- d. A teletype sent on 07 August requests the forebay operate between 75.0' to 76.5' as a soft constraint on 15-18 August from 0900 – 1700 daily. The intended purpose of this request is to accommodate water levels at Hood River near 76.5' for a wind sport trade show.
- e. A teletype sent on 08 August updated the 26 July teletype regarding sailboat races.

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