

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

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 34 of 2017, which covers the period from 20-26 August.

**1. OPERATION SUMMARY:**

a. Daily average river flows ranged from 115.5 to 132.8 kcfs. Daily average powerhouse forebay elevation ranged from 73.5' to 74.1' msl. Daily average project tailwater ranged from 10.6' to 12.1' msl. Secchi disk measurements stayed at or above 7.0'. Daily average water temperature stayed at 72°F.

b. Summer spill began 16 June. Daily average spill ranged from 70.9 to 88.8 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
0	1919 on 20 Aug	1300 on 21 Aug	
1	0700 on 21 Aug	1300 on 21 Aug	PO for ROV inspection
2	0700 on 21 Aug	1707 on 21 Aug	PO for ROV inspection
3	0700 on 21 Aug	1707 on 21 Aug	PO for ROV inspection
4	1300 on 21 Aug	1707 on 21 Aug	PO for ROV inspection
5	0545 on 05 Aug	---	BPAQ RC2 grounding Terminal
6	0545 on 05 Aug	---	BPAQ RC2 grounding Terminal
7	0103 on 22 Feb	---	Annual, bank 7/8 outage, main unit breaker replacement
8	0103 on 22 Feb	---	
9	0700 on 22 Aug	1330 on 22 Aug	PO for ROV inspection
10	0700 on 22 Aug	1330 on 22 Aug	PO for ROV inspection
16	0001 on 24 Aug	1600 on 24 Aug	PO for unit 17 STS dive work
17	1619 on 28 Jun	1713 on 24 Aug	Forced out- STS stuck in slot
F2	1142 on 17 Aug	---	Exciter brushes arching

d. Fish Units. Second Powerhouse fish units provide attraction flow for the Washington Shore (WS) fish ladder. Nighttime operations for lamprey began 01 June.

(1) Table 2. Fish unit drawdowns, in feet.

Date	F1	F2
8/20	1.0'	*
8/21	1.0'	*
8/22	1.0'	*
8/23	1.1'	*
8/24	1.5'	*
8/25	1.2'	*
8/26	1.0'	*

\*F2 went OOS due to exciter brush arching at 1142 on 17 Aug.

## 2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures. None.
- b. STS/VBS inspections. None.
- c. Dewatering and Fish Salvages. None.

## 3. RESEARCH:

- a. CRITFC – Adult sampling. Annual adult sampling in the AFF continues Monday through Friday. Starting 24 July, restrictive sampling (70-72°F) commenced; 0600-1030 up to four days per week for *US vs Oregon* requirements. Starting 02 August through 16 August sampling did not occur as temperatures exceeded 72°F. Sampling resumed 17 August.
- b. Normandeau – Fish counting. Visual counting continues.
- c. PSMFC – Smolt Monitoring. Higher temperature sampling protocols were initiated on 23 July (sample end-date of 24 July) when water temperatures ascended to 70°F. Modified sampling during higher temperatures means sampling will take place every other day until the daily average descends to 69.5°F. Sample & bypass mode will occur on alternating 24 hour periods (0700-0700). Gas Bubble Trauma examinations are typically performed 2 days/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. 87 subyearling Chinook were examined with no 87 no GBT symptoms observed. No Fallbacks were recorded crossing the separator bars. More details can be found on the [FPC web page](#).
- d. USFWS – Fish Health Survey. Juvenile & adult shad, and juvenile hatchery Chinook will be collected from the fish facilities as part of the annual survey. BON mortalities will also be sent to the USFWS for pathogen analysis.
- e. University of Idaho – Video monitoring. A DIDSON camera study began in late April to monitor fish in the UMT junction area near the new LPS extension.

**4. FISHWAYS:**

- a. Project biologists inspected 20, 22-26 August. No inspection occurred on 21 August.
- b. Fish passage plan observations.

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

Date	Location	FPP Items	Cause	Response
<b>BRADFORD ISLAND – Nothing to report</b>				
8/26	W-02	Submergence < 8.0'	Unknown	Monitor
8/24-26	WG-64	Submergence < 8.0'	Unknown	Monitor
<b>CASCADES ISLAND – Nothing to report</b>				
<b>WASHINGTON SHORE</b>				
8/26	Weir 37	Water over weir < 0.9'	Unknown	Monitor
8/20, 23-26	Weir 38	Water over weir < 0.9'	Unknown	Monitor

- (1) FG3-3 is currently open and unplugged. The diffuser cannot be repaired until the north PH1CC area is dewatered. The next opportunity will be the 2017-18 winter maintenance period. It should be closed below tailwaters of 8.2' msl.
- (2) The FG3-4 diffuser shaft was found to be vibrating unusually. The diffuser was closed on 29 Dec 2016 to prevent further damage to the gate. The next opportunity for repair is the 2017-18 winter maintenance period.
- (3) FG3-8 was found to be banging loudly on 11 May. It was closed until repairs can be made. It should be open above tailwaters of 28.2' msl.
- (4) Bonneville had the majority of its avian lines broken due to ice storms (not including the lines that were already removed for the spillway work). These broken lines will be replaced when high flow conditions reduce to a level that allows safe access to these tailrace locations.
- (5) PH2 diffuser B4 was discovered to have its stem bent on 24 May. It likely occurred while trying to close and is believed to be open. It should be closed at tailwaters above 31.0' and below 11.0' msl.
- (6) The NDE cannot open past 5' putting the entrance into FPP violation for submergence (>13.0'). It is believed to be full of sand. The NDE gate will have to be removed at a future date and the sand sucked in order for this gate to open past 5'.

b. Adult Fishways.

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

c. Juvenile Fishways.

- (1) The ITS remains in service.
- (2) The hydro-cannon is on.
- (3) The B2CC was closed from 0655 to 1500 on 24 Aug for Unit 17 Dive work.
- (4) The DSM remains in service.

d. Lamprey Fishways.

- (1) The WA AWS, CI, and BI LPS all remain in service. The NDE LFS/LPS went out of service for the season at approximately 1030 on 24 August due to low fish counts.

e. Avian Monitoring. Bird counts are made between 01 April and 31 October.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
8/20	25	0	0	0	0
8/21	1	0	0	0	0
8/22	0	6	0	0	0
8/23	0	0	0	0	0
8/24	0	0	0	0	0
8/25	5	4	0	0	0
8/26	0	0	0	0	0

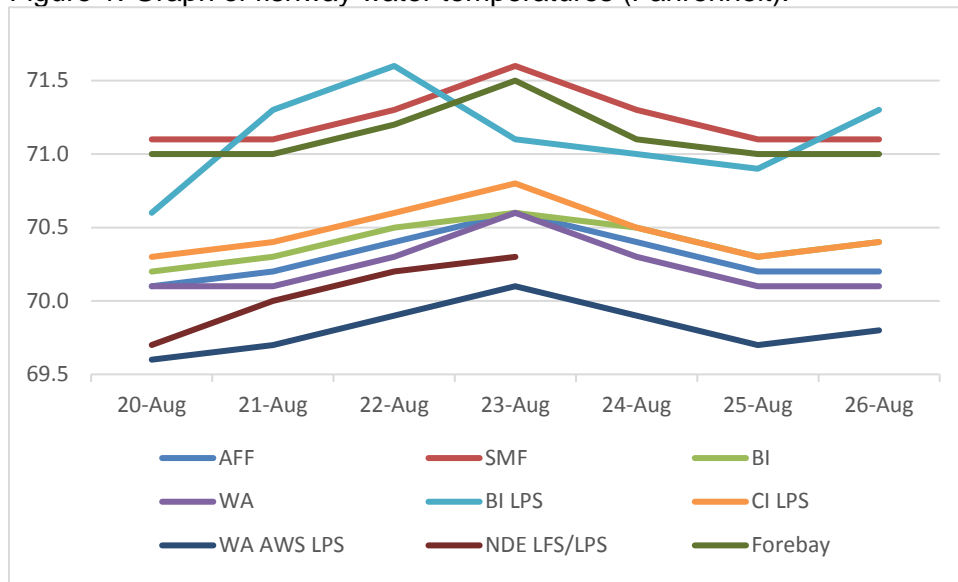
**2. WATER QUALITY MONITORING:**

- a. Fishway Temperatures. Temperatures are taken from 01 March through 30 November. Forebay temperatures can be found [online](#).

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

Date	AFF	SMF	BI	WA	BI LPS	CI LPS	WA AWS LPS	NDE LFS/LPS	Forebay
<b>20-Aug</b>	70.1	71.1	70.2	70.1	70.6	70.3	69.6	69.7	71.0
<b>21-Aug</b>	70.2	71.1	70.3	70.1	71.3	70.4	69.7	70.0	71.0
<b>22-Aug</b>	70.4	71.3	70.5	70.3	71.6	70.6	69.9	70.2	71.2
<b>23-Aug</b>	70.6	71.6	70.6	70.6	71.1	70.8	70.1	70.3	71.5
<b>24-Aug</b>	70.4	71.3	70.5	70.3	71.0	70.5	69.9	-	71.1
<b>25-Aug</b>	70.2	71.1	70.3	70.1	70.9	70.3	69.7	-	71.0
<b>26-Aug</b>	70.2	71.1	70.4	70.1	71.3	70.4	69.8	-	71.0

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



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

**3. CONSTRUCTION:** Nothing to report.

**4. HAZMAT, SPILLS AND CLEANUP:** Nothing to report.

**5. TELETYPES CURRENTLY IN EFFECT:**

- a. A teletype sent 06 April states effective 10 April – 31 August, operate BON pursuant to the 2017 FOP, as described within.
- b. A teletype updated on 21 June provides spill caps and lack of load spill conditions to be used from 0000 on 01 April until further notice.
- c. A teletype sent on 11 August states that effective immediately and continuing until further notice operate in accordance with an adjusted turbine unit operating priority order. Unit 15 will be operated as last on, first off. This is to minimize operation due to loose bolts on the flow restrictor plate until repairs can be made.
- d. A teletype sent on 17 August sets forebay operational requests for treaty fisheries. The request that Bonneville forebay operate within a 1.5' hard constraint from 0600 on 21 August to 1800 on 25 August, 0600 on 28 August to 1800 on 01 September, and finally 0600 on 04 September to 1800 on 08 September.

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