

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 22 of 2017, which covers the period from 28 May to 03 June.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 414.5 to 454.4 kcfs. Daily average powerhouse forebay elevation ranged from 72.3 to 73.4' msl. Daily average project tailwater ranged from 28.2 to 30.4' msl. Secchi disk measurements ranged from 2.0 to 3.0'. Daily average water temperature ranged from at 57 to 59 °F.
- b. Spring spill began 10 April. Daily average spill ranged from 224.1 to 279.3 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
2	1134 on 31 May	1151 on 31 May	Inadvertent trip
3	0831 on 24 Feb	---	5-year overhaul
4	0003 on 22 May	---	Annual, bank 3/4
7	0103 on 22 Feb	---	Annual, bank 7/8 outage, main unit breaker replacement
8	0103 on 22 Feb	---	
12	0401 on 31 May	1221 on 31 May	Cooling water pipe repair
15	0654 on 02 Jun	1614 on 02 Jun	FGE equipment work
16	0709 on 27 Mar	---	4-year overhaul

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

- (1) Nighttime operations for lamprey began 01 June.
- (2) Unit F1 was placed in reserve service to float trash from 0233 to 0355 on 3 June.
- (3) Unit F2 was placed in reserve service to float trash from 0030 to 0204 on 28 May, from 0040 to 0152 on 30 May, from 1948 to 2111 on 31 May, and from 0304 to 0416 on 1 June.
- (4) Table 2. Fish unit drawdowns, in feet.

Date	F1	F2
5/28	1.1	0.4
5/29	1.3	3.6
5/30	0.3	2.6

5/31	0.2	6.3
6/1	0.1	6.6
6/2	0.9	5.9
6/3	1.8	17.5

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 began on 17 April.
- b. Normandeau – Fish counting. Visual counting began on 01 April.
- c. PNNL – FGE testing. A hydroacoustic study at the PH2 gatewells as part of biological testing of the FGE mods began on 10 April.
- d. PSMFC – Smolt Monitoring. SbyC is active for NOAA. 191 yearling Chinook and steelhead were examined for GBT: five fish (2.6%) were observed with symptoms. Fallbacks recorded crossing the separator bars: 6 steelhead, 12 salmon, and 8 unknown salmonids. More details can be found on the [FPC web page](#).
- e. USDA – Pinniped and avian hazing. Deck-based pinniped hazing began 01 March, avian hazing on 01 April.
- f. USFWS – Fish Health Survey. Juvenile and 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.
- g. UI – 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 28 May – 03 June.
- b. Fish passage plan observations.

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

Date	Location	FPP Items	Cause	Response
BRADFORD ISLAND – See below				
CASCADES ISLAND				
5/30,6/1-3	CI entrance	Entrance diff < 1'	Conduit sensor	TR submitted
WASHINGTON SHORE				
5/29-30,6/2	Weir 38	Water over weir < 0.9'	Unknown	None

- (2) 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.
- (3) The FG3-4 diffuser shaft was found to be vibrating unusually. The diffuser was closed on 29 Dec 2017 to prevent further damage to the gate. The next opportunity for repair is the 2017-18 winter maintenance period.
- (4) 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.
- (5) Bonneville had the majority of its avian lines broken due to the ice storm (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.
- (6) 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.

c. Adult Fishways.

- (1) The Bradford Island fish ladders went to shad mode at ~1500 on 02 June.
- (2) The AFF remains in service.
- (3) Sensor calibration occurred on 31 May.
- (4) SLEDs are installed in all fishway entrances.

d. Juvenile Fishways.

- (1) The ITS remains in service.
- (2) The hydro-cannon is on.
- (3) The B2CC remains open.

(4) The DSM remains in service.

e. Lamprey Fishways.

(1) The Bradford Is, Cascades Is, and WA shore AWS LPSs remain in service.

(2) The NDE LFS/LPS remains out of service until pumps are installed.

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

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
5/28	6	0	0	0	0
5/29	21	0	0	0	0
5/30	14	0	0	0	0
5/31	---	---	---	---	---
6/1	26	0	0	0	0
6/2	32	0	0	0	0
6/3	7	0	0	0	0

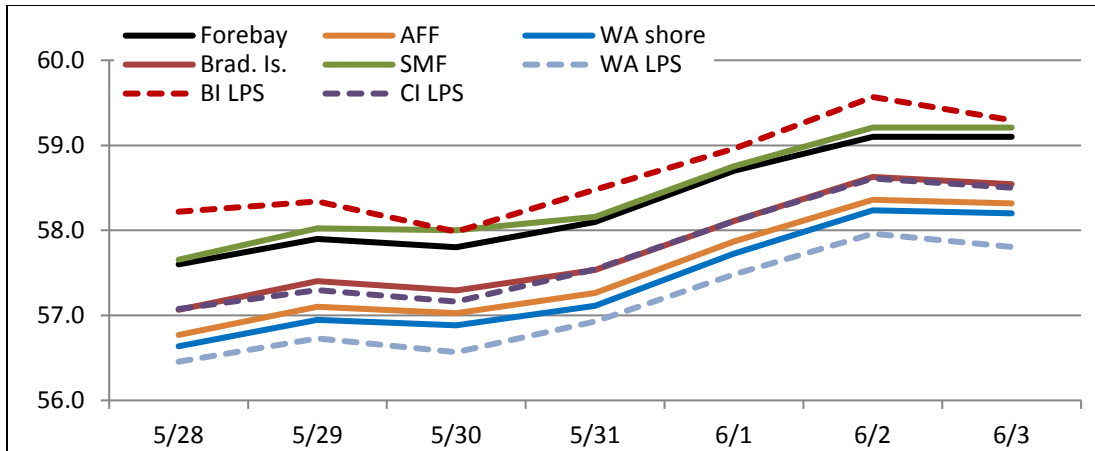
5. WATER QUALITY MONITORING:

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	Forebay	Fishways				Lamprey		
		Brad. Is.	WA shore	AFF	SMF	BI LPS	WA LPS	CI LPS
5/28	57.6	57.1	56.6	56.8	57.7	58.2	56.5	57.1
5/29	57.9	57.4	56.9	57.1	58.0	58.3	56.7	57.3
5/30	57.8	57.3	56.9	57.0	58.0	58.0	56.6	57.2
5/31	58.1	57.5	57.1	57.3	58.2	58.5	56.9	57.5
6/1	58.7	58.1	57.7	57.9	58.8	59.0	57.5	58.1
6/2	59.1	58.6	58.2	58.4	59.2	59.6	58.0	58.6
6/3	59.1	58.5	58.2	58.3	59.2	59.3	57.8	58.5

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



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. 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 03 June provides spill caps and lack of load spill conditions to be used from 0000 on 01 April until further notice.
- c. A teletype updated on 31 May requests BON operate with an instantaneous maximum release of 480 kcfs for flood control. This was updated to 500 kcfs on 2 June.
- d. A teletype sent on 26 May requests that BON forebay be maintained between 71.5 and 73.5', hard constraint, and 71.5 and 73.0', soft constraint from 09 – 11 June during the times listed within. This is for a sports festival in Hood River.

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 Bonneville Project