

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 17 of 2017, which covers the period from 23 to 29 April.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 361.1 to 384.3 kcfs. Daily average powerhouse forebay elevation ranged from 72.9 to 73.5' msl. Daily average project tailwater ranged from 25.8 to 27.4' msl. Secchi disk measurements ranged from 2.5 to 3.0'. Daily average water temperature ranged from at 49 to 51 °F.
- b. Spring spill began 10 April. Daily average spill ranged from 156.9 to 169.7 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
3	0831 on 24 Feb	---	5-year overhaul
4	0851 on 24 Feb	0913 on 24 Feb	Switching
4	1310 on 25 Feb	1332 on 25 Feb	Racking out unit 03 breaker
7	0103 on 22 Feb	---	Annual, bank 7/8 outage, main unit breaker replacement
8	0103 on 22 Feb	---	
11	1038 on 24 Feb	1155 on 24 Feb	Rake trash
12	1242 on 24 Feb	~1400 on 24 Feb	Rake trash
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) F2 was placed in standby to float trash from 0016 to 0106 on 16 April.

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

Date	F1	F2
4/23	0.2	1.6
4/24	0.1	0.1
4/25	0.9	0.9
4/26	0.3	0.4
4/27	0.2	0.3
4/28	0.2	0.5
4/29	0.2	1.3

2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures. None.
- b. STS/VBS inspections. None.
- c. Dewatering and Fish Salvages.
 - (1) On 25 April, Project Biologists recovered 11 juvenile salmonids and 1 sculpin spp. from the unit 3 tail logs. All fishes were returned to the tailrace in good condition.
 - (2) On 26 April, Project Biologists recovered ~700 juvenile salmonids from the unit 3 scroll case, and ~20 juvenile salmonids from the unit 3 draft tube. All fishes were release to the tailrace. The draft tube fish were in good condition, the scroll case fish ranged from good to poor condition.
 - (3) On 27 April, Project Biologists recovered live 5 juvenile salmonids from the unit 3 scroll case during a mortality recovery (see 17BON10). All fishes were returned to the tailrace, 4 in good condition and 1 in poor condition.

3. RESEARCH:

- a. CRITFC – Adult sampling. Annual adult sampling in the AFF began on 17 April.
- b. NOAA – PIT evaluation. A biological study of the B2CC PIT antenna occurred 24-28 April.
- c. Normandeau – Fish counting. Visual counting began on 01 April.
- d. PNNL – FGE testing. A hydroacoustic study at the PH2 gatewells as part of biological testing of the FGE mods began on 10 April. Equipment installation began on 07 March.
- e. PSMFC – Smolt Monitoring. SbyC is active for USFWS and NOAA. 200 yearling Chinook and steelhead were examined for GBT: ten fish (5.0%) were observed with symptoms. Fallbacks recorded crossing the separator bars: 9 steelhead, 3 salmon, and 1 unknown salmonid. More details can be found on the [FPC web page](#).
- f. USDA – Pinniped and avian hazing. Deck-based pinniped hazing began 01 March, avian hazing on 01 April.
- g. 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.

- h. UI – Video monitoring. A DIDSON camera study is schedule to commence in May to monitor fish in the UMT junction area near the new LPS extension.

4. FISHWAYS:

- a. Project biologists inspected 23 – 29 April.
 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 – Nothing to report				
WASHINGTON SHORE				
4/24	Weir 37	Water over weir > 1.1'	Unknown	None
4/23,27-29	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) FG3-5 has been stuck halfway open since mid-January. The next opportunity for repair is the 2017-18 winter maintenance period.
- (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.

c. Adult Fishways.

- (1) The AFF remains in service.
 (2) Sensor calibration occurred on 28 April.
 (3) 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
4/23	30	1	0	0	0
4/24	---	---	---	---	---
4/25	10	0	0	0	0
4/26	15	0	0	0	0
4/27	30	0	0	0	0
4/28	31	0	0	0	0
4/29	15	6	0	0	0

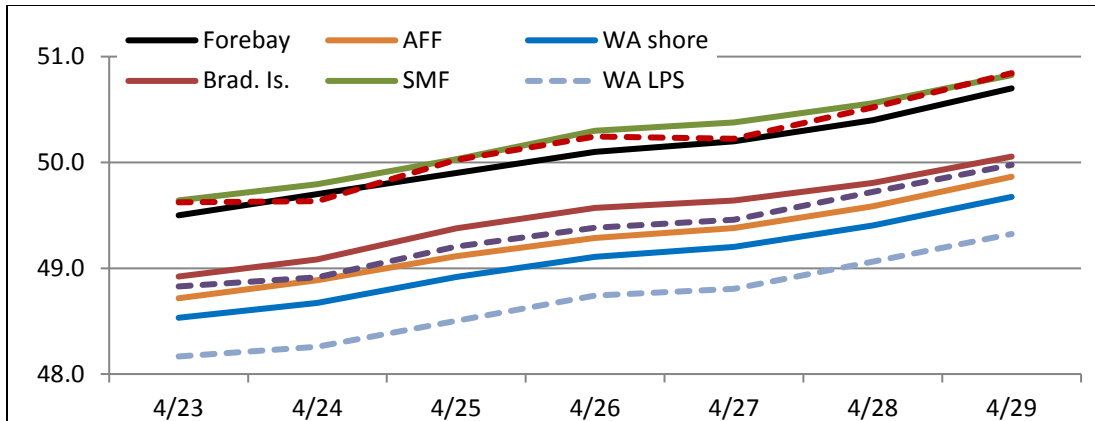
5. WATER QUALITY MONITORING:

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
4/23	49.5	48.9	48.5	48.7	49.6	49.6	48.2	48.8
4/24	49.7	49.1	48.7	48.9	49.8	49.6	48.3	48.9
4/25	49.9	49.4	48.9	49.1	50.0	50.0	48.5	49.2
4/26	50.1	49.6	49.1	49.3	50.3	50.2	48.7	49.4
4/27	50.2	49.6	49.2	49.4	50.4	50.2	48.8	49.5
4/28	50.4	49.8	49.4	49.6	50.6	50.5	49.1	49.7
4/29	50.7	50.1	49.7	49.9	50.8	50.8	49.3	50.0

(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. Equipment installation for a biological study of the FGE mods at PH2 began 07 March and will continue through 10 May.

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

8. TELETYPE 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 27 April provides spill caps and lack of load spill conditions to be used from 0000 on 01 April until further notice.

c. A teletype sent 13 April updates operations for flood control. Maintain outflows no more than 450 kcfs. From 1800 on 14 April to 0600 on 17 April, maintain forebay no higher than 73', soft constraint, 73.5', hard constraint.

d. A teletype sent on 28 April cancels the previous teletype instructing that outflows be maintained at 450 kcfs, effective immediately.

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