

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

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 21 of 2017, which covers the period from 21 to 27 May.

**1. OPERATION SUMMARY:**

- a. Daily average river flows ranged from 391.7 to 440.3 kcfs. Daily average powerhouse forebay elevation ranged from 73.0 to 73.8' msl. Daily average project tailwater ranged from 27.2 to 29.3' msl. Secchi disk measurements ranged from 2.0 to 3.5'. Daily average water temperature ranged from at 53 to 56 °F.
- b. Spring spill began 10 April. Daily average spill ranged from 200.3 to 247.1 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
1	0700 on 25 May	1734 on 25 May	Breaker racking
2	0700 on 25 May	0732 on 25 May	Breaker racking
3	0831 on 24 Feb	---	5-year overhaul
4	0003 on 22 May	---	Annual, bank 3/4
5	0654 on 23 May	0826 on 23 May	Transfer bus testing
6	0700 on 23 May	0806 on 23 May	Transfer bus testing
7	0103 on 22 Feb	---	Annual, bank 7/8 outage, main unit breaker replacement
8	0103 on 22 Feb	---	
9	1035 on 22 May	1037 on 22 May	Transfer bus testing
9	0808 on 23 May	0815 on 23 May	Transfer bus testing
9	0747 on 25 May	0751 on 25 May	Bank 1/2 via transfer bus
10	1018 on 27 May	1033 on 27 May	Transfer bus testing
11	1055 on 24 May	1427 on 24 May	Trash raking
12	1450 on 24 May	1533 on 24 May	Trash raking
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) Unit F2 was out of service to float trash from 1835 to 1952 on 26 May.

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

Date	F1	F2
5/21	0.2	3.0
5/22	0.2	0.2

5/23	0.1	0.7
5/24	0.3	1.8
5/25	0.5	0.8
5/26	0.3	6.3
5/27	0.7	3.7

## 2. MAINTENANCE ACTIVITIES:

### a. Auxiliary Water System Closures.

- (1) FV3-7 was closed for cleaning from 0740 to 0801 on 24 May.
- (2) FV3-9 was closed for cleaning from 0958 to 1040 on 22 May.

### 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. 200 yearling Chinook and steelhead were examined for GBT: nine fish (4.5%) were observed with symptoms. Fallbacks recorded crossing the separator bars: 7 steelhead, 4 salmon, and 6 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 21 – 27 May.
- b. Fish passage plan observations.

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

Date	Location	FPP Items	Cause	Response
<b>BRADFORD ISLAND</b>				
5/23	PH1CC	N entr diff > 2.0'	Unknown	None
5/21,23	PH1CC	Velocity < 1.5 fps	Unknown	None
<b>CASCADES ISLAND</b>				
5/14-17	CI entrance	Entrance diff < 1'	Conduit sensor	TR submitted
<b>WASHINGTON SHORE</b>				
5/21,23-25	Weir 37	Water over weir > 1.2'	Unknown	None
5/22,26-27	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 below 31.0' and below 11.0' msl.

c. Adult Fishways.

- (1) The AFF remains in service.
- (2) Sensor calibration occurred on 25 May.
- (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
5/21	---	---	---	---	---
5/22	10	0	0	0	0
5/23	---	---	---	---	---
5/24	2	0	0	0	0
5/25	18	0	0	0	0
5/26	26	4	0	0	0
5/27	20	4	0	0	0

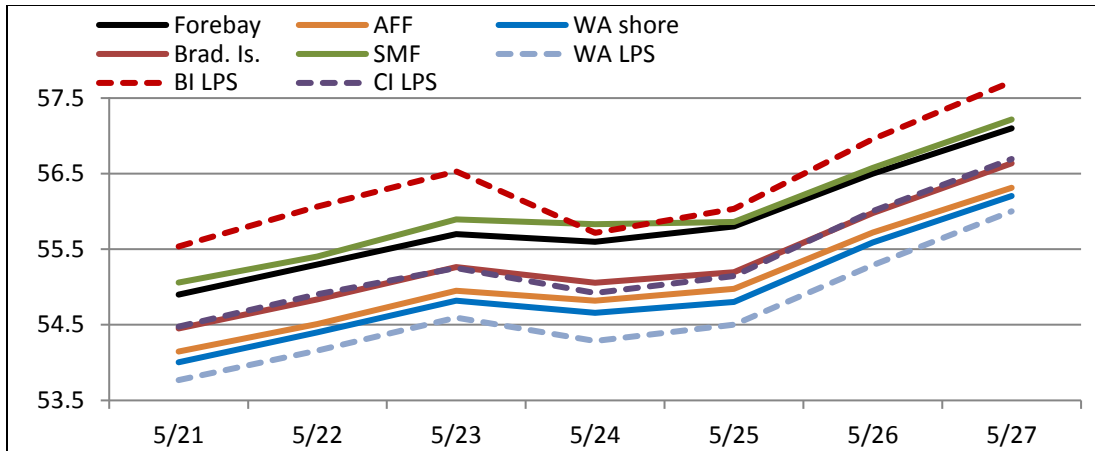
**5. WATER QUALITY MONITORING:**

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
5/21	54.9	54.5	54.0	54.1	55.1	55.5	53.8	54.5
5/22	55.3	54.8	54.4	54.5	55.4	56.1	54.2	54.9
5/23	55.7	55.3	54.8	55.0	55.9	56.5	54.6	55.2
5/24	55.6	55.1	54.7	54.8	55.8	55.7	54.3	54.9
5/25	55.8	55.2	54.8	55.0	55.9	56.0	54.5	55.1
5/26	56.5	56.0	55.6	55.7	56.6	57.0	55.3	56.0
5/27	57.1	56.6	56.2	56.3	57.2	57.7	56.0	56.7

(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 09 May 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 18 May requests BON operate with an instantaneous maximum release of 470 kcfs for flood control.
- 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