

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 48 of 2016, which covers the period from 20 to 26 November.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 139.9 to 156.9 kcfs. Daily average powerhouse forebay elevation ranged from 72.8' to 74.1' msl. Daily average project tailwater ranged from 13.6' to 14.4' msl. Secchi disk measurements remained above 7' all week. Daily average water temperature ranged from 53°F to 54°F.
- b. Spill bays 01 and 18 are open 0.5' to provide attraction flow for Cascades Is. and B-branch fishways, respectively. Daily average spill ranged from 4.3 to 57.1 kcfs.
- c. Unit Operation. PH2 remains the priority powerhouse. Main unit draw downs are measured every Monday and more frequently as needed.

(1) Table 1. Unit Outages.

Unit	OOS Date	RTS Date	Reason
7	0103 on 22 Feb	---	Annual, bank 7/8 outage, main unit breaker replacement
8	0103 on 22 Feb	---	
11	1201 on 20 Nov	0122 on 23-Nov	LFS dive work 16BON11
12	2007 on 14 Sep	---	Exciter ground & 16BON11
13	1200 on 20 Nov	0147 on 23-Nov	LFS dive work 16BON11
14	1200 on 20 Nov	0150 on 23-Nov	LFS dive work 16BON11
15	1200 on 20 Nov	0150 on 23-Nov	LFS dive work 16BON11
16	1200 on 20 Nov	0150 on 23-Nov	LFS dive work 16BON11
17	1158 on 20 Nov	0134 on 23-Nov	LFS dive work 16BON11
18	1156 on 20 Nov	0135 on 23-Nov	LFS dive work 16BON11

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

- (1) F1 was OOS from 1204 on 20-Nov until 2211 on 22-Nov for the LFS dive work. Then went OOS at 0300 on 25-Nov for WA Shore dewatering preparations.
- (2) F2 went OOS from 1205 on 20-Nov until 2254 on 22-Nov for the LFS dive work. Then went OOS at 0300 on 25-Nov for WA Shore dewatering preparations.

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

Date	F1	F2
11/20	OOS	OOS
11/21	OOS	OOS
11/22	OOS	OOS
11/23	0.6	0.8
11/24	---	---
11/25	OOS	OOS
11/26	OOS	OOS

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures.

- (1) FV1-1 was closed from 0709 to 0725 on 21-Nov and 0803 to 0826 on 23-NOV for trash rack cleaning.
- (2) FV3-9 was closed from 0731 to 0755 on 21-Nov, 0840 to 0910 on 22-Nov, and 10001 to 1035 on 23-Nov for trash rack cleaning.
- (3) FV3-7 was closed from 1105 to 1120 on 22-Nov for trash rack cleaning.

b. STS/VBS inspections. None.

c. Dewatering and Fish Salvages.

- (1) FV6-9 was closed starting at 0920 on 25-Nov to assist with commencing orifice flows as part of the WA Shore ladder dewatering.
- (2) WA Shore exit gate was throttled down to assist with commencing orifice flows as part of the WA Shore ladder dewatering.

3. RESEARCH:

a. Normandeau – Fish counting. Visual counting continues.

4. FISHWAYS:

- a. Project biologists inspected 20-23, 25 & 26 November.
- b. Fish passage plan observations.

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

Date	Location	FPP Items	Cause	Response
11/25/16		No bio inspection	Staffing	None
BRADFORD ISLAND				
11/22,26	S entrance	Diff <1.0'	FV1-1 trash rack cleaning	NA
11/23	A-branch	Water over weir > 1.1'	FV3-7 conduit leak	Repair in 2017
CASCADES ISLAND				
11/21,22	CI Entrance	Differential <1.0'	FV5-3 brake failed	Repaired
WASHINGTON SHORE				
11/20	Weir 37	Water over weir > 1.1'	Weir 37 bleed off	NA
11/20	Weir 38	Water over weir > 1.1'	Weir 37 bleed off	NA

(2) PH2CC diffuser A2 was unable to be repaired during winter maintenance 2014/15 and remains closed. It should be open when tailwater is above 13.0' msl. The gate for diffuser B5 was removed for repairs and therefore cannot be closed. It should be closed when tailwater is below 12.0' msl or above 28.0' msl.

(3) 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.

c. Adult Fishways.

(1) The AFF remains dewatered.

(2) Sensor calibration occurred on 23 November.

(3) Eight of 12 floating orifice gates (FOGs) are installed; the 4 middle slots have bulkheads in place. FOG sea lion bars are installed. Plywood sea lion barriers were installed on top of all FOGs on 11 February to prevent sea lions from jumping into the PH2CC.

(4) All SLEDS remain installed.

(5) The Cascades Island ladder was brought online at ~1300 on 23-Nov due to upcoming closures of the B-branch erosion work repairs schedule to commence in December 2016; the south UMT bulkhead was placed at that time, separating it from WA shore. The WA shore ladder went to orifice flow on 25-Nov.

d. Juvenile Fishways.

(1) The ITS remains in service.

(2) The hydro-cannon remains on.

(3) The B2CC remains closed.

(4) The DSM orifices were closed and the ERG opened at 1238 on 20-Nov as part of the LFS dive work [16BON11](#). The DSM was returned to service at 0112 on 23-Nov.

e. Lamprey Fishways.

(1) The Bradford Island LPS, WA AWS LPS, and the Cascade Island LPS were taken out of service for the winter on 27 October.

(2) Due to needed repairs, the NDE LFS/LPS was out of service for the 2016 season. Repairs occurred 14 – 23 November (see [16BON11](#)).

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

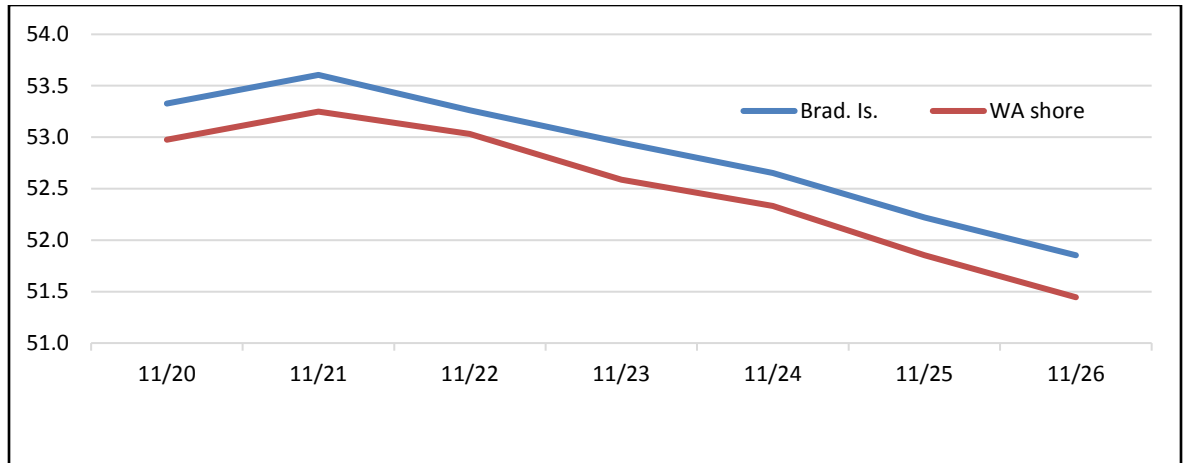
5. WATER QUALITY MONITORING:

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

(1) Table 5. Average daily fishway water temperatures (Fahrenheit).

Date	Fishways	
	Brad. Is.	WA shore
11/20	53.3	53.0
11/21	53.6	53.2
11/22	53.3	53.0
11/23	52.9	52.6
11/24	52.7	52.3
11/25	52.2	51.9
11/26	51.9	51.7

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



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

6. CONSTRUCTION:

- a. Flow control plates as part of the FGE modifications are being installed in units 16 – 18 during the T12 outage. VBS plates will also be installed. Installation for units 11 – 14 will occur during winter maintenance.
- b. LFS repairs at PH2 will occurred 14 – 23 November (see [16BON11](#)), with dive work from 21 – 23 November.

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

8. TELETYPES CURRENTLY IN EFFECT:

- a. A teletype sent on 30 August provides wintertime spill and lack of load conditions to be used from 01 September 2016 through 31 March 2017.
- b. A teletype sent 13 October states effective immediately until further notice do not spill at BON for lack-of-load conditions. If spill becomes necessary, implement the modified spill patterns provided to the BON control room. This operation is to minimize erosion in the spillway tailrace at B-branch ladder.
- c. A teletype sent on 27 October states effective 0600 on 1 November, operate BON tailwater in the following order for Chum spawning: at all hours, 11.5 – 13.0'. If necessary, then up to 16.5' at night (1700 – 0600) with highest elevations at ~2400 hours. Then, if necessary up to 18.5' at night. Then, if necessary 13.0 – 16.5' during the day (0600 – 1700) and up to max project 24-hour ramp rate limits during night.
- d. A teletype sent on 28 October states the during the official Chum spawning period but no later than 15 January, project outflows may be decreased to 58

kcfs, hard constraint, as long as the Vancouver gauge is maintained at 3.0' or higher. When outflows are reduced due to high water, there is no daily minimum outflow if the 3.0' requirement at the Vancouver gauge is met.

- e. A teletype sent on 9 November and updated on 10 November states that effective 0700 on 14 November, do not operate the B2CC during the T11/T12 outage from 14 – 24 November due to TDG concerns. PH1 will become the priority powerhouse during that time and continuing into winter maintenance.
- f. A teletype sent on 22 November updates the chum spawning tailwater operations and project outflow requirements.
- g. A teletype sent on 22 November updates the spill priority list in accordance with updated Chum spawning tailwater operations and project outflow requirements.

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