

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 46 of 2016, which covers the period from 06 to 12 November.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 135.5 to 147.2 kcfs. Daily average powerhouse forebay elevation ranged from 72.7' to 74.3' msl. Daily average project tailwater ranged from 12.7' to 13.3' msl. Secchi disk measurements stayed above 7' all week. Daily average water temperature was 56°F.
- b. Spill bays 01 and 18 are open 0.5 ft to provide attraction flow for Cascades Is. and B-branch fishways, respectively. Daily average spill ranged from 1.0 to 5.5 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	---	
12	2007 on 14 Sep	---	Exciter ground
15	1013 on 06 Sep	---	T-12 outage
16	0001 on 07 Sep	---	T-12 outage, FGE mods
17	0001 on 07 Sep	---	T-12 outage
18	0657 on 06 Sep	---	T-12 outage, 4 year maintenance

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

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

Date	F1	F2
11/6	0.7	1.1
11/7	0.1	0.2
11/8	0.3	0.3
11/9	0.1	0.1
11/10	0.4	0.4
11/11	0.7	0.9
11/12	1.1	1.3

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures.

(1) FV1-1 was closed for cleaning from 0724 to 0728 on 07 November, from 0727 to 0830 on 09 November.

(2) FV3-9 was closed for cleaning from 0727 to 0757 on 07 November, 1012 to 1021 on 07 November, 0846 to 0901 on 09 November.

b. STS/VBS inspections. None.

c. Dewatering and Fish Salvages. On 08 November, project biologists recovered numerous sculpin and smallmouth bass from tail logs at PH2.

3. RESEARCH:

a. Normandeau – Fish counting. Visual counting continues.

4. FISHWAYS:

a. Project biologists inspected 6 – 12 November.

b. Fish passage plan observations.

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

Date	Location	FPP Items	Cause	Response
BRADFORD ISLAND				
11/7,8	A-branch	Water over weir > 1.1'	FV3-7 conduit leak	Repair in 2017
CASCADES ISLAND – Nothing to report				
WASHINGTON SHORE – Nothing to report				
11/10	Weir 38	Water over weir > 1.1'	Unknown	None

(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 was dewatered on 1 November.
- (2) Sensor calibration occurred on 09 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.

d. Juvenile Fishways.

- (1) The ITS remains in service.
- (2) The hydro-cannon remains on.
- (3) The B2CC was opened from 1905 on 07 November to 0200 on 08 November.
- (4) The DSM remains in service.

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 are coordinated for 14 – 23 November (see [16BON11](#)).

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

5. WATER QUALITY MONITORING:

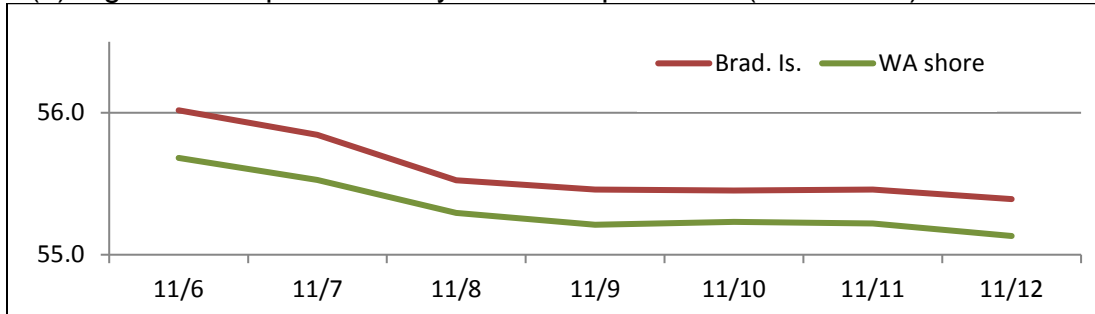
a. Fishway Temperatures. Temperatures are taken from 01 March through 30 November. Forebay temperatures can be found [online](#).

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

Date	Fishways	
	Brad. Is.	WA shore
11/6	56.0	55.7
11/7	55.8	55.5
11/8	55.5	55.3

11/9	55.5	55.2
11/10	55.5	55.2
11/11	55.5	55.2
11/12	55.4	55.1

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



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

6. CONSTRUCTION:

- 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.
- LFS repairs at PH2 will occur 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 teletype sent on 30 August provides wintertime spill and lack of load conditions to be used from 01 September 2016 through 31 March 2017.
- 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.
- 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 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 3 November states that all BON spillways will be tagged out from 0700 to 1630 on 7 November for avian line removal in preparation for B-branch erosion work. Attraction spill will continue as normal.
- f. A teletype send 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.

JERRY A. CARROLL
Operations Manager
Bonneville Project