

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 47 of 2016, which covers the period from 13 to 19 November.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 139.5 to 156.2 kcfs. Daily average powerhouse forebay elevation ranged from 72.6 to 74.2' msl. Daily average project tailwater ranged from 13.3 to 14.3' msl. Secchi disk measurements remained above 7' all week. Daily average water temperature ranged from 54 to 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 42.3 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
1	0837 on 15 Nov	1149 on 15 Nov	Rake trash
2	1240 on 15 Nov	1422 on 15 Nov	Rake trash
3	1424 on 15 Nov	1620 on 15 Nov	Rake trash
4	0741 on 16 Nov	1017 on 16 Nov	Rake trash
5	1018 on 16 Nov	1132 on 16 Nov	Rake trash
6	1134 on 16 Nov	1342 on 16 Nov	Rake trash
6	0848 on 17 Nov	1224 on 17 Nov	Rake trash
7	0103 on 22 Feb	---	Annual, bank 7/8 outage, main unit breaker replacement
8	0103 on 22 Feb	---	
9	0706 on 17 Nov	0846 on 17 Nov	Rake trash
10	1344 on 16 Nov	1559 on 16 Nov	Rake trash
10	1225 on 17 Nov	1622 on 17 Nov	Rake trash
11	0707 on 14 Nov	1603 on 16 Nov	T11/T12 testing
12	2007 on 14 Sep	---	Exciter ground
13	0707 on 14 Nov	1604 on 16 Nov	T11/T12 testing
14	0707 on 14 Nov	1607 on 16 Nov	T11/T12 testing
15	1013 on 06 Sep	1340 on 17 Nov	T-12 outage
16	0001 on 07 Sep	1700 on 18 Nov	T-12 outage, FGE mods
17	0001 on 07 Sep	1339 on 17 Nov	T-12 outage
18	0657 on 06 Sep	1524 on 17 Nov	T-12 outage, 4 year maintenance

- d. Fish Units. Second Powerhouse fish units provide attraction flow for the

Washington Shore (WS) fish ladder.

(1) Floating trash occurred from 1847 on 18 Nov to 0002 on 19 Nov for F1 and from 1848 on 18 Nov to 0006 on 19 Nov for F2.

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

Date	F1	F2
11/13	0.5	0.7
11/14	--	--
11/15	--	--
11/16	--	--
11/17	1.1	1.7
11/18	8.1	8.6
11/19	3.8	2.0

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures.

(1) FV1-1 was closed for cleaning from 0715 to 0734 on 14 November, from 0729 to 0745 on 15 November, from 0736 to 0721 on 16 November, from 0757 to 0819 on 16 November.

(2) FV3-7 was closed for cleaning from 1027 to 1055 on 19 November.

(3) FV3-9 was closed for cleaning from 0746 to 0812 on 14 November, 1012 to 1021 on 16 November, 0655 to 0714 and 0953 to 1055 on 19 November.

b. STS/VBS inspections. Table 2a.

Unit	Date	Run Hours	Comments
11	11/14	1054	OK
12	11/14	14	OOS
13	11/14	1033	OK
14	11/14	1033	OK
15	11/14	232	OK
16	11/14	---	OOS
17	11/14	187	OK
18	11/14	851	OK

c. Dewatering and Fish Salvages. None.

3. RESEARCH:

a. Normandeau – Fish counting. Visual counting continues.

4. FISHWAYS:

- a. Project biologists inspected 13 – 19 November.
- b. Fish passage plan observations.

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

Date	Location	FPP Items	Cause	Response
BRADFORD ISLAND				
11/13	S entrance	Differential < 1.0'	Unknown	None
CASCADES ISLAND				
11/15-17	Ladder at orifice, UMT bulkhead lowered		Crowder work	See 16BON119
WASHINGTON SHORE				
11/16,19	Weir 37	Water over weir > 1.1'	Unknown	None
11/15,19	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 remains dewatered.

(2) Sensor calibration occurred on 16 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 at orifice flow with no fish passage (UMT bulkhead lowered) from ~0700 on 15 Nov to 1630 on 17 Nov for installation of the count station crowder. See updated 16BON119.

d. Juvenile Fishways.

(1) The ITS remains in service.

- (2) The hydro-cannon remains on.
- (3) The B2CC was opened from 1130 to 1236 on 14 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.

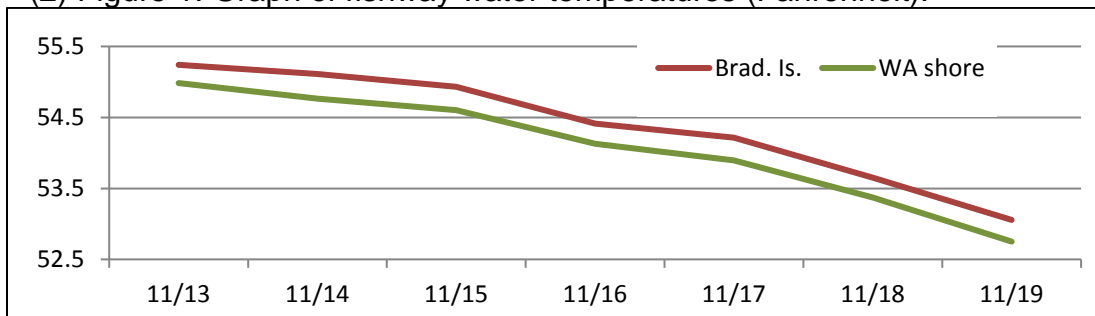
5. WATER QUALITY MONITORING:

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
11/13	55.2	55.0
11/14	55.1	54.8
11/15	54.9	54.6
11/16	54.4	54.1
11/17	54.2	53.9
11/18	53.7	53.4
11/19	53.1	52.8

(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 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. 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 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 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.

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