

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 45 of 2016, which covers the period from 30 October to 05 November.

1. OPERATION SUMMARY:

a. Daily average river flows ranged from 148.3 to 158.5 kcfs. Daily average powerhouse forebay elevation ranged from 73.1' to 74' msl. Daily average project tailwater ranged from 13.8' to 14.4' msl. Secchi disk measurements ranged from 6' to 7' or greater all week. Daily average water temperature ranged from 56 to 57 °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 13.7 kcfs.

(1) Spill bay 18 was placed on sill from 1200 – 1610 on 26 October for a hydrosurvey of the B-branch erosion hole. See [16BON118](#).

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
0	0001 on 31 Oct	1608 on 03 Nov	Maintenance
2	0801 on 03 Nov	1038 on 03 Nov	Rake trash
5	1040 on 03 Nov	1328 on 03 Nov	Rake trash
6	1330 on 03 Nov	1603 on 03 Nov	Rake trash
7	0103 on 22 Feb	---	Annual, bank 7/8 outage, main unit breaker replacement
8	0103 on 22 Feb	---	
10	1321 on 01 Nov	1535 on 01 Nov	Rake trash
11	0942 on 02 Nov	1115 on 02 Nov	Rake trash
12	2007 on 14 Sep	---	Exciter ground
13	1238 on 02 Nov	1331 on 02 Nov	Rake trash
14	1333 on 02 Nov	1437 on 02Nov	Rake Trash
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
10/30	1.4	2.3
10/31	--	--
11/01	0.1	0.3
11/02	0.7	1.1
11/03	0.3	0.3
11/04	0.5	0.6
11/05	0.5	0.7

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures.

- (1) FV1-1 was closed for cleaning from 0734 to 0808 on 31 October, from 0733 to 0745 on 01 November, and from 1515 to 1530 on 04 November.
(2) FV3-9 was closed for cleaning from 0816 to 0845 on 31 October.

b. STS/VBS inspections. None.

c. Dewatering and Fish Salvages.

- (1) On 1 November, Project Biologists recovered 3 adult salmonids, 2 White Sturgeon, 6 Pacific Lamprey, 1 sculpin spp, ~400 American Shad, and ~100 resident fish (pikeminnow, suckers) and bass from the AFF. The sturgeon, salmonids, and lamprey were returned to the forebay in good condition. The remaining fish were returned to the WA shore fish ladder.

3. RESEARCH:

a. Normandeau – Fish counting. Visual counting continues.

b. PSMFC – Smolt Monitoring Program. Operations ended for the season on 31 October. Fallbacks recorded crossing the separator bars this week: 1 steelhead, 4 salmon and 3 unknown salmonids. More details can be found on the [FPC web page](#).

4. FISHWAYS:

a. Project biologists inspected 30 October – 5 November.

b. Fish passage plan observations.

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

Date	Location	FPP Items	Cause	Response
BRADFORD ISLAND				
10/30,31, 11/3	A-branch	Water over weir > 1.1'	FV3-7 conduit leak	Repair in 2017
CASCADES ISLAND – Nothing to report				
WASHINGTON SHORE – Nothing to report				
11/2,5	Weir 37,38	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 27 October.

(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 0955 to 1145 on 02 November, from 1708 on 02 November to 0420 on 03 November, from 1700 on 03 November to 0200 on 04 November, and from 1800 on 04 November to 0200 on 05 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.

(1) Table 4. Counts of tailrace foraging piscivorous birds.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
10/30	31	45	0	0	0
10/31	9	180	0	0	0

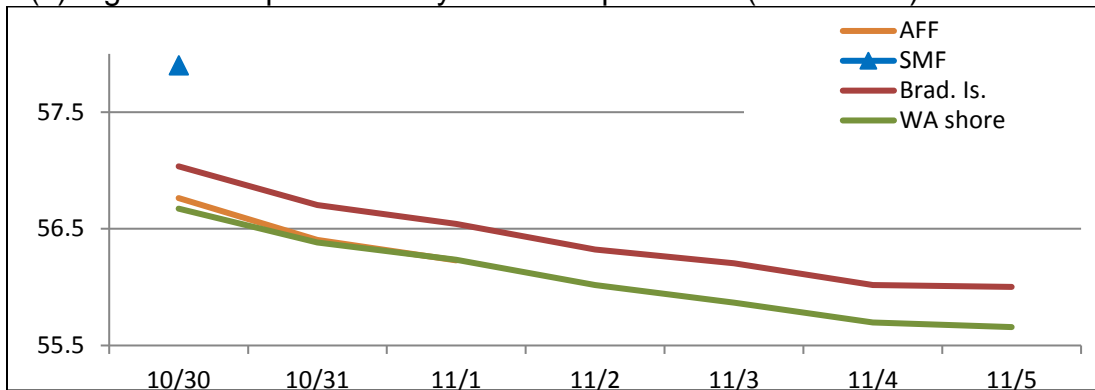
5. WATER QUALITY MONITORING:

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

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

Date	Fishways			
	Brad. Is.	WA shore	AFF	SMF
10/30	57.0	56.7	56.8	57.9
10/31	56.7	56.4	56.4	OOS
11/1	56.5	56.2	56.2	---
11/2	56.3	56.0	OOS	---
11/3	56.2	55.9	---	---
11/4	56.0	55.7	---	---
11/5	56.0	55.7	---	---

(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.

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 25 October and updated 26 October states effective immediately until further notice, make best efforts to not exceed a 13' tailwater during daytime hours (0600 – 1700) to improve conditions for Chum spawning.
- d. 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.
- e. 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.
- f. 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.

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