

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 48 of 2015, which covers the period from 22 – 28 November 2015.

1. OPERATION SUMMARY:

a. Daily average river flows ranged from 121.3 to 144.7 kcfs. Daily average powerhouse forebay elevation ranged from 72.2 to 74.6 msl. Daily average project tailwater ranged from 12.0 to 14.1 msl. Secchi disk measurements ranged from 5.0 to 7.0' or greater all week. Daily average water temperature ranged from 48 to 52°F.

b. Spill bays 1 and 18 are open 0.5' during daytime hours to provide attraction flow to the B-branch and Cascades Island fish ladders. Daily average spill ranged from 0.5 to 4.0 kcfs.

(1) Spill bay 1 was closed at 1229 on 08 October in preparation for the Cascades Island dewatering on 13 October. See [15BON06](#), 15BON84, and section 4.f.4, below. It was reopened at 0855 on 25 November when the Cascades Island fishway was returned to service.

c. Unit Operation. Powerhouse two 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	0834 on 28 Nov	1147 on 28 Nov	Rake trash
2	1244 on 28 Nov	1424 on 28 Nov	Rake trash
8	1030 on 24 Nov	1331 on 24 Nov	Rake trash
9	1053 on 17 Nov	---	5-year overhaul, bank 9/10 maint
10	1015 on 16 Nov	---	Annual maintenance and air gap
11	1003 on 31 Aug	---	Kaplan pipe leak, T11 outage
12	0001 on 1 Sep	---	T11 outage
13	0001 on 1 Sep	---	T11 outage
14	0001 on 1 Sep	---	T11 outage
16	1614 on 22 Nov	1048 on 23 Nov	Water in turbine bearing
16	1058 on 25 Nov	1340 on 25 Nov	STS removal
17	0756 on 25 Nov	1056 on 25 Nov	STS removal
17	1001 on 27 Nov	1127 on 27 Nov	Rake trash
18	1332 on 24 Nov	1625 on 24 Nov	STS removal
18	1130 on 27 Nov	1357 on 27 Nov	Rake trash

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

- (1) F1 was out of service from 0252 to 0411 on 27 November due to a turbine guide bearing alarm.
- (2) The fish units were placed on standby to float trash, or to allow trash to be raked on units 17 and 18 without causing debris to be pulled to the fish units, during the following times:

<p>F1: 1837 to 1952 on 22 Nov 2047 on 22 Nov to 0254 on 23 Nov 2013 to 2117 on 23 Nov 1647 to 1704 on 24 Nov 2113 on 24 Nov to 0215 on 25 Nov* 0344 to 0442 on 26 Nov 2242 on 26 Nov to 0040 on 27 Nov 1124 to 1413 on 27 Nov 1528 to 1641 on 27 Nov 0034 to 0229 on 28 Nov</p>	<p>F2: 1837 to 1948 on 22 Nov 2047 on 22 Nov to 0255 on 23 Nov 1913 to 2116 on 23 Nov 1637 to 1702 on 24 Nov 1822 on 24 Nov to 0214 on 25 Nov* 0344 to 0444 on 26 Nov 2242 on 26 Nov to 0040 on 27 Nov 1341 to 1411 on 27 Nov (23' drawdown) 1636 to 1645 on 27 Nov 0034 to 0228 on 28 Nov 2300 on 28 Nov (to 0343 on 29 Nov)</p>
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*Drawdown of 7.0 and 8.4' for F1 and F2, respectively.

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

Date	F1	F2
11/22	6.0	10.0
11/23	3.3	6.2
11/24	11.0	10.0
11/25	3.0	1.0
11/26	3.0	4.0
11/27	7.0	12.0
11/28	1.2	4.0

2. ACTIVITIES:

a. Auxiliary Water System Closures.

- (1) FV1-1 was closed for cleaning from 0743 to 0944 on 22 November, from 0910 to 0915 on 24 November, and from 0757 to 0820 on 25 November, from 0700 to 0714 on 27 November, and from 0656 to 0720 on 28 November.
- (2) FV3-7 was closed for cleaning from 0700 to 0755 on 23 November, and from 0723 to 0824 on 24 November.
- (3) FV3-9 was closed for cleaning from 0653 to 0730 on 22 November, from 0700 to 0755 on 23 November, from 0723 to 0824 on 24 November, from 0726 to 0752 on 25 November, and from 0726 to 0745 on 28 November.

b. STS/VBS inspections. Table 2a.

Unit	Date	Comments
11-15	---	STS installed
16-17	11/25	STS removed
18	11/24	STS removed

c. Dewatering and Fish Salvages. None.

3. RESEARCH:

a. Normandeau – Fish Counting. Visual counting continues.

4. FISHWAYS:

a. Project biologists inspected 22 – 28 November.

b. Fish passage plan observations.

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

Date	Location	FPP Items	Cause	Response
BRADFORD ISLAND – See below				
11/22,24,26-28	A-branch	Water over weir > 1.1'	Suspected conduit leak	None
11/22,24	PH1CC	Entrance diffs < 1.0'	Cleaning FV1-1	None
11/27-28	PH1CC	S entrance < 1.0'	WG-1 failure	See 4.b.2
CASCADES ISLAND – OOS – See 4.f.4				
11/26	UMT	Water over weir < 0.9'	Unknown	None
WASHINGTON SHORE – See below				
11/26-28	PH2CC	Diff gate B5 open	Removed for repair	See 4.b.5
11/28	Weir 37	Water over weir > 1.1'	Unknown	None

(2) WG-1, one of the south PH1CC entrances, experienced a gate failure on 17 November. Divers recovered the gate's picking beam on 04 August. Repairs are ongoing. The gate is estimated to return to service during the 2015/16 winter maint.

(3) A-branch diffuser FG3-3 is mechanically bound. Repairs are not possible until A-branch is dewatered below tailwater during the 2015/16 winter maintenance period.

(4) B-branch gate 4N, adjacent to the fish entrance, had a bad motor. It was removed on 27 July and has been repaired. It's waiting reinstallation during the 2015/16 winter maintenance. 4N is closed and 4S is open in its place. Both gates should be open below tailwaters of 9.0 msl.

(5) PH2CC diffuser A2 was unable to be repaired during winter maintenance and

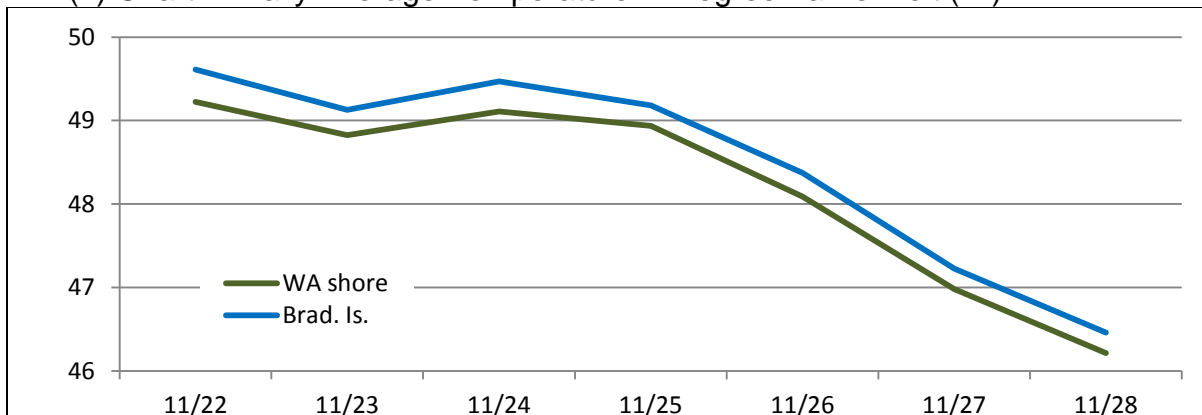
remains closed. It should be open when tailwater is above 13.0 msl. The gate for diffuser B5 was removed for repairs and therefore cannot be closed. It should be closed below tailwaters of 12.0 msl.

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

(1) Table 4. Daily Average Temperature in Degree Fahrenheit (°F).

Date	Fishways	
	Brad. Is.	WA shore
11/22	49.6	49.2
11/23	49.1	48.8
11/24	49.5	49.1
11/25	49.2	48.9
11/26	48.4	48.1
11/27	47.2	47.0
11/28	46.5	46.2

(2) Chart 1. Daily Average Temperature in Degree Fahrenheit (°F).



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

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

f. Adult Fishways.

(1) Calibration occurred on 25 November.

(2) 11 of 12 floating orifice gates (FOGs) are installed; one gate is out for maintenance. FOG SLEDs are installed.

(3) SLEDs were installed in the PH2 entrances on 26 October. The PH1 SLEDs are removed.

- (4) Cascades Island (CI) was placed in orifice flow on 15 October. The ladder was dewatered to tailwater on 19 October and below tailwater on 20 October in order to repair fish valves FV5-3 and FV5-4. (See [15BON06](#) and [15BON84](#).) The ladder was returned to service at 0900 on 25 November.

g. Juvenile Fishways.

- (1) The ITS remains open.
- (2) The hydro-cannon remains in service.

(3) The B2CC was opened from 2053 on 23 Nov to 0136 on 24 Nov due to involuntary spill (see [FPP](#) section 2.4.2.5.t), during daytime hours starting at 1115 on 24 Nov due to pulled STSs at PH2 (see teletype d, below), and from 0026 to 1712 on 25 Nov to flush trash during the nighttime hours.

- (4) The DSM remains in service.

h. Lamprey Fishways.

- (1) All LPSs remain out of service.

5. CONSTRUCTION: Nothing to report.

6. HAZMAT, SPILLS AND CLEANUP: Nothing to report.

7. TELETYPES CURRENTLY IN EFFECT:

a. A teletype sent on 30 March updates the spill caps and lack of load conditions to be used from 0000 on 01 April until further notice.

b. A teletype sent on 6 November states that effective 0600 on 7 November until further notice, operate BON tailwater in the range of 11.5 – 12.5'. If necessary due to outflows, tailwater may be operated up to 13.0' at any time, returning to the target range whenever possible. Then if necessary, tailwater may be operated in the following order: up to 18.5' from the hours 1700 – 0600, then in the range of 13.0 – 16.5' during daytime hours (0600 – 1700) and up to the maximum within ramp rate limits at night. This operation is for Chum spawning below BON at the Ives/Pierce Island complex.

c. A teletype sent on 16 November states that effective 0001 on 17 November until further notice, the BON forebay operational maximum is 74.5', hard constraint. This operation is to keep the WA shore fishway within operating criteria during valve repairs that require the Cascades Island ladder to be OOS.

d. A teletype sent on 24 November states that effective immediately until no later than 15 December, operate the B2CC during daytime hours as defined in Table BON-5

in the FPP, to provide an alternate fallback route for fish since PH2 STSs are pulled.

e. A teletype sent on 25 November cancels previous teletypes restricting operation of BON forebay due to concerns of flooding the WA shore fishway; the CI fishway was returned to service and normal forebay operations may resume.

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