

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 47 of 2017, which covers the period from 19-25 November.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 130.0 to 151.3 kcfs. Daily average powerhouse forebay elevation ranged from 73.4' to 74.6' msl. Daily average project tailwater ranged from 12.8' to 14.1' msl. Secchi disk measurements ranged from 1.5' to 7.0'+. Daily average water temperature ranged from 49°F to 50°F.
- b. Daily average spill ranged from 0.5 to 1.1 kcfs.
- c. Unit Operation. PH2 remains the priority powerhouse. Main unit drawdowns are measured every Monday and more frequently as needed.

(1) Table 1. Unit Outages.

Unit	OOS Date	RTS Date	Reason
17	0717 on 10 Oct	1346 on 22 Nov	4 Year Overhaul
18	0930 on 21 Aug	---	Exciter trip

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

- (1) F1 was forced out of service from 2113 to 2254 on 21 Nov due to high differentials (3.3').
- (2) F2 was forced out of service from 2259 on 21 Nov until 0103 on 22 Nov due to high differentials (3.6').

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

Date	F1	F2
11/19	0.4'	0.7'
11/20	0.4'	0.6'
11/21	3.3'	3.6'
11/22	0.1'	0.1'
11/23	0.4'	0.2'
11/24	0.4'	0.5'
11/25	0.5'	0.4'

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures.

- (1) FV1-1 was closed from 0700 to 0726 on 20 Nov, 0740 to 0805 on 21 Nov, and 0730 to 0743 on 22 Nov for trashrack cleaning. FV1-1 was closed to 1.0' at 1121 on 24 Nov for preparations of the Bradford Island fishway dewatering.
- (2) FV3-9 was closed from 0740 to 0805 on 20 Nov, and 0755 to 0825 on 22 Nov for trashrack cleaning. FV3-9 was closed at 1017 on 24 Nov for preparations of the Bradford Island fishway dewatering.
- (3) FV3-7 was closed to 1.0' at 1122 on 24 Nov for preparations of the Bradford Island fishway dewatering.
- (4) FV4-3 and FV4-4 were closed at 1032 on 24 Nov for preparations of the Bradford Island fishway dewatering.

b. STS/VBS inspections. Nothing to report.

c. Dewatering and Fish Salvages. Nothing to report.

3. RESEARCH:

a. Normandeau – Fish counting. Visual counting continues.

4. FISHWAYS:

a. Project biologists inspected 19-21, 24-25 November.

b. Fish passage plan observations.

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

Date	Location	FPP Items	Cause	Response
11/22/23	BON	No Inspection	Lack of personnel / Holiday	NA
BRADFORD ISLAND				
11/19-20	A-Branch	Differential > 1.1'	Unknown	NA
CASCADES ISLAND - Nothing to report				
WASHINGTON SHORE - Nothing to report				

- (1) 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.
- (2) The FG3-4 diffuser shaft was found to be vibrating unusually. The diffuser was closed on 29 Dec 2016 to prevent further damage to the gate. The next opportunity for repair is the 2017-18 winter maintenance period.

- (3) FG3-8 was found to be banging loudly on 11 May. It was closed until repairs can be made. It should be open above tailwaters of 28.2' msl.
- (4) Bonneville had the majority of its avian lines broken due to ice storms during the 2016/17 winter. Avian lines will be replaced after the new FY & pending results from hydro surveys scheduled to occur 25-26 September.
- (5) PH2 diffuser B4 was discovered to have its stem bent on 24 May. It likely occurred while trying to close and is believed to be open. It should be closed at tailwaters above 31.0' and below 11.0' msl.
- (6) The NDE cannot open past 5' putting the entrance into FPP violation for submergence (>13.0'). It is believed to be full of sand. The NDE gate will have to be removed at a future date and the sand sucked in order for this entrance be in compliance.

b. Adult Fishways.

- (1) The AFF was dewatered on 15 November.
- (2) Sensor calibration did not occur this reporting week.
- (3) SLEDs are installed at Cascades Island and PH2 entrances. PH1 and B-branch entrances were removed on 22 Nov in preparations for the Bradford Island fishway dewatering.

c. Juvenile Fishways.

- (1) The ITS remains in service.
- (2) The hydro-cannon is on.
- (3) The B2CC is out of service.
- (4) The DSM remains in service.

d. Lamprey Fishways.

- (1) The NDE LFS/LPS went out of service for the season on 24 August due to extremely low fish counts.
- (2) The BI, CI, and WA AWS LPSs were taken out of service on 31 October.

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

2. WATER QUALITY MONITORING:

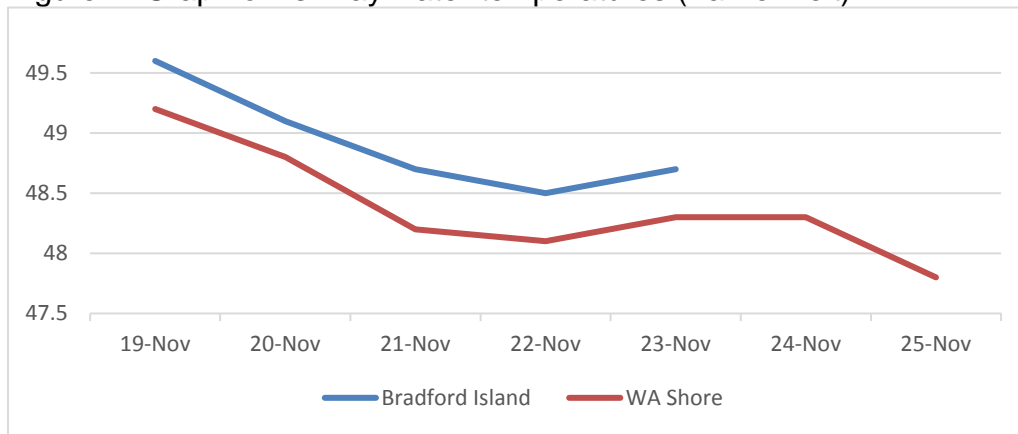
a. Fishway Temperatures. Temperatures are taken from 01 March through 30 November. Forebay temperatures can be found [online](#).

(1) Table 4. Average daily fishway water temperatures (Fahrenheit).

Date	Bradford Island	WA Shore
19-Nov	49.6	49.2
20-Nov	49.1	48.8
21-Nov	48.7	48.2
22-Nov	48.5	48.1
23-Nov	48.7	48.3
24-Nov	---	48.3
25-Nov	---	47.8

*Bradford Island Fishway began orifice flows at approximately 1030 on 24 November.

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



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

3. **CONSTRUCTION:** Nothing to report.

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

5. TELETYPES CURRENTLY IN EFFECT:

- a. A teletype updated on 21 June provides spill caps and lack of load spill conditions to be used from 0000 on 01 April until further notice.
- b. A teletype sent on 02 October outlines operations for Chum spawning. Effective 0600 on 07 November until further notice, as project outflows increase, operate the Bonneville tailrace at all hours in the range of 11.5' to 13.0'. Then if necessary to increase project outflow, tailwater may be operated up to 16.5' from 1700 to 0600, while concentrating the highest elevations around 2400. Then, if necessary operate up to 18.5' from 1700 to 0600. Then, if increasing river flows preclude the ability to manage the tailwater within the steps above, operate to provide a tailwater in the range of 13.0' to 16.5' during daytime hours (0600 to 1700) and up to the maximum within project 24-ramp rate limits during nighttime hours (1700-0600). The goal of this operations is to improve conditions at the Ives/Piece island complex for Chum Salmon spawning.

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