

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)  
 SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 46 of 2018, which covers the period from 11 - 17 November.

## 1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 130.6 to 143.4 kcfs. Daily average powerhouse forebay elevation ranged from 73.8' to 75.5' msl. Daily average project tailwater ranged from 11.5' to 12.0' msl. Secchi disk measurements ranged from 5.0' to 7.0'+. Daily average water temperature ranged from 54°F - 52°F.
- b. Daily average spill remained at 1.0 kcfs.
- c. Unit Operation. PH2 remains the priority powerhouse. Main unit drawdowns are measured every Monday and more frequently as needed.

### (1) Table 1. Main Unit Outages.

Unit	OOS Date	RTS Date	Reason
0	0840 on 08 Nov	---	Bad Turbine Bearings
13	0702 on 01 Oct	---	PO, 4 year overhaul

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

- (1) Fish Unit Outages. Fish Units are periodically placed into reserve service (RS) to float trash when debris differentials become excessive and trash raking is not possible.

Table 2. Fish Unit Outages

Unit	OOS Date	RTS Date	Reason
F2	0216 on 11 Nov	0445 on 11 Nov	RS
F1	1800 on 11 Nov	2011 on 11 Nov	RS
F2	0438 on 12 Nov	0504 on 12 Nov	RS
F1	0452 on 12 Nov	0506 on Nov 12	RS
F2	1450 on 12 Nov	1544 on 12 Nov	RS, 12.0' drawdown
F1	1545 on 12 Nov	1645 on 12 Nov	RS, 8.7' drawdown
F2	1810 on 12 Nov	2132 on 12 Nov	RS
F1	1946 on 12 Nov	2127 on 12 Nov	RS
F2	2208 on 13 Nov	0220 on 14 Nov	RS
F1	2259 on 13 Nov	0216 on 14 Nov	RS

e. Table 3. Fish unit drawdowns, in feet.

Date	F1	F2
11/11	3.8'	0.7'
11/12	8.7'	12.0'
11/13	0.8'	3.8'
11/14	0.1'	0.4'
11/15	0.2'	0.5'
11/16	0.3'	0.9'
11/17	0.4'	2.0'

**2. MAINTENANCE ACTIVITIES:**

a. Auxiliary Water System Closures.

- (1) FV1-1 was closed from 1106 to 1128 on 13 Nov, 0817 to 0838 on 14 Nov, and 0659 to 0746 on 15 Nov for trash rack cleaning.
- (2) FV3-7 was closed from 0745 to 0830 on 13 Nov, 0740 to 0750 on 14 Nov, and 0754 to 0835 on 15 Nov for trash rack cleaning.
- (3) FV3-9 was closed from 0745 to 0830 on 13 Nov, 0740 to 0750 on 14 Nov, and 0754 to 0835 on 15 Nov for trash rack cleaning.

b. STS/VBS Inspections. Nothing to report.

c. Dewatering and Fish Salvages. On 07 November, project biologists salvaged thousands of American Shad, suckers, and Northern Pikeminnow, 1 juvenile salmonid, and ~10 juvenile lamprey from the AFF.

**3. RESEARCH:**

a. Normandeau – Fish counting. Daytime visual counting (0500 to 2100) began on 01 April. Fish counts can be viewed [here](#).

**4. FISHWAYS:**

a. Project biologists inspected from 11-17 November.

b. Fish passage plan observations.

(1) Table 4. FPP out of criteria items.

Date	Location	FPP Violation	Cause	Response
<b>Bradford Island</b>				
11/14-17	A-Branch	Differential > 1.1'	Unknown	NA
<b>Cascades Island – Nothing to report.</b>				
<b>Washington Shore – Nothing to report.</b>				

- (2) Bonneville had the majority of its avian lines broken due to ice storms during the 2016/17 winter. All zones had been installed besides PH2. PH2 lines are awaiting installation. Numerous lines have since been broken again by high flows and debris at Cascades Island and Spillway locations.
- (3) PH2 diffuser B4 was discovered to have its stem bent on 24 May 2017. This likely occurred while trying to close and the valve is believed to be open. It should be closed at tailwaters above 31.0' and below 11.0' msl.
- (4) On 01 May, FG6-11 was found broken partially open. The diffuser shaft had broken away from the motor. Due to the subsidence issues at Cascades Island, repairs cannot occur until crane support is allowed in the vicinity.
- (5) The South Downstream Entrance (SDE) and North Downstream Entrance (NDE) gates will not lower past 4' and 6', respectively. It is believed the gates pits are obstructed with sediment. They will be addressed during the winter maintenance period.
- (6) On 18 August, FG6-12 was found to be mechanically bound in the open position. FG6-12 should only be open with tailwaters ranging from 11.0'-33.0'. Due to the subsidence issues at Cascades Island, repairs cannot occur until crane support is allowed in the vicinity.
- (7) Weir gates 2 and 64 have been unable to maintain submergence level criteria when tailwaters are below 11.0' msl. This is due to the minimum elevations of 3.1' for WG-2 and 2.8' for WG-64.
- (8) On 13 September, FG6-14 was manually closed, due to issues surrounding FG6-11 and FG6-12 (see above). Through trial and error this was found to help facilitate FPP entrance differential criteria and alleviate "boiling" from adjacent diffusers within the Cascades Island fishway. FG6-14 should be open during tailwaters of 9.0'-28.0'.

c. Adult Fishways.

- (1) The AFF was taken out of service on 07 November.
- (2) Sensor calibration occurred on 16 November.
- (3) SLEDs are installed at all entrances.

d. Juvenile Fishways.

- (1) The ITS remains in service.
- (2) The hydro-cannon remains offline.
- (3) The B2CC remains offline.
- (4) The DSM remains in service.
- (5) STSs are installed.

e. Lamprey Fishways. All lamprey passages systems remain offline.

f. Avian Monitoring. Avian counts are recorded 01 April – 31 October.

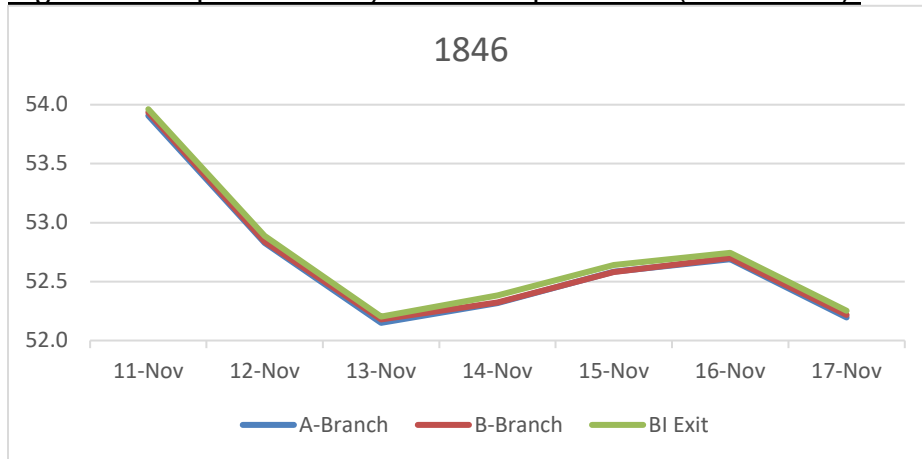
**5. WATER QUALITY MONITORING:**

a. Fishway Temperatures. Temperatures are taken from 01 March through 30 November.

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

Date	A-Branch	B-Branch	BI Exit
11-Nov	53.9	53.9	54.0
12-Nov	52.8	52.8	52.9
13-Nov	52.2	52.2	52.2
14-Nov	52.3	52.3	52.4
15-Nov	52.6	52.6	52.6
16-Nov	52.7	52.7	52.7
17-Nov	52.2	52.2	52.3

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



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

**6. CONSTRUCTION:** Nothing to report.

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

**8. TELETYPES CURRENTLY IN EFFECT:**

- a. A teletype sent on 30 August outlines the wintertime spill priority list and wintertime spill caps for all Columbia Basin projects and BPA.
- b. A teletype sent on 29 October outlines Chum Salmon spawning tailwater requirements until further notice.
- c. A teletype sent on 07 November states that from 13-15 November, 1100-1700 daily, operate BON pool above 76.0', soft constraint, 74.5', hard constraint, to support a railroad bridge replacement work near Carson, WA.
- d. A teletype sent on 13 November, extends the previous railroad bridge replacement dates by 1 day through Friday, November 16<sup>th</sup>.

- e. A teletype sent on 13 November states effective 1400 on 13 November and until further notice, operate the BON tailwater in the following order of operating ranges as project outflow increases:
- (1) During all hours operate the project outflow to provide a tailwater elevation of 11.3 - 13.0'.
  - (2) Then if necessary to increase project outflow, tailwater may be operated up to 16.5' during nighttime hours (1700-0600) concentrating highest tailwaters around 2400.
  - (3) Then if necessary to increase project outflow, tailwater may be operated up to 18.5' during nighttime hours (1700-0600).
  - (4) Finally, then if increasing river conditions precludes the ability to manage tailwater within the steps above, operate to provide a tailwater in the range of 13.0 - 16.5' during daytime hours (0600-1700) and up to the maximum project 24-hour ramp rate limits during nighttime hours (1700-0600).

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