CENWP-ODB 25 November 2018

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)
SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 47 of 2018, which covers the period from 18-24 November.

1. OPERATION SUMMARY:

a. Daily average river flows ranged from 117.3 to 134.7 kcfs. Daily average powerhouse forebay elevation ranged from 73.5' to 74.3' msl. Daily average project tailwater ranged from 11.5' to 11.6' msl. Secchi disk measurements remained at 7.0'+. Daily average water temperature ranged from 49°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	0851 on 19 Nov	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	1919 on 18 Nov	0000 on 19 Nov	RS
F1	2154 on 18 Nov	0000 on 19 Nov	RS

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

Date	F1	F2
11/18	1.4’	5.4’
11/19	0.3’	0.3’
11/20	0.5’	0.8’
11/21	0.2’	0.4’
11/22	0.3’	1.0’
11/23	0.3’	1.8’
11/24	0.3’	2.3’

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures.

(1) FV1-1 was closed from 1050 to 1130 on 19 Nov and from 1253 to 1345 on 20 Nov for trash rack cleaning.

(2) FV3-7 was closed from 1009 to 1028 on 19 Nov and from 1455 to 1530 on 21 Nov for trash rack cleaning.

(3) FV3-9 was closed from 1009 to 1028 on 19 Nov and from 1455 to 1530 on 21 Nov for trash rack cleaning.

(4) FV6-9 was closed from 0800 to 0815 on 19 Nov for trash rack cleaning.

b. STS/VBS Inspections. Nothing to report.

c. Dewatering and Fish Salvages. Nothing to report.

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 18-21 & 23-24 November.

b. Fish passage plan observations.

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

Date	Location	FPP Violation	Cause	Response
11/22	BON	No inspection	Holiday	NA
Bradford Island				
11/18-21, 23	A-Branch	Differential > 1.1’	Unknown	NA
Cascades Island – Nothing to report.				
Washington Shore – Nothing to report.				

(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 did not occur this reporting week.

(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.

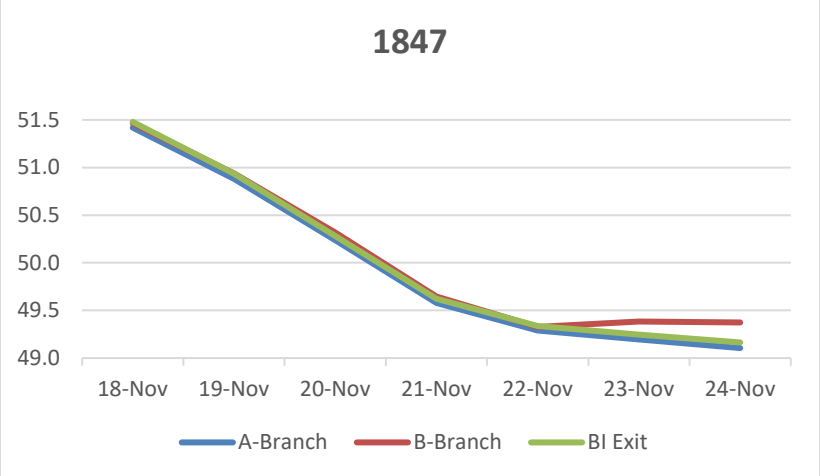
5. WATER QUALITY MONITORING:

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
18-Nov	51.4	51.5	51.5
19-Nov	50.9	50.9	50.9
20-Nov	50.2	50.3	50.3
21-Nov	49.6	49.6	49.6
22-Nov	49.3	49.3	49.3
23-Nov	49.2	49.4	49.2
24-Nov	49.1	49.4	49.2

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 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, operated 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).

MICHAEL ADAMS, P.E.
Operations Manager
Bonneville Project