

## MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 45 of 2017, which covers the period from 05-11 November.

**1. OPERATION SUMMARY:**

a. Daily average river flows ranged from 113.8 to 130.0 kcfs. Daily average powerhouse forebay elevation ranged from 73.3' to 74.1' msl. Daily average project tailwater ranged from 11.2' to 11.8' msl. Secchi disk measurements ranged from 6' to 7.0'+. Daily average water temperature ranged from 51°F to 54°F.

b. Daily average spill ranged from 0.3 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
03	0003 on 06 Nov	---	Painting
04	0001 on 07 Nov	1638 on 07 Nov	Gear Pump Piping Modificaiton
05	0857 on 08 Nov	1130 on 08 Nov	BPA Work
06	0002 on 06 Nov	---	Slip Rings
07	0857 on 08 Nov	1130 on 08 Nov	BPA Work
08	0857 on 08 Nov	1130 on 08 Nov	BPA Work
17	0717 on 10 Oct	---	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) Table 2. Fish unit drawdowns, in feet.

Date	F1	F2
11/05	0.5'	0.5'
11/06	0.1'	0.3'
11/07	3.0'	0.3'
11/08	2.8'	2.6'
11/09	0.3'	0.2'
11/10	0.5'	0.5'
11/11	0.1'	0.2'

**2. MAINTENANCE ACTIVITIES:**

- a. Auxiliary Water System Closures.
  - (a) FV 1-1 was closed for cleaning from 0707 to 0722 on 06 November, 1059 to 1124 on 08 November, 0728 to 0758 on 10 November, and 0659 to 0716 on 11 November.
  - (b) FV 3-9 was closed for cleaning from 0730 to 0757 on 06 November, 1000 to 1025 on 08 November, 0813 to 0841 on 10 November, and 0715 to 0720 on 11 November.
- b. STS/VBS inspections.
- c. Dewatering and Fish Salvages. On 07 Nov project biologists salvaged approximately 120 sturgeon from the unit 18 Draft tube. The fish ranged in size from ~6" to ~8". No mortalities were observed.

**3. RESEARCH:**

- a. Normandeau – Fish counting. Visual counting continues.

**4. FISHWAYS:**

- a. Project biologists inspected 05-06, 08-11 November.
- b. Fish passage plan observations.
  - (1) Table 3. FPP out of criteria items.

Date	Location	FPP Items	Cause	Response
11/7	BON	No Inspection	Fish Salvage	NA
<b>BRADFORD ISLAND</b>				
11/5,9-11	A-Branch	Differential > 1.1'	Unknown	NA
11/8	A-Branch	Differential < 0.9'	FV3-7	Trash raked
11/8	B-Branch	Differential < 0.9'	FV4-4	NA
11/8	BI Weir	Differential < 0.9'	FV3-9	Trash raked
<b>CASCADES ISLAND - Nothing to report</b>				
<b>WASHINGTON SHORE - Nothing to report</b>				
11/5	Weir 37	Differential < 0.9'	Unknown	NA
11/5	Weir 38	Differential < 0.9'	Unknown	NA

- (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 remains in service.
- (2) Sensor calibration occurred on 07 November.
- (3) SLEDs are installed in all fishway entrances.

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 made between 01 April and 31 October.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
11/5	0	0	0	0	0
11/6	90	60	0	0	0
11/7	-	-	-	-	-
11/8	0	0	0	0	0
11/9	75	20	0	0	0

11/10	12	0	0	0	0
11/11	16	5	0	0	0

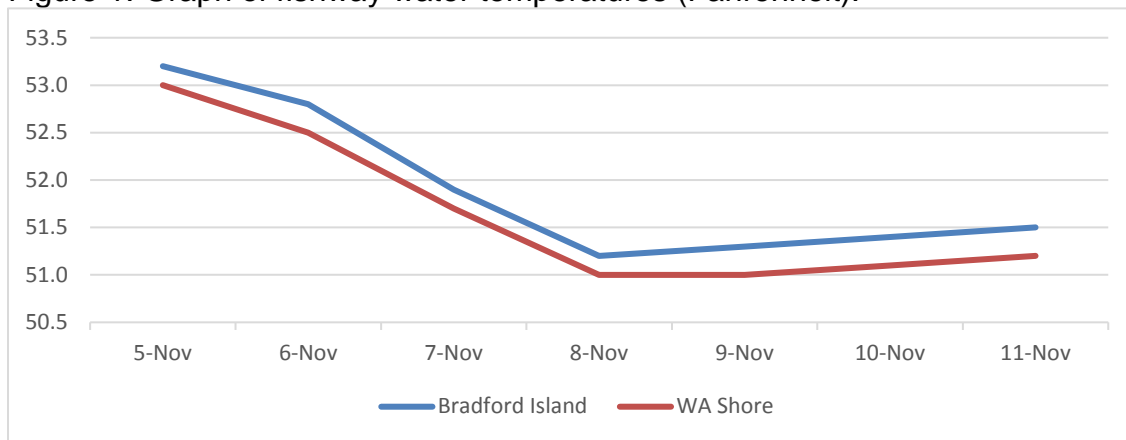
**2. WATER QUALITY MONITORING:**

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
5-Nov	53.2	53.0
6-Nov	52.8	52.5
7-Nov	51.9	51.7
8-Nov	51.2	51.0
9-Nov	51.3	51.0
10-Nov	51.4	51.1
11-Nov	51.5	51.2

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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