

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 43 of 2016, which covers the period from 16 to 22 October.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 107.7 to 132.5 kcfs. Daily average powerhouse forebay elevation ranged from 74.1' to 75.5' msl. Daily average project tailwater ranged from 11.3' to 13.9' msl. Secchi disk measurements ranged from 5' to 7' or greater all week. Daily average water temperature ranged from 59° to 60° F.
- b. Spill bays 01 and 18 are open 0.5 ft to provide attraction flow for Cascades Is. and B-branch fishways, respectively. Daily average spill ranged from 1.1 to 1.2 kcfs.
- c. Unit Operation. PH2 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
7	0103 on 22 Feb	---	Annual, bank 7/8 outage, main unit breaker replacement
8	0103 on 22 Feb	---	
12	2007 on 14 Sep	---	Exciter ground
15	1013 on 06 Sep	---	T-12 outage
16	0001 on 07 Sep	---	T-12 outage
17	0001 on 07 Sep	---	T-12 outage, FGE mods
18	0657 on 06 Sep	---	T-12 outage, 4 year maintenance
11	0954 on 17 Oct	1127 on 17 Oct	Rake Trash
1	0749 on 18 Oct	1016 on 18 Oct	Rake Trash
6	1018 on 18 Oct	1141 on 18 Oct	Rake Trash
10	1145 on 18 Oct	1535 on 18 Oct	Rake Trash
1	0300 on 19 Oct	1517 on 20 Oct	Breaker racking
2	0300 on 19 Oct	0337 on 19 Oct	Breaker racking
2	1407 on 20 Oct	1524 on 20 Oct	Breaker racking

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

(1) FU1 went out of service at 1337 on 13 October due to water flooding the turbine bearing, and was returned to service at 1641 on 18 October. One fish unit operations were implemented on 15 October when F2 was no longer able to compensate and maintain PH2 entrance differentials. See section 4.c.5,

below.

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

Date	F1	F2
10/16	---	2.7
10/17	0.8	---
10/18	0.2	0.4
10/19	0.1	0.5
10/20	0.7	1.0
10/21	0.3	0.7
10/22	0.5	1.0

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures.

- (1) FV3-9 was closed for cleaning from 0754 to 0817 on 17 October and from 0718 to 0728 on 20 October.
- (2) FV1-1 was closed for cleaning from 1040 to 1112 on 17 October and from 0822 to 0835 on 20 October.
- (3) FV5-9 was closed for cleaning from 0821 to 0910 on 18 October.

b. STS/VBS inspections. None.

c. Dewatering and Fish Salvages. None.

3. RESEARCH:

a. CRITFC – AFF. Adult sampling in the AFF concluded on 14 October.

b. Normandeau – Fish counting. Visual counting continues.

c. PSMFC – Smolt Monitoring Program. No research fish were collected this week. GBT monitoring has concluded for the season. Truck transport releases from the Snake basin began 17 August. Fallbacks recorded crossing the separator bars this week: 5 salmon and 2 unknown salmonids. More details can be found on the [FPC web page](#).

d. USFWS – Fish Health Center. Select lamprey mortalities are being held for analysis.

4. FISHWAYS:

a. Project biologists inspected 16 – 22 October.

b. Fish passage plan observations.

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

Date	Location	FPP Items	Cause	Response
BRADFORD ISLAND				
10/20	PH1	Entrance diffs < 1.0'	Unknown	None, Monitor
10/18, 19	A-branch	Water over weir > 1.1'	FV3-7 conduit leak	Repair in 2017
CASCADES ISLAND – Nothing to report				
WASHINGTON SHORE				
10/16, 17, 18	Weir 37,38	Water over weir < 0.9'	Unknown	None
10/16	PH2CC	Entrance diffs < 1.0'	One FU running	None
Ongoing	PH2	Diffuser B5 open	See 4.b.2 below	None

(2) PH2CC diffuser A2 was unable to be repaired during winter maintenance 2014/15 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 when tailwater is below 12.0' msl or above 28.0' msl.

(3) 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.

c. Adult Fishways.

(1) The AFF remains in service.

(2) Sensor calibration occurred on 13 October.

(3) Eight of 12 floating orifice gates (FOGs) are installed; the 4 middle slots have bulkheads in place. FOG sea lion bars are installed. Plywood sea lion barriers were installed on top of all FOGs on 11 February to prevent sea lions from jumping into the PH2CC.

(4) All SLEDS remain installed.

(5) The NUE was closed on 15 October, as well as the south monolith ('B') diffusers when F2 was unable to maintain PH2 entrance differentials (see section 1.d.1, above).

d. Juvenile Fishways.

(1) The ITS remains in service.

(2) The hydro-cannon remains on.

(3) The B2CC was opened from 1000 to 1150 on 17 October and from 0715 to 0817 on 19 October to flush debris.

(4) The DSM remains in service.

e. Lamprey Fishways.

(1) The Bradford Island LPS, WA AWS LPS, and the Cascade Island LPS remain in service.

(2) Due to needed repairs, the NDE LFS/LPS will remain out of service for the 2016 season. Repairs are coordinated for November 2016 (see [16BON11](#)).

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

(1) Table 4. Counts of tailrace foraging piscivorous birds.

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
10/16	90	22	0	0	0
10/17	130	200	0	0	0
10/18	70	150	0	0	0
10/19	50	200	0	0	0
10/20	20	32	0	0	0
10/21	13	22	0	0	0
10/22	12	100	0	0	0

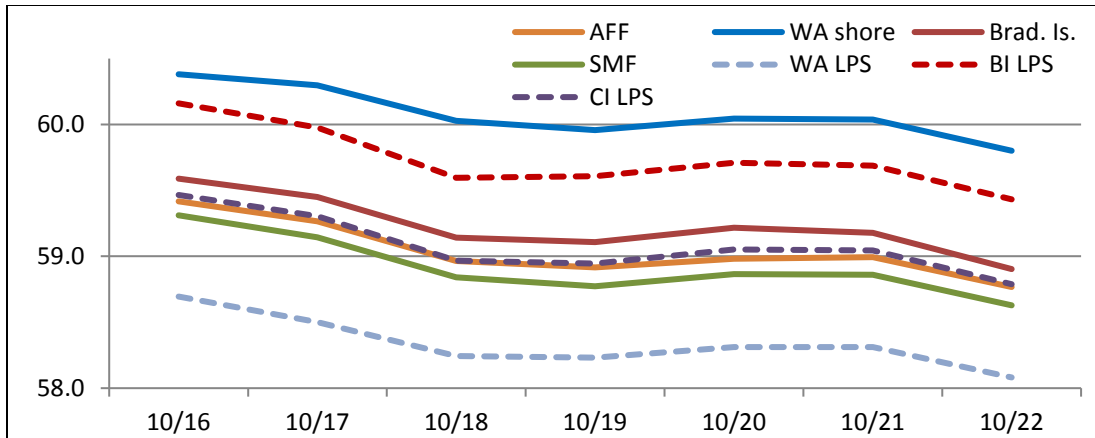
5. WATER QUALITY MONITORING:

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

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

Date	Fishways				Lamprey		
	Brad. Is.	WA shore	AFF	SMF	BI LPS	WA LPS	CI LPS
10/16	59.6	59.3	59.4	60.4	60.2	58.7	59.5
10/17	59.5	59.1	59.3	60.3	60.0	58.5	59.3
10/18	59.1	58.8	59.0	60.0	59.6	58.2	59.0
10/19	59.1	58.8	58.9	60.0	59.6	58.2	58.9
10/20	59.2	58.9	59.0	60.0	59.7	58.3	59.1
10/21	59.2	58.9	59.0	60.0	59.7	58.3	59.0
10/22	58.9	58.6	58.8	59.8	59.4	58.1	58.8

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



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

6. CONSTRUCTION:

a. Flow control plates as part of the FGE modifications are being installed in units 16 – 18 during the T12 outage. VBS plates will also be installed. Installation for units 11 – 14 will occur during winter maintenance.

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

8. TELETYPES CURRENTLY IN EFFECT:

- a. A teletype sent on 30 August provides wintertime spill and lack of load conditions to be used from 01 September 2016 through 31 March 2017.
- b. A teletype sent on 12 October requests that BON pool operate within a 1.5' band, hard constraint, from 0600 on 17 October to 1800 on 21 October for fall treaty fishing.
- c. A teletype sent 13 October states effective immediately until further notice do not spill at BON for lack-of-load conditions. If spill becomes necessary, implement the modified spill patterns provided to the BON control room. This operation is to minimize erosion in the spillway tailrace at B-branch ladder.
- d. A teletype sent on 14 October requests that BON pool be maintained at 75.5 – 76.5 msl, hard constraint, from 1100 – 1300 on 24 October to pull sail boats at Hood River.
- e. A teletype sent on 18 October requests that BON take spillbays 2 through 18 out of service from 1200 -1700 on 26 October. The goal is to provide safe conditions for a hydrosurvey of erosion holes at the Bradford Island B-Branch entrance.

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