

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)
 SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 22 of 2018, which covers the period from 27 May – 02 June.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 388.0 to 474.7 kcfs. Daily average powerhouse forebay elevation ranged from 73.3' to 74.6' msl. Daily average project tailwater ranged from 26.8' to 30.6' msl. Secchi disk measurements ranged from 2.0' to 3.0'. Daily average water temperature ranged from 58°F - 59°F.
- b. Daily average spill ranged from 179.4 to 257.6 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
02	0017 on 29 May	---	PO, Annual
04	0822 on 02 Apr	---	5 Year Overhaul
07	0922 on 05 Apr	---	FO, Underrated Disconnect
08	0921 on 05 Apr	---	FO, Underrated Disconnect
18	0828 on 30 May	1118 on 30 May	FO, Clogged Strainer

- d. Fish Units. Second Powerhouse fish units provide attraction flow for the Washington Shore (WS) fish ladder.
 - (1) F2 went into reserve service from 0115 to 0434 on 29 May due to high drawdown.
 - (2) F1 went into reserve service from 0115 to 0434 on 29 May due to high drawdown.
- e. Table 2. Fish unit drawdowns, in feet.

Date	F1	F2
5/27	0.1'	5.1'
5/28	2.3'	2.8'
5/29	3.2'	4.9'
5/30	0.1'	0.2'
5/31	0.4'	1.0'
6/1	0.6'	2.7'
6/2	1.2'	2.5'

2. MAINTENANCE ACTIVITIES:

f. Auxiliary Water System Closures.

(1) FV3-7 was closed from 0709 to 0807 on 29 May for cleaning.

(2) FV3-9 was closed from 0709 to 0807 on 29 May for cleaning.

g. STS/VBS Inspections. Nothing to report.

h. Dewatering and Fish Salvages. Nothing to report.

2. RESEARCH:

a. USACE - Fisheries Field Unit (FFU) Pinniped Monitoring Program. Observations for pinniped abundance and predation began on 02 January and concluded for the season on 01 June. The FFU observes five days each week. The bi-weekly pinniped monitoring update is available [here](#).

b. Normandeau – Fish counting. Daytime visual counting (0500 to 2100) began on 01 April. Nighttime video recording (2100-0500) began on 15 May. Fish counts can be viewed [here](#).

c. PSMFC – Smolt Monitoring. Sample collections at the Smolt Monitoring Facility (SMF) began at 0700 on 02 March. Debris at the primary dewatering structure (PDS) and fish/debris separator was moderate to heavy consisting mostly of woody “mulch-like” debris and a few sticks. Gas Bubble Trauma (GBT) examinations began on 15 April and are typically performed two days per week through the end of spill. Results of this week’s Gas Bubble Trauma (GBT) examinations: 197 yearling Chinook and steelhead examined: 9 fish (4.6%) were observed with GBT symptoms. Please follow this [link](#) to the FPC web page for further details. Fallbacks observed this week: 6 steelhead, 12 salmon and 6 unknown salmonids. Separation by Code is active for NOAA studies (Marsh).

d. USDA – Pinniped / Avian hazing. Deck-based hazing began 01 March for pinnipeds and 01 April for birds. Pinniped hazing concluded for the season on 01 June.

e. CRITFC – Sea lion hazing. Hazing by boat began 05 March and concluded on 16 May.

- f. CRITFC – Adult Salmonid Sampling. Adult Salmonid sampling in the adult fish facility (AFF) began on 25 April and occurs 5 days per week.
- g. University of Idaho. Evaluation of adult Pacific Lamprey passage behavior in relation to lower Columbia River Dam modifications, AFEF Study Code LMP-P-17-1 began on 11 May.
- h. NOAA – Northwest Fisheries Science Center (Frick). Development and evaluation of an adult lamprey wetted wall structure at Bradford Island Fishway 2017-2019 began on 08 May.
- i. NOAA – Northwest Fisheries Science Center (Marsh). Sort by Code (SbyC) recapture and collection of biological data from wild yearling Chinook Salmon, and both hatchery and wild juvenile Steelhead Trout are conducted at Bonneville’s SMF.
- j. USFWS – Lower Columbia River Fish Health Center. Adult and juvenile American Shad will be collected from the project as part of the annual National Wild Fish Health Survey. BON mortalities will also be sent to the USFWS for pathogen analysis and potential causes of death.

3. FISHWAYS:

- a. Bradford Island went into Shad Mode on 27 May.
- b. Project biologists inspected from 27 May to 02 June.
- c. Fish passage plan observations.

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

Date	Location	FPP Violation	Cause	Response
Bradford Island – Nothing to Report.				
Cascades Island – Nothing to Report.				
Washington Shore				
5/28,31,6/2	Weir 38	Differential < FPP	Unknown	NA

- (2) 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 can not occur until crane support is allowed in the vicinity.
- (3) Bonneville had the majority of its avian lines broken due to ice storms during the 2016/17 winter. Avian lines began replacement on 19 March. All zones are in FPP compliance besides PH2. PH2 lines are awaiting installation pending material procurement.

(4) 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.

c. Adult Fishways.

(1) The AFF remains in service.

(2) Sensor calibration check occurred on 30 May.

(3) SLEDs are installed at all entrances.

d. Juvenile Fishways.

(1) The ITS remains in service.

(2) The hydro-cannon remains in service.

(3) The B2CC remains in service.

(4) The DSM remains in service.

(5) STSs are installed.

e. Lamprey Fishways.

(1) The Bradford Island Lamprey Wetted Wall remains in service.

(2) The NDE Lamprey Flume Structure (LFS) remains in service.

(3) The Bradford Island, Cascades Island, and WA Shore AWS LPSs remain in service.

(4) The AFF lamprey trap remains in service

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

Date	Gulls	Cormorants	Terns	Wh. Pelicans	Grebes
5/27	0	0	0	0	0
5/28	0	0	0	0	0
5/29	1	0	0	0	0
5/30	5	0	0	0	0
5/31	1	1	0	0	0
6/1	0	0	0	0	0
6/2	0	0	0	0	0

4. WATER QUALITY MONITORING:

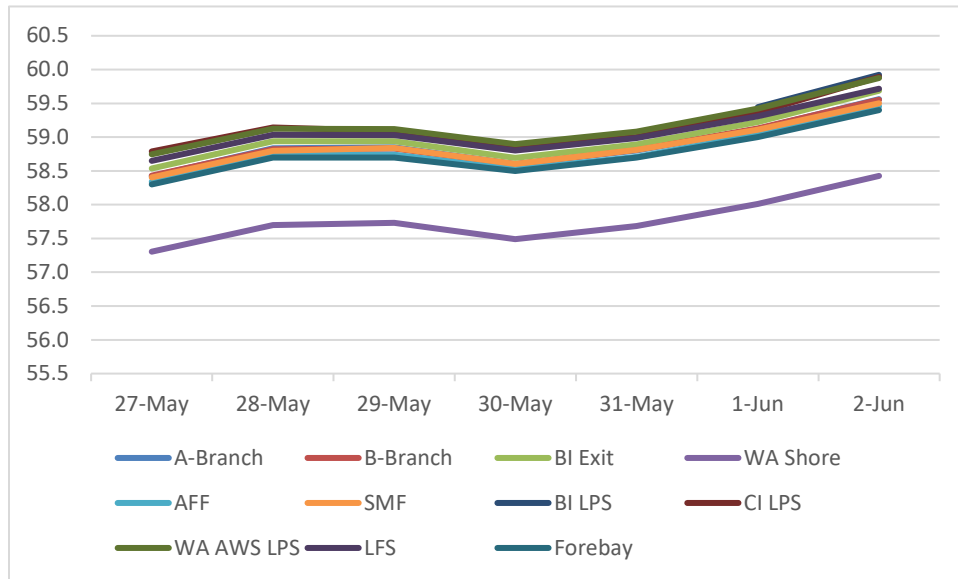
- a. Fishway Temperatures. Temperatures are taken from 01 March through 30 November.

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

Date	A-Branch	B-Branch	BI Exit	WA Shore	AFF	SMF	BI LPS	CI LPS	WA AWS LPS	LFS	Forebay
27-May	58.4	58.4	58.5	57.3	58.3	58.4	---	58.8	58.7	58.6	58.3
28-May	58.8	58.8	58.9	57.7	58.7	58.8	---	59.1	59.1	59.0	58.7
29-May	58.9	58.8	58.9	57.7	58.7	58.8	---	59.1	59.1	59.0	58.7
30-May	58.6	58.6	58.7	57.5	58.5	58.6	---	58.8	58.9	58.8	58.5
31-May	58.8	58.8	58.9	57.7	58.7	58.8	---	59.0	59.1	59.0	58.7
1-Jun	59.1	59.1	59.2	58.0	59.0	59.1	59.4	59.4	59.4	59.3	59.0
2-Jun	59.6	59.6	59.7	58.4	59.5	59.5	59.9	59.9	59.9	59.7	59.4

*BI LPS temperature logger malfunctioned and required replacement.

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



(3) Zebra Mussel Monitoring. No signs of colonization were observed this reporting week.

5. CONSTRUCTION: Nothing to report.

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

7. TELETYPES CURRENTLY IN EFFECT:

- a. A teletype sent on 30 April provides updates on spill and gas cap standards that should be followed until further notice.
- b. A teletype sent on 01 June updated the Columbia Flood Risk Management plan affecting all projects.

TONY R. KIRK
Operations Manager
Bonneville Project