

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)
 SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 21 of 2018, which covers the period from 20-27 May.

1. OPERATION SUMMARY:

- a. Daily average river flows ranged from 474.5 to 489.8 kcfs. Daily average powerhouse forebay elevation ranged from 73.4' to 74.5' msl. Daily average project tailwater ranged from 30.7' to 31.4' msl. Secchi disk measurements ranged from 2.0' to 3.5'. Daily average water temperature ranged from 56°F - 59°F.
- b. Daily average spill ranged from 255.8 to 293 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 | 0658 on 22 May | 0958 on 22 May | ROV work |
| 04 | 0822 on 02 Apr | --- | 5 year overhaul |
| 05 | 0658 on 22 May | 1000 on 22 May | ROV work |
| 07 | 0922 on 05 Apr | --- | FO, Underrated disconnect |
| 08 | 0921 on 05 Apr | --- | FO, Underrated disconnect |
| 09 | 0827 on 24 May | 0856 on 24 May | Blade tracking error |
| 13 | 0003 on 14 May | 1422 on 24 May | PO, Annual |
| 15 | 0035 on 16 Apr | --- | FGE work |
| 18 | 0702 on 15 May | --- | PO, STS inspection |

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

| Date | F1 | F2 |
|------|-----------|-----------|
| 5/20 | 2315-2348 | 0430-0500 |
| | | 2236-2348 |
| 5/21 | | |
| 5/22 | | 1813-1909 |
| 5/23 | | |
| 5/24 | | |
| 5/25 | 1744-2043 | 1931-2109 |
| 5/26 | | |

- e. Table 2. Fish unit drawdowns, in feet.

| Date | F1 | F2 |
|------|------|------|
| 5/20 | 3.5' | 5.0' |
| 5/21 | 0.2' | 0.1' |
| 5/22 | 0.5' | 9.0' |
| 5/23 | 0.5' | 1.0' |
| 5/24 | 0.2' | 0.3' |
| 5/25 | 2.1' | 9.5' |
| 5/26 | 0.1' | 0.1' |

2. MAINTENANCE ACTIVITIES:

- f. Auxiliary Water System Closures.
 (1) FV3-7 was closed for cleaning from 0705 to 0805 on 21 May.
 (2) FV3-9 was closed for cleaning from 0705 to 0805 on 21 May.
- 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 Jan. 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. Fish counts can be viewed [here](#).
- c. PSMFC – Smolt Monitoring. Sample collections at the SMF began at 0700 on 02 March. Debris at the PDS and fish/debris separator was light to moderate consisting mostly of sticks and other woody debris. 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: 100 yearling Chinook and steelhead examined: zero were observed with GBT symptoms. Please follow this [link](#) to the FPC web page for further details. Fallbacks observed this week: 30 steelhead, 5 salmon and 2 unknown salmonid. 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.
- e. CRITFC – Sea lion hazing. Hazing by boat began 05 March.

- f. PNNL – FGE testing. This years’s B2FGE testing data collection has been delayed until 2019 due to equipment faults.
- g. CRITFC – Adult Salmonid Sampling. Adult Salmonid sampling in the adult fish facility (AFF) began on 25 April and occurs 5 days per week.
- h. University of Idaho. Evaluation of adult Pacific Lamprey passage behavior in relation to lower Columbia River Dam modifications, AFEP Study Code LMP-P-17-1 began on 11 May.
- i. 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.
- j. NOAA – Northwest Fisheries Science Center (Marsh).
- k. 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. Project biologists inspected from 20 to 26 May.
- b. 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 | | | | |
| 26 | Weir 38 | Differential < 0.9’ | 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 did not occur this week.

(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 |
|------|-------|------------|-------|--------------|--------|
| 5/20 | 4 | 0 | 0 | 0 | 0 |
| 5/21 | 3 | 1 | 0 | 0 | 0 |
| 5/22 | 1 | 0 | 0 | 0 | 0 |
| 5/23 | 4 | 0 | 0 | 0 | 0 |
| 5/24 | 0 | 1 | 0 | 0 | 0 |
| 5/25 | 0 | 0 | 0 | 0 | 0 |
| 5/26 | 0 | 2 | 0 | 0 | 0 |

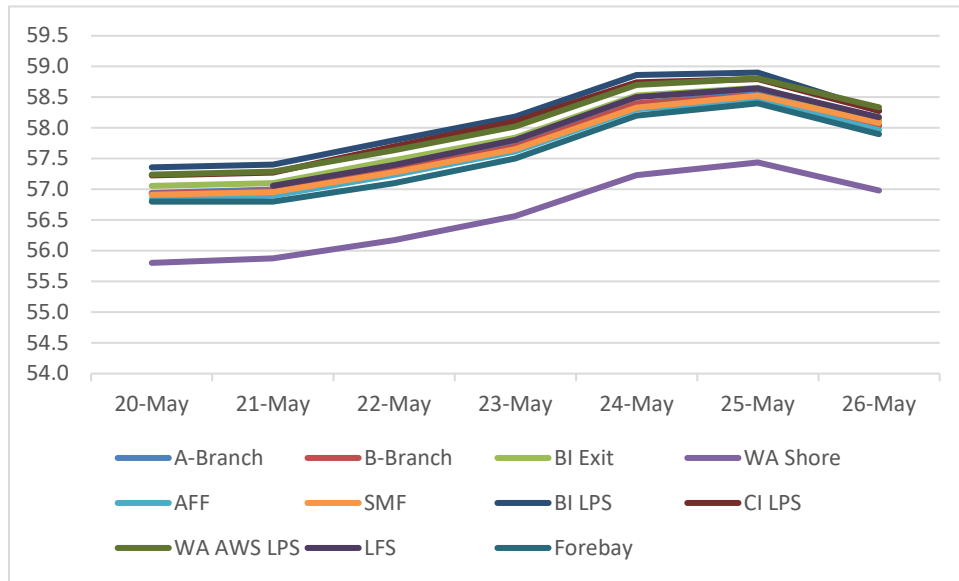
4. WATER QUALITY MONITORING:

- 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 |
|--------|----------|----------|---------|----------|------|------|--------|--------|------------|------|---------|
| 20-May | 56.9 | 56.9 | 57.1 | 55.8 | 56.8 | 56.9 | 57.4 | 57.2 | 57.2 | | 56.8 |
| 21-May | 57.0 | 57.0 | 57.1 | 55.9 | 56.9 | 57.0 | 57.4 | 57.3 | 57.3 | 57.1 | 56.8 |
| 22-May | 57.3 | 57.3 | 57.5 | 56.2 | 57.2 | 57.3 | 57.8 | 57.7 | 57.6 | 57.4 | 57.1 |
| 23-May | 57.7 | 57.7 | 57.8 | 56.6 | 57.6 | 57.7 | 58.2 | 58.1 | 58.0 | 57.8 | 57.5 |
| 24-May | 58.4 | 58.4 | 58.5 | 57.2 | 58.3 | 58.3 | 58.9 | 58.7 | 58.7 | 58.5 | 58.2 |
| 25-May | 58.6 | 58.5 | 58.7 | 57.4 | 58.5 | 58.5 | 58.9 | 58.8 | 58.8 | 58.6 | 58.4 |
| 26-May | 58.0 | 58.0 | 58.1 | 57.0 | 58.0 | 58.1 | 58.3 | 58.3 | 58.3 | 58.2 | 57.9 |

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



(4) 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 04 May outlined the Columbia Flood Risk Management plan affecting all projects.

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