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CORPS OF ENGINEERS, PORTLAND DISTRICT
BONNEVILLE LOCK AND DAM PROJECT
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CENWP-OD-B

25 May 2014

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Project, Fishway and Fish Activities for Week 21 of 2014, which covers the period from 18 – 24 May 2014

1. OPERATION SUMMARY:

a. Daily average river flows ranged from 323.6 to 359.6 kcfs. Daily average project tailwater ranged from 23.9' to 25.5' msl. Daily average powerhouse forebay elevation ranged from 73.9' to 74.7' msl. Daily average water temperatures ranged from 56°F to 58°F this reporting week. Secchi disk measurements ranged from 4.0' to 5.0'.

b. Spill Bays 01 and 18 are open 6" during daylight hours to provide attraction flow for Cascades Island and B-branch, respectively. Summer spill operations congruent with FPP section 2.2.3 took effect on 10 April. Daily spill ranged from 129.0 to 163.1 kcfs this reporting week.

c. Unit Operation. Powerhouse Two remains the priority powerhouse.

(1) Unit Outages. Table 1. Unit Outages.

Unit	OOS Date	RTS Date	Reason
4	0814 on 21 Apr	---	Stator cleaning
6	0719 on 22 May	0909 on 22 May	Raking trash
10	1002 on 22 May	1131 on 22 May	Raking trash
11	0900 on 09 Sep 2012	---	High thrust bearing temps
13	0719 on 14 Apr	1057 on 22 May	Digital Governor & 4 yr Overhaul
15	1320 on 22 Apr	---	Ground on stator

d. Fish Units. Second Powerhouse fish units provide attraction flow for the Washington Shore (WS) fish ladder. The units may be placed on standby, as necessary, during nighttime hours to float debris. Gatewell drawdowns are measured on Tuesdays and more frequently as needed.

2. ACTIVITIES:

a. Auxiliary Water System Closures. The following closure occurred this week:

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(1) FV 3-7 was closed for cleaning from 1258 until 1343 on 22 May.

b. STS/VBS inspections. No inspections occurred this week.

c. Dewatering and Fish Salvage. The following dewatering or salvage activities occurred this week:

(1) On 20 May, Project Biologists recovered 8 sculpin spp., 1 juvenile Chinook, and 4 Pacific Lamprey from Unit 13 tail logs. The lamprey were returned to the forebay in good condition. All other fish were returned to the tailrace in good condition.

(2) Starting on 19 May, Project Biologists began recovering Pacific Lamprey from the Cascade Island AWS lamprey traps. A total of 17 fish were returned to the forebay this reporting week, all in good condition.

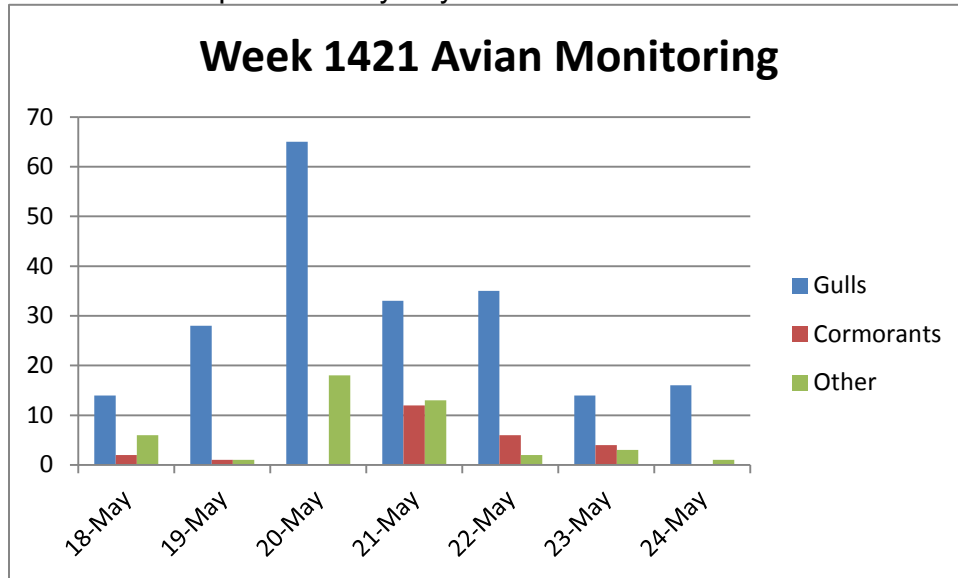
3. RESEARCH:

a. Avian Monitoring. Avian abundance is documented daily during fishway inspections by a Project Biologist. Due to low bird populations at the dam during winter months, bird numbers are recorded 7 days a week between the dates of 01 April and 31 October. Avian monitoring occurs as often as possible outside of these dates and during the non-fish passage season.

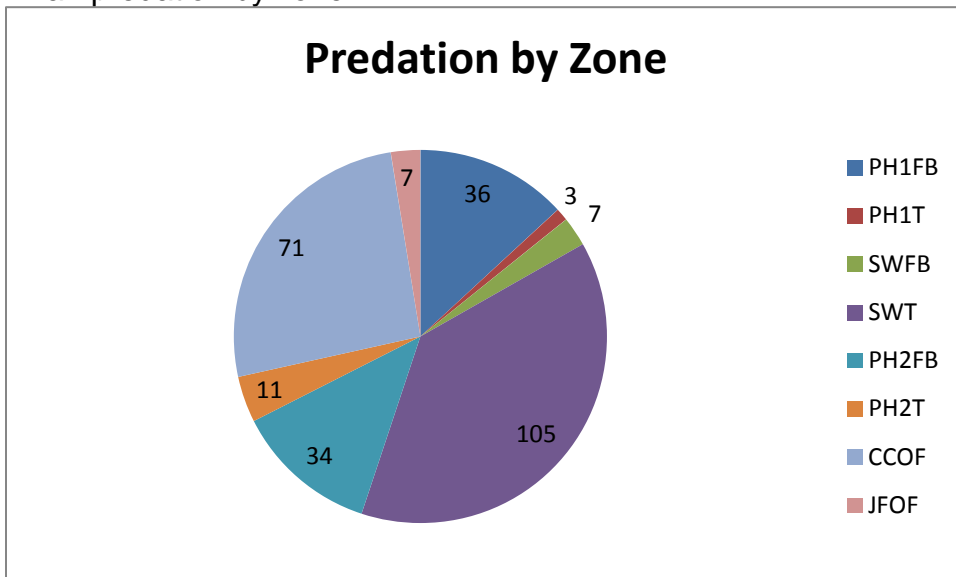
(1) Hazing Effectiveness. Hazing activities are as effective as currently possible. Due to the expansive layout of the Bonneville project, hazers travel between areas of high avian abundance, i.e. JFOF, CCOF, & SWT. With sea lion observations quickly diminishing, hazers are able to focus more attention on avian hazing and visit areas birds are observed more frequently.

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(2) Table 2. Avian predation by day.



(3) Avian predation by zone.



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(4) Avian Predation Map.



- b. CRITFC – AFF. Sampling continues.
- c. CRITFC – Sea Lion Hazing. Boat-based hazing will conclude this week.
- d. Fisheries Field Unit – Sea Lion Observations. Observations commenced on 09 January and will continue until the end of May. [Bi-weekly pinniped reports](#) are available online.
- e. NOAA Fisheries. LPS count network improvements are ongoing. An impedance counter is currently being tested at the Bradford Island LPS and WA Shore AWS LPS. Lamprey trapping at the AFF in conjunction with University of Idaho began on 15 May.
- f. Normandeau – Fish Counting. Visual counting continues.
- g. PSMFC – Smolt Monitoring Program. Juvenile fish condition and index monitoring continues. No research fish were collected this week. Separation by Code is active for NOAA studies. Fallbacks recorded crossing the separator bars this reporting week: 15 steelhead, 9 salmon, and 4 unknown salmonids. Results of this week’s Gas Bubble Trauma (GBT) examinations: 200 yearling Chinook and steelhead examined, three fish (1.5%) were observed with GBT symptoms. More details can be found on the [FPC web page](#).
- h. USDA - Sea Lion and Avian Hazing. Land based hazing continues.
- i. University of Idaho – AFF. USACE-funded adult salmonid sampling continues. Lamprey trapping at the AFF in conjunction with NOAA began on 15 May.

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4. FISHWAYS:

a. Project biologists inspected 18 – 24 May.

b. Fish Passage Plan Observations.

(1) Table 3. FPP Out of Criteria items.

Date	Location	FPP Items	Cause	Response
SPILLWAY				
5/18-24	SW Bay 17	Spill pattern	Hoist brake failure	Parts on order
BRADFORD ISLAND				
5/18	B-branch	Incorrect diffusers open	Faulty TW sensor - in auto	TR in place
CASCADES ISLAND				
5/23	UMT	Water level > 1.1'	Unknown	None
WASHINGTON SHORE – Nothing to report				

(2) PH2CC diffuser A2 is stuck closed, and the gate to B3 has been removed for repairs. Diffusers B7 and B8 have been closed until repairs to their diffuser motors can be performed. The next possible time period will be 2014/15 winter maintenance.

(3) Spill bay 17 experienced a hoist brake failure on 11 March. The gate is currently dogged off at 2.9 ft.

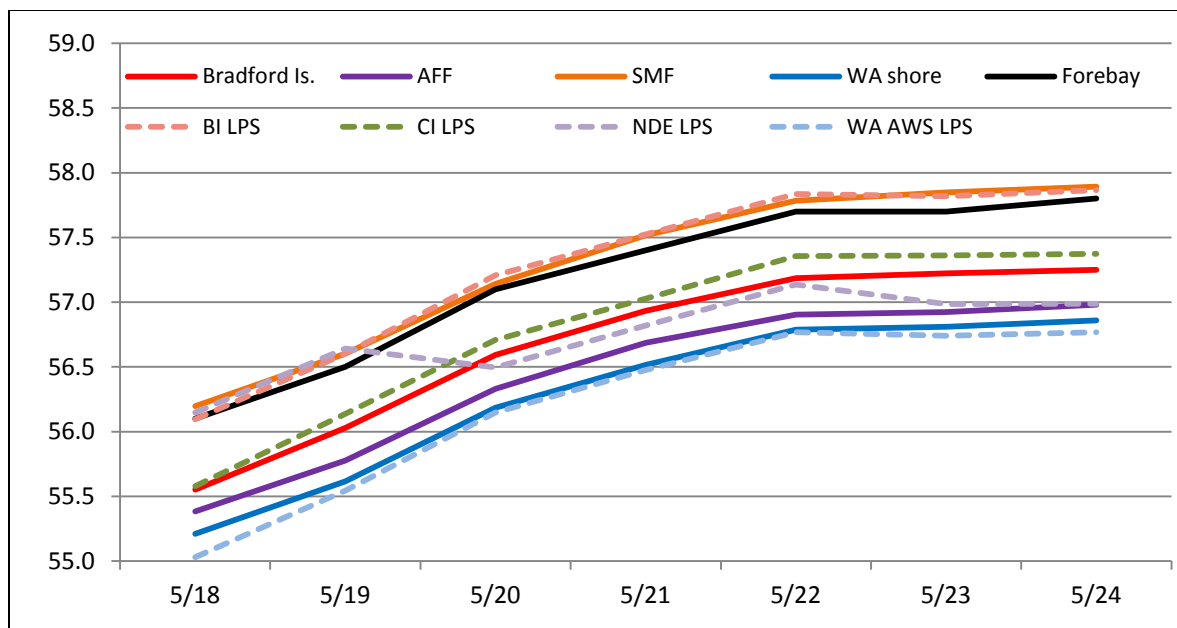
c. Fishway Temperatures. Temperatures are taken from 01 March through 30 November. Forebay temperatures can be found [online](#).

(1) Table 4. Daily Average Temperature in Degree Fahrenheit (°F).

Date	Fishways				Forebay	Lamprey systems			
	Brad Is.	AFF	SMF	WA shore		BI LPS	CI LPS	NDE LPS	WA LPS
5/18	55.6	55.4	56.2	55.2	56.1	56.1	55.6	56.1	55.0
5/19	56.0	55.8	56.6	55.6	56.5	56.6	56.1	56.6	55.5
5/20	56.6	56.3	57.1	56.2	57.1	57.2	56.7	56.5	56.1
5/21	56.9	56.7	57.5	56.5	57.4	57.5	57.0	56.8	56.5
5/22	57.2	56.9	57.8	56.8	57.7	57.8	57.4	57.1	56.8
5/23	57.2	56.9	57.8	56.8	57.7	57.8	57.4	57.0	56.7
5/24	57.3	57.0	57.9	56.9	57.8	57.9	57.4	57.0	56.8

(2) Graph 1. Daily Average Temperature in Degree Fahrenheit (°F).

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

e. Adult Fishways.

- (1) Calibration was checked on 24 May.
- (2) 11 of 12 floating orifice gates (FOGs) are installed; one gate is out for maintenance. FOG SLEDs are installed.
- (3) SLEDs are currently installed at all fishway entrances.

f. Juvenile Fishways.

- (1) The south end gate of the Ice and Trash Sluiceway (ITS) remains removed for ongoing repairs. Plating has been placed over the bottom of the guide slot to minimize fish impacts. The ITS will need to be closed for reinstallation once repairs are complete.
- (2) The DSM remains in service.
- (3) The hydro-cannon remains in service.
- (4) The B2CC remains open.

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(5) The B2CC avian array was removed on 09 – 10 October 2013 to facilitate the WA Shore LFS repairs. The anchor line was replaced on 27 March, and the array will be reinstalled after spill season. The PH1, PH2, and spillway avian arrays remain intact.

g. Lamprey Fishways.

(1) The BI LPS, CI LPS, and WA Shore AWS LPS remain in service.

(2) The WA Shore NDE LPS returned to service on 15 May. The LFS returned to service on 19 May.

5. CONSTRUCTION:

a. WA Shore LPS/LFS Installation. Minor modifications to the LPS continue.

b. FGE Gatewell Flow Control. Contractors installed a flow control plate in the Unit 15A gatewell in preparation for flow testing in spring and summer.

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

7. TELETYPES CURRENTLY IN EFFECT:

a. A teletype sent on 17 March states that effective 17 March at 0800 hours, operate the B2CC continuously through 31 August at 2400.

b. A teletype sent on 09 April lists the spring spill requirements for the spillway and B2CC, effective from 0001 on 10 April until 2400 on 15 June.

c. A teletype sent on 22 April clarified FPP language regarding PH2 unit operation. The intent of the operation is to maintain PH2 units no higher than the 1% mid-range to reduce gatewell turbulence for fish passage. In order to achieve this, PH1 units may be operated above the 1% upper limit up to BOP.

d. A teletype sent on 18 May updates the spill caps and lack of load conditions to be used from 26 April to 10 June.

e. A teletype sent on 16 May requests that the BON pool operate within a 1.5' band, soft constraint, from 0600 hours 20 May to 1800 hours 22 May to help facilitate favorable conditions for the gillnet treaty fishery.

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f. A teletype sent on 23 May updates BON forebay operations for treaty fisheries. From 0600 on 28 May until 1800 on 30 May, operate BON pool within a 1.5' band as a hard constraint.

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Bonneville Project