

**OFFICIAL COORDINATION REQUEST FOR
NON-ROUTINE OPERATIONS AND MAINTENANCE**

COORDINATION TITLE- 14BON49 FGE Program Gatewell Velocity Testing – Phase 2

COORDINATION DATE- 30 July 2014

PROJECT- Bonneville Lock and Dam Powerhouse 2 - Unit 15 and 14 Gatewells

RESPONSE DATE- 6 August 2014

Description of the problem – Elevated mortality has been an ongoing problem in the PH2 gatewells when operating at the upper end of the 1% peak efficiency range.

The USACE Portland District collected water velocity data at PH2 in late May and early June 2014 to help achieve the following objectives:

1. Calibration of the computational fluid dynamics (CFD) model of the gatewell for the longer term evaluation of flow control alternatives.
2. Obtain better understanding of the hydraulic characteristics in the A and C gatewells at the upper 1% peak efficiency with flows greater than 18,000 cfs.
3. Evaluate the effect of modifying porosity on the two uppermost panels of the VBS to reduce excessive (>1.0 fps) velocities normal to the screen face.

Additional testing is needed due to the early return to service of Unit 15 in May and prioritization of High flow in 1% peak efficiency testing at that time.

A summary of the test scenarios are shown in Table 1 below.

Table 1: Scenarios for Data Collection

Test Number	Configuration	Gatewell data collection	Unit Operation – low and high flow in 1% peak efficiency
1	Existing Conditions	14B	Mid-High range
2	Flow Control Plate	15A	Mid range
3	Modified VBS	14A	Mid range

An adjacent unit will be operated at mid range flow during testing.

Length of Time for Testing – 20 through 22 and 25 August 2014. Table 2 below shows the calendar schedule.

Table 2: Preliminary Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
August 17	18 Mob	19 Setup	20 Mid-high flow 14B, Baseline	21 Mid-flow 14A, Modified VBS	22	23
24	25 Sensitivity Test, 14A Standard VBS	26 Mid flow 15A, Flow control Plate	27 Demob	28		

Type of outage required: NO NEW OUTAGE COORDINATION.

Dates of Impacts: 20 – 22 and 25-26 August

Impact on facility operation.

1. A test frame will be in the gatewell for each test. Unit 14 or 15 would be held to a specific range of the 1% for each test day. All testing will occur daylight hours only, 0600-1700. A schedule will be provided to the Bonneville Dam control room.
2. FPP Unit Priority- PH2: 11,18,12,17,13,14,15,16

PH2 Unit priority during velocity testing only:

Testing 14A&B: 18, 12, 14, 13, 15, 17, 16 (Unit 11 Out-of-service)

Testing 15A: 18, 12, 15, 14, 16, 17, 13 (Unit 11 Out-of-service)

Expected impacts on fish passage

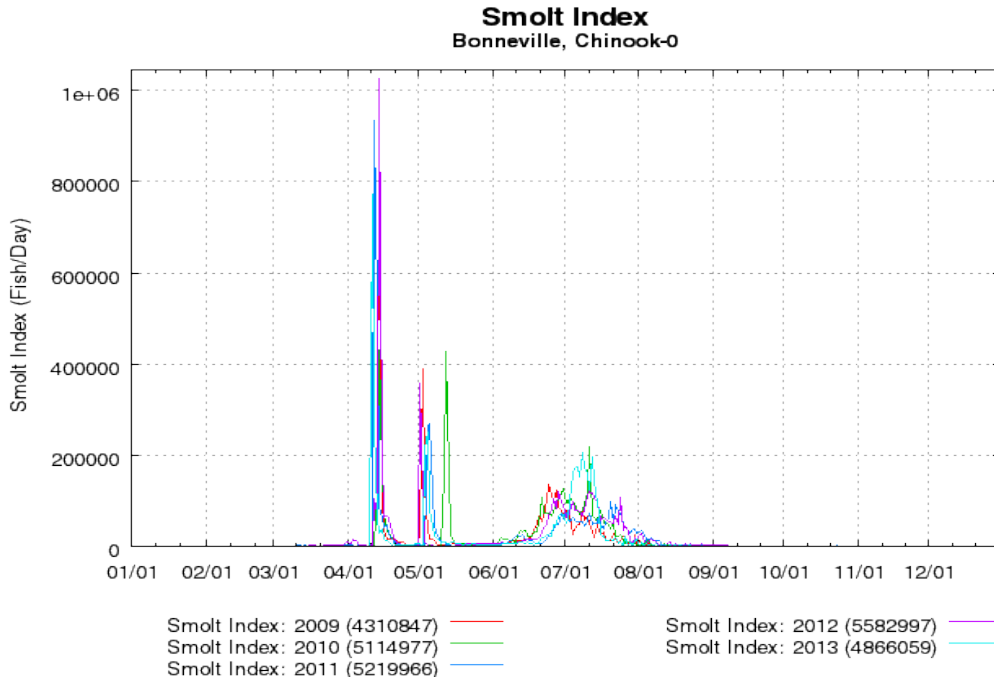
Downstream Juvenile Migrants: The proposed data collection will likely have very minor impacts to migrating run of the river juvenile salmonids passing through the gatewell. The data collection equipment will be in the gatewell during mid-range 1% operation and removed from the water at the end of each test day.

Table 3: 2004-2013 average 90% passage dates

Sp.	90% passage date
Ch1	5/25
ST	5/30
Co	5/31
So	6/3
Ch0	7/15

Source: DART 2014

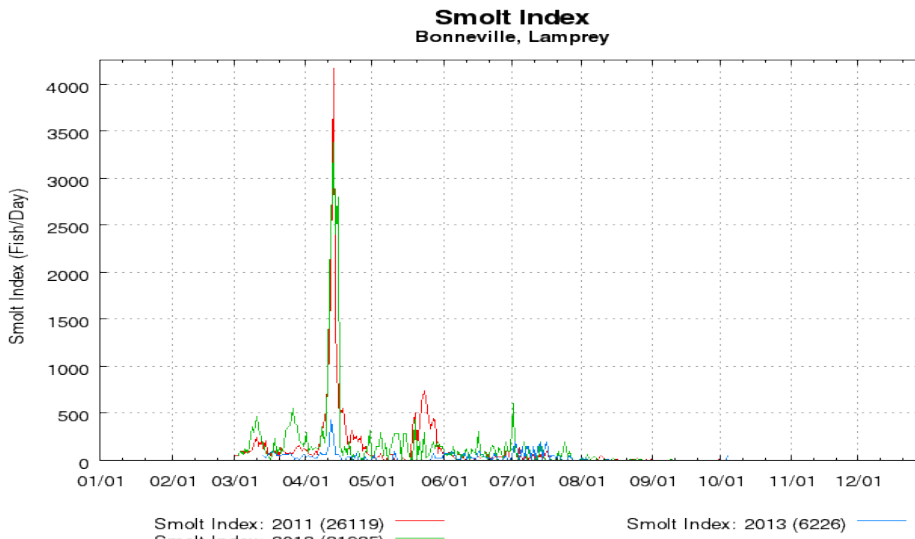
For sub-yearling Chinook, Figure 1 better illustrates the passage timing. Testing occurs following the peak summer outmigration of sub-yearlings.



DART Data Citation Columbia River DART, Columbia Basin Research, University of Washington. (2014). Available from http://www.cbr.washington.edu/dart/query/smolt_graph_text

Figure 1: Bonneville Dam Ch0 smolt passage index, 2009-2013.

Lamprey migration timing is shown in Figure 2 below. Testing will not occur during the peak of juvenile lamprey passage.



DART Data Citation Columbia River DART, Columbia Basin Research, University of Washington. (2014). Available from http://www.cbr.washington.edu/dart/query/smolt_graph_text

Figure 2: Bonneville Dam Juvenile Lamprey passage index, 2011-2013.

Adult Fallback:

Adult Fallback through the Test Unit – Adult fallback is not expected to increase due to the proposed three to four day operation. This falls within the normal FPP Unit operation range. Adult fish passing through the test gatewell would be exposed to the Traversing Beam.

Upstream Migrants:

Unit priority will be modified. Both 18 and 12 remain first priority units.

Comments from agencies

NOAA Fisheries -----Original Message-----

From: Gary Fredricks - NOAA Federal [mailto:gary.fredricks@noaa.gov]

Sent: Friday, August 01, 2014 11:47 AM

To: Mackey, Tammy M NWP; Rerecich, Jonathan G NWP

Cc: Lorz, Tom

Subject: [EXTERNAL] Re: FPOM: Official Coordination - 14BON49 FGE testing

Tammy/Jon, I am good with the action as proposed. My only comment is that the juvenile fish impacts should be assessed using summer migrating subyearling Chinook (i.e., don't include Bonneville Pool spring subyearling hatchery releases in the run timing estimates). Also, listed fish should be assessed using passage data from PIT tagged Snake River fall Chinook at Bonneville. In any case, I don't anticipate any significant detrimental effects on fish passing the project as a result of this work, which is necessary in getting us to the next step in resolving the gatewell injury issue. Thanks, Gary

NWP EC-HD- -----Original Message-----

From: Stevens, Seth T NWP

Sent: Friday, August 01, 2014 8:05 AM

To: Rerecich, Jonathan G NWP; Mackey, Tammy M NWP

Subject: RE: FPOM FGE coordinaton (UNCLASSIFIED)

Jon - ... my comments on the schedule based on input from Harbor.
Thanks,
Seth

Final results- this testing will move forward as coordinated above.

Please email or call with questions or concerns.

Thank you,

Jon Rerecich

NWP PM-E Fisheries

503-808-4779

Jonathan.g.rerecich@usace.army.mil

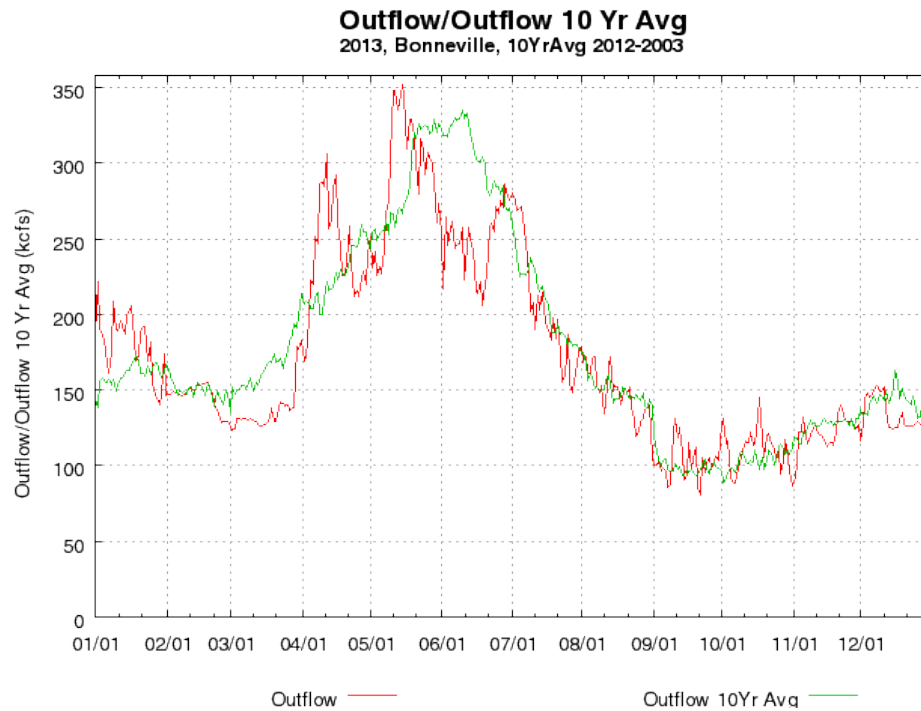
Tammy Mackey

NWP Operations Division Fishery Section

Columbia River Coordination Biologist

503-961-5733

Tammy.m.mackey@usace.army.mil



DART Data Citation

Columbia River DART, Columbia Basin Research, University of Washington. (2014). Available from http://www.cbr.washington.edu/dart/query/smolt_graph_text

Figure 3: Bonneville outflow 10 year average and 2013.



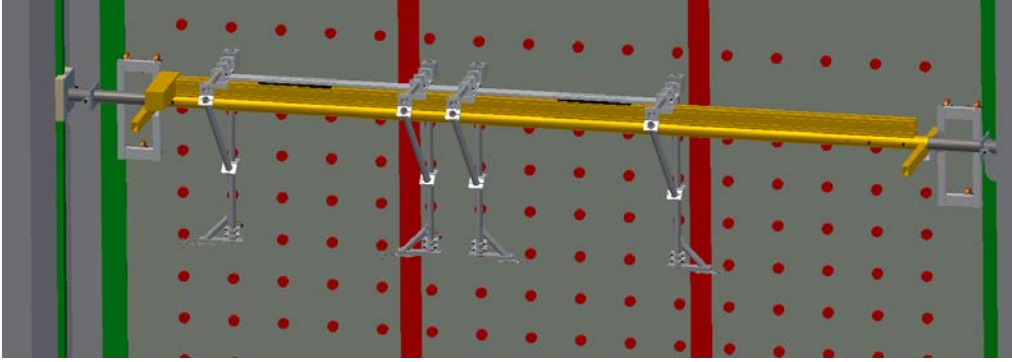


Figure 5: Traversing Beam Inside of Gatewell



Figure 6: Probe Orientation within Gatewell (Looking East)