

OFFICIAL COORDINATION REQUEST FOR NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE- 14BON54 Underwater video of lamprey behavior in BI serpentine section (please see 14BON03 for prior work)

COORDINATION DATE- 7 August 2014

PROJECT- Bonneville Lock and Dam Bradford Island serpentine section

RESPONSE DATE- 8 August 2014 (most comments will be collected on 7 August at the SRWG review)

Description of the problem – The aim of the observations will be to evaluate adult Pacific lamprey behavior at the serpentine weir slots because substantial proportions (25-30%) of adults reaching these areas fail to pass and permanently move downstream (Keefer et al. 2013a, 2013b). The University of Idaho (UI, Caudill) hypothesized that lamprey have difficulty passing through some of the serpentine weir sections, particularly those that are relatively long. Individual weir slots vary in width from 21” to 28” and vary in length from 13” to 44”. At Bradford Island, the longest four slots (44”) are those with FDX-PIT antennas in place.

As previously approved by FPOM (14BON03), UI deployed video cameras in the Bradford Island Fishway serpentine weir section to collect data on Pacific lamprey passage behavior (Figures 1 and 2). The deployments occurred for two weeks in July 2014 as permitted by FPOM and UI has begun to review the data. Image quality is high and a large number of events are present in the video.

The first deployments captured lamprey behavior near the bottom of the fishway at four locations, a pair of cameras above and below weir slot 5 (the location of the most downstream FDX PIT reader) and cameras below weirs 7 and 9 (the next two FDX antennas upstream). These deployments will provide data on net movement and abundance moving upstream. However, these deployments do not describe the vertical distribution of adults. Many of the events we observed in our preliminary review included adult attached to the fishway floor and walls, but inferences on net movement without additional information on behavior in the upper water column will be challenging. Consequently, UI and USACE request the ability to deploy cameras for up to an additional eight (8) nights to collect data on the vertical distribution using a set of four cameras on an I-beam (**Figures 2, 3, and 4**).

Length of Time for Testing – Observations will be made during 8 days in August 2014, with equipment to be removed by 21 August. The I-beam would be deployed up- or downstream of weir slot 5 using a randomized block design with two blocks of four day duration. Installations, removals, and switches between locations will occur at night to minimize potential impacts to salmon, with the equipment in the water for 48 hours between treatments. See deployment schedule in **Table 1**.

Type of outage required – No outage required.

Dates of Impacts – Deployments would commence immediately following FPOM approval. Observations will be made during eight (8) days in August 2014, with equipment to be removed by 21 August (prior to the onset of major fall Chinook returns).

Impact on facility operation. No impacts are expected on facility operations. Limited project support is needed to facilitate continued operation of the monitoring system and power supply.

Expected impacts on fish passage

Downstream Juvenile Migrants: None

Upstream Adult Migrants:

The 1 1/8" mounting channel is not expected to have measurable impact on adult migrants. When the I-beam and camera systems are deployed for recording video, there is potential for upstream migrants to bump into them or they could act as a slight obstruction. They will be using equipment identical to recent work at McNary and Snake River dams where no impact was seen. When cameras are initially deployed they will be monitored for potential impact and removed if necessary. Additionally, Bonneville Project Fisheries staff will continue observations of the I-beams during their fishway inspections from the deck level. If negative impacts are noticed, the cameras can be removed.

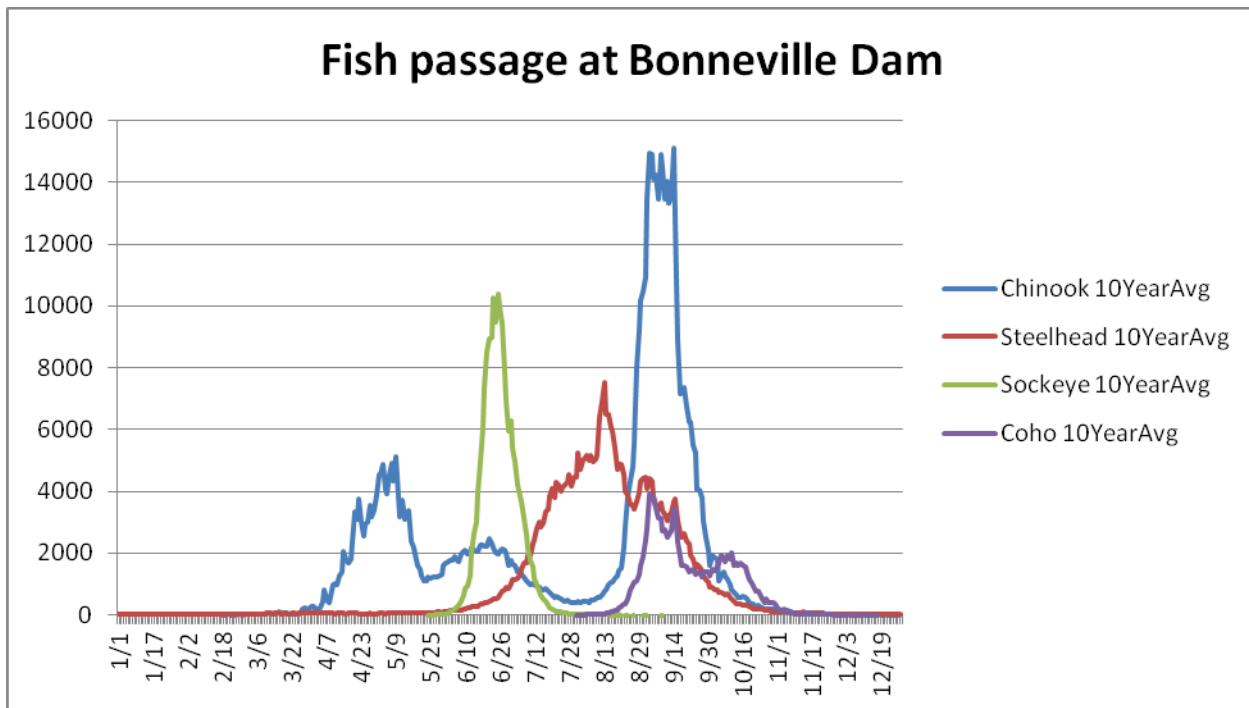


Figure 1. Fish passage and timing at Bonneville Dam.

Table 1. Proposed Bonneville Bradford Island Serpentine Weir video monitoring deployment schedule (August 2014).

Day	Treatment	Block
1-2	Downstream of Slot 5	1
3-4	Upstream of Slot 5	1
5-6	Downstream of Slot 5	2
7-8	Upstream of Slot 5	2



Figure 2. Examples of channels installed in Bradford Island Fish Ladder, February 2014. Blue triangles depict approximate fields of view captured by cameras in July 2014, pink depict proposed fields of view.



Figure 3. Cameras and IR lights mounted to a modified I-beam trolley as used in the July 2014 deployments. The upper I-beam flange has been removed (except where instruments are mounted). The web has also been largely removed, and serves as a cable guide (left hand portion of lower photo). The lower flange rides inside the mounting channel (upper photo). Edges have been rounded and bolts will be covered in silicone prior to deployment. For reference, the Sea View IR light sources measure 4.5" diameter X 7.25" long.



Figure 4. Modified I-beam with two light mounts and two camera mounts to be used in the proposed monitoring. Edges will be rounded prior to deployment.

Comments from others –

CRITFC - -----Original Message-----

From: Brian McIlraith [mailto:mcib@critfc.org]

Sent: Friday, August 08, 2014 4:02 PM

To: Christopher (caudill@uidaho.edu) Caudill; Eric(ejohnson@uidaho.edu) Johnson; Steven (slee@uidaho.edu) Lee; Tackley, Sean C NWP
Cc: Tom Lorz; Wills, Dave; Kiefer, Russ; Gary Fredricks; Trevor Conder (trevor.conder@noaa.gov); erick.s.vandyke@state.or.us; Traylor, Andrew NWP; Hausmann, Ben J NWP; Klatte, Bernard A NWP; Rerecich, Jonathan G NWP; Mackey, Tammy M NWP
Subject: [EXTERNAL] RE: FPOM: Official Coordination 14BON54 BI serpentine weir video (UNCLASSIFIED)

Hi Sean,

I can't truly speak for Tom L. (or as long as Tom L.) but I would guess that if these actions were previously approved by FPOM and deployments are occurring at night, there shouldn't be much of an issue on our end. Tom can correct me if I am wrong.

Thanks.

--Brian

NWP PM-E - -----Original Message-----

From: Tackley, Sean C NWP

Sent: Friday, August 08, 2014 3:43 PM

To: Caudill, Christopher (caudill@uidaho.edu); Lee, Steven (slee@uidaho.edu); Johnson, Eric (ejohnson@uidaho.edu)

Cc: Mackey, Tammy M NWP; Rerecich, Jonathan G NWP; Traylor, Andrew NWP; Hausmann, Ben J NWP; Gary Fredricks; Trevor Conder (trevor.conder@noaa.gov); lort@critfc.org; Brian McIlraith; erick.s.vandyke@state.or.us; Wills, Dave; Kiefer, Russ; Klatte, Bernard A NWP

Subject: RE: FPOM: Official Coordination 14BON54 BI serpentine weir video (UNCLASSIFIED)

Importance: High

Classification: UNCLASSIFIED

Caveats: NONE

Chris,

As of 3:30 pm today, we have not received any comments on this MOC (probably because many folks are out of the office today). My understanding from our conversation earlier today is that you spoke with Gary Fredricks at the SRWG meeting yesterday and that the changes made to the deployment schedule satisfied his concerns about potential adult salmonid impacts. I'm not sure if others have reviewed the MOC or are aware of the details of this follow-up to last month's video work in the Bradford Island Fish Ladder's serpentine weir section.

We (myself, Jon Rerecich, and the BON Project Fisheries staff) have minimal concerns regarding the risks associated with this effort, and the information gained will improve our understanding of the mechanisms of lamprey passage failure in the serpentine weir sections at Bonneville Dam. In the interest of getting this work wrapped up as quickly as possible, please go ahead and start the video work this evening. If any concerns are raised early next week, please be prepared to halt the study and pull the video equipment from the ladder.

Thank you all for your input on this effort. Folks, please feel free to contact me or Chris Caudill (208-301-0809) if you have comments or questions regarding this project.

Best,
Sean

Final Action- This project will move forward as coordinated above.