**USACE Portland District (NWP) FFDRWG Update Form**  
**13 August 2014**

**PROJECT INFORMATION**

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| Project Title | Bonneville Washington Shore Lamprey Flume System (LFS) |
| SCT Reference Number |  |
| Project Manager (PM) | Natalie Richards (NWP, 503-808-4755) |
| Technical Lead (TL) | Brent Welton (503-808-4873) |
| Biologist/Coordination | Sean Tackley (NWP, 503-808-4751) |

**PROJECT DESCRIPTION**

The purpose of the prototype Bonneville Washington Shore Lamprey Flume System (LFS), which is located near the North Downstream Entrance (NDE) of the ladder, is to provide an alternative passage route – a bypass – for adult Pacific lamprey attempting to enter the conventional fishway. Two flume entrances, located at the NDE, guide lamprey into a large flume that eventually tapers down to a conventional LPS. A gravity system of screened water provides attraction flows to the LFS, while two pumps located in the tailrace supply water to the LPS at the top of the system. This system currently terminates in a holding tank on the tailrace deck, and captured lamprey are released upstream. The initial design considered featured a variable width weir (VWW) and bollard field configuration, similar to those constructed at the Bonneville Cascades Island Ladder and John Day North Ladder. The LFS concept was developed as an alternative when CFD modeling suggested negative impacts on hydraulics (attraction flow) associated with the initial VWW design.

**CURRENT SCHEDULE**

* Initiate design to address entrained air problem: JUL2014
* Transfer to LPS Development Project (Saldaña/Stevens) scope: OCT 2014. Incorporate into DDR, if necessary.
* Complete P&S as part of LPS Development Project: FEB 2015 – MAR 2016.
* Construction of modifications as part of LPS Development Project: DEC 2016 – FEB 2017.

**PROGRESS AND KEY ISSUES (List)**

1. Initial construction of the LFS was completed during the 2012-2013 IWW period. Structural failures of LFS supports (hanging rods) forced successful repairs during Fall 2013. Minor modifications to the LPS (designed and installed by the University of Idaho) were made in Fall 2013 and during the 2013-2014 IWW period.
2. Large amounts of air is entrained by the water supply system and released via gaps (joints, access hatches, etc) in the LFS and the entrances, which has caused concern about potential impacts on passage behavior of salmonids at the NDE. Small-scale venting efforts have not fixed this problem.
3. To minimize passage risks associated with the entrained air problem, the butterfly valve controlling water supply the LFS can only be operated up to 50% open during the day (per FPOM coordination). Lamprey use of the system has been relatively poor to date, possibly due to poor attraction flows relative to the NDE discharge and unique hydraulics (eddy) associated with the LFS entrance locations. FPOM approved an operation of up to 80% open at night in July 2014 and an evaluation is underway to see if increased discharge has improved lamprey attraction and use of the LFS.

**FFDRWG REVIEW NEEDED AT MEETING? (If YES, list discussion topics below)**

No review needed at this time.