USACE Portland District (NWP) FFDRWG Update Form
September 7, 2017

PROJECT INFORMATION

Project Title	Lamprey Wetted Wall at Bonneville Bradford Island
SCT Reference Number	
Project Manager (PM)	Sean Tackley (NWP, 503-808-4751)
Technical Lead (TL) Minor Modifications	Sean Tackley (NWP, 503-808-4751)
Biologist/Coordination	Ricardo Walker (NWP, 503-808-4709)

PROJECT DESCRIPTION

Lamprey reaching the serpentine weir section of the Bradford Island fishway cannot access LPSs without moving back downstream to the picketed leads. Such downstream movements may induce ladder fallout, without subsequent passage attempts. To aid passage, a wetted wall will take advantage of Pacific lamprey's vertical climbing ability and proven use of an experimental wetted wall structure. This smooth vertical sheet with a radiused crest will be provided with minimal attractant flow (approximately 2.0 L·m-1·cm-1) and installed at the upper turn pool section downstream from the serpentine weirs by the USACE (Figure 1). It will collect lamprey from the top of the Bradford Island fishway and pass them into the adjacent MUWS channel, which is outfitted with an LPS. Water will be pumped from the MUWS channel into an integrated reservoir to water the structure using a sidewelling mechanism. This design (Figure 2) proved to be reliably successful in passing lamprey with apparently low stress in lab trials (Corbett et al., 2015; Frick et al. 2017). The NMFS will work closely with USACE fabricators, installers, and regional fish managers to help develop a structure that will be attractive to lamprey and minimize potential salmonid interactions.

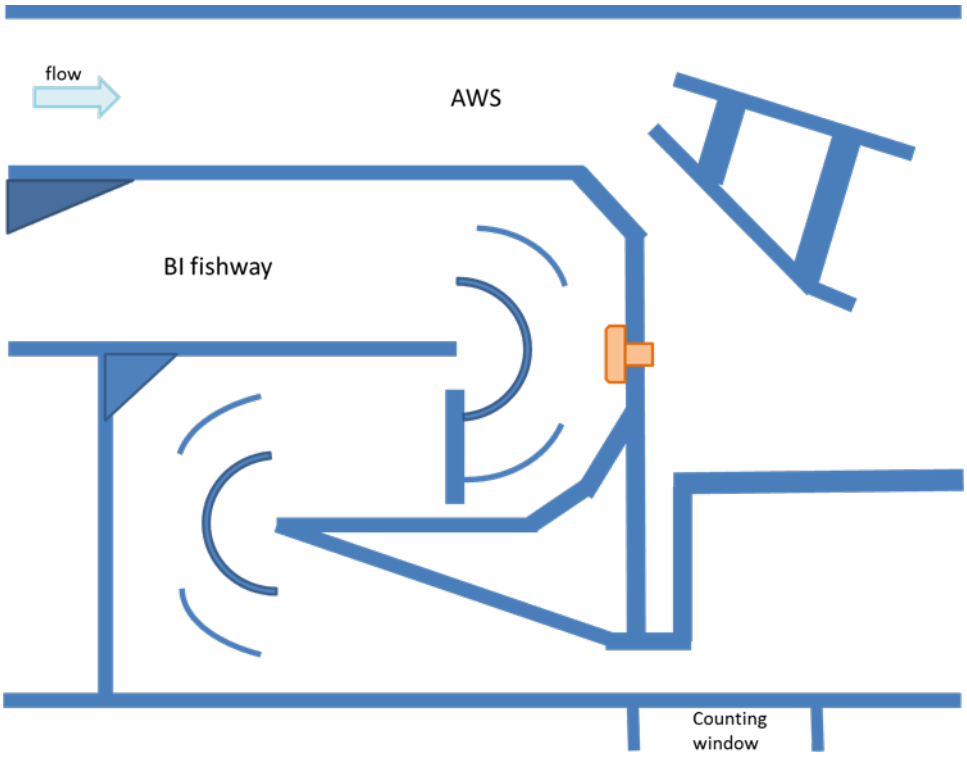

Figure 1. Schematic of a section of the Bradford Island Fish Ladder showing approximate potential location (orange) of the proposed wetted wall lamprey climbing structure allowing passage from the base of the serpentine weir section into the adjacent MUWS (AWS) channel.

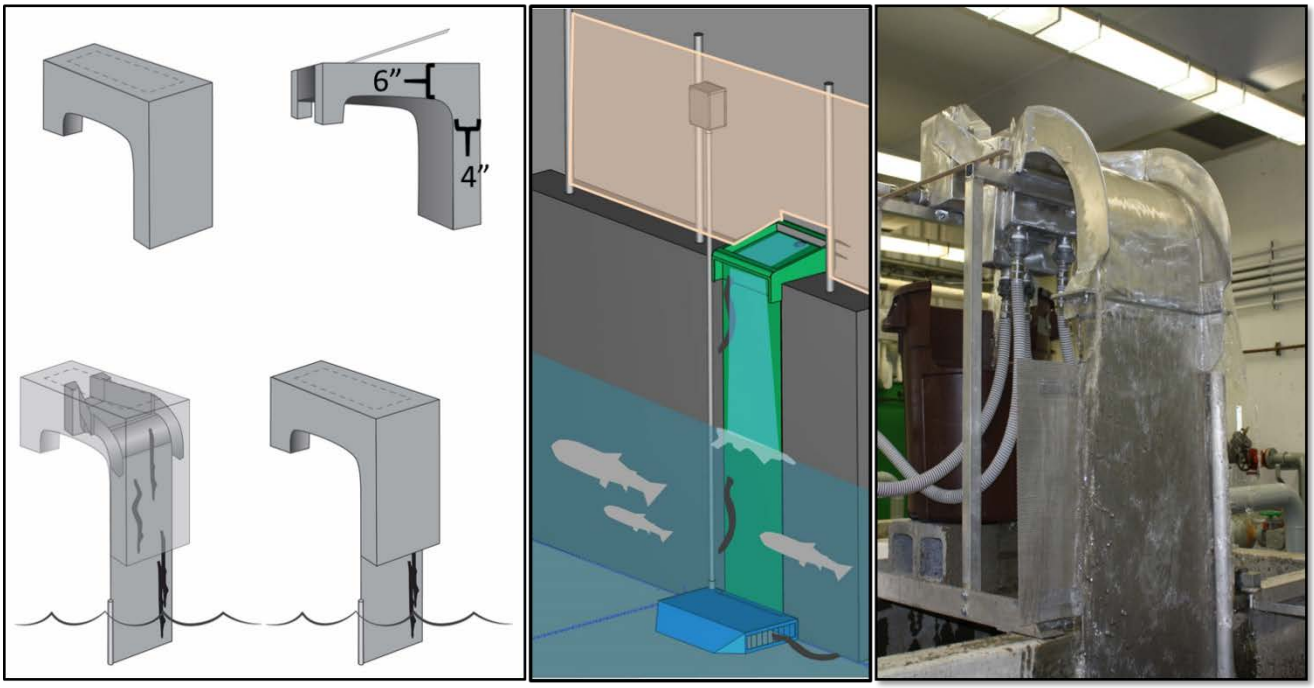

Figure 2. Left: Isometric illustration of the upper portion of the wetted wall. Middle: fishway side of the original proposed wetted wall lamprey passage structure (lid on hood box at top of

structure omitted in illustration). Right: Prototype wetted wall, located in the FERL, lamprey climbing structure to be used as direct model for field installation.

Figure 3. Example wetted wall installed by the Yakama Nation at Prosser Dam. Photos courtesy of Ralph Lampman.

SCHEDULE, PROGRESS, AND KEY ISSUES (List)

Currently the wetted wall is in the design phase with fabrication following in the next few months. Installation is currently planned for the next in-water work period (17/18).

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

Yes

- Length of shroud
- Monitoring plan

References

Frick, K.E. 2017. Development and evaluation of adult lamprey wetted wall structure at Bradford Island Fishway 2017 – 2019. Research Proposal submitted April 2017 for the US Army Corps of Engineers, Portland District.

Corbett, S.C., K.E. Frick, M.L. Moser, B. Wassard, M.L. Keefer, and C.C. Caudill. 2015. Adult Pacific lamprey: Bonneville Dam lamprey passage structure use and development, and John Day Dam South Fishway trap use, 2014. DRAFT NMFS report for US Army Corps of Engineers, Portland District.

Frick, K.E., S.C. Corbett, and M.L. Moser. 2017. Climbing success of adult Pacific lamprey on a vertical wetted wall. Fisheries Management and Ecology. In Press. DOI: 10.111/fme.12225.