

The following is a preliminary draft of a protocol for dewatering for ladders with regard to lamprey that should be incorporated into the dewatering appendix either as a separate piece or weaved into the general dewatering procedures.

Lamprey Salvage Procedures During Ladder Dewatering

Fish ladders at Columbia and Snake River federal hydroprojects are dewatered during winter maintenance season for inspection and repair as needed. Lamprey are commonly encountered during this process. When lamprey encounter exposed diffuser grating, they often go through the grating into the underlying chamber. Removal of these lamprey is an access problem with safety concerns. Therefore efforts need to be made to prevent lamprey from encountering exposed gratings. As acceptable smaller size gratings become available, replacing existing ladder diffuser gratings should be undertaken.

To minimize stranding and mortality of lamprey during ladder dewatering, the following procedure should be performed whenever possible:

1. Modify drainage from diffuser chamber to ensure fish return to river.
2. Construct lamprey diversion screens to be used at a designated weir orifice upstream of the last diffuser chamber. All lamprey would be held in this pool until removal. Design presently underway for John Day dam.
3. Ensure adequate numbers of personnel are available during lamprey removal. Previously at John Day there were 2 -3 personnel inside the ladder for dip netting lamprey into bags with one person stationed at the transport tank for emptying lamprey bags into the transport tank. There will now be a minimum of 4 available personnel inside the ladder at the designated pool upstream of the diversion screen. They will concentrate on lamprey removal and moving steelhead through the screened orifice.
4. Ensure adequate size and/or number of transport tanks. Previously, John Day had one O2 aerated, transport tank with a maximum capacity of approximately 1,000 lamprey. An additional tank will be available in case the capacity is reached on the primary tank. Planning will be made to transport lamprey while the other tank is being filled.
5. Maintain adequate flushing water flowing down the ladder to provide circulation through the diffuser chambers. This will provide aerated water for lamprey that enter the diffuser chambers. Previously at John Day Dam, bulkhead leakage water was diverted through a drain in the upper diffuser, after all fish were removed.
6. Perform thorough inspection of the diffuser chambers with flashlights immediately after dewatering to determine lamprey numbers in the chambers. If large numbers of lamprey are observed, determine feasibility of removing lamprey.

7. Monitor the exposed grating for several days following dewatering to remove and return lamprey that climb out atop the gratings. Perform monitoring at adequate intervals to minimize mortality of fish.

8. Initiate procedures early enough in the week to ensure adequate personnel and equipment are available should any problems arise.

This section will likely need comments from other project Bios as it was based on John Day Dam, but it is a starting place. Let me know how you would like me to proceed to best assist this effort when you start coming downtown.

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