

**MEMORANDUM FOR THE RECORD 22 IHR 01 Juvenile steelhead mortalities**

**SUBJECT:** Fish mortality during unwatering of the Ice Harbor Dam lower south fish ladder.

- A. Species – *Oncorhynchus mykiss*
- B. Origin – Unknown.
- C. Length – 12”-16”.
- D. Marks and tags – 4 clipped, 3 unclipped.
- E. Marks and injuries found on carcass – Some descaling.
- F. Location – Inside the lower south fish ladder, along the channel.
  
- G. Cause and time of death – On January 11, 2022, unwatering of the lower south fish ladder began so personnel could physically inspect the diffuser grating and carry out other maintenance activities in the channel. Two unwatering pumps were initially used during the day, with one pump with a level-control float used at night. The next day, the second pump would not turn on, but the one pump was adequate to slowly draw down the water level. On January 12, personnel entered the channel with 1’ of water and used a seine to crowd fish from the north end of the channel to the junction pool and another seine to crowd fish from the south shore entrances to the junction pool. Fish were removed from the junction pool using dip nets and buckets, and then lifted out with the crane and poured into the transport tank. Personnel walked the channel, entrance area, and junction pool again and netted out fish that were missed with the seines. At that time, it was late afternoon and there was 6-8” of water in the channel, and no other fish were seen. Fish were transported and released back to the river at Charboneau Park. The one pump was left on to fully unwater the channel. On the morning of January 13, the pump was found to be off and the water in the channel was 1’ deep. Personnel entered the channel to inspect the grating and found 4 dead juvenile steelhead floating in the water. The biologist assumed that the water level was drawn down below the grating at night before the pump failed, stranding these fish that we missed the previous day. On January 18, personnel entered the fully unwatered channel and found 3 more dead juvenile steelhead. These fish must have survived the night of January 12 by holding in shallow pools by the leaky bulkheads, but were not seen by personnel on January 13.
  
- H. Future and preventative measures – A skiff that held buckets and nets was stationed in the junction pool during fish recovery, and fish were found to be hiding under the skiff. The lower south fish ladder is a large area that has places where fish can hide, particularly underneath the three sets of wing gates. Personnel used dip nets to try to chase fish out of these tight spaces, but visibility into these areas is difficult. The wing

gates also get in the way of seining fish. The original function of the wing gates was to block off sections of the channel to divert fish during an in-season emergency. However, the wing gates are no longer operable and not needed (transverse bulkheads could be used instead) and should be removed. Until that happens, the best way to capture fish that may be hiding is to be in the ladder before the water recedes to a few inches above the grating and have plenty of buckets pre-filled with water. Then personnel will search for fish with dip nets until the water recedes to grating level.

I. Pictures included – none.

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