

**MEMORANDUM FOR THE RECORD 20-IH-01**

**SUBJECT:** Two juvenile salmonid mortalities during unwatering of the Ice Harbor Dam upper south fish ladder, for annual inspection and maintenance.

- A. Species – *Oncorhynchus mykiss*, *Oncorhynchus tshawytscha*.
- B. Origin – Unknown.
- C. Length – Clipped steelhead, 12-14". Clipped chinook, approximately 4".
- D. Marks and tags – None observed.
- E. Marks and injuries found on carcass – None seen.
- F. Location – Inside the south fish ladder, where the ladder comes down to tailwater level.
  
- G. Cause and time of death – On January 5, two people on creepers directed straggling fish down the upper fish ladder to tailwater level. The upper diffuser was set to provide approximately 4" of water flowing through the orifices, which is adequate flow to prevent fish stranding on the concrete floor of the ladder. The diffuser grating at the tailwater level was covered by at least 1.5' of water at the start of the fish evacuation procedure. The Fish Biologist monitored the lower section of the fish ladder to make sure fish were making it down to tailwater without stranding. By the time the two people on the creepers approached the tailwater level of the fish ladder, the water level had decreased 2', exposing about half of one section of diffuser grating. The last couple of fish were evacuated across the grating. One juvenile steelhead was stranded on the grating for less than a minute before the two people arrived to get the fish to the water. After personnel were lifted out of the fish ladder with the crane, the juvenile steelhead was observed to be alive in the fish ladder but holding in the same spot. On January 7, fisheries staff observed the two mortalities listed above on exposed diffuser grating. The steelhead mortality is presumed to be the fish that was temporarily stranded on the grating. The chinook was probably missed during the evacuation procedure and became stranded on the grating later.
  
- H. Future and preventative measures – When the tailwater elevation is 341.0' or greater, there is no exposed diffuser grating for fish to get stranded on. However, the tailwater elevation is variable, based on river flows and water management needs. The plan was to have personnel stationed in the ladder at exposed diffuser grating sections during the fish evacuation procedure. However, several people were not available for the procedure due to illness. The upstream four sections of grating are covered with metal plates to provide additional attachment points for adult lamprey. Covering the next two grating sections downstream (diffuser #6 and #7) with plates would prevent fish from becoming stranded

on grating unless the tailwater elevation dropped below 337.0'. Planning is underway to accomplish this task next winter.

I. Pictures included – none.

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