NATIONAL FISH HABITAT ACTION PLAN

Western Native Trout Initative

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# 2012 Waters to Watch- Weber River, Utah

*New fish ladder at the Mouth of Weber Canyon. During 2013 over 1100 fish of all species moved through this fishway around the diversion dam. Biologists observed a high velocity bottleneck in the fishway at high flows, when fish typically move the most. The final concept was a fish ladder that is active only at high flows, which enters back into the top of existing fishway*.

This project is intended to protect native fishes and improve water use efficiency for water companies in the Weber River drainage. It will re-connect 17.5 total river miles and allow native trout and sucker species to pass one mainstem diversion and two culvert barriers in two tributaries.

Habitat fragmentation is the primary threat to the persistence of the Bonneville cutthroat trout population. These barriers have fragmented mainstem and spawning habitats. Restoring connectivity at these sites is a critical step towards improving the resiliency and genetic diversity of this population.

The Lower Weber River Diversion is a landmark structure built at the mouth of Weber Canyon in the 1930's. Recently, a large collaborative effort was initiated to stabilize the failing structure and modernize it by screening both irrigation headgates. Project design included upstream fish passage around the diversion structure using a fishway. Unfortunately the upstream passage component of the project has faced design challenges due to the high variability in streamflow throughout the year. As a result, the fishway is not passible when flows exceed 2500 cfs, which is approximately the bankfull discharge. This project will fund a fish passage retrofit solution.

Need for Project:

Both Bluehead sucker and Bonneville cutthroat trout have experienced extensive population declines and range contraction. In the Weber River, Bluehead sucker are thought to occur in three remaining fragmented reaches. Large fluvial Bonneville cutthroat trout have been virtually eliminated from river mainstems rangewide, however they still persist within isolated mainstem segments of the Weber River. Each reach in the Weber River supporting these species has been fragmented by mainstem diversions threatening the population resiliency, genetic diversity and long-term

persistence of both species. The mainstem barriers suppress the expression of critical life history characteristics and exclude seasonally important habitat.

This is the final phase of an existing project intended to protect native fish and improve the water withdrawal efficiency for the water companies. The construction of a fish ladder at this diversion will ensure upstream fish passage throughout the year. Currently, water velocities at the top end of the fish passage channel are too great to be scaled by all but the strongest swimming fish when flows exceed than about 2500 cfs. A fish ladder will be retrofit within the current footprint of the fishway.

We expect to restore the habitat connectivity and improve population resiliency for Bluehead Sucker and Bonneville cutthroat trout by removing a large mainstem impediment to upstream migrations of these large-river fish. Limited trapping data from the spring of 2011 suggests that the current fish passage configuration does not allow trout to successfully negotiate the structure when flows are in excess of 2500 cfs. It is likely still a barrier to movement for other species as well.

Currently the strongest bluehead sucker population in the Weber River is confined below this diversion structure. Allowing passage around this diversion will provide bluehead sucker access to canyon habitat. This project advances a larger scale effort to remove additional barriers located upstream to reconnect an additional 10 miles of mainstem river.

Bonneville cutthroat trout occurring in the lower Weber River are currently unable to migrate back to spawning grounds because the lower Weber River lacks potential spawning tributaries. Opening the barrier to cutthroat trout passage reconnects canyon habitat and also sets the stage for major reconnection with tributary streams.

**Partners**

The project is a unique partnership of Federal funding between the National Fish Passage Program and the NFHP Partnerships. Other partners include:

- U.S. Fish and Wildlife Service
- Desert Fish Habitat Partnership
- Western Native Trout Initiative
- Trout Unlimited
- Utah Division of Wildlife Resources
- Utah Department of Transportation