

An Overview of Humpback Chub Translocation Efforts in Grand Canyon National Park

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Humpback chub (*Gila cypha*) are one of several federally-endangered species that are endemic to the Colorado River basin. Of the six remnant populations of the humpback chub, Grand Canyon contains the largest and only population that is clearly increasing in abundance. While difficult to determine, several factors may have contributed to the population's increase observed since 2001, including management actions as well as natural conditions. Despite this increasing trend, significant threats remain to the Grand Canyon population of humpback chub. Non-native fish prey on and compete with humpback chub for resources, and temperatures and flow regimes in the Colorado River produced by the Glen Canyon Dam are not conducive to reproduction for this warmwater species. The Little Colorado River contains the primary spawning area for humpback chub, which is threatened by watershed-wide impacts.

Translocations of humpback chub to Grand Canyon tributaries may help to alleviate the threats listed above, and restore native fish populations to Grand Canyon. The primary goals of humpback chub translocations are to: 1) provide suitable juvenile humpback chub "grow-out" habitats with fewer predators to augment existing aggregations in the Colorado River; 2) provide population redundancy in a suitable tributary by establishing a second reproducing population.

Grand Canyon National Park, along with several cooperators including the Grand Canyon Wildlands Council, Bureau of Reclamation, U.S. Fish and Wildlife Service, Arizona Game and Fish Department, and Utah State and Kansas State universities completed the translocation of 302 juvenile humpback chub to Shinumo Creek on June 15, 2009. To determine the success of this initial translocation, a remote PIT tag antenna system was installed near the lower falls in Shinumo Creek to record outmigration of translocated fish, and two monitoring trips were conducted during July and September.

Based on monitoring results and PIT tag detections at the antenna, the initial translocation of humpback chub into Shinumo Creek was successful. Measured lengths of humpback chub captured in both July and September indicated growth rates were relatively high. PIT tag antenna data indicated that only about 30% of humpback chub left Shinumo Creek through December. In addition, no predation by rainbow trout upon humpback chub was observed.

Park biologists plan to continue translocations of humpback chub to Grand Canyon tributaries. In 2010, a second Shinumo Creek translocation is planned, and monitoring will be repeated to assess growth, survival, and other measures of translocation success. In addition, baseline surveys are being conducted to determine non-native fish abundance in Havasu Creek to assess whether it may be an appropriate tributary for humpback chub. Previous studies have suggested that Havasu Creek may be the most suitable, due to its similar physical characteristics to the Little Colorado River.