

Overview of Native Fish in Grand Canyon

Brian C Clark, Arizona Game and Fish Department ; bclark@azgfd.gov

The Grand Canyon section of the Colorado River was historically occupied by at least eight fish species that are endemic (not found anywhere else in the world) to the Colorado River and its tributaries. The native species of fish that had occupied the Grand Canyon included the bluehead sucker, bonytail chub, Colorado pikeminnow, flannelmouth sucker, humpback chub, razorback sucker, roundtail chub and speckled dace. These species evolved three to five million years ago, some of which can no longer be found in Grand Canyon National Park. Threats to the native fish of the Colorado River include altered streamflow and habitat modification, changes in the ecosystem due to human impacts (i.e., dams), nonnative fish species, parasitism, and toxins. The native fish that currently occupy the Grand Canyon region face two major threats 1) predation and competition by nonnative fishes, and 2) habitat degradation, primarily due to the construction of dams. Nonnative fishes were introduced in the late 1800's for food and later for sportfishing opportunities and quickly began to dominate the fish assemblage. Presently, the nonnative fish assemblage includes large-bodied species such as striped bass, rainbow trout, brown trout, common carp, and channel catfish as well as small-bodied species including fathead minnow, red shiners, and plains killifish. Nonnative fish can directly impact native fish through predation and indirectly through competition for limited food resources. Habitat degradation associated with the dams can be in several forms. For example, the water being released from Glen Canyon Dam is generally colder on an annual basis than the historic water temperature that these native fishes evolved. The cooling of the mainstem Colorado River in Grand Canyon has restricted where the native fish can reproduce. Native fishes require water temperature of approximately 61° to 71° F to successfully reproduce and allow the eggs to develop and grow. Many of the large native fish would travel great distances to very specific habitats for reproduction (i.e., colorado pikeminnow), but are now restricted by dams. The migration of the colorado pikeminnow for example, is somewhat similar to the migration of salmon that return to where they were born to reproduce (very specific locations). The populations of the native fishes that can still be found in the Grand Canyon appear to be increasing or stabilizing.

Arizona Game and Fish Department's Colorado River Research Activities

Aaron Bunch, Arizona Game and Fish Department; ABunch@azgfd.gov

The Arizona Game and Fish Department has been conducting various management and research activities on the Colorado River since the completion of Glen Canyon Dam in 1963. We work in close cooperation with and are funded by the U.S. Geological Survey Grand Canyon Monitoring and Research Center. We currently have several fish monitoring projects that you may come in contact with at some point on your trip including: 1) Lees Ferry rainbow trout monitoring, 2) mainstem fish population monitoring between the Lees Ferry boat ramp and Lake Mead, and 3) fish monitoring on the lower 1,200 meters of the Little Colorado River. Our results help managers evaluate experiments and policies regarding Glen Canyon Dam operations.