

Rio Grande Cutthroat Trout Stocking in the City of Santa Fe Reservoirs

Background

New Mexico Department of Game and Fish has conducted field spawns with Rio Grande cutthroat trout for over 15 years in conjunction with restoration efforts. The purpose of these field spawns is to develop a genetically diverse, captive broodstock at the Seven Springs hatchery. Offspring from the captive broodstock are utilized to re-establish populations of Rio Grande cutthroat trout in the wild. Since many populations of Rio Grande cutthroat trout inhabit isolated coldwater streams, the number of fertilized eggs obtained from past field spawns is small due to size and number of fish captured. To address this limitation, New Mexico Department of Game and Fish has searched for a lake or reservoir to use for stocking, rearing, and spawning Rio Grande cutthroat trout. Such a water body would require suitable water quality, presence of a perennial spawning channel, absence of any major fish pathogens, and little to no angler use. McClure reservoir, located in the upper Santa Fe River watershed, fits all of these characteristics and was recently stocked with Rio Grande cutthroat trout to start a broodstock lake.

Figure 1. A Rio Grande cutthroat trout, New Mexico's state fish.



The Project

New Mexico Department of Game and Fish initially approached the City of Santa Fe and Santa Fe National Forest regarding the potential use of the Santa Fe reservoirs for broodstock purposes in spring 2007. All parties agreed this would be a great opportunity for New Mexico's state fish. Years of water quality data indicated these waters were of high quality and the Santa Fe River provides a perennial spawning channel. Rainbow trout, a non-native trout that hybridizes with Rio Grande cutthroat trout, currently inhabit the watershed. Fish health testing was negative for all major pathogens including whirling disease. The upper Santa Fe watershed is closed to the public and thus angling and harvest is not a concern.

Because rainbow trout can hybridize with Rio Grande cutthroat trout, biologists implanted a Passive Integrated Transponder tag (PIT tag) into each fish. The PIT tag creates a unique identification code for a particular fish. A genetic tissue clip was taken from each fish that was injected with a PIT tag to ensure it is actually 100% Rio Grande

cutthroat trout. Approximately 2,000 fish were tagged, identified, and tissue sample taken in November 2007 at the Seven Springs rearing facility near La Cueva, New Mexico.



Figure 2. A PIT tag used to identify individual Rio Grande cutthroat trout.

These same fish were then stocked into McClure reservoir in December 2007. Biologists plan to collect trout in the reservoir in spring 2008 during their spawning season. Collection methods will likely involve setting up a “trapnet” at the mouth of the Santa Fe River above McClure Reservoir. Captured fish will be scanned for a PIT tag. If a trout does not have a PIT tag, it will be removed from the reservoir and stocked into nearby waterbodies. Removing non-native trout will increase the available space for Rio Grande cutthroat trout to grow and survive.

Tagged trout will be identified to confirm genetic history (i.e. what is their PIT tag ID), length recorded (to measure growth), sorted by sex, and females checked for ripe eggs. Eggs from ripe females will be fertilized with milt from males. After fertilization, eggs will be transported to the Seven Springs hatchery and reared to create new populations and/or stocked for recreational purposes. Only fish that have a PIT tag will be spawned during this project which will preclude introduction of hybrid trout into the broodstock. New Rio Grande cutthroat trout will be collected from individual streams in the future, undergo the same tagging process, and used to augment the number currently within the reservoir.

Figure 3. Eggs are stripped from a female (below) and fertilized (at right) to increase numbers of Rio Grande cutthroat trout in New Mexico.



The Benefit

Adding new Rio Grande cutthroat trout to the reservoir will incorporate more historic populations of Rio Grande cutthroat trout into its broodstock. This will ensure that biologists use a greater proportion of the remnant Rio Grande cutthroat trout genome when establishing new populations in the state. Rio Grande cutthroat trout will also grow larger in the reservoir than they would in small isolated streams. Larger females produce more eggs. More eggs per female increases the number of Rio Grande cutthroat trout available for restoration projects and recreational stocking. Though McClure reservoir is not open to angling, this project will ultimately increase the number of Rio Grande cutthroat trout throughout New Mexico.