Western Slope Native Fish

NATIVE SUCKERS RETAIN TAGS THROUGH SPAWNING

Short-term retention of PIT tags through spawning

Bluehead Sucker (*Catostomus discobolus*) and Flannelmouth Sucker (*C. latipinnis*) are two native species of the Colorado River basin that have managers in seven states concerned over shrinking range and diminished numbers. The Flannelmouth Sucker is found nowhere else in the world except the Colorado River basin, and the Bluehead Sucker only in the Colorado, Snake, and Bonneville basins of the western United States. Passive integrated transponder (PIT) tags (right, the technology used in pet ID chips) have been widely used for many years as a cost-effective method of individually identifying fish. To be useful, PIT tags must not hinder fish survival or alter behavior, and remain in place through the duration of a study. While these assumptions have been verified in some species, others have exhibited poor retention or survival, or altered behavior. PIT tag retention has not been thoroughly evaluated in Bluehead and Flannelmouth suckers.

12.5 x 2.1 mm PIT tags

Many PIT tag retention and survival studies occur under controlled laboratory or caged conditions. There, effects on recapture rates cannot be tested and fish may not experience the stresses associated with natural habitats. Also, tags inserted into the abdomen of female fish can be expelled with eggs during spawning in some species. Therefore, we evaluated short-term PIT tag retention and recapturability of PIT-tagged fish in wild populations of migrating and spawning Bluehead Sucker and Flannelmouth Sucker.

Objectives

- Examine PIT tag retention in wild Bluehead and Flannelmouth sucker populations through a spawning period.
- Determine whether PIT tagging decreased recapture rates.

Approach

We trapped fish as they entered a spawning tributary of the Gunnison River near Delta, Colorado. We inserted 12.5 × 2.1 mm PIT tags into 2,645 fish and externally marked them (an upper tail fin hole-punch); another 2,660 fish were given an alternate external mark – (lower tail fin hole-punch), but no PIT tag ("control" fish).

PIT tag being injected into native sucker; fresh upper caudal fin hole-punch mark; and nearly healed but still visible upper caudal fin hole punch mark after about 35 days

Results

- 730 fish recaptured
- 729 tags retained
- Hole punches remained visible
- Greater proportion of PIT-tagged fish recaptured than "control" fish

Bluehead suckers in a spawning tributary

Management implications

Many studies rely on PIT tag data to assess populations and monitor fish movements throughout the Colorado River drainage for these species, which are thought to still occupy only half of their known historic range. Therefore unbiased PIT tag data are especially important for conservation purposes. The fish involved in this study retained tags through spawning, indicating that these native suckers don't lose them in that way. Wounds were also healed over after 5-6 weeks, so the 12.5 mm tags used in this study should be retained for a long time and are suitable for use in these Colorado natives. Just as in your pets, once the tag is implanted and the wound healed over, we hope that they retain the PIT tag for life.

A small PIT tag antenna placed to detect spawning fish using a tributary stream

One advantage of PIT tags is the ability to detect them without having to actually have the fish in hand. They can be "detected" in streams using various antenna devices, such as the one pictured at left. This small submersible antenna allows researchers to detect tagged fish swimming up a small spawning tributary in the Gunnison River basin. Other antenna devices span from bank to bank in more permanent installations, making it even more likely that passing tagged fish will be detected. Over time, such devices can capture enough tag information that survival rates of fish can be estimated, helping us to better understand these unique and irreplaceable fish.