

Alabama scientists building captive reserve of threatened fish

By Zach Tyler, Star Staff Writer, ztyler@annistonstar.com | Posted: Friday, January 1, 2016 6:15 pm

Somewhere inside the four buildings of the Alabama Aquatic Biodiversity Center in Perry County, a scientist does the work of a male pygmy sculpin.

That means keeping careful watch over clutches of tiny pearlescent eggs, gently cleaning them with peroxide as they mature — eggs taken from the one place on earth they're laid: Coldwater Spring.

“You kind of have to do the job for the fish if you bring them into captivity,” Paul Johnson, program supervisor at the center, said recently.

The minuscule sculpin, listed as threatened by the federal government, lives only in the spring that serves as the source of drinking water for most in Calhoun County. Because the species' springwater habitat is so small — because the water still bears traces of pollution from the past — Johnson and other scientists hope to build up a viable captive population of the sculpin, should catastrophe ever strike Coldwater.

Aptly named when first discovered in 1968, the pygmy sculpin rarely grows larger than an inch and a half.

The fish is tiny, and so is the habitat it is exclusive to — the acre-sized spring pool and a 500-foot-long section of the spring run.

The U.S. Fish and Wildlife Service noted the size of the sculpin's home as a contributing factor when it classified the fish as threatened in 1989.

Another factor, and the reason Johnson's got scientists playing baby daddy to sculpin eggs: detection of trace amounts of trichloroethylene, or TCE, in the spring.

Until 2012, TCE was used at Anniston Army Depot to clean grease off of munitions coming out of long-term storage.

From the 1940s to the 1960s, the chemical was used with little thought given to where it would go



Pygmy Sculpin

Pygmy Sculpin "hides" in Coldwater Springs in Anniston.

once washed away from the depot.

“There was years and years of this, and no controlled ground release,” Johnson said. “Over time, it was picked up by the water system, and showed up in Coldwater Spring.”

The depot has ceased using TCE in any of its processes, according to Bruce Williams, director of risk management, eliminating the chance of any more making its way into the water.

At low levels, the chemical has been shown in other fish to cause behavioral changes, or stymy reproduction.

“In heavier doses, it’s flat-out toxic,” said Johnson.

So scientists set out to gather eggs they could raise in the lab, to use for toxicity testing. Sculpins spawn year-round, likely because of the spring’s constant temperature of 61 to 64 degrees.

Johnson and others also want to “figure out how to propagate these animals if the concentration reaches a lethal level,” he said, “so the species wouldn’t go extinct.”

While there’s little danger of more TCE getting into the springwater, Johnson pointed out that it takes about 45 years for the spring to “recharge.”

Based on that metric, “we’re just barely through Vietnam,” he said. “That goes to show you that environmental problems have large, long-term effects and consequences.”

The depot tests its wells semiannually for TCE. Anniston Water Works and Sewer Board, which owns 250 acres surrounding Coldwater Spring, tests the spring.

Rodney Owens, assistant general manager at the sewer board, says detections of TCE in the unfiltered and untreated water from the spring “have ticked up over the last few years.”

Those levels are still many, many times lower than the least amount allowable under Environmental Protection Agency guidelines, Owens said.

Meanwhile, Johnson and the scientists at the Alabama Aquatic Biodiversity Center have a few hundred sculpin they’ve hatched, and will begin testing on soon.

Before that population was available, though, Johnson said scientists targeted another unlisted sculpin for toxicology testing.

“They’re very sensitive to TCE,” he said.