



REDSIDE DACE (*CLINOSTOMUS ELONGATUS*) IN MILL CREEK, WABASH COUNTY: A STRATEGY FOR POPULATION RESEARCH



Ben Cloud and Amber Melick, Manchester University research technicians, sample for adult redbside dace in Asher Creek. Fish were sampled in early March 2012 to determine if there were breeding adults present.

Status

Fourth year of a four-year project

Funding Sources and Partners

State Wildlife Grant (T07R06), Manchester College, IDNR Nongame Fund

Project Personnel

Principal investigator, Jerry Sweeten, Ph.D.

Research Technicians

Jacob Wenger (2009)
Melissa Bowman (2009)
Delanie Losey (2010)
Kelsey Airgood (2010)
Amber Melick (2011)
Elizabeth Hamman (2011)

Objectives

1. To determine the distribution, abundance, habitat, prey selectivity and spawning habits of redbside dace (RSD) in the Mill Creek watershed (Wabash County).
2. To determine the genetic makeup of the Mill Creek redbside dace population.
3. To develop a mechanism (model) to determine suitable redbside dace release sites for population augmentation.
4. To develop redbside dace rearing protocols and test the habitat selection model by redbside dace release trials.

Methods and Progress

Larval development
Journal article was completed.
Augmentation
A total of 254 RSD were released in five locations in

Asher Branch on March 6 and 7, 2010. Water temperature was 6° C.

A total of 214 RSD were released in five locations in Asher Branch on March 17, 2011. The later date in 2011 was a result of high water from rain and snow melt. The water temperature was 10° C.

A total of 25 adult RSD were moved from Mill Creek to Asher Creek on Feb. 21, 2012. The water temperature was 5° C.

The investigation during 2012 was focused primarily on the presences of breeding adults in Asher Creek and to collect evidence of RSD reproduction in Asher Creek. While some of the original pools where RSD had been released had changed due to stream flow fluctuations, there were good numbers of breeding-age RSD in multiple pools throughout the stream both in the Asherwood Nature Preserve and downstream of the preserve. In all cases, fish were located in characteristic pools about one meter deep. Sampling for juveniles from previous spawns proved difficult, but the good news was that juvenile RSD were documented in Asher Creek. This suggests that the augmentation was successful.

DNA Analysis

The genetic analysis at the Pritzker Laboratory in the Chicago Field Museum was completed in 2012. Kevin Fieldheim, Pritzker Laboratory director and molecular ecologist, assisted with micro-satellite determination and interpretation of the data. In a nutshell, it appears the RSD in Mill Creek are genetically very similar. There is low genetic diversity across this population. The data also suggest there is little genetic relatedness between the Mill Creek population and the Hannah Creek population. The Hannah Creek population is significantly more genetically diverse than the Mill Creek population.

RSD aging by use of fin rays

Fin rays were collected from approximately 25 RSD for age determination. The rays were embedded in epoxy and sliced using a low-speed ISOMET saw. This analysis was difficult due to the small size of the rays and the fact that rays are not a solid piece of bone like a fish spine. In spite of the challenges, the attempt was successful (Figure 3). The data suggest RSD grow approximately two inches each growing season. The oldest RSD aged was 6 years old and was more than 100 mm in length.

Cost: \$118,640 for complete four year study



Breeding-age adult redbside dace from Asher Creek during the spring 2012 sampling period.



Redside dace fin ray cross section. This particular fish is more than 4 years old, 95mm (3.7 inches) long, and weighed 6.2 grams.