

# Collecting and Spawning the Flagfin Shiner

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ugust in Louisiana could make you spontaneously combust.

We were at the 2000 NANFA convention in Jackson, Mississippi. It was Sunday and we went on B.G. Granier's collecting trip near Angie, Louisiana, on a tributary of the Pearl River. For someone from Michigan who thinks it's too hot when it's 80°F, all I was trying to do was stay out of the sun. I got into the water as fast as I could. The water was probably *over* 80°F, but it felt great. In fact, I got in so fast that I left my wallet safe and sound in my back pocket!

The creek was 10-20 feet wide and, near the road, was shallow and sandy. We caught blackbanded darter (*Percina nigrofasciata*) and southern starhead topminnow (*Fundulus nottii*). These are great fish and I had never seen them before, but we were after minnows—namely, the small jewels of the Gulf states, flagfin shiner (*Pteronotropis signipinnis*, Fig. 1) and bluenose shiner (*P. welaka*).

As we worked our way upstream and into the woods, the creek became pretty deep. It was over my head in the middle and about waist-deep at the edges. I was helping to pull Mark Binkley's seine and had to swim across the creek until my feet could find the bottom again. At least with my wallet in my pocket, I thought, I would have identification in case I drowned. Each time we reached the far shore and began lifting the seine Mark would yell, "Watch out for snakes!" Angry water moccasins in a seine are far scarier than aggravated crawfish in Michigan. My biggest worry, though, was not venomous snakes. It was being eaten alive by alligators.

Almost every time we lifted the seine we were greeted with the sight of bluenose and flagfin shiners. These fishes are so beautiful that all thoughts of venomous snakes and 'gators faded away. Later that morning Leo Long and I stood in the creek bagging fish. Leo wanted the bluenoses and I the

flagfins. We placed the bags in a canvas carry-on and off we went to the Jackson airport to fly home.

The Summer 2000 *American Currents* that was distributed at the convention had, by coincidence, a summary of a paper on flagfin shiner spawning behavior by Brett Albanese. When I got home, I e-mailed him several questions. Brett, a Virginia Tech biologist, was kind enough to send me a copy of his paper. He kept his fish at 62°F. When the temperature rose to 72°F they spawned. This was good news as the winter temperature of my basement tanks is in the mid-60s.

I fed my flagfins flake food and, on occasion, frozen brine shrimp and bloodworms. The fish—seven females and three males—were housed in a 15-gallon tank with a Whisper power filter and a bare bottom. In early June the tank's temperature reached the low 70s. Brett's paper stated that the flagfin's preferred spawning site in the wild is vegetated riffles, so I placed 0.5–1" diameter gravel on a 6" section of tank bottom under the filter outflow. This would provide a place to keep the eggs away from the adults. Above this I placed a piece of java moss weighted by a stone and a piece of *Anubias* with many twisted roots hanging from its rhizome. I hoped the flagfins would accept this as a spawning site.

Every day or so I moved some gravel and looked for eggs. After several weeks I started to find them—1 mm in diameter, clear and slightly adhesive. At 75°F the eggs began to hatch in 48 hours, and all had hatched within 72 hours. The fry are 3.5 mm long with large yoke sacks. They were placed in a three-gallon tank with a foam filter and green water. After several days the fry began to hang on the glass. When they were free swimming I added APR (artificial protozoa and rotifer). In a week I began feeding brine shrimp nauplii. I switched them over to powdered flake food as soon as they would eat it.



Fig. 1. Flagfin shiner (*Pteronotropis signipinnis*), from Rock Springs, near Apopka, Florida. Photograph © 2001 M. A. Gibbs.

**Table 1.** Number of flagfin shiner (*Pteronotropis signipinnis*) eggs collected, June-November 2001.

June 23 – 17 eggs	Aug. 30 – 74 eggs
June 24 – 43 eggs	Sept. 1 – 31 eggs
June 25 – 34 eggs	Sept. 2 – 54 eggs
June 26 – 44 eggs	Sept. 4 – 82 eggs
June 27 – 8 eggs	Sept. 5 – 32 eggs
July 1 – 15 eggs	Sept. 8 – 40 eggs
July 15 – 42 eggs	Sept. 10 – 94 eggs
Aug. 4 – 20 eggs	Sept. 20 – 20 eggs
Aug. 5 – 54 eggs	Sept. 21 – 164 eggs
Aug. 6 – 31 eggs	Sept. 22 – 29 eggs
Aug. 9 – 28 eggs	Sept. 25 – 65 eggs
Aug. 10 – 51 eggs	Sept. 31 – 111 eggs
Aug. 11 – 5 eggs	Nov. 3 – 80 eggs
Aug. 14 – 46 eggs	Nov. 4 – 56 eggs
Aug. 22 – 75 eggs	Nov. 7 – 60 eggs
Aug. 25 – 60 eggs	Nov. 11 – 39 eggs
Aug. 28 – 54 eggs	Nov. 17 – 47 eggs

**Total – 1751 eggs**

Flagfins are breeding machines. Other minnows I've worked with spawned four or five times for maybe a week. In the wild, the flagfin spawning season runs from April to mid-August. If a 72-76°F temperature range is maintained in the aquarium, it appears that the flagfins never stop spawning.

I enjoy observing the development of the eggs under the microscope. Therefore, if I can, I collect the eggs from the gravel, taking care to remove any that are fungused or infertile. Such culling, I believe, results in an overall higher egg survival rate. I then place the eggs in small glass containers and add a few drops of Mar-Oxy, a fungicide. Table 1 shows dates and the numbers of eggs I counted. The large gaps in the dates only show how busy I was that summer, not a pause in spawning. The end date does not signify the natural end of the spawning period. Instead, it is simply the date I removed the shiners from the spawning set-up. With so many eggs to gather, sorting through gravel to collect them all became a time-consuming task. To make egg collection easier, I took a piece of fluorescent ceiling light egg crate diffuser and cut it into an 8 x 12" piece. I then covered the diffuser with a piece

of 1/8" netting. This little device effectively replaced the gravel and allowed me to collect the eggs with an eyedropper. The parents ate 10-20% of the eggs, though, depending on my dexterity. It's now early March (2002), and the flagfins range in size from 5-25 mm depending on their hatch date.

I have distributed flagfins to several accomplished fish breeders in my area. I hope they will also be successful at raising them. I intend to maintain a colony of these little beauties in my native community tank. Should I ever lose them, I hope these other breeders can give me back a start. That way I will not have to risk my life again with the snakes and 'gators. 🐟

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