SPAWNING THE PIRATE PERCH, ONE MORE TIME

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The Pirate Perch (Aphredoderus sayanus) is a mysterious, mysterious-looking fish. Even though it is common in several regions of North America, its breeding method has remained virtually unknown.

Having spawned this species 20 years ago (the midwestern subspecies, A. s. gibbosus), and once again this year (the eastern subspecies, A. s. sayanus), I hope this article will quiet speculations that Pirate Perch incubate their eggs in their oral or branchial (gill) spaces.

Cave fishes of the family Amblyopsidae retain their eggs within their gills, and, as with Pirate Perch, their anus is located in the throat near the gills. Cave fishes and Pirate Perch have other morphological similarities. Because of these similarities, and a 1986 re-examination of several specimens preserved in 1956 that revealed three eggs in a female's branchial cavity (Boltz and Stauffer, Copeia, 1986), some ichthyologists have assumed branchial brooding to be the Pirate Perch's mode of reproduction.

In fall of 1990, I set up a ten-gallon aquarium in a section of the fish room which receives subdued light. The substrate was gravel and sand with an overlay of sphagnum peat moss. Rather than setting up the tank with an abundance of plants, I constructed rock caves. I positioned the main cave so that I could see it. Several artificial plants were also provided, in case of any possible preference for plants during spawning.

The Pirate Perch were fed a large variety of items, but primarily earthworms, whiteworms, and live adult brine shrimp. They experienced fairly low winter temperatures; a severe Northwest winter started to freeze several of my outdoor aquariums, and the Pirate Perch aquarium was no exception. All five Pirate Perch survived this test of endurance.

Using the surmised consensus of sexual determination (Brill, Katula, AMERICAN CURRENTS), I assumed that I had three females and two males. Aside from moderate feedings, the Pirate Perch aquarium remained relatively quiet and unnoticed. Initially, each Pirate Perch frequented its own solo cave. In February, however, co-habiting of the caves became more commonplace. In early March, the males commenced more active swimming, and the largest female took up a more permanent residence within the largest cave. A shallow pit was formed on the left side of this cave. The female was seen performing some fanning activity with her pectorals to

excavate a pit. It was never evident if the female used her mouth to relocate gravel in nest preparation.

At feeding time on March 22, I noticed several white, fungused eggs. That night, I removed approximately 28 mostly fungused eggs from the breeding tank. I found them all on the substrate, and several were in the formed pit. Only four eggs appeared viable. Several days later, I performed a complete tank-cleaning, with a three-quarters water change. Fresh peat was also added. The eggs that were removed were placed in a nursery tank with a strong addition of methylene blue. Eventually these eggs all fungused.

On March 25, I noticed some vigorous activity amongst these mostly sluggish fish. In the main cave, one male and the largest female were performing some unusual swimming maneuvers. They would meet, align themselves side by side, and then swim backwards over and past the pit. Sometimes they would angle their bodies so that the ventral sides would be positioned against each other. Occasionally a quick vibration of the bodies would occur during the backward motion. Although this would strongly indicate nuptial behavior, I saw no actual egg deposition. Some eggs may have been laid during this time, but, due to the lack of illumination, precise observations were impossible. Previous observations had confirmed that the Pirate Perch is a nocturnal animal; that is probably why there have been so few observations of spawning activity.

The type of breeding behavior aforementioned continued for at least the next three days. Temperature ranged from 48°F to 55°F during spawning activity.

On April 3, I saw several clear eggs towards the front of the tank, slightly embedded in the peat moss. Further examination revealed eggs scattered around the substrate. Some were within the pit and most others were within a one- to two-inch radius encircling the pit. Two days later, I removed 38 eggs and placed them in a nursery tank with a strong methylene blue application and a fair amount of aeration. This time very few eggs appeared fungused.

Egg shape and size paralleled the eggs of the Sand Roller (Percopsis transmontana). Some aspects of the two species' breeding behavior were also parallel. Sand Rollers and Pirate Perch have some similar morphological characteristics.

On April 17, the eggs began to hatch. The newly hatched larvae had very large yolk sacs. In the nursery tank, the larvae tended to congregate in groups. They did very little swimming in their first days of life. At one month of age, they occupied clumps of Java Moss.

This account should convince skeptics that the Pirate Perch is indeed a substrate-spawner. After my two similar spawnings and an identical spawning by NANFA member John Brill, there seems to be little or no evidence to support a branchial spawning method. On both occasions when I found eggs this year, I gave the Pirate Perch a thorough examination of branchial and oral cavities. No eggs were found. With a baster, I flushed their gills with water to remove any eggs that might have been hidden from view. There were none.

In the future, for others who may attempt spawning the Pirate Perch, it would be a good idea to leave the eggs with the spawning female to see if she provides eggs and young with any protection. The congregation behavior of the young may be indicative of why the pit is formed. First breeding revealed that most eggs were laid within the pit, with the female apparently guarding them.

References

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Acknowledgments

I would like to thank John Brill for providing me with specimens. I have several preserved larvae for anyone wishing to study them.