SPAWNING A "WINGED MINNOW"--THE BROADSTRIPE SHINER

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Before my election to the Fabricators' Hall of Fame, perhaps I should explain what I mean by "Winged Minnows." True, these colorful minnows do possess wing-like fin extension, but the only true flying these minnows may experience are in the bill of a Blue Heron. Needless to say, these flying lessons are short and constitute a one-way trip!!

The genus name *Pteronotropis* within the minnow family can be loosely translated as "winged minnow," and the subject of this article is one of the winged minnows, the Broadstripe Shiner (*Pteronotropis euryzonus*). The winged minnows occur in the southeastern United States and possess many attributes making them particularly attractive to the average aquarist. They are all colorful, particularly hardy in typical aquarium community situations, very easy to breed, and, as noted, possess long dorsal- and anal-fin extensions.

The genus *Pteronotropis* has five species, three similar species of which are the Sailfin Shiner (*P. hypselopterus*), the Flagfin Shiner (*P. signipinnis*), and the subject of this article, the Broadstripe Shiner. The author has spawned and raised these three similar species. The other two, slightly different species are the Bluenose Shiner (*P. welaka*) much mentioned in aquarium literature and the equally colorful Bluehead Shiner (*P. hubbsi*). While the Bluenosed Shiner is noted for undergoing seasonal color changes--colorful in spring and somewhat plain the rest of the year--the first three species mentioned maintain good color throughout the year.

The Broadstripe Shiner is endemic to the middle Chattahoochee River drainage of Georgia and Alabama. According to the Atlas of North American Freshwater Fishes, they occupy small, clear streams in which the water is often brownish. Broadstripes are collected near logs or aquatic vegetation over several types of substrates (mud, clay, sand, silt, or even exposed bedrock). Although its range overlaps that of its cousin the Sailfin Shiner, the two species have never been caught together (Gilbert, 1969, M. Sc. Thesis, Auburn University).

The Broadstripe Shiner, typical of most native cyprinids, displays maximum coloration under subdued lighting. Males possess most of the color and elongated finnage. The broad stripe in the name varies from black to metallic blue, depending on lighting and conditioning. Above this broad horizontal stripe is another, thinner stripe of bright orange which rarely dims its intensity. Bordering the caudal fin, on the peduncle, are two bright red-orange spots.

One of its outstanding features is the "winged" dorsal and anal fins. The dorsal has black fin rays with the anterior rays milky white. The anal fin can vary according to population, but my Broadstripes had orange-red anals and tails. The eye is rimmed in orange, continuous with the horizontal orange stripe on the side.

Sailfin Shiners are similar to Broadstripes, but are generally more slender and less colorful, and have more elongated dorsal and anal fins. Amongst my captive stock, my Broadstripes have shown some variability. The orange stripe has occasionally turned up yellow-green. In trying to fix this strain, more fish would occasionally turn up with solid green stripes, and some would turn up with the rear half green and the front half orange.

Broadstripes can be conditioned to spawn on flake food alone, though more insurable results can be realized through a diet of frozen shrimp, bloodworms, tubifex, or whiteworms, and the ultimate live food, daphnia. Vegetable flake food should also be included in their diet, as this inhibits fin-clamping. A pH of 7.0 to 7.8 and a temperature of 74°F to 78°F seem optimal for spawning. A five- to twenty-gallon aquarium with moderate water flow will suffice for spawning room. If your intent is not to use spawning mops, then a box filter or outside power or canister filter is out of the question. Floating spawning mops or an abundance of Java Moss will give the Broadstripes plenty of sites for attaching eggs.

As with any promiscuous fish, it is best to separate females several weeks beforehand and condition on a rich diet to maximize egg-production. Females only lay a limited number of eggs and the parents are probable consumers of their own eggs; therefore it is advisable to use spawning mops to assure larger batches of fry. The eggs are vulnerable to drastic water changes, so it is always wise to use water in the nursery tank from the breeding aquarium. One or two days prior to the males' introduction, I make a 25-percent water change. Upon introduction of the males, the temperature is slowly raised from 75°F to 78°F. If the fish are not spawning at this time, there is something seriously wrong with the fish. The eggs are often well buried within the spawning mops and hatch in five to seven days.

For one day post hatching, the fry appear to remain stationary. By some means (apparently by mouth), the fry attach themselves to primarily vertical surfaces for up to five days. Also during this time period, the fry display a cryptic pattern, apparently to blend in with their surroundings. Upon free-swimming (after five days), this pattern quickly fades to transparency with a faint midlateral stripe. At free-swimming, the fry start feeding upon infusoria and microworms, and at about ten days of age, they consume newly hatched brine shrimp. The fry grow slowly,

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though the nice orange stripe is prevalent from an early age. At six months, the females begin to lay eggs, and at eight months, the males are ready for spawning. Egg hatches are generally never large; methylene blue effectively prevents fungusing.

If ever there was a native fish amenable and adaptable to the tropical community aquarium, this is it. The Broadstripe's only aquarium drawback may be its low fecundity, but ease of maintenance and breeding and spectacular colors make it a desirable addition to the aquarium, provided they don't fly away.

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