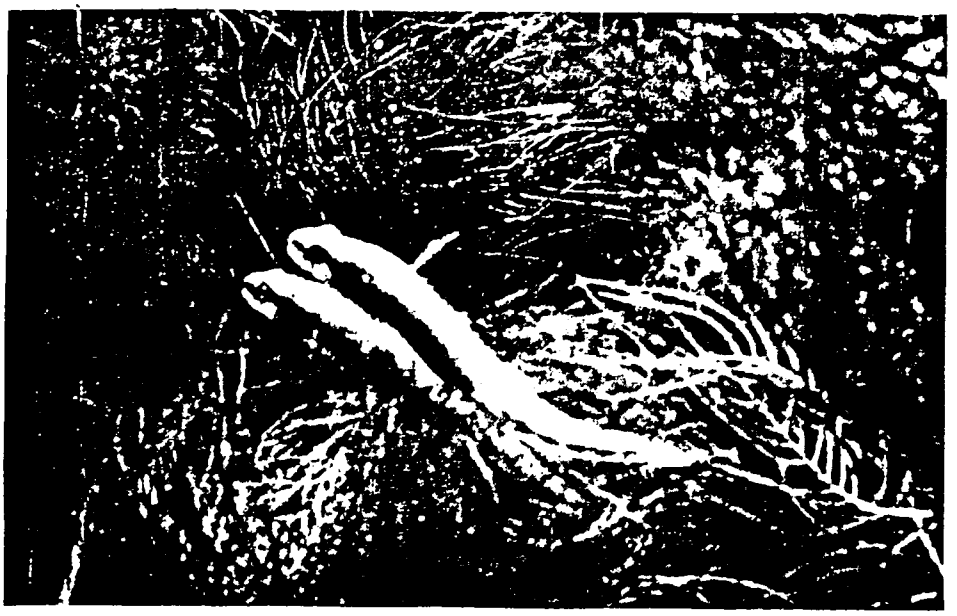
A RARE DARTER-SPAWNING

by Alan M. Fletcher

• Photo by the Author.



Probably the only photograph in existence of darters *(Hololepis fusiformis)* in the act of spawning. The rather poor focus can be partly excused, since the author set up his equipment in great haste, for fear the rare opportunity would be missed.

Darters are certainly not among the most popular aquarium fishes. A few aquarists, however, have discovered that there are many North American species with excellent aquarium possibilities. In an aquarium with exotic fishes, they are perfectly peaceful, and their unique locomotion habits make them outstanding by contrast. Largely because of the lack of a swim bladder, darters are forced to remain on the bottom. Movement consists of short, somewhat labored dashes, giving rise to the common name. That the contrast is abundantly apparent is well illustrated by the writer's 5-year-old daughter, who has dubbed them "walking fish".

If knowledge of darters as aquarium inhabitants is slight, knowledge of their spawning habits is practically non-existent in aquarium literature. A search through our library revealed only two references to darter spawning. One book says, "Spawning occurs among stones." The other states, "To induce it to spawn requires an elaborate set-up, involving running water." The following account proves that such statements should not be accepted as generalizations.

On March 23, several members of the Innes Publishing staff went on our annual "chaetodon" collecting expedition to southern New Jersey. Our collecting site was a small Myriophyllum-choked brown-water mill pond. Each seine haul brought up a mass of plants, mud and chaetodons (banded sunfish) - and a few 2-inch darters. It was observed that some of these darters were filled with roe. For this

reason, a few were placed in the collecting jars and promptly forgotten.

At home, a 20-gallon aquarium was filled with water from the mill pond, and one end was heavily planted with Myriophyllum from the same pond. A dozen chaetodons and as many darters were placed in the aquarium. The water was about 50°F., causing a heavy condensation of moisture on the aquarium glass. By the time the temperature reached the mid-sixties, the darters had become conspicuous because of extreme activity. It was observed that several of the males(the thinner fish) were positively paying court to several females (the heavier fish), by performing clumsy dances on the sand with fins spread to the breaking point. The displays of the males resulted shortly in pairs "walking" through the Myriophyllum, side by side, at first. The amorous strolling led finally to the male assuming a position astride the female. There would be a quick dart into the plants, a short fluttering motion, and then a brief rest, followed by another dash into the plants.

By this time the writer realized that he was privileged to observe, probably for the first time, one of the secrets of nature. A camera and strobe lights were hastily placed at the aquarium. Neither equipment nor flashing lights deterred these little creatures from completing their life's most important task - perpetuating their kind.

Spawning continued for approximately two days. Pin-head-size eggs were laid one at a time, at intervals. Here and there the crystal eggs could be seen, embedded deeply in the leaflets. During the spawning, both males and females exhibited "ovipositors" (more properly anal papillae) about 1/16" long.

Within a week, the writer left for South America, temporarily interrupting the story, so far as he is concerned. Upon his return, there was no trace of eggs or fry. Fortunately for the record, at the same time John Anderson was enjoying a similar experience with the darters he had carried to his home. Anderson was able to continue the observations.

The individual, relatively large eggs hatched in 8 to 10 days. Fry were small enough to require infusoria for a week, after which they were graduated to newly hatched brine shrimp. At the age of one week the 100-odd fry were passed on to the writer.

The most surprising fact about the fry is that for the first month of their lives, they swim in mid-water, in typical fish fashion. Nature apparently thus insures the young a means of acquiring the suspended micro-organisms so vital to their existence. At the age of two months, the young darters are confirmed bottom-swimmers, are approximately 3/4" long, and are still as slender as needles.

Preserved specimens were sent to Henry Fowler, of the Philadelphia Academy of Sciences, who identified them as Hololepis erochrous Cope, a common south New Jersey fish. Correspondence with the leading darter authority, Prof. Howard Winn, of the University of Maryland,

indicates that they are now more properly Hololepis fusiformis.

We do not claim any great accomplishment for ourselves, other than having the sense to recognize a phenomenon. This is just one of those rare good breaks - being at the right place at the right time. Certainly this can be duplicated throughout the country by aquarists who secure darters in spawning condition, waiting solely for the proper temperature. Since most darters are spring spawners, depending on seasonal changes for reproductive stimuli, it is doubtful if specimens can be aquarium reared and induced to spawn. But perhaps it can be done - who knows....

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