

BREEDING HABITS OF TESSELATED, RAINBOW, & SWAMP DARTERS

by W. P. Seal. Adapted from his "Breeding Habits of Darters," Aquarium News & Notes, published by the Aquarium Society of Philadelphia, Sept., 1918, Vol. III #7, pp. 51 ff. Thanks to Jare Sausaman, NANFA member and historian of aquaristics, Philadelphia, for bringing this article to the attention of AC.

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The following description (slightly changed) of the breeding habits of two species of darters was contributed to Forest & Stream, and appeared September 18th, 1890, in a series by the writer, entitled "Occasional Observations on the Fishes in the Aquaria of the U.S. Fish Commission."

During April and May a number of spawnings of the "Tesselated Darter" (Etheostoma tesselatum) /now called Etheostoma olmstedii--AC/ and the "Rainbow Darter" (Etheostoma coeruleum) /now spelled caeruleum--AC/ were observed. The eggs of the Tesselated Darter were deposited on the under surfaces of stones, or on the sides of them where they leaned against the sides or back of the aquarium, or against other stones. The eggs were deposited singly in an irregular layer over an area of about three or four square inches. They were about the size and appearance, and were deposited in the same manner as those of the common sun-fish /Pumpkinseed, Lepomis gibbosus/, which are much like minute globules of clear glass. The great activity and brilliant coloration of the male, which is perhaps one of the most sober-hued of the darter family, ordinarily differing but little from the female, were very conspicuous. The markings on the fins of the males become at this period very bright and distinct /i.e., black against light--AC/, and add more to their ornamental appearance than the gaudier colorations do to other species. The general nuptial coloration is a mingling of delicate and indefinable shades of blue and green, with golden and iridescent effects, which with the striking effect produced by the markings, make it at this season, at least, probably quite as beautiful as any of the family, if not so gorgeously colored.

The spawning was effected by passing back and forth over the surface chosen, with the fluttering, quivering motion common to all species, until all the eggs were extruded and adhering to the stone. They undoubtedly pair, for although all the males would be in a state of great excitement and would endeavor to join the operation, they were invariably driven away by the successful male, who would dart at them furiously with open mouth and fins, quivering with excitement. The male guards the eggs during incubation, retaining his brilliant coloration until that duty is over. During this period his vigilance is unceasing, and every fish is driven from the vicinity of the eggs.

The Rainbow Darter, also called the Blue Darter, Soldier Fish, etc., is probably not found east of the Allegheny Mountains. It is perhaps the most gaudily colored species of the family, and

it is a question as to whether there is in all North American fresh waters another species of fish so brilliantly colored. The prominent colors are red, yellow, orange, and blue, arranged in conspicuous designs or patterns of the most striking character. Jordan & Everman's color description in Fishes of North America (U.S. National Museum) is as follows:

Males Olivaceous, Tesselated above, the spots running together into blotches; back without black lengthwise stripes, sides with about 12 indigo-blue bars running obliquely downwards and backwards, most distinct behind, separated by bright orange interspaces; Caudal fin deep orange, edged with bright blue; anal fin orange, with deep blue in front and behind; spinous dorsal crimson at base, then orange with blue edgings; ventrals deep indigo; cheeks blue, throat and breast [sic] orange.

The Rainbow Darter is more addicted to perching and moving about on plants near the surface of the water, and its movements are very bird-like. Frequently, in spawning, a place would apparently be selected among the plants for the purpose, to which they would invariably return after chasing about the aquarium for some time. As with the Tesselated Darter, there was undoubtedly a mating, although usually two or three other males would be hovering near and frequently making rushes to join the female, in which they were invariably defeated and driven away by the successful male. At times the spawning would take place among the pebbles at the bottom of the aquarium, the female dragging herself along in a quivering manner, the male pressing closely alongside of her with a similar quivering movement; and the other males following closely in the rear evidently bent on assisting in the fertilization of the eggs. All the fish not actually engaged in the spawnings, of which several were in progress, were in a state of excitement and followed after, some of them eating the eggs as fast as they were deposited. As many of the darters were of the Tesselated species, which is much larger than that of the Rainbow, the eggs could hardly have been protected from them, although some smaller species of fishes, notably the Four-spined Stickleback, under like circumstances would attack anything without regard to its size, in defense of its eggs. It is probable that in a wholly natural condition, the eggs are deposited on the under or protected sides of stones where they would be more easily guarded.

In fact, in some cases, the females of this species would remove the sand from beneath a part of small stones on the bottom and would remain ensconced in the shelter thus made, just as the Tesselated females did, but no spawning was observed in such situations, the preference appearing to be for the denser masses of plant high up, or among the pebbles at the bottom. That of the Tesselated species was wholly on the protected sides of stones, but their presence in the same tank may have interfered with the natural habit of the Rainbow species. The quick, jerky, energetic climbing and darting movements of both species are much like those of squirrels or of certain birds, the nut-hatches for instance.

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There is to be found in New Jersey ponds and streams a small species of darter that is very interesting because of its habits, though it is very plain in color. It is known scientifically as "Boleichthys fusiformis," but does not appear to have a common name [now the Swamp Darter, Etheostoma fusiforme]. The specific name of "fusiformis," meaning spindle-shaped, might as well be applied to the entire family. I have always taken it among dense plants, and as it stays among plants in the aquarium, looking much like a bird flitting about, it is only reasonable to suppose that such is its natural habitat--where plants abound--instead of on the bottom, as is general with this family. The spawning is similar to that of the Rainbow species, the eggs being adhesive and deposited singly. All the darters, when moving among plants, look much like birds, but when moving on the bottom they hold their heads high and look more like lizards.

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