

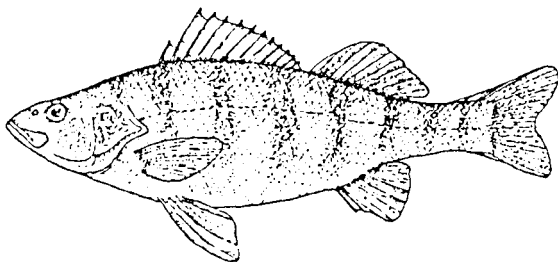
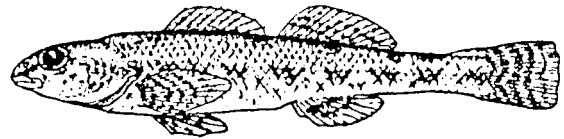
A Spawning of *Etheostoma Nigrum*

by Nancy Garcia
Darter Study Group

One year ago in the fall of '78, after keeping tropical fish for 8 years, I decided to go native, something I had wanted to try for quite some time. I took a bucket and my 7 x 9" aquarium net and headed for the lake we live on, a small (75 acre) glacial lake in extreme N.E. Illinois. Druce Lake is mostly quite shallow but to a depth of 60' at one point, fairly weedy, and with some silt over the original sand and gravel bottom. The lake has some good game fish -- bass, sunfish, yellow perch, yellow bass, and northernpike -- as well as the minnows, carp, gar, and bowfin. Small 1-3" game fish were easy to catch with the net and observing them was fun. I also found some small bottom fish that were new to me and which I later identified as Johnny darters. I had never noticed these fish in the lake before, and by late fall when the bass had gone to deeper water, they could readily be seen resting in the open in shallow water. I kept 12 darters and set them up in a 20 gal. long tank on the floor (it was cooler there) with good lighting from a window, natural gravel, flat rocks several inches apart with another rock spanning the top to form caves, a few plants, and a large box filter. Since the darters came from a quiet lake, I thought they might do well without a lot of filtration and aeration. The tank water is from our well, pH 7.8 and 10 DH, and similar to the lake water. Tankmates for the darters were two small bluegills, two redbelly dace, four bluntnose minnows, a pair of sticklebacks, and a small white sucker. The fish were fed live brine shrimp, tubifex worms, and glass worms (*Chaoborus* larvae).

Early in the winter, the sticklebacks spawned twice. The male faithfully guarded the nest, mended it, and fanned and blew water on the eggs, but each time, at about 2 weeks, when the eggs should have hatched, the nest disintegrated and I suspect either the eggs were bad or the male ate the fry. The sticklebacks were removed when the darters became territorial since there seemed to be an overlapping of territories.

JOHNNY DARTER,
Etheostoma nigrum Rafinesque



YELLOW PERCH, *Perca flavescens*

The room I keep the natives in is only partially heated so the water temperature dropped to a low of 48° over the winter. By late February it rose to the mid-50's and two dominant male darters were holding territories in caves at each end of the tank. Until now I had been unable to tell the sexes apart, all fish being a pale tan with black saddles on the back, small "w" shaped markings on the sides, forming blotches along the lateral line. The two males were now a warm yellow-brown with dark vertical bands on the sides and black head and fins. The black face made them look ferocious as they bounced about protecting their caves from the other fish. I hoped for a spawn, expecting the eggs to be deposited in the gravel as in Bob Goldstein's article on rainbow darters (FAMA, Nov. 1978). By the time I learned Johnny darters spawn on the underside of rocks, there were eggs already laid on the underside of the cave roofs. They were hard to find with the tank on the floor and the underside of the rock only 3/4" off the gravel. Both males were spawning and I'm sure each female spawned more than once as the spawnings continued for at least 6 weeks. This made it difficult to tell how long it took any one spawn to hatch, but at least two weeks at that temperature. I did observe one spawning. The pair were upside down against the cave roof while laying and fertilizing the eggs. When the male dashed away to defend the cave, the female remained laying on her back on a protruding rock. Quite a comical sight.

When the eggs began hatching, and of course the fry were eaten by the other fish, I removed the rock with eggs to a drum bowl of fresh aged water with an air-stone. The rock was replaced in the tank with another and the darters continued spawning. The eggs were transparent and the developing babies could easily be seen. As they hatched, the fry were poured into a 10 gal. tank of clean tank water and aged new water with a sponge filter. The drum bowl was refilled for the remaining eggs to hatch. Since the eggs were from several spawns, fry were hatching every so many days for at least 2 weeks.

The fry were fed green water and frozen baby brine shrimp, though live would be better, and seemed to grow slowly at first. A small mystery snail was added to clean up uneaten food since siphoning was difficult with the fry so small I could hardly see them. I did a 1/3 water change each week as on all my tanks. As the fry grew they were gradually fed larger food, including small live tubifex worms, finely ground flake food (which, to my surprise, they ate the first time offered), and finely scraped frozen brine shrimp. Eventually, they lost interest in the flakes, perhaps becoming spoiled by too much frozen daphnia and brine shrimp and live tubifex. Now, at 7 months, most of them are 2" or more in length.

I have had more enjoyment from these darters than any fish I have kept. This past summer I collected some Iowa darters in the lake and hope to spawn them next spring.

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(For more information on this subject see "Life History of the Eastern Johnny Darter" by C. Tsai, in cold water and polluted water. Trans. Am. Fish. Soc. 101(1) pp 80-88. --Editor)

This is Nancy Garcia's first contribution to AMERICAN CURRENTS, and she has done a fine job. For those readers who are a little nervous when it comes to writing about our native fishes, I would like to share Nancy's letter to me regarding her article: "If my darter article sounds like it was written by an amateur, it was. I didn't even know what a darter was when I collected the first one. I was only familiar with the gamefish of this area. I've learned a lot since then. Also, it is the first article I've written and your outline for writing articles in Lateral Line was a big help. Best Wishes for the New Year! (signed) Nancy Garcia." Why not follow Nancy's example and write an article for AMERICAN CURRENTS? I have reprinted the outline she referred to below. Of course it is only a guide to help you organize your thoughts and not the final word on writing this type of article. So you may want to do your own thing. --Editor