

# Iowa and Least Darters: Their Spawning and Rearing Compared

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**T**he Iowa darter (*Etheostoma exile*) was the first darter I ever saw and I was instantly hooked. I found it on rare occasions in the stream where I collected northern redbelly dace. I soon started looking for other darters. Now I can easily find rainbow, greenside and fantail darters whenever I go collecting, so I have worked with those darters more than any other.

About two years ago, I got a call from Jim Graham, a Michigan chapter member from the other side of the state. Jim had collected some Iowa and least (*E. microperca*) darters together in a local lake. He was coming into town for a fish auction and said that if I wanted some of the darters, he would drop them off. Great! I had not collected any Iowa darters in years, although I had gone looking for them in the redbelly stream many times. Here was my chance to keep Iowa darters again, as well as my first time to see the least darter.

Checking my books, I found that Iowa and least darters are commonly found together and prefer weedy lakes with mud bottoms. This explained why I caught so few in the cold, gravel-bottom creek flowing out of a bog where northern redbelly dace are so common. With this information I sampled some local "fishing lakes" (weedy and mucky, not good for swimming) and found both species to be relatively common. I catch more Iowa darters than least darters, but the least darters are so small that most go right through the seine.

Since I received the darters from Jim in mid-May, I placed a yarn spawning mop in with the Iowa darters and got a few eggs. The eggs hatched but I lost the fry. The least darters looked so small I thought they were juveniles. I later found out these small fish were fully grown.

At the end of summer I placed both species in my cold room to simulate winter. This room allows tanks temperatures

to get down into the 40°F range and maintain a short photoperiod matching winter conditions. I fed my darters large helpings of frozen brine shrimp and bloodworms twice daily, even in the winter. (I find that if I don't feed darters a lot they quickly get hollow-bellied and waste away. Despite the cold water my darters consume all I can feed them.)

In late March I pulled both species out of the cold room and placed them into 15-gallon tanks with bare bottoms and Whisper power filters. Water temperatures were in the low 60s and the lights were on 13 hours per day. Iowa darters numbered two females and one male; least darters numbered seven females and three males. I added yarn spawning mops of both the floating and sinking variety to the tanks. Now all I had to do was sit back and wait.

On April 16, I collected 130 eggs from the Iowa darter tank. The eggs were 1.1 mm in diameter and were all found inside the floating mop, halfway between the knot and the ends of the strands. On April 25, I gathered 132 eggs and another 59 on April 26. The darters ceased spawning after that. The eggs took 10 days to hatch. The fry were 4.5 mm long, clear and pelagic.

I placed the fry in a 5-gallon tank with a sponge filter and added green water until I could not see more than an inch into the tank. I also fed them APR (artificial protozoa and rotifer). After four days I added brine shrimp nauplii, the orange color of which was easily seen in the fry's stomachs. When the second batch of eggs hatched, I placed them into the same tank. They disappeared in a day, presumably eaten by their older siblings, which were already almost twice their size. Within two months they were 20 mm long and by mid-February they were 60 mm long.

On April 29, the least darters started spawning. (Table 1

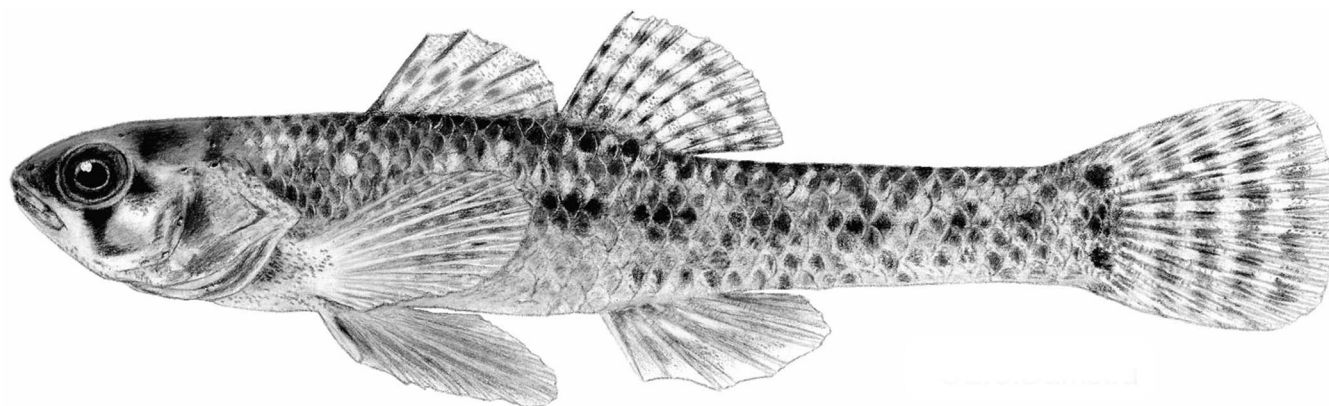


Fig. 1. Least darter (*Etheostoma microperca*). Illustration © Emily S. Damstra; unauthorized use prohibited.

lists the dates and the number of eggs collected.) Least darter eggs are oval or bean-shaped, and measure 0.8 x 1.1 mm. The fry take 4-5 days to hatch. The fry are 3.8-4.2 mm long, clear, benthic, and often bent or twisted for a few days after hatching. I placed them into the same kind of 5-gallon tank as described for the Iowa darter above.

When I'm catching more than one species of darter from the same body of water, I wonder how they exploit different habitats in order to be able to live together. I've only observed darters in captivity, but I have discerned differences in where the two darters feed and spawn. Least darters hide in the sinking mops, but not a single one of their eggs was ever found in one. They only spawned in the floating mops. Unlike Iowa darters, least darters deposited all their eggs on the outer strands of the mop. They also preferred the top of the mops right below the water level.<sup>1</sup>

Iowa darters rise to the surface to feed while least darters always remain on the bottom. Maybe these observations correspond to what goes on in the wild. Or, then again, maybe they don't.

This is where the fun starts: You think you know what you're doing and then everything goes wrong. After having so much trouble getting any greenside darter fry to live the first time they spawned, I discovered green water. That made raising baby greensides easy (as well as the tiny fry of dusky and Iowa darters). I thought I had found the answer, and I thought I was really good at this . . .

And then I fell on my face. The least darter fry looked good for 4-5 days, and then they just disappeared. In aquaria, big

**Table 1.** Number of least darter (*Etheostoma microperca*) eggs collected from three males and seven females, April-May 2001.

April 29	2	May 8	48
May 1	13	May 9	53
May 2	20	May 10	104
May 3	1	May 13	62
May 4	72	May 14	4
May 5	15	May 22	36
May 6	46	May 23	33
May 7	50	May 26	26

fish leave bodies but fry simply vanish. Thankfully, the least darters spawned for a long period so I had time to experiment. I tried raising them with green water and raising them without. I tried siphoning the tank bottom daily with a 1/8" diameter air hose. I tried daily water changes, weekly water changes, and no water changes. I tried APR, brine shrimp nauplii, microworms, and fine powdered food. I even tried not feeding them at all. No matter what I did the result was the same: dead fry. Twice I got the fry to grow to 5-7 mm long, but even though they were eating well the largest among them died. Then over the next several days all of them died, for no apparent reason, in order of largest to smallest. This confused me the most.

I managed to raise 13 fry from the last batch of eggs, but I have no idea why they made it. By mid-February they were 32 mm long, but had not yet developed the thicker bodies of adults.

When I recounted my frustration to Chris Scharpf at the 2001 NANFA Convention in Ohio, Chris looked me with a straight face and said, "That must be why they're called least darters. You get the least!"

Being small, least darters are a great fish for someone with limited space. It's easy to maintain a colony in a 5-gallon tank. Raising their fry, however, is another matter. I have to try spawning them again and try to figure out what the problem was, if for no other reason than to prove Chris wrong.

Maybe next year I will get the most from the least. 🐟

<sup>1</sup> Interestingly, the greenside darter (*Etheostoma blennioides*), another plant-spawning darter, prefers sinking mops and deposits its eggs so tight up against the knot that the eggs are often misshapen.