

# A Northern Minnow: Notes on the Captive Propagation of *Notropis heterodon*, the Blackchin Shiner

Bob Muller

625 S. Altadena, Royal Oak, MI 48067  
michiganfish@wideopenwest.com



When you live in Michigan and have an interest in North American fishes, it seems you are always looking to the south. Here in the heart of glacier country—that is, a region that used to be covered by glaciers—we simply have not had enough time since the Ice Age to develop the same diversity of species that the southern states have. Often we get the northern edge of the range of fishes that are found far to the south. However, there is a small number of fish species that seem to live only in the north. One of these is a classic beauty: *Notropis heterodon*, the blackchin shiner.

Blackchin shiners are distributed throughout the Great Lakes and upper Mississippi River basins from western Vermont to Minnesota, and in southern Ontario and Québec. The southern part of their range covers areas bordering the Great Lakes in New York, Pennsylvania\*, Ohio (state endangered), Indiana, and Illinois (state threatened). Michigan seems to be the heart of their range, and they can still be found throughout the state. Their preference for clear weedy lakes may explain their disappearance from the heavily farmed states to our south.

---

\* Blackchin shiners were collected by Raney in the 1930s from two glacial lakes in Pennsylvania—Lake Pleasant and Conneaut Lake. It appears they were extirpated from Conneaut when a dam was added to raise the water level and the lake became polluted from power boats. Lake Pleasant is the most pristine and diverse glacial lake in the state, and it's protected; blackchin shiners remain in the lake but the population is not large. The species was also recently discovered in Lake LeBoeuf, another glacial lake in which there are some restrictions but also some development (R. Criswell, pers. comm.).

## Description and Habitat

At first glance, *N. heterodon* is a simple black-striped minnow. But on a closer look you can see that the black stripe has a zigzag pattern as it runs the length of the fish. Below the stripe the body is silvery white, and above the stripe the scales are edged with black. As its common name suggests, the stripe, as it rounds the fish's snout, just barely falls on the lower jaw. When lighted from above there is a thin neon green stripe directly above the black stripe. Even more striking is that they always have their fins erect and therefore have a very crisp, sharp profile. In the aquarium they tend to school in the open with fast, constant motion.

The lakes where I find blackchin shiners are mud-bottomed, with heavy plant growth; there is no structure (e.g., gravel, rocks), and submerged woody debris is rare.

## Aquarium Care

I collected 10 blackchin shiners from a small, pond-like, weedy glacial lake in late September 2001. As with all of the northern fishes that I work with, they were wintered in a room in which the aquarium temperature gets down to 4-10°C (40-50°F) from December to February. I also vary the light in the room to match outdoor conditions. As with most minnows, they actively took flake food, which I supplemented with heavy feedings of frozen brine shrimp. By late March the lights were on 12 hours per day and the aquarium had warmed to 15.5°C (60°F). I moved the blackchin shiners into a bare-bottomed 15-gallon tank with a Whisper® power filter.

### Observations of a Successful Spawn

I wasn't able to find much information on the breeding habits of *N. heterodon* other than in *Fishes of Wisconsin*, wherein George C. Becker writes, "In Wisconsin, spawning occurs from June through August" and "nothing is known about their spawning habits and the early development." So as I've done with most natives I've kept, I made every attempt to observe their spawning in the aquarium.

In early June I prepared the spawning tank with weighted plants (anubias and hornwort) and a pile of gravel (15-30 mm diameter). The plants and gravel were placed on a piece of plastic fluorescent diffuser grid covered with 1/8" netting. This allowed the eggs to fall from the plants or gravel and be protected from the parents. Every few days I lifted the net-covered diffuser and looked for eggs. On 12 June I found nine large eggs that were 2.1 mm in diameter and clear. The following table shows the dates and number of eggs gathered:

12 June	9 eggs
13 June	35 eggs
14 June	75 eggs
16 June	44 eggs
? June	24 eggs
22 June	57 eggs
24 June	33 eggs
25 June	12 eggs
30 June	18 eggs
9 July	36 eggs
20 July	8 eggs

One morning after gathering the eggs I turned my back on the tank to check the egg development under a microscope. When I turned back around the blackchins had spawned again. I sat down hoping they would continue. Of course, they didn't. (But the flagfin shiners in the tank next to them began spawning!) I noticed that six blackchins remained in the open areas of the tank and all of them had noticeably swollen vents. Were they females? Four fish remained over the gravel or in the plants. These fish showed no swelling at the vent. Were they males? Occasionally, one of the presumed males swam out to the presumed females, then returned to hold a position in the plants or over the gravel, but no fish were lured in.

I found the same number of eggs under the plants as I did under the gravel. I concluded that many species of fishes, even though they have preferred spawning sites, are not

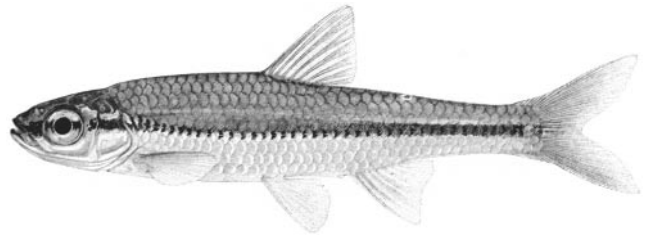



Fig. 1.

Blackchin shiner (*Notropis heterodon*). Courtesy: New York State Department of Environmental Conservation.

locked in to any one spawning medium and will use whatever is available in order to propagate.

### Raising the Fry

I stopped my egg gathering in early August to begin preparing for the 2002 NANFA Convention in Ann Arbor, hosted by the Michigan chapter. At 21°C (70°F) the eggs started to hatch at 96 hours and all had hatched by 120 hours. The fry, 4.8 mm long and clear at hatching, were very easy to raise. I placed them in a five-gallon tank with green water. After three days the larvae were hanging on the glass and by one week they were starting to eat brine shrimp nauplii. By 1 February they were between 25-40 mm long. By June the following year they were 35-48 mm long.

Breeding and raising *Notropis heterodon* was pretty easy. Maybe one of the states in which they are protected (Ohio, Illinois) will try a captive propagation/restocking program. To lose this fish from one of those states would be a shame. At least here in Michigan they still seem to be common. If any of you southern native fish enthusiasts get tired of your colorful minnows, come on up here, get out of the heat, take a dip in an old glacial lake, and look for our blackchins. 

#### How to join NANFA's e-mail lists.

Please join one or all of NANFA's e-mail lists: a list for the discussion of native fish keeping and appreciation, and a Board of Directors (BOD) list for the discussion of Board issues and NANFA management.

To join the general NANFA list, send the word "subscribe" in the body (not subject) of an e-mail to:

[nanfa-request@aquaria.net](mailto:nanfa-request@aquaria.net)

To join the BOD list, send the word "subscribe" in the body (not subject) of an e-mail to:

[nanfa-bod-request@aquaria.net](mailto:nanfa-bod-request@aquaria.net)

Instructions on how to use the lists will be issued when you subscribe.