

FISHES OF THE LOWER SUSQUEHANNA AND NORTHERN CHESAPEAKE TRIBUTARIES, Part X, by William M. Estes. Bethel, Pa., and Bruce Gebhardt, Philadelphia, Pa.

The Killifish

*Fundulus diaphanus diaphanus* (Banded...)

Most people who speak of this species use the Latin name, since no one can ever remember the "correct" English one. It's either Banded Killifish or Banded Topminnow, and if you use the wrong name, you refer to *Fundulus cingulatus*, a southern species.

*Diaphanus* is the standard inland killifish of the east, and, through subspecies *F. d. menona*, the midwest. The eastern subspecies, at least, has unwisely been introduced to Oregon.

*Fundulus d. diaphanus* is found in brackish water as well as fresh. In most of the lower Susquehanna area, except for the very mouth, which this series doesn't cover, *F.d.* are entirely freshwater.

Through most of the warm months, *F.d.* males are quite attractive. They vary from place to place. Typically, the overall ground color is light yellowish or greenish. Starting at the gills are vertical, iridescent bars, more visible at the top of the side, breaking at the belly; posteriorly, they reach right to the bottom of the side. In some lighting, and out of season, they may seem silvery-metallic. In the right light and right season, they are very colorful yellow, green, and blue; often they occur in that order, front to rear. Some finagling with lighting position may be necessary for the aquarist to bring out their best color.

The male's fins typically color up in breeding season. In our area, they most often become iridescent blue, but in other areas they may be yellow. Females are always extraordinarily drab--gray with whitish bellies.

*F. diaphanus* attain 5"-7" in length, similar to *Fundulus heteroclitus*, a frequent companion species in brackish water and occasional in fresh. More usual adult size is half the maximum; small adults are much more convenient aquarium specimens. *F. diaphanus* are easily distinguished from *F. heteroclitus* when adult; the snout profile is sharp, whereas *F. heteroclitus* is somewhat bulldoggish.

One most often encounters *F. diaphanus* in areas of slow, stagnant water. Often they occur in large schools, which move in rapid, merging unison when approached. They are not as "starheaded" as some of their relatives, but they do bear an iridescent spot on the top of the head, which, along with the width of the head, the characteristic swift unison surges, and a

predilection to "hover" in the water with the tail slightly bent, may help with in-water identification.

Not infrequently, these fish are encountered in quite rapid water, where they favor pools or areas downstream from rocks or other obstacles.

In the aquarium, they behave as one might expect of large killies, from oblivious of to aggressive towards tankmates. They eat regular aquarium food and lots of it. They will breed amid plants or spawning mops, but may scatter eggs indifferently. They will even breed in the plastic bag they're being carried home in.

--BG

#### Mummichog (*Fundulus heteroclitus*)

This remarkably durable and often beautiful fish is generally described as an estuarine species, found in the shallows along our entire eastern seaboard. It tolerates a wide range of salinities and, in New Jersey, is the bait fish one is likely to purchase at a bait store. It can also be found inland, and successfully breeds in either fresh or salt waters.

The Mummichog commonly reaches about 5" in total length. It is not uncommon to purchase fish at about this size along the Jersey shore.

In addition to having the remarkable ability to survive prolonged abuse, this fish--particularly in freshwater--is among the most strikingly beautiful of our killies. A freshwater male from Pennsylvania's Delaware River drainage near Philadelphia exhibited a dazzling array of white and gold striations over the entire last three quarters of its body. These striations were made up of short vertical and horizontal zig-zag dashes scattered erratically over 17 broad vertical bars that, in turn, were set against a pale blue ground color. Dorsal, pelvic, and anal fins were nicely colored with streaks of black and silver, while the caudal, especially around the caudal peduncle, was attractively streaked with various combinations of black and white. Most of the rest of this fin was yellow; sometimes there is an intense yellow band at the posterior edge of the caudal. In the male, the dorsal has a large black ocellus at its posterior base edged with billowy white mottling. Black streaks radiate outward from this ocellus.

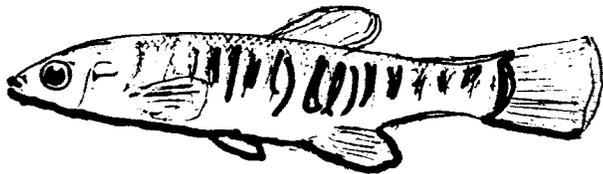
With the exception of its rather broad, somber-colored, brownish-grey anterior, this is, indeed, an attractive fish. No saltwater examples that I have observed have exhibited colors comparable to some freshwater examples that I have seen.

The female is generally quite plain, with gray sides and white belly. It is unmarked except for occasional thin dark bars posteriorly.

In the lower Susquehanna area, we have collected but a single example of this fish. That was in the shallows of the spillway of the Muddy Run Recreation Park power reservoir, located in Lancaster County, Pa. In this situation, the Mummichog was associated with, among others, Banded Killifish (*Fundulus diaphanus*), Largemouth Bass (*Micropterus salmoides*), and Tessellated Darter (*Etheostoma olmstedi*).

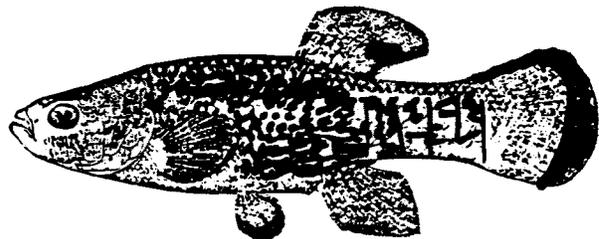
In the aquarium, the larger Mummichogs are best kept by themselves; they are fin-nippers and cannot be trusted with smaller fish. Smaller Mummichogs (up to about 2") do well in a community tank. All sizes are easily kept as long as a great deal of almost any kind of good food is available. As with all fishes, frequent water changes are necessary, but it seems that larger Mummichogs require even more frequent water changes as they tend to foul aquarium water rapidly. On the other hand, they can survive foul conditions better than most other fishes can.

--WME



*Fundulus diaphanus*, n.

*Fundulus heteroclitus*, n.



Sketches exaggerate differences, but indicate relative slenderness of *diaphanus*. *Diaphanus* breeding males have broad iridescent bars; *heteroclitus* generally fewer and narrower. *Heteroclitus* males spangled with iridescent spots and striations posteriorly. They have much yellow over their bodies, and the caudal rim and rims of other fins may have intense yellow. Females are drab; *heteroclitus* females may have several thin, dark bars, while *diaphanus* have no markings. Differences harder to detect in smaller, immature specimens. Sketches modified from Atlas of N.A. Freshwater Fishes; the *heteroclitus* sketch is attributed to Jordan & Evermann, 1900.

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