

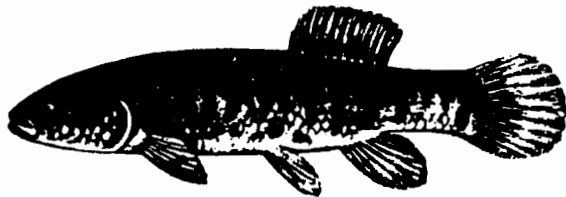
5/24/86



Natural History Notes

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THE MUDMINNOW



Despite the name, the mudminnow is not a member of the Minnow family. In fact, its closest relatives are the members of the Pike family: the musky, northern pike, and pickerels. Names have a way of deceiving us. There are five species of mudminnows in the world that are all members of the Mudminnow family, technically called Umbridae. The central mudminnow inhabits Wisconsin and ranges from the Appalachians west to the Dakotas, north to Ontario, and south to Arkansas. Its scientific name *Umbra limi*, means shade or dark mud which describes both the color of the fish and its preferred habitat.

Mudminnows are dark olive green or brown-black on the back, mottled with up to 14 vertical bars on their side and a white to yellow belly. Like most fish, their color or shading varies with the water they live in. For example, a mudminnow from clear water would be a dark olive green with a white belly, compared to a black-brown with a yellow belly shading on individuals from dark or muddy waters. The mudminnow is a small fish usually about three inches long with occasional individuals reaching 5-6 inches. They normally live to be three to four years old with aquarium specimens sometimes living beyond seven years. Distinctive features of the mudminnow, in addition to its dark color, are its short snout, flattened head and rounded tail fin.

The name mudminnow tells something about its preferred habitat. They are commonly found in bog lakes, shallow muddy ponds, and sluggish weedy streams where the bottom is covered with a thick layer of mud. They are usually found farther upstream than any other fish, often penetrating swamps or small springs. The mudminnow often extends upstream into the tiniest intermittent tributary streams. I have seen mudminnows attempting to swim up very small rivulets after a hard rain. The secretive nature of this fish is related to its habitat.

They are not commonly taken in minnow seines because the areas they occupy are usually too difficult to seine. When disturbed they will escape into mud or dense debris or vegetation where they remain protected from their predators. Minnow traps are the most effective means of capturing mudminnows since they swim into the traps during their normal migrations upstream, especially during high water.

Mudminnows spawn when water temperatures reach 55° F. (April - early May). They migrate upstream as far as possible or move out onto newly flooded areas during spring runoff. These areas provide both protected habitats for the newly hatched young as well as oxygen rich waters for egg development. The eggs are sticky and are deposited singly on leaves of plants or twigs and branches. Usually from 400-600 yellow to orange-colored eggs are laid per female. The female guards her eggs and picks out and eats any dead or undeveloping eggs. This prevents fungus infections from spreading from dead eggs to the healthy developing eggs. After six days of incubation the young emerge from the eggs and by the 16th day the tiny fry begin to take on the dark coloration of the adult.

The mudminnow's adaptation to stagnant, muddy, low oxygen waters is the key to its survival and the reason for its popularity as a bait fish. The hardy mudminnow will survive in a bait bucket for days, long after all other species have died. When waters become almost totally devoid of oxygen and other fishes have perished the hardy mudminnow continues to thrive. In waters containing healthy oxygen concentrations the mudminnow, like most fish, uses its gills to extract oxygen from the water. But when the oxygen is depleted and most other fish die, the mudminnow gulps air. It has a connection between its mouth and swim bladder or air sac that is used to regulate buoyancy in fish. The mudminnow's swim bladder has an area with many blood vessels (similar to lungs). The gulped air is moved into the swim bladder where the oxygen is extracted and moved into the blood stream. In a sense, this fish has mastered the problem of respiration in stagnant waters. It is able to exploit and thrive in a niche with little competition from other fish or fear of predators.