THE GRASS PICKEREL . . .

ESOX AMERICANUS VERMICULATUS

By Jim Pitts

The Grass Pickerel is a relatively small member of the Pike family, Esocidae. This subspecies of Esox americanus very seldom exceeds 12 inches in length. This helps make the Grass Pickerel one of the more desirable pikes for the aquarist. The Grass Pickerel is not quite as colorful as its cousin the Redfin Pickerel, (Esox americanus americanus), which replaces it east of the Appalachian Mountains. The major attractiveness of the Grass Pickerel lies in its sleek form and graceful movement.

The Grass Pickerel may be separated from other members of the Pike family by the following characteristics:

A. The cheeks of the Grass Pickerel are entirely scaled.

B. There is usualyy a distinct tear-shaped marking under the eye.

C. The lateral scale count is under 110.

D. The fins are never very reddish and the head is relatively longer than that of the Redfin Pickerel (injured Grass Pickerels will often exhibit red fins due to capillary damage).

It should be kept in mind that many intergrades occur between the ranges of the two subspecies. In fact, the subspecies taxon indicates merely an accumulation of minor genetic differences due to the geographic remoteness of different populations. There is probably complete reproductive potential between even the "purest" examples of each subspecies.

HABITAT

Although the author has of yet only encountered the Grass Pickerel in a single area, a description of that habitat may prove helpful in choosing probable collecting sites and in establishing a suitable aquarium environment for specimens. The habitat to be described is judged to be successful since spawnings on at least two successive years have occurred there.

Grass Pickerels have been under regular observation in this small swamp near Louisville at all seasons of the year. Adults are most abundant in mid-summer. The fish are found in all portions of the swamp and the small stream that feeds it. Water depth varies from three inches to about three feet. The temperature varies from freezing to about 70°F. The pH fluctuates between 7.0 and 8.0, becoming more alkaline when flow through the swamp increases. The bottom is mud covered by decaying vegetation.

Other fishes collected in the swamp consisted, in order of decreasing abundance, of:

Gambusia affinis (Mosquitofish)

Dorosoma cepedianum (Gizzard Shad)
Ictalurus natalis (Yellow Bullhead)
Semotilus atromaculatus (Creek Chub)
Notropis whipplei (Steelcolor Shiner)

Gambusia affinis probably makes up the major part of the Grass Pickerel's diet in this body of water. No significant pupulations of any other small fishes are present.

Aquatic plant life consists mostly of the following:

Lysimachia nunularia (Moneywort)
Ludwigia sp.
Several species of filamentous algae
Lemna minor (Duckweed)

The covering of Duckweed keeps the bottom very dimly lit. The Grass Pickerels are very seldom seen in open water where there is no plant coverage.

MAINTENANCE

The Grass Pickerel is a voracious predator. Live food is its most essential requirement. The author has tried to entice the fish with all types of prepared foods to no avail. Small fish are the best food. The Pickerels will avoid eating bottom fishes such as bullheads or darters. If small bluegills or other Centrarchids are fed, be sure that they are not too wide (from top to bottom) to be swallowed. When hungry enough, a Grass Pickerel will pay little attention to the size of his meal. They will commonly attempt to swallow a fish nearly their equal in size. Some will find themselves entrapped by their own gluttony. The large prey becomes lodged in the Pickerel's throat, and with tail still hanging from the predators mouth, both fishes suffocate. Try to feed fishes no longer than half the Pickerels length. Cannibalism will be a problem if specimens of mixed sizes are placed together. Daily feedings should help to prevent this.

Other than the live food requirement, these fish do not seem to be very hard to satisfy environmentally. Because they are very inactive except when feeding, they consume little oxygen and may be maintained in relatively crowded conditions with moderate aeration. Their short gastro-intestinal system makes for the deposition of much semidigested waste which should be removed regularly to prevent fouling of the water. A note of warning should be added as to the Grass Pickerel's jumping ability. Sudden flashes of light or dark shadows moving in front of the tank may induce the fish to jump or dash madly into the glass.

SPAWNING

No account of the Grass Pickerel spawning in an aquarium seems to

be readily available in the literature. The author has been informed of the publication of the tank spawning of Esox lucius by Fabricius and Gustafson. In their account of the Esocid spawning, two major points may be noted. The first, and probably most important point regards temperature. They noted that raising the temperature of the water from 5.5°C to 18.5°C triggered rigorous spawning. This drastic change is probably not essential, however. A change from about 13°C to 18°C would probably perform the same function. The second observation in the study concerns vegetation. Fabricius and Gustafson discuss the stimulating effect of an ordinary mat of lawn grass on the bottom of the tank. The fish spawned on a bottom lacking any vegetation at all, however, a dense layer of short vegetation seems to be optimal. Strong lighting also produced a positive effect on the Pikes. This may be due to the enhancement of visual spawning stimuli.

The Pikes discussed above were egg scatterers, distributing the eggs randomly through the vegetation. It is assumed by the author that the Grass Pickerel probably shares similar habits. The common name of "Mud Pickerel" applied to the Grass Pickerel is due to the common occurrence of the fish in flooded fields. Many authors have described spawning in these flood areas (a lawn grass substrate might not be so unnatural after all). In the Louisville location, gravid females have been observed in the first days of March and two and one half inch young have been collected in the first week of May. If you are going to catch naturally conditioned fish you are going to have to get out in some fairly cold weather. Hubbs and Lagler have suggested that the Grass Pickerel may spawn again in an unusually warm fall, so late summer collecting might also be productive.

It can't be overstressed that publication of spawnings of fishes like the Grass Pickerel is very important. The knowledge the aquarist can gather in this area may someday be the only salvation for many seemingly doomed species of fishes.

REFERENCES

1. Handbook of Kentucky Fishes by William Clay, 1962.

2. Fall Spawning of the Grass Pickerel by Hubbs and Lagler, Copeia, no. 2, p. 131, 1943.

3. Some New Observations on the Spawning Behavior of the Pike, Esox Lucius by Fabricius and Gustafson, Institute of Freshwater Resources of Drottingholm, 1958

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