AN INTRODUCTION TO ENNEACANTHUS OBESUS (GIRARD), THE BANDED SUNFISH (with special reference to Rhode Island distribution)

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Winter in New England can offer two distinct pleasures to native-fish enthusiasts. One is to enjoy the fishes that were collected during the previous summer. The other is to plan for fishes you want to collect during the next collecting season. In this article, I would like to offer a suggestion for your consideration under the second category. For next spring and summer, consider the Banded Sunfish, Enneacanthus obesus.

The Banded Sunfish is the smallest member of the Centrarchidae, or sunfishes, found in New England. Although sizes up to and slightly in excess of 10 cm TL (Total Length) are reported, the larger caught individuals are most often seen at a smaller size. A 7-to-8 cm specimen should be considered good-sized. Table I shows the length frequency of a sample of E. obesus from southwestern Rhode Island. The Banded Sunfish is the only member of the genus Enneacanthus found in New England. The other two species of the genus, E. chaetodon (the Black-banded Sunfish) and E. gloriosus (the Blue-spotted Sunfish), have a similar distribution to E. obesus except for their absence in New England.

The Banded Sunfish shows a fairly widespread distribution in New England and may be found in southern New Hampshire, eastern Massachusetts, Rhode Island, and Connecticut. It is absent from Maine and Vermont. Its range in Massachusetts and Connecticut extends from the east westward to the vicinity of the Connecticut River and stops there except for one known population on the west side of the river in Connecticut. The range picks up again in extreme southern New York (also Long Island) and continues southward to Florida. In Florida it is found quite far inland throughout its range; the overall effect is of an Atlantic coastal distribution.

In appearance, the Banded Sunfish rivals many of the South American cichlids. The base body color is variable, and may range from olive green to pale brown. The lower portions of the body are lighter in color than the upper. From five to eight dark vertical bands are present on the body. On the operculum is a black spot that is the same size as (or slightly larger than) the eye. This spot is bordered in gold. A dark band is seen beneath the eye. The body and fins are covered with a scattered pattern of small spots that may range from gold to green to purple or blue in color. On the head may be seen radiating lines of the same color as these spots. Gebhardt (1982) notes a color difference between males and females.

TABLE I

Length frequency of a collection of E. obesus from southwestern Rhode Island streams and ponds (adapted from Guthrie et al., 1973)

Length in inches	Number of fish (streams)	Number of fish (ponds)
1.0-1.4	0	30
1.5-1.9	14	85
2.0-2.4	33	111
2.5-2.9	35	47
3.0-3.4	11	8
3.5-3.9	12	4
4.0-4.4	4	0

The small, scattered spots on the body and fins are reported as being gold on the female and blue, green, or turquoise on the male. /EDITOR'S NOTE: Gebhardt has now concluded that his supposed E. obesus spawning was actually a cross of an E. obesus male and an E. gloriosus female./

Although the Banded Sunfish may be easily distinguished from other sunfishes of New England by coloration alone, another distinguishing feature is available . This is the caudal fin. In E. obesus, the caudal fin is rounded, while all other species in this area display a forked caudal fin. For a fine color photo of E. obesus, I would direct you to Axelrod et al. (1976), p. F266.05.

The Banded Sunfish may be found in lakes, ponds, and streams, though it is more commonly seen in the first two. They prefer areas that are heavily weeded and not too deep. They are quite adaptable, and survive and thrive in what would be considered poor water for many other fishes. When found in streams, they are most commonly seen in quieter backwater areas and in weedy sections close to the banks. In streams, I have had good luck capturing them along the banks with the use of a shallow "bait minnow"-type dip net. In ponds and lakes they can be captured by the use of two-person seine nets by sweeping through shallow, heavily weeded areas. Capture may sometimes be difficult, as it has been reported that E. obesus will literally burrow itself into the bottom soil when frightened.

Not much is known regarding reproduction of this species in the wild. It is noted that it is a nearly spring-summer spawner and most probably has a protracted breeding season. I have collected individuals in Rhode Island that were in full breeding dress in the middle of May. Unfortunately, I did not check the water temperature at the time of capture. In-

creasingly elevated water temperatures combined with increased photoperiod appear to have a strong influence on spawning behavior. Reports in the literature indicate that prolonging photoperiod and raising the water temperature to 21.7° C will cause captive specimens to become sexually active during the winter. (Carlander, 1977.) Some aquarium literature reports the temperature for spawning to be 18-20° C. Temperatures for spawning can even run lower than those given above. A report of aquarium spawning at 16.7° C has recently been published. (Gebhardt, 1982. EDITOR'S NOTE: As noted in previous editor's note, the spawning has been redescribed as a crossing of an E. obesus male and an E. gloriosus female.) Also see Axelrod et al. (1976) for additional information on captive reproduction.

Maintaining E. obesus in the aquarium presents no special problems. Due to the comparatively small adult size, very large aquariums are not a necessity. The temperatures maintained should of course be lower than those used for standard "tropical" fishes. During the winter, no heaters are needed; ambient temperatures are fine. The only potential problem with water temperature is that of its becoming too warm during summer hot spells. To combat this, it is good to have the tank close to the floor. If the water becomes too warm, you should increase the aeration, and if very warm, some ice can be added to cool temperatures down. If you are attempting to spawn E. obesus "naturally," the natural warming of spring will provide the necessary temperature increase. If the tank receives natural light (not direct), the increasing day length will provide the natural photoperiod stimulation. If you wish to attempt to spawn them during the winter, it would be best initially to let the fish go through a cooling-off period of a month or so before raising the water temperature with an aquarium heater to the 17-21° range. The amount of light received can be increased accordingly with standard aquarium lighting methods.

Captive feeding of this fish presents no special difficulty. Wild individuals feed mainly on insects, insect larvae, crustaceans, and some plant material. In the aquarium, they are not fussy. I have maintained individuals on a diet of various flake foods, frozen brine shrimp, small earthworms, and a variety of frozen foods. During the spring, summer, and early fall, it is good to collect various "little critters" from local ponds and streams to supplement their diet.

Tank set-up should provide a number of hiding places. These will help to keep the fish at ease and supply areas where a territory can be established. This can be accomplished either by thickly planting the tank or placement of various suitable objects such as flowerpots, driftwood, etc. A combination of the above two methods will make for an attractive and functional tank.

It would be good to add here a comment regarding an aquarium text reference to E. obesus. In Sterba (1966), E. obesus and E. gloriosus are discussed. The common names for the two

fishes are switched.

I would also like to discuss the distribution of E. obesus in the state of Rhode Island. As a prelude to this, it should be stated that the distributional status of many Rhode Island freshwater fishes is uncertain at this time due to the lack of any comprehensive statewide study. As a result, at this time E. obesus is listed on the Rhode Island Natural Heritage Program list of species for special consideration (#ASM 74). The purpose of this program is to provide a list of species that might require special legal consideration in regard to their protection. I am working informally with this program and hope to provide information which may be of help in formulating and maintaining this list. This article, especially the Rhode Island distribution information, is being written toward these ends.

Early reports of E. obesus in Rhode Island are limited. Sails and Horton (1957) published a study of 41 lakes and ponds in the state. Only one locality, Wallum Lake in the northwest part of the state, showed the presence of E. obesus. The specimens were collected in shallow coves during a reclamation project. In 1973, a fisheries management survey was conducted in the Pawcatuck River watershed which encompasses a large portion of southwestern Rhode Island. Eighteen lakes and ponds and 48 streams and rivers, or sections thereof, were surveyed. Of the lakes and ponds, seven were found to contain E. obesus; this fish made up 4.8% of the total fishes collected. In the streams and rivers, E. obesus was found in 11 collecting localities and made up 0.77% of the total. Another study of Rhode Island lakes and ponds was published in 1977. This publication encompassed 15 years and summarized 101 ponds and lakes in the state. Enneacanthus obesus was reported to be present in 18 of these. My collecting of fishes to date has been limited to northern sections of the state, predominantly in the northeast. In this area, I have found E. obesus to be fairly common in a number of localities. Recently I have started collecting in the northwest part of the state (Burrillville), and E. obesus was the first species caught. Figure 1 shows the currently known distribution of E. obesus in the state. This map is based on literature and personal collection. Although some large gaps exist, mainly in the southeastern and central portions, I feel that with further investigation E. obesus will be shown to have a wide distribution in the state.

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--Adapted from Tidings, publication of the New England Fish Fanciers.

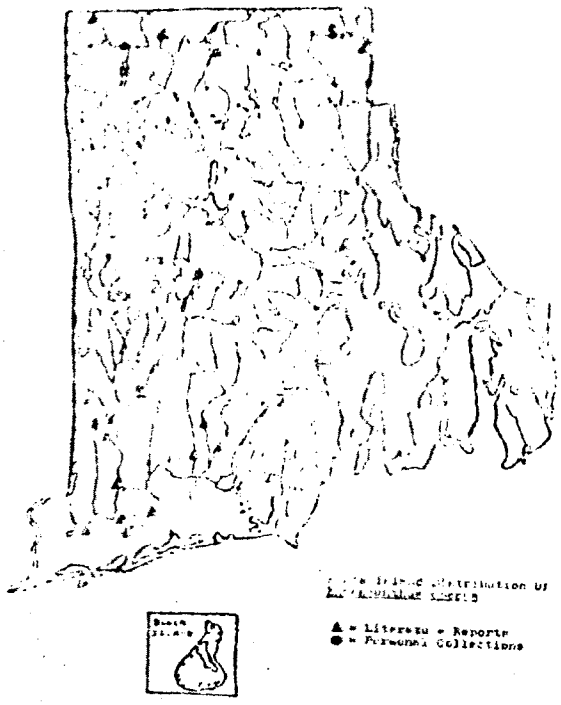

Fig 1.

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