

A COLLECTION OF MADTOM CATFISH, *NOTURUS FUNEBRIS*, FROM WESTERN FLORIDA

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ABSTRACT. — Length-frequency, sex ratio, associated fishes, and observations on sexual maturity are given for an unusually large sample of the black madtom, *Noturus funebris*.

100 *I. punctatus*, 2 *Micropterus salmoides*, 10 *Percina nigrofasciata*, and 1 *Etheostoma edwini*.

Standard length (SL) of the 429 *N. funebris* were measured to the nearest millimeter with dial calipers. The body cavity was opened and sex determined by gross examination of the gonads. As is usual in madtoms, no external sexual differences were discernible, but even in the smallest individual examined (21 mm SL) sex was easily determined by examination of the gonads. An attempt was made to study age and growth using annuli of the pectoral spine. The procedures used were those of Leonard and Sneed (1951) as modified by Clugston and Cooper (1960). This attempt was unsuccessful because long preservation in formalin had caused the spines to crack and the annuli were obscured and could not be used as age markers.

Length-frequency relations are shown in FIGURE 1. The first peak from 25 to 35 mm SL, may represent year class I, fish hatched in the summer of 1960 and thus less than a year old. This size range is probably not adequately repre-

The black madtom, *Noturus funebris* Gilbert and Swain, is a secretive ictalurid catfish living in small coastal streams from Louisiana to Florida. This species is seldom collected in large numbers and little is known of its life history. A collection of 429 individuals was made by Florida Game and Freshwater Fish Commission workers and given to the Tulane University Ichthyological Collections. This collection was made using 1.5 quarts Rotenone, 8 March, 1961, Metts Creek, Yellow River drainage, Okaloosa Co., Florida. Total fishes collected were: 2 *Ichthyomyzon gagei*, 19 *Esox americanus*, 2 *E. niger*, 7 *Crimyzon tenuis*, 56 *Notropis hypselopterus*, 144 *N. signipinnis*, 50 *N. texanus*, 6 *Ictalurus natalis*, 429 *Noturus funebris*, 81 *N. leptacanthus*, 15 *Aphredoderus sayanus*, 3 *Fundulus notti*, 5 *Ambloplites rupestris*, 1 *Chaenobryttus gulosus*, 1 *Lepomis marginatus*,

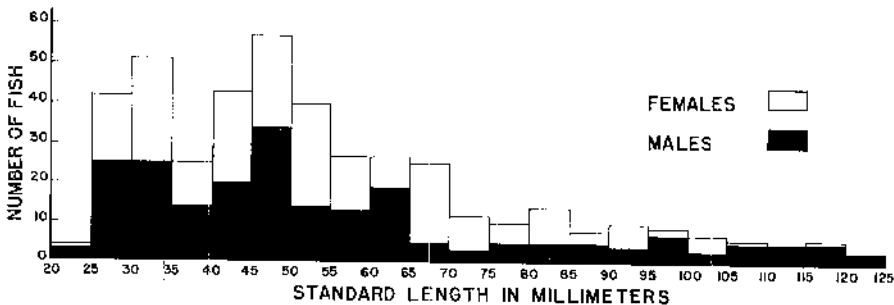


FIGURE 1. — Length-frequency diagram for 429 specimens of *Noturus funebris* collected in the Yellow River drainage (Metts Creek) of Western Florida on March 8, 1961.

sented because small individuals are less likely to be recovered by collectors using poison than are larger fish of the same species. The second peak at 45-50 mm SL is thought to correspond to year class II, hatched in the summer of 1959. The third peak, at 55 to 65 mm SL, is less distinct than the first two and probably represents individuals hatched in the summer of 1958 and thus belonging to year class III. Larger individuals are probably older but this is not demonstrable from these data. Sex ratio for the sample was 221♂ to 208♀. The predominance of males in the size classes above 95 mm SL suggests that males may attain a larger size than females or that large females may have a higher mortality rate than large males.

Gross examination of testes of these preserved males did not allow discrimination between mature and immature individuals. The male gonads may not have been active at the time the collection was made, but three of the largest females (103, 106, and 119 mm SL) had ovaries containing large (2-3mm) yolked ova. The other 205 females in the Metts Creek sample had ova smaller than 1.5 mm diameter. Examination of 28 other females (58 to 104 mm SL) available in other Tulane University collections revealed 2 additional ripe females. The larger (104 mm SL) had normal ovaries but the smaller (91 mm SL) had asymmetrically developed ovaries, the left being about 3 times as large as the right. The total volume of her ovaries was the same as in a normal female. All other females of *N. funebris* seen by me have had equal development of both ovaries. Although not enough females were avail-

able from spring and early summer collections to rule out the possibility of sexual maturity in smaller females, it seems that *N. funebris* females ordinarily reach approximately 100 mm SL before becoming sexually mature.

Yolked ova were counted for 3 large females: 104 mm SL- 184, 106 mm SL- 114, 119 mm SL- 192. These counts were obtained by dissecting out and counting the ova from one-half of the ovary and then multiplying by 2. These counts compare with 107 eggs in the ovaries of a 122 mm total length female *N. insignis* (Clugston and Cooper, 1960).

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