

Article XXXVII.— ICHTHYOLOGICAL NOTES FROM A CRUISE
OFF SOUTHWEST FLORIDA, WITH DESCRIPTION OF
GOBIESOX YUMA SP. NOV.).

BY JOHN TREADWELL NICHOLS.

PLATE CXI.

On March 31, 1917, the writer as the guest of Mr. Herman Armour Nichols of Chicago, joined the Auxiliary Ketch Yacht 'Yuma,' at Long Key, Florida, for a three weeks cruise, hoping to make observations with important bearing on the relationship and habits of Florida ground sharks (*Carcharhinus*). Other notes of interest from the cruise are included with such shark observations in the present paper. The 'Yuma' proceeded from Long Key to the vicinity of Sandy Key, off Cape Sable, thence past Cape Sable to spend the night of April 3 at the mouth of Lostmans River on the West coast, of April 4 at Rabbit Key, of April 5 and 6 at Marco, April 7, 8, and 9 inside a pass about 12 miles south of Sanibel Light, and April 10 up close to the light. Thence returning down the coast, Sandy Key was again reached on April 13 and three days were spent among the Keys immediately south and southeast of Cape Sable. Returning via Long Key, we anchored near the trestle at Lower Metacumbe Island for the nights of April 16 and 17, and after spending one night at Jewfish Bank nearby, proceeded to Miami, where we left the 'Yuma' on April 20.

***Carcharhinus commersonii* Blainv.**

Plate CXI, Figs. 1, 3 and 4.

Carcharhinus obscurus THORNE & NICHOLS, Copeia No. 35, Sept., 1916.

Small individuals of this shark were seen in the Bay of Florida near Man-o-war-hawk Bush, April 2, and one of them, a young bull 5 ft. 8 in. in total length, taken. A sting or whip-ray spine was imbedded in the muscle at the corner of its mouth. A steak cut from its side and fried was excellent eating, not at all tough and suggesting swordfish in flavor.

It agreed well in all respects, including its dark color and brown eye with a large bull shark taken in Great South Bay, New York, August 3, 1916 (Copeia, No. 35, p. 73). If we refer such Long Island individuals to *commersonii*, I have never seen *C. obscurus* from northern waters. Two small individuals, 24 to 26 in. long received several years ago by this Museum

from the U. S. Bureau of Fisheries laboratory at Woods Hole, Mass., as *obscurus*, are *C. milberti*. The original descriptions of *obscurus* and *milberti* are unsatisfactory. As the type of *milberti* was from New York, it was pretty surely the member of the genus which greatly predominates there and for which we use the name.

Le Sueur's type figure of *obscurus* agrees with a newly born fish 25 in. long taken in southern Florida about February, 1910.

C. commersonii is common in Florida. We have excellent photographs of a female $8\frac{1}{2}$ ft. long, taken at Key West, January 13, 1910, by the Fabbri Tecla Expedition, which contained 6 young, 17 to 18 in. long, three of which are preserved in the Museum collections. This fish differed in no essential from the New York bull referred to above, save color which was much paler, very likely due to the white shell-sand bottom off Key West. The Museum collections contain also the following *commersonii* taken at Key West by the same expedition: A young one 36 in. long, and an unborn young 21 in. long taken February 20.

Compared with other U. S. Atlantic *Carcharhinus*, this shark has upper teeth broad, not strongly notched, snout broad and rounded, dorsal low, no ridge on back behind it, second dorsal origin before anal, anal and caudal lobes prominent, eye sometimes or always brown.

Garman is right in using the name *commersonii* for this species rather than *lamia*, though I can not agree with him in considering as synonyms of *commersonii* all the species which he does. The 29 in. (27 in its present shrunk condition) *Carcharhinus* taken in summer at Para, Brazil, referred to *C. platyodon* by Starks,¹ I would place with *commersonii* to which it is at least very close.

Supposing, as is most likely, that the young of *commersonii* are larger at birth than those of *limbatus*; *commersonii*, *limbatus*, and *acronotus*, probably all give birth to their young on the Florida coast at about the same date in the spring, and the 36 in. *commersonii* from Key West may reasonably be supposed to be a yearling shark.

***Carcharhinus limbatus* (Müller & Henle).**

The following specimens of this species were taken:

Place	Date	Sex	Total length	No. of young	Length of young
Rabbit Key, West Coast	April 4	♀	5 ft. 5 in.	3 ♂ 3 ♀	21 to 22 in.
Marco	April 5	♀	5 ft. 3 in.	0 ♂ 6 ♀	23 in.
S. of Sanibel Light	April 7	♀	5 ft. 3 in.	2 ♂ 2 ♀	22 in.
Off Sandy Key	April 13	♀	5 ft. 2 in.	3 ♂ 0 ♀	about as usual.
Off Sandy Key	April 16	♀	4 ft. 11 in.	None	

¹Stanford Univ. Pub. No. 11, 1913, p. 4.

The jaws of the Rabbit Key shark were saved, and the tips of two sting or whip ray spines found embedded about the mouth. A steak cut from the side of this same one fried was good, resembling that from the *C. obscurus*, though somewhat less excellent.

The close conformity in the size of the young indicates a very definite breeding date.

It is significant that no males of this species or of *C. acronotus*, which also had young, were met with. It appears that when with young, female ground sharks (*Carcharhinus*) are not accompanied by males of the same species. Considerable data proves this for *C. milberti* of Great South Bay, N. Y.

C. limbatus was the shark most commonly met with. It is an active species, frequently taken when trolling for tarpon, and known to the boatmen as mackerel shark. The much rarer Lamnidae with better right to the name would very likely be called the same if taken. A 40 in. *limbatus* taken in southern Florida by the Fabbri Tecla Expedition, about Feb. 1910, was very likely two years old.

***Carcharhinus acronotus* (Poey).**

Plate CXI, Fig. 2.

Two females of this shark were taken, respectively, in the mouth of Shark River on April 12 and on Jewfish Bank, April 18. Each was 3 ft. 9 in. in total length and contained four young, two males and two females, 17½ to 18 in. long. The former was yellowish grey, paler below, iris pale yellowish. It had a sting or whip ray spine embedded about the jaws. The latter was pale greenish yellowish, including its iris, below paler. A steak cut from its side and fried was fairly good.

According to Capt. J. S. Thompson, this species is abundant and known as "mackerel shark" as well as *C. limbatus*.

Beside the above three species of the genus *Carcharhinus*, a young male hammerhead *Sphyrna zygaena* 6 ft. long was taken at Rabbit Key, April 4 and a female yellow shark (*Hypoprion brevirostris*), 6 ft. 10 in. long, among the Keys in the Bay of Florida southeast of Cape Sable on April 15. It contained no young, and no sting or whip ray spines about the jaws. A steak cut from its side and fried was good.

***Pristis pectinatus* Latham.**

On April 3, a young one about 2 ft. in total length, was observed swimming in a few inches of water along the shore of Sandy Key. On April 13, a female sawfish of perhaps 15 ft. in length, was taken containing young only 13 in. long with large yolk-sac attached. The two foot fish was presumably one year older than these smaller ones. In the Museum collections are a male of 30 and a female of 26 inches taken in Southern Florida in the early spring of 1910 by the Tecla Expedition, and a female of 29 in., taken by E. C. Starks at Natal, Brazil, in the summer of 1911. My hypothesis is that the young are born in September about 18 in. long throughout the range of the species, and the gestation period lasts one year.

***Gobiesox yuma* sp. nov.**

The type and only specimen obtained, No. 5737, American Museum of Natural History, taken in a bay about 12 miles south of Sanibel Light, Florida west coast, April 10, 1917, coming aboard with the anchor. There was about 10 ft. of water at

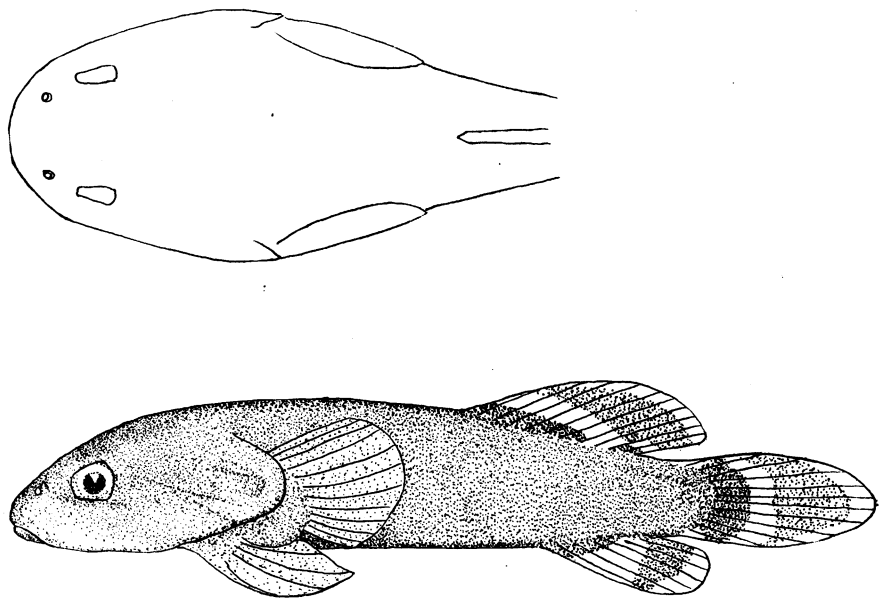
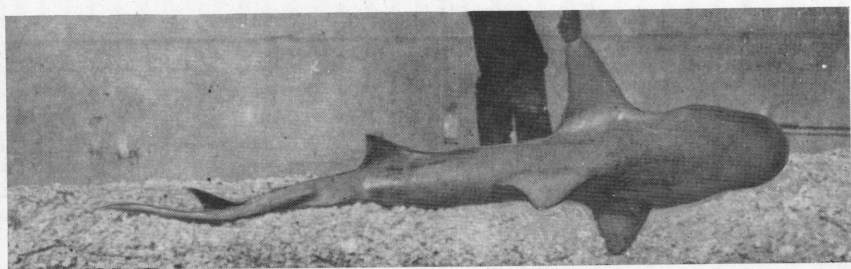
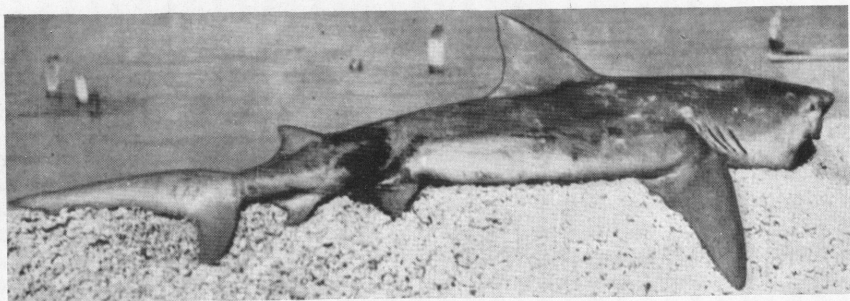
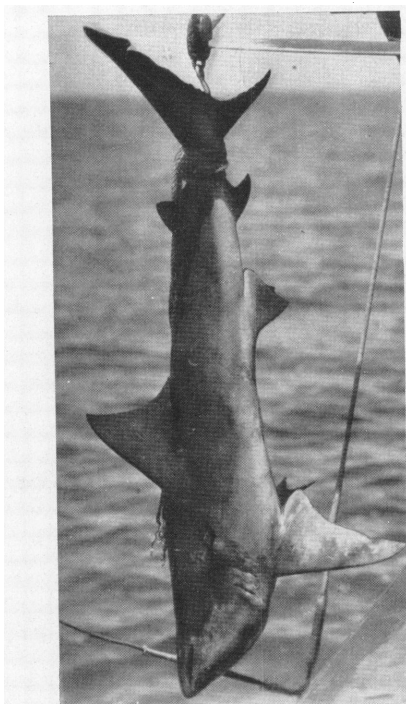


Fig 1. *Gobiesox yuma* sp. nov.

this point at low tide. It is 29 mm. in total length; head 2.8 in length to base of caudal (3.25 in total length); depth 4.5 (5.25 in total); breadth of head 1.25 in its length; interorbital 2.5; eye 2.5 in interorbital. Breadth of mouth 2 in head; length of disk 1.3. Mouth slightly inferior; a well developed opercular spine; lateral teeth of lower jaw conical slightly curved, the central teeth broad, compressed incisiform, not evenly truncated but scalloped so as to be very slightly tricuspid; dorsal origin from caudal base 1.8 in its distance from snout. Dorsal 11. Anal 7. Pectoral 2.1 in head. Caudal rounded, subacuminate, 1.75 in head. Color dark slaty, uniform; under side of head whitish; caudal black edged with white, and with a white band across its base. Dorsal dusky edged with white, with a black basal and white sub-basal stripe, except at the 8th and 9th rays where it is merely pale at the base. Anal marked with dusky and white.

I have been unable to place this fish with any described species. It is too deep and chunky for *G. virgatus*. It was difficult to pick up from the wet deck where it clung, wriggling. If the not evenly truncate teeth should place it in *Arbacioides*, that genus is scarcely worth recognition. Named for the ketch 'Yuma' to whose anchor it clung and from which it was taken.



FLORIDA GROUND SHARKS.

1. *Carcharhinus commersonii* ♂. Length 68 in.
2. *Carcharhinus acronotus* ♀. Length 45 in.
- 3 & 4. *Carcharhinus commersonii* ♀. Length 102 in.

(Continued from 4th page of cover.)

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