

Smooth Dogfish

Mustelus canis (Mitchill) 1815

[*Bigelow and Schroeder*, 1948 p. 244.]

[*Garman*, 1913 pl. 4, figs. 6-9, as *Galeorhinus laevis*.]

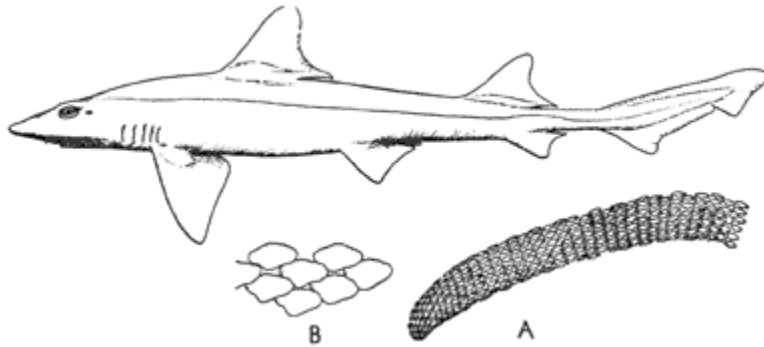


Figure 10- Smooth dogfish (*Mustelus canis*, male, about 31 inches long, Woods Hole.

A, tooth band of right-hand side of upper jaw, about 1.8 times natural size;
B, teeth of another specimen, about 6 times natural size.

From Bigelow and Schroeder. Drawings by E. N. Fischer.

Description

The smooth dog is easily identified among Gulf of Maine sharks by having two large spineless dorsal fins. The second only a little smaller than the first, combined with low, flat, pavement-like teeth. So different, indeed, are its teeth from the awl-like or blade-like teeth of all our other sharks that a glance at the mouth is enough to separate this species from the young of any larger Gulf of Maine shark. In form this little shark is slender, flattened below, with tapering but blunt snout. Its first dorsal fin originates nearly over the hind angle of the pectorals. The second dorsal fin is about twice as large as the anal, over which its stands. The tail is of typical "shark" shape, i. e. with upper lobe much longer than lower. The hind margin of the upper lobe of the caudal is deeply notched near the tip; the lower caudal lobe is very small.

Color

Upper surface grayish olive, slaty gray or brown, lower surface yellowish or grayish white. Newborn specimens have the upper part of the first dorsal fin edged with dusky gray; the apex of the second dorsal sooty edged or tipped, but with the rear edge white; the tail fin with a sooty blotch above near the tip, but white edged below. But these markings have mostly faded out by the time the little "dog" has grown to a length of two feet or so. Smooth dogs have a greater ability than most sharks to change shade to suit their surroundings, paling to a translucent pearly tint above white sand, but darkening on dark bottom. [80]

Size

Smooth dogs range from about 11½ inches to about 14½ inches long when born. They mature sexually at about 3 feet, most of the mature females with young are between about 3 feet 3 inches and 4 feet 4 inches long; and a few grow to a length of about 5 feet.

Habits

The smooth dog is most familiar as a shore fish and a bottom swimmer, commonly entering shoal harbors and bays, and even coming into fresh water. But fishermen also report them as far offshore as the "tile fish" grounds off southern New England and down to a depth of 80 to 90 fathoms. They reach the northern part of their range only as warm-season visitors; at Woods Hole they arrive sometime in May, to withdraw in late October or in November.

Food of the smooth dogfish consists chiefly of the larger Crustacea, and it is perhaps the most relentless enemy of the lobster, which had been eaten by no less than 16 percent of the fish examined by Field. Large crabs are likewise an important article in its diet, as are the smaller fishes. It has been estimated that 10,000 smooth dogfish, in Buzzards Bay, might devour more than 60,000 lobsters yearly, and perhaps one-fifth [page 36] million crabs, besides a great number of small fish (menhaden and tautog are the species most often found in smooth dogfish stomachs). And these figures are based on a sufficient number of observations of the stomach contents to serve as a general indication of the destructiveness of the smooth dogfish. They also feed on squid, especially in spring, and while they do not regularly take hard-shelled mollusks, razor clams have been found in the stomachs of several at Woods Hole. When kept in captivity they are constantly on the move, searching the bottom for food, which they find chiefly by the sense of smell though their sight is also keen. [81] Any crab that may be offered is soon found, seized, shaken to and fro, and eaten. And with packs of these sea hounds hunting over every square foot of our southern bays and sounds it is a wonder any of the larger crustaceans escape where dogfish are abundant. Field [82] also made the interesting observation that the smooth dogfish never molested healthy and active menhaden but soon devoured any sick or injured fish that might be in the same tank with them.

As this is not a characteristic Gulf of Maine fish, we need merely note that it is one of the sharks that develop a placental connection between the embryos and the mother. In other words, it is truly viviparous. The period of gestation appears to be about 10 months; off southern New England the young are born between early May and mid July. The number in a litter usually is between 10 and 20, but as few as 4 have been reported. A description of the unborn young is given by Fowler. [83]

General range

Coastal waters of the western Atlantic, from Uruguay and southern Brazil, regularly to Cape Cod, and to Passamaquoddy Bay as a stray; also Bermuda. [84]

Occurrence in the Gulf of Maine

The smooth dog is the second most numerous shark along the southern coast of New England, though falling far short of the spiny dogfish (p. 50). At Woods Hole, for example, pound-net catches varied during the summer of 1903 from 1 to 41, averaging about 7, and catches up to 100 have been reported from the vicinity at one time. Similarly, catches of 5 or 6 on a hand line are common in a few hours' fishing, with as many as 10 to 20 reported. But the elbow of Cape Cod and the region of Nantucket Shoals mark so definite a boundary to their dispersal eastward that while they have been reported from Provincetown, from various localities within Massachusetts Bay, and even from as far north as St.

Andrews in the Bay of Fundy, where one was caught in July 1913, neither of us had ever seen one north of Cape Cod until September 21, 1951, when an angler (Ellery Sidney); showed us a female about 3 feet long that he had caught at Cohasset, while casting with an eel skin, for striped bass. So far as known its, occasional incursions into the Gulf are sporadic, at least they have not been correlated with unusually warm summers or with the presence of other southern fishes. Neither has it been reported by fishermen from Georges or Browns Banks, nor was it detected there by the representatives of the Bureau of Fisheries during the trawling investigations of the years 1912 and 1913 (p. 60), or subsequently.

[80] Experiments have shown that it requires only 1 to 2 hours for one to darken, but as much as 2 days to pale to the extreme; see Parker (Biol. Bull., vol. 66, 1934, p. 31).

[81] the senses of this shark have been studied by Parker (Bull., U. S. Bur. of Fish., vol. 29, 1911, pp. 43-57), and by Sheldon (Jour. Compar. Neurol. and Psychol., vol. 19, 1909, No. 3, p. 273).

[82] Rept. U. S. Comm. Fish., (1906), 1907, Spec. Pap. 6, pp. 14-16.

[83] Occas. Pap. Mus. Zool., Univ. Mich., No. 56, 1918, p. 15.

[84] Present indications are that several more or less isolated populations of this shark exist, with their areas of regular occurrence separated by wide gaps, where there is little or no intermingling. One of the best known is along the Atlantic coast, Cape Cod to North Carolina; another centers in the Gulf of Mexico-Caribbean region; a third is along southern Brazil and Uruguay. For further details, see Bigelow and Schroeder, Fishes Western North Atlantic, Part 1, 1948, pp. 250-251.

Fishes of the Gulf of Maine by Bigelow & Schroeder is the seminal work on North Atlantic fishes. It was originally published in 1925 with William Welsh, a Bureau of Fisheries scientist who often accompanied Henry Bigelow on his research cruises. In the late 1920's, Bigelow began a long association with William C. Schroeder, publishing a number of papers and reports on fishes of the North Atlantic, including the first revision of Fishes of the Gulf of Maine. This excerpt is from that 1953 edition.

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