

Sunfish

Mola mola (Linnaeus) 1758

[Jordan and Evermann, 1896-1900, p. 1753.]

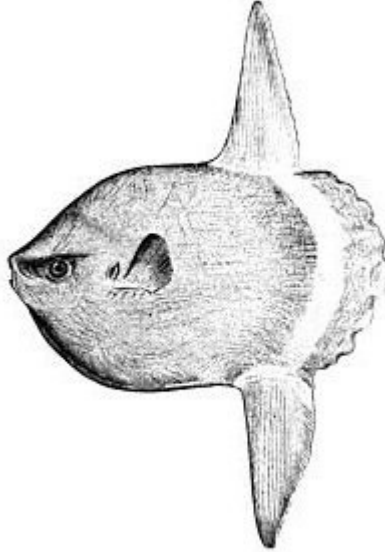


Figure 282 - Sunfish (*Mola mola*).
From Goode. Drawing by H. L. Todd.

Description

The oblong body of an adult sunfish (adults alone are seen regularly in the Gulf of Maine) suggests the head and fore trunk of some enormous fish cut off short, for it is truncate immediately back of the dorsal and anal fins, and has no caudal peduncle. But it tapers in front of the fins toward the snout so that the forward half of the trunk is oval in profile. The fish is less than twice as long as deep, strongly flattened sidewise (about one-fourth as thick as deep), with a very small mouth at the tip of the snout; teeth completely united in each jaw; a very small eye in line with the mouth; remarkably short gill openings, and the nose overhangs the upper jaw as a kind of rough, mobile wart or pad. The soft dorsal fin (there is no spiny dorsal) stands over the anal fin, close behind the midlength of the fish. Both these fins are very much higher than long, triangular, with sharply rounded tips, and each has 15 to 18 rays, with the seventh ray the longest.

The fins cannot be laid back, as they can in most bony fishes; and the sunfish propels itself along by waving them from side to side. The caudal fin extends around the whole posterior margin of the body. Confluent with the dorsal and anal fins in the young and hardly separated from them in the adult, it is so short and its rays so hidden by the thick opaque skin that it looks more like a fold of skin than a typical fin. Its general outline is rounded, paralleling the rear outline of the body, but its margin is scalloped, with a rounded bony prominence or knob in line with each caudal ray (11-14) and with a notch between every two of these prominences. We have counted 11 such notches on a fish 3½ feet long, and have record of 8 on one of about 4 feet. [17] the pectoral fins are small, rounded, each with 12 or 13 rays, and are situated about halfway up the body close behind the tiny gill openings. There are no ventral fins. The skin is unusually thick (about 1½ inches thick in one 47 inches long which we harpooned near La Have Bank on August 7, 1914), very tough and elastic in texture; it is crisscrossed with low ridges, and fins as well as trunk are clothed with small bony tubercles, giving the appearance of shark skin.

The sunfish is described as glowing luminescent at night in the water. We cannot verify this first hand. But we can bear witness that it grunts or groans when hauled out of the water; that its skin is covered with a thick layer of tough slime, and it is the host of a great variety of parasites, external and internal, with copepods and trematodes clinging to its skin and infesting its gills, with its muscles harboring round worms and with various [page 530] round worms and flat worms inhabiting its intestines.

Color

Dark gray above, the back with a brownish cast, the sides paler with silvery reflections, the belly dusky to dirty white. Some descriptions mention a broad blackish bar along the bases of the dorsal and anal fins, but nothing of the sort was to be seen in the only example we have handled fresh from the water.

Size

The sunfish grows to a great size. Heilner [18] describes the capture of one 10 feet 11 inches long off Avalon (Calif.), while Jordan and Evermann record another Californian specimen 8 feet 2 inches long, weighing about 1,800 pounds.

One measuring 8 feet in length and 11 feet from tip of dorsal fin to tip of anal fin was exhibited in London in 1883, [19] and an 8-foot specimen was taken off Cape Lookout (N. C.) in 1904, [20] but large ones such as this are exceptional, the general run being from 3 to 5 feet (rarely 6 feet) long, and from 175 pounds to 500 pounds in weight. A fish 4½ feet long is about 31 inches across the body and 6½ feet from the tip of the dorsal fin to the tip of the anal. One, 5 feet 3 inches long, was 4 feet 2 inches wide and 14½ inches thick. [21] A fish 4 feet 1 inch long, caught off Boston Harbor, August 14, 1922, weighed 516 pounds. [22]

Habits

The sunfish is a wanderer of the high seas, drifting at the mercy of the ocean currents; those that are seen are at the surface (see following for an exception); how deep they may descend is not known.

When these unlucky vagrants are sighted in our cool northern waters they have usually been chilled into partial insensibility. They float awash on the surface, feebly fanning with one or the other fin, the personification of helplessness. Usually they pay no attention to the approach of a boat, but we have seen one come to life with surprising suddenness and sound swiftly, sculling with strong fin strokes, just before we came within harpoon range. When one is struck it struggles and thrashes vigorously while the tackle is being slung to hoist it aboard, suggesting that they are far more active in their native haunts than their feeble movements in fatally cold surroundings might suggest.

The sunfish lives on an unusual diet, for as a rule the contents of the stomach consists either of jellyfish, ctenophores, or salpae, or of a slimy liquid that probably represents the partially digested remains of these. This has been true of all the sunfish brought in to the Bureau of Fisheries at Woods Hole. But various crustacean, molluscan, hydroid, and serpent-star remains, even bits of algae and eelgrass (*Zostera*), have been found in sunfish stomachs in European waters, proving that at times they either feed on the bottom in shoal water, or among patches of floating weed. And their jaws certainly seem fit for harder fare than jellyfish.

The spawning habits are not known, nor have the eggs been seen; presumably these are buoyant, with many globules, as are those of the sharp-tailed sunfish *Masturus lanceolatus*. The young fry differ from their parents in being armed with 8 short stout spines on either side, and with a single median row of 4 spines along the back and 7 along the ventral margin of the body. [23]

General range

Oceanic and cosmopolitan in tropical and temperate seas; known northward to northern Norway on the European side of the Atlantic, to the Newfoundland banks, the Gulf of St. Lawrence, and the outer coast of Nova Scotia on the American side. [24]

Occurrence in the Gulf of Maine

The sunfish is only a stray visitor to our Gulf, which it enters now and then from the warmer and more congenial waters outside the continental slope. There are published records of its appearance in St. John Harbor, New Brunswick, near Birch Harbor; near Seguin Island; off Small Point; and off Cape Elizabeth (Maine), where it has been reported repeatedly; off Cape Ann; and from various localities in Massachusetts Bay. Sunfish have even been [page 531] seen in Boston Harbor, and on August 18, 1918, one 4½ feet long was killed in a narrow creek at Quincy, Mass. The Grampus sighted sunfish near the Isles of Shoals in 1896 (Dr. Kendall's field notes), in 1912, and in 1914, as well as one in the eastern basin of the Gulf in 1912. Seaside dwellers reported one or two near Cape Porpoise in 1921; one of 7 feet was caught off Boothbay, Maine, in August 1927; and one 5 feet 3 inches long in the northern side of Massachusetts Bay, off Bakers Island, Beverly, in 1940, an especially interesting case, for the fish in question was taken on a hand line in 20 fathoms of water. [25] And in 1950 several blundered into one of the traps at Barnstable on Cape Cod Bay.

An occasional sunfish is, in short, to be expected anywhere in the western side of the Gulf and along the coast of Maine. The only record, however, for a sunfish in the Bay of Fundy is from near its mouth at St. John Harbor. [26] Nor do we find any report of them along the Nova Scotian side of the open Gulf of Maine.

In most summers it is something of an event to see a sunfish anywhere in the inner part of the Gulf. During July and August of 1912, for example, we sighted only one from the Grampus, none at all in August 1913, and only one in the Gulf and another near La Have Bank during the mid and late summer of 1914. They vary, however, in numbers from year to year; 1928, for example, was a year of abundance all along the coast, while in 1950, a single trap at Barnstable on Cape Cod Bay took 26 sunfish, an astonishing number. Report also has it (we cannot verify this firsthand) that sunfish are more plentiful over and along the southern edge of Georges Bank than they are within our Gulf, as indeed might be expected from their oceanic origin.

In the inner parts of our Gulf sunfish are oftenest sighted in mid or late summer, or early in autumn. And one has been reported stranded in Bay of Islands on the west coast of Newfoundland as late as the end of October. [27] But it is not likely that any can survive the winter in our Gulf, or anywhere along the coast to the northward. Neither is there any reason to suppose that the waifs that visit our Gulf ever spawn there. [28]

[17] Taken near Boothbay, Maine, and reported to us by Dr. Austin F. Riggs.

[18] Bull. New York Zool. Soc., vol. 23, No. 6, November 1920, p. 126.

[19] Smitt, *Scandinavian Fishes*, vol. 1, 1892, p. 626.

[20] Smith, *North Carolina Geological and Economic Survey*, vol. 2, 1907, p. 353.

[21] As reported in the *Boston American* for June 24, 1930.

[22] Reported, with photograph, in the *Boston Daily Post* for August 14, 1922

[23] For a discussion of the young fry of the ocean sunfishes, with illustrations and references to earlier accounts, see Schmidt, *Meddel. Kommission Havundersøgelse, Ser. Fiskeri, Denmark*, vol. 6, 1921, No. 6.

[24] Localities where sunfish had been reported in the Gulf of St. Lawrence up to 1947 include north of Cape Breton; Bathurst, New Brunswick; Northumberland Straits; the north shore of the Gaspé Peninsula; the south shore of the Gulf opposite the Saguenay River; vicinity of Trois Pistoles; Anticosti; and Bay of Islands on the west coast of Newfoundland. See Medcoff and Schiffman (*Acadian Naturalist*, vol. 2, No. 7, 1947) for list with details. Dunbar (*Canad. Field Naturalist*, vol. 64, No. 3, 1950, p. 124) has recently reported one, 5 feet long, that was found on the beach at Metis on the southern shore of the Lower St. Lawrence River. A Gulf of St. Lawrence record that is especially interesting because so late in the season, is of one about 5 feet long that stranded late in October 1, 1926, at Curling, Bay of Islands, west coast of Newfoundland (reported in the *Boston Traveler* for Nov. 2, 1926).

[25] Reported in the *Boston American*, June 24, 1930.

[26] Cox, Bull. Nat. Hist. Soc. New Brunswick, No. 13, art. 2, 1896, p. 75.

[27] Reported in the Boston Traveler, November 2, 1926, from the Associated Press.

[28] Sunfish fry, about 2 inches long, taken in Massachusetts Bay many years ago and reported by Putnam (Proc. Amer. Assoc. Advancement of Science, 19th Meeting (1870), 1871, pp. 255, 256, fig. 3) as this species, actually belonged to the closely allied sharptailed sunfish (p. 532), as shown by Schmidt (Meddel. Kommiss. Havundersøgelser, Denmark, Ser. Fiskeri, vol. 6, 1921, Pt. 6, p. 6), and by Gudger (Proc. Zool. Soc. London, 1937, Ser A, p. 382).

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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