

Silverside

Menidia menidia (Linnaeus) 1766

[Jordan and Evermann, 1896-1900, pp. 800, 2840.]

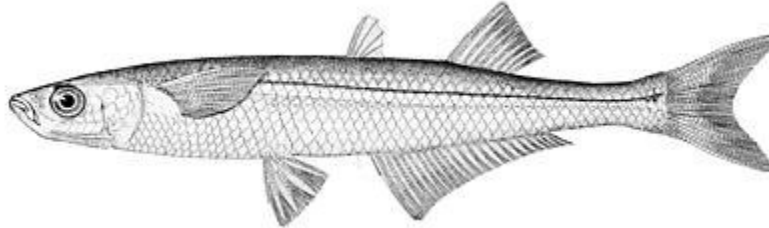


Figure 159 - Silverside (*Menidia menidia*), Connecticut.
From Goode. Drawing by H. L. Todd.

Description

This silvery little fish is often confused with the young smelt, but it does not require very close examination to tell them apart for the adipose fin characteristic of the smelt is lacking in the silverside, while the latter has a spiny dorsal fin as well as a soft dorsal fin instead of the one soft dorsal only, as the smelt does; this last character distinguishes it equally from young herrings; its anal fin too is much longer than that of the smelt.

It is a slender fish, about one-sixth as deep as long, not counting caudal fin; thin-bodied but with rounded (not sharp-edged) belly; with short head; large eye; and small mouth, gaping hardly as far back as the front of the eye, and set very obliquely. Both head and body are clothed with large scales. The first dorsal fin (3 to 7 spines) is smaller than the second and originates about midway between the tip of the snout and the base of the caudal fin, the second dorsal has 7 to 10 soft rays and originates over the middle of the anal. The anal (of 23 to 26 rays, the first stiff and the others soft) is falcate in outline. The caudal peduncle is slender, the tail moderately forked. [45]

Color

Translucent bottle green above, with top of head, nose, and chin dusky. The upper parts of the sides are thickly speckled with dark brown, and there is a silver band outlined above by a narrow black streak, running along each side from close behind the pectoral fin to the base of the caudal fin. The belly is white.

Size

The silverside grows to a length of about 5½ inches, adults usually running 4 to 4½ inches long.

Habits

Silversides tend to congregate in schools usually made up of even-sized individuals. They frequent sandy or gravelly shores chiefly, and there is no reason to suppose that they ever venture out to sea. At high tide they are often seen among the sedge grass (*Spartina*), where it grows sparsely between tide marks, particularly about the inner bays and in river mouths where they follow the tide up and down the beach within a few yards of the water's edge. They also run up into brackish water; near St. Andrews, in fact, they are chiefly found in brackish situations though more generally distributed on the New Brunswick shore further up the Bay of Fundy and on the Nova Scotian side as a whole. They do not ordinarily descend deeper than a fathom or so in summer. But some of them, at any rate, sink [page 303] deeper in winter, probably to avoid low temperature, for Hildebrand and Schroeder [46] found them at depths of 5 to 27 fathoms at that season in Chesapeake Bay. But this is not their universal habit, for they are taken in winter through the ice, as well as in summer, in the southern side of the Gulf of St. Lawrence. And they are resident throughout the year wherever found, generally speaking. Such, at least, is the case along southern New England.

They are omnivorous, feeding chiefly on copepods, mysids, shrimps, small decapod shrimps, amphipods, Cladocera, fish eggs (including their own), young squid, annelid worms, and molluscan larvae. Insects, too, that fall into the water have been found in their stomachs, as have algae and diatoms mixed with sand and mud. On the other hand, they are harried by every predaceous fish that comes close inshore, especially by bluefish and by striped bass. It was interesting in this connection to find that a dolphin (rare in the Gulf), taken at Sandwich, in Cape Cod Bay, in July 1951 (p. 361) was packed full of silversides.

They spawn in May, June, and early July [47] on the southern New England coast. Spawning may begin a little later in the Gulf of Maine, corresponding to more tardy vernal warming, while Leim writes [48] that they do so in June at Prince Edward Island.

The gap in the presence of silversides in abundance that seems to exist along the cool-water stretch from the western side of the Gulf of Maine to the southern side of the Gulf of St. Lawrence (p. 304) suggests that they need summer temperatures as high as 68° or so for successful reproduction. But young fry and adults alike are indifferent to temperatures down to a degree or two above the freezing point of salt water, witness their presence in winter in Cape Cod Bay (p. 304) and below the ice in the bays on the northern side of Prince Edward Island (p. 304).

When the silversides are spawning they gather in schools to deposit their eggs on sandy bottom, often among the sedge grass at high tide, or above low-water mark. Capt. John B. Smith has described them spawning in the sedge at the head of Buzzards Bay, June 13, 1872, rolling from side to side, some jumping clear of the water, and in such multitudes that the water was "whitened with the milt, and the grass was so full of eggs that they could be taken up by the handfull," while small fishes of various kinds were "helping themselves to the dainty repast." [49]

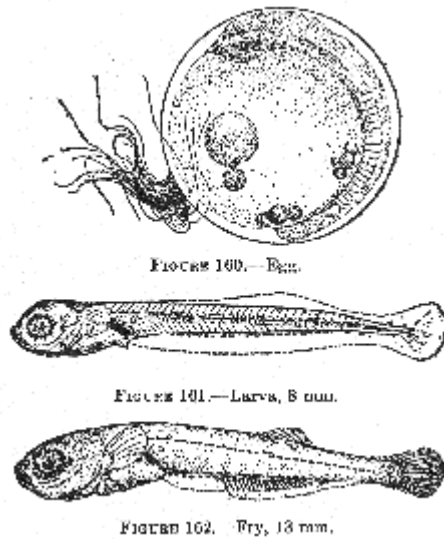


Figure 160 - Egg.
 Figure 161 - Larva, 8 mm.
 Figure 162 - Fry, 13 mm.
 Silverside (*Menidia menidia*)
 After Kuntz and Radcliffe.

The eggs, 1.1 to 1.2 mm. in diameter and each bearing a bunch of sticky filaments, sink and stick fast in ropy clusters or sheets. Incubation occupied 8 or 9 days in the laboratory at Woods Hole. The yolk is absorbed before hatching, at which time the larvae are about 3.85 to 5 mm. long, and the dorsal, anal, and caudal fins are formed in larvae of 12 to 15 mm. in length. The young grew to a length of 9.3 to 11.7 mm. during the first 20 days in the aquaria. Probably they grow more rapidly at liberty, for all sizes from fry of an inch or less to adults are to be found throughout the summer. Probably the silverside attains maturity at 1 year of age.

General range

The northern variety of this silverside is common locally from the southern side of the Gulf of St. Lawrence and the outer [page 304] Nova Scotian coast to Massachusetts Bay, and very abundant thence southward to Chesapeake Bay, south of which it gives place to the southern form or intergrades, with it; the southern form has been detected as far north as Woods Hole, but never east of Cape Cod.

Occurrence in the Gulf of Maine

The silverside is to be found all around the shores of the Gulf from Nova Scotia to Cape Cod, always, however, closely confined to the coastline. They are exceedingly plentiful around the sandy shores of Cape Cod Bay. And while we have seen them from Chelsea Beach in Boston Harbor, from Beverly and from Gloucester, many summers spent on the coast leave us with the impression that the silverside is neither as omnipresent nor as abundant from Massachusetts Bay northward, although large schools of them are often to be seen here and there along the sandy beaches on the Maine coast. Bushels, in fact, have been caught in a single haul of the seine in Casco Bay and very likely could be elsewhere.

Silversides are seldom seen along the stretches of rocky coast exposed to the open sea, which make up a large part of the northern shore line of the Gulf of Maine. In Passamaquoddy Bay Huntsman tells us [50] "they are largely restricted to brackish water and hence not very common," but they must be rather generally present in suitable situations around the shore line of the Bay of Fundy, being reported from St. John and Kennebecasis Bay, from Annapolis basin and from St. Mary Bay. Nothing is known as to their status along the Nova Scotian coast of the open Gulf of Maine, or even whether there are any silversides there at all. Halifax is the most northerly locality where they are recorded on the outer coast of Nova Scotia. [51] But Leim [52] reports them so plentiful in the shallows of the southern side of the Gulf of St. Lawrence that "hardly a seine haul has been made without catching several, and as many as 3,500 have been taken at once" in Malpeque Bay on the north shore of Prince Edward Island, where they are taken in winter through the ice, as well as in summer. Enough of them, in fact, are sometimes caught there to be worth canning. [53] their abundance there contrasted with their evident scarcity along outer Nova Scotia suggests the presence of an isolated population (or populations) in suitable situations in the southern side of the Gulf of St. Lawrence, able to maintain itself because summer temperatures in the shallows there are high enough for its successful propagation.

Importance

The chief function of the silverside in the economy of the sea is to feed predaceous fishes such as bluefish, mackerel, and striped bass. The silverside is of no commercial value north of Cape Cod, being too small and too soft to answer the never satisfied demand for bait for the offshore fisheries, but they are very generally used to bait eelpots on the Rhode Island coast, and they are excellent on the table, fried, as whitebait.

[45] the common silverside is represented on the coasts of the eastern United States by two races, a southern and a northern, not, however, very distinct and connected by such various intergradations that they hardly deserve two names, subspecies *menidia* for the southern and subspecies *notata* for the northern. The southern form has fewer scales than the northern, only 4 instead of 5 spines in the first dorsal, and is rather a stouter-bodied fish. Kendall has given an account of the genus (Report, U. S. Comm. Fish (1901) 1902, p. 241). For a recent discussion see Bayliffe (Publ. 90, Chesapeake Biol. Lab., Maryland Dept. Nat. Res., 1950, p. 5).

[46] Bull. U. S. Bur. Fish., vol. 43, Pt. 1, 1928, p. 189.

[47] Kuntz and Radcliffe (Bull. U. S. Bur. Fish., vol. 35, 1918, p. 127) describe its development, and Hildebrand (Bull. U. S. Bur. Fish., vol. 38 [1921-22] 1923) that of the southern race. For a recent account of its life history see Bayliffe, Pub. 90, Chesapeake Biol. Lab., Maryland Dept. Nat. Res. 1950.

[48] Proc. Nova Scotian Inst. Sci., vol. 20, Pt. 2, 1940, p. 38.

[49] Goode. Fish. Ind. U. S. Sect. 1, 1884, p. 457.

[50] Contrib. Canadian Biol. (1921) 1922, p. 61.

[51] Cornish (Contr. Canadian Biol. [1902-1905], 1907, No. 9) does not include it in his list of the fishes of Canso.

[52] Proc. Nova Scotian Inst. Sci., vol. 20, Pt. 2, 1940, p. 38.

[53] Needler, Rept. Fish. Res. Board Canada (1941) 1942, p. 11.

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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