

Summer Flounder

Paralichthys dentatus (Linnaeus) 1766
[Jordan and Evermann, 1896-1900, p. 2629.]

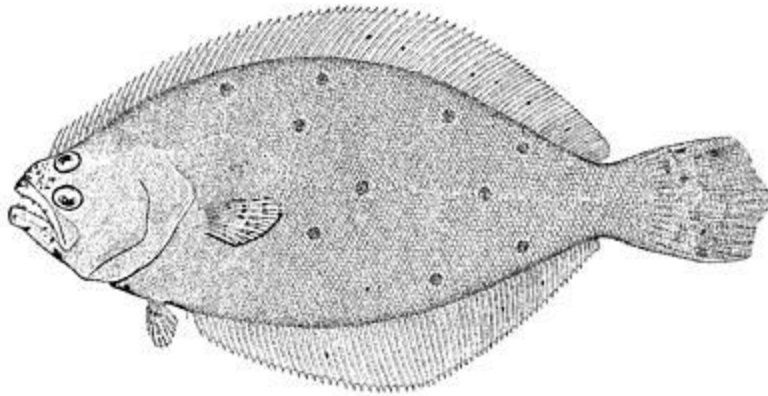


Figure 134. - Summer flounder (*Paralichthys dentatus*), Maryland.
From Jordan and Evermann. Drawing by A. H. Baldwin.

Description

The summer flounder is left-handed; that is, it lies on the bottom on its right side, with its eyes on its left-hand side, and its abdomen is on its left edge as it rests on the bottom, which differentiates it at a glance from the American dab (p. 259). It is large-mouthed, like the sand flounder, which is similarly left-handed (p. 290); but its two ventral fins are alike and each of them is separated from the long anal fin by a considerable space, whereas the upper left-hand ventral fin of the sand flounder is continuous with the anal fin. The only Gulf of Maine flatfish with which the summer flounder shares its left-handedness, large mouth, and symmetrical ventral fins, is its close relative, the four-spotted flounder (p. 270), but the color pattern of the latter is distinctive (p. 270) and it has fewer fin rays. The summer flounder is one of our narrower flounders. Its dorsal fin (85 to 94 rays) originates opposite the forward margin of the eye; its anal fin has from 60 to 73 rays; the margin of its caudal is rounded, and its pectoral fins and ventral fins are smaller than those of the dab, relatively.

Color

It has long been known that flatfishes are generally dark on a dark bottom and pale on a pale one. Perhaps the summer flounder is the most variable in color of all our local species and the one which adapts its pattern the most closely to that of the ground on which it lies. It is white below and of some shade of brown, gray, or drab above, like most flatfishes. But it can assume a wide range of tints, from nearly white on white sand through various hues of gray, blue, green, [page 268] orange, pink, and brown to almost black.[4] Its upper surface is variegated with pale and dark, as a rule, with the pattern fine or coarse according to the bottom, and it may or may not be marked with small eyespots of a darker tint of the general ground color. Mast's experiments show that it is slower in adapting its coloration to the actual colors of the bottom than to the general pattern, and also that it responds more rapidly to yellows and browns than to reds, greens, or blues, on which the adaptation may not reach its maximum for two or three months. He also observed that the skin simulates the pattern of the background, and does not reproduce the latter.

Size

Summer flounders ordinarily grow to a maximum weight of 15 pounds or so, and to a length of 3 feet, or a little more, though one of about 30 pounds has been reported as taken off Fishers Island about 1915.[5] the largest of which we find definite record weighed 26 pounds. The largest on record, taken in sport fishing, was 37 inches long, weighing 20 pounds, caught at Oak Beach, N. Y., September 7, 1948, by F. H. Kessel, but the average size of the fish caught is only 2 to 5 pounds. The relation of length to weight is about as follows:[6]

Length	Average weight in pounds
15-16 inches	1 to 1¼
17-18 inches	2 to 2¾
20 inches	3 to 3½
22 inches	4
27 inches	8
30 inches	10
37 inches	20

Habits

Many fluke come close inshore during the warm half of the year, when they are caught regularly both along open coasts and in bays and harbors, the smaller sizes often from docks and bridges, and some even run up into fresh water rivers. But the great majority of the population, especially of the larger ones, lie farther offshore even at that season, in depths of 8 to 10 fathoms and deeper, at least in the northern part of the fluke's geographic range, as illustrated by the fact that nearly 40 times as many (by weight) are landed in New Jersey and in New York by otter trawlers as from the many pound nets operating there.[7] And all of those that do come close inshore from Chesapeake Bay northward move offshore again at some time during the autumn, presumably to escape winter chilling.

The earliest landings from offshore of which we have heard for southern New England have been on October 6th, when some were brought in to Woods Hole from northwest of Nantucket Lightship, from 25 fathoms, and on the 16th of that same month, when the dragger Eugene H landed 6,000 pounds, taken west of Nantucket Lightship in about 25 fathoms. Corresponding to this, only a few are seen near Woods Hole after the middle of October, or after the last week of November near New York. And very few reappear near New York before the first week in May, or before about the 10th of May near Woods Hole.

It has been learned since the first edition of this book appeared that the medium sized and larger ones, at any rate, pass the winter and early spring out on the continental shelf from the 25 to 30 fathom contour about to the 80 fathom contour. Otter trawlers now make paying catches there as far north and east as the offing of southern New England, and as far south as the offing of northern North Carolina, during the part of the year when there are only a few "fluke" inshore, or none at all. In 1950 and 1951, for example, the Eugene H,[8] fishing in the general offing of Marthas Vineyard, brought in many fares ranging from a few hundred pounds to more than 20,000 pounds, between the first week of October and the third week of May, with the most productive fishing between early January and mid-April, from 25 to 75 fathoms. But it is doubtful whether many of them work deeper than that, for the Albatross III did not take any at depths greater than 80 fathoms off southern New England or New York in mid-May, 1950.

Fluke spend most of their lives on bottom, or close to it, as other flatfishes do. During their stay in shoal water they prefer sandy bottom, or mud, where they are often seen. And it takes one only an instant to bury itself to the eyes in the sand. Fluke often lurk in eel grass, or among the piling of docks; but they are swift swimmers when disturbed.

This is a predaceous fish, like the halibut, feeding largely on smaller fish of various sorts, on squids, crabs, shrimps, and other crustaceans; on small shelled mollusks; on worms, and on sand dollars. It is very fierce and active in pursuit of prey, often following schools of small fish right up to the surface, to jump clear of the water in its dashes, actions very different from those of the sluggish dab and winter flounder.

Little is known of its breeding habits. The fact that nearly ripe females have been taken in October in Chesapeake Bay, in November and February at Beaufort, N. C., and as late as April 15, at 75 fathoms off Nantucket,[9] whereas Beaufort fish taken in March and April appeared to be spent, show that it is a late autumn, winter, and early spring spawner.[10] This implies that the flukes that spawn in the northern part of their range do so well offshore, and this may also be true of them in the southern part of their range, for fluke that were kept in aquaria at Beaufort through the winter failed to spawn.

The eggs of the summer flounder laid naturally have not been described yet. But it is likely that they are buoyant like those of the four-spotted flounder (p. 271). And their future "lefthandedness" and large mouths are foreshadowed at an early stage in the development of the larvae. Larvae either of the fluke, or of a form (*P. albiguttus* Jordan and Gilbert, 1882), so closely allied that it may prove a race of that species, resemble corresponding stages of the four-spotted flounder in their deep outlines and large heads, but the pigmentation on the rear part of their body is less dense. At a length of 16 mm. The right eye has nearly completed its migration, and the outlines of young fry 26 mm. long approach those of the adult.[11]

Young fry taken in Chesapeake Bay, had increased in length from about 0.9-2.4 inches long in May and June, to 3-5 inches in the last week of July; were 4.7-7.1 inches by December and January when one year old or a little less; about 8-10 inches long in the following October, when they were a little short of two years old; and they measured 10½ to 11 inches by their second May; i. e., when a little more than 2 years of age. The subsequent rate of growth has not been traced, so far as we know.

General range

Continental waters of the eastern United States, from Maine to South Carolina, possibly to Florida,[12] chiefly south of Cape Cod.

Occurrence in the Gulf of Maine

This is the most important flatfish commercially to the west and south of Rhode Island, and the one most sought after by sportsmen there. It is also plentiful offshore eastward to Nantucket Shoals and to the western part of the so-called South Channel, whence about 531,000 pounds were landed in 1947 (most recent year for which information is at hand). Trawlers also pick up a few on the southwest part of Georges Bank (about 6,000 pounds in 1947), as well as a fish here and there on other parts of the bank.[13] But there is no reason to suppose that fluke ever stray eastward and northward as far as Brown's Bank, or to outer Nova Scotian waters.

Coastwise, the angle of Cape Cod is the northern boundary to the regular range of the fluke in any great abundance. A number are caught each summer in Pleasant Bay, Chatham, Mass.[14] where we read of one of 111/8 pounds taken as early as the last week of May, in 1951,[15] a few in Town Cove, Orleans, some miles farther north, and a fluke is picked up occasionally by someone casting into the surf on the outer Cape Cod beach.[16] And they were so common near Provincetown and along the inner shore of Cape Cod as far as Wellfleet during the period from 1840 to 1850 that Captain Atwood carried them regularly thence to Boston, recording a catch of 2,000 pounds in a single afternoon inside Provincetown Harbor. But this is the most northerly region where fluke have ever been known to occur in commercial quantities. Even there its numbers were so reduced by a few years of hard fishing that they were described by Goode[17] in 1884 as "only [page 270] occasionally taken" there. And they have never reappeared in any abundance, so far as we can learn, a fact suggesting that the local body of fish concerned was not very numerous, and that it received but few recruits from the more abundant stock to the southward.

The fluke is so rare a straggler north of Cape Cod Bay that there is only one definite record for Casco Bay (specimens collected in 1873). We may add that we have never seen or heard of one caught in the inner part of Massachusetts Bay, and that it is unknown in the Bay of Fundy.

Importance

This is one of the best of our flatfishes on the table, usually bringing a higher price than any other except the halibut; in 1947 it sold for 15 cents on the average in New Bedford, the halibut about 21 cents. And the landings of fluke from within the limits of the Gulf of Maine, totaling about 543,000 pounds (mostly from near Nantucket Shoals) were worth about \$90,000 to fishermen that year. This is also the gamest of our flatfishes, biting freely on almost any bait, even taking artificial lures at times, while large ones put up a strong resistance when hooked. It is too bad that the fluke is not so common north of Cape Cod as it is to the south.

[4] Mast, Bull. U. S. Bur. Fish., vol. 34, 1916, p. 177.

[5] Nichols and Breder, Zoologica, N. Y. Zool. Soc., vol. 9, 1927, p. 177.

[6] From Goode, Fish. Ind., U. S., Sect. 1, 1884, p. 179; Hildebrand and Schroeder, Bull. U. S. Bur. Fish., vol. 43, Pt. 1, 1928, p. 167; and World Record Marine Game Fishes, Amer. Mus. Nat. Hist., New York, to 1950.

[7] 1947 landings, New York and New Jersey, about 2,300,000 pounds by otter trawlers; only about 80,000 pounds from pound nets.

[8] Information contributed by Capt. Henry Klimm.

[9] Trawled by the Eugene H, Capt. Henry Klimm, in 1951.

[10] We dare not draw any conclusions as to spawning season from Hildebrand and Cable's table (Bull. U. S. Bur. of Fisheries, vol. 46, p. 470, table 12) of the seasonal distribution of young fry of different sizes because two species of flounders are included there.

[11] Our account of the young stages is based chiefly on Hildebrand and Cable's description (Bull. U. S. Bur. of Fisheries, vol. 46, pp. 469-475), from Beaufort, N. C.

[12] Florida is usually given as the southern limit for this flounder, but it is possible that the early records from that State (there are no recent ones) actually referred to the southern flounder (*P. lethostigmus*), a common Floridian fish.

[13] 645 pounds reported from the northwest part of Georges in 1947, 100 pounds from the northeastern edge, and 157 pounds from the central and southeastern part.

[14] This opens on the outer coast of Cape Cod.

[15] Reported in *Salt Water Sportsman*, June 1, 1951.

[16] there is a record of this, by Kendall, in 1896, and we have known of other cases, of late years.

[17] *Fish. Ind. U. S.*, Sec. 1, 1884, p. 178.

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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