

Common Pipefish

Syngnathus fuscus Storer 1839 [75]

[Jordan and Evermann, 1896-1900, p. 770 as *Siphostoma fuscum* (Storer).]

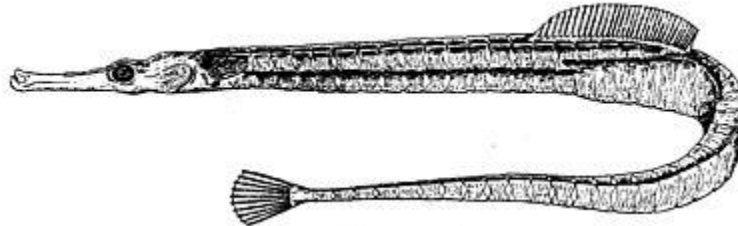


Figure 172 - Pipefish (*Syngnathus fuscus*). After Bigelow and Welsh.

Description

This is a very slender little fish, particularly so behind the vent, males being about 35 times as long as they are deep and females about 30 times. The head occupies one-eighth to one-ninth [page 313] of the total length (in the trumpetfish it is nearly one-third); the snout is tubelike, blunt ended, with the small toothless mouth at its tip. The gill openings are very small. The body is hexagonal in cross section in front of the vent but is four-sided behind the dorsal fin and it is clothed in an armor of bony plates connected in rings, of which there are 18 to 20 in front of the vent and 36 to 42 behind the latter. The abdomen of the male is wider just back of the vent than elsewhere, with two lateral flaps that meet along the midline to form the so-called "marsupial" or brood pouch. The female lacks these. The dorsal fin (35 to 41 rays and 5 or 6 times as long as it is high) covers 4 or 5 of the bony rings in front of the vent and as many behind it. The caudal fin is rounded, its middle rays the longest. The anal is very small, close behind the vent; the pectorals are of moderate size; there are no ventral fins.

Color

Greenish, brownish, or olive above, cross-banded and mottled with darker. The lower parts of the gill covers are silvery. The lower parts of the sides are sprinkled with many tiny white dots, and the longitudinal angles separating sides from abdomen are marked by longitudinal brown bars. The lower surface is colorless on the snout, but pale to golden yellow thence back to the vent, with the marsupial flaps flesh-colored. The dorsal and pectoral fins are pale, but the caudal is brown.[76] Pipefishes change color according to the color of their surroundings. We have seen them of various shades of olive and brown; and red ones have been described.

Size

Usually 4 to 8 inches long; occasionally up to 12 inches.

Habits

The chief home of this pipefish is among eelgrass or seaweeds, both in salt marshes, harbors, and river mouths, where it often goes into brackish water, and on more open shores as well. In such locations it is caught as often today by boys dipping up mummichogs for bait as it was when Storer wrote of it, nearly a century ago. The pipefish, like the three-spined stickleback, sometimes strays out to sea on the surface, and while we have never taken it in our tow nets, Kendall[77] has often found it under floating rockweed along the Maine coast. But they are so seldom taken at any distance out from the land that the capture of four specimens at a depth of 19 fathoms south of No Mans Land, February 5, 1930, is of present interest, though outside the limits of our Gulf. There is no reason to suppose pipefish are at all migratory, for they are resident in the eelgrass (*Zostera*) at Woods Hole throughout the year.

They usually propel themselves by the dorsal fin, but they can travel swiftly when alarmed, with eel-like strokes of the tail from side to side. And they are able to roll their eyeballs separately, an interesting habit described many years ago by Lyman.[78]

They feed chiefly on minute Crustacea (copepods especially and amphipods), also to some extent on fish eggs, on very small fish fry, and no doubt indiscriminately for that matter on any small marine animals. And their snouts are so distensible that they can swallow larger prey than one might expect. In capturing its prey, the pipefish has been described as expelling the water from the snout and pharynx by muscular action, depending on the return rush to sweep in its victims. Pipefishes have few enemies so far as known.

Breeding [79]

On the southern shores of New England pipefish breed from March to August; probably through this same period on the shores of the Gulf of Maine. Male pipefishes nurse the eggs in the brood pouch (p. 313), the flaps of which ordinarily lie flat but are swollen and have their edges cemented together during the breeding season. The protruding oviduct of the female is inserted into the opening of the pouch of the male and a dozen or more eggs are passed over. This occurs several times in succession, with intervals of rest, until the pouch is filled, the male working the eggs down toward the rear end of his pouch by body contortions. Fertilization is supposed to take place during the transference of the eggs from one parent to the other. The eggs become embedded in the lining of the brood pouch, and it has been established for the European pipefish (probably this applies equally to our North American species) that the embryos within the eggs are nourished by the epithelial lining layer of the pouch, so that the latter functions as a placenta.[80]

Incubation occupies about 10 days, according to Gudger, and the young are retained in the brood pouch until they are 8 or 9 mm. long, when the yolk sac has been absorbed. The young pipefish are then ready for independent existence, and once they leave the pouch they never return to it, as young sea horses (*Hippocampus*) are said to do (p. 315). Several observers agree on this, among them Miss Marie Poland (now Mrs. C. J. Fish), who kept pipefish under observation at the laboratory of the United States Bureau of Fisheries at Woods Hole during the summer of 1922.

Pipefish fry kept in aquaria have been found to grow from about $\frac{3}{8}$ inch (10 mm.) to about $2\frac{3}{4}$ inches (70 mm.) in length within about 2 months after hatching.[81] It is probable that they mature when about 1 year old.

General range

Coast of eastern North America, in salt and brackish water, from the southern side of the Gulf of St. Lawrence[82] and outer Nova Scotia at Halifax, to South Carolina.[83]

Occurrence in the Gulf of Maine

The pipefish has been recorded from so many localities along Maine and Massachusetts that it is evidently to be expected anywhere there, in suitable situations; it is not uncommon in the Bay of Fundy; it has been reported from outer Nova Scotian waters and is common locally in the southern side of the Gulf of St. Lawrence, as noted in the preceding paragraph. It is probable also that they breed in every favorable locality all around the shores of the Gulf, but there are local differences in this respect, for while St. Mary Bay, Annapolis Basin, and Cobequid Bay, on the Nova Scotian shore of the Bay of Fundy, are breeding centers according to Huntsman, large specimens alone are known about Passamaquoddy Bay on the New Brunswick side. No doubt the estuarine waters from the Massachusetts Bay region to Penobscot Bay are favorable nurseries.

Importance

The pipefish is of no commercial importance.

[75] This is the only pipefish that occurs regularly on our northern coasts. Jordan, Evermann, and Clark (Rept. U. S. Comm. Fish. [1928], 1930, Pt. 2, p. 242) refer it to the genus *Syrictes* Jordan and Evermann, 1927. For a synopsis of the various other species of the genus see Jordan and Evermann, Bull. 47, U. S. Nat. Mus., Pt. 1, 1896, p. 961.

[76] Colors based on Storer's (Fishes of Massachusetts, 1867, p. 412) account and on the specimens we have examined.

[77] Bull. U. S. Fish Comm., vol. 18, 1896, p. 623.

[78] Proc. Boston Soc. Nat. Hist., vol. 7, 1861, pp. 75-76.

[79] For a historical survey and a general account of the breeding of the closely allied *Siphostoma floridae* see Gudger (Proc. U. S. Nat. Mus., vol. 29, 1906, pp. 447-500, pls. 5-11).

[80] For detailed (if somewhat divergent) accounts of this interesting phenomenon see Huot (Annales des Sciences Naturelles, Ser. 8, Zoologie., vol. 14, 1902, pp. 197-288) and Cohn (Anatomischer Anzeiger, Centralblatt für die gesamte wissenschaftliche Anatomie, vol. 24, 1904, pp. 192-199).

[81] Tracy, 40th Rept., Rhode Island Comm. Inland Fish., 1910, p. 93.

[82] Leim (Proc. Nova Scotian Inst. Sci., vol. 20, 1940, p. 38) found them common at Prince Edward Island.

[83] there is a specimen from Charleston, S. C., in the Museum of Comparative Zoology.

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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