

Sea Raven

Hemitripterus americanus (Gmelin) 1789

RED SCULPIN; SEA SCULPIN; RAVEN; KING o' NORWAY

[*Jordan and Evermann*, 1896-1900, p. 2023.]

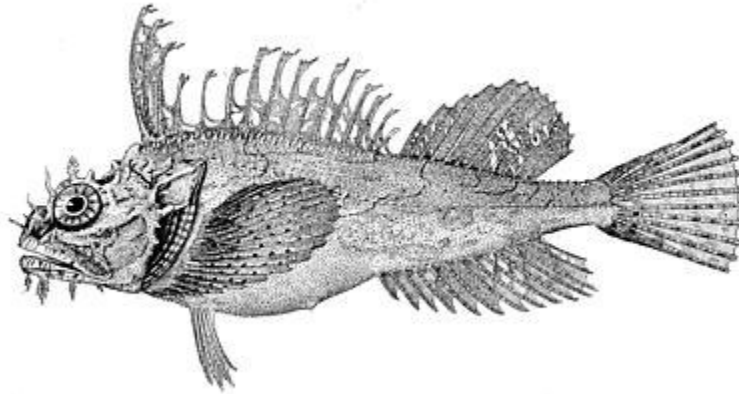


Figure 237 - Sea raven (*emitripterus americanus*), Halifax, Nova Scotia.
From Goode. Drawing by H. L. Todd.

Description

No one would be likely to confuse a sea raven with any other sculpin, for it is a "most remarkable looking fish," as Jordan and Evermann remarked. [7] It is stouter bodied than our other common sculpins, about three and three-fourths times as long as it is deep (counting caudal fin), with a very large head. Both the jaws of its wide mouth are armed with several rows of sharp teeth that are noticeably longer and stouter [page 455] than the teeth of either the long-horned sculpin or of the short-horned sculpin. Its most distinctive features, however, which identify it at a glance, are the fleshy tabs, simple and branched, on its head; the curiously ragged outline of its first dorsal fin; and the prickly texture of its skin. There is a series of 4 to 8 of these tabs along each side of the lower jaw, three pairs on the top of the snout, and others, variable in number and size, above and in front of the eyes and along the upper jaw. There is also a short but high keel on the top of the snout with a deep hollow behind it, another high ridge above each eye, and a lower one below the eye. These ridges, with about 12 rounded knobs on the crown and several low bosses, and 2 short spines on each cheek, give the head a peculiarly bony appearance.

The first two or three spines of the first dorsal fin are the longest, and the fourth and fifth spines are shorter than those farther back, giving the fin an outline quite unlike that of any other sculpin. And the fin membrane is deeply emarginate between every two spines from the third spine backward, but expanded at the tip of each spine as an irregular flap of skin. The margin of the anal fin is similarly, but less deeply scalloped between the rays. Furthermore, the first dorsal fin originates further forward than in any other Gulf of Maine sculpin, i. e., well in front of the gill opening, and it is much longer (16 spines) than the second dorsal (1 spine and 12 rays), whereas in our other sculpins the second dorsal is longer than the first dorsal. The pectorals are fanlike, and the caudal brush-shaped, much as in other sculpins. The ventral fins are fleshy, each with 1 spine and 3 soft rays, with the first 2 rays so close that there seems to be only 1 soft ray.

The entire skin of the sea raven is prickly, belly as well as back, with the prickles largest on the back and along the lateral line; smallest, but still obvious to the touch, on the lower parts of the sides and on the belly. In all other Gulf of Maine sculpins the belly is smooth.

Color

The sea raven varies in color from blood red to reddish purple, chocolate, or to yellowish brown, but it is invariably paler below than above, and it usually has a yellow belly. Many are plain colored. For instance, one 18 inches long, which we caught off Mount Desert recently, was uniform red chocolate on back and sides.

But others are variously mottled with a paler or darker cast of the general ground tint, or even with white. The fins are variously barred with light and dark, and the pectorals and anal often are yellow-rayed.

Size

One of the largest on record, of 25 inches and 5 pounds, is mentioned by Storer. But this specimen seems to have been in poor condition for we have caught one 22½ inches long that weighed 7 pounds. Warfel and Merriman [8] mention one about 19½ inches long that weighed 5.8 pounds inflated with water and 5.3 pounds when emptied. And many sea ravens are 18 to 20 inches long.

Habits

The sea raven alone, among Gulf of Maine sculpins has the power of inflating its belly with water, like a bladder. If released in this condition it drifts helplessly, feebly waving its tail to and fro, and we cannot say whether it can empty itself again at will like a puffer (which, however, inflates with either air or with water, p. 526) or whether it must await the gradual escape of the water it has swallowed. Another way in which the raven differs from our other sculpins is that it can bite sharply, having larger teeth.

The raven is quite as voracious as its relatives; it takes any bait and is said to eat whatever invertebrates it finds on the bottom, such as mollusks (both bivalve and univalve), various crustaceans, sea urchins, and worms. Sea ravens also eat fish. Vinal Edwards found herring, lance, sculpins, tautog, silver hake, and both sculpin and sea-raven eggs in sea ravens taken at Woods Hole.

Our own experience, confirmed by our various inquiries, is that ravens are to be caught only on rocky ground (which is their chief haunt from Massachusetts Bay northward), pebbles, hard sand, or clay (which they frequent off Cape Cod and on the offshore Banks), never on soft sticky mud. There is no definite upper limit to their vertical wanderings other than the surface. But they are seldom caught within the smaller estuaries, perhaps never on the tidal flats at any time of year; at least we have never seen them in such situations in Massachusetts Bay, though they are not uncommon there about the off-lying ledges. The majority of them live deeper than a couple of fathoms at all times. On the other hand their usual range extends down only to about 50 [page 456] fathoms, although one has been taken as deep as 105 fathoms. [9]

The geographic and vertical ranges of the sea raven suggest that the upper limit to its preferred temperature is about 58°-60°. At the other extreme their wide dispersal over the Magdalen Shallows in the southern side of the Gulf of St. Lawrence shows that they can winter in temperature close to the freezing point of salt water, unless they descend then into considerably deeper water, a possible shift in depth on their part of which there is no direct evidence.

Presumably the sea raven breeds throughout its geographic range. Off southern New England the eggs are deposited from early October (earliest date, October 2) on until late December; probably in autumn and early winter in the more northern part of its range as well. [10] Warfel and Merriman, who made a special study of the breeding of the sea raven, have made the very interesting discovery that it deposits its eggs chiefly at the bases of the finger-like branches of the finger sponge (*Chalina*); less often on the smaller sponge *Halichondria*, where they stick together in clusters and to the sponge. Since the eggs average only about 242 per cluster (minimum 141, maximum 478, among many clusters counted), whereas adult females contain something like 15,000 maturing eggs on the average, and occasionally as many as 40,000, it appears that a female does not lay all her eggs at one time, but deposits many clusters during each spawning season.

The eggs are large, averaging 3.9 to 4 mm. in diameter, with tough egg membrane, yellow when first spawned, but soon changing to an amber hue; so heavy that they sink; and very sticky and resistant to injury. [11] Eggs brought in to the laboratory by Warfel and Merriman hatched a few at a time, and some of those of a cluster collected on January 23 and left thereafter in a bottle fastened to a buoy (i. e., in the normal winter temperature of Long Island Sound) did not hatch until March 12.

The sizes of the few young sea ravens that have been taken in the Gulf of Maine suggest that they reach a length of 2 to 4 inches by the middle of their first summer, when 6 to 8 months old, and about 6 inches by the following April, at an age of 1½ years. Their subsequent rate of growth has not been followed.

General range

Atlantic Coast of North America, southward to Chesapeake Bay; north to Anticosti in the northern side of the Gulf of St. Lawrence, to the Strait of Belle Isle on the Newfoundland side [12] and to the Grand Banks. [13]

Occurrence in the Gulf of Maine

Sea ravens are to be caught all around the coastal belt of the Gulf, from a fathom or two down to about 50 fathoms, including the passages among the islands that fringe the coasts of Maine and of Nova Scotia, as well as the larger estuaries such as St. Mary, Passamaquoddy, Machias, Penobscot (it runs up the latter to the head at Bucksport), and Casco Bays; also in the deeper harbors, for example Boston, Salem, Eastport, and St. Johns. Fishermen also report them on Cashes Ledge, while the otter trawlers and long liners pick them up in small numbers over the shoaler parts of Georges Bank; likewise on Browns. But they are not known to occur on the soft mud bottoms of the deep troughs and basin of the Gulf.

Presumably the sea raven breeds in the Gulf wherever it occurs, young fry having been taken from the Bay of Fundy to Cape Cod.

Off the southern shores of New England sea ravens work inshore in autumn and out again into slightly deeper water in spring, but no seasonal movement of this sort (which means merely that shoal water is too warm for their comfort in summer) has been reported for them in the cooler waters of the Gulf of Maine.

Although they are distributed so generally in the Gulf, sea ravens are not so numerous as the shorthorn sculpins and longhorn sculpins; this is as true in the Bay of Fundy as it is in Massachusetts Bay, where one expects to catch a few ravens around any of the fishing ledges, but where it would be unusual for one person to land any considerable number in a day. Similarly, the schedules of the catches made by certain otter [page 457] trawlers in 1913 and subsequently, added to our trawling experiences, show that sea ravens are much less numerous on Georges Bank than the longhorn sculpin; it is seldom that as many as a dozen are taken in a haul of the otter trawl. Thus the dragger *Eugene H* took only 46 sea ravens in 38 hauls on the southwestern part of Georges, at 26-55 fathoms in late June 1951, and none in her deeper hauls.

To the eastward and northward sea ravens are described as common all along outer Nova Scotia to Canso; they have been reported on Sable Island Bank and on Banquereau Bank in depths of about 20-30 fathoms; and they are taken here and there on the Gulf of St. Lawrence coast of Cape Breton. They are also reported from Anticosti and in the Strait of Belle Isle (footnote 12, p. 456); but there cannot be many of them in the southern side of the Gulf, for they are not mentioned in the published lists of Fishes for Prince Edward Island, or around the Magdalens. And there is only one report of a sea raven on the Grand Banks (see footnote 13, p. 456); and one for the Atlantic coast of Newfoundland, i. e., from Trinity Bay. [14]

To the westward and southward the sea raven is reported as rather common as far as New York and New Jersey; and it has been reported from Chesapeake Bay. [15]

Commercial importance

Although the sea raven is said to be a good table fish there is no more market for it than for other sculpins in New England or Canada. But it is generally considered excellent bait for lobster pots, hence shore fishermen are likely to save what ravens they catch for this purpose.

[7] Bull. 47, U. S. Nat. Mus., Pt. 2, 1898, p. 2023.

[8] Copeia, 1944, p. 204.

[9] A specimen about 14 inches (360 mm.) long was trawled by the U. S. Fish and Wildlife vessel *Delaware* August 24, 1951, in 105 fathoms, latitude 42°06' N., longitude 67°50' W.

[10] Warfel and Merriman (Copeia, 1944, p. 202) probably were correct in their suggestion that a 20-inch female, containing ova of 2 sizes, caught by us off Boothbay, Maine, in April, was simply one that had failed to spawn at the proper time during the preceding winter.

[11] Described by Bean (Bull. 60, New York State Mus., Zool. 9, 1903, p. 647). The buoyant eggs referred to this species by Agassiz and Whitman (Mem. Mus. Comp. Zool., vol. 14, No. 1, 1885, p. 10) belonged to some other fish.

[12] Jeffers (Contrib. Canadian Biol. N. Ser., vol. 7, No. 16, (Ser. A, No. 13,) 1932, p. 208).

[13] Bean (Proc. U. S. Nat. Mus., vol. 3, 1881, p. 86) lists a specimen from the Grand Banks.

[14] Rept. Newfoundland Fish. Res. Comm., vol. 1, No. 4, 1932, p. 108.

[15] Jordan, Evermann and Clark's (Rept. U. S. Comm. Fish. 1928 part 2, 1930, p. 393) reference of it to the Tortugas seems to have been an error.

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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