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SOME UNREPORTED AND RARE FISHES FOR THE COAST OF NOVA SCOTIA.*

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ABSTRACT.

This paper is concerned with the occurrence, during recent years, of twenty-two marine fishes, rarely found in Nova Scotian waters. The forms previously not reported from this area are as follows: *Anchoviella epsetus*, *Caranx hippos*, *Chaetodon ocellatus*, *Epinephalus morio*, *Mugil cephalus*, *Nansenia groenlandica*, *Naucrates ductor*, *Pneumatophorus colias*, *Remora remora*, and *Sphyrna zygaena*. Practically all the fishes mentioned in this paper are southern forms, which stray to the Nova Scotian coast only when the temperature of the water is high. The number of marine and anadromous fishes, which has been reported from the coast of this province, now amounts to about 150 species.

The fish-fauna of the Nova Scotian region is not very well known, although several papers have appeared dealing with fishes from this area.

The first attempt to give a list of the Nova Scotian fishes was made by Knight¹, who listed 42 species of marine and anadromous fishes. However, his paper is rather a compilation of Perley's data². A more complete list was published by Jones³, who mentioned 92 species occurring in the area under consideration. Huntsman⁴ mentioned 54 species, which

¹ Knight, T. F. "*Descriptive catalogue of the fishes of Nova Scotia.*" 34 pp. Halifax. 1866.

² Perley, M. H. "*Descriptive catalogue (in part) of the fishes of New Brunswick and Nova Scotia.*" Sec. Edit. 50 pp. Fredericton. 1852.

³ Jones, J. M. *Proc. Trans. N. S. Inst. Nat. Sci.*, 5, pt. 1, 87-97. (1882).

⁴ Huntsman, A. G. *Cont. Canad. Biol.* 3, 49-72. (1922).

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were found along the Nova Scotian coast of the Bay of Fundy. Bigelow and Welsh⁵, in their account of the Gulf of Maine, also indicated the presence of about 100 species, which have been reported from the Nova Scotian waters.

In addition to the above papers, there is further information compiled by Piers in several notes published in the Annual Reports of the Provincial Museum (Halifax) and in different articles. The most interesting of these was published in 1903⁶, where he described the capture of a Burrfish (*Chilomycterus schoepfi*), 75 mm. long, off Sambro, near Halifax. Recently Leim⁷ listed the occurrence of seven southern forms, three from Halifax harbour and four from the Liverpool district.

The present author had the opportunity to secure additional information on the occurrence of twenty-two new and rare fishes in the Nova Scotian area.

The following descriptions are based on personal examinations of the specimens, sent either to the author by different persons for identification, or procured, through the kindness of Dr. A. H. Leim, from the museum of the Fisheries Experimental Station in Halifax. The latter specimens will be indicated by (F.E.S.). The author had also the opportunity to examine specimens from the Provincial Museum in Halifax, through the kindness of Mr. Harry Piers, Curator of the Museum.

The fishes which were not previously reported from Nova Scotian waters are marked with asterisk (*). The dimensions of the fishes throughout the entire paper refer to the total lengths of specimens (the lengths of the caudal fin included).

LIST OF SPECIES

1. Lanternfish, *Aethoprora effulgens* Goode and Bean 1895 (F.E.S.). One specimen, 65 mm. in length, was procured from a cod stomach on the Western Banks on February 1,

⁵ Bigelow, H. B. and Welsh, W. W. *Bull. U. S. Bur. Fish.* **40**, pt. 1, 567 pp. (1925).

⁶ Piers, H. *Proc. Trans. N. S. Inst. Sci.*, **10**, 110-111, (1903).

⁷ Leim, A. H. *Proc. Trans. N. S. Inst. Sci.*, **17**, pt. 4, p. xlvi, (1930).

1930. Another specimen was also secured from the stomach of a cod caught on Browns Bank many years ago.⁸

*2. Striped anchovy, *Anchoviella epsetus* (Bonnaterre) 1788 (F.E.S.). Five specimens, ranging from 54 to 59 mm. in length, were caught in a small seine, by Mr. C. Darrach (Fisheries Exp. Station) in Bedford Basin (Roaches Cove) on September 29, 1931. This species was reported for the first time from the Gulf of Maine by Kendall⁹ on October 8, 1930, when several specimens were caught near the mouth of Presumpscot River near Portland.

3. Spotted catfish or Leopardfish, *Anarchichas minor* (Olafsen) 1774. A female specimen 123 cm. long was caught on November 5, 1934 by the steam-trawler *Rayon d'Or* (Capt. H. S. Hansen) on the northwestern part of the Quereau Bank (about Lat. 44° 35'N., Long. 59° 55'W.) in 55 fathoms of water.

Many years ago, Bean¹⁰ reported the capture of two fish off Banquereau (Lat. 44° 30'N., Long. 57° 10'W., 250 fths.; Lat. 43° 52'N., Long. 59°09'W., 200 fths.) in rather deep water. More recently Cornish¹¹ stated that occasional specimens of the Leopardfish were taken by fishermen of Canso (N. S.) during 1901 and 1902, but did not indicate exactly where they were captured.

This species is northern in origin, being quite common around Greenland, Iceland and the Norwegian coasts¹².

4. Triggerfish, *Balistes carolinensis* Gmelin 1788 (F.E.S.). One specimen, 355 mm. in length, was sent for identification by the Fishery Officer A. P. Fitzgerald, Queensport, N. S., on September 5, 1932. Bigelow and Welsh (*loc. cit.*, p. 294) recorded the capture of this fish on Banquereau Bank. The Halifax Museum possesses a specimen caught in Halifax Harbour on August 25, 1910.

⁸ Goode, G. B. and Bean, T. H. "Oceanic Ichthyology." Spec. Bull. no. 2, U. S. Nat. Mus., Washington. 1895, 553 pp.

⁹ Kendal, W. C. "Remarks on additions to the marine fauna of the coast of Maine". Bull. Boston Soc. Nat. Hist., no. 58, 9-11, 1931.

¹⁰ Bean, T. H. *Proc. U. S. Nat. Mus.*, 3, 82. (1881).

¹¹ Cornish, G. A. *Cont. Canad. Biol.*, 1902-1905, p. 88. (1907).

¹² Knipovich, N. M. *Trans. Inst. for Scient. Exploration of the North*, 27, 94. Moscow. (1926).

*5. Crevalle or Yellow mackerel, *Caranx hippos* (Linnaeus) 1766. Three young specimens, ranging from 46 to 49 mm. in length, were caught in the summer of 1933 in Musquodoboit Harbour, N. S. This is a southern fish found from tropical America to Cape Cod, although very rare in the Gulf of Maine.

6. Hardtail, *Caranx crysos* (Mitchill) 1815. Two specimens were examined. One (F.E.S.) 185 mm. long was captured in a weir at Pubnico, N. S. on September 1, 1930, and forwarded by the Fishery Officer G. D'Entremont (Middle W. Pubnico, N. S.). Another larger fish (305 mm.) was caught on September 30, 1934 in mackerel nets by Mr. F. J. Darrach at Herring Cove. Jones (*loc cit.*) stated that this species was not uncommon in Nova Scotian waters at that time.

*7. Common butterfly fish, *Chaetodon ocellatus* Bloch 1787. A young specimen, about 31 mm. in length, was caught, together with three young specimens of *Caranx hippos* mentioned already, in Musquodoboit Harbour, during the summer of 1933. *C. ocellatus* is a typical reef species, common in the West Indies, sometimes straying to Massachusetts¹².

8. Black swallower, *Chiasmodon niger* Johnson 1863. A specimen 167 mm. long was captured on September 23, 1932 with a dip net by Capt. E. C. Mack (Lunenburg, N. S.) south of Browns Bank (Lat. 39° 10' N. Long. 69° 40' W.). This specimen, floating on the surface, displayed an extended stomach. After splitting the stomach, there was found a specimen of *Nansenia groenlandica*, 245 mm. in length. Deep-water fishes, such as *C. niger*, are occasionally found at the surface. Thus Goode and Bean (*loc. cit.*, p. 292) mentioned that in June 1880 a specimen of the Black swallower was found floating on the surface on Le Have Bank.

*9. Red grouper, *Epinephelus morio* (Cuvier and Valenciennes) 1828 (F.E.S.). Two young specimens, about 30 mm. in length, were taken by Mr. C. Darrach with a small seine in Eastern Passage, Halifax Harbour on October 12, 1928.

¹² Breder, C. M. "Field book of marine fishes of the Atlantic coast, from Labrador to Texas", p. 217. New York. 1929.

In the same haul was taken a specimen of the Surmullet (*Mullus auralus*), already mentioned by Leim (*loc. cit.*). *E. morio* is found from Virginia to Rio de Janeiro, but young individuals may stray northwards to Massachusetts (Breder, *loc. cit.*, p. 162).

10. Trumpetfish, *Fistularia serrata* Cuvier 1817 (F.E.S.). One specimen, 488 mm. in length, including the caudal filament (or 293 mm. without the filament), was procured on September 18, 1931 by Mr. E. B. Robertson, Port Mouton, N. S. Jones (*loc. cit.*) mentioned the capture of a specimen of the same species, 880 mm. long, in September 1863 at Portuguese Cove, Halifax Harbour. He indicated also the occurrence of *F. tabaccaria* in the inshore Nova Scotian waters during the summer months.

11. Long-finned Tuna or Albacore, *Germo alalunga* (Gmelin) 1788. The Halifax Museum possesses one specimen, (no. 5146), 122 cm. long, taken on September 8, 1922, with a halibut trawl, off Devil's Island, near the Halifax Harbour. Goode and Bean¹⁴ mentioned the capture of a specimen on Banquereau Bank in the summer of 1878.

12. Seahorse, *Hippocampus sp?* A female specimen, about 82 mm. long, was caught on September 18, 1934 by Mr. V. Slaunwhite of Terrance Bay, N. S., three miles south of Mars Head. Knight (*loc. cit.*) recorded previously the finding of the seahorse in Nova Scotian waters, but he called them by the scientific name *H. brevirostris*. In reality this name is applicable only to a European form. Jones (*loc. cit.*) referred to *H. antiquorum*, also a European form, as being occasionally found during the summer months in the Nova Scotian area. Bigelow and Welsh (*loc. cit.*, p. 178) stated that *H. hudsonius* was found sometimes as far north as Nova Scotia.

The specimen from Terrance Bay differs from *H. hudsonius* and rather approaches to the Pacific form, *H. ingens*. The absence of comparative material does not permit a proper identification of the specimen in question at present.

¹⁴ Goode, G. B. and Bean, T. B. *Bull. Essex Inst.*, 11, 1-38. (1879).

13. Opach or Moonfish, *Lampris regius* (Bonnaterre) 1788. A large specimen (137 cm.) was caught with a line trawl in spring of 1932 on Browns Bank by Capt. W. Murphy of Yarmouth. Jones (*loc. cit.*) stated that a specimen was taken at Sable Island during the late fifties (1856?). Goode and Bean (1895, p. 223) recorded a capture of another specimen of this rare fish, which was taken off Le Have Bank.

*14. Common mullet, *Mugil cephalus* Linnaeus 1758 (F. E. S.). A young specimen, 77 mm. in length, was taken together with *Anchoviella epsetus* in a small seine in Bedford Basin, on September 29, 1931. The Common mullet is very rare in the Gulf of Maine, being rather southern in distribution.

*15. Large-eyed argentine, *Nansenia groenlandica* (Reinhardt) 1841. A female specimen, 245 mm. in length, was taken from the stomach of *Chiasmodon niger*, on September 23, 1932 (for details see description of the latter species). About a century ago Reinhardt¹⁵ obtained a specimen (approximately 80 mm. in length) from Greenland. More recently Schmidt¹⁶ procured a few specimens of this rare fish off the European coast.

*16. Pilotfish, *Naucrates ductor* (Linnaeus) 1758. Three specimens were examined. One, 404 mm. in length, was caught on Western Banks during August of 1932. Another was captured by Capt. F. Tidman, skipper of the steamtrawler *Viernoe*, also on Western Banks during the first part of August, 1934. It was a male specimen, 420 mm. in length. A female specimen of the same length (420 mm.) was taken, on October 18, 1934, by Capt. Allen Mosher of the schooner *Radio I*, with a line trawl, using mackerel bait, on Sambro Bank. The Pilotfish is cosmopolitan in all warm seas, straying occasionally north to Maine in the Western Atlantic.

17. Barrelfish, *Palinurichthys perciformis* (Mitchill) 1818. A male specimen (F. E. S.) 242 mm. long was caught on September 6, 1927 by Mr. F. J. Darrach (Herring Cove) in

¹⁵ Reinhardt, J. C. H. *Vidensk. Selsk. Naturv. Ath. Afhandl.*, 8, p. lxxiv-lxxv. Kjöbenhavn. (1841).

¹⁶ Schmidt, Joh. *Rept. Danish Oceanog. Exp. 1908-10 Medit. Adjac. Seas.* 4, II. Biol. 1-40. Copenhagen. (1918).

Halifax Harbour, one and one half miles south of the inner automatic bouy. Another specimen of the same sex, 315 mm. in length, was captured on October 26, 1934 from the wharf of the National Fish Co. in Halifax by Mr. Martin Bouchi with hook and line, using haddock fillet as bait.

Bigelow and Welsh (*loc. cit.*, p. 244) considered this species rather common along the outer coast of Nova Scotia, but very rare within the Gulf of Maine. On the other hand, the information which we have been able to obtain leads to the conclusion that Barrellfish is rare in the area under survey.

*18. Chub mackerel, *Pneumatophorus colias* (Gmelin) 1788. Several specimens were examined. One (F. E. S.) 310 mm. in length, was caught on September 12, 1931 at Herring Cove. Three specimens slightly smaller were taken by Mr. G. G. Harnish in a mackerel trap during the latter part of August, 1933 in Hubbards Cove, St. Margaret Bay. According to information from local fishermen, this species is found in small numbers, practically every year. Schmitt¹⁷ credited this fish with irregular appearance around Anticosti, in the Gulf of St. Lawrence. The Chub mackerel was not previously reported from the Nova Scotian waters.

*19. Remora or Sucker, *Remora remora* (Linnaeus) 1758. Two specimens were examined. One specimen, 171 mm. in length, was caught by Mr. G. B. Nickerson (Clark's Harbour, N. S.) ten miles off Cape Sable on June 1, 1933. A female specimen, 220 mm. in length, was removed from a male Blue shark (*Prionace glauca*), 281 cm. long, which was taken on September 9, 1934 by the steam trawler *Viernoe* (Capt. F. Tidman) on the western side of Sable Island (Lat. 44° 10' N. Long. 60° 45' W). The finding of this suckerfish together with *Echeneis naucratus*, already referred to by Leim (*loc. cit.*) increased the number of the Remora species, reported in Nova Scotian waters, to two.

20. Common bonito, *Sarda sarda* (Bloch) 1793 (F. E. S.). Two specimens were examined, one 340 mm. long (locality not known). Another specimen, 10 mm. longer was caught

¹⁷ Schmitt, J. "*Monographie de l'isle de Anticosti.*" 285. Paris. (1904).

off Middle W. Pubnico on September 17, 1930. Jones (*loc. cit.*) mentioned the capture of a young specimen at the mouth of Halifax Harbour.

*21. Hammerhead shark, *Sphyrna zygaena* (Linnaeus) 1758 (F. E. S.). A young male, 520 mm. in length, was caught on September 13, 1932 by Mr. John Dempsey (Herring Cove) in mackerel nets off Herring Cove. This fish is rather common southward from Cape Cod.

22. Moonfish, *Vomer setapinnis* (Mitchill) 1815. Several specimens were examined. Two young fish, 40 mm. long, were captured on September 21, 1929 in Port Mouton Bay, near Liverpool, N. S. Three slightly larger specimens of equal size (58 mm.) were caught by children with their hands in Eastern Passage, and given to the author by Mr. J. P. Henneberry, Fishery Officer (Halifax). Leim (*loc. cit.*) mentioned the occurrence of the same fish in the Liverpool district in the fall of 1928.

From the foregoing descriptions, it is evident that all the forms (with the exception of *Anarhichas minor*) are southern fishes, which stray to the Nova Scotian area only when the temperature of the water is high. Therefore, they are found along the coast of this province, as a rule, only in the late summer or early fall, and particularly during the month of September, when the temperature of the water is usually the highest of the year.

In conclusion, it may be stated that the number of marine and anadromous fishes known to occur along the Nova Scotian coast amounts to about 150 species.