

SOME MARINE FISH AND SALP RECORDS*.

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ABSTRACT.

This paper records information mainly on the abundance or occurrence of nineteen species of uncommon Canadian Maritime marine fish. The distribution, as far as could be learned, of *Salpa (Jasis) zonaria* during the years 1937 and 1938 in Nova Scotian and adjacent waters because of its hydrographic significance, is also given, together with some observations on its habits.

INTRODUCTION.

In recording the following notes regarding some of our marine fauna, it is hoped that the information may prove useful, if not at present, then in the future to those who may be interested in the distribution, abundance and life history of various forms of marine life as it is at present.

Many thanks are due, especially to Professor J. R. Dymond, Mr. J. T. Nichols and Mr. William C. Schroeder for their kindness on many occasions in checking identifications and making comparisons with museum specimens.

FISHES.

Sphyrna zygaena (Linnaeus) 1758. Hammerhead Shark.

A specimen of this shark was taken in a trap off Sambro Light, Halifax County, August 25, 1938. As in the case of the other definite record¹ of the capture of this species in our waters, this specimen was small, 53 cm.

However, there is a report, fairly well confirmed but lacking details, that a large, full size specimen was taken years ago in the vicinity of Brier Island, Nova Scotia, in the Bay of Fundy.

Bigelow and Schroeder² record the capture of a 12-foot specimen in the Fundian Channel in August 1928.

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¹ Vladykov—*Proc. N. S. Inst. Sci.*, vol. 19, Pt. I, pp. 1-18, 1934-1935 (1935).

² Bigelow and Schroeder—*Bull. U. S. Bur. of Fish.*, vol. 48, (1936).

Alopias vulpinus (Bonnaterre) 1788. Thresher Shark.

On August 28, 1936, a specimen of this shark 4.8 metres (16 feet) in length was taken in a weir at Deer Island, New Brunswick, in the Bay of Fundy.

Cetorhinus maximus (Gunner) 1765. Basking Shark.

Previously there have been no positive records of the capture of this species in the Nova Scotian area, though it has no doubt been taken.

During the summer of 1934 an 8.7 metre (29 foot) specimen was caught in a herring net at Whale Cove, Grand Manan, N. B.

On August 4, 1936, a specimen of this shark was caught in a weir at Back Bay, New Brunswick, in the Bay of Fundy. It measured 8.4 metres (28 feet) in length.

During July 1937, another specimen 3.4 metres (11 feet 4 inches) in length was taken at the mouth of the LaHave River, near Lunenburg, Nova Scotia.

On September 7, 1938, still another specimen was found dead in a mackerel trap at French Village, St. Margaret's Bay, Nova Scotia. This one measured 7.3 metres (24.5 feet) in length.

Using the graph given by Schultz³ these sharks should have weighed about 10,700 lb., 10,000 lb., 300 lb. and 6,600 lb., respectively.

Psychichthys affinis (Capello) 1868. Short-finned Chimaera.

A 126.25 cm. (4 foot 2.5 inch) specimen was taken on October 15, 1930, by the United States trawler Oretha Spinney in the vicinity of Browns Bank (240 miles ESE of Gloucester, Mass.) and has been recorded by MacCoy⁴.

Notacanthus phasganorus Goode 1880. Sword-tail Eel.

This eel was found in our waters 20 miles south of Sable Island in 100 fathoms on February 10, 1935, by a United States trawler and its occurrence has been recorded by Bigelow and Schroeder. It was 106.25 cm. (42.5 inches) in length⁵.

³ Schultz—*Jour. Mammology*, vol. 19, no. 4, November 14, pp. 480-487, (1938).

⁴ MacCoy—*Bull. Bost. Soc. Nat. Hist.*, no. 58, (Jan. 1931).

⁵ Bigelow and Schroeder—*Proc. Boston Soc. of Nat. Hist.*, vol 41, no. 2, pp. 13-18, (June 1935).

Etrumeus teres (DeKay) 1842. Round Herring.

This elongate herring, with a rounded, not sharp-edged, belly as in other herring, is rarely found north of Cape Cod. However, in September 1937, possibly because of unusually high water temperatures, quite a number were taken in a weir at Herring Cove, Campobello Island, N. B., in the Bay of Fundy, and their occurrence has been recorded by Leim.⁶ This constitutes the first record of their capture in Canadian Maritime waters.

Alosa sapidissima (Wilson) 1811. Shad.

On May 4-9, 1937, the S. T. Viernoe caught eight large shad on the northern edge of Middle Ground, Lat. 44° 45' N., Long. 60° 40' W. in 23-30 fathoms. This location is some 35-40 miles directly offshore from Canso. This capture supplies a little further information to show that these fish winter in the offshore waters, especially in this Middle Bank region⁷.

Argentina silus Ascanius 1763. Argentine.

On two trips of the S. T. Venosta to the region immediately west to southwest of Emerald Bank during March 1938, Wilfred Dorry reported that "bucketsful" of these fishes were brought on deck on a number of occasions. The specimen saved was 22 cm. in length.

They were mistaken for and almost eaten as smelts by the finders. This is the fourth record⁸ of this species in our waters and the only time they have been taken in any quantity, though Firth⁹ reports thousands of pounds being taken on occasion in the Cape Cod to Georges Bank region.

Chauliodus sloanei Bloch and Schneider 1801. Viperfish.

A specimen of this species was taken from the stomach of a swordfish caught in the gulley between Browns and Georges Banks in 1931. It was recorded by Bigelow and Schroeder².

⁶ Leim—*Fish. Res. Brd. Can., Prog. Rept. Atlantic*, no. 21, p. 5, (Dec. 1937).

⁷ Vladykov—*Copeia*, Nov. 15, no. 3, p. 168 (1936).

⁸ McKenzie and Homans—*Proc. N. S. Inst. of Sci.*, vol. 19, Pt. III, pp. 277-281, 1936-37 (1938).

⁹ Firth—*Bull. Boston Soc. Nat. Hist.*, no. 61, pp. 8-14, (Oct. 1931).

Macrourus bairdii (Goode and Bean) 1895. Common Rat-tail.

These inhabitants of the muddy bottom in the deeper waters around the offshore banks are brought up occasionally during the winter—possibly a dozen per trawler per winter, according to the fishermen's reports—as fishing is carried on there only at this season.

Two specimens caught in 80-100 fathoms inside of "Western Bank" were brought in by Wilfred Dorry, S. T. Venosta, March 8-20, 1938. Again on January 30, 1939, this man brought in two more, 32.5 cm. and 23 cm. in length, from 80 fathoms depth 35 miles west of Middle Ground, approximately Lat. 44° 25' N., Long. 61° 30' W.

Sarda sarda (Bloch) 1793. Common Bonito.

Around St. Margaret's Bay, Nova Scotia, it is commonly reported that the Bonito occurs in fair numbers in the mackerel schools during certain years. However, definite records of the capture of this species in our waters previously are scarce¹.

On October 15, 1937, Mr. Lama Briand caught a specimen off Samsonville, St. Peter Inlet, Bras D'Or Lake, Cape Breton, Nova Scotia. This location is but a short distance from the inner end of St. Peter canal into this lake. The specimen was 37 cm. long.

During August and September 1938, many of these fish were taken in the mackerel traps in the vicinity of Lunenburg, Nova Scotia, and quite a number of them varying in length from 20-40 cms. were on exhibit at the Lunenburg Fisheries Exhibition in September of that year.

Makaira albida (Poey) 1861. Spearfish or Marlin.

Specimens of this southern fish have been taken in recent years by other than Canadian fishermen in the vicinity of Browns and Sable Island Banks. The capture of these specimens was mentioned in the report by Bigelow and Schroeder in 1936.²

Poronotus triacanthus (Peck) 1800. Dollarfish or Butterfish.

This fish, while a summer visitor to our waters from the south, shows considerable variation in the numbers present in various years.

About twenty-five years ago (1910-1913) in St. Mary Bay, Nova Scotia, there were years when these fishes were taken from the weirs in such abundance that they were canned—though not commercially—at St. Bernard and Grosses Coques during September to November. Not until 1938 have they been present in such abundance again.

In Halifax Harbour there are usually fair quantities found during the summer and autumn. However, in the autumn of 1938, they were exceptionally abundant (paralleling their return in quantity to St. Mary Bay no doubt); an estimated 15,000 lb. or 6,750 kg. were dumped out of two traps on November 12. These fish were from 10 cm. to 18 cm. in length.

Cyclopterus lumpus Linnaeus 1758. Lumpfish.

On September 4, 1936, a 9.6 cm. (3.8 inch) specimen was taken from Carson's weir, St. Andrews, New Brunswick, and placed in the salt water tanks at the Atlantic Biological Station along with some young pollock and cod. It was fed chopped clams and herring about thrice weekly along with the other fish. However, while the other fish were fed to capacity each time, one usually tired of preparing food for the Lumpfish before its capacity was reached. Consequently it cannot be said that this fish had absolutely all it could eat. Nevertheless, on September 13, 1937, at death, this Lumpfish was 30 cm. (12 inches) long and 714 gm. in weight. Such growth is phenomenal.

According to Bigelow and Welsh¹⁰ this specimen was possibly in its third summer when captured, for they indicate the length in the second summer to be 50-74 mm., in the third summer 95-110 mm. and in the fifth summer 260 mm. Thus our specimen in growing from 96 mm. to 300 mm. put on, in one year, the growth that in nature is supposed to require two or even three years.

Since these fishes are not very fast or agile swimmers, especially as they grow larger, it is believed that they wait¹¹

¹⁰ Bigelow and Welsh—*Bull. U. S. Bur. Fish.*, 40, Pt. I, 567 pp., (1925).

¹¹ Jenkins—*The Fishes of the British Isles* London, 1925, 406 pp.

for a good portion of their food to come to them, rather than vice versa. Hence, they may never have all the food they can take, and in this case such prodigious growth should probably not be considered surprising under the circumstances.

Remora remora (Linnaeus) 1758. Blue Sharksucker.

On October 7, 1937, the S. T. Viernoe brought in a specimen 16.7 cm. in length taken from a small but unidentified shark on the NW part of St. Pierre Bank. This makes two records for the outer coast of Nova Scotia and two during the last few years for St. Pierre Bank.⁸

Ulvaria subbifurcata (Storer) 1839. Radiated Shanny.

A specimen 46 mm. long was taken in a young fish trawl on June 27, 1938, by M. V. Zoarces in Shad Bay, Halifax County, Nova Scotia, in the depth range of 2-9 fathoms. This is only the third record¹² for this species in our area, though it is rather common and widely distributed in the Gulf of Maine.²

Anarhichas minor Olafsen 1774. Leopardfish.

During the last few years⁸ about half a dozen of these fishes have been reported each year.

Captain Moser of the schooner Cachelot III brought in a 130 cm. specimen of this species from 54 fathoms on eastern Banquereau, Lat. 44° 50' N., Long. 57° 27' W., on April 13, 1937.

This same Captain caught three more unmeasured specimens from this same general area on October 16, 1937, and the schooner I. E. Spindler caught two more, 135 cm. and 126 cm. in this region on December 2, 1937.

Balistes capriscus Gmelin 1788. Triggerfish.

On August 11, 1937, Mr. E. D. Ridgley brought in a specimen taken alive on the shore of McNabs Island, Halifax Harbour. It was 29 cm. in length and 675 gm. in weight.

This is the fourth record¹ of a capture in the waters of our area.

¹² Hachey—*Fish. Res. Brd. Can. Prog. Rept. Atlantic no. 23 pp. 13-14 (Nov., 1938).*

Alutera schoepfi (Walbaum) 1792. Orange Filefish.

A specimen 9.7 cm. long was found at Herring Cove, Halifax Harbour, August 25, 1938. Due to decomposition the above identification may be taken with some reservation. Of this specimen, Mr. J. T. Nichols, American Museum of Natural History, writes "very likely an *Alutera schoepfi* (Walbaum)—(but) I would not want to identify it definitely as to species".

This, assuming the identification as correct, is the first record of the capture of this more southern fish in our waters.

SALPS.

Salpa (Jasis) zonaria (Pallas 1774).

In the autumn of 1937, this form was brought in from both Emerald and the Western part of Sable Island Bank during October and November on several occasions by the schooner M. B. Tanner.

It was also reported as commonly seen in Halifax Harbour by Mr. C. K. Darrach of the Fisheries Experimental Station during this same period.

On November 17, the author found small windrows of them left on a beach by the receding tide in St. Margaret Bay just west of Halifax. Numbers were also seen in the waters off this beach.

In 1938, however, the abundance of these organisms was greatly increased.

During the summer the schooner M. B. Tanner reported that they were quite numerous on the Grand Banks and also around Emerald Bank in September. Another record is from the M. V. Zoarces which had a string of salps caught around the deep-sea water bottle on August 30, 45 miles west of Middle Bank.

At Grand Manan in the Bay of Fundy the cod were found to be eating these in October.

Reports from several ports along the outer Nova Scotian coast are to the effect that this form was not numerous out-

side the line of the shore, but that in the bays it was tremendously abundant in September.

In Halifax Harbour, they were so abundant that numerous samples were brought to the Fisheries Experimental Station for identification and some "old timers" around the waterfront said they had never been so abundant before, while others said they had never even seen them previously.

This organism owes its importance to the science of hydrography. Generally, it is foreign to our waters, but on numerous occasions it has accompanied shoreward movements of offshore waters along the outer Nova Scotian coast and in the autumn of 1938 its sudden great abundance inshore instigated hydrographic work which checked the fact that a large scale shoreward movement of offshore surface water had taken place recently.¹² Such movements have been shown to follow the formation and subsequent movement of North Atlantic tropical cyclones, and on this occasion this "storm warning" was a day ahead of the weather bureau's, because this storm—devastating in its effect in New England—had not crossed the usual shipping routes from where such information is obtained.

Some interesting observations go to show, also, that these Salps are positively phototropic.

On very dull days few were seen at the surface off the ends of the wharves, but on bright days the water seemed "alive" with them. On several occasions, too, when the fog cleared and the sun shone, they were observed to gradually come to the surface from so far down that they had not been seen previously.

Again, some were kept in a gallon jar on board the schooner M. B. Tanner. During sunny weather when kept in the pilot house they were very active. On dull days they were not so active, and at night they all rested on the bottom of the jar, resuming activity with the approach of daylight. If they were taken from a dark place at night and put in the lighted cabin, they immediately began swimming all about the jar.