

TABLE 1—Numbers and sizes of specimens collected at each station, showing location, date collected, and Royal Ontario Museum catalogue number

Catalogue number	Locality		Number of specimens	Size range (T.L., mm)	Date collected
32046	Eneas Creek	45°17.5', 77°25.9'	12	31–165	2 August 1973
30158	Madawaska River	45°14.8', 77°13.5'	14	45–183	20 August 1973
30159	Madawaska River	45°14.5', 77°10.7'	11	77–131	20 August 1973
30160	Highland Creek	45°15.3', 77°13.5'	59	35–131	19 August 1973
30161	Madawaska River	45°13.7', 77°19.3'	12	46–174	15 August 1973
*	Madawaska River	45°15.2', 77°11.7'	16	44–70	18 August 1973
*	Madawaska River	45°17.9', 77°25.3'	11	36–99	17 August 1973
30880	Madawaska River	45°19.0', 77°32.0'	1	158	10 July 1974

*Not catalogued.

This section of the Madawaska system is popular for anglers seeking *Stizostedion vitreum*, walleye, and *Esox lucius*, northern pike. We suggest that *N. micropogon* was introduced by the accidental release of bait fishes. It is unlikely that a natural movement of the species can account for its occurrence because of the great distance between this population and its known range. If so, this illustrates the possibility of potential changes in the environment by the release and establishment of a cyprinid fish outside of its natural range.

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Recovery of a Swordfish (*Xiphias gladius*) Sword from a Fin Whale (*Balaenoptera physalus*) Killed off the West Coast of Iceland

The 18-cm-long tip of a swordfish (*Xiphias gladius*) sword (Figure 1) was found embedded in the posterior part of the hypaxial musculature or "tail meat" of a 63-ft female fin whale (*Balaenoptera physalus*) killed July 1973 at position 63°22' N, 26°15' W off the west coast of Iceland.

The occasionally observed close association between swordfish and large whales (Brown 1960) and the recovery of swords from blue (*Balaenoptera*

musculus) (Ruud 1952; Jonsgård 1959) and fin whales (Jonsgård 1962) in the Antarctic and from fin (Nemoto 1959) and sei whales (*Balaenoptera borealis*) (Machida 1970) in the North Pacific lends credibility to the idea that swordfish attack whales. Recently, a 49.5-cm-long marlin (*Makaira* sp.) "spear" was recovered from the dorsal surface of the rostrum of an Antarctic minke whale (*Balaenoptera bonaerensis*) (Ohsumi 1973).

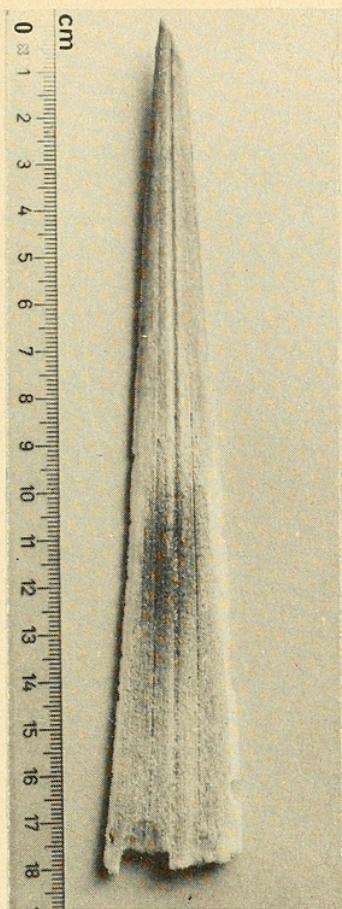


FIGURE 1. Tip of a swordfish sword recovered from the posterior hypaxial muscle of a 63-ft female fin whale taken off the west coast of Iceland July 1973.

Perhaps of more significance than providing evidence for rarely seen interspecific associations, the finding of the swordfish sword possibly indicates something about the migration of fin whales around Iceland.

Swordfish are generally considered to be tropical and sub-tropical fish usually found in water warmer than 24°C and not in water colder than $12\text{--}13^{\circ}\text{C}$ (Ovchinnikov 1970). The whaling grounds off the west coast of Iceland usually do not exceed 10°C . The 24°C isotherm in the Northeast Atlantic occurs at approximately 35° north latitude, that is at the level of North Africa. The northern limit of swordfish distribution as indicated by the 12° isotherm would be at approximately 60° north latitude. Next to the European coast the 12° isotherm extends as far as northern Norway (Leim and Scott 1966; Ovchinnikov 1970).

A single swordfish specimen was found washed ashore on the east coast of Iceland in 1936 (Saemundsson 1949). Although swordfish have not been sighted in the waters between Iceland and Europe, their occurrence here is still open to question (Tåning 1958).

The fin whale population hunted off the west coast

of Iceland is thought to be distinct from that found off the east coast and catch statistics suggest that they may form part of the same stock that was hunted off northern Norway (Jónsson 1965). The southward migration of fin whales in the North Atlantic during the winter is discussed in some detail by Jønsøgaard (1966).

Although it is possible that fin whales could come into contact with swordfish in Icelandic waters it seems more likely that any association between these two species would occur in warmer waters, probably south of 40°N during the winter calving period.

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