

DIVISIONS 3LNO HADDOCK

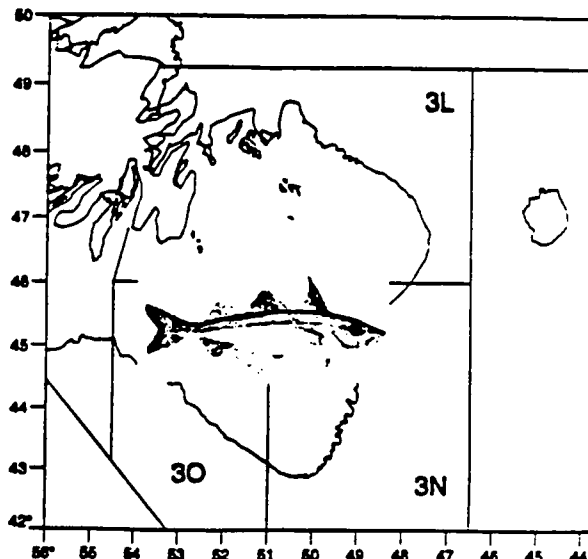
Background

Haddock occur on both sides of the North Atlantic. Along the coast of North America, it occurs from the Strait of Belle Isle south to Cape Hatteras being more abundant in its southern range.

Haddock are primarily bottom feeders and food varies with size. Those less than 50 cm (20 inches) eat crustaceans, in particular amphipods, pandalid shrimp and hermit crabs. Also a part of the diet are echinoderms (brittle stars, sea urchins and sand dollars), mollusks (snails and clams) and annelid worms. For haddock greater than 50 cm, small fish make up about 30 percent of the diet with sand lance, capelin, silver hake, herring and argentines being consumed. When available, large numbers of herring and capelin eggs are eaten. Haddock larvae are pelagic and settling occurs at just under 50 mm (2 inches). Males and females reach sexual maturity at ages 3-5, males usually at slightly younger age than females. Growth rates vary from stock to stock with generally slower rates in northern stocks.

The history of the haddock fishery in NAFO Subarea 3 is a relatively short one. Prior to 1945 catches on the Grand Bank (NAFO divisions 3NO) were low but increased rapidly in the late 1940s and remained high until the early 1960s. There is evidence to suggest that haddock were abundant earlier but were not a desired species in a saltfish operation and were not kept or recorded separately. The high catches of the 1950s and early 1960s were the result of several strong year-classes. The fishery of this era was characterized by high discard rates, 30 to 40% by weight and 50 to 70% by numbers. Catches since the 1960s have declined to very low levels with some peaks at 8,000 to 10,000 metric tons when good year-classes occur.

TACs were first put in place in 1987, and have ranged between 4,100 and 10,000 metric tons since then. Advice from CAFSAC in the late 1980s and early 1990s was that there should be no directed fishery on the stock in order to allow relatively strong year-classes to reach maturity.



The Fishery

Historically, landings by the Canadian fleet were highest in Division 3O and were mainly taken during the January to May period in warmer slope waters. Landings were highest during the 1950s and early 1960s with a maximum of 76,000 metric tons reported in 1961. These catches were supported by the presence of the strong 1949 and 1955 year-classes. Landings remained low from the 1960s to mid 1980s as a result of poor recruitment. Landings increased to 8,200 metric tons in 1988, the highest since 1967. They have since declined to less than 1,000 metric tons annually.

Landings (thousand metric tons)

Year	53-76 Avg.	77-90 Avg.	1991	1992 ¹	1993 ¹	1994 ¹	1995
TAC	N/A	N/A	4	.5 ²	.5 ²	.1 ²	.1 ²
Can.	9	2.4	.8	.9	+	+	
Others	12	.4	.2	+	+	0	
Totals	21	2.8	1	1	+	+	

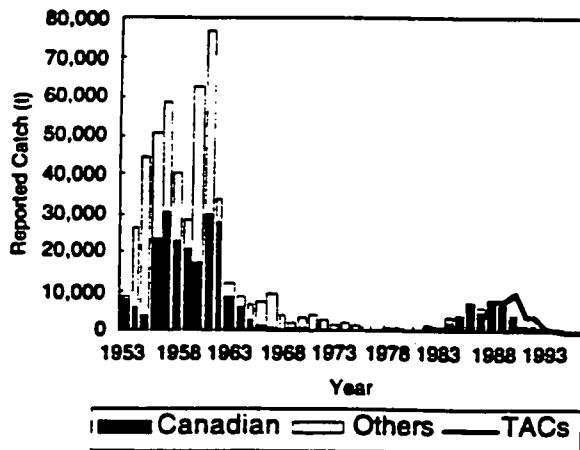
¹ Provisional

² By-catch only

⁺ Catch less than 500 metric tons

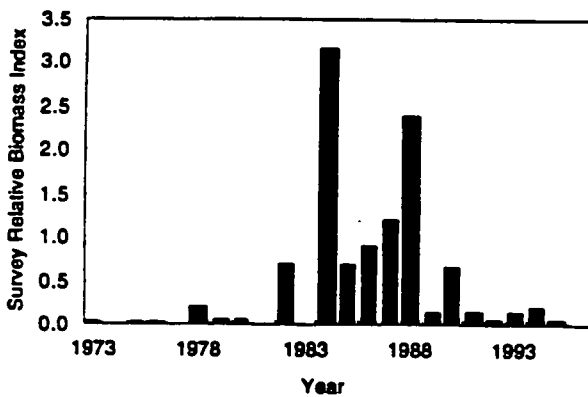
The provisional catches for 1994 and 1995 were only 8 and 22 metric tons respectively. These are the lowest catches on record, and are partially due to the moratoria on cod and flatfish

stocks in the divisions 3NO area first imposed in 1994 by NAFO.



Resource Status

Research surveys have been conducted in the area since the early 1970s, but coverage during the 1970s was not as extensive as in the more recent period. Very few haddock were ever found in Division 3L during the spring surveys.



The relative biomass index was low throughout the 1970s, highest in 1984, declined sharply in 1985, then showed a gradual increase to 1988. The increases were due to growth of the relatively strong 1980 and 1981 year-classes.

The index has been low since, with the 1994 and 1995 estimates being similar to those of the 1970s.

Abundance at age information from the surveys shows recent year-classes are weak.

The level of fishing mortality for this stock is not known but it is believed to have been high during the late 1980s. During this period, greater than 50% of the catches were taken in directed fisheries. The NAFO moratoria on the cod and flatfish fisheries, along with the decline in the size of the haddock stock have probably all contributed to recent lower fishing mortalities.

Ecological Factors

Haddock in Newfoundland waters are thought to be at the northern extension of their range in the Northwest Atlantic. Oceanographic data for 1995 indicate that water temperatures on the plateau of the Grand Bank remain below long term means, but they were somewhat warmer than in 1994. The colder conditions throughout the area in recent years have probably impacted on haddock distribution and behaviour.

Outlook

There have been no signs of good recruitment in the survey catch-at-age in recent years, and therefore no prospects of the stock improving in the near future.

Haddock in this area show considerable variation in recruitment but the mechanisms are not understood. In the past, good year-classes have been fished out before they reached spawning age. When stronger year-classes are detected, if an approach of allowing the fish to at least reach spawning age is adhered to, subsequent recruitment should be enhanced.

For More Information

Research Document: Murphy, E. 1995. The status of 2GH cod, 3LNO haddock, 3Ps haddock and 3Ps pollock. DFO Atl. Fish. Res. Doc. 95/33.

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