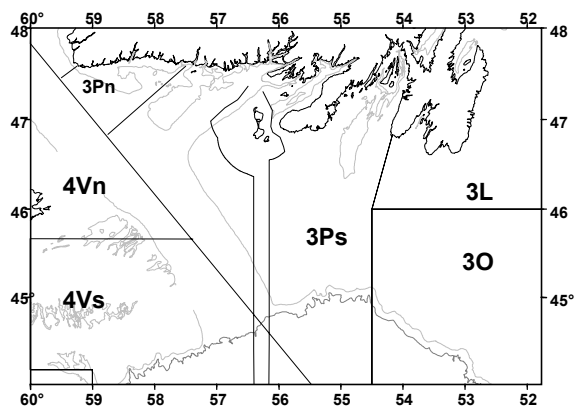


## Subdivision 3Ps Haddock



### Background

Haddock occurs on both sides of the North Atlantic. Along the North American coast it occurs from the Straits 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 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. In haddock greater than 50 cm small fish make up about 30% 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, settling when 50 mm. Males and females attain sexual maturity at ages 3-5; males usually at a slightly younger age than females. Growth rates vary and are generally slower in northern stocks.

During the 1954-1956 period a substantial haddock fishery occurred on St. Pierre Bank. This fishery was prosecuted mainly by Canada with increased effort by Spain and France (St. Pierre and Miquelon) over this period. This fishery was almost exclusively on the abundant 1949 year-class. Landings peaked at 58,000 t in 1955. No significant fishery for haddock has taken place in NAFO Subdivision 3Ps since 1957.

### Summary

- Landings of haddock from 3Ps peaked at 58,000 t in 1955 based almost exclusively on the abundant 1949 year-class.
- No significant fishery for haddock has taken place in 3Ps since 1957.
- Reported annual by-catch in the cod fishery which reopened in 1997 have ranged from 84 t to 267 t.
- Up to October 2001, 75 t of haddock by-catch has been landed in the cod fishery.
- There is currently no directed fishery allowed for 3Ps haddock.
- There is some evidence that the 1998 year-class is stronger than others encountered over the last decade.
- Although temperatures on St Pierre Bank have been warming since 1998, and may have benefited recruitment, water temperatures in 2001 were substantially cooler. Very few haddock were caught in this area during the 2001 RV survey and those that were encountered were small

and may represent the 1998 or 1999 year-class.

- It is not known whether haddock in 3Ps constitute a separate stock or whether haddock in the entire 3LNOP area undergo range expansion when a year-class survival is enhanced by suitable environmental conditions.
- The future of this resource cannot be predicted, but there may be some increases in catch due to a possible relatively stronger 1998 year-class.

### The Fishery

Like many of the groundfish fisheries in the Northwest Atlantic, landings in the 3Ps haddock fishery increased in the post war years. Landings increased from 5,800 t in 1953 to a peak of 58,000 t in 1955 then declined to 6,000 t in 1957.

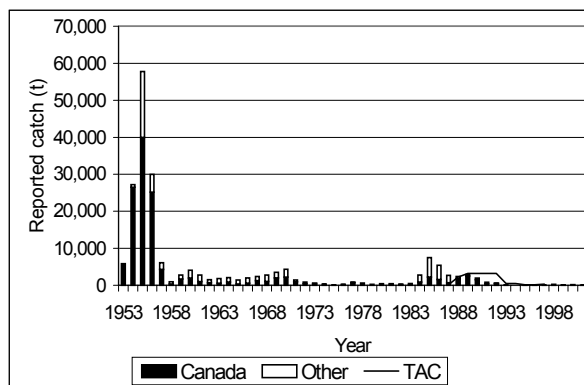


Fig. 1. Historical landings and TACs for haddock in Subdivision 3Ps.

**Catches** since 1960 have been mainly in the 1,000 to 2,000 t range, but increased to 7,500 t in 1985 before falling below 1,000 t after 1990. Reported annual **by-catches** in the cod fishery which reopened in 1997 have ranged from 84 t to 267 t. Up to October 2001, 75 t

of haddock by-catch has been landed in the cod fishery.

There has been no directed fishing permitted on 3Ps haddock since 1993. Bycatch restrictions have been in force for a number of years and currently fishers are restricted on a daily basis to 10% of the directed species onboard or a maximum of 1,000 lbs.

Landings (thousand metric tons)							
Year	60-76 Avg.	77-96 Avg.	1997	1998 <sup>1</sup>	1999 <sup>1</sup>	2000 <sup>1</sup>	2001 <sup>1</sup>
TAC	N/A	N/A	0.3	0	0	0	0
Can	0.9	0.7	0.1	0.2	0.1	0.2	0.1
Other	1	0.8	0	0	0	0	0
Total	1.9	1.5	0.1	0.2	0.1	0.2	0.1

<sup>1</sup>Provisional

### Resource Status

Canada has conducted **research vessel surveys** in subdivision 3Ps since 1972. The trawl index of haddock biomass from these surveys was low from 1972 to 1982, peaked in 1985 due to the presence of the relatively strong 1981-year class, but then declined again to low levels. Recent surveys have found very few haddock.

Some changes have been made to the trawl survey in recent years. In 1996 the survey trawl gear was switched to the Campelen 1800 shrimp trawl. This trawl has improved the survey catchability for young fish. There are no conversion factors available for haddock to convert the pre-1996 data. Direct comparisons of pre- and post-1996 data cannot therefore be made. In 1994 the survey stratification scheme was extended into Placentia Bay and since 1997 Fortune Bay and the inshore area west to the 3Pn line have also been surveyed. This expansion of survey coverage has not led to a significant increase in survey biomass.

The 1998 3Ps survey results suggested some increase in stock size but the biomass is at a low level compared to the mid to late 1980's.

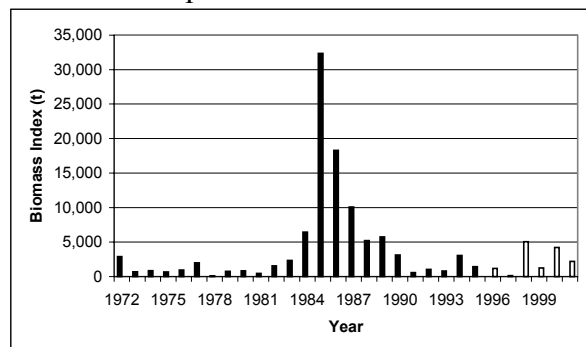


Fig. 2. Biomass estimates from Canadian Research Vessel Surveys for haddock in NAFO Subdivision 3Ps. Data collected with the Campelen trawl are shown as open bars.

In 1999 the survey biomass declined from the 1998 value, however relatively large numbers of small fish, predominately the 1998 year-class, were encountered. This year-class was also observed in significant numbers in Divisions 3LNO in the late summer early autumn pelagic juvenile survey and in both the fall 1998 and the spring 1999 3LNO multi-species groundfish surveys.

In 2000 the survey biomass increased relative to the 1999 survey results but this was due to one relatively large catch in the Halibut Channel area. Fish were larger than those seen in 1999 however based on examination of length frequencies, they are thought to be primarily the 1998 year-class.

The 2001 survey found cold water covering most of St. Pierre Bank and very few haddock were caught in this area. Those that were encountered were small and may represent the 1998 or 1999 year-class.

Surveys in recent years have encountered very few mature haddock, thus the source and the significance of this pulse of recruitment is not yet known. In the past this stock has had a significant fishery based on

the occurrence and survival of one or two strong year-classes.

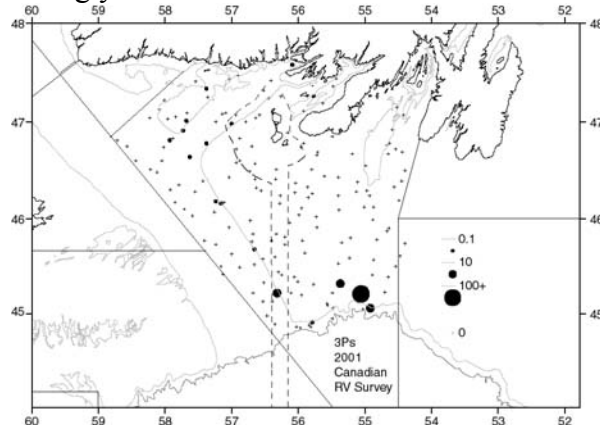


Figure 3. Haddock distribution numbers per tow from the 2001 Canadian research vessel survey.

## Outlook

There has been no significant recruitment since the mid 1950s. It is not known whether haddock in 3Ps constitute a separate stock or whether haddock in the entire 3LNOP area undergo range expansion when a year-class survival is enhanced by suitable environmental conditions. The future of this resource cannot be predicted, but there may be some increases in catch due to a possible relatively stronger 1998 year-class.

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