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French Research Report for 1985

by

Jean-Charles Poulard

Institut Francais de Recherche pour l'Exploitation de la Mer
B. P. 4240 - F 97500 Saint-Pierre et Miquelon

SUBAREA 1

1. Status of the fisheries.

The French fishery for northern deepwater shrimp off West Greenland was conducted in 1985 by two freezer trawlers from mid-July to the end of September. The fishery took place mainly in Division 1B where reported catches were 301 tons, and secondly in Division 1C with a total catch of 115 tons.

The logbook of one trawler was available and provided information on fishery for the August-September period. In August and September, the fishing grounds were located on the northern part of the Store Hellefiske Bank from 67°08 N to 68°00 N. The depth of trawling ranged from 180 m to 385 m with most of the tows made between 225 and 300 m. Close catch rates were observed in August and September ; catch rate in August was slightly higher than those observed the same month in 1980, 1981 and 1982. The mean catch rate for the two months was 341 kg/hour.

2. Special research studies.

No biological data was available for the deepwater shrimp.

SUBAREA 3

1. Status of the fisheries.

a) Cod.

Catches of cod were reported from the French fishery in :

- i) Division 3K, French trawlers caught 880 tons
- ii) Subdivision 3Pn, 624 tons were reported by the French trawlers
- iii) Subdivision 3Ps, the total catch reported by both offshore and inshore fisheries were 18508 tons.

b) Other finfish.

In Subdivision 3Ps, reported catches of haddock, pollock, skates and american plaice by French trawlers were respectively : 5272, 956, 944 and 406 tons.

2. Special research studies.

One survey was conducted in Subarea 3Ps on board the R/V Cryos from February 9th to March 24th, 1985.

1. Hydrographic studies.

During this winter survey, two hydrographic transects were realized and 45 stations were occupied. The first transect took place from Burgeo Bank to Green Bank and the other one from the southwestern part of Saint-Pierre Bank to Green Bank, across the shelf.

In winter 1985, a thick very cold layer (temperatures from -1.2°C to -0.6°C) extended down to 200 m depth (fig. 1). The intermediate layer was only represented by a strong positive thermic gradient which occurred about 220 m depth on the western slope of Saint-Pierre Bank. Under these layers, the slope water (6°C to 7.8°C) was observed between 230 m and 350 m depth and the bottom water (5°C to 6°C) occurred deeper.

Broadly speaking, the winter 1985 showed much lower temperatures compared to those observed at this time of the year since 1977. Ice was observed in the northwestern part of Saint-Pierre bank and in the northern part of Green Bank.

2. Biological studies.

a) Cod.

A total of 98 trawling stations (30 mn duration) was occupied in 3Ps division. The highest catch rate (16800 kg/30 mn) was observed along the southwest slope of Saint-Pierre Bank.

A total number of 4197 cod was sexed and measured, and 527 pairs of otoliths were sampled.

The bathymetric distribution of catch rates are indicated in the following table :

Strata (m)	Number of sets	Catch rates (KG/30 mn)
31-55	6	1
56-92	16	3
93-183	30	73
184-275	21	933
276-366	22	139
367-549	3	74
Total	98	256

Due to cold hydrological conditions, convenient cod waters were noticed at greater depth than usual causing high catch in the range 184-275 m.

The age composition of the mean number per tow confirms the strength of the 1982 year class which as well 2 years old in 1984 as 3 years old in 1985 appears to be the strongest of the series. The representation of all ages over 4 years old was weak as compared to previous surveys. This could be the consequence of a disturbed distribution of the maturing fishes searching for suitable water temperatures. The length distribution and age composition trends confirm the abnormal situation which occurred in 1985 for the maturing fish.

b) Redfish.

As usual the best catch rates were observed on the slopes of Saint-Pierre and Burgeo Banks and in Hermitage and Halibut Channels. A strong decrease in abundance has been noticed. Cold hydrological conditions were probably responsible for this phenomenon.

Length frequency distribution of the R/V Cryos catches showed the presence of a very important mode at 17 cm (1979 to 1981 year classes). Secondary modes were appearing at 30 cm (males) and 40 cm (females). Fish less than 10 cm in length were still lacking, the weakness of the 1982 year class and younger is confirmed.

c) American plaice.

As in previous years, this species was observed in the totality of the surveyed area in Subdivision 3Ps.

Best catch rates have been noticed for this species too deeper than usual, on the southern part of Halibut Channel (12000 kg/30 mn). Length frequency distributions by sex showed modes at 16, 26, 34, 40, 52 cm Lt for males and 16, 26, 34, 42, 54 and 64 cm for females. The very strong increase in biomass observed is probably due to hydrological conditions and an unusual proportion of large fished in catches.

d) Witch flounder.

A very few witch flounder have been caught on the slope of the Banks. The catch rates have been noticed to be very low (generally less than 10 kg/30 mn), the best catches occurred along the southern slopes of Saint-Pierre Bank (the best tow was 65 kg/30 mn).

Length frequency analysis for each sex indicated that most of the research catches (70 %) were composed of adult fishes (length between 30 and 50 cm Lt). Modes of juvenile individuals can be seen at 16 and 24 cm. These young classes are confirmed to be more abundant than in previous years.

e) Other finfish.

Observations were made on all commercial species : thorny skate, silver hake, haddock, pollock, halibut, yellowtail flounder and anglerfish.

Catch rates of haddock have decreased for the first time since 1982. Length composition of the catch showed a single mode at 42 cm. This stock is still composed mainly by the 1981 year class, every other cohort being very weak.

The thorny skate was observed in the totality of the area surveyed. Abundance was lower on Burgeo Bank than anywhere else and the largest catches have been noticed on the eastern part of the subdivision (Green Bank).

For the silver hake, the very strong 1983 year class is confirmed. The mode was situated at 25 cm showing a fast growth. We have to notice that this stock is nearly composed with only one year class which is arriving after a lack of several years in recruitment.

f) Shellfish.

Studies were conducted on giant scallop and Iceland scallop. 61 standard dredging tows (10 mn duration) were made during this winter cruise.

The decrease in catch rates of *Placopecten* was going on particularly in the northern part of Saint-Pierre Bank. The 1979 to 1981 year class levels seemed to be very low. In the northern part of the Bank, the mode was situated at 10.5 cm while the age composition analysis showed that 1977 and 1978 years classes represented 89 % of the stock.

In the south, the mode at 13 cm was a mixture of several year class from 1979 to 1968.

SUBAREA 4

1. Status of the fisheries.

A total of 8561 tons of cod were reported by the French trawlers in Division 4R and 6762 tons of cod in subdivision 4Vn. As previous years, the fisheries mainly occurred during the first three months of the year.

2. Special research studies.

In 1985, research was carried out in Subarea 4 during one stratified-random survey on board the R/V Cryos in Division 4R in January.

1. Hydrographic studies.

From 18 January to 3 February, 41 hydrographic stations (XBT) were occupied in the eastern part of the Gulf of St. Lawrence.

It was observed that cold water surface layer (-1.8°C to -1.0°C) down to about 70 meters was present in this area, like in 1984. But then, water temperature increased with the depth more rapidly than in 1984 (-6°C at 130 meters).

2. Biological studies.

A total of 37 trawling stations were occupied in Division 4R during the stratified-random survey of the R/V Cryos in January-February 1985.

Cod catches represented 56 % of the total catches compared to 88 % on January 1984, 55 % on January 1983, 76 % on January 1982 and 61 % on January 1981. The highest catch rates were observed in the northwest of Islands bay (3111 kg/30 mn at 200 meters depth, 2393 kg/30 mn at 180 m depth and 2208 kg/30 mn at 220 m depth in the same area).

The mean catches rates by strata were as follows :

Strata (m)	Number of sets	Catch rates (Kg/30 mn)
< 94	1	327
94-185	13	799
186-278	17	822
279-370	4	39
> 370	2	0
Total	37	671

A total of 10516 cod were sexed and measured and 520 pairs of otoliths sampled during this survey for analysis of length and age structure.

Three modes were observed on length frequency distribution of research catches at 27-30 cm Lt, 39-42 cm Lt and 57-60 cm Lt. The year class 1981 represent 7 % of the total number of individuals caught, the year class 1980 12 % and the year class 1979 19 %.

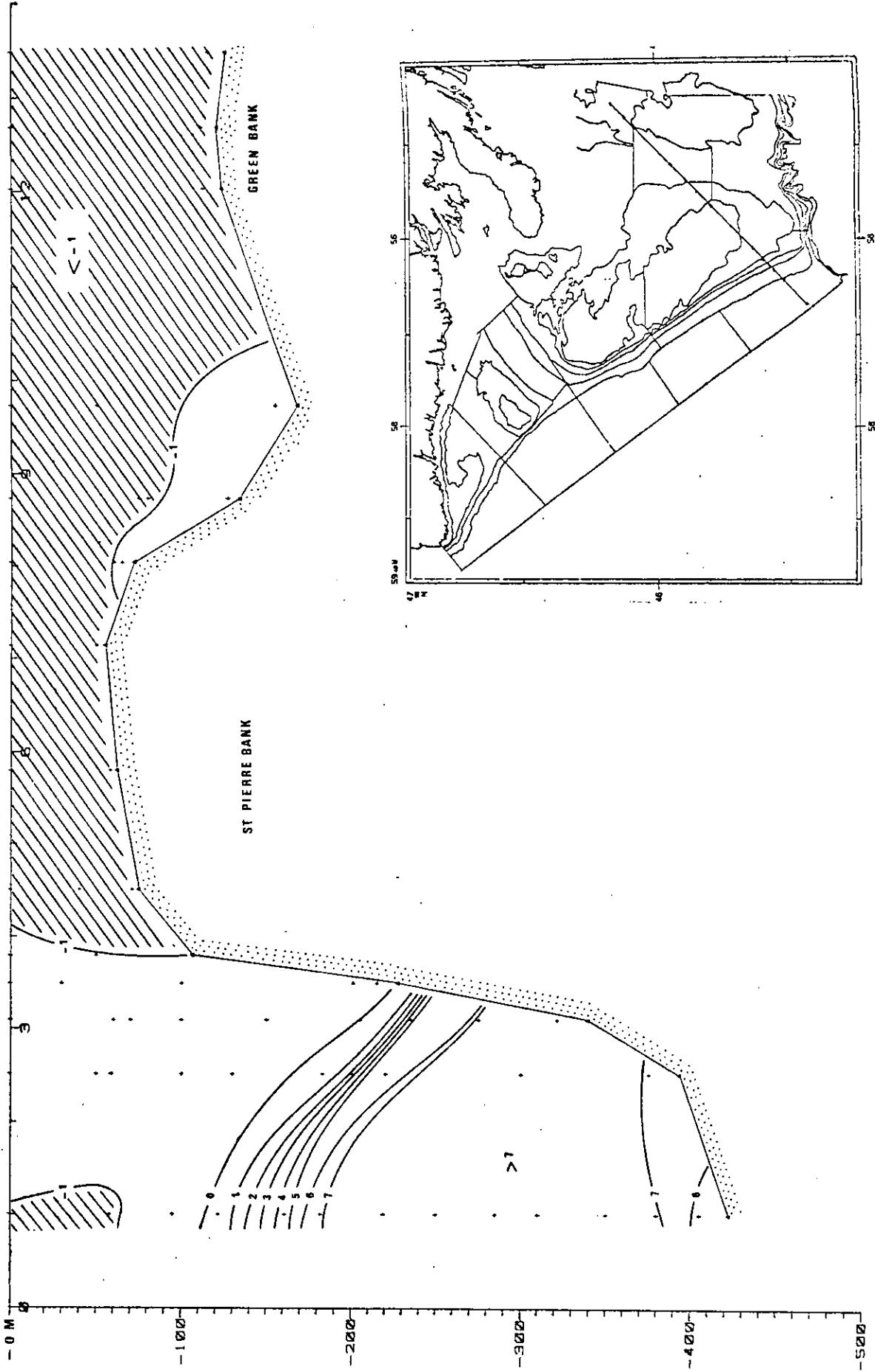


Fig. 1 - Vertical temperature distribution from southwestern slope of Saint-Pierre Bank to north of Green Bank in February 1985.