

ANNUAL MEETING - JUNE 1955

Report on Researches carried out onboard the French Oceanographic Vessel "President Theodore Tissier" in the Newfoundland Area, April-May 1954.

(This report was also distributed at the 1954 Annual Meeting)

The "President Tissier" sailed from Brest 15 March 1954. Hydrographic and biological observations were made in the area off Newfoundland during a month and a half.

A. Biological Observations.

According to plans, biological observations were made in particular on cod during April in the following areas:

Western edges of St. Pierre Bank  
Halibut Channel (western edge of the Great Bank)  
Woolfall Bank  
Banquereau  
Scatari Bank  
Gulf of St. Lawrence (Magdalen Islands)

The observations made were on sizes, age (2,300 otoliths were collected), seasonal stages, stomach content and on the relation between sizes and weights and conditions of the habitats.

In this report only a summary of some of the observations is included. Later the results of the reading of otoliths will be given.

All fishing operations were carried out with a trawl (mesh size 85 mm. stretched).

a) Relation size-weight.

The curve establishing the relation between the sizes and weights is based on cod fished on the Banquereau, the curve shows that the cod of 50 to 60 cm. weighed between 1 and 2 kg. The cod of 70 cm. and more weighed more than 3 kg.

b) Hydro-biological observations. Areas fished.

In several cases it was observed that cod was abundant in places where the food animals were abundant too. Thus at Woolfall, where numerous trawlers were fishing we found between two water masses important shoals of fishes which, judging from the stomach content of the cod fished, were shoals of capelin. The same feature was observed in the region of the Magdalen islands where the cod was feeding mainly on herring. Here great shoals of herrings were seen by the echosounder, easily distinguishable from the spots closer to the bottom indicating cod. The temperature, especially at Woolfall, was not favourable, only  $-0.5^{\circ}\text{C}$  at the bottom. In the region of the Magdalen islands the bottom temperature was about  $+2^{\circ}\text{C}$ , that of the surface  $+0.7^{\circ}\text{C}$ .

In the other regions good catches of cod were made with the following bottom temperatures:

Banquereau  $+1.9^{\circ}$   
Haddock Channel and edge of St. Pierre Bank  $+3.5$  to  $5.0^{\circ}$

In the two last regions the influence of the Atlantic water was considerable and caused together with the steep slope of the banks pronounced differences as to habitat. The cod was found mainly at depths above 100 m. at temperatures not over +4.5°. In deeper waters with higher temperature haddock and redfish were dominating. (The isobath 150 m. seems to be a rather definite limit for the distribution of redfish).

B. Hydrographic Observations.

Three main hydrographic sections were taken during April and the first half of May.

Section A along 45°54'N.Lat., in mid April between St. Pierre Bank and the Whale Pit. The waters were in the stage of "Winter stabilization", with rather cold water (0°) covering the banks from bottom to surface.

Section B from Banquereau to S. of Baie des Iles, end of April. It showed the presence of "slope water", influenced by Atlantic water in the deeper parts of the Cabot Strait. The cold arctic water was found above the slope water and beneath water that had already started to get warmer.

Section C from Halifax to the Whale Pit and along the 45°30'N.Long. the first part of May together with the two following sections:

Section D from the Whale Pit to the south slopes of the Grand Bank,

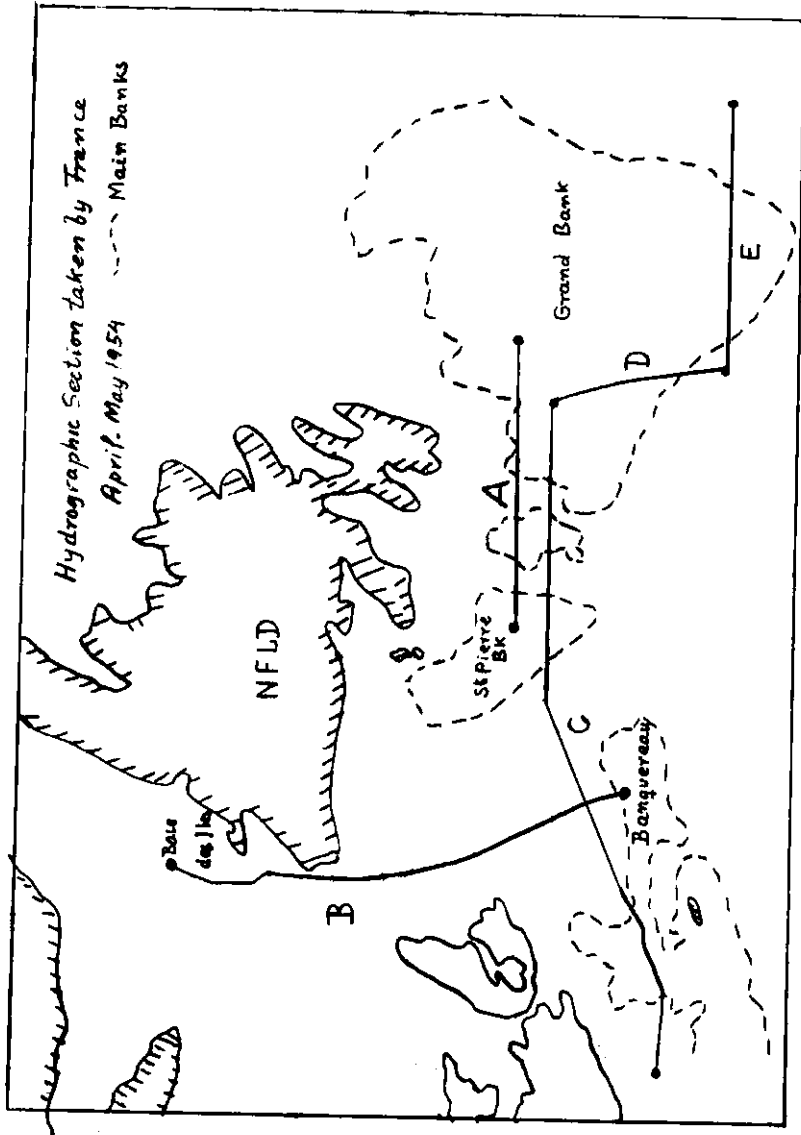
Section E across the south part of the Grand Bank.

The eastern part of section C (St. Pierre Bank - Whale Pit) can be compared with section A taken in April. Section C showed a noticeable warming of the waters as is usual at that time of the year (beginning of May). It is important to note that the waters below 0° form a rather thin, 50-100 m., layer over the bottom. Further they do not reach the surface (St. Pierre Bank and the western part of the Grand Bank), nor the shallowest parts of the banks. These observations indicate (cf. Le Danois, Rev.Tr.O.S.T.P.M. Tome IV, fasc. 2) that the year 1954 is a warm year.

Section E shows the "cold wall" (Labrador current), off the eastern slope south of the Grand Bank and arctic waters around the slope. However, the western part of the Grand Bank is subjected to the direct action of the warming Atlantic waters.

A section had been considered along the 51°N.Long., up to 30°W.L. Unfortunately only a small fraction of this section could be taken because of bad weather conditions.

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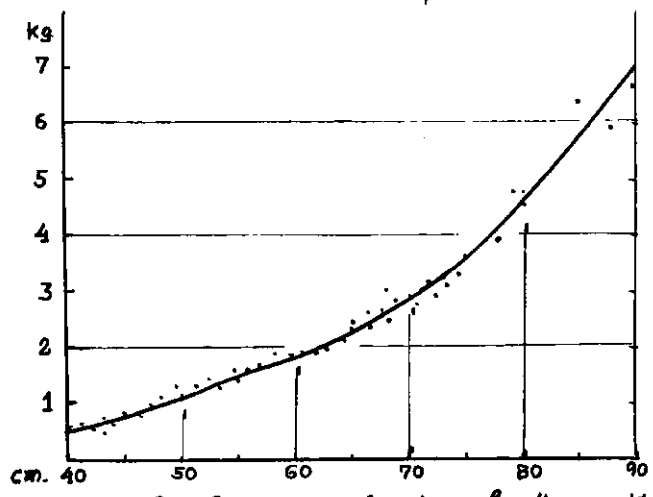


Fig. 1 Cod, Banguerou, Apr. 1954, length-weight

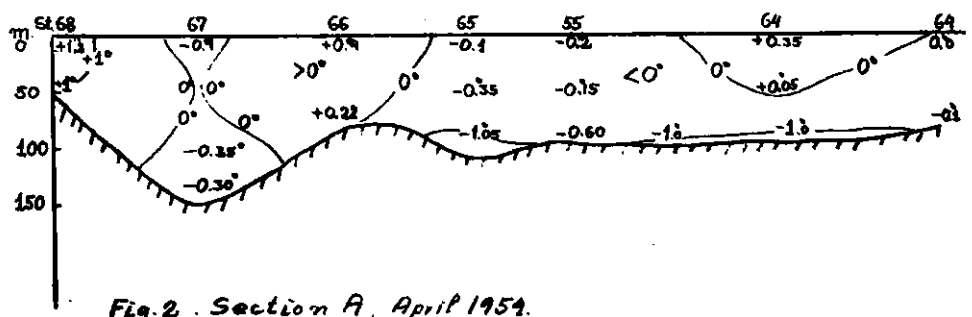


Fig. 2. Section A, April 1954.

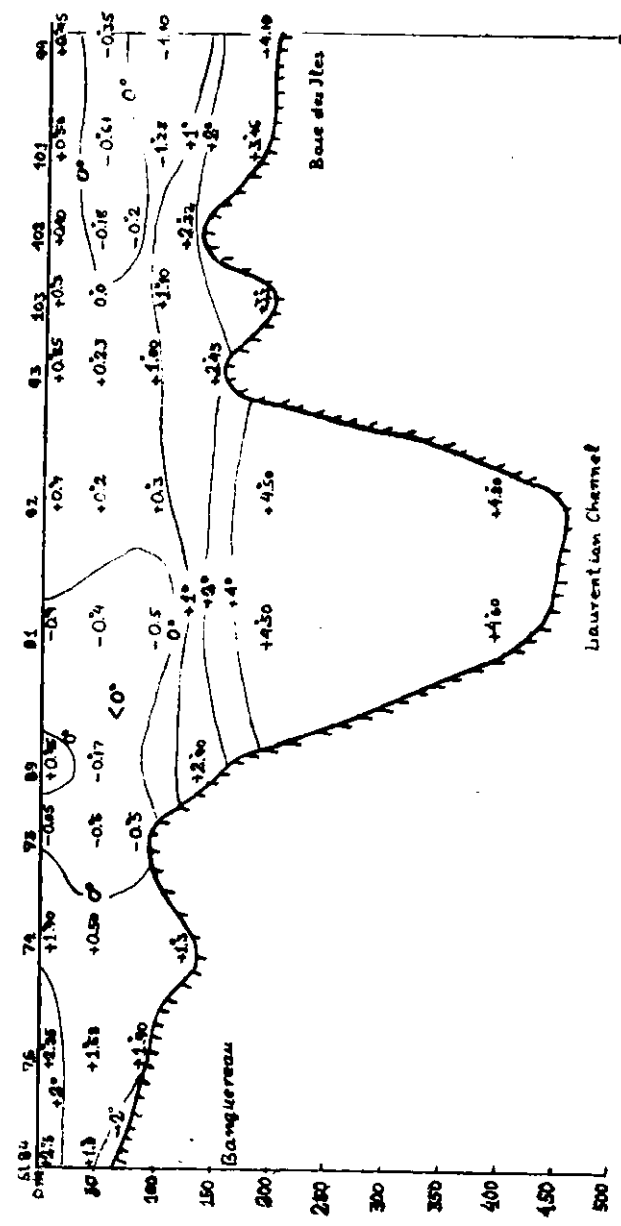


Fig. 3. Section B, end of April 1954





