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by

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Subarea 1

Norwegian fisheries investigations were carried out off West Greenland in the area between Nunarsuit and Sukkertoppen from 5 April to 8 May. Five hydrographical sections were worked. Bottom longline was used on 12 localities, and trawling was carried out on 17 stations (Fig. 1).

A. Status of the Fisheries

I. Cod

1. Age and length composition of the commercial stock. In 1967, the 1961 year-class dominated the total catch on bottom longline (hook No.6), with 48.8% (Fig. 2). The 1960 year-class decreased in importance, from 42.2% in 1966 to 31.6% in 1967. The 1957 year-class decreased further, from 11.6% to 2.1% of the total catch. On the other hand, the proportion of cod 7 or more years old has increased from 5.3% to 42.3%.

The length distribution in the total bottom longline catch is shown in Fig. 3. The overall mean length was approximately the same as in 1966 (Table 1). The mean length varied from one locality to another. The smallest fish were found on Dana Bank and on Fiskenaes Bank, 66.2 cm, and the largest fish were taken on Lille Hellefiske Bank, 76.3 cm.

2. Forecast for the cod fisheries. In 1968 the Norwegian bottom longline catches off West Greenland most probably will be strongly dominated by the 1961 year-class. The 1960 year-class is expected to decrease further, and the 1962 year-class does not seem to be of any considerable strength. The mean length of the cod in the catches is expected to increase due to the growth of the 1961 year-class.

B. Special Research Studies

I. Environmental Studies

1. Hydrography. Five hydrographic sections were worked between 7 and 18 April (Fig. 1). In the northern part of the investigated area the ice conditions were rather severe. Thus the section across the Fylla Bank could only be worked about 50 nautical miles off the coast. Off the western slope of Lille Hellefiske Bank it was not possible to make any observations.

The sections which were worked off Frederikshaab and across Fylla Bank are illustrated in Fig. 4 and 5. They show that the Arctic component of the West Greenland Current was well developed. The surface layer had low salinities and a very stable stratification. The convection during the winter was thus limited to the upper layers, and the temperatures here were accordingly below normal.

The Irminger component of the West Greenland Current did not show as high temperatures and salinities as in 1966 but were still above normal. In the three most southern sections the highest temperatures and salinities were about 4.80°C and 34.98‰. West of Fylla Bank the temperatures in the Irminger Current exceeded 5.00°C and salinities of 35.00‰ were observed.

II. Biological Studies

1. Cod eggs. Sampling of cod eggs was carried out on all stations. The preliminary results indicate an unsuccessful result of the spawning as few cod eggs were found and most of the cod had completed spawning.

2. Cod distribution. The echo survey and the bottom longline fishing showed that shoals of cod were present in the whole area investigated. The heaviest concentrations were found on the western banks in depths from about 180 to 280 m. Partly pelagic shoals of cod were located on the western slope of Lille Hellefiske Bank off Sukkertoppen and continuously about 50 nautical miles south-eastward. Between latitude 62°03'N, longitude 51°22'W and latitude 62°57'N, longitude 51°53'W heavy concentrations of pelagic cod were found in depths from 150 to 250 m.

III. Selection Experiments

Selection experiments with No. 2, 4 and 6 hooks on bottom longline were carried out on all fishing stations. Table 2 shows the number of cod caught, their mean length on the different hooks on each station, the total number and the overall mean length of the cod on each hook size. The significance of the differences in catch and mean length are not tested, but the table indicates that the No.6 hook takes the greatest numbers of cod, while the No.2 hook takes the ~~greatest~~ lengths.

Table 1. Mean length of cod at different fishing stations off West Greenland.
 R/V "Johan Hjort" 1966; R/V "G.O. Sars" 1967.

Station	Bank	Position		Gear	Mean length (cm)	
		1966	1967		1966	1967
1	Off Nunarsuit	60° 20' N, 48° 10' W	60° 22' N, 48° 12' W	Bottom long line	71,8	69,2
2	"	60° 36' N, 48° 32' W	60° 34' N, 48° 30' W	"	68,7	70,2
14	Noname Bank	61° 46' N, 50° 40' W	61° 26' N, 50° 24' W	"	76,0	68,6
15	"	61° 26' N, 50° 24' W	61° 46' N, 50° 40' W	"	73,1	69,8
12	Fredrikshaab Bank	62° 18' N, 50° 57' W	62° 18' N, 50° 57' W	"	70,3	69,1
13	"	62° 11' N, 50° 36' W	"	"	64,4	"
11	Dana Bank	62° 30' N, 51° 15' W	62° 29' N, 51° 15' W	"	68,7	66,2
10	"	62° 50' N, 51° 46' W	62° 50' N, 51° 45' W	"	69,7	67,6
16	Fiskenæs Bank	63° 15' N, 52° 17' W	63° 15' N, 52° 17' W	"	73,0	66,7
17	Fiskenæs/Fylla Bank	63° 31' N, 52° 14' W	63° 38' N, 52° 54' W	"	67,5	66,2
	Total southern banks				70,3	68,0
9	Fylla Bank	64° 10' N, 53° 14' W	64° 10' N, 53° 05' W	"	58,7	69,9
7	West of Banan Bank	64° 18' N, 54° 44' W	"	"	65,1	"
6	Lille Hellefiske Bank	64° 13' N, 54° 25' W	64° 14' N, 53° 55' W	"	66,3	76,3
4	"	66° 05' N, 55° 17' W	"	"	63,3	"
8	"	65° 00' N, 53° 06' W	"	"	66,9	"
3	"	66° 29' N, 54° 26' W	"	"	65,1	"
	Total northern banks				64,2	71,9
	Total all banks				68,5	68,3

Table 2. R/V "G.O. Sars", West Greenland 1967. Hook selection. Cod.

Station	Position	Hook no.						Total	
		6		4		2			
		Number	Mean length (cm)	Number	Mean length (cm)	Number	Mean length (cm)		
1	60°22'N. 48°12'W	70	69,2	56	69,8	44	70,9	170	69,4
2	60°34'N. 48°30'W	158	70,2	152	70,6	87	72,1	397	70,7
3	62°50'N. 51°45'W	161	67,6	117	67,8	78	68,8	356	67,9
4	62°18'N. 50°57'W	133	69,1	90	68,3	54	69,8	277	69,0
6	61°26'N. 50°24'W	78	68,6	57	68,6	35	72,9	170	69,3
7	61°46'N. 50°40'W	75	69,8	51	69,9	31	71,1	157	70,0
8	62°29'N. 51°15'W	159	66,2	140	66,2	81	68,9	380	66,8
9	63°15'N. 52°17'W	171	66,7	111	68,5	87	69,0	369	67,8
10	64°10'N. 53°05'W	72	69,9	64	68,8	47	69,6	183	69,4
11	64°14'N. 53°55'W	33	76,3	31	75,0	21	81,6	85	75,9
12	63°38'N. 52°54'W	124	66,2	67	66,6	43	68,2	234	66,7
Total		1237	68,3	938	68,6	611	70,4	2786	68,9

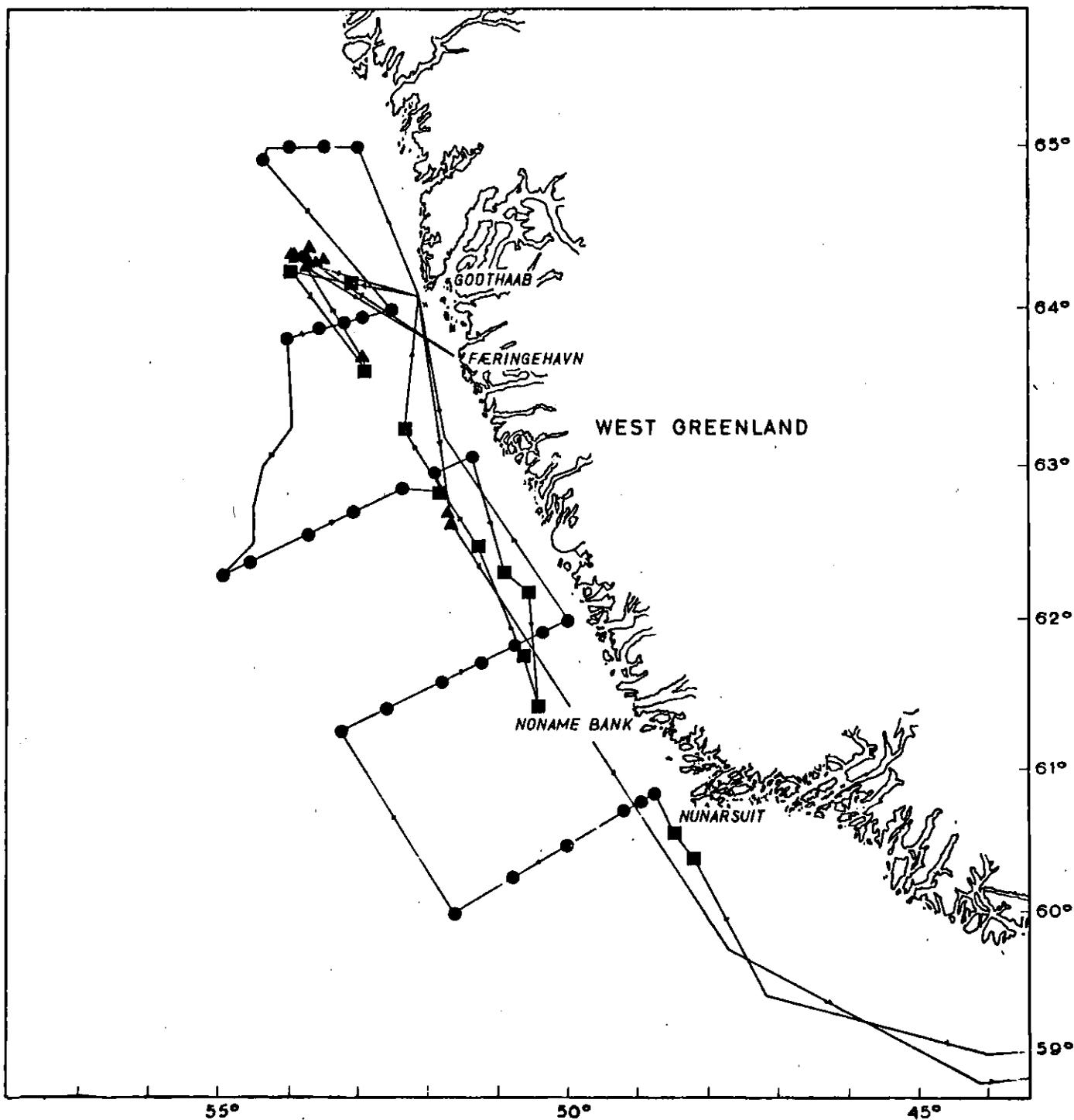


Fig. 1. R/V G.O.Sars, West Greenland, April-May 1967. Route and net of stations.
● hydrographical station; ■ bottom longline station; ▲ trawl station.

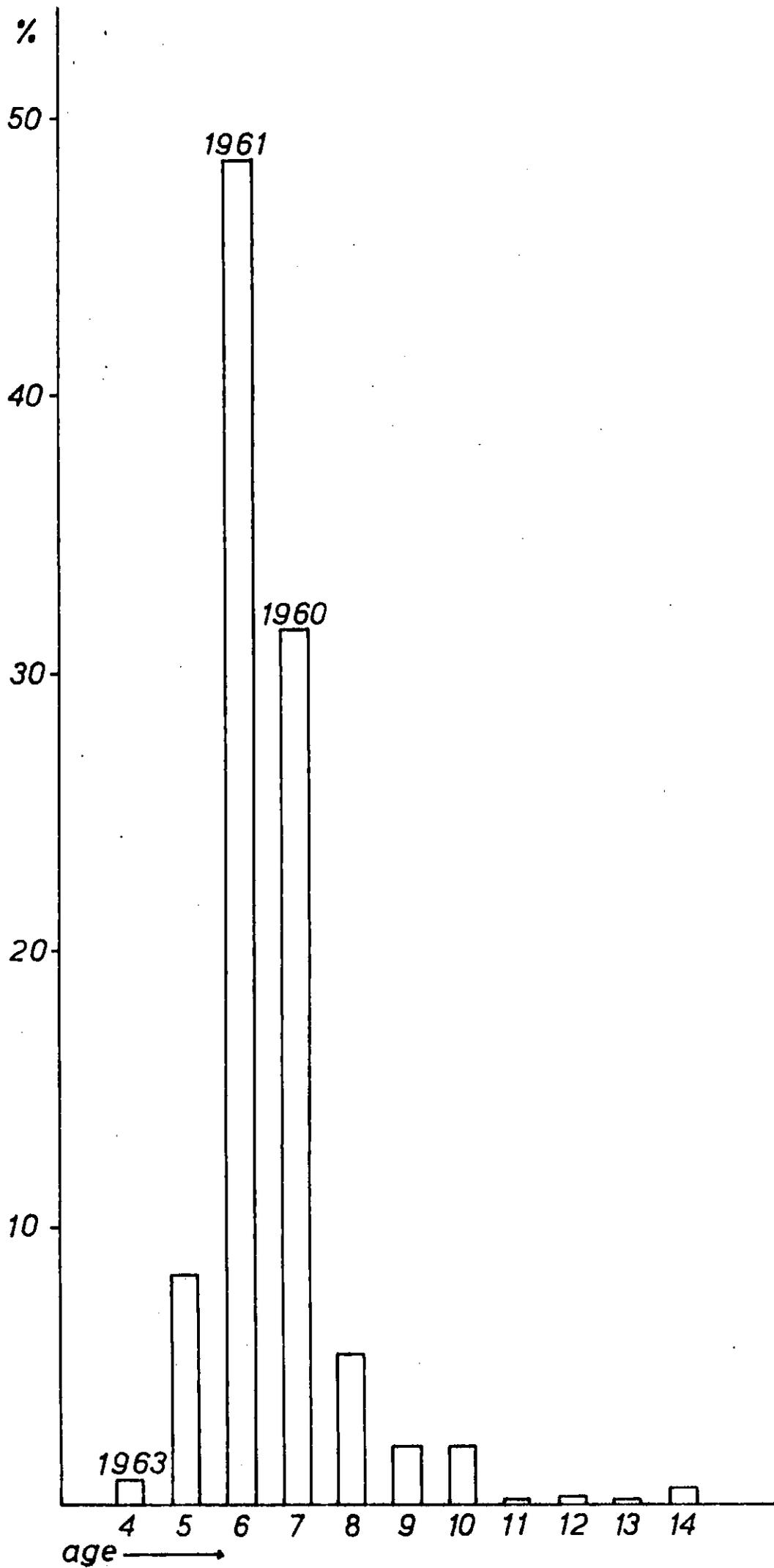
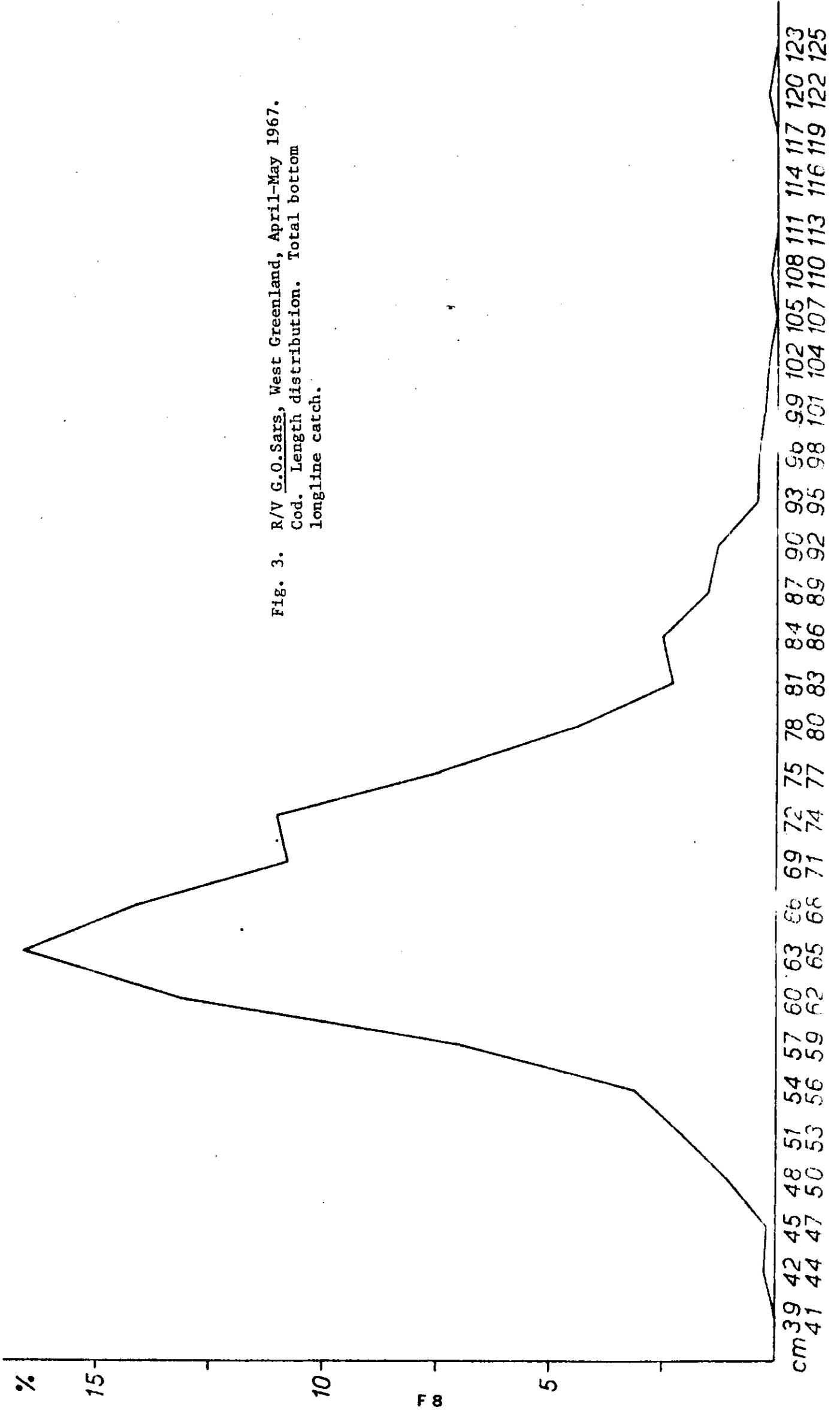


Fig. 2. R/V G.O.Sars, West Greenland, April-May 1967. Cod. Age distribution. Total bottom longline catch.

Fig. 3. R/V G.O.Sars, West Greenland, April-May 1967.
Cod. Length distribution. Total bottom
longline catch.



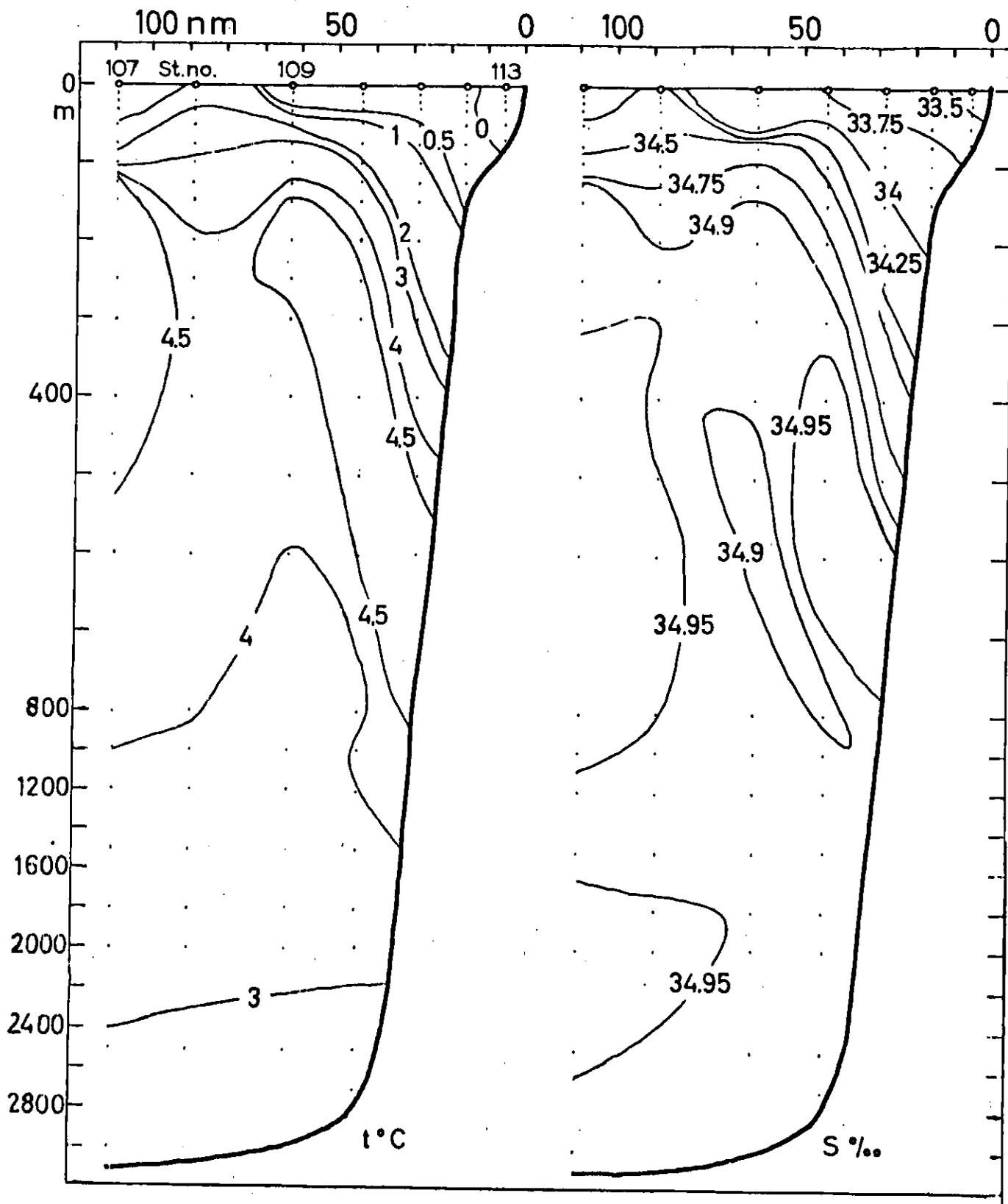


Fig. 4. R/V G.O.Sars, West Greenland, 8-9 April 1967. Hydrographical section off Frederikshaab.

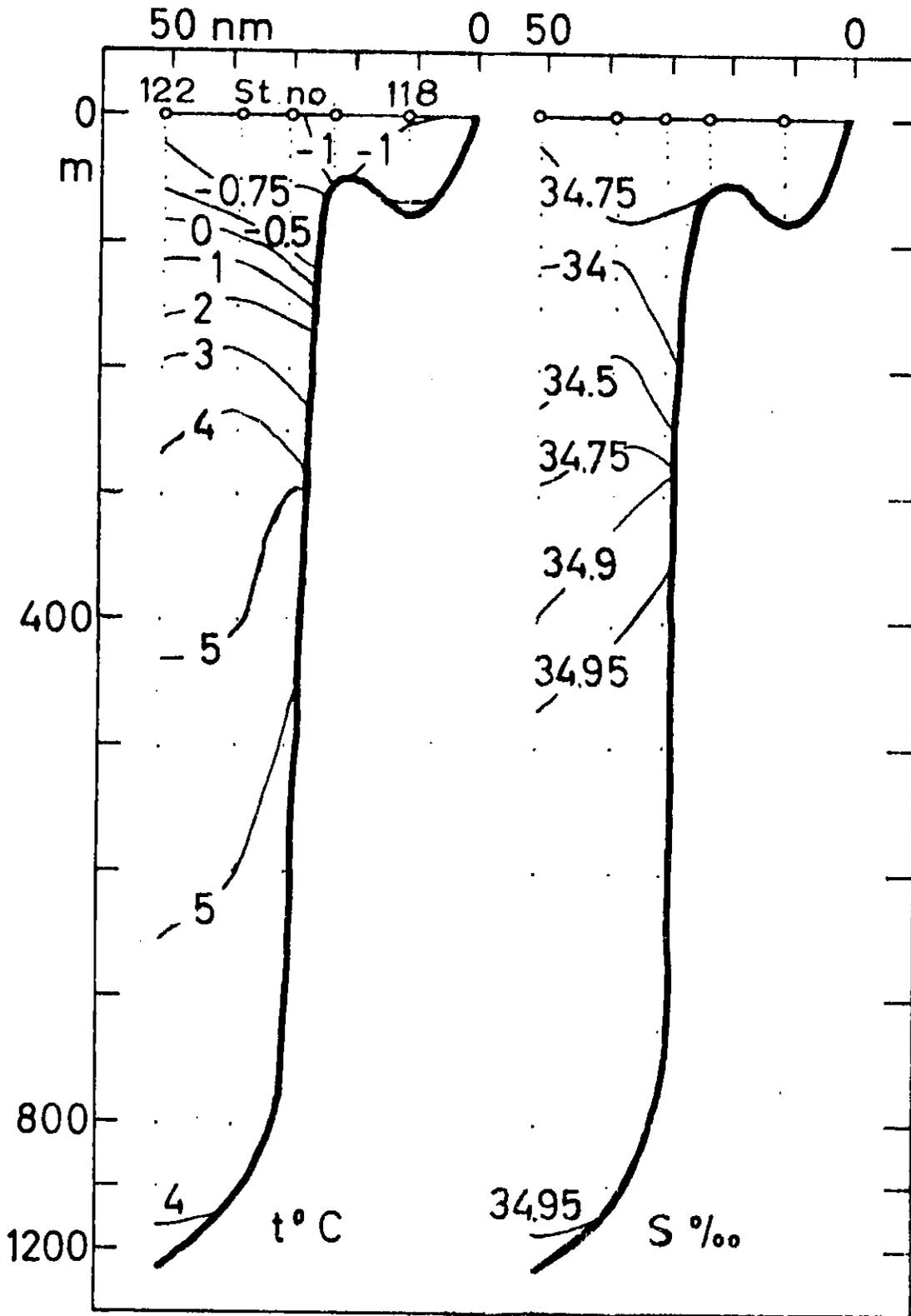


Fig. 5. R/V G.O.Sars, West Greenland, 14-16 April 1967. Hydrographical section across Fylla Bank.