

ANNUAL MEETING - JUNE 1966German Research Report, 1965

Subarea 1 and East Greenland

by Arno Meyer

A. Status of the Fisheries1. General

Fishing off West Greenland was again carried out throughout the whole year and showed the expected further decrease in total catch and in catch per fishing day (Table 1). This decrease occurred in spite of the further increase in fishing power and freezing capacity of the larger built factory stern-trawlers. Nominal catches in Subarea 1 have decreased 40% since 1962; the catches off East Greenland dropped to the 1960-1963 level. Catch per fishing day has fallen consistently over the past years and is at present off both West and East Greenland only 68% of the 1962 value. The decrease in the catch per fishing day during the last 7 years off West Greenland is shown in Figure 1. However, the real decrease is far bigger. Up to 1961 the German fleet was composed mainly of side trawlers. These have far less fishing hours per day than the stern-trawlers which can haul and shoot the net quicker and can fish the often few hours of the day with good catching possibilities (off Greenland mostly the hours at noon) more effectively.

Table 1. German nominal catches (in tons) off Greenland, 1962-1965.
Average annual catch per fishing day in brackets.

		Cod	Redfish	Total
West Greenland (Subarea 1)	1962	126,640 (19.2)	54,900 (8.3)	185,386 (28.2)
	1963	139,283 (19.4)	42,292 (5.9)	185,492 (25.9)
	1964	99,614 (17.7)	20,662 (3.7)	122,754 (21.8)
	1965	92,826 (15.8)	16,573 (2.8)	112,167 (19.1)
East Greenland	1962	14,246 (8.6)	24,720 (14.9)	40,495 (24.4)
	1963	13,614 (6.2)	30,916 (14.2)	46,646 (21.4)
	1964	29,352 (8.9)	37,294 (11.3)	69,575 (21.2)
	1965	11,681 (4.3)	31,992 (11.7)	45,790 (16.7)
Total Greenland	1962	140,886 (17.1)	79,619 (9.7)	225,881 (27.4)
	1963	152,898 (16.3)	73,203 (7.8)	232,146 (24.8)
	1964	128,966 (14.4)	57,956 (6.5)	192,329 (21.5)
	1965	104,507 (12.1)	48,565 (5.6)	157,957 (18.3)

As a result of the poorer catches off Greenland in 1965, there was increased fishing off Labrador, in spite of the poorer quality of the Labrador cod.

2. Cod

Before 1961 nearly all cod were fresh fished by the German fleet in the southern part of West Greenland in 1D to 1F (1961: 91.5%). But in the last few years with increased freezing at sea, the northern divisions 1C and 1B were fished more, especially from November to February. In 1965 51% of all

cod came from 1C and 1B. Cod fishing has never been so intensive on both sides of the Holsteinsborg Deep, nor has there been so little cod fishing in 1E and 1F (17%) as in 1965.

After the record catches of spawners in 1964, the cod catches off Southeast and East Greenland were poor in 1965 - the lowest during the past 6 years. Best fishing for spawners in 1965 was on the Heimland Ridge.

3. Redfish

Catches of redfish decreased further, as expected, especially off West Greenland, but also off East Greenland. The proportion of redfish - in the fifties the most important Greenlandic fish for the German fishery - decreased from 57.5% in 1959 to 30.7% in 1965. Since redfish do not breed off West Greenland and they immigrate from the Irminger Sea, the decrease in catches was much more pronounced in Subarea 1 (1959: 53.2%; 1965: 14.8%). Today it is only possible to fish for redfish off Southwest Greenland (close to the Irminger Sea area). The redfish concentrations which were present in the more northern divisions, 1D and 1C, in former years, have almost all disappeared. The output from these two divisions gradually decreased from 24,000 t in 1962 to 4,400 t in 1965, while in 1E and 1F the catches decreased during the same period only from 26,000 t to 11,000 t. The average daily catch for the whole West Greenlandic waters decreased from 12.5 t in 1959 to 2.8 t in 1965. Off East Greenland with its lower effort and proximity to the redfish breeding area, the decrease was less pronounced. Since 1962, when the last possible redfish grounds off Cape Discard and Cape Walløe were found, the average catch has dropped from 14.9 t to 11.7 t in 1965.

4. State of Fisheries in the first 4 months of 1966 and forecast for the remainder of 1966

From February to the middle of April, when most of the trawlers left Greenland for better fishing off Labrador, the 1960 and 1961 year-classes were heavily fished and with good results on Banana and Byllas Bank, but the percentage of industrial cod and discards was very high. From the middle of March to the middle of April, large concentrations of spawners were again found and fished far west of Banana Bank (as in 1961) in very deep water (700-750 m), but on very rough grounds. In the winter of 1965/1966 there was almost no fishing off Southeast Greenland. Heavy storms and the unusually large drift of ice, caused by further intensified atmospheric circulation over Greenland with high atmospheric pressure anomalies (plus over Greenland, minus over the Atlantic), made fishing more or less impossible. The strong northern storms off East Greenland transported big quantities of ice southward to South and Southwest Greenland. It will be interesting to examine whether and to what extent this increased atmospheric circulation influenced the strength of the new 1966 year-class.

During the 1966 feeding season the 1961 and 1960 year-classes of cod will grow from 60 to 68 cm and 66 to 74 cm respectively. These two year-classes - the only year-classes which will have commercial importance in 1966 - with their now increased weight (2-2 3/4 kg and 2 1/2-3 1/2 kg respectively) will give relatively good fishing results. The proportion of redfish in the catches will continue to decrease more off South and Southwest than off East Greenland.

B. Special Research Studies

I. Environmental Studies

1. Hydrography. Owing to net selection studies, R/V Walther Herwig could only work 3 sections off West Greenland in the second half of November

(Fig. 2). In late fall temperatures were not quite as high as in the very warm preceding year, but were considerably warmer than in 1963. Temperatures of more than 6°C in the Irminger current were again found extending northward to the southern part of the Great Halibut Bank. But the core of warm water lay far deeper on the slope and did not reach the shallow bank areas. Only on Nanortalik Bank was water of more than 4° found. The cold water of the East Greenland current was only found over Nanortalik Bank and stretching far to the southwest.

In July, a section across Davis Strait from Cape Chidley (North Labrador) to Fiskenaes Bank was worked by Anton Dohrn (Fig. 3). Cold water of the Arctic component of the West Greenland current, in the center of which temperatures were less than 1°C, extended far to the west. The warm Atlantic water with temperatures to 5.5°C and salinity to 35 ‰ lay on the slope in 350 to 800 m. On the Labrador side the same warm water (left branch of the West Greenland current) here cooled to 4.8-4.0°C was found in 200-500 m and on the Labrador slope in 300 to 750 m. Cold Arctic water of the Baffinland current covered the shelf of North Labrador with temperatures below 0°C.

In August another section was worked across Davis Strait, but further to the north from Hudson Strait and South Baffinland to the Great Halibut Bank (Fig. 4). This section shows clearly the large layer of Arctic water of the Baffinland current extending downward to 200 m and stretching far eastward. This water with temperatures lower than -1°C is covered by a thin surface layer of warmer water heated by the sun. The warm Atlantic water of the West Greenland current covers the West Greenland shelf with temperatures of more than 4°C. The most northern part of the left branch of this current on its way to Labrador is cut at stations 77-75 and 71. On the slope of the Baffinland shelf we find this water of more than 4°C in 350 to 400 m.

During early April some hydrographic work was done by Walther Herwig off Greenland. The sections off Southeast Greenland (Fig. 5) show that Cape Tordenskjoeld Bank and Bille Bank are covered by the warm water of the Irminger current. Compared with 1960 - there are no other early spring data - the temperatures in 1965 were about 1°C higher.

The two sections across Dohrn Bank (Fig. 6) show eddies and intensive mixing of Atlantic and Arctic water, typical for this region.

II. Biological Studies

1. Cod

a. Age and size of cod in commercial stock. The results of the age determinations of cod from samples of commercial landings, from samples taken on board factory ships and the R/Vs Anton Dohrn and Walther Herwig (Fig. 7-9) provide information on the stock of cod and the special fishery conditions in 1965. They reveal that off West Greenland the very young year-classes of 1960 and 1961 (5 and 4 year old fish) provided the major part of the fishery in 1965. Only during the short period in late winter and spring when concentrations of pre-spawners, spawners and post-spawners were fished, were the older rich year-classes of 1956 and 1957 of some commercial importance. However, these older year-classes, which in 1964 were still of the greatest commercial importance, must have become rather weak and gave such poor catches that most trawlers left Greenland waters during this period to fish off Labrador.

The strong 1960 year-class entered the fishery during the second half of 1964 and the strong 1961 year-class in 1965. Since June 1965 these 4 year old cod (only 45 cm long at the beginning of the summer) were more heavily fished than the 1960 year-class. This is an alarming development on Greenlandic fishing grounds and shows the effects of the increased fishing

intensity during the past years and the increasing trend of the fleet of factory ships to work the concentrations of young immature cod due to the present scarcity of the bigger and older fish.

In reality, the percentage of cod 4 years old and younger is higher than shown in Fig. 7. This is because the commercial catches do not include the large quantities of cod either discarded or turned into fish meal. According to reports of the captains in 1965, in Subarea 1 1,567 t of small cod were discarded and a further 14,301 t turned into fish meal. These figures are not included in Table 1. The gross catch thus amounts to 108,694 t. Discards and industrial cod make up only 14.6% by weight, but these small cod are 43.4% by numbers! Of the 64 million cod caught by the German fleet in 1965 in Subarea 1, only 36 million could be used for human consumption! If the 28 million small cod (average length 40 cm), which grossed as fish meal 2.1 millions DM, could have been caught 1 year later (then 51 cm long and counted in a natural mortality of 20%), the trawler companies would have earned 13.5 millions DM or more than 6 times more. This is yet another example to show the present uneconomic way of exploiting the Greenlandic stock of cod.

The high percentage of the younger year-classes is also shown by the research samples (Fig. 8). Especially informative are the catches with covered codend for mesh selection studies on Fyllas Bank (December) and Great Halibut Bank (end of November) which show a surprisingly high proportion of cod of the 1962 year-class. As far as is known, this year-class is only a medium or poor one. The average age of all cod caught with covered codend was 3.5 years on Fyllas Bank and 4.1 years on Great Halibut Bank!

Bigger and older cod were found in 1965 almost only off South and Southeast Greenland and only in rather small quantities. Again, the 1956, 1957, and 1958 year-classes were the most important. Compared with 1964 the percentage of the 1958 year-class increased and that of 1956 decreased (Fig. 9).

Again the spawning migration from Subarea 1 to East Greenland could be traced. The East Greenland 1956 and 1958 year-classes moved north-eastward up to Dohrn Bank to spawn. The 1957 year-class, as in 1964, spawned mainly off Southeast Greenland but further northeastward. For the first time, commercial concentrations of spawners were found on Heimland Ridge (temperatures 4.5°C). The fish were rather old and large (Fig. 9). This is the same area where the biggest and probably oldest redfish (giants) are found most frequently.

b. Increased growth rate of West Greenlandic cod. Now after 14 years of German fishery off Greenland, a study of the growth of cod caught in Div. 1B, 1C, and 1D, was undertaken. The average lengths of the age-groups 2 to 10 at the end of the feeding season (end of December) show a striking difference in the two periods 1953-1960 and 1961-1965 (Table 2). The faster growth in the latter period means an average increase in weight (guttet weight) of 32% for each age-group.

Table 2. Average length and average gutted weight of West Greenlandic cod at the end of December in 1B, 1C, and 1D in 1953-60 and 1961-65.

Age-group	1953-1960		1961-1965		increase in weight %
	length (cm)	weight (g)	length (cm)	weight (g)	
2 (end of 3rd feeding season)	?	-	32	250	-
3 (" " 4th " ")	40	510	44	670	31
4 (" " 5th " ")	49	915	54	1,260	38
5 (" " 6th " ")	58	1,555	64.5	2,035	31
6 (" " 7th " ")	67	2,250	71.5	2,705	20
7 (" " 8th " ")	70	2,540	76.5	3,290	30
8 (" " 9th " ")	73.5	2,930	80.5	3,820	30
9 (" " 10th " ")	75	3,900	84	4,360	41
10 (" " 11th " ")	77	3,475	85.5	4,600	32

The calculated average length of the younger year-classes is influenced by the selectivity of the net and by discarding. In the figures given in Table 2 errors of this kind were excluded.

2. Redfish. No special research for Greenlandic redfish was carried out. During the commercial fishery in Subarea 1, 32 t were discarded and 1,903 t processed into fish meal (mostly on salting trips). On a scouting trip in August across Davis Strait from South Baffinland to Holsteinsborg Deep, few small redfish (0.7-2.5 baskets per hour) were found in 430 to 600 m at bottom temperatures of 3.4 to 4.3°C. Their average length was 27.4 to 32.1 cm.

3. Other fish. On the August trip in Davis Strait, only small quantities of Greenland halibut were found (up to 8 baskets per hour in 430 to 690 m, temperatures 1.3 to 4.3°C). The average length was 59.8 cm. Macrurids (Coryphaenoides rupestris) were the only fish caught in greater quantities (up to 47 baskets per hour, 600 m, 1.3°C bottom temperature).

4. Tagging experiments. In 1965, a further 268 cod were tagged off West Greenland, 93 off East Greenland. Of 3,300 cod tagged off Greenland to the present, 8% were recovered off Greenland and Iceland.

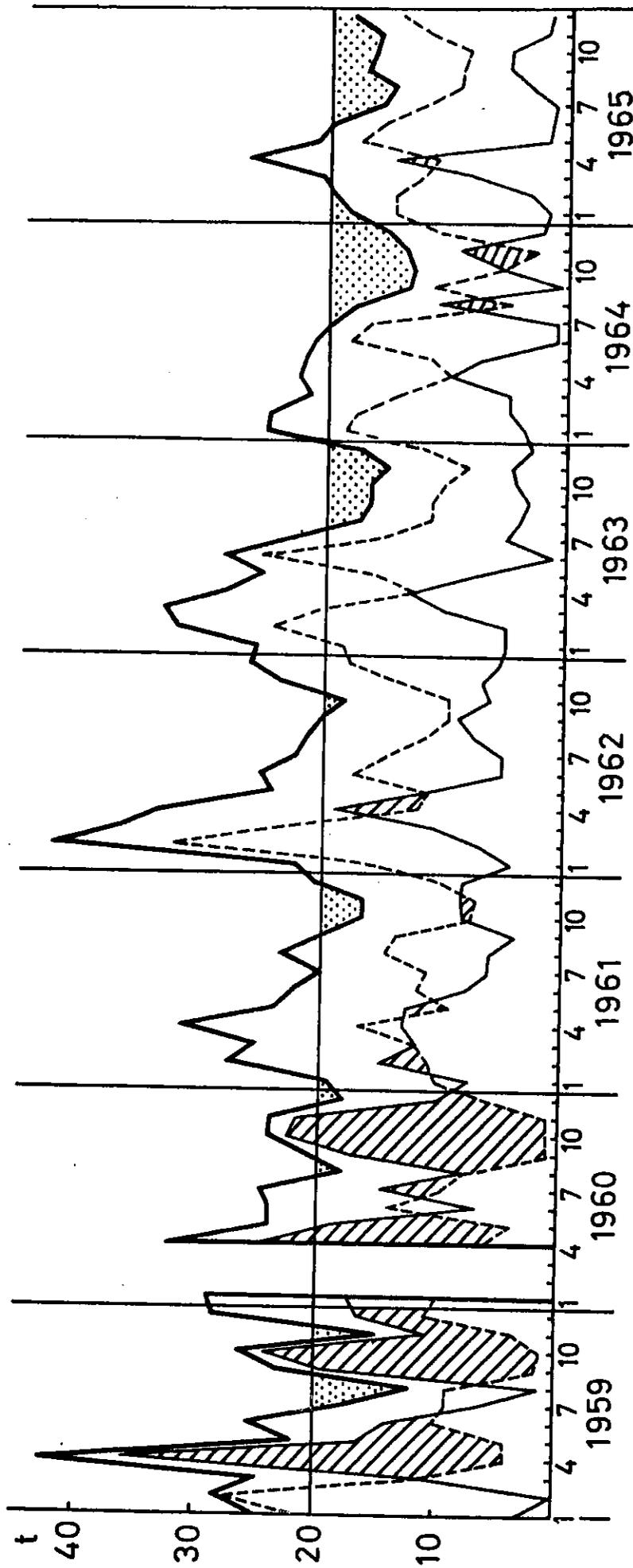


Fig. 1. Average monthly catch (in tons) per fishing day of German trawlers in Subarea 1 from 1959 to 1965.

Thick solid line = total catch;
broken line = cod;
thin solid line = redfish;
hatched section = redfish catches exceeding cod catches;
dotted area = monthly catch per fishing day less than 20 tons.

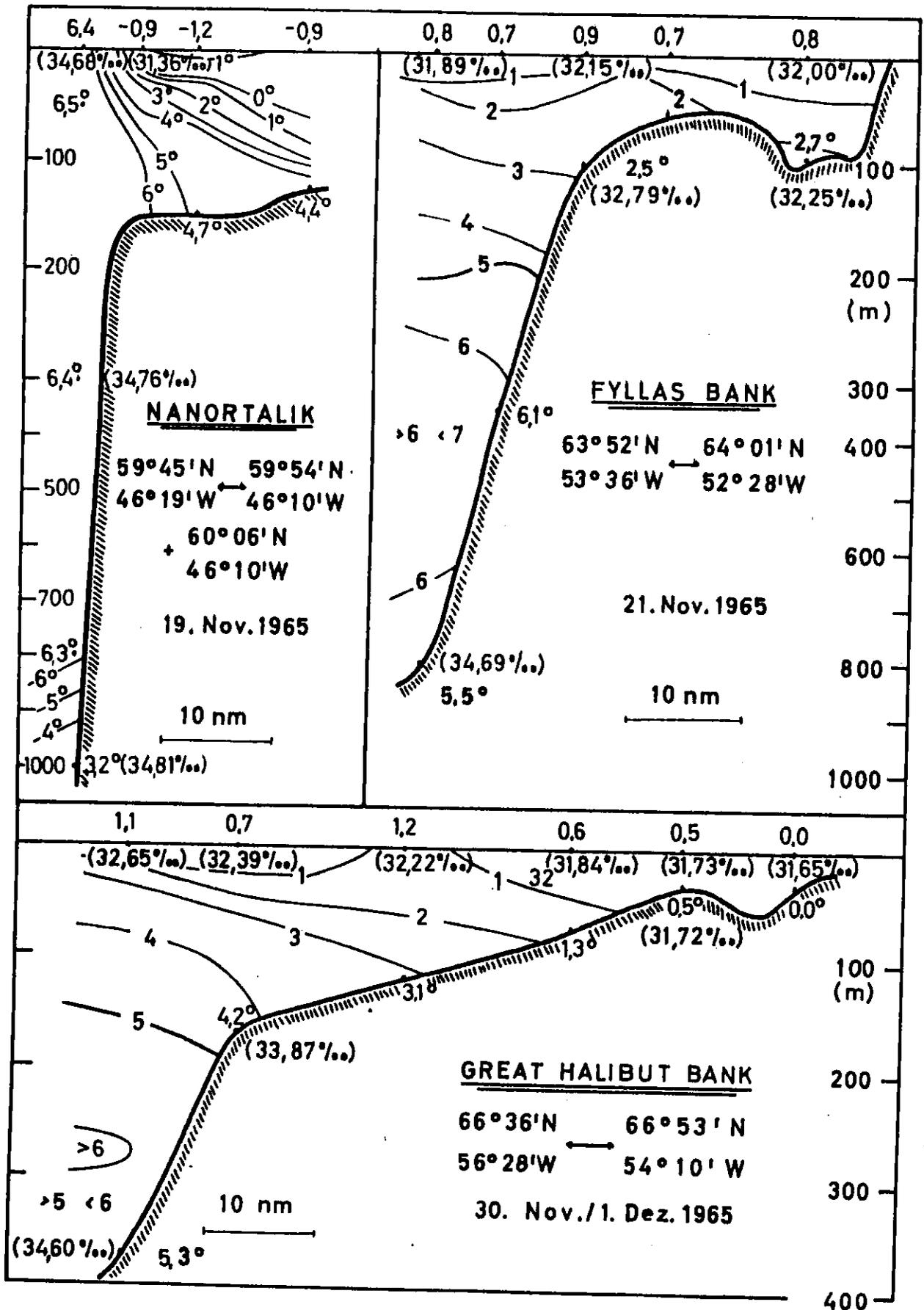


Fig. 2. Hydrographic sections off West Greenland, November-December 1965.

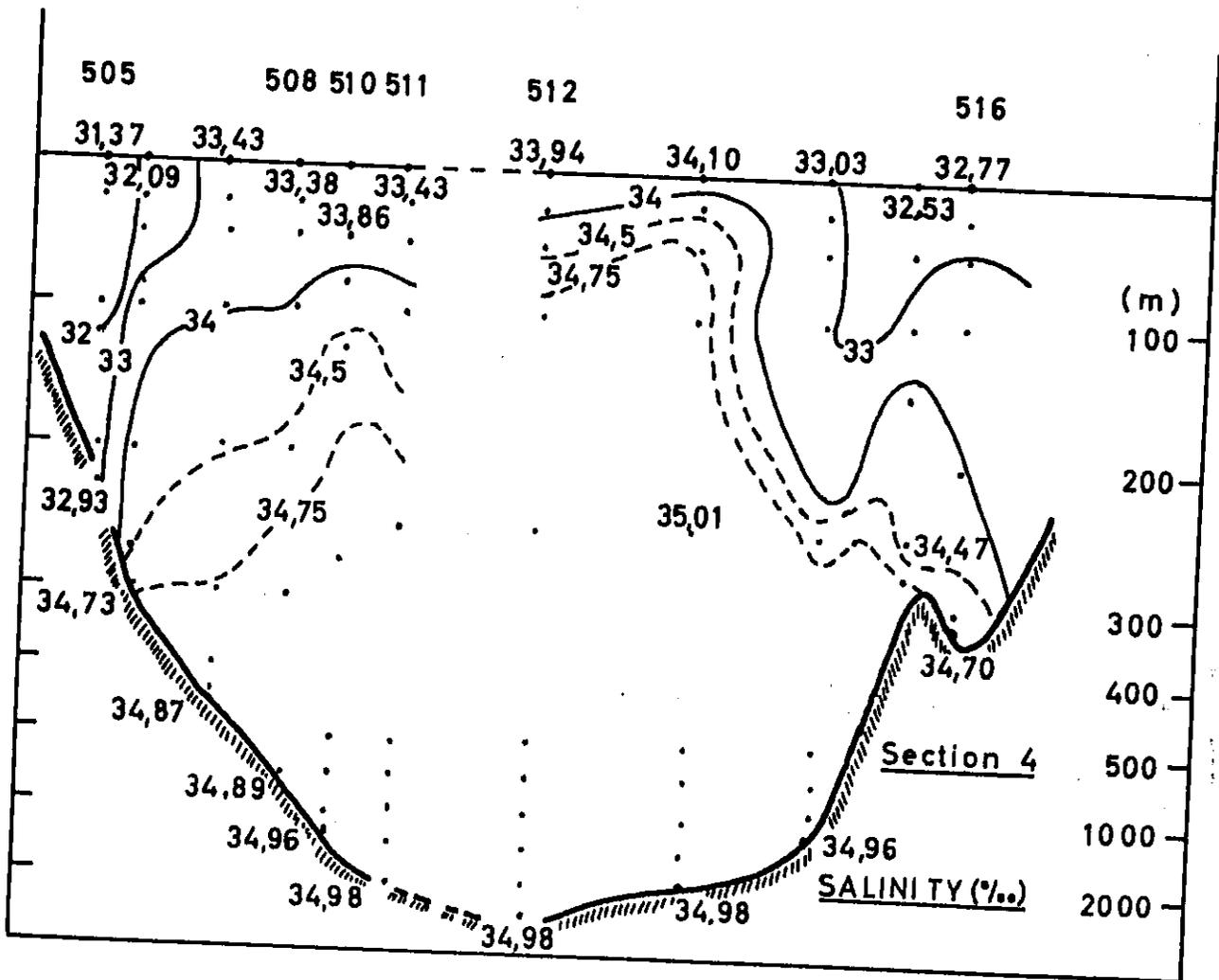
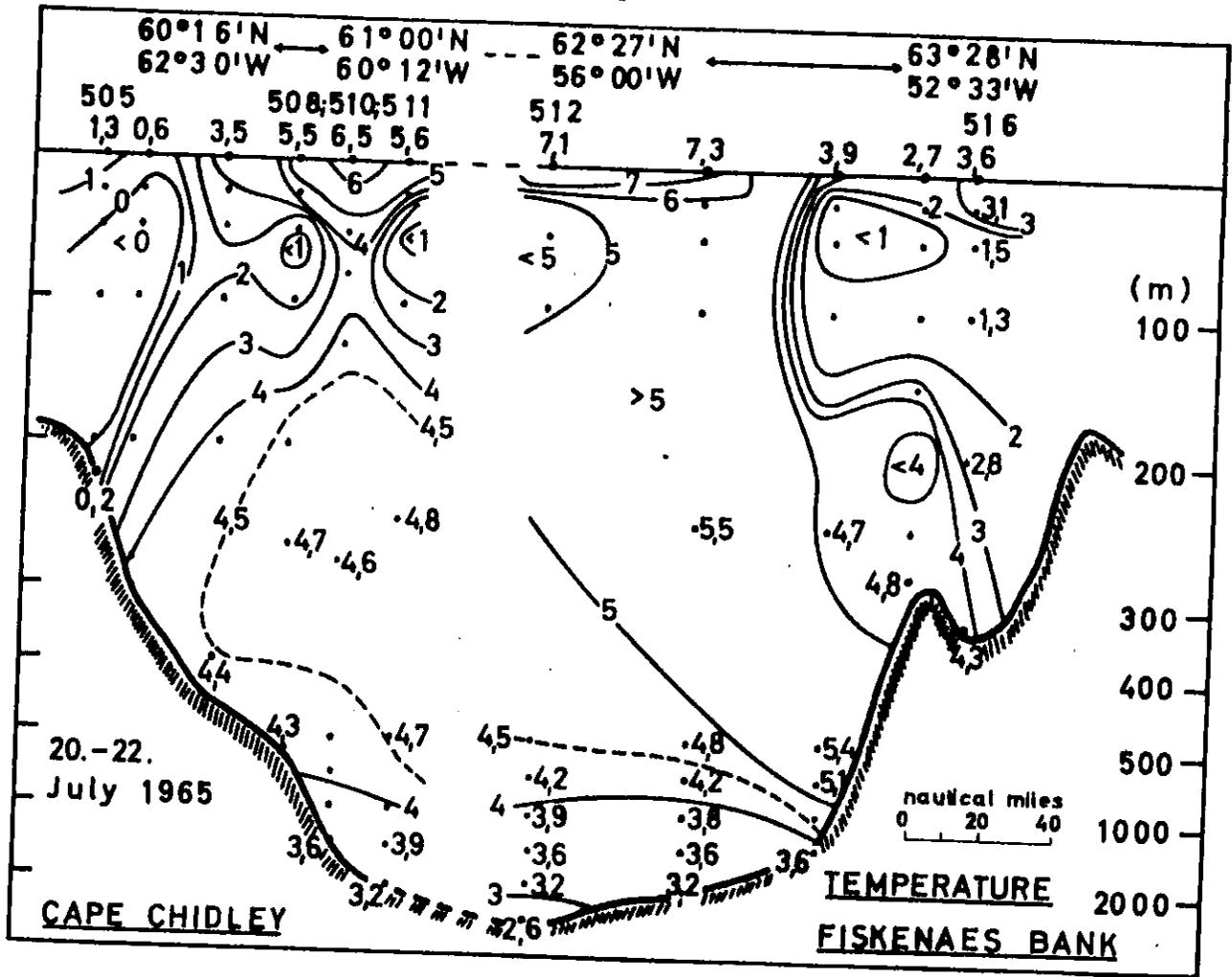


Fig. 3. Hydrographic section across Davis Strait from Cape Chidley (North Labrador) to Fiskenaes Bank, 20-22 July 1965. Salinity figures near the surface line refer to a depth of 25 m.

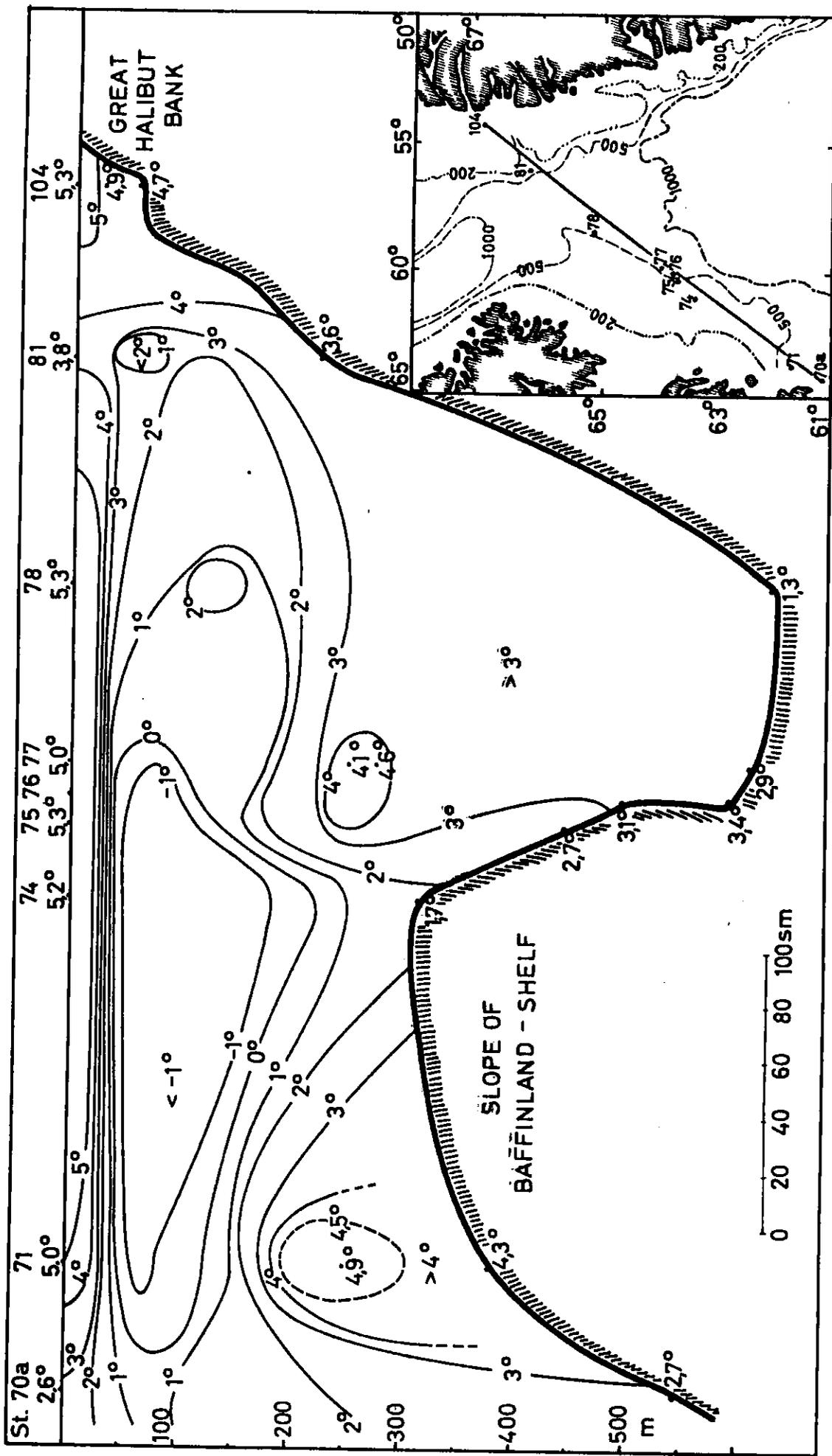


Fig. 4. Hydrographic section across Davis Strait from South Baffinland to Great Halibut Bank, 24-26 August 1965.

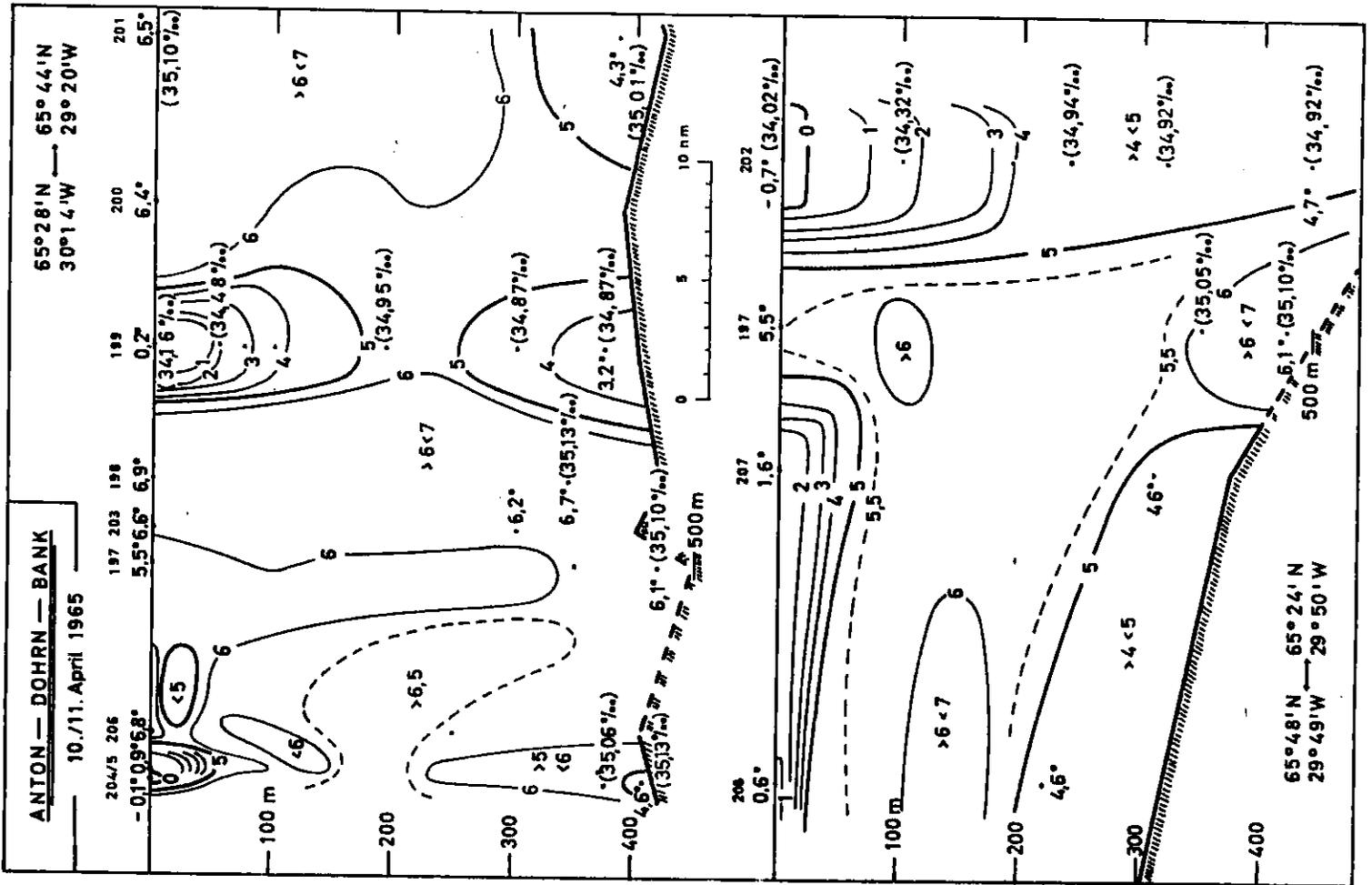


Fig. 6. Hydrographic sec.

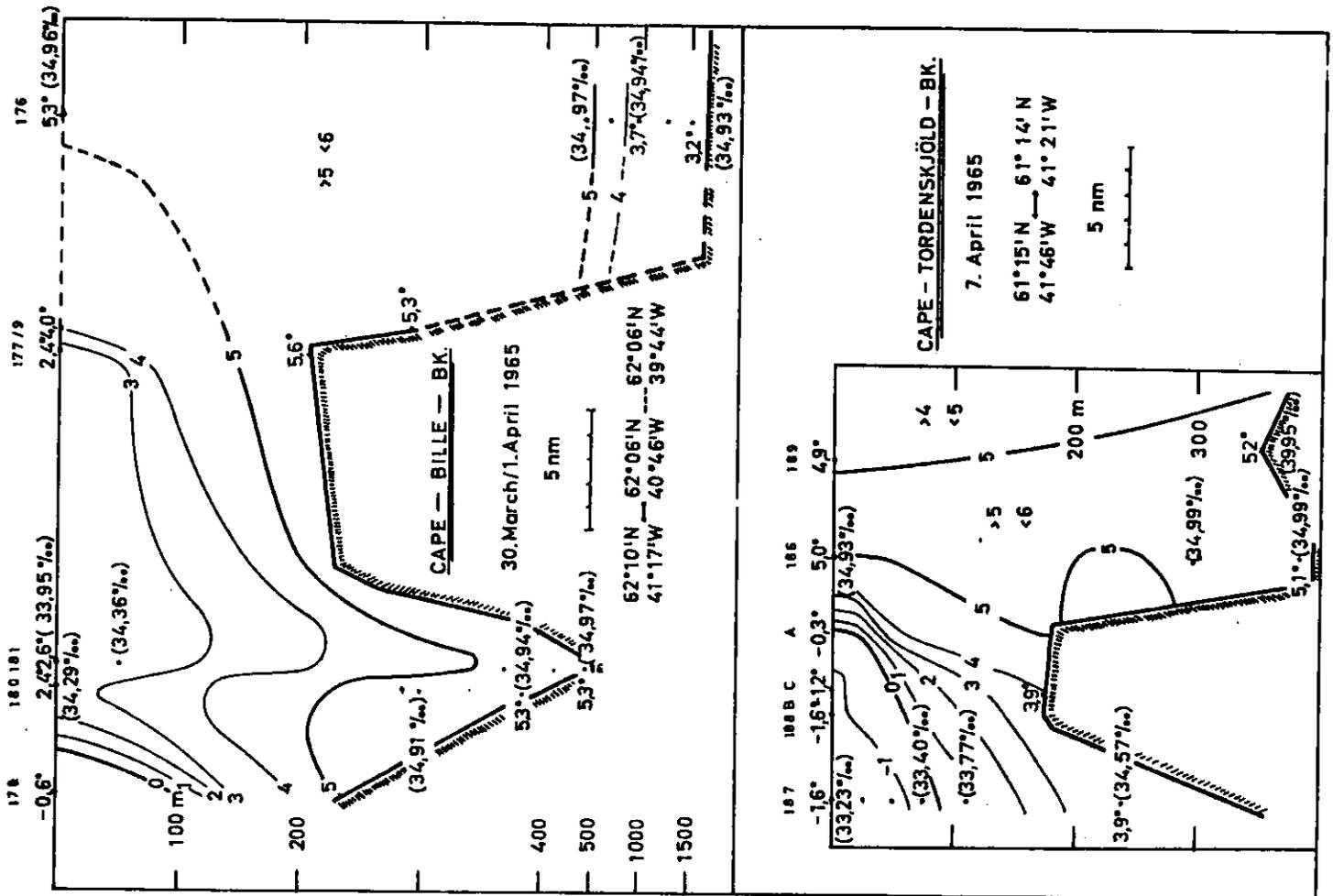


Fig. 5. Hydrographic sections off Southeast Greenland, Mar April 1965.

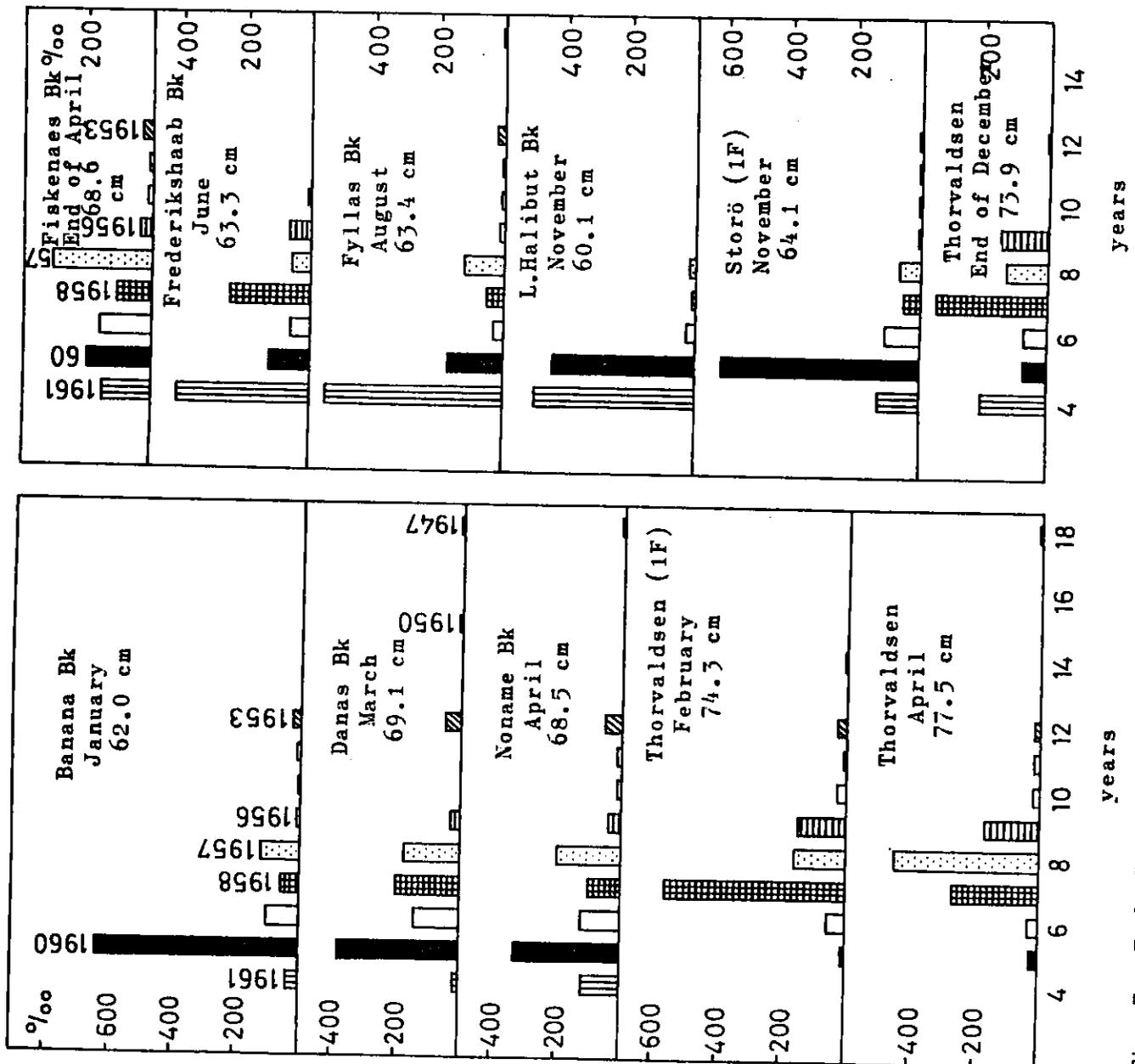


Fig. 7. Cod, Subarea 1; age composition of commercial catches in 1965.

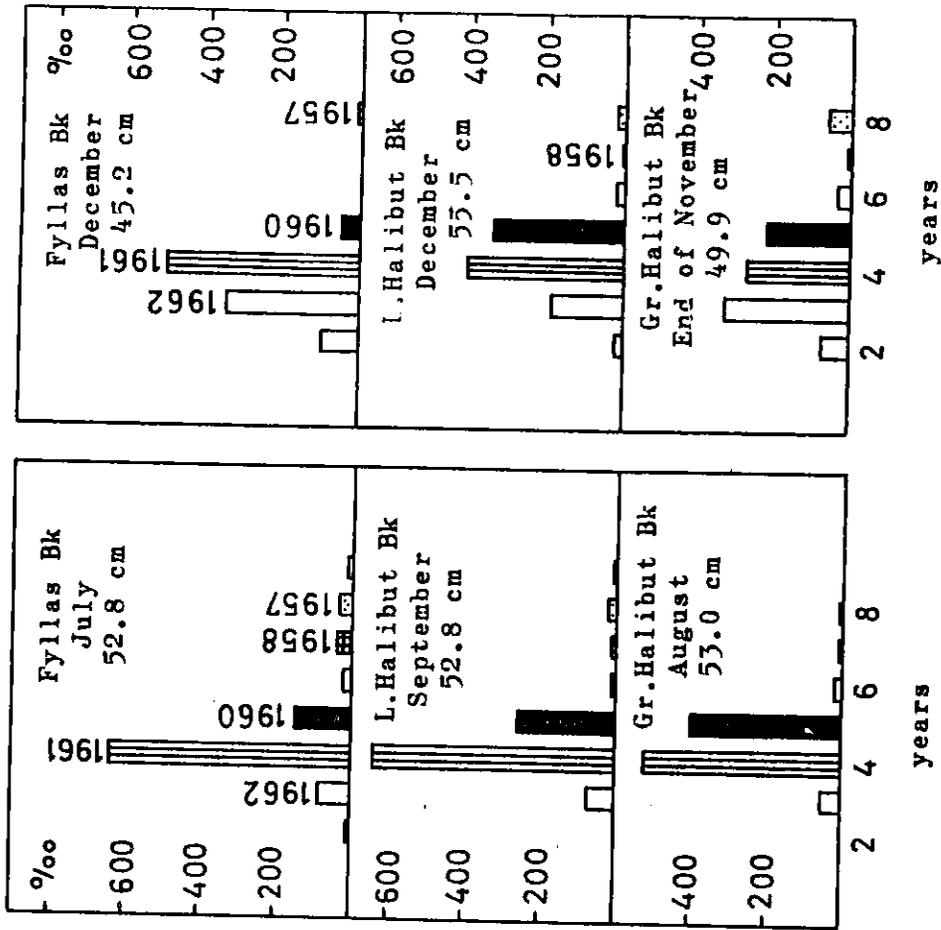


Fig. 8. Cod, Subarea 1; age composition of research catches in 1965, 110 mm mesh size, Fyllas Bank (December) and Great Halibut Bank (end of November) with covered codend.

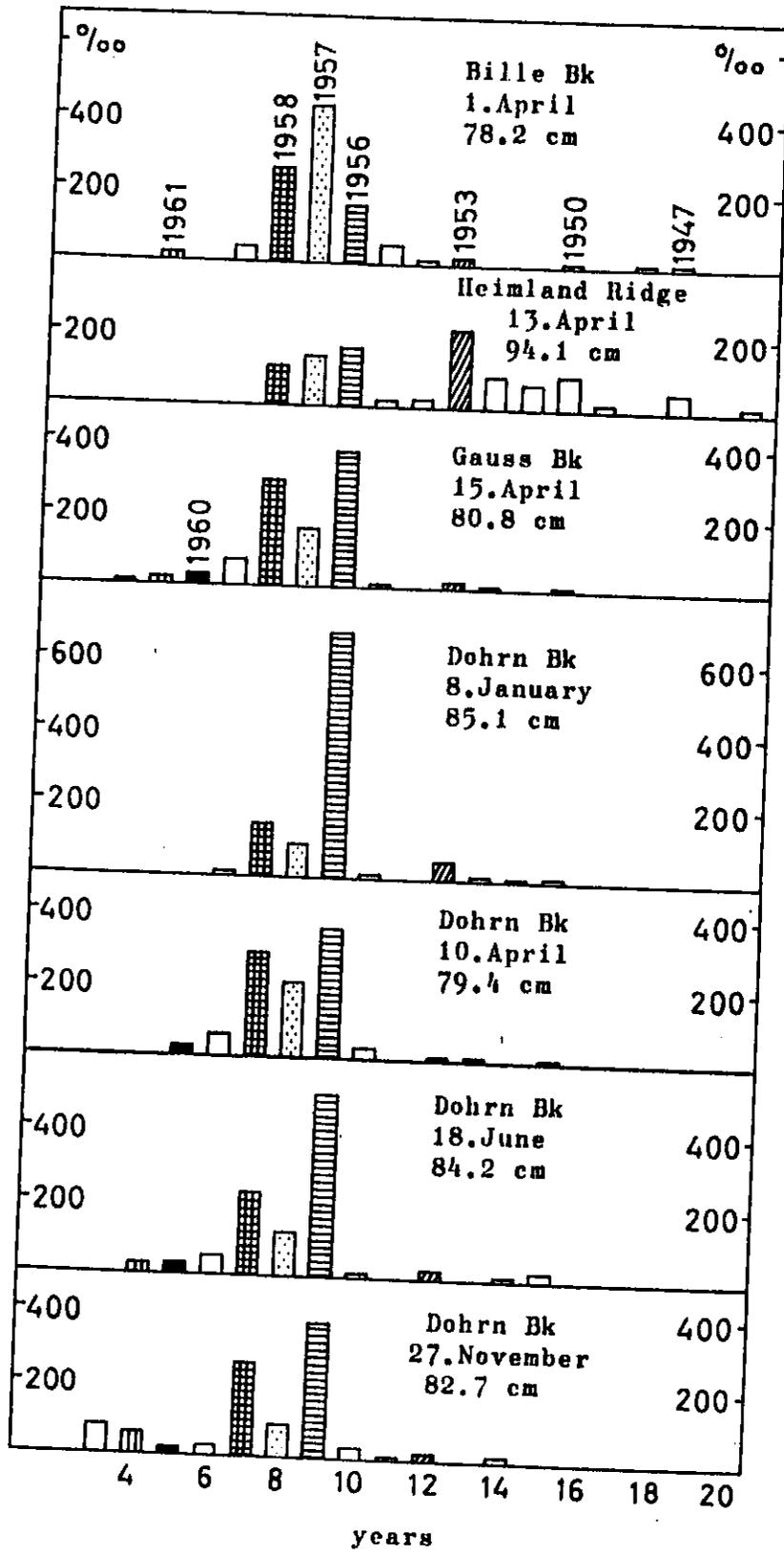


Fig. 9. Cod, East Greenland; age composition of commercial and research catches in 1965.



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SUBAREAS 2 - 5

by J. Measstorff

SUBAREA 2

A. Status of the fisheries

Landings and catch per fishing day of German trawlers are given in tables 1a and 1b.

Due to the decreasing catches off Greenland there was a remarkable increase of fishing off Labrador in 1965. In comparison to the preceding year (8,086 tons in 1964) the total landings from the Subarea amounted to over four times as much. Fishing took place throughout the year but 95 % of the catches were landed during the first half of the year with the peak of 66 % in March/April. Whereas the landings from Labrador amounted to only 7 % of those from West-Greenland (Subarea 1) in 1964 they reached 33 % in 1965. The average annual catch per fishing day rose from 16.3 (1964) to 27.6 tons.

1. Cod

As a matter of fact the increased German fishing activity in the Subarea was due to a pure cod-fishery. Only 8 % of the total landings (roundfresh weight) consisted of other species including redfish. In the year before the amount of cod was only 30 % of the landings. In comparable months (IV, VII-XII) during which fishery was carried out in 1964 as well as in 1965 the mean catch of cod per fishing day increased from 7.2 to 23.2 tons (roundfresh weight). In the months (I-III, V, VI) during which fishing took place only in 1965 a mean catch per fishing day of 29.8 tons was recorded and the average annual catch per fishing day amounted to 27.2 tons in 1965.

Most catches (78 %) were taken from Divison 2 J followed by 2 H (12 %) and 2 G (10 %).

2. Redfish

Contrary to the intensified fishing activity and the increased total landings catches of redfish decreased considerably from 4546 tons in 1964 to only 2856 tons in 1965. The proportion of redfish in the 1965 catches was only 7 % against 52 % in 1964. The average annual catch per fishing day dropped from 11 (1963) and 9.2 (1964) to 2.2 tons in 1965. This very pronounced decrease seemed not only to be connected with the favoured exploitation of the available cod concentrations since exploratory fishing surveys along the slope of the Labrador shelf in June, July and August 1965 either failed in detecting catchworthy redfish concentrations or found a strong infestation of parasites (*Sphyrion lumpi* as well as Nematodes in the muscle tissue). The proportion of infested redfish was

too high (up to 30 %) for a profitable processing by refrigerated trawlers.

B. Special Research Studies

I. Environmental Studies

During three research respectively exploratory cruises hydrographic observations were carried out by RV "Walther Herwig" in June, RV "Anton Dohrn" in July and the special equiped sterntrawler "Kap Farvel" in August.

Temperature - and partly salinity-sections across the Labrador Current especially within the frontier-area of the cold and warm components were taken off Hamilton-Inlet in June and July, off Cape Mufford in June, and off Cape Chidley in June and July. Additionally vertical temperature distributions at scattered fishing stations along the Labrador shelf have been ascertained by bathythermograph from surface to 275 m and if necessary by reversing thermometers at deeper levels and at bottom.

Hydrographic observations were extended over the northern border of Subarea 2 to Baffin Island by two sections of Resolution Island and off the southeast coast of Baffin Island in June and scattered observations in August.

Further observations in Subarea 2 have been obtained by RV "Walther Herwig" in January 1966.

Separate publication of results is under way.

II. Biological Studies

1. Cod. As most landings were processed and refrigerated at sea only few market samples could be taken. But during field investigations of the RVs "Walther Herwig" and "Anton Dohrn" and the MT "Kap Farvel" in June, July and August 1965 and of "Walther Herwig" in Jan. 1966 a more extensive sampling of the exploited stock could be carried out and will provide research information on size- and age-distribution and gonad- and feeding conditions of the offshore stock of Labrador cod.

In fishing trials off Baffin Island only few I-group cod (7 - 10 cm) have been caught. It is suggested that these youngfish have crossed the Davis Strait by drifting westward with the Westgreenland Current.

2. Redfish. On the research cruises mentioned above samples for size-, age-, sex- and depth-distribution have been taken along the edge of the shelf. North of Hudson Strait redfish became very rare.

3. Other fish. Beyond the shelf edge in depths exceeding 600 m relatively great quantities of Macrurids (up to 3.5 tons per hour) have been caught. Off Baffin Island only Greenland Halibut have been caught regularly in small quantities (maximum catch 0.5 tons per hour in 600 m).

4. Tagging. In January 1966 15 cod were tagged off Hamilton Inlet (2 J).

SUBAREA 3

A. Status of the Fisheries

Landings and catch per fishing day of German trawlers are given in tables 2a and 2b.

Also in this Subarea fishing activity of German trawlers increased somewhat and the landings were nearly doubled in comparison to the preceding year although the mean catch per fishing day decreased from 18.4 (1964) to 13.3 tons (1965). The total annual catch, however, was less than 10,000 tons and reached only 25 % of the Labrador landings. 95 % of the landings as well as of the fishing days were recorded in June/August. Preferred fishing region was Division 3 L (62 % of landings) followed by 3 N (32 %).

1. Cod

The cod fishery yielded 82 % of the total catch from the Subarea against 39 % in 1964. Although the cod landings increased by 71 % against 1964 there was only a slight increase of the mean catch per fishing day from 8.7 (1964) to 10.9 tons (1965). Most catches were taken from Division 3 L followed by 3 N (together 95 %) but cod predominated also in the landings from 3 K, 3 M and 3 P.

2. Redfish

Only 10 % of the landings consisted of redfish. The mean catch per fishing day decreased considerably from 8.6 (1964) to 1.4 tons (1965) and the total catch reached only 40 % of the 1964 landings.

3. Other fish

The remaining 8 % of the landings (712 tons) consisted of small quantities of Haddock, Halibut, Witchflounder, Pollock and Other fish mainly from Division 3 N and 3 P.

B. Special Research Studies

I. Environmental Studies

Hydrographic observations were obtained by RV "Walther Herwig" during three research cruises in Jan./Febr. and May/June 65 and recently in Jan. 1966 and by RV "Anton Dohrn" in July 1965 and MT "Kap Farvel" in August 1965.

The Canadian standard section Grand Bank - Flemish Cap was occupied (at least partly) by RV "Walther Herwig" in February and May 1965 and January 1966. Further more or less scattered observations of temperature distributions were taken at fishing locations of northern Newfoundland (3 K), on the Grand Bank and along the southwest slope (3 K, N, O), on Flemish Cap (3 M) and on the Banks off the south coast of Newfoundland (3 P).

Separate publication of results is under way.

II. Biological Studies

1. Cod. Market sampling could not be carried out because the entire commercial catches were processed at sea. But on the research trips mentioned above cod samples, providing information on size and age distribution, have been taken from all Divisions of the Subarea. Working up of the material could not be completed in time for the meeting but will be published at the earliest convenience.

2. Redfish. Research vessel samples providing information on size-, sex-, depth- and type-distribution and occurrence of parasites have been taken in all Divisions of the Subarea.

3. Other fish. Research vessel samples of Haddock and Pollock (size- and age-distribution) and White Hake (length frequency) have been taken in Divisions 3 O and 3 P. In January 1966 few large Haddocks (mean length 68.3 cm, n = 21) have been caught at Flemish Cap. Canadian Plaice (*Hippoglossoides platessoides*) were sampled for length frequency in Division 3 L.

4. Tagging. In January 1966 16 cod and 1 haddock were tagged at Flemish Cap (3 M) and 75 cod off the south coast of Newfoundland (3 Ps).

SUBAREA 4 and 5

A. Status of the Fisheries

Landings and catch per fishing day are given in table 3.

Only two factory ships and one smaller sidetrawler operated for a short period in Jan./Febr. 1965 in both Subareas (landings were recorded in March!). Their total catches reached only 18 % of the 1964 landings but a direct comparison with the fishing operations of the preceding year is not possible on account of different times and locations of fishing. In 1965 pollock catches predominated with 42 % (1964 11 %) followed by 35 % cod (1964 24 %) and 21 % haddock (1964 52 %). Fishing took place only in Divisions 4 V = 25 % and 4 W = 43 % and 5 Z = 32 % of the total catches. During this short period the average total catch per fishing day of 25.8 tons was rather high. This was due to the temporary good fishing conditions for pollock which yielded a mean catch per fishing day of 18.5 tons.

B. Special Research Studies

I. Environmental Studies

In Subareas 4 and 5 hydrographic observations were obtained by RV "Walther Herwig" in February 1965 and in January 1966 only in Subarea 4. Regular hydrographic sections could only be taken at few occasions. Most observations followed the pattern of the fishing operations and were scattered over the Nova Scotian Shelf and Georges Bank. Nevertheless the available data provide some information on the hydrographic conditions at the time and in the area of investigation.

II. Biological Studies

Market sampling was not carried out because the entire commercial catches were processed at sea.

1. Cod. Dense cod concentrations which yielded catches of over 5 tons/hour were located by RV "Walther Herwig" in January/February 1965 as well as 1966 in the western part of the Banquereau Gully and along the western slope of Cabot Strait (4 Vn + s). Samples from these areas were collected on both cruises for age, length, growth and maturity studies.

2. Haddock. Samples for length, age and growth studies from different locations distributed over the Nova Scotian Shelf and Georges Bank were collected by RV "Walther Herwig" in Jan./Febr. 1965 resp. 1966.

3. Pollock. Only few and small samples could be obtained.

4. Other fish. Dense concentrations of large Canadian Plaice were located by RV "Walther Herwig" at Artimon Bank in Febr. 1966. One catch/hour amounted to 7.5 tons! Length frequency data were obtained.

5. Tagging. In January/February 1966 99 cod were tagged in Division 4 Vn and 44 in 4 Vs.

Table 1a: Subarea 2. landings in metric tons, 1965

Month:	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	year landing roundfresh weight	Convers. factor	
<u>Subarea 2</u>															
Cod	34	3494	11505	7723	3209	931	967	346	27	31	72	702	29041	36011	1.24
Redfish	4	352	1182	517	158	59	193	97	11	13	47	36	2669	2856	1.07
Catfish		29	33	0	0		1	1	1	2	1	0	68	85	1.25
Witchflounder		23	3	27									53	59	1.11
Halibut		5	18	5	2	2	7					3	42	47	1.11
Greenland Halibut		8	78	4	3	1					1		95	105	1.11
Other fish	0	13	52	35	12	2	43			1	0		158	164	1.04
Fishmeal	5	288	1456	1335	370	148	137	88	6	10	27	110	3980		
Products		84	158	88	7	2	3	10	2	0	6	6	366		
Total	43	4296	14485	9734	3761	1145	1351	542	47	57	154	857	36472	39327	
<u>Division G 2</u>															
Cod				1043	1566	317							2926	3628	
Redfish *				70	77	20							167	179	
Other fish *				202	192	53							447	43	
Total				1315	1835	390							3540	3850	
<u>Division 2 H</u>															
Cod				1672	826	227				14		702	3441	4267	
Redfish				112	41	14				6		36	209	224	
Other fish*				323	101	38				6		119	587	56	
Total				- 2107	968	279				- 26		- 857	4237	4547	
<u>Division 2 J</u>															
Cod	34	3494	11505	5008	817	387	967	346	27	17	72		22674	28116	
Redfish	4	352	1182	335	40	25	193	97	11	7	47		2293	2454	
Other fish *	5	450	1798	969	101	64	191	99	9	7	35		3728	360	
Total	43	4296	14485	6312	958	476	1351	542	47	31	154	-	28695	30930	

* including landing weights of fishmeal and products (liver/oil etc.), which are not contained in the corresponding roundfresh weights. See Table 4.

Table 1b: Subarea 2, catch per fishing day in metric tons

Month:	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	landing weight	roundfresh weight
<u>Subarea 2</u>														
total	10.8	34.1	29.7	26.3	29.6	22.9	19.3	13.9	3.9	11.4	25.7	34.3	27.6	29.7
Cod	8.5	27.7	23.6	20.9	25.3	18.6	13.8	8.9	2.3	6.2	12.0	28.1	22.0	27.2
Redfish	1.0	2.8	2.4	1.4	1.2	1.2	2.8	2.5	0.9	2.6	7.8	1.4	2.0	2.2
trips	-	10	21	11	4	3	2	1	1	-	1	1	55	
fishing days	4	126	488	371	127	50	70	39	12	5	6	25	1323	
<u>Division 2 G</u>														
total				26.3	37.4	24.4							30.8	33.5
Cod				20.9	32.0	19.8							25.4	31.5
Redfish				1.4	1.6	1.3							1.5	1.6
trips				1	2	1								4
fishing days				50	49	16								115
<u>Division 2 H</u>														
total				20.7	27.7	19.9				13.0		34.3	23.8	25.5
Cod				16.4	23.6	16.2				7.0		28.1	19.3	24.0
Redfish				1.1	1.2	1.0				3.0		1.4	1.2	1.3
trips				3	1	1				-		1		6
fishing days				102	35	14				2		25		178
<u>Division 2 J</u>														
total	10.8	34.1	29.7	28.8	22.3	23.8	19.3	13.9	3.9	10.3	25.7		27.9	30.0
Cod	8.5	27.7	23.6	22.9	19.0	19.3	13.8	8.9	2.3	5.7	12.0		22.0	27.3
Redfish	1.0	2.8	2.4	1.5	0.9	1.3	2.8	2.5	0.9	2.3	7.8		2.2	2.4
trips	-	10	21	7	1	1	2	1	1	-	1			45
fishing days	4	126	488	219	43	20	70	39	12	3	6			1030

Table 2a: Subarea 3, landings in metric tons, 1965

Month:	I	III	IV	VII	VIII	X	XI	year		Convers. factor
								landing weight	roundfresh weight	
<u>Subarea 3</u>										
Cod	42	119	22	3134	2979	39	30	6365	7893	1.24
Haddock		10			27			37	44	1.20
Pollock		3			2			5	6	1.24
Redfish	5	100	6	89	723	5	19	947	1013	1.07
Catfish		4		3	6	1		14	18	1.25
Witchflounder				3	1		2	6	7	1.11
Halibut		2		4	21			27	30	1.11
Greenland Halibut		4			2			6	7	1.11
Other fish		4	6	122	437	8	0	577	600	1.04
Fish meal	5	4	4	426	725	15	11	1190	-	
Products		5	0	69	35	1	2	112	-	
Total	52	255	38	3850	4958	69	64	9286	9618	
<u>Division 3 K</u>										
Cod	21		22		108			151	187	
Redfish	2		6		139			147	157	
Other fish*	3		10		85			98	34	
Total	26		38		332			396	378	
<u>Division 3 L</u>										
Cod	4	39		2727	1290	39		4099	5083	
Haddock					6			6	7	
Redfish	1	96		77	342	5		521	557	
Other fish*	0	10		546	262	25		843	290	
Total	5	145		3350	1900	69		5469	5937	
<u>Division 3 M</u>										
Cod	17						30	47	58	
Redfish	2						19	21	22	
Other fish*	2						15	17	6	
Total	21						64	85	86	
<u>Division 3 N</u>										
Cod				407	1581			1988	2465	
Haddock					21			21	25	
Pollock					2			2	2	
Redfish				12	242			254	272	
Other fish*				81	882			963	330	
Total				500	2728			3228	3094	
<u>Division 3 P</u>										
Cod		80						80	99	
Haddock		10						10	12	
Pollock		3						3	4	
Redfish		4						4	4	
Other fish*		13						13	4	
Total		110						110	123	

Table 2b: Subarea 3, catch per fishing day in metric tons, 1965

Month:	I	III	IV	VII	VIII	X	XI	landing weight	year roundfresh weight
<u>Subarea 3</u>									
Total	6.5	15.0	19.0	11.7	13.9	9.9	12.8	12.8	13.3
Cod	5.3	7.0	11.0	9.5	8.4	5.6	6.0	8.8	10.9
Redfish	0.6	5.9	3.0	0.3	2.0	0.7	3.8	1.3	1.4
trips	-	1	-	6	6	-	0		13
fishing days	8	17	2	329	356	7	5		724
<u>Division 3 K</u>									
Total	8.7		19.0		15.8			15.2	14.5
Cod	7.0		11.0		5.1			5.8	7.2
Redfish	0.7		3.0		6.6			5.7	6.0
trips	-		-		1				1
fishing days	3		2		21				26
<u>Division 3 L</u>									
Total	5.0	29.0		11.4	9.2	9.9		10.6	11.6
Cod	4.0	7.8		9.2	6.3	5.6		8.0	9.9
Haddock					0.0			0.0	0
Redfish	1.0	19.2		0.3	1.7	0.7		1.0	1.1
trips	-	0		5	3	-			8
fishing days	1	5		295	206	7			514
<u>Division 3 M</u>									
Total	5.3						12.8	9.4	9.6
Cod	4.3						6.0	5.2	6.4
Redfish	0.5						3.8	2.3	2.4
trips	-						0		0
fishing days	4						5		9
<u>Division 3 N</u>									
Total				14.7	21.1			19.8	19.0
Cod				12.0	12.2			12.2	15.1
Haddock					0.2			0.1	0.2
Pollock					0			0	0
Redfish				0.4	1.9			1.6	1.7
trips				1	2				3
fishing days				34	129				163
<u>Division 3 P</u>									
Total		9.2						9.2	10.3
Cod		6.7						6.7	8.3
Haddock		0.8						0.8	1.0
Pollock		0.3						0.3	0.3
Redfish		0.3						0.3	0.3
trips		1							1
fishing days		12							12

Table 3: Subarea 4 and 5, Landings and catch per fishing day in metric tons, March 1965

Division:	4 V		4 W		Total		5 Z	
	land.wt.	rd.fr.wt.	land.wt.	rd.fr.wt.	land.wt.	rd.fr.wt.	land.wt.	rd.fr.wt.
Cod	10	12	147	182	157	195	10	12
Haddock	26	31	54	65	80	96	37	44
Pollock	97	120	6	7	103	128	119	148
Redfish	-	-	9	10	9	10	-	-
Catfish	-	-	6	8	6	8	-	-
Halibut	1	1	3	3	4	4	1	1
Other fish	2	2	6	6	8	8	1	1
Fish meal	27		8		35		16	
Products	-		6		6		-	
Total	163	166	245	281	408	449		
			catch per fishing day					
Total	20.4	20.8	14.4	16.5	16.3	18.0	23.0	25.8
Cod	1.3	1.5	8.6	10.7	6.3	7.8	1.3	1.5
Haddock	3.3	3.9	3.2	3.8	3.2	3.8	4.6	5.5
Pollock	12.1	15.0	0.4	0.4	4.1	5.1	14.9	18.5
Redfish	-	-	0.5	0.6	0.4	0.4	-	-
Catfish	-	-	0.4	0.5	0.2	0.3	-	-
Halibut	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1
trips	-		1		1		1	
fish. days	8		17		25		8	

Table 4: "Discards and Industrial fish" in metric tons (roundfresh weight), 1965

		Over board				Converted to fish meal			
		Cod	Redfish	Other fish	Total	Cod	Redfish	Other fish	Total
Subarea	2	2288	13	55	2356	5545	35	691	6271
"	3	22	-	26	48	254	44	758	1056
"	4 + 5	30	-	-	30	90	-	10	100