

Serial No. 465Document No. 23ANNUAL MEETING - MAY 1957GERMAN RESEARCH REPORT - 1956Cod - Greenland Stock

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German fishing activity in the waters of West, South and East Greenland continued to increase. The total catch rose from 66,744t in 1955 to 76,681t in 1956 (West Greenland 30,780t, South Greenland 1216t, East Greenland 44,683t). The proportion of cod increased from 13.5% (9,041t) to 41.3% (31,672t) and that of redfish dropped from 83.0% to 51.8%.

West Greenland

In contrast to 1955, the West Greenland fishery of 1956 was a real cod season, for the trawlers did not succeed in finding the redfish concentrations as in the preceding year. Thus the yield of cod increased from 6,040t to 23,669t. The season started early by the end of April and lasted till the end of July. The daily catch was again best in June with 32.5t (guttled, landed weight). Most trawlers fished for fresh fish, but four trawlers landed from eight trips 1,890t of green salted cod.

Like in the preceding year, the success of the West Greenland cod fishery was due to the strong 1947 year-class, which accounted for 40.6%. The average length of these fish was 71.6cm. The 1945 and 1942 year-classes, still important in 1955, have now become weak. The second best year-class was, as expected, that of 1950 with 22.6% and a mean overall length of 61.7cm. The average length of all West Greenland cod was 69.1cm nearly the same as in 1955 (68.7cm).

South Greenland

German trawlers developed little fishing activity in South Greenland waters. Large shoals of cod were found, but the fish were very small and a lot of them had to be rejected. The average length of the trawler landings was 64.2cm. Most of the landed cod (53.1%) belonged to the 1950 year-class. The 1945 year-class, which was rather abundant until 1955 in the trawler catches (28.5%) as well as in the catches taken by "Anton Dohrn" (15.6%), has now become weak. Age analysis revealed again the fact, that the share of the 1949 year-class is larger in the south than in the west of Greenland. On the other hand, the strong 1947 year-class of West Greenland gained only small commercial value in the south of Greenland and from 1955 to 1956 its share decreased to 9.1% (1955: 17.3% in the trawler catches, and 13.1% in catches of "Anton Dohrn").

East Greenland

Since the discovery of large fish shoals on the Dohrn Bank in September 1955, by the German research vessel, the German trawlers fished off East Greenland throughout the year, generally with good success. In 1956, the fishery was supported by exceptionally fair ice conditions, for in winter and spring 1956 the East Greenland ice belt was very narrow. Fishing was mostly carried out on Dohrn Bank (65°40'N; 30°W) and off Angmagsalik (64°40'N; 35°W), but also on the Heimland Ridge and its south-western edge, and (after the Icelandic "Fylkir" search trip in July) in the south-east of Greenland near Cape Bille.

In 1955, fishery off East Greenland dealt mainly with redfish. The proportion of cod amounted only to 6.5%. But when the redfish catches decreased and the trawlers moved again more towards the banks, the output of cod increased. In 1956, 7,437t of cod were

caught, i.e. 16.6% of the total catch. In December 1956 and January 1957, the cod catches on Dohrn Bank reached a maximum of 39% or 46% respectively and an average daily output of 6.7t or 7.7t respectively. In March and April 1957, the cod catches on Dohrn Bank exceeded by far those of redfish and the daily catch of cod increased to 30-60t. In the Angmagsalik area and on the Heimland Ridge in spring 1957 the yield of cod amounted to 25-30% of the total catch.

As in 1955, the three year-classes 1945, 1947 and 1949 constituted the major part of the East Greenland stock of cod. There is apparently no doubt that the 1945 and 1949 year-classes are of Icelandic origin and a lot of them probably grew up in South Greenland waters. With regard to the cod of the 1947 year-class, we may suppose that they belong to the West Greenland stock. This assumption is supported by tagging experiments and may also be related to the retarded growth of this year-class. In March and April 1956 the average length of this 1947 year-class in the Angmagsalik area was 74.8cm, whereas the 2 years younger cod, born in 1949, measured 75.0cm. The mean length of the 1945 year-class was 80.3cm.

There is a difference in the age composition between cod from Dohrn Bank and Angmagsalik. The proportion of the 1947 year-class is far greater on the western fishing ground and the age composition of Dohrn Bank cod lies approximately between those of Angmagsalik and N.W. Iceland. This difference in age composition between Angmagsalik and Dohrn Bank cod was again examined in spring 1957 and seems to be typical for that area.

The real spawning place of the East Greenland cod is still unknown. But we are able to draw some conclusions from our examinations of ungutted cod. In March and the first week of April 1956 most of the cod from Angmagsalik were found to be completely ripe. At the end of April we noticed a sudden increase in the proportion of immature cod and consequently a remarkable decrease in length from 78.5 to 73.5cm (see figure). That means, that the mass of mature cod, ready for spawning, left Angmagsalik by the middle of April. But in the last week of April still one third of the Angmagsalik cod had ripe sexual organs, some just before spawning. At this time fishing off Angmagsalik ceased and moved to Dohrn Bank, where in May the output of cod reached its first maximum with 25.9% of the total catch. Unfortunately, we obtained no ungutted cod from Dohrn Bank and found most cod to be fully ripe and some cod spawning or at the beginning of spawning. By the end of April 1957, we got moreover the proof, that cod are also spawning in the Angmagsalik area. We observed all stages of spawning from the beginning until the end of the spawning period.

From these first examinations of East Greenland cod we may conclude that the spawning migration of mature cod occurs very late in April and May and that the spawning area of the East Greenland cod extends from Angmagsalik (possibly west of Angmagsalik) to West Iceland. That means that the fry spawned in East Greenland waters, or on the way from East Greenland to Iceland is carried regularly by the Irmingier current to East, South-East, and South Greenland, and that has developed (or is still developing) a self-containing stock of East Greenland cod. Fry from Icelandic spawning grounds is also carried to Greenland, if the current conditions are favourable.

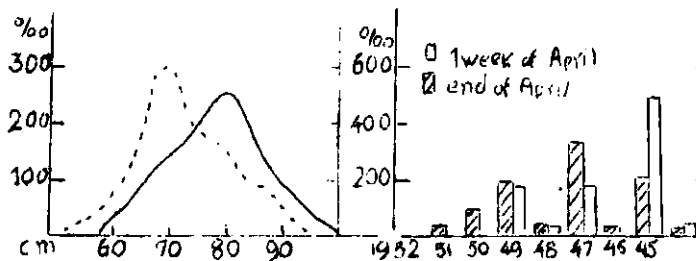
It is a very interesting fact that many of just the largest cod from East Greenland are still immature. These large juvenile cod belong mostly to the 1945 year-class. By the end of April 1956 about 75% of all cod born in 1945 and caught off Angmagsalik were immature. Also in March 1957 about 25% of these 12-years-old cod were still juvenile. These findings conform well with the investigations made with the Icelandic spawning cod and prove that the unusually large bulk of first time spawners of this 1945 year-class caught on the Icelandic spawning grounds in 1954, 1955 and 1956 immigrated mostly from East Greenland. These findings show further that the East Greenland waters are not only the connecting link between Greenland and Iceland, but also a reservoir of large cod for the fishery off East Greenland and Iceland, and for the Icelandic spawning stock.

The phenomenon of the late inception of maturity of the cod in East Greenland waters may be due to the fact that these cod grew up in the colder waters off East and South Greenland and that the ripening of the sexual organs is delayed by the colder waters of East Greenland which they pass on their journey to the spawning grounds.

Stomach investigations of cod revealed again that East Greenland, especially Dohrn Bank, is an area with abundant food supply. First of all immense shoals of bathypelagic fish and crustacea are attracting the cod. Further investigations will prove whether these areas are feeding grounds, also attracting the mature cod having spawned in Icelandic waters.

Composition by Length and Age of the Cod in West, South and East Greenland in 1956 (%/oo)

Length, cm.	West Greenland	South Greenland	East Greenland	
	Fiskenaes/Fyllas May-July	Farvel/Thorvaldsen August-November	Angmagsalik March-April	Dohrn Bank May-Sept.
40-44	-	-	-	-
45-49	5	35	-	1
50-54	16	126	2	13
55-59	70	269	12	42
60-64	187	239	51	89
65-69	280	185	129	101
70-74	251	82	177	145
75-79	132	35	228	150
80-84	39	15	207	187
85-89	15	7	131	136
90-94	4	3	45	82
95-99	1	2	11	36
100-104	0	1	4	11
105-109	-	0	1	5
over 109	-	1	2	2
Year-class				
1953	-	1	-	-
1952	1	13	1	10
1951	11	109	7	79
1950	226	531	46	162
1949	126	184	174	268
1948	103	16	32	31
1947	406	91	218	125
1946	20	3	15	6
1945	52	36	462	282
before 1945	55	16	45	36



Length and Age Composition of Angmagsalik Cod, caught in March and in the first week of April 1956 (————) and at the end of April 1956 (-----).

