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Status of Fisheries and Research  
carried out in Subarea 1 in 1969

by Arno Meyer  
Institut für Seefischerei, Hamburg

This summary is based on research reports from the following countries (Research Document number in brackets): Canada (10), Denmark (11), Federal Republic of Germany (13), Iceland (14), Norway (15), Poland (16), Portugal (17), Spain (19), USSR (20), United Kingdom (21) and USA (22). Further Research Documents referring to Subarea 1 are: Statistics (25, 31, 57), Assessments (73, Comm.Doc.3) and Salmon (1-9, 32, 33, 40-45, 56, 65, Comm.Doc.13).

1. Status of the FisheriesA. Subarea 1

Table 1 gives the nominal catches from Subarea 1 (total, cod, and redfish) for the last 4 years 1966 to 1969. The catches by Faroes, French and non-member vessels, which are not yet reported were estimated.

Table 1. Nominal catches from Subarea 1 in 1966 to 1969 in 1,000 metric tons

	Total				Cod				Redfish			
	1966	1967	1968	1969	1966	1967	1968	1969	1966	1967	1968	1969
Total	404	465	408	240	396	429	382	224	17	13	10	4
Canada	-	-	+	-	-	-	+	-	-	-	-	-
Denmark (F)	65	64	46	(25)	65	64	46	(25)	+	+	-	-
Denmark (G)	43	44	33	34	29	28	21	21	+	+	+	+
France	41	43	47	(30)	41	43	47	(30)	-	-	+	-
Fed. Rep. Germany	101	154	145	83	82	139	133	79	14	11	9	4
Iceland	3	+	+	+	2	+	+	+	1	+	-	-
Norway	39	53	40	17	39	53	39	17	+	+	+	-
Poland	1	1	1	+	1	1	1	+	+	+	+	+
Portugal	75	63	33	16	75	63	33	16	-	-	-	-
Spain	4	11	22	24	4	11	22	24	-	-	-	-
USSR	+	1	2	+	+	1	2	+	-	+	+	+
UK	21	21	10	1	19	20	10	1	+	+	+	-
USA	-	-	-	+	-	-	-	+	-	-	-	-
Non-Member	11	11	29	(10)	9	9	28	(10)	1	1	+	(+)

The total catch from Subarea 1 decreased further to 59% of the 1968 catch. This is only 45% of the highest recorded catch in 1962 and the lowest since publication of ICNAF statistics began in 1952. All nations, except Greenland and Spain had considerably lower catches. With 35% of the total catch the German fleet took again by far the most fish in Subarea 1.

Cod catches, 93% of the total catch, decreased by 158,000 tons. The reason for this sharp decline is thought to be:

1. very severe ice conditions, which from April to mid-August reduced considerably the availability of cod,
2. relative poor recruitment of young cod in recent years, which had an adverse effect on the fishery in the second half of the year, when younger cod are normally fished, and
3. the combined facts of 1 and 2 above, which led to a diversion of fishing effort to other areas.

Redfish catches, as in former years nearly all taken by German trawlers, decreased further. They now only make up 7% of those of 1962.

Salmon catches, made by Denmark (410t), Faroes (184t), Greenland (1,240t), Norway (222t), and Sweden (30t) increased to 2,086t (provisional).

The Deep Sea Prawn catches, 90% of which were taken in Disko Bay, increased to nearly 6,000t.

## B. East Greenland

Table 2 gives the nominal catches (total, cod and redfish) of the last 4 years, nearly all taken by German and Icelandic vessels on the rocky grounds off East Greenland. The increase in catches in 1969 was due to a partial diversion of fishing effort of German factory trawlers from West to East Greenland.

Table 2. Nominal catches from the waters off East Greenland in 1967 to 1969 in 1,000 metric tons.

	Total			Cod			Redfish		
	1967	1968	1969	1967	1968	1969	1967	1968	1969
Total	60	40	49	25	18	18	33	21	29
Denmark (G)	1	1	1	1	1	1	-	-	-
Fed. Rep. Germany	38	26	41	13	10	14	23	15	24
Iceland	20	13	9	10	7	4	10	6	4
UK	1	+	-	1	+	-	+	-	-
USSR	+	-	-	+	-	-	-	-	-

## 2. Research Work

Research work in Subarea 1 and off East Greenland was reported by Canada, Denmark, Federal Republic of Germany, Iceland, Norway, Portugal, USSR, UK and USA.

### A. Hydrography

Most hydrographic studies were made by Denmark. Germany, Norway, and USSR supplemented these studies in March, April, September and October. Thus again, nearly all months of the year were under hydrographic observation.

1969 was one of the most severe ice years in this century. Normally the polar ice, which is transported by the East Greenland current around Cape Farewell in winter progresses not farther than Cape Desolation (60°45'N). However, in 1969 the ice frontier extended to Noname Bank (62°N) in March, reached as far as Fyllas Bank (64°N) in May, and during its maximum extension it reached to about 66°N, blocking up the whole coast and most parts of the banks.

The winter cooling, probably also due to little convection, caused low temperatures down to more than -1.5°C in the upper 50 to 75 m. Below 100 m the temperatures were by 1°C higher than in 1968. Due to the melting of the ice and the reflection of heat radiation of the great amounts of sea ice the water layer above 100 m remained unusually cold. Even in August water with below -0.5°C and in October with below 0°C was found over Fyllas Bank.

In the water layer below 200 m the temperatures were about normal and higher than in 1968. The influence of the cold water masses was less pronounced over Great Halibut Bank.

In October 1969, again a north south section through the Davis Strait was worked by the German R.V. Walther Herwig along 58°W showing again the sharp front at just 65°N between the west going branch of the West Greenland Current and the Baffinland Current in 300 m to the bottom.

#### B. Plankton

The survey with continuous plankton recorders, operated by the UK showed that the phytoplankton was scarce in the southern part of Subarea 1 until July. Also, the adults of Calanus finmarchicus were scarce in April and May. As in 1968 also young stages of redfish were rare.

#### C. Benthos

In conjunction with the International Ice Patrol West Greenland Glacier Survey, US scientists studied again the benthic fauna off Disko Island.

#### D. Cod

1. Eggs and Larvae were sampled by Denmark and Norway. Although the ice situation hampered the sampling, it can be assumed that the recruitment to the stock of cod of West Greenlandic origin in 1969 probably was poor, and was also to be expected from the hydrographic situation, except for Div. 1B probably.

2. Young fish studies. In the Danish sampling for young cod of age-groups I, II and III with small-meshed gears and pound-nets, cod of the 1968 year-class were absent in all catches. The 1967 year-class seems to be of only minor importance in the northern area and of no importance in the southern divisions. The 1966 year-class however, seems to be of some importance in the region of 1D to 1B. To get comparable figures and to be able to judge the strength of the pre-recruit year-classes, some standard trawling stations have now been set up.

3. Commercial Stock. The investigations by Denmark, Germany, Iceland, Norway, Portugal and USSR show that the 1965 year-class is dominating in catches on the northern banks, especially in Division 1C and in the coastal areas. However, this year-class is more or less absent in the southern Divisions 1E and 1F and off east Greenland. In the southern divisions the East Greenlandic year-class 1963 was dominating in the 1969 catches, but this year-class is certainly not as strong as the 1961 and 1960 year-classes. The cod of the very strong year-class of 1961 again were of great commercial importance, mainly due to their great individual weight; especially off South Greenland and East Greenland, during their spawning migration and spawning. There is reason to believe, that as in 1968 a substantial part of these 8 years old cod emigrated to Iceland for spawning and thus are lost for the Greenland stock. On the other hand, the 1969 ice situation seems to have reduced considerably the fishing mortality of the mature part of the stock, especially during its postspawning phase.

4. Selection experiments were carried out by Norway. They showed that No.6 hooks catch the greater number but the smaller fish. No.2 hooks however, catch fewer but larger cod.

5. Fecundity studies. Eggs of roes collected off East Greenland were counted in the Hamburg Institute. The average number of eggs per spawner was found to be 1.3 million.

6. Tagging. Denmark tagged 2,434 cod, of which 1,205 were small cod.

#### E. Redfish

In the Godthaab Fjord 27 redfish were tagged. No further redfish studies were reported.

#### F. Atlantic Salmon

Research in West Greenlandic waters was carried out by scientists from Canada, Denmark and UK. The results of these investigations and of other investigations by many other scientists on Atlantic Salmon are given in several papers and in the report of ICES/ICNAF Joint Working Party on North Atlantic Salmon, February 1970 (see Comm.Doc.70/13).

G. Other fish

Denmark collected further material for studies of capelin and Greenland halibut. In the search for possible potentials in the sea, Denmark carried out experimental fishing for sandeel in Div.1D.

H. Deep Sea Prawn

Denmark continued its research catches to obtain further information on the stocks of deep sea prawn, especially those on the offshore banks.