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Summary of Research and Status  
of Fisheries in Subarea 1, 1967

by  
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This summary has been compiled from national research reports submitted by the following member countries: Canada, Denmark, France, Fed. Rep. Germany, Iceland, Norway, Poland, Portugal, Spain U.K., U.S.A. and USSR (Res. Doc. 68/5-12, 14-17). Additionally notice is given of the following Res. Documents referring to Subarea 1 : 68/2, 13, 20, 21, 32, 41, 43, 44, 46, 55, 56, 57, 63, 65, 73, 75, 81.

1. Status of the Fisheries

Commercial fisheries were carried out by all countries mentioned above, except Canada, USA and USSR. For comparison the total nominal catch of all species as well as of cod and redfish in 1966 and 1967 is given by countries in the following table (.000 t).

	Total		Cod		Redfish	
	66	67	66	67	66	67
Total	400	441	362	415	17	12
Denmark F	65	64	65	64	-	-
" G	43	44	29	28	-	-
France	41	43	41	43		+
Germany	102	156	83	138	14	11
Iceland	3	+	2	+	1	+
Norway	35	47	35	46		-
Poland	1	1	1	1	+	+
Portugal	75	63	75	63	-	-
Spain	4	11	4	11	-	-
U.K.	21	21	19	20	+	+
USSR*	+	1	+	1	+	+
Non-Member**	11	-	9	-	-	-

\*USSR catches were taken only by research and scouting vessels.

\*\* Although preliminary catches from the ICNAF Area by non-member countries (GDR) have already been reported none were indicated for Subarea 1.

Against 1966 there was a remarkable increase of the total catch of all species by 41,000 t (10%), which was mainly due to increased catches taken by Germany and to a less degree by France, Norway and Spain. The catches taken by Denmark, Poland, and U.K. remained stable whereas those of Iceland and Portugal decreased somewhat.

Cod catches increased by 53,000 t (15%) against 1966 and amounted to 94% of the total catch of all species. Germany caught over 55,000 t (56%) more cod than in 1966 and in spite of an increased fishing effort the German catch per day fished increased from 17.7 to 21.9 t. Increased cod catches were also reported by France, Norway and Spain. Against that the cod catches of Portugal, which in 1966 were only 8,000 t less than those of Germany, decreased by 12,000 t in 1967. Also Iceland reported less cod catches in 1967.

Redfish catches showed a further decline from 14,000 to 11,000 t. The predominant catches of Germany decreased by 3,000 t.

Salmon catches increased further from over 1,300 t (1966) to 1,515 t and were reported by Denmark (F) with 155 t, Denmark (G) with 1,279 t and Norway with 81 t.

## 2. Research work carried out

- a) Canada : A survey on Atlantic salmon was carried out by R/V A.T. Cameron from 17 September to 5 October in Westgreenland off-shore and in-shore waters. 40 specimens were brought to St. Andrews for parasitological studies. Tagging of salmon in home waters was carried out with reference to possible migration to Greenland.
- b) Denmark : Hydrographic work was restricted to regular observations at a fixed station (entrance to Godthaab Fjord) from January - August and in December. Cod samples were taken for length and age composition and growth studies of the commercial stock. In coastal waters and fjords in Div. 1C and 1D 960 cod and also redfish have been tagged. Salmon studies in collaboration with Scottish, English and Canadian experts as well as fishing experiments on salmon were carried out.
- c) Fed. Rep Germany: Hydrographic observations as well as a cod survey were carried out by R/V Walther Herwig in October/November in Davis Strait and off Westgreenland between Holsteinsborg and Cape Farvel (Div. 1B - 1F). Also samples of small redfish were taken for ageing studies. Samples from commercial catches for length - and age composition, maturity, gonad conditions etc. of cod were taken throughout the year whenever available.
- d) Norway: Five hydrographic sections were taken by R/V G.O. Sars in Div. 1C - 1F. During the same cruise the distribution of cod was examined by echo survey and fishing with bottom long line. Hook selection as well as the abundance of cod eggs were also studied at all fishing stations.
- e) Poland: In June cod was sampled for length - and age composition in Div 1B and redfish length - and sex distribution was studied in Div. 1C.
- f) U.K.: Routine length and age sampling of commercial catches as well as research on Westgreenland salmon has been continued. Also salmon tagging experiments were carried out. A Continuous Plankton Recorder survey covered 2,900 miles in Subarea 1.
- g) U.S.A.: Extensive salmon tagging was carried out in home waters (Maine) with reference to the amount of migration to Westgreenland.
- h) USSR: Hydrographic observations were conducted by the R/V Pobeda, Volgograd and Novorossiisk from March - September in Div 1B - 1E. The distribution and density of the cod population as well as gonad and feeding conditions and age composition were studied from March - April and July - September.

## 3. Hydrography

All observations carried out during 1967 by Denmark, Germany, Norway and USSR show that the water temperatures on the banks and slopes were generally below normal whereas off the slopes temperatures were relatively warmer and of remarkably high salinity exceeding 35 ‰. The stratification became after German results even more stable in autumn and could possibly have hindered convection during winter. The consequence of such a hydrographic situation could be a poor year class of cod.

#### 4. Cod

- a) Eggs and larvae: The abundance of cod eggs was poor after Norwegian investigations although most cod had completed spawning.
- b) Young cod (age-groups 1 - 3) : Denmark reported poor abundance of small young cod. Also German R/V catches with small meshed liner in Oct./Nov. contained very few young cod. It was concluded that the 1964 - 66 year-classes might be poor.
- c) Commercial stock: Investigations by Denmark, Germany and USSR showed conformably that the rich 1961 year-class predominated in in-shore as well as in off-shore catches throughout the year and in all Divisions (50 - 60% in German catches) whereas the proportion of the good 1960 year-class had remarkably decreased (20 - 30% in the German winter and spring season) but held the second place. Of some importance were four year old cod (year-class 1963) in Danish pound net catches in Div. 1D-1F. This year-class was also well represented in USSR catches during the second half of the year as well as in German R/V catches in October/November. Older cod have become very rare.

After forecasts given in the German and very similar in the USSR research reports a decrease in nominal catch and probably also a small reduction in catch per unit effort is again to be expected. Possibly none of the next at least 5 years may reach the 1967 figures.

#### 5. Redfish

The catches of redfish decreased further. The total yield as well as the average catch per fishing day was the lowest ever experienced by the German fishery off Greenland.

Although redfish catches were more or less regularly sampled by some member countries no conclusive results have been submitted. It is hoped, however, that further progress in international collaboration, which has recently been initiated by a special working group of redfish experts, will help to remove still existing difficulties especially in age determination.

#### 6. Atlantic Salmon

Results of tagging experiments carried out since 1963 in Greenland as well as in home-waters of Canada, Iceland, Ireland, Norway, Sweden, U.K. and USA indicate migrations between Greenland and home-waters in both directions for all countries mentioned except Norway. Recaptures at Westgreenland originating from Canadian river systems were higher than from any other country.

Blood and other biochemical studies which could provide means of identification of the origin of salmon exploited at Westgreenland and the home-waters to which they return are being carried out by U.K. workers. Also parasitological studies are being carried out by Canada, Ireland and Scotland in order to discover whether there is a parasite which could serve as a reliable biological tag.

An assessment of the effects of the Westgreenland fishery on total and home-waters salmon catches was made, and the available data suggest that the Westgreenland fishery at the present size and still being predominantly an inshore fishery resulted in an increase in total yields of salmon, but relatively small losses in home-waters catches in most, if not all, countries concerned. A further increase, however, of the developing off-shore salmon fishery might alter the present picture.

The recent investigations on Atlantic salmon are described in more detail in the Second Report of the ICES/ICNAF Joint Working Party on North Atlantic Salmon.