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Denmark/Greenland Research Report for 1992

by

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This report presents information on catch statistics from the commercial Greenland fishery and on research carried out in 1992 by the Greenland fisheries Research Institute.

NAFO SUBAREA 0
WEST GREENLAND (NAFO SUBAREA 1)

A. STATUS OF THE FISHERIES

1. General trends

Provisional statistics for the fisheries in 1991 and 1992 are presented in Table 1.

Total nominal catches in Greenland waters decreased from 104,179 tons in 1991 to 103,647 tons in 1992. Landings of cod decreased by 72% to 5,724 tons, while landings of shrimp increased by 15% to 79,260 tons. Catches of Greenland cod, redfish, Greenland halibut, and Atlantic halibut increased, whereas catches of wolffishes, grenadiers, capelin, lumpsucker, and Atlantic salmon decreased. Catches of scallops were at the same level as in 1991.

2. Cod

a. The fisheries.

In 1992 the total landings of cod in NAFO Subarea 1 amounted to 5,724 tons, which is the lowest catch taken since the beginning of the fishery in the 1920's. Landings have decreased very significantly over the last four years; from 108,000 tons in 1989 to 60,000 tons in 1990 and further down to 20,235 tons in 1991.

In 1992 all catches were taken by inshore fisheries; two thirds came from the northern areas (Div. 1AB). No offshore fishery took place after March 1991. Age groups 4 and 5 accounted for 65% and 29% of the total catch in numbers, respectively.

The large fishery in recent years was sustained by the very strong 1984 year-class, which according to tag returns and the distribution of young fish is believed to be of Iceland origin. Due to migration and fishery induced mortality this year-class is now absent in West Greenland. The year-classes now dominating the inshore catches are supposedly of local fjord origin.

b. Assessment.

No assessment or forecast is given here but reference is made to the Northwestern Working Group report by ICES, May 1993. However, it is worth notice that the offshore trawlable biomass was estimated at only 600 tons by the German offshore trawl survey, conducted in December off West Greenland. This is, by far, the lowest estimate on record and is less than 0.1% of the biomass estimates in the late 1980's. The biomass derived from the Greenland shrimp survey gave a similarly low estimate (200 tons).

3. Shrimp

a. The fisheries.

The total nominal catch of shrimp in Subarea 1 in 1992 by Greenland vessels was about 79,000 tons of which approximately 58,000 tons were taken in the offshore area (including 2,600 tons from the fishing grounds north of 71°N.). These figures includes 10.586 tons from the TAC-area, landed in a project allowing landings, outside quotas, of small shrimp that would otherwise have been discarded.

As in the two previous years, ice hampered the acces to the main fishing areas in Division 1B, at the beginning of the year. In general the fishery took place in the same main areas as in earlier years, with still more fishing effort being expended in the southern parts (1C-1E), especially in the months August through December. A total of 44 vessels (above 75 GRT) participated in the offshore fishery (NAFO SCR Doc. 93/xx).

Information on the distribution of the offshore shrimp fishery and catch rates was obtained from logbooks of Greenland trawlers. A standardized catch rate index was calculated to show the development of mean CPUE from 1987 to 1992 (NAFO SCR Doc. 93/xx). To avoid the possible influence of non-reported shrimp discards, a similar index was calculated, only taking large shrimp (which are supposed to be discarded at much lower rates than small shrimp) into account.

This index showed a significant decrease in catch rates from 1987 to 1989. Since 1989 it has remained relativly stable.

The offshore fishery north of 71°N, in which 18 vessels participated in 1992, took place from June to December. Catches in this area were about 2,600 tons.

b. Forecast for 1993.

STACFIS advised a TAC of 40,000 tons for the offshore shrimp stock in Subarea 1 (south of 71°N) and ajacent parts of Subarea 0 for 1993. Greenland set an effective TAC of 33,800 tons for the Greenland part of this area, not including the fishery by smaller (< 75 GRT) vessels.

Reported offshore catches (by vessels > 75 GRT) in the beginning of 1993 including May were about 11,000 tons, which is less than catches in 1992 (15,000 tons). In 1993 ice cover has hindered acces to the important fishing grounds in Div. 1B to an even larger extent than previous years.

Results from Greenland trawl surveys in the offshore area of Subarea 0+1 showed an increase in minimum trawlable biomass from 1988 to 1989, based on recruitment of a new dominant year-class of small shrimp to the fishery. In 1990 the biomass estimate decreased to the level of 1988, and the estimate for 1991 decreased further. The estimate for 1992 shows an increase to the same level as 1988 and 1990.

A year-class 87 can be expected to enter the fishery, although on a much smaller scale than the 1985 year-class. The possible existence of a 1989 year-class will be verified/falsified in 1993.

4. Greenland halibut.

a. The fisheries.

The total catches of Greenland halibut in NAFO Subarea 1 amounted to 13,826 tons in 1992. This is a 35% increase from 1991 and the highest on record since the 1970's. The increase derived from a local inshore area (Ilulissat) in Division 1A, and from offshore fishery in Division 1CD. Inshore catches came to 10,115 tons, of which 98% was caught in Division 1A.

Three areas are important for the inshore fishery: Ilulissat (6000 tons), Uummannaq (2000 tons), and Upernavik (2000 tons). Long lines and gillnets are used in this fishery. The offshore fishery is conducted mainly by Japanese and Norwegian trawlers, whereas Norwegian long-liners take insignificant catches.

b. Assesssment.

No analytical assessment has been provided for the offshore stock component. However, the fishery in the inshore areas at West Grenland seem to be at a level where no further increase in exploitation is recommendable.

5. Salmon

In 1992 the fishery at West Greenland opened on August 1 and ended in November. The total nominal catch was 237 tons, which is 46% less than in 1991, when landings amounted to 437 tons. No TAC was set for 1992, but it was decided to observe the landings after the first fourteen days of fishing. In the event that these initial landings were high compared to the previous years, a TAC would be implemented. Because of small landings a TAC was never put into force.

Landings in Divisions 1E and 1F accounted for 84% (200 tons) of the total landings.

6. Capelin

The capelin fishery in West Greenland is carried out inshore and in the spawning season only (June-July). As in the year before, the fishery was directed towards larger specimens for bait and human comsumption. A smaller part of the catches was produced as dried fish, primarily for food for sledge dogs. In total 118 tons was landed, a reduction of 29%

compared to 1991. As in previous years, the majority of the landings were from Div. 1A.

7. Redfish

Redfish is mainly taken as bycatch in ofshore trawl fisheries. Nominal catch of redfish in 1992 was 335 tons.

B. SPECIAL RESEARCH STUDIES
I. BIOLOGICAL STUDIES

1. Shrimp.

A series of annual stratified-random trawl surveys in the offshore shrimp fishing area was initiated in 1988 and has been continued in the following years. In July-September 1992 a trawler performed a total of 134 trawl hauls in the major parts of what is considered to be the total distributional area of the offshore shrimp stocks and 44 hauls in inshore areas in Disko Bay and the Vaigat (NAFO SCR Doc. 93/xx, 93/xx).

An observer programme, initiated in 1990, to estimate the size and the seasonal variation in shrimp discards, was continued in 1992.

In cooperation with other Nordic countries, experiments have been made with sorting devices in shrimp trawls to avoid the catch of the small shrimp and by-catch of fish species.

2. Greenland halibut.

Length samples were obtained from the commercial fishery in Ilulissat in February and August.

Deep water resources.

The Norwegian vessel 'Skarheim' conducted in May-June a trial long-line fishery offshore in Div. 1DE at depths down to 2000 m. Catches consisted of fish in the length range 40-120 cm, and the size composition was consistent with former long-line fisheries in the area. CPUE values averaged 122 kg per 1000 hooks and increased with depth. Apart from Greenland halibut, roughhead grenadier was the only other species of commercial interest that appeared in the catches.

3. Salmon.

Samples were taken in Division 1C, 1E, and 1F in cooperation with biologists from Canada and USA. The sea age composition in 1992 was: 1SW 94.4%, 2SW 5.4%, and previous spawners 0.2%. This age composition is similar to previous years. Landings consisted of 54% North American fish and 46% European.

4. Joint-venture programmes.

As part of the joint venture program between the Greenland Home Rule and the Japan Marine Fisheries Resource Centre two trawl surveys were carried out at West Greenland in August/September and November/December, respectively:

The first survey consisted of two parts:

1) A stratified random bottom trawl survey covering Divisions 1A-1D at depths between 400 and 1500 m; this part of the survey was aimed primarily at Greenland halibut and roundnose grenadier.

2) A pelagic trawl survey focusing on the pelagic occurrence and the potential diurnal vertical migration of Greenland halibut, redfish, and shrimp.

The second survey was a repetition of part 1) of the first survey except that it only covered Div. 1C and 1D (NAFO SCR Doc. 93/58).

5. American plaice.

A research long-line fishery was conducted around Paamiut (Div. 1E) in October. The catches were poor and the best results were obtained inshore at depths between 0 and 100 m (43 g per hook). The bulk of the fish caught measured between 38 and 48 cm.

6. Marine mammals.

a. Pinnipeds.

Studies of harp and hooded seals, particularly of feeding problems, were continued in 1992. Details are being reported to ICES.

b. Small cetaceans.

Studies of white whale and narwhal continued in 1992. Details are being reported to IWC.

c. Large cetaceans.

Studies of minke whale, finn whale and humpback whale continued in 1992. Details are being reported to IWC.

7. Multispecies research.

In 1990 Greenland Fisheries Research Institute started a study of food-chain structures and predation processes relating to the dominating fish species in the Davis Strait off West Greenland. The aim of the study is to evaluate the interactions between fish and shrimp stocks and to estimate the effect of the intensive commercial shrimp fishery on the fish community structure. Fish stomachs were sampled during resource surveys in 1990-92; the samples will be analysed in the laboratory.
The study will continue in 1993.

GREENLAND FISHERY IN OTHER NAFO SUBAREAS

A. STATUS OF THE FISHERIES

Catches by Greenland vessels in NAFO 3M amounted to 1 ton of Atlantic redfish, 2 tons of roundnose grenadier, 1 ton of Greenland halibut and 1 ton of American plaice, in total 5 tons.

In NAFO 3N, catches were 6 tons of Atlantic redfish, 9 tons of Greenland halibut and 2 tons of American plaice, in total 17 tons.

2 tons of Atlantic redfish and 3 tons of Greenland halibut were taken in 'NAFO Not Known'.

EAST GREENLAND (ICES SUBAREA XIV)

A. STATUS OF THE FISHERIES

Table 2 shows provisional figures for the Greenland fisheries in ICES Subareas XIV and XII. The nominal catch decreased by 57% from 11,136 tons in 1991 to 4,775 tons in 1992. The decrease was caused primarily by a significant decline in the landings of cod and shrimp. Catches of redfish and Greenland halibut increased substantially, whereas catches of Atlantic halibut, wolffishes, grenadiers, and blue ling decreased. Increased landings were also observed for Atlantic salmon and Greenland shark.

B. SPECIAL RESEARCH STUDIES
I. BIOLOGICAL STUDIES

1. Shrimp.

As in 1989 and 1990, a stratified-random trawl survey was conducted in the Denmark strait. In 1992 the survey was carried out in October, a little later than previous years. Due to iceconditions only 59 trawlstation were fished. 39 of these belonged to the stratified-random part of the survey, the rest were used to compare with Norwegian survey results (NAFO SCR Doc 93/xx).

Table 1. Nominal catches (tons) by Greenland vessels at West Greenland (NAFO Subarea 1) in 1991 and 1992 (provisional figures) and the relative changes from 1991 to 1992.

SPECIES	Nominal catch 1991	Nominal catch 1992	% change from 1991 to 1992
Cod	20,235	5,724	-72
Greenland cod	1,164	1,783	+53
Redfish	290	335	+16
Wolffishes	350	198	-43
Grenadiers	81	18	-78
Greenland halibut	10,241	13,826	+35
Atlantic halibut	48	62	+29
Capelin	167	118	-29
Atlantic salmon	437	237	-46
Arctic char	117	46	-61
American plaice	3	-	-
Lumpsucker	158	115	-27
Shrimp	68,906	79,260	+15
Crabs	-	3	-
Scallops	1,979	1,913	-3
Polar cod	-	2	-
Fish not specified	3	7	+133
Sum total	104,179	103,647	-1

Table 2. Nominal catches (tons) by Greenland vessels at East Greenland (ICES Subarea XIV and XII) in 1991 and 1992 (provisional figures) and the relative changes from 1991 to 1992.

SPECIES	Nominal catch 1991	Nominal catch 1992	% change from 1991 to 1992
Cod	6,679	1,284	-81
Greenland cod	1	-	-
Redfish	42	971	+2,212
Wolffishes	30	3	-90
Grenadiers	4	1	-75
Greenland halibut	65	437	+572
Atlantic halibut	97	34	-65
Capelin	6	6	0
Atlantic salmon	4	6	+50
Blue ling	5	2	-60
Shrimp	4,202	2,025	-52
Greenland shark	1	5	+400
Fish not specified	-	1	+
Sum total	11,136	4,775	-57