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Denmark/Greenland National Research Report for 1993

by

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This report presents information on catch statistics from the commercial Greenland fishery and on research carried out in 1993 by the Greenland Fisheries Research Institute.

WEST GREENLAND (NAFO SUBAREA 1)

A. STATUS OF THE FISHERIES

1. General trends

Provisional statistics for the fisheries in 1992 and 1993 are presented in Table 1.

Total nominal catches in Greenland waters decreased from 103,647 tons in 1992 to 90,528 tons in 1993. Landings of cod decreased by 66% to 1,924 tons and landings of shrimp decreased by 10% to 71,125 tons. Catches of Greenland cod, grenadiers, Arctic char, shark, and lump sucker increased, whereas catches of redfish, wolffishes, Greenland and Atlantic halibut, capelin, Atlantic salmon, crabs, scallops, and polar cod decreased.

2. Cod

a. The fisheries.

In 1993 the total landings of cod in NAFO Subarea 1 amounted to 1,924 tons, which is the lowest catch taken since the beginning of the fishery in the 1920's. Catches have decreased very significantly over the last four years with yields of 68,000 tons in 1990, 20,000 tons in 1991, and further down to 5,724 tons in 1992.

In 1993 all catches were taken by inshore fisheries; half of the total catch was taken in Div. 1D. No offshore fishery has taken place since the spring of 1991.

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 1994. However, it is worth noticing that the results of the Greenland offshore trawl survey, conducted in July-September 1993, showed an extremely low biomass of cod off West Greenland. Total abundance was estimated to be 0.3 million, equivalent to a biomass of 123 tons. The very low catches are consistent with the findings in the German

survey, conducted in the same area, and are also in line with last years estimate. The West Greenland offshore cod may, therefore, be considered to be almost non-existent at the present time.

3. Shrimp

a. The fisheries.

The total nominal catch of shrimp in Subarea 1 in 1993 by Greenland vessels was about 71,000 tons of which approximately 56,000 tons were taken in the offshore area (including 641 tons from the fishing grounds north of 71°N.).

In 1993 there was an extraordinary long period of ice cover hampering the access to the main fishing grounds in Division 1A, 1B, and 1C in the first half of the year. In general the fishery took place in the same main areas as in earlier years, however with still more fishing effort being expended in the southern Divisions (1C-1E). A total of 35 vessels (above 75 GRT) participated in the offshore fishery.

Standardized catch rate indices based on logbook data showed a significant decrease from 1987 to 1989 and relative stability from 1989 to 1993 in Div. 1B. Similar indices from Div. 1CD remained relatively stable over the same period.

The offshore fishery north of 71°N, in which 18 vessels participated in 1993, took place from August to October.

b. Forecast for 1994.

STACFIS advised a TAC of 50,000 tons for the offshore shrimp stock in Subarea 1 (south of 71°N) and adjacent parts of Subarea 0 for 1994. Greenland set effective offshore TACs for larger vessels (> 75 GRT) of 33,800 tons for Subarea 1 south of 68°N and 3,800 for Subarea 1 north of 68°N (i.e. including the area north of 71°N).

Reported offshore catches (by vessels > 75 GRT) in the beginning of 1994 up to May 10th were about 12,000 tons, which is more than catches in 1993 in the same period (9,000 tons) where icecover hindered acces to the important fishing grounds in Div. 1ABC.

Results from a stratified-random trawl survey in the offshore area of Subarea 0+1 showed an increase from 1992 to 1993 in the estimate of minimum trawlable biomass. The 1993 estimate is the highest figure in the series of biomass estimates (1988-1993). Overall size composition of the biomass in 1993 showed the occurrence of several year-classes of smaller shrimp, which will recruite to the fishery in coming years.

4. Greenland halibut.

a. The fisheries.

The total catches of Greenland halibut by Greenland vessels in NAFO Subarea 1 amounted to 13,054 tons in 1993 - including 918 tons taken by foreign ships, under Greenland charter. This is a 6% decrease from 1992 wich was the highest on record since the 1970's. Another 3045 tons were taken by foreign vessels, bringing the total offshore catch, by all nations, up to 3963 tons, mainly from Division 1CD. Inshore catches came to 12,136 tons, of which 99% was caught in Division 1A.

Three areas are important for the inshore fishery: Ilulissat (5000 tons), Uummannaq (4000 tons), and Upernavik (2000 tons). Long lines and gillnets are used in this fishery. The offshore fishery is conducted mainly by

Norwegian and Japanese trawlers, whereas Norwegian and Faroese long-liners take insignificant catches.

b. Assessment.

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

5. Salmon

No commercial fishery for salmon took place in 1993.

6. Capelin

The capelin fishery in West Greenland is directed towards larger specimens for bait and human consumption and is carried out inshore and in the spawning season only (June-July). A smaller part of the catches is produced as dried fish, primarily for food for sledge dogs. In total 110 tons was landed, a reduction of 7% compared to 1992. As in previous years, the majority of the landings were from Div. 1A.

7. Redfish

Redfish is mainly taken as bycatch in offshore trawl fisheries. Nominal catch of redfish in 1993 was 299 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 1993 a trawler performed a total of 126 trawl hauls in the major parts of what is considered to be the total distributional area of the offshore shrimp stocks and 31 hauls in inshore areas in Disko Bay and the Vaigat (NAFO SCR Doc. 93/132, 93/129).

Since 1991 experiments with sorting devices in shrimp trawls to avoid the catch of the small shrimp and by-catch of fish species have been performed. This project, which is carried out in cooperation with other Nordic countries, was continued in 1993.

2. Greenland halibut.

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

A standard longline survey for Greenland halibut in the inshore areas of Ilulissat, Uummannaq, and Upernavik was initiated in 1993, covering the fjord areas of Ilulissat and Uummannaq in August 1993. The survey is proposed to be conducted annually, covering two of the three areas alternately, in order to obtain a CPUE index series for Greenland halibut in the inshore areas with important commercial fishery. The research longline vessel 'Adolf Jensen' made 52 linesettings with a total of 48,734 hooks. Mean length as well as CPUE of Greenland halibut for both areas were below values obtained in 1985-87 by trial longline fisheries by Greenland Fisheries Research Institute.

3. Deep water resources.

A trial longline fishery with the Norwegian vessel M/S 'Skarheim' was conducted in the northern Davis Strait in August 1993. The purpose of the fishery was to collect biological information on the commercial fish species, in particular Greenland halibut in order to evaluate the potential for a commercial longline fishery. The highest Greenland halibut catch rates of 153- 260 kg per 1000 hooks were obtained at depths between 800-1200 m at three localities in NAFO Division 1A and in water with temperatures above 0.5 °C. Greenland halibut was caught in all depth strata investigated. The catch rates in Division 1A indicate that depths between 800-1000 m may be best suited for a Greenland halibut fishery. Below 1000 m large numbers of arctic skates were taken in some of the settings. The catches of Greenland halibut were in the size range of 35-100 cm total length with the majority being from 45-75 cm. The mean length of Greenland halibut in the catches showed a weak increasing trend with depth down to about 1200 m and from the catches in depth stratum 800-1000 m it decreased slightly with increasing latitude. Due to drifting West ice no longline setting could be made on the continental slope below 1400 m. Therefore no final conclusions concerning the catch rates of Greenland halibut in relation to fishing depth could be drawn.

4. Joint-venture programmes.

As part of the joint venture program between the Greenland Home Rule and the Japan Marine Fisheries Resource Centre a trawl survey was carried out at West Greenland in August-September.

The survey was carried out as a stratified random bottom trawl survey covering Divisions 1A-D at depths between 400 and 1500 m and primarily aimed at Greenland halibut and roundnose grenadier.

5. Marine mammals.

a. Small cetaceans.

Studies of white whale and narwhal continued in 1993. Details are being reported to JCCM and NAMMCO.

b. Large cetaceans.

Studies of minke whale, finn whale and humpback whale continued in 1993. Details are being reported to IWC.

6. Multispecies research.

In 1990 Greenland Fisheries Research Institute started a study of food-chain structures and predation processes for 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 study continued in 1993 and will be terminated in 1994.

GREENLAND FISHERY IN OTHER NAFO SUBAREAS

A. STATUS OF THE FISHERIES

12 Greenland vessels were engaged in the Flemish Cap shrimp fishery in NAFO 3M. Total catches amounted to 3,783 tons of shrimp, 1 ton of Atlantic cod, and 1 ton of Greenland halibut.

EAST GREENLAND (ICES SUBAREA XIV and XII)

A. STATUS OF THE FISHERIES

Table 2 shows provisional figures for the Greenland fisheries in ICES Subareas XIV and XII. The nominal catch increased by 218% from 4,775 tons in 1992 to 15,173 tons in 1993. The increase was mainly caused by a significant increase in the landings of capelin. Catches of cod and Greenland halibut decreased substantially, whereas catches of grenadiers, Atlantic halibut, and shrimp increased. A small decrease in tonnage is observed for redfish, Atlantic salmon, blue ling, and shark.

B. SPECIAL RESEARCH STUDIES

I. BIOLOGICAL STUDIES

1. Groundfish and shrimp.

A stratified-random trawl survey was conducted in the Denmark strait during September-October. The survey area was reduced, compared to previous years, not including areas east of 29° WL. 45 stations were fished.

Table 1. Nominal catches (tons) by Greenland vessels at West Greenland (NAFO Subarea 1) in 1992 and 1993 (provisional figures) and the relative changes from 1992 to 1993.

SPECIES	Nominal catch 1992	Nominal catch 1993	% change from 1992 to 1993
Cod	5,724	1,924	-66
Greenland cod	1,783	1,892	+6
Redfish	335	299	-11
Wolffishes	198	156	-21
Grenadiers	18	30	+56
Greenland halibut	13,826	13,054	-6
Atlantic halibut	62	43	-31
Capelin	118	110	-7
Atlantic salmon	237	0	-100
Arctic char	46	70	+52
Shark	0	11	+
Lumpsucker	115	241	+110
Shrimp	79,260	71,125	-10
Crabs	3	1	-67
Scallops	1,913	1,566	-18
Polar cod	2	0	-100
Fish not specified	7	6	-14
Sum total	103,647	90,528	-13

Table 2. Nominal catches (tons) by Greenland vessels at East Greenland (ICES Subarea XIV and XII) in 1992 and 1993 (provisional figures) and the relative changes from 1992 to 1993.

SPECIES	Nominal catch 1992	Nominal catch 1993	% change from 1992 to 1993
Cod	1,284	231	-82
Redfish	971	903	-7
Wolffishes	3	3	0
Grenadiers	1	18	+1,700
Greenland halibut	437	289	-34
Atlantic halibut	34	325	+856
Capelin	6	11,064	+184,300
Atlantic salmon	6	0	-100
Blue ling	2	0	-100
Shrimp	2,025	2,337	+15
Greenland shark	5	3	-40
Fish not specified	1	0	-100
Sum total	4,775	15,173	+218