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Denmark/Greenland Research Report for 1995

by

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This report presents information on catch statistics from the commercial Greenland fishery and on research carried out in 1995 by the Greenland Institute of Natural Resources.

WEST GREENLAND (NAFO SUBAREA 1)

A. STATUS OF THE FISHERIES

1. General trends

Provisional statistics for the fisheries in 1994 and 1995 are presented in Table 1.

Total nominal catches in Greenland waters increased from 100,254 tons in 1994 to 107,645 tons in 1995. Landings of cod decreased by 19% to 1,709 tons, landings of shrimp increased by 2% to 77,581 tons and landings of Greenland halibut increased by 29% to 19,319 tons. Catches of redfish, wolffishes, Atlantic halibut, capelin, lumpsucker and polar cod decreased, whereas catches of Greenland cod, grenadiers, Atlantic salmon, Arctic char, shark, crabs and scallops increased.

2. Shrimp

a. The fisheries

The total nominal catch of shrimp by Greenland vessels in Subarea 1 in 1995 was 77,581 tons of which approximately 57,000 tons were taken in the offshore area.

As normally ice cover hampered the access to the main fishing grounds in Division 1A, 1B and 1C early in the year. In general the fishery took place in the same areas as in earlier years, however with still more fishing effort being expended in the southern Divisions (1C-1F). A total of 32 vessels (above 75 GRT) participated in the offshore fishery.

Standardized catch rate indices based on logbook data from Div. 1B showed declining trend from a relatively high level in 1987. From 1989 and on a more stable period starts only interrupted by a minor peak in 1993 which however was not significantly different from the 1995 index ($p > 0.05$). Stability remained between 1994 and 1995.

In Div. 1CD The catch rate index after an increase from 1987 to 1988 showed a slow but steadily decreasing trend over the years. From 1994 to 1995 however the CPUE-index increases significantly at the 5% level ($p=0,012$).

b. Forecast for 1996.

Results from a stratified-random trawl survey in the offshore area of Subarea 0+1 in 1995 showed a minor decrease in total estimated biomass from the year before, in general though the biomass estimates from the surveys in the period 1988-1995 indicate stability.

The biomass estimate for the northernmost part of the survey area (north of 71°N) is reduced to a very low level in 1995.

Overall size composition of the biomass in 1995 showed the occurrence of several year-classes of smaller shrimp, which will recruit to the fishery in coming years, but these new year-classes all seem far from the abundance of the important 1985 year-class, which maintained the relatively high catch rates from 1990 to 1993.

A stratified-random trawl survey in the Disko Bay area (inshore) showed an increase in total biomass estimate from 1994 to 1995 to the same level as found in the surveys in 1991 and 1992.

STACFIS advised a TAC of 60,000 tons for the total shrimp stock in inshore and offshore areas in Subarea 1 and adjacent parts of Subarea 0 for 1996. Greenland set the effective offshore TACs for larger vessels (> 75 GRT) of 37,890 tons for Subarea 1.

3. Greenland halibut.

a. The fisheries.

The total catches of Greenland halibut by Greenland vessels in NAFO Subarea 1 amounted in 1995 to 19,319 tons. This is 29% increase compared to 1994. Additionally 3,462 tons were taken by foreign vessels (EU, Norway and Russia) bringing the total catch up to 22,781 tons. 17,990 tons were taken in inshore areas in 1995, compared to 14,238 tons in 1994. Catches in Division 1A comprised almost 99.5 % of the inshore catches, amounting to 17,911 tons. Inshore catches in Div. 1B-1F amounted to 79 tons. Offshore catches amounted to 4,807 tons and were mainly taken by trawlers (4,278 tons), while 529 tons were taken by Long liners.

The inshore fishery in Div. 1A is concentrated in three areas Ilulissat (7,400 tons), Uummannaq (7,234 tons) and Upernavik (3,269 tons). The fishery is conducted by long lines and gill nets which accounts for 76% and 24%, respectively.

b. Assessment.

No analytical assessment has been made for either inshore or offshore stock components.

4. Cod

a. The fisheries

Catches have decreased very significantly over the last five years with yields of 68,000 tons in 1990, the catches declined to 6,250 t in 1992, mainly because of an effort reduction in the offshore fishery directed towards groundfish, which has been non-existent since the spring of 1991. Catches in 1994 and 1995 amounted to only 2,115 and 1709 t, respectively. The

low inshore catches are due to decreasing catch rates and a general decline in the local inshore fishing effort directed to cod.

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 1996. Greenland offshore trawl survey, conducted in July-September 1995, showed an extremely low biomass of cod off West Greenland. Total abundance was estimated to be 0.7 million, equivalent to a biomass of 193 tons. These low values are consistent with the findings in the German survey, conducted in the same area, and are also in line with last years estimate. Probability of stock recovery depends only on future recruitment. In view of the severely depleted spawning stock and rare event of drift from Iceland, substantial stock recovery must be considered as very unlikely.

5. Salmon

After suspension of the commercial fishery for salmon in 1993 and 1994, the fishery was re-opened for the period 14 August to 15 October 1995. However, catches in the first two weeks approached the full quota (77 t) and so the fishery was closed on 1 September. The majority of the catches was landed in Divisions 1CE (77%), and very few fish were caught in the northernmost areas, probably due to the early closure of the fishery.

6. Capelin

The capelin fishery in West Greenland is carried out inshore and in the spawning season only (June-July). The main part of the catches is produced as whole frozen fish for bait and local consumption, while a smaller part is dried and stored as food for sledge dogs in the winter season. The nominal catch of 110 tons was a minor increase compared to the year before. The majority of the catches were taken in Div 1A..

7. Redfish

Redfish is mainly taken by offshore trawlers a minor part by smaller vessels inshore. Nominal catch of redfish in 1995 was 919 tons.

B. SPECIAL RESEARCH STUDIES

I. BIOLOGICAL STUDIES

1. Shrimp

The series of annual stratified-random trawl surveys initiated in 1988 was continued in 1995. In July-September 1994 research trawl hauls were made in the major parts of the distributional area of the West Greenland shrimp stock, including areas in Subarea 0 and the inshore areas in Disko Bay and Vaigat.

2. Greenland halibut.

Offshore length samples were obtained from commercial trawlers and one longline vessel. Otoliths were sampled during the joint Japan/Greenland survey, the annual Greenland shrimp survey and on board a commercial longliner.

Inshore length samples and otoliths were obtained from the commercial fishery in Ilulissat, Uummannaq and Upernavik in February, March and August, and otoliths were sampled during the Greenland longline survey.

A longline survey for Greenland halibut in the inshore areas of Ilulissat, Uummannaq, and Upernavik was initiated in 1993. The survey is conducted annually in July/August with the research long line vessel "Adolf Jensen", covering two of the three areas alternately, in order to obtain a CPUE index series for Greenland halibut. In 1995 52 lines with a total of 54,397 hooks were set in the areas around Uummannaq and Upernavik. Mean length and CPUE of Greenland halibut in Upernavik decreased insignificantly compared to 1994. In Uummannaq mean length was at the same level as in 1994. CPUE increased compared to 1994, but is still below the values obtained during trial fisheries in 1985-87.

3. Young Cod survey.

A survey using links of gill-nets with different mesh-sizes has been developed and used since 1985. The objective of the programme is to assess the abundance and distribution of pre recruit cod in inshore areas of Greenland. Results from this work are presented in the Report of The North-Western Working Group.

4. Salmon.

Samples were taken in Div. 1CEF in cooperation with biologists from Canada. 1,987 salmon were analyzed by Canadian biologists for biological characteristics (length, weight and age), and a discriminant analysis based on scale classification was applied to divide samples into North American and European components.

5. Icelandic Scallops.

A program conducted by local fishermen for planting out shallows (*Clamys islandica*) was initiated in the inshore area around Nuuk (NAFO Div. 1D). In this program small shallows (60mm >) was transferred from areas of low growth efficiency, to fished out areas previous filled with large shallows in order to reestablish these fishing grounds. A large amount of the transferred shallows have been tagged by the Greenland Institute of Natural Resources and kept in cages for measuring mortality and growth efficiency.

6. Joint-venture programs.

As a part of the joint venture program, that has been going on since 1987, between the Greenland Home Rule and the Japan Marine Fisheries Resources Research Center a trawl survey was carried out at West Greenland in August.

The survey was carried out as a stratified random bottom trawl survey covering Divisions 1A-1D at depths between 400 and 1500 m. The survey was primarily aimed at Greenland halibut and roundnose grenadier. The biomass of Greenland halibut increased from 31,000 tons in 1994 to 40,000 tons in 1995, but the increase is statistically insignificant.

7. Marine mammals.

a. Small cetaceans.

Studies of white whale and narwhal continued in 1995. Details are being reported to JCCM and NAMMCO.

b. Large cetaceans.

Studies of minke whale, fin whale and humpback whale continued in 1995. Details are being reported to IWC.

c. Seals.

Studies of harp and hooded seals are being reported to the Joint ICES/NAFO Working Group on Harp and Hooded Seals

GREENLAND FISHERY IN OTHER NAFO SUBAREASA. STATUS OF THE FISHERIES

In 1995 6 Greenland vessels were engaged in the Flemish Cap shrimp fishery (NAFO Division 3M). Total nominal catches amounted to 2,321 tons of shrimp, 5 tons of redfishes, and 6 tons of other species, compared to 2,276 tons of shrimp, 26 ton of redfish, and 10 ton of other spiced in 1994.

EAST GREENLAND (ICES SUBAREA IIa, Va, XII and XIV)A. STATUS OF THE FISHERIES1. General trends

Table 1 shows provisional figures for the Greenland fisheries in ICES Subareas Va, IIa, XII and XIV. The nominal catch increased by 59% from 6,127 tons in 1994 to 9,731 tons in 1995. The increase was mainly caused by a new fishery on Atlantic herring in ICES IIa and a raise in the landings of Greenland halibut. An increase in landings of Atlantic halibut was also observed whereas landings of cod, Greenland cod and wolffishes decreased. A fishery on Atlantic herring was initiated in 1995 in ICES IIa. Total nominal catches of Atlantic herring amounted to 3,000 tons. Minor changes were observed in the landings of other species.

2. Shrimp

a. The fisheries.

The catches by the 18 greenlandic vessels participating in the in this fishery amounted to 3,924 ton in 1994. In 1995 16 vessels maintained this level by landing 4,094 tons. This fishery is primarily taking place between 65°N and 67°30'N, and 26°W and 34°W. From 1993 and on new grounds were exploited in areas between 60°30'N and 65°N and west of 35°W.

Standardized catch rate indices based on logbook data from the Greenland fishery showed a continuous decrease from 1987 to 1993, followed by an increase from 1993 to 1994. The 1994 catch rate level was maintained in 1995.

b. Forecast for 1995.

Results from a trawl survey carried out in the main area of shrimp distribution in Denmark Strait indicated a shrimp biomass of 4,558 tons as an index. The estimated biomass was of the same order of magnitude as the estimate from 1989, and thus higher than the intervening years.

The survey showed a decrease in occurrence of both the largest males and the females between 1989 and 1992. Subsequent increases in the biomass estimate corresponded to an increase in numbers of both male and female shrimp. Although the 1995 biomass value was similar to that in 1989, stock composition was different; the estimated number of males was much larger in 1995 while that of females was lower.

Juvenile and small shrimp are absent in the survey samples as well as in commercial samples both from the traditional area and the new fishing areas south of 65°N, stressing that the total area of distribution and recruitment patterns of the stock are still unknown.

The shrimp stock abundance in Denmark Strait is still considered low compared to earlier years, although some improvement is indicated by catch-rate indices and biomass estimates. STACFIS hence advised a TAC of 5,000 tons for the shrimp stock in Denmark Strait in 1996, including the new fishing areas south of 65°N.

The total effective TAC in Greenland waters in 1995 has been set to 9,563 tons, of which 4,088 tons is reserved Greenlandic vessels (no effective TAC is set for the Icelandic side of the midline).

3. Capelin

Catch statistics for 1995 are uncomplete at present.

4. Atlantic herring

A fishery on Atlantic herring was initiated in 1995 in ICES IIa. Total nominal catches of Atlantic herring amounted to 3,000 tons.

B. SPECIAL RESEARCH STUDIES

I. BIOLOGICAL STUDIES

1. Groundfish and shrimp.

A trawl survey covering the main shrimp stock area in Denmark Strait was conducted in September-October with 72 trawl stations. The sampling and biomass estimations were based on the spline methodology using the "Spline Survey Designer Software System".

GREENLAND CATCHES OF HARP AND HOODED SEALS AT WEST GREENLAND AND EAST GREENLAND

General trends

Provisional statistics for the catches of Harp and Hooded Seals in 1994 are presented in Table 2. Statistics for 1995 are uncomplete at present.

Total catches of Harp and Hooded Seals in West Greenland in NAFO Subarea 1 in 1994 amounted to 46261 and 4814 respectively. In East Greenland (ICES XIV) catches of Hooded Seals amounted to 2776 and catches of Harp Seals to 738.

Table 1. Nominal catches (tons) by Greenland vessels at West Greenland (NAFO Subarea 1) and East Greenland (ICES Subarea IIa, Va, XII and XIV) in 1994* and 1995* and the relative changes from 1994 to 1995. (*provisional data).

Area:	NAFO SA. 1			ICES SA. IIa Va, XII, XIV		
Species	Nominal catch 1994	Nominal catch 1995	% change 1994-95	Nominal catch 1994	Nominal catch 1995	% change 1994-95
Cod	2115	1709	-19	72	29	-60
Greenland cod	1854	2526	36	4	3	-25
Redfish	1064	919	-14	86	140	63
Wolffishes	100	51	-49	6	5	-17
Grenadiers	21	46	119	0	14	+
Greenland halibut	14955	19319	29	35	533	1423
Atlantic halibut	38	23	-39	1	14	1300
Capelin	158	67	-58	1953	1797	-8
Atlantic salmon	0	69	+	0	2	+
Arctic char	23	54	135	0	0	0
Shark	34	46	35	0	20	+
Lumpsucker	607	447	-26	0	0	0
Shrimp	75908	77581	2	3924	4094	4
Crabs	72	998	1286	0	0	0
Scallops	2660	5288	99	0	0	0
Polar cod	2	0	-100	0	0	0
Atlantic herring	0	0	0	0	3000	+
Fish not specified	643	618	-4	46	80	74
Sum total	100254	109761	9	6127	9731	59

Table 2. Nominal catches (numbers) of Harp and Hooded seals at West Greenland (NAFO Subarea 1) and East Greenland (ICES Subarea Va and XIV) in 1994*. Catch statistics for 1995 are incomplete at present. (*provisional data).

Area:	NAFO SA. 1	ICES SA. Va, XIV
Species	Catch 1994 (numbers)	
Hooded Seals	4814	2776
Harp Seals	46261	738
Sum total	51075	3514