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Catch Statistics and Biological Sampling From the Norwegian Fishery in NAFO in 1995 (Revised) and 1996 (Preliminary)[1]

by

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Abstract

Two sources of fishery statistics are available from the Norwegian fishery outside the Norwegian EEZ. These are the Statlant 21A landings statistics and the log-books written by the skipper during fishing. The landings statistics are considered to give more exact weights whereas the log-books are more precise with regards to fishing locations. The Norwegian trawlers fishing for Greenland halibut concentrated all their effort to NAFO area 1D in 1996 with a slight increase in tons/hour compared to the year before. This was also the first year Norwegian longline vessels tried and succeeded in a commercial Greenland halibut fishery at West-Greenland. Length measurements of the trawl and longline catches, made by the fishermen themselves, are given. Revised catch figures for Greenland halibut taken by Norwegian vessels in Subarea 0 in 1989-1993 are presented.

Introduction

In addition to whaling, Norway has long traditions in fishing cod, Atlantic halibut, Greenland halibut and shrimp in the different NAFO areas. Information about fishing effort and age and length composition of the catches have regrettably often been scarce. Economically it may also be expensive to send people on board the vessels for biological sampling. The present paper informs about the Norwegian data sources for catch statistics and the length measurements taken of the Norwegian catches of Greenland halibut in the NAFO area in 1996.

Materials And Methods

Fishery statistics

The official Norwegian fishery statistics are based on the Statlant 21A statistics, expressed in tons live weight equivalent of the landings. Statlant 21A is based on information from the Norwegian sales unions. Another source of fishery statistics comes from the log-books obligatory for the vessels to write daily (longline) or for each trawl haul. The log-book statistic is generally more precise with regard to the information about the geographical location from which the catch was taken. The catch statistics presented in this paper are from a scientific point of view considered the most accurate to be used for assessment purposes. The log-book statistics also provide us with data on CPUE. A time-series of Norwegian trawler CPUE has been used in previous assessments and is updated by the present revised 1995 data and the new preliminary 1996 data.

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[1] This SCR Document is an upgrade of SC Working Paper No. 97/14, which was issued at the 4-19 June 1997 Meeting of the Scientific Council.

Biological sampling

The biological sampling from the Norwegian fishery in NAFO in 1996 is restricted to Greenland halibut in NAFO Division 1D. All the samples (only length) were taken by the fishermen themselves according to instructions given by the Institute of Marine Research in advance.

Altogether 7 length-samples were provided by one trawler catching approximately 20% (323 tons) of the total Norwegian trawl catch in 1996 (1586 tons). The samples were spread out in time (10 Oct -10 Nov 96).

Two Norwegian longliners participated in the Norwegian fishery for Greenland halibut at West-Greenland in 1996, catching 270 tons. One of these vessels provided us with 10 length samples spread out in time (1 Oct - 10 Nov 96).

Data (in tons) on fish by-catches in the Norwegian shrimp fishery at Flemish Cap should be available from the observers on board which report to NAFO with copy to the Norwegian Directorate of Fisheries. Data on by-catches are also entered into the official log-books and stored on paper. The importance of by-catch statistics for proper fish stock management is clear, and although no information is currently presented, proper by-catch statistics (preferably on length by species in addition to quantity) should be prepared for meetings to come.

Results

Fishery Statistics

Table 1-2 shows the Norwegian trawl catches and CPUE values by NAFO-area as revised figures for 1995 and preliminary figures for 1996. Table 3 shows the Norwegian longline catches in 1996. The redfish trawl catch of 3 tons in 3M in 1995 and the Greenland halibut longline catch of 1 ton in 3M in 1996 were only reported in the landings statistics and not in the log-books.

The Norwegian trawlers fishing for Greenland halibut concentrated all their effort to NAFO area 1D in 1996 with a slight increase in tons/hour compared to the year before. This was also the first year Norwegian longline vessels tried and succeeded in a commercial Greenland halibut fishery at West-Greenland.

Table 1. Revised Norwegian trawl catches by species and NAFO-area in 1995. The figures for Greenland halibut and cod are from log-books whereas the redfish and shrimp figures are the Statlant 21A landings statistics.

Species	Norwegian statist. area	NAFO-area	Catch	Fishing months	CPUE [1]		
Greenland halibut [1]					tons /fish day	tons/hours trawling	tons/haul
	67	1C	234	Aug-Oct	5.4	0.32	1.67
	68	1D	2244	Aug-Nov	8.4	0.47	2.43
	67 and 68	1C-D	2478	Aug-Nov	8.0	0.45	2.33
	81	3M	1	Oct			
Cod [1]	68	1D	6	Oct			
***Sebastes* sp**	81	3M	3				
Shrimp	81	3M	9042	Jan-Dec	4.5	0.25	1.21

1) From log-books.

Table 2. Preliminary Norwegian trawl catches by species and NAFO-area in 1996. The figures for Greenland halibut and cod are from log-books whereas the shrimp figures are the Statlant 21A landings statistics.

Species	Norwegian statist. area	NAFO-area	Catch	Fishing months	CPUE [1]		
Greenland halibut [1]					tons /fish day	tons/hours trawling	tons/haul
	67	1C					
	68	1D	1586	Aug-Nov	8.45	0.49	2.56
	67 and 68	1C-D	1586	Aug-Nov	8.45	0.49	2.56
Cod [1]	68	1D	23	Oct			
Shrimp	81	3M	5643	Apr-Dec	3.89	0.21	1.10

[1] From log-books.

Table 3. Preliminary Norwegian longline catches by species and NAFO-area in 1996.

Species	Norwegian statist. area	NAFO-area	Catch	Fishing months	CPUE		
Greenland halibut					tons /fish day	tons/hours trawling	tons/haul
	67 [1]	1C					
	68 [1]	1D	270	July-Oct	n.a.	n.a.	n.a.
	81 [2]	3M	1		n.a.	n.a.	n.a.
Skates [1]	68	1D	2	Oct	n.a.	n.a.	n.a.

[1] From log-books.
[2] From landings statistics, Statlant 21A (information from the Norwegian sales unions).
n.a. - not available

Revision of Norwegian catch statistics of Greenland halibut in Subarea 0.

According to Norwegian landings statistics (Statlant 21A) the correct catch figures for Greenland halibut taken by Norwegian vessels in Subarea 0 should be:

1989:	0 tons
1990:	5,668 tons
1991:	3,566 tons
1992:	0 tons
1993:	373 tons

The big difference between these figures and those at present seen in the NAFO statistics for 1990 is due to double reporting caused by Canada/Greenland reporting catches taken by Norwegian vessels during a joint-venture project.

According to international conventions the responsibility of statistical catch reporting belongs to the flag state.

Biological sampling of Greenland halibut in NAFO Subarea 1 in 1996

Length measurements of the trawl and longline catches, made by the fishermen themselves, are given in Table 4 (trawl) and Table 5 (longline). The frequency distributions (common and cumulative) are shown in Figure 1 for illustrating the differences between the two gears.

Table 4. Length measurements of Greenland halibut from seven trawl hauls at West-Greenland in 1996.

TRAWL	St.no. 1	St.no. 2	St.no. 3	St.no. 4	St.no. 5	St.no. 6	St.no. 7	Total	%	Cumul
Date	10.10.96	14.10.96	21.10.96	29.10.96	04.11.96	06.11.96	10.11.96			
Depth	1430m	1150-1350	1300-1400	1240m	1150m	1200m	1100m			
Position	N6303 W5640	N6350 W5750	N6340 W5640	N6345 W5717	N6342 W5620	N6348 W5750	N6350 W5700			
Catch	3300 kg	2250 kg	3000 kg	2400 kg	3975 kg	3150 kg	3300 kg			
Length										
30-34		1		1				2	0.00	0.00
35-39		1		1	1			3	0.00	0.00
40-44		2	1	3	1	5	4	16	0.02	0.03
45-49	5	19	8	25	38	21	27	143	0.19	0.22
50-54	25	31	36	30	48	38	48	256	0.34	0.55
55-59	24	14	32	21	29	26	17	163	0.22	0.77
60-64	12	10	13	10	13	13	3	74	0.10	0.87
65-69	4	10	11	6	3	5	1	40	0.05	0.92
70-74	10	3	2	2	3	1		21	0.03	0.95
75-79	4	3	2					9	0.01	0.96
80-84	4	4	2	1				11	0.01	0.97
85-89	5	1	3					9	0.01	0.99
90-94	5	1	1					7	0.00	1.00
95-99	2							2	0.00	1.00
100-104						1		1	0.00	1.00
105-109								0	0.00	1.00
SUM	100	100	111	100	136	110	100	757		

Table 5. Length measurements of Greenland halibut from ten longline fleets at West-Greenland in 1996.

LONG-													
St.no.	1	2	3	4	5	6	7	8	9	10	Total	%	Cumul
Date	17.08.96	19.08.96	20.08.96	30.08.96	1.09.96	9.09.96	15.09.96	18.09.96	24.09.96	5.10.96			
Depth	1400-1540	1290-1460	1300-1470	1120-1350	1150-1320	1305-1450	1295-1415	1160-1260	1350-1470	1450-1520			
Position	N6312 W5450	N6315 W5448	N6314 W5450	N6322 W5522	N6322 W5520	N6343 W5757	N6342 W5752	N6341 W5628	N6310 W5507	N6309 W5506			
Catch	-	-	-	-	-	-	-	-	-	-			
Length													
30-34													
35-39													
40-44													
45-49													
50-54	2	2	9	2		4	5	5	3		32	0.03	0.03
55-59	6	8	6	2		4	5	13	5	3	52	0.05	0.07
60-64	3	14	13	3	15	17	5	22	5	5	102	0.09	0.16
65-69	11	20	16	3	0	3	5	21	8	11	98	0.09	0.25
70-74	22	14	14	9	14	19	16	16	5	26	155	0.14	0.38
75-79	23	22	14	2	12	15	5	14	14	22	143	0.12	0.51
80-84	32	17	8	7	17	17	21	6	25	18	168	0.15	0.65
85-89	13	13	7	15	21	11	7	6	29	7	129	0.11	0.77
90-94	3	5	6	12	14	9	23	7	13	5	97	0.08	0.85
95-99	4	5	6	15	14	5	10	6	10	3	78	0.07	0.92
100-104	4	7	1	27	2	5	17	6	2	3	74	0.06	0.98
105-110		3		3	3		1	2	3	3	18	0.02	1.00
SUM	123	130	100	100	112	109	120	124	122	106	1146		

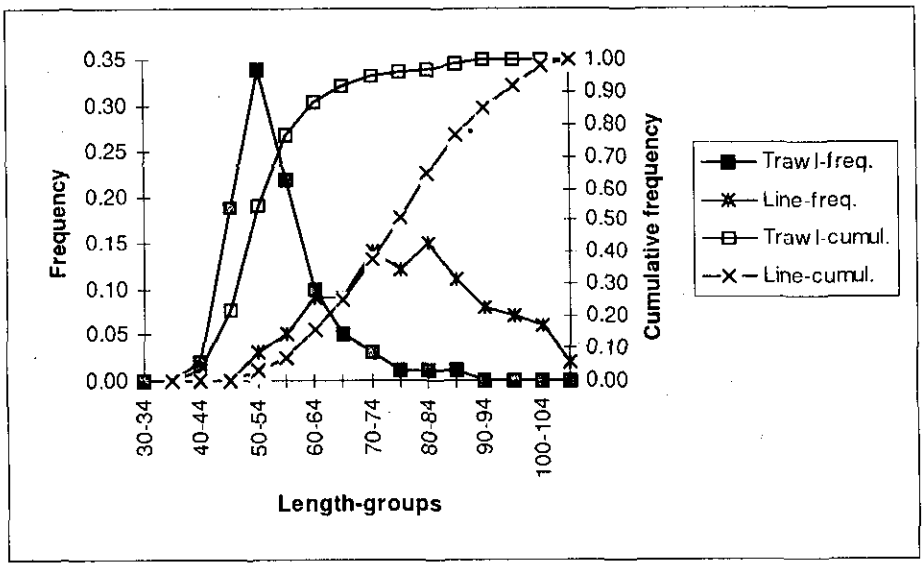

Figure 1. Length frequency distribution and cumulative frequency of Greenland halibut caught by trawl (squares) and longline (stars and crosses). The curves are based on samples taken by the fishermen during the Norwegian fishery at West-Greenland in 1996.