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The Greenland Fishery for Northern Shrimp (*Pandalus borealis*) on Flemish Cap, NAFO Division 3M
and Grand Bank , NAFO Division 3L, in 1999 and 2000

by

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Abstract

Greenland trawlers have participated in the Flemish Cap fishery since the fishery began in 1993. Greenland catches has been decreasing since the beginning of the fishery, from about 3 800 tons in 1993 to 105 tons in 1997. In 2000 a fishery on Grand Bank was initiated and Greenland participated with small catches on 34 tons. Catches increased thereafter and amounted to 1 636 tons in 2000. This paper updates information on the geographical distribution and catches rates in Div. 3M and Div. 3L for 1999 and 2000, and presents results from biological samples from the commercial shrimp fishery in Div. 3M.

Introduction

In 1999 only one Greenland trawlers participated in the Flemish Cap fishery from May to August, and in 2000 (by mid-October) 6 Greenland trawler has participated the fishery. Based on weekly reporting to Greenland authorities by Greenland vessels the total catch at Flemish Cap in 1999 amounted to 576 tons. The total catch on Flemish Cap in 2000 until mid October amounted to 1 636 tons, where catches in 2000 on Grand Bank amounted to 34 tons in the same period.

Logbook records provided information on fleet performance to the Greenland Institute of Natural Resources. Logbook data covered 1 863 hours of trawling and a total catch 580 tons in 1999. In 2000 received logbooks until mid-October covers 2 929 trawling hours and 1 592 tons from the Flemish Cap fishery and 27 trawling hours and 34 tons from the Grand Bank fishery.

Materials and Methods

Based on compulsory weekly reporting to Greenland authorities total catches and numbers of vessels in the shrimp fishery in NAFO Div. 3M and Div. 3L was compiled from 1993 until mid-October 2000.

Catch and effort data from individual fishing vessels as reported in vessels logs were analysed to show the monthly distribution of catches, fishing effort and mean unstandardized catch rates.

Size composition of shrimp catches in Div. 3M was generated from samples from the commercial fishery in April and June 2000. Samples taken by observers before processing were sorted by sexual characteristics and measured to the nearest 0.1mm carapace length. The data were then pooled in 0.5mm length groups by month.

Results

Reported catches till October 2000

Nominal catches off shrimp and numbers of Greenland vessels participating in the Flemish Cap fishery from 1993 to 2000 (up to mid-October) are:

	1993	1994	1995	1996	1997	1998	1999	2000	
	<i>3M</i>	<i>3M</i>	<i>3M</i>	<i>3M</i>	<i>3M</i>	<i>3M</i>	<i>3M</i>	<i>3M</i>	<i>3L</i>
Catch (tons)	3778	2275	2400	1107	105	853	576	1636	34
No. of vesse	12	9	6	6	2	2	1	6	2

Catch, effort and CPUE

In 1998, and 1999 the fishery commenced from May to August. The unstandardized catch rates for single and twin trawl in 1998 were less than 240 kg/hr. Catch rates in 1999 have increased to 311 kg/hours. Catch rates in 2000 increased again to a record high value of 544 kg/hours.

Catch (tons), effort (hours) and catch rates in Div. 3M and Div. 3L divided in single trawl fishery (1) and twin trawl fishery (2) (effort in the twin trawl is corrected with a factor 2), as reported in vessel logs in 1998, 1999 and 2000 are:

3M

Year Month	April		May		June		July		August		Total
	Trawl	1	2*	1	2*	1	2*	1	2*	1	
1998 Tons	-	-	3	95	9	245	27	464	-	9	852
Hours	-	-	12	470	40	900	140	1990	-	44	3596
kg/hr	-	-	234	202	215	272	189	233	-	208	237
1999 Tons	-	-	-	102	6	293	2	177	-	-	580
Hours	-	-	-	398	16	862	9	578	-	-	1863
kg/hr	-	-	-	251	392	340	169	306	-	-	311
2000 Tons	15	143	18	375	2	674	-	365	-	-	1592
Hours	99	339	86	790	6	991	-	618	-	-	2929
kg/hr	152	422	209	475	333	680	-	591	-	-	544

2* Effort in dobbeltrawl is corrected with a factor 2

3L

Year Month	April		May		June		July		August		Total
	Trawl	1	2*	1	2*	1	2*	1	2*	1+2	
2000 Tons	-	6	-	-	-	-	-	28	-	-	34
Hours	-	3	-	-	-	-	-	27	-	-	27
kg/hr	-	2000	-	-	-	-	-	1037	-	-	1259

Annual catch and unstandardized catch rates (effort in twin trawl corrected with a factor 2) from 1993 to 2000 is showed in Fig. 1. Overall catch rates decreased from 1993 until 1997, but increased again to record high value 2000.

Shrimp Discard and By-catches

Total shrimp discard is reported in logbooks to 2.680 kilo and 10.815 kilo in 1999 and 2000, respectively, or less than 1% of the total shrimp catches.

The information on by-catches from 1998 and 1999 is recorded as fin-fish only and amounted 6.436 kilo and 5.165 kilo respectively or less than 1% of total shrimp catches. No by-catches were reported for 2000.

Geographical Distribution of the Fishery

Figures 2 and 3 shows the geographical distribution of total catches in 1999 and 2000 respectively as recorded in vessel logs. In 1999 and 2000 the fishery was concentrated at the northern and north-western part of the Flemish Cap, as earlier years.

Length Distributions

The total length distribution (unweighted) by sex in Greenland catches at Flemish Cap is showed in Fig. 4 and for the month April and July in Fig. 5 and 6. The size compositions in 2000 showed that small males with a modal Cp. length of 19 mm dominated the catch in numbers. The female component consists of two groups: one with a modal Cp. length of 24.0 mm and one at 26.0 mm. The length distribution in Greenland catches change from April to July towards larger shrimp.

Conclusions

Greenland catches has been decreasing since the beginning of the fishery, from about 3 800 tons in 1993 to 105 tons in 1997. Catches increased thereafter and amounted to 1 636 tons in 2000. Numbers of vessels that participated in the fishery decreased to only one vessel in 1999, but increased again in 2000 to 6 vessels. Unstandardized catch rates have been increasing since 1997.

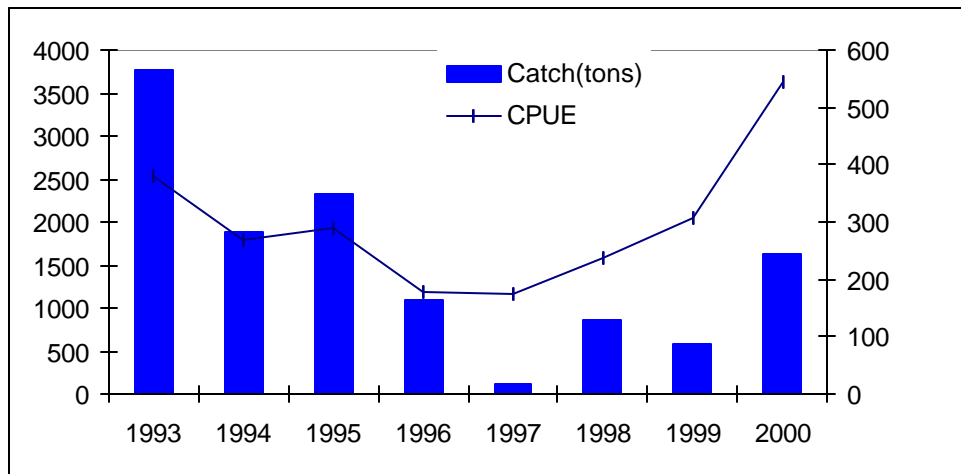


Fig. 1. Total catch (tons) and CPUE (unstandardized kg/hour) from 1993-2000 (twin trawl is corrected with a factor 2).

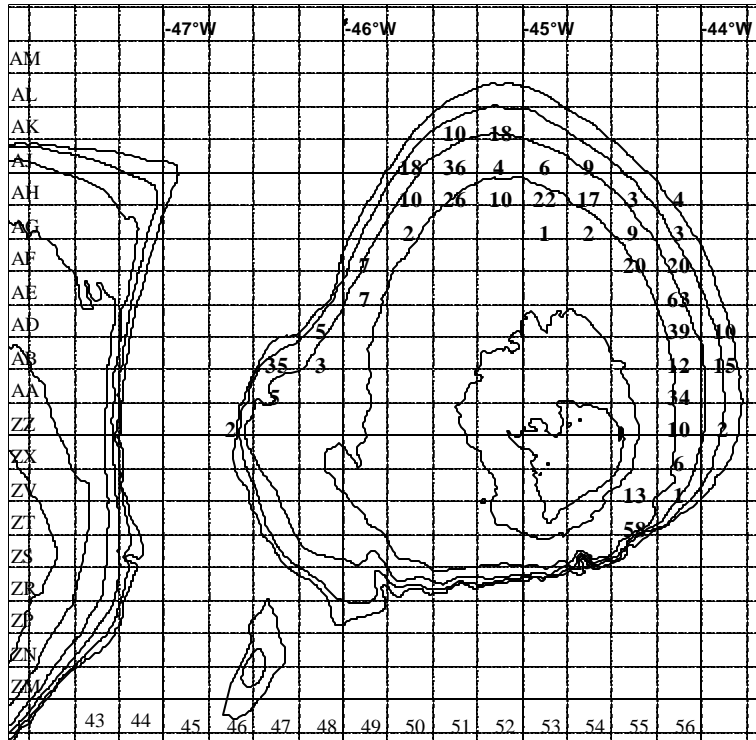


Fig. 2. Geographical distribution of shrimp catches in 1999 on Flemish Cap (tons by statistical unit).

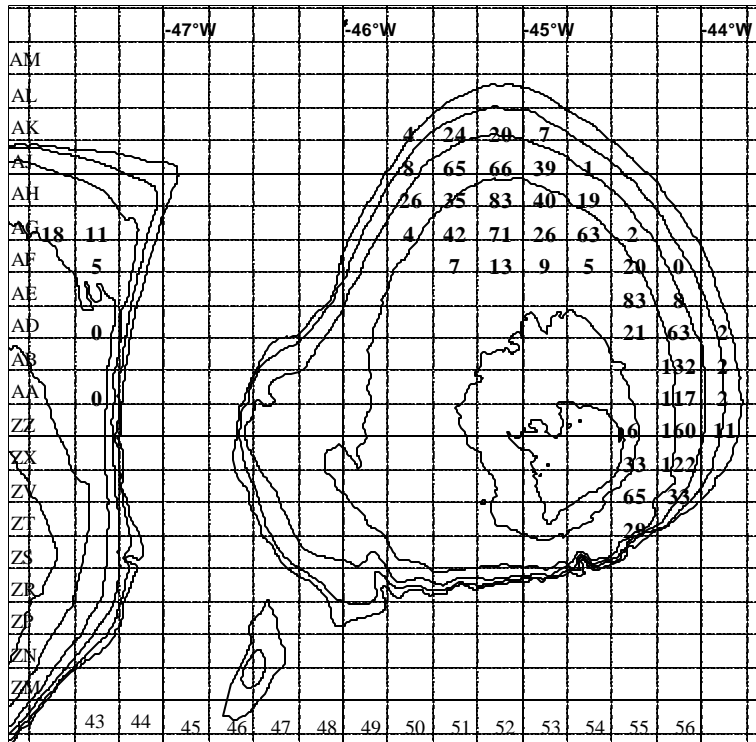


Fig. 3. Geographical distribution of shrimp catches in 2000 on Flemish Cap (tons by statistical unit).

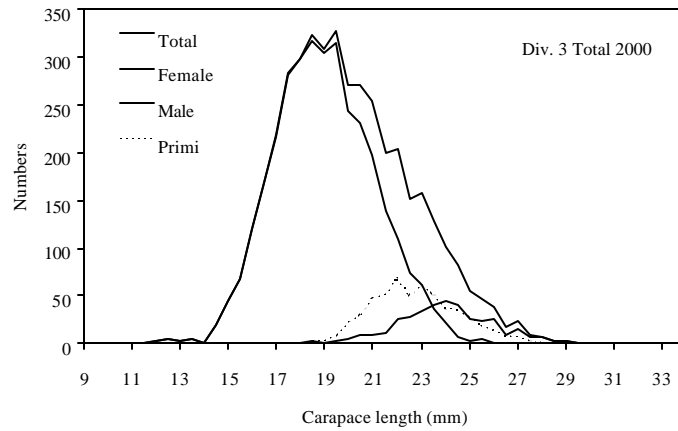


Fig. 4. Total unweighted commercial length distribution by sex in Greenland catches, NAFO Div. 3M, in 2000, based on 16 samples including 4 223 shrimps.

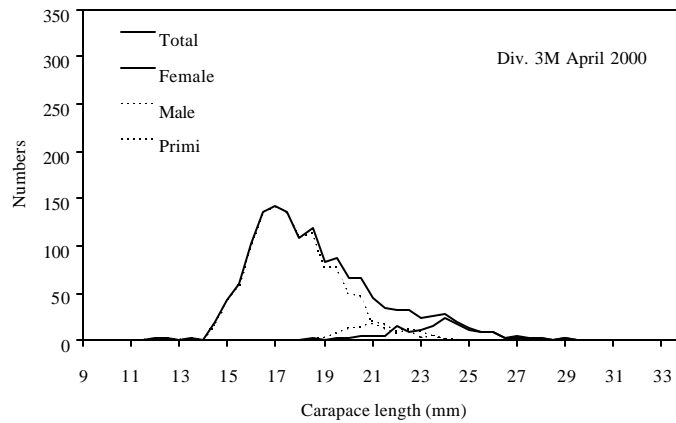


Fig. 5. Total unweighted commercial length distribution by sex in Greenland catches, NAFO Div. 3M, April 2000, based on 5 samples including 1 471 shrimps.

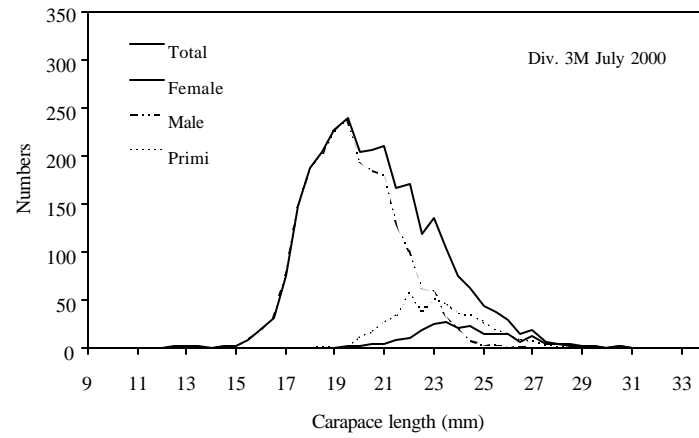


Fig. 6. Total unweighted commercial length distribution by sex in Greenland catches, NAFO Div. 3M, July 2000, based on 11 samples including 2 752 shrimps.