

Northwest Atlantic



Fisheries Organization

Serial No. N4911

NAFO SCR Doc. 03/72

SCIENTIFIC COUNCIL MEETING – NOVEMBER 2003

The Greenland Fishery for Northern Shrimp (*Pandalus borealis*) in NAFO Divisions 3M and 3L in 2000-2003

by

Helle Siegstad

Greenland Institute of Natural Resources
Box 570, DK-3900 Nuuk, Greenland

Abstract

Greenland trawlers have participated in the fishery on Flemish Cap, Div. 3M, since the fishery began in 1993. Greenland catches decreased 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. No catches were reported from 2001. Two Greenland vessels participated in the fishery on Flemish Cap in 2002 and 2003 with reported catches of 680 tons and 873 tons, respectively.

In 2000 a fishery on Grand Bank, Div. 3L was initiated and Greenland participated with small catches of 34 tons. No catches were reported from the Greenland fleet in Div. 3L in 2001, but reports in 2002 and 2003 amounted to 11 tons and 293 tons, respectively.

This paper updates information on the geographical distribution and catch rates for the Greenland fishery in 2000-2003. In 2003 there are no biological samples from the commercial shrimp fishery in Div. 3M and Div. 3L.

Introduction

In 2000 six Greenland trawlers participated in the Flemish Cap and Grand Bank fishery. In 2001 there was no reported fishery. In 2002 and 2003 (by mid-October) 2 Greenland trawlers participated in the fishery. Based on weekly reporting to Greenland authorities by Greenland vessels the total catch in 2000 amounted to 1636 tons on Flemish Cap and 34 tons on Grand Bank. On Flemish Cap in 2002 and 2003 catches were reported to 683 tons and 873 tons, respectively. On Grand Bank in 2002 and 2003 catches were reported to 11 tons and 293 tons, respectively.

Logbook records provided information on fleet performance to the Greenland Institute of Natural Resources.

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 were compiled from 1993 until mid October 2003.

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.

Results

Reported catches till October 2003

Nominal catches of shrimp and numbers of Greenland vessels participating in the Flemish Cap fishery from 1993 to 2003 (up to mid-October) are:

	1993	1994	1995	1996	1997	1998	1999	2000		2002		2003	
	3M	3M	3M	3M	3M	3M	3M	3M	3L	3M	3L	3M	3L
Catch (tons)	3778	2275	2400	1107	105	853	576	1636	34	683	11*	873	293
No. of vessels	12	9	6	6	2	2	1	6	2	2	1	2	2

* no logbooks

Catch, effort and CPUE

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 from 2000 to 2003 are:

3M

Year	Month Trawl	April		May		June		July		August		September		Total 1+2
		1	2*	1	2*	1	2*	1	2*	1	2*	1	2*	
2000	Tons	15	130	18	369	2	650	-	359	3	51	2	67	1666
	Hours	99	644	93	1582	6	1934	-	1184	41	354	22	428	6387
	kg/hr	152	202	194	233	333	336	-	303	73	144	91	157	261
2002	Tons	-	-	14	246	-	388	-	-	-	-	-	-	648
	Hours	-	-	21	890	-	1490	-	-	-	-	-	-	2401
	kg/hr	-	-	667	276	-	260	-	-	-	-	-	-	270
2003	Tons	-	-	-	-	-	25	-	468	-	318	-	-	811
	Hours	-	-	-	-	-	58	-	1330	-	990	-	-	2378
	kg/hr	-	-	-	-	-	431	-	352	-	321	-	-	341

2* Effort in dobbeltrawl is corrected with a factor 2

3L

Year	Month Trawl	April		May		June		July		August		Total 1+2
		1	2*	1	2*	1	2*	1	2*	1	2*	
2000	Tons	-	6	-	-	-	-	-	28	-	-	34
	Hours	-	3	-	-	-	-	-	27	-	-	27
	kg/hr	-	2000	-	-	-	-	-	1037	-	-	1259
2003	Tons	-	-	-	-	-	-	256	31	-	-	287
	Hours	-	-	-	-	-	-	111	14	-	-	125
	kg/hr	-	-	-	-	-	-	2306	2214	-	-	2296

2* Effort in dobbeltrawl is corrected with a factor 2

Annual catch and unstandardized catch rates (effort in twin trawl corrected with a factor 2) from the Flemish Cap fishery in the period from 1993 to 2003 are showed in Fig. 1. Overall catch rates decreased from 1993 until 1997, but increased again to record high value 2003.

Shrimp Discard and By-catches

Total shrimp discard in NAFO Div. 3M is reported in logbooks to 8 tons and 7 tons in 2002 and 2003, respectively, or less than 2% of the total shrimp catches. In NAFO Div. 3L in 2003 shrimp discard is reported to 1.2 tons or 0.4% of the shrimp catches.

The information on by-catches is recorded as redfish and other fin-fish. Information from logbooks on shrimp catch, by-catch (redfish and others finfish), shrimp discard by area, month and year is:

Year	Area	Month	Catch	Redfish	Other fish	Shrimp discard	Bycatch total	%bycatch	%shrimpdiscard
2002	3M	5	259919	3110	1625	2830	4735	1,82	1,09
2002	3M	6	388156	6195	3165	5646	9360	2,41	1,45
3M total 2002			648075	9305	4790	8476	14095	2,17	1,31
3L total 2003	3L	7	286700	605	680	1212	1285	0,45	0,42
2003	3M	6	24626	440	125	190	565	2,29	0,77
2003	3M	7	468348	4105	1915	3597	6020	1,29	0,77
2003	3M	8	318445	4775	1475	3150	6250	1,96	0,99
3M total 2003			811419	9320	3515	6937	12835	1,58	0,85

In 3M total by-catch in 2002 and 2003 is reported to a level around 2% of total shrimp catches. In 2003 the by-catch in 3L is reported to less than 0.5% of total shrimp catches.

Geographical distribution of the fishery

Figures 2 and 3 show the geographical distribution of total catches in 2002 and 2003, respectively, as recorded in vessel logs. In 2002 and 2003 the fishery was concentrated at the northern and northeastern part of the Flemish Cap, as in earlier years.

Length Distributions

The total (unweighted) length distribution by sex in Greenland catches at Flemish Cap is showed in Fig. 4. In June 2002 6 samples (1 300 animals) were collected by observers at a total weight of 9.89 kilo representing 21 tons catch. The size compositions in 2002 showed representation of small males with a modal Cp. length of 19 mm, and a female mode on Cp. length of 25.0 mm.

Conclusions

Greenland catches in Flemish Cap, NAFO Div. 3M decreased from about 3 800 tons in 1993 to 105 tons in 1997. Catches increased thereafter and amounted to 1 636 tons in 2000. No fishery was conducted in 2001 by the Greenland fleet, but in 2002 and 2003 reported catches were 683 tons and 873 tons, respectively. Number of vessels that participated in the fishery decreased to only one in 1999, but increased again in 2000 to 6 vessels. Only 2 vessels participated the fishery in 2002 and 2003. Unstandardized catch rates have been increasing since 1999, and reached record high value in 2003.

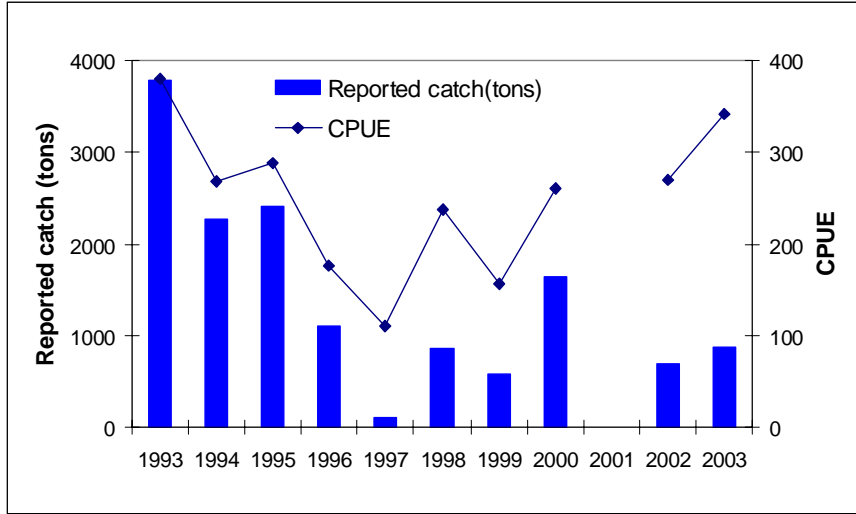


Fig. 1. Total catch (tons) and CPUE (unstandardized kg/hour) from 1993-2003 (twin trawl is corrected with a factor 2).

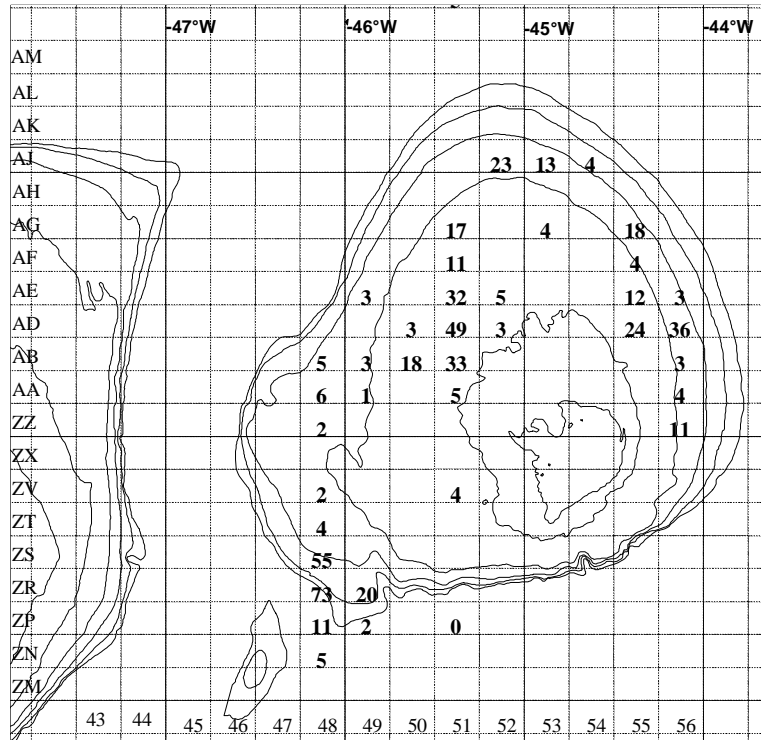


Fig. 2. Geographical distribution of shrimp catches in 2002 on Flemish Cap (tons by statistical unit).

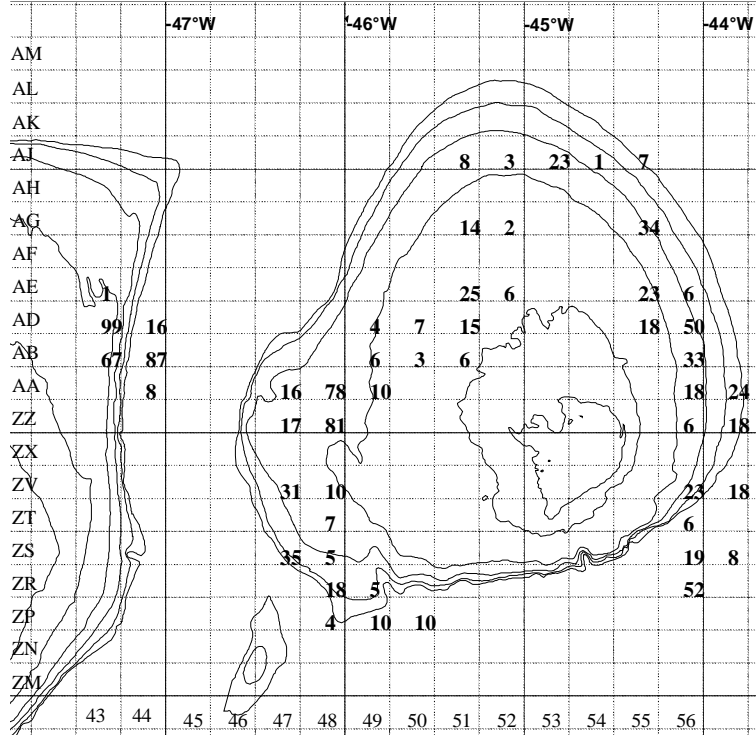


Fig. 3. Geographical distribution of shrimp catches (tons by statistical unit) in 2003 on Flemish Cap and Grand Bank.

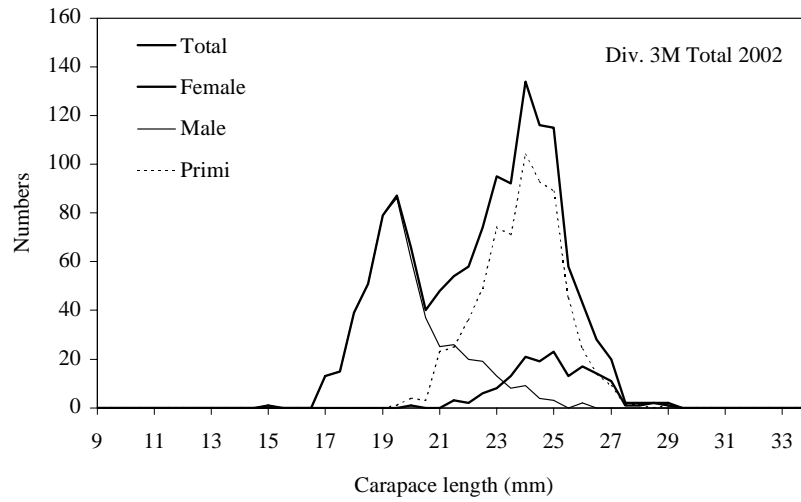


Fig. 4. Total unweighted commercial length distribution by sex in Greenland catches, NAFO Div. 3M, in 2002, based on 6 samples including 1 334 shrimps.