

Northwest Atlantic



Fisheries Organization

Serial No. N2782

NAFO SCR Doc. 96/99

SCIENTIFIC COUNCIL MEETING - SEPTEMBER 1996

The Greenland Fishery for Northern Shrimp (*Pandalus borealis*)  
on Flemish Cap, NAFO Division 3M, in 1995 and 1996

by

C. Hvingel and H. Siegstad

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

*Introduction*

In 1995 six Greenland vessels participated in the Flemish Cap fishery from May to August. In 1996 only five vessels were fishing in Div. 3M covering the months May to July

Based on weekly reportings to Greenland authorities by all Greenland vessels the total catch at Flemish Cap in 1995 amounted to 2321 tons. The total catch in 1996 until August 20th amounted to 1067 tons.

Logbook data provided information on fleet performance to the Greenland Institute of Natural Resources. Logbook data covered 8073 hours of trawling and a total catch of 2325 tons in 1995. In 1996 logbooks received until September 1th covered 3061 hours of trawling and 1051 tons of catch - almost all of the total reported catch in 1996.

This paper updates information on catch and effort statistics and the geographical distribution of the Greenlandic shrimp fishery in Div. 3M.

*Materials and methods*

Based on compulsory weekly reportings to Greenland authorities total catches and numbers of vessels in the shrimp fishery i NAFO Div. 3M were compiled by month from April 1995 until early August 1996.

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 unstandardiced catch rates.

No samples for analysis of size composition of shrimp catches at Flemish Cap 1996 were received.

*Results*

Reported Catches 1995 - August 1996

Table 1 shows catches by month and the numbers of reporting vessels in Div. 3M in 1995 and 1996 as reported to

Greenland authorities. As from 1993 to 1995 the number of vessels participating in the Flemish Cap fishery continues to decline from 1995 to 1996. The total catch was also reduced from 2321 tons sheared by 6 vessels, to 1067 tons caught by 5 vessels

**Table 1.** Shrimp catches (tons) and no. of vessels participating in fishery in NAFO Div. 3M by month in 1995 and 1996 as reported to Greenland authorities.

Year	Month:	April	May	June	July	Aug.	Sep.	Total
1995	Catch (tons)	-	335	900	1086	-	-	2321
	No. of vessels	-	3	6	4	-	-	6
1996	Catch (tons)	34	176	492	365	-	-	1067
	No. of vessels	1	2	4	4	-	-	5

**Catch, effort and CPUE**

Logbook records showed that in both 1995 and 1996 most catch and effort occurred in June and July (table 2). Compared to 1995 effort decreased about 35% from 4799 hours to 3061 in 1996 while catches dropped more than 50% from 2327 tons to 1051 tons.

**Table 2.** Catch (tons) and effort (hours) divided in single trawl fishery (1) and twin trawl fishery (2), as reported in vessel logs in 1995 and 1996.

Year	Month:	May		June		July		Aug.		Total
		1	2	1	2	1	2	1	2	
1995	Tons	38	197	265	653	145	947	2	80	2327
	Hours	137	364	903	1167	478	1593	6	151	4799
1996	Tons	15	181	159	321	21	354	-	-	1051
	Hours	62	533	553	807	67	1039	-	-	3061

The catch rates of the single trawl fishery were at about the same level in 1996 as in 1995 (table 3) while those of twin trawling vessels declined.

**Table 3.** Catch rates (kg/hr) in single (1) and twin (2) trawl fishery as reported in vessel logs in 1994 and 1995.

Year	Month:	May		June		July		Aug.		Total
		1	2	1	2	1	2	1	2	
1995	kg/hr	274	540	294	560	304	594	298	528	485
	kg/hr	239	340	288	398	309	342	-	-	343

In 1995 the fishery commenced in the middle of May at a catch rate of about 180kg/hr (single trawl). The CPUE showed an increasing trend throughout the season and peaked close to 400kg/hr just before the fishery ended in early August. The catch rates for twin trawlers in 1995 fluctuated around a level of about 550kg/hr. In 1996 the twin trawlers started out at 400kg/hr but even though catch rates after a decline the following two weeks went up further, it never reached the level of 1995. Catch rates of single trawlers were at or a little above the corresponding catch rates of 1995.

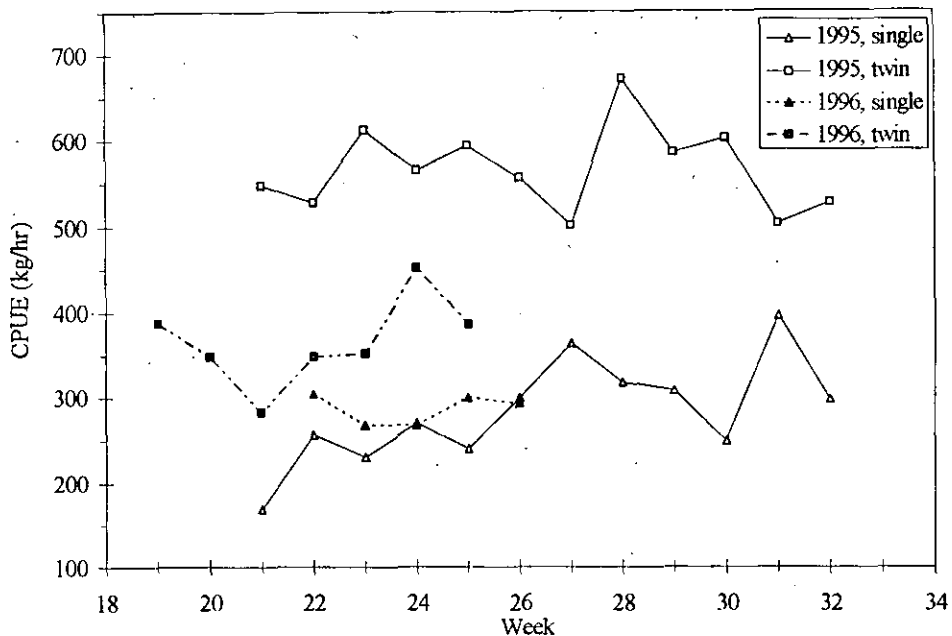


Fig 1. CPUE (kg/hr) in NAFO Div. 3M from logbook data by week in 1995 and 1996 divided in single and twin trawl fishery.

**Shrimp Discard and By-catches**

Information on by-catch and shrimp discard were compiled from logbooks (table 4). Redfish was the most dominant species in the by-catch with in 1996 seemed to remain at the 1995 level. However reported levels on by-catch and shrimp discard should be taken with caution.

Table 4. Discard and by-catch in absolute weight (kg) and in % of total shrimp catch as reported in vessel logs.

Year	Spec.	May	June	July	Aug.	Total
1995	Redfish	490	2543	2150	270	5453
	Mixed	486	2039	2721	316	5562
	Total	976	4582	4871	586	11015
	% by-catch	0.4%	0.5%	0.4%	0.7%	0.5%
	Shrimp disc.	1105	5716	2441	361	9623
	% disc.	0.5%	0.6%	0.2%	0.4%	0.4%
1996	Redfish	0	494	346	-	840
	Mixed	1444	1758	2455	-	5657
	Total	1444	2252	2801	-	6497
	% by-catch	0.7%	0.5%	0.7%	-	0.6%
	Shrimp disc.	972	845	1010	-	2827
	% disc.	0.5%	0.2%	0.2%	-	0.3%

**Geographical Distribution of the Fishery**

Figure 2 shows the geographical distribution of the catches in 1995 and 1996 respectively as recorded in vessel logs. The fishery in 1995 were concentrated at the western side of the Flemish Cap with smaller catches in the north. In

1996 also the north-eastern and eastern side of the Cap was included producing the largest part of the total catches at the Flemish Cap.

The effort spent by Greenlandic vessels in 1996 by month is shown in Fig. 3.

		Total catches 1995															
		43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
48	AK																0
	AJ									19	62	27					
	AH						13	96	17								
	AG						50	119	6								
	AF						127	23									
	AE						76										
	AD					2	57	88	1								
	AB					93	49	69									
	AA					63	53	101	12								
	47	ZZ						33	161	47							
ZX							112	94	29								
ZV						86	75	73									
ZT							59										
ZS							4										
ZR																	
ZP																	
ZN																	

		Total catches 1996															
		43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
48	AK										8	1					
	AJ									4	29	18	56	26			
	AH						16	5	1	3	70	24					
	AG						3	2			1	19	35				
	AF						10	0				2	13	20			
	AE						7	8	4				4	29	0		
	AD						23	4	7					30	3		
	AB						7	11	6					57	12		
	AA						0	51	3	3				51	34		
	47	ZZ						4	17		3				99	16	
ZX										3				122	5		
ZV										0				12			
ZT										1							
ZS										1	12						
ZR										0	5						
ZP																	
ZN																	

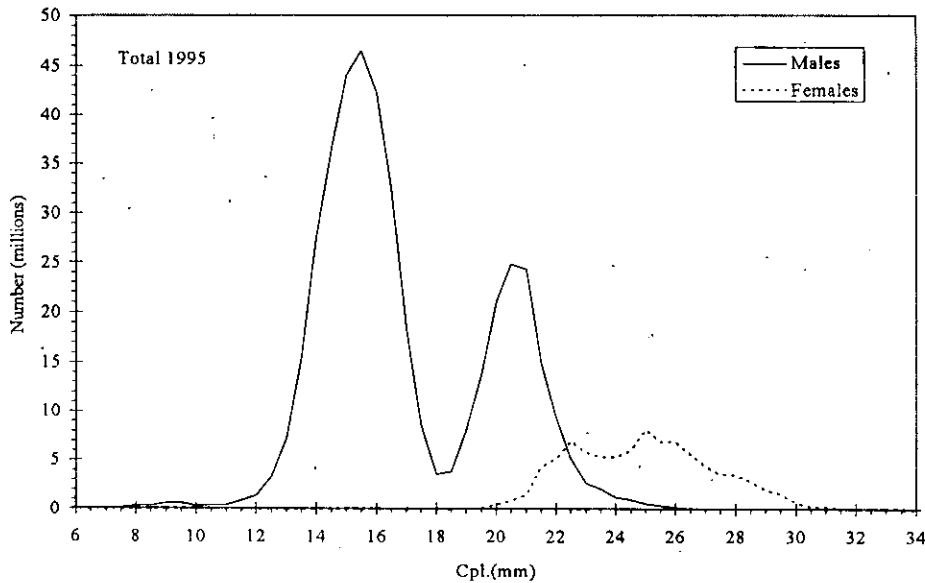
Fig. 2. Geographical distribution of catches (tons) by Greenlandic vessels in 1995 and 1996 at Flemish Cap.



### Length Distributions

The estimated size compositions of the Greenland catches in 1995 showed that small males with a modal Cp. length of 15 mm and larger male group of 21 mm dominated the catch (fig. 2). The females form a broad group with suggested peaks at 22.5 mm, 25 mm and 28 mm.

Unfortunately samples have not been available from the 1996 catches and thus no length frequency distributions have been produced. Analysis of the production size categories from the vessel logs indicates that about 75% of the catch (in numbers; discard not included) consists of shrimp smaller than 22mm (cpl). No major changes in the 1996-size distribution compared to 1995 was thus suggested.



**Fig. 4.** Length distribution of shrimp by sex in Greenland catches, NAFO Div. 3M, 1995, based on 23 samples taken in May and July and including 16,677 individuals.

### *Discussion*

The fishery for northern shrimp on Flemish Cap is on the fourth year and can still be considered as a new fishery.

The introduction of twintrawl in 1995 improved the catch rates significantly. In 1996 catch rates with twin trawls were lower than 1995. Catch rates of single trawlers were at or a little above the corresponding catch rates of 1995.