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Norwegian Investigations on Shrimp, *Pandalus borealis*,  
in East Greenland Waters in 1982

by

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INTRODUCTION

The Norwegian landings of shrimp in East Greenland waters in 1981 were 2,016 tons compared to the quota of 3,000 tons. The Norwegian quota in 1982 was 1,750 tons. Seventeen vessels have taken part in the fishery and the reported landings are 1,880 tons.

Results of field investigations, together with analyses of commercial fishery data for the years 1980 and preliminary catch and effort data for 1981 were reported by Jakobsen and Torheim (1981). The results of investigations carried out in 1982 together with analyses of final catch and effort data for 1981 and preliminary catch and effort data for 1982 are presented in this paper.

MATERIALS AND METHODS

From 10-27 April 1982 one of the authors was an observer on board the stern trawler "*Lyshaug*". The catches examined by the observer were taken in a small area, close to the iceborder, south of 66°N and about 30°W (Fig. 1).

The shrimp were sorted into "landings" and "discards" categories after they had been separated from the fish in the catch. Details of the trawl hauls which were examined by the observer are given in Table 1.

Random samples of shrimp catches were taken for length measurements (carapace length to the nearest mm) (Fig. 2). In addition, some length compositions were obtained for by-catches of Greenland halibut (Fig. 3), redfish (Fig. 4), and cod (Fig. 5).

Monthly catch and effort data from 1981 and 1982 are compiled from logbooks of the vessels participating in the fishery. For 1982 preliminary data are available from 9 vessels, accounting for 53% of the landings.

SIZE COMPOSITION OF SHRIMP

Length compositions of shrimp in samples of total catch collected by the observer on board "*Lyshaug*"

are listed in Table 2. The weighted mean length composition (with catch as the weighting factor) is shown in Fig. 2. As in 1981, large shrimp with a modal group around 29 mm (carapace) were dominating. In the discarded shrimp, a size group with modal length of 24 mm is also indicated. The quantity of discarded shrimp was 3.7% of the total shrimp catches.

BY-CATCHES IN THE SHRIMP FISHERY

By-catches of fish in the trawl hauls of "Lyshaug" examined by the observer are listed in Table 1. None of the fish were kept except those consumed on board during the trip. The mean number of fish relative to the mean shrimp catch (retained) per ton is given in the table below, together with corresponding data for 1981.

Species	Mean number per haul	
	1981	1982
Cod	1	23
Greenland halibut	86	7
Redfish	166	53
Others	77	13
Total by-catch	330	96
No. of hauls observed	39	37
Mean shrimp catch (kg)	435	608
No. of fish per kg shrimp	0.76	0.16

The category "others" consisted of small skates, plaice, capelin and cat-fish.

CATCH AND CATCH PER UNIT EFFORT

Table 3 shows catch and catch per hour trawling (CPUE) by month and division for the Norwegian fishery off East Greenland in 1981 and 1982. In both years, landings are reported only from Div. 14B.

Fig. 6 shows the trend in CPUE in Div. 14B by quarters 1980-1982. There is still a declining trend in CPUE in the 1st quarter, whereas in the 2nd quarter there is no significant change from 1981 to 1982.

REFERENCE

JAKOBSEN, T., and S. TORHEIM. 1981. Norwegian Investigations on Shrimp, *Pandalus borealis*, in East Greenland Waters in 1981. NAFO SCR Doc., No. 81/XI/158.

Table 1. Catches of shrimp and by-catches of fish in some trawl hauls by M/M "Lyshaug" off East Greenland in April 1982.

Nos	Date	Time (hr)	Position N W		Direction towed	Towing time (hr)	Shrimp catches				By-catches (Nos)			
							Landings kg	Discards		Total kg	Cod	Gre. hal.	Red- fish	Other
								kg	%					
1	10 April	0030	65°43'	29°56'	358°	4.00	865	10	1	875	138	2	332	43
2	10 April	1455	65°44'	30°01'	360°	4.00	440	5	1	445	-	1	2	7
3	10 April	2000	65°50'	30°04'	180°	3.50	1010	42	4	1052	20	1	12	-
4	11 April	0830	65°53'	30°10'	360°	4.00	1450	70	5	1520	14	2	13	2
5	11 April	1335	65°64'	30°06'	353°	3.00	905	40	4	945	4	-	4	1
6	12 April	0500	65°51'	30°08'	180°	4.00	775	25	3	800	65	3	65	10
7	12 April	1010	65°44'	30°07'	355°	4.00	725	20	3	745	17	3	62	9
8	12 April	1630	65°53'	30°15'	160°	4.00	725	50	6	775	16	5	65	4
9	14 April	0700	66°06'	30°09'	180°	4.00	845	40	5	885	-	17	103	12
10	14 April	1335	66°08'	30°10'	240°	3.25	605	30	5	635	-	-	29	5
11	15 April	1215	65°54'	30°07'	180°	3.00	755	35	4	790	3	1	13	3
12	16 April	0110	60°51'	30°06'	180°	2.80	750	30	4	780	35	7	297	3
13	16 April	0830	65°43'	29°59'	356°	3.00	790	20	2	810	-	2	40	-
14	16 April	1235	65°51'	30°00'	185°	3.00	580	15	3	595	-	-	19	3
15	16 April	1615	65°46'	29°57'	352°	3.00	580	20	3	600	-	-	18	4
16	17 April	2145	65°42'	30°02'	184°	2.50	330	5	1	335	6	-	4	18
17	18 April	1045	65°41'	30°02'	358°	3.50	780	40	5	820	-	-	39	-
18	18 April	1740	65°35'	30°11'	360°	3.00	405	10	2	415	1	1	17	-
19	18 April	2110	65°38'	30°12'	30°	4.00	565	20	3	585	65	1	240	142
20	19 April	1215	65°48'	30°05'	178°	3.75	580	10	2	590	15	-	15	40
21	19 April	1710	65°40'	30°02'	360°	4.00	715	15	2	730	30	6	10	4
22	20 April	0345	65°42'	30°04'	360°	4.00	560	10	2	570	120	8	-	1
23	20 April	0850	65°50'	30°05'	182°	4.40	580	15	3	595	15	3	38	52
24	20 April	1815	65°44'	30°04'	350°	2.83	290	10	3	300	15	-	17	3
25	21 April	0800	65°38'	30°15'	10°	4.33	625	40	6	665	80	3	35	2
26	21 April	1300	65°47'	30°07'	180°	3.75	485	15	3	500	-	-	17	2
27	21 April	2235	65°44'	30°01'	20°	4.00	725	20	3	745	11	3	82	55
28	22 April	1510	65°50'	30°09'	160°	4.00	460	5	1	465	2	1	7	1
29	22 April	2040	65°44'	30°06'	348°	4.00	665	20	3	685	77	2	132	3
30	23 April	1300	65°54'	30°10'	170°	4.50	260	20	7	280	1	6	2	1
31	23 April	1830	65°44'	30°08'	50°	4.00	530	30	5	560	114	5	87	3
32	25 April	0930	66°08'	30°09'	180°	2.00	340	15	4	355	-	2	19	-
33	25 April	1250	66°05'	30°11'	355°	3.00	520	40	7	560	-	2	21	-
34	25 April	1630	66°12'	30°11'	170°	3.00	670	45	6	715	-	156	41	5
35	26 April	1745	66°07'	30°11'	20°	2.25	260	10	4	270	-	5	11	2
36	26 April	2245	66°12'	30°06'	178°	2.00	265	12	4	277	-	22	49	23
37	27 April	1325	65°44'	30°10'	40°	2.25	90	1	1	91	-	1	7	7

Table 2. Length composition of random samples from shrimp catches by M/V "Lyshaug" off East Greenland in April 1982. (Numbers in heading refer to tow numbers in the first column of Table 1).

Carapace-length (mm)	1	6	16	20	22	25	31	33	35	37	Total
19	-	-	-	-	1	-	1	3	-	-	5
20	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	1	2	-	-	3
22	-	-	-	-	-	-	1	4	1	-	6
23	-	-	-	-	-	1	-	9	1	-	11
24	2	1	1	1	-	1	-	1	-	1	8
25	1	2	-	-	-	1	2	3	3	1	13
26	2	2	2	5	1	2	5	2	5	5	31
27	10	9	13	12	16	17	17	17	23	17	151
28	33	38	53	34	31	49	44	54	62	39	437
29	47	51	49	56	54	54	50	85	78	67	591
30	52	44	43	45	37	40	41	46	56	56	460
31	29	28	23	27	24	19	23	38	33	21	265
32	16	18	11	14	24	10	11	23	22	10	159
33	8	4	2	4	9	6	4	9	4	2	52
34	-	3	3	2	3	-	-	3	1	1	16
35	-	-	-	-	-	-	-	1	1	-	2
Total	200	200	200	200	200	200	200	300	290	220	2210

Table 3. Catch (metric tons) and catch per hour trawling (CPUE) by month and division 1981 and 1982<sup>a)</sup>.

Year	Month	14 B		Year	Month	14 B	
		catch	CPUE			catch	CPUE
1981	Mar	50	0.364	1982	Mar	143	0.228
	Apr	1139	0.296		Apr	432	0.171
	May	572	0.141		May	426	0.226
	Jun	131	0.119		Jun	-	-
	Jul	-	-		Jul	-	-
	Aug	7	0.042		Aug	-	-
	Sep	3	0.046		Sep	-	-
	Sub-total	1900	0.202		Total	1000	0.199
	Unspecified	116					
	Total	2016					

a) Data for 1982 cover 53% of total landings

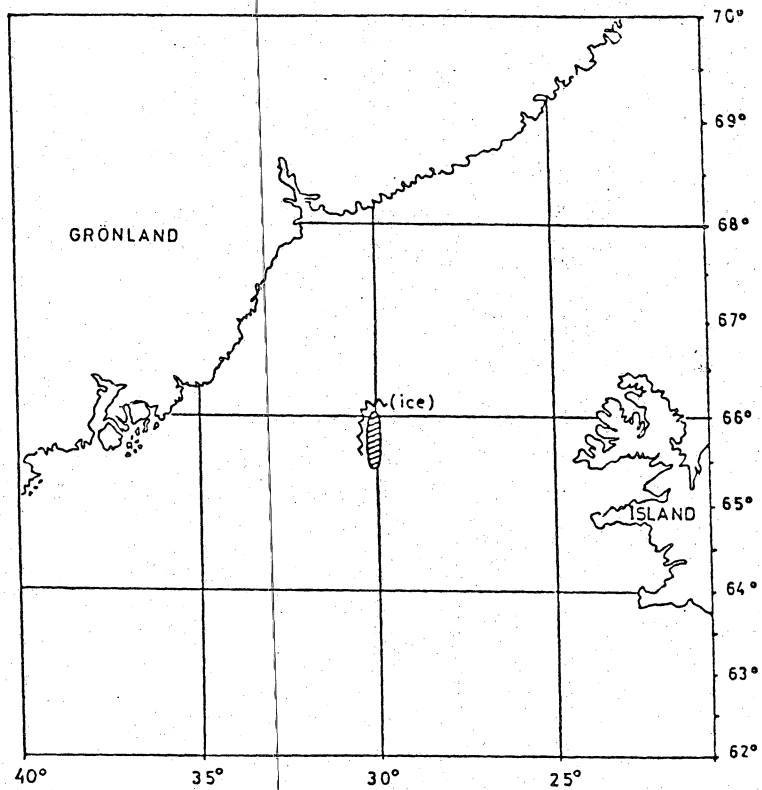


Fig. 1. Hatched area: Area fished by M/V "Lyshaug" during the stay of the observer in April 1982.

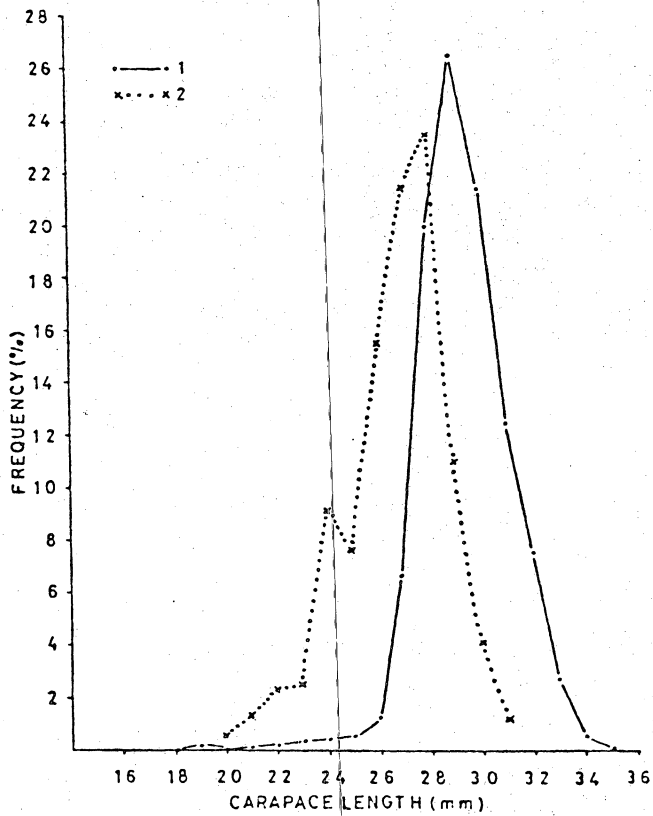


Fig. 2. Weighted mean length composition of shrimp from samples taken off East Greenland in April 1982. 1) Landed shrimp 2) Discarded shrimp.

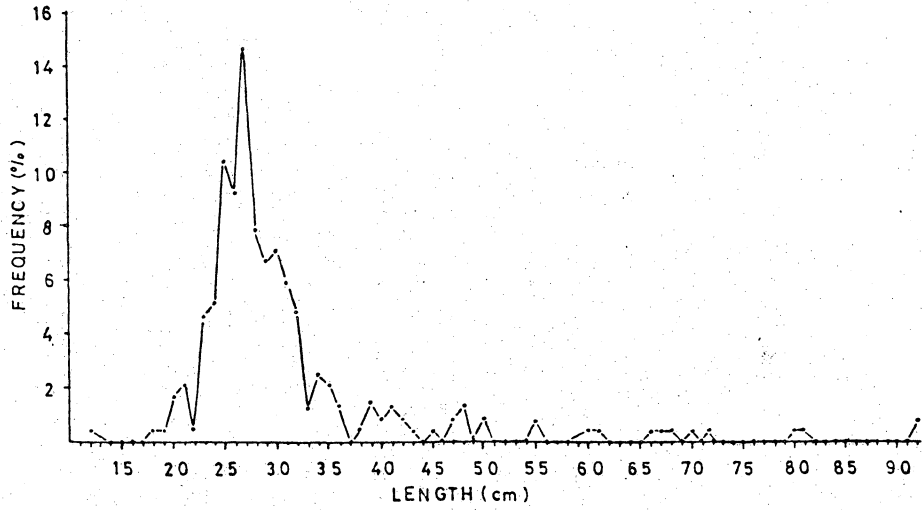


Fig. 3. Length composition of Greenland halibut taken as by-catch with shrimp off East Greenland.

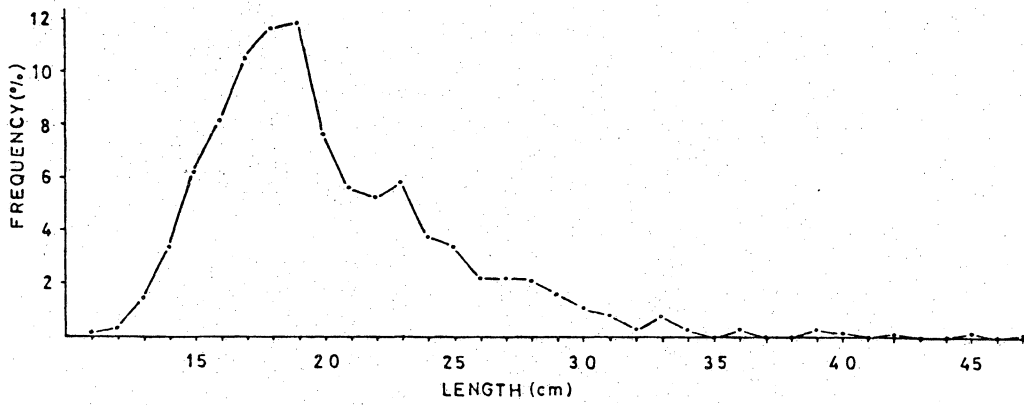


Fig. 4. Length composition of redfish taken as by-catch with shrimp off East Greenland in April 1982.

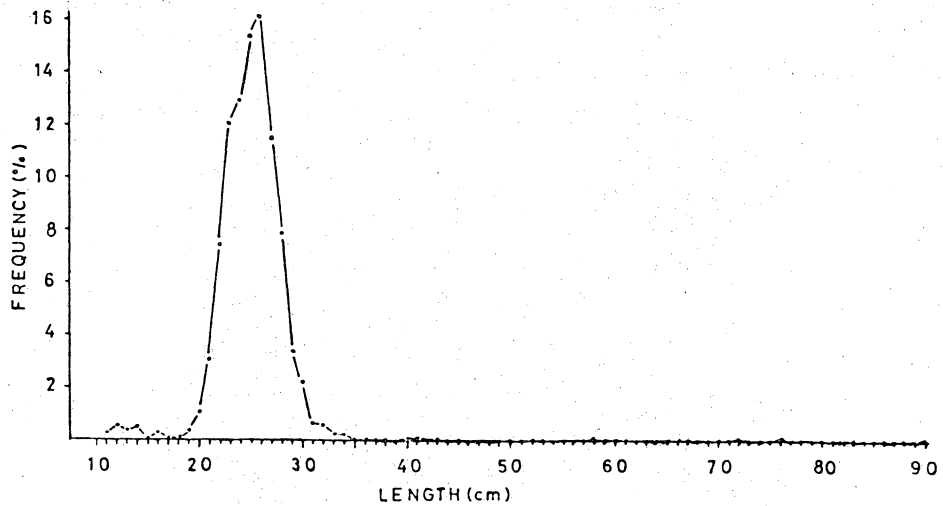


Fig. 5. Length composition of cod taken as by-catch with shrimp off East Greenland in April 1982.

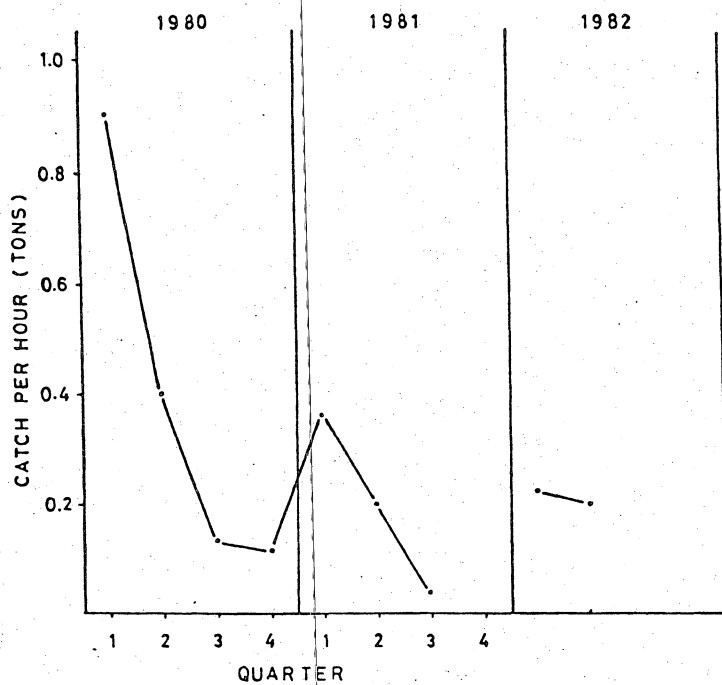


Fig. 6. Quarterly mean shrimp catch per hour trawling by Norwegian vessels in Div. 14 B 1980-1982.

