

Northwest Atlantic



Fisheries Organization

Serial No. N2062

NAFO SCR Doc. 92/17

SCIENTIFIC COUNCIL MEETING - JUNE 1992

Norwegian Investigations on Shrimp (*Pandalus borealis*)
in East Greenland Waters in 1991

by

O. M. Smedstad and S. Torheim

Institute of Marine Research, P. O. Box 1870-72
N-5011 Bergen, Norway

INTRODUCTION

The Norwegian quota of shrimp in East Greenland waters in 1991 was 2500 tonnes. 22 vessels participated in the fishery. According to the fishing log books received, the data in the present paper represents catches of 2495 tonnes.

Results of field investigations together with commercial fishery data in 1990 were reported by Smedstad and Torheim (1991). The results of the investigations together with fishery data in 1991 are presented in this paper.

LOCATION OF THE FISHERY

From 29 January to 6 March one of the authors was an observer on board the sterntrawler "Lyshaug". In the period 8 February to 4 March the fishing area of "Lyshaug" was located around 66° N and west of 30° W (Fig.1).

Fig. 6-17 shows the location of the Norwegian fishery from January to december 1991.

MATERIAL AND METHODS

The shrimp were sorted in "landing" and "discard" categories after they were separated from fish species in the catch.

Details of the trawl hauls examined by the observer are given in Table 1. Random samples of shrimp were taken for length measurements (Carapace length to nearest mm below) (Table 2). In addition length compositions were obtained from by-catches of Greenland halibut (Fig.3) and redfish (Fig.4).

Monthly catch and effort data from 1984-1991 are compiled from the vessels participating in the fishery (Table 3).

SIZE AND SEX COMPOSITION OF SHRIMP

Length compositions in samples collected by the observer on bord "Lyshaug" are given in Table 2 and Fig.2. Shrimp with modal group 30 mm length were dominating.

On an average the samples consisted of 41.3 % males, 1.2 % transitionals, 2.3% females without roe, 10.7 % with headroe and 44.5 % were eggbearing (Br - E).

DISCARD

The quantity of discard varied from 0-5.1 %. On an average about 0.8% of the total catch was discarded.

CATCH AND CATCH PER UNIT EFFORT

Table 3 shows catch and catch per hour trawling (CPUE) by month for the Norwegian fishery off East Greenland (ICES Div. XIV B) from 1984 to 1991. The quarterly CPUE for the period 1982 to 1991 are shown in Fig.5.

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. The major by-catch continues to be redfish. The categories other consists of skate, plaice and catfish.

None of the fish were kept onboard. The mean number of fish relative to the mean shrimp catch (retained) per tow for the years 1982-1990 are given in the table below.

Species	Mean number per tow								
	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cod	3	3	3	1	9	0	1	1	0
Greenland halibut	9	120	7	1	2	3	3	24	34
Redfish	47	87	74	103	293	421	192	170	115
Others	5	3	17	3	12	9	11	7	19
Total	64	213	101	108	316	433	207	202	168
Nos of hauls observed	21	19	40	19	24	7	39	39	29
Mean shrimp catch (kg)	346	880	732	410	528	300	246	222	253
Nos of fish per kg shrimp	0,18	0,24	0,13	0,26	0,60	1,44	0,84	0,90	0,66

REFERENCES

Smedstad, O.M. and Torheim, S. 1991. Norwegian Investigations on shrimp (*Pandalus borealis*) in East Greenland waters in 1990. NAFO SCR Doc.91/20 12p.

Table 1. Catches of shrimp and by-catches of fish in some trawl hauls by M/V "Lyshaug" off East Greenland in Febr.-March 1991.

Nos	Date	Time (hr)	Position		Direction towed	Towing time (hr)	Shrimpcatches			By-catches (Nos)				
			N	W			Landings Kg	Discards Kg	Total Kg	Cod	Gre. hal.	Red fish	Other	
														%
1	8 February	1120	65°42'	30°48'	235°	4.00	109	1	0.9	110	-	6	30	4
2	11 February	1240	65°38'	30°44'	55°	3.83	258	2	0.8	260	-	24	150	16
3	12 February	1335	65°37'	30°40'	280°	4.00	66	1	1.5	67	-	2	30	7
4	13 February	1050	65°43'	30°29'	270°	4.33	281	2	0.7	283	-	2	130	-
5	14 February	1420	65°45'	30°12'	210°	4.00	184	2	1.1	186	-	3	100	24
6	15 February	1345	65°45'	30°23'	20°	4.00	386	2	0.5	388	-	4	150	11
7	16 February	1345	65°45'	30°26'	360°	3.83	218	-	-	218	-	-	50	-
8	16 February	2345	66°02'	30°38'	175°	4.25	275	3	1.1	278	-	24	100	5
9	17 February	1020	65°42'	30°24'	225°	4.20	627	3	0.5	630	-	23	100	19
10	18 February	2010	65°31'	30°45'	60°	4.25	252	1	0.4	253	-	2	200	4
11	19 February	2345	65°35'	30°40'	50°	4.00	170	-	-	170	1	9	150	14
12	20 February	2205	65°32'	30°46'	50°	4.00	124	2	1.6	126	-	8	100	20
13	22 February	1005	65°31'	30°47'	55°	4.00	208	1	0.5	209	-	7	150	17
14	22 February	2325	65°36'	30°45'	32°	4.00	387	-	-	387	1	3	100	14
15	23 February	0900	65°37'	30°46'	60°	3.66	278	4	1.4	282	-	5	200	22
16	24 February	0845	65°42'	30°44'	220°	4.08	277	3	1.0	300	1	10	100	13
17	26 February	0030	65°40'	30°46'	110°	4.00	142	3	2.1	145	4	9	400	47
18	26 February	1320	65°42'	30°39'	132°	4.00	153	2	1.3	155	-	5	50	15
19	27 February	1255	65°55'	30°28'	315°	4.00	113	-	-	113	-	3	100	16
20	27 February	2245	65°55'	30°40'	360°	4.00	453	10	2.2	463	-	158	150	22
21	28 February	0915	66°15'	30°33'	180°	4.00	541	-	-	541	-	84	70	22
22	1 March	0030	66°04'	30°41'	9°	4.50	320	-	-	320	-	72	80	53
23	1 March	1005	66°04'	30°50'	58°	4.41	383	-	-	383	-	110	50	45
24	1 March	2130	66°06'	30°51'	50°	4.00	218	-	-	218	-	93	50	27
25	2 March	0350	66°10'	30°49'	50°	4.00	184	-	-	184	-	77	80	27
26	3 March	0920	66°04'	30°43'	50°	4.00	214	5	2.3	219	-	62	60	24
27	3 March	1545	66°04'	30°46'	40°	4.00	231	5	2.1	236	-	41	80	17
28	3 March	2150	66°04'	30°45'	50°	4.25	37	2	5.1	39	-	51	237	21
29	4 March	0930	66°05'	30°46'	60°	4.00	252	5	1.9	257	-	82	100	22

Table 2. Length compositions of random samples from shrimp catches by M/V "Lyshaug" in February-March 1991. (Number in heading refers to tow number in the first column of Table 1).

Carapace-length (mm)	Tow Number												Total
	2	4	5	9	12	13	14	18	19	26	28	29	
16	1	-	-	-	-	-	-	-	-	-	-	-	1
17	-	-	-	-	-	-	-	-	1	-	-	-	1
18	-	-	-	-	-	-	-	-	4	-	-	-	4
19	8	1	-	2	-	-	-	1	4	3	1	5	25
20	5	6	5	8	1	-	-	2	10	3	2	4	46
21	10	7	6	8	3	-	-	3	12	8	3	3	63
22	12	7	17	9	10	-	1	12	23	18	6	23	138
23	25	11	13	18	17	2	6	8	25	24	8	17	174
24	10	12	11	19	11	-	9	10	13	33	13	27	168
25	9	16	10	14	11	3	6	12	11	9	11	37	149
26	8	8	7	15	11	3	6	11	12	23	7	14	127
27	12	12	5	13	6	2	8	7	8	9	8	16	106
28	29	11	13	20	10	12	14	23	18	11	5	15	181
29	30	21	30	28	23	21	37	20	21	23	15	22	291
30	40	27	33	40	36	34	39	48	33	20	33	25	408
31	41	11	23	15	24	31	29	19	16	3	16	17	245
32	14	6	13	13	7	14	14	7	11	9	11	12	131
33	10	3	8	4	6	2	5	2	7	4	10	3	64
34	5	4	3	-	3	5	1	-	3	1	1	1	27
35	1	-	-	-	-	-	-	-	-	1	1	-	3
Total	270	163	197	226	179	129	177	185	232	202	151	241	2352

Table 3. Catch (tonnes) and catch per hour trawling in division XIV B from 1984 to 1991.

Month	1984		1985		1986		1987		1988 ¹		1989 ²		1990 ³		1991	
	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE
Jan.	-	-	-	-	31	0.112	-	-	2	0.050	84	0.199	122	0.077	307	0.096
Feb.	79	0.232	-	-	208	0.141	150	0.187	273	0.112	64	0.129	177	0.073	342	0.070
Mar.	622	0.224	760	0.184	737	0.166	565	0.140	305	0.076	161	0.070	274	0.070	244	0.058
April	732	0.183	995	0.166	548	0.133	601	0.123	343	0.074	380	0.088	122	0.066	428	0.076
May	500	0.167	269	0.137	337	0.131	196	0.133	323	0.082	16	0.035	450	0.237	262	0.048
Jun.	-	-	-	-	-	-	-	-	28	0.108	14	0.026	-	-	11	0.047
Jul.	-	-	-	-	2	0.071	-	-	1	0.038	-	-	14	0.038	-	-
Aug.	-	-	-	-	116	0.131	32	0.124	218	0.096	56	0.035	80	0.037	10	0.037
Sep.	-	-	-	-	47	0.110	224	0.135	281	0.086	239	0.037	278	0.043	72	0.049
Oct.	-	-	-	-	-	-	187	0.091	176	0.071	402	0.055	316	0.052	212	0.045
Nov.	-	-	-	-	-	-	57	0.047	18	0.061	287	0.047	363	0.052	356	0.055
Dec.	-	-	-	-	-	-	-	-	-	-	271	0.094	238	0.068	251	0.078
TOTAL	1933	0.191	2024	0.166	2026	0.143	2012	0.123	1968	0.083	1974	0.060	2434	0.065	2495	0.063

- 1 96% of the quota
- 2 96% of the quota
- 3 97% of the quota

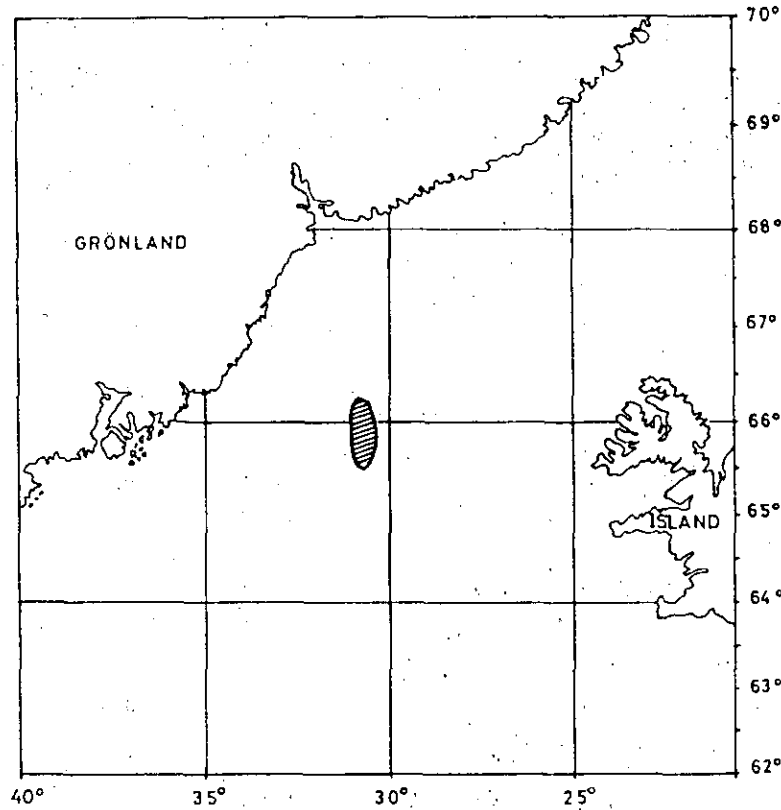


Fig.1. Hatched area: Area fished by M/V "Lyshaug" during the stay of the observer in February-March 1991.

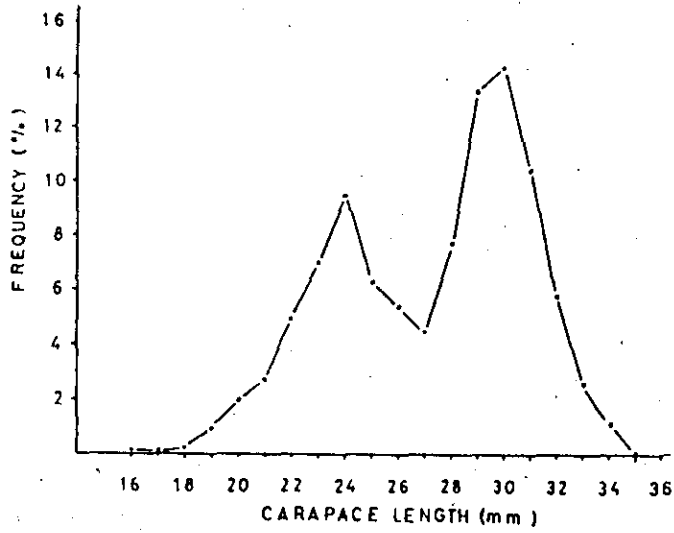


Fig.2. Weighted mean length composition of shrimp samples taken off East Greenland in February-March 1991.

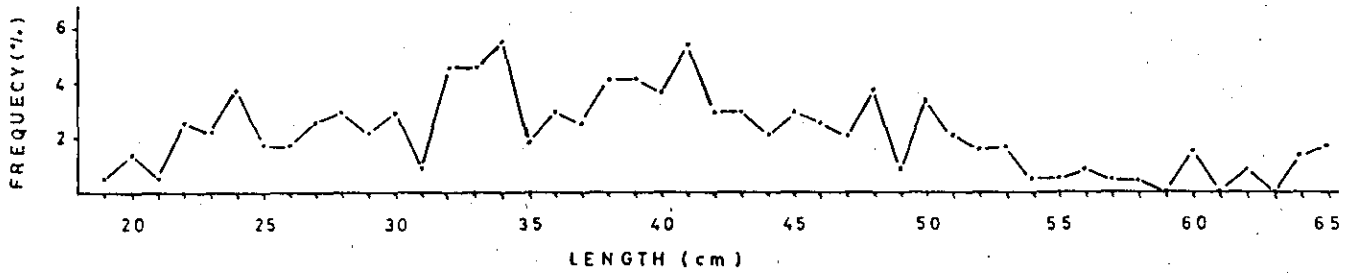


Fig.3. Length composition of Greenland halibut taken as by-catch with shrimp off East Greenland in February-March 1991.

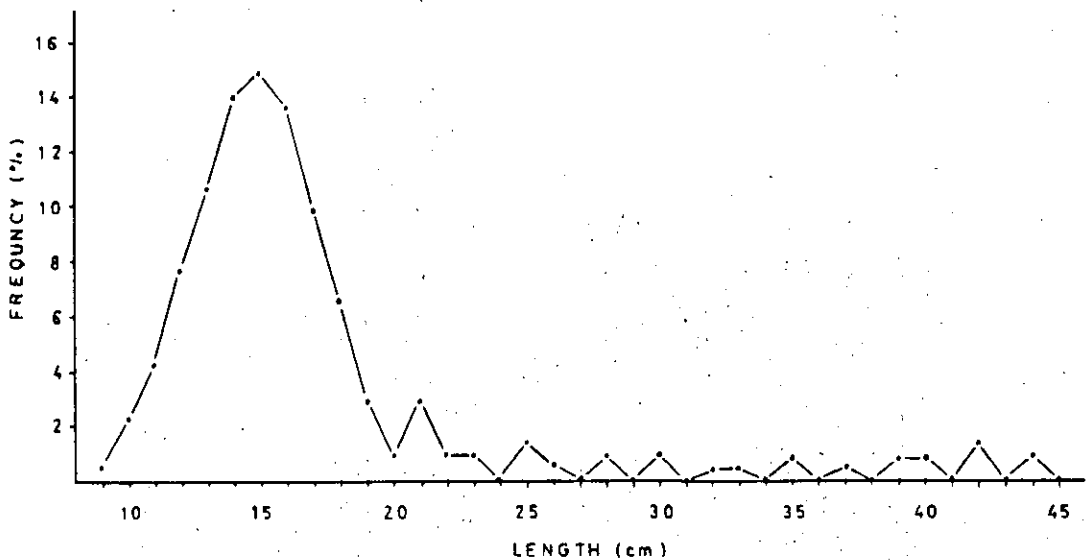


Fig.4. Length composition of redfish taken as by-catch with shrimp off East Greenland in February-March 1991.

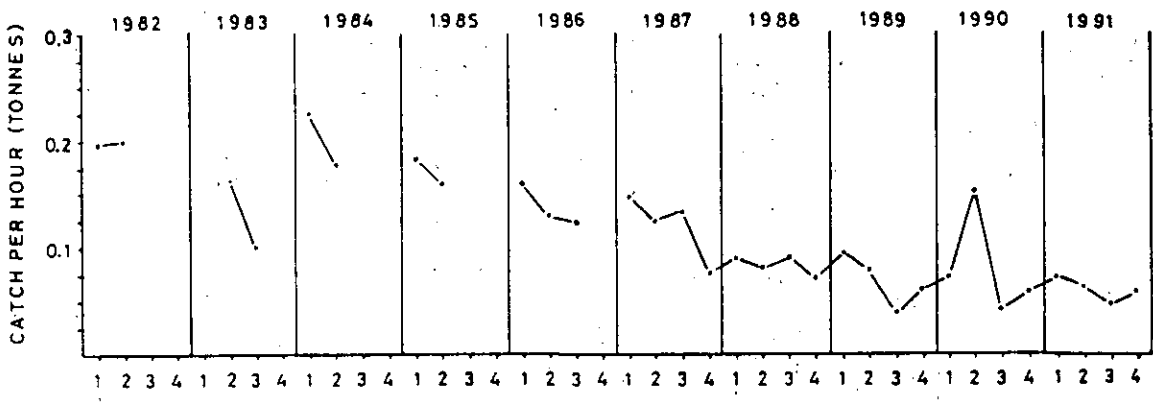


Fig.5. Quartely mean shrimp catch per hours trawling by Norwegian vessels in Div. XIV B, 1982-1991.

