

Northwest Atlantic  Fisheries Organization

Serial No. N771

NAFO SCR Doc. 84/I/2

SPECIAL SCIENTIFIC COUNCIL MEETING, JANUARY 1984

Norwegian Investigations on Shrimp, *Pandalus borealis*
off West Greenland in 1983

by

O. Smedstad and S. Torheim

The Norwegian quota of shrimp (off West Greenland waters) decreased from 850 tonnes in 1982 to 500 tonnes in 1983. In 1983, 4 vessels have taken part in the fishery and the final reported landings are 484 tonnes.

Preliminary monthly catch and effort data for 1982 compiled from logbooks of 11 vessels, accounting for 46% of the landings, were reported by Jakobsen and Torheim 1982.

Results of field investigations carried out in 1983 together with final catch and effort data for 1982 and 1983 are presented in this paper.

MATERIALS AND METHODS

From 29 June to 15 July, one of the authors was an observer on board the trawler "Arctic" which was fishing between $66^{\circ}50'N$ and $67^{\circ}57'N$ (Fig.1).

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

Random samples of shrimp catches were taken for length measurement (carapace length to nearest mm) (Table 2). In addition, some length composition data were obtained for by-catches of Greenland halibut (Fig.3) and redfish (Fig.4).

Monthly catch and effort data for 1983 are compiled from logbooks of the vessels participating in the fishery (Table 3).

SIZE COMPOSITION OF SHRIMP

Length compositions of shrimp in samples collected by the observer on board "Arctic" are listed in Table 2. The weighted mean length compo-

sition (with catch as the weighting factor) is shown in Fig.2. The catches were made up of size groups with lengths from 20 mm to 28 mm. For the discards, the size groups of 19 mm to 21 mm were dominating. The quantity of discarded shrimp were 19,9% of the total catches.

BY-CATCHES IN THE SHRIMP FISHERY

By-catches of fish in the trawl hauls of "Arctic" 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 tow is given in the table below.

Species	Mean number pr.haul	
	1982	1983
Cod	2	+
Greenland halibut	48	36
Redfish	443	613
Others	129	14
Total	622	663
Nos of hauls observed	34	34
Mean shrimp catch (kg)	1074	1115
Nos of fish per kg shrimps	0,58	0,59

CATCH AND CATCH PER UNIT EFFORT

Table 3 shows catch and catch per hour trawling (CPUE) by month and division for the Norwegian fishery at West Greenland in 1982 and 1983.

The CPUE values in 1983 were highest in July in Div. 1B and Div. 1D.

The quarterly CPUE in Div. 1B for the period 1980 - 1983 is shown in Fig.5.

The material for the second quarter in 1983 is very limited. For the third quarter there is no significant change in the CPUE from 1982 to 1983.

REFERENCE

Jakobsen, T. and Torheim, S. 1983. Norwegian Investigations on Shrimp *Pandalus borealis*, off West Greenland in 1982. NAFO SCR Doc. 83/1/5.

Table 1. Catches of shrimps and by-catches of fish in some trawl hauls by M.V. "Arctic" off West Greenland in June-July 1983.

Nos	Date	Time (hr)	Position		Depth (m)	Direction towed	Towing time (hr)	Shrimp catches			By-catches (Nos)				
			N	W				Landing kg	Discards kg	Total kg	Cod	Gre. hal.	Red- fish	Other	
1	29 June	0940	67°38'	58°02'	274	160°	3.83	1730	331	16	2065	-	140	1700	19
2	29 June	1315	67°30'	56°00'	268	210°	3.00	810	170	17	980	-	142	2500	46
3	30 June	0745	67°29'	57°58'	260	60°	4.50	1145	550	22	1475	2	250	3000	65
4	30 June	1705	67°43'	57°31'	255	240°	2.50	990	440	31	1420	-	72	800	17
5	1 July	0940	67°44'	57°28'	262	262°	4.00	325	210	20	535	-	91	500	-
6	1 July	1420	67°40'	57°55'	260	72°	4.00	1050	450	31	1500	-	276	700	134
7	1 July	1930	67°46'	57°11'	223	70°	3.00	475	320	40	795	-	9	300	8
8	2 July	1335	67°13'	57°00'	270	90°	2.83	850	700	19	1550	-	13	47	4
9	2 July	1700	67°13'	56°38'	265	210°	4.60	920	230	20	1150	-	15	80	32
10	3 July	1510	67°13'	56°42'	251	295°	3.83	1545	520	18	1875	-	12	200	16
11	3 July	1945	67°16'	57°05'	260	60°	3.83	885	150	15	1035	-	5	100	-
12	4 July	1330	67°06'	56°31'	240	180°	3.83	1120	360	21	1420	-	5	30	5
13	4 July	1750	66°56'	56°24'	230	170°	3.16	2410	710	25	3120	-	9	200	3
14	5 July	1550	66°56'	56°23'	197	210°	3.00	845	600	40	1445	-	2	30	-
15	5 July	1925	66°50'	56°27'	220	300°	3.25	1205	310	21	1515	-	2	150	2
16	6 July	1645	67°14'	57°00'	280	260°	3.83	990	110	17	1140	-	14	150	0
17	6 July	2110	67°21'	57°20'	253	300°	3.00	1695	360	11	2055	-	17	700	8
18	7 July	1400	67°22'	57°20'	290	170°	3.25	710	120	27	830	-	8	60	2
19	7 July	1640	67°19'	57°07'	250	125°	4.33	945	190	17	1135	-	4	100	-
20	8 July	1245	67°27'	57°48'	300	125°	3.83	1360	230	15	1590	-	26	400	17
21	8 July	1720	67°21'	57°25'	280	295°	4.00	1640	180	10	1820	-	12	600	14
22	8 July	2210	67°27'	57°41'	290	180°	4.10	1000	160	14	1160	-	16	3000	20
23	9 July	1550	67°31'	57°54'	251	50°	5.50	1005	210	21	1235	-	2	100	-
24	9 July	2200	67°25'	57°21'	231	315°	4.00	1915	510	20	2425	-	7	150	3
25	10 July	1700	67°22'	57°29'	285	120°	3.75	1240	200	14	1440	-	21	7000	-
26	10 July	2125	67°17'	57°10'	261	285°	4.00	1140	180	14	1320	-	9	500	-
27	11 July	1810	67°57'	56°48'	200	180°	4.00	850	490	30	1300	-	-	200	27
28	12 July	1550	67°57'	56°48'	190	135°	4.00	960	300	37	1240	-	6	300	17
30	13 July	1240	67°18'	57°14'	280	126°	4.00	1900	140	17	2040	-	12	350	-
31	13 July	1830	67°26'	57°20'	280	110°	3.83	2540	780	22	3320	-	11	400	7
32	14 July	1630	67°19'	57°19'	278	280°	3.66	1050	120	10	1170	-	4	500	-
33	14 July	2040	67°24'	57°38'	300	90°	3.00	1105	120	10	1225	-	6	800	-
34	15 July	0010	67°19'	57°15'	300	120°	4.00	1910	200	17	2120	-	7	600	-

Table 2. Length composition of random samples from shrimp catches by M/V "Arctic" off West Greenland in June-July 1983. (Numbers in heading refer to tow numbers in the first column of Table 1).

Carapace-length (mm)															Total
	2	3	6	8	10	14	16	18	20	23	25	27	31	32	
10	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
11	-	-	-	-	-	-	-	-	-	-	-	4	-	-	4
12	-	-	-	-	-	-	-	-	-	-	-	4	-	-	4
13	-	-	-	-	-	-	-	-	-	-	-	3	-	-	3
14	1	-	4	-	-	-	-	-	-	-	-	8	-	-	13
15	-	1	5	-	-	3	-	-	-	-	-	20	-	-	29
16	-	-	2	-	1	4	1	1	-	4	1	34	7	-	55
17	-	-	7	1	2	4	-	2	-	5	2	8	2	-	33
18	-	5	10	1	3	16	1	2	-	6	2	13	2	-	61
19	3	4	22	5	6	33	9	7	1	11	6	15	14	5	141
20	14	18	32	7	16	51	18	10	3	20	8	18	20	11	246
21	18	12	21	8	14	28	13	12	6	22	20	5	19	7	205
22	16	14	27	12	24	16	17	14	9	25	13	7	21	13	228
23	13	21	10	30	22	18	30	28	17	23	11	8	19	13	263
24	19	20	10	40	35	7	25	29	24	25	18	11	17	21	301
25	27	21	9	33	20	8	26	32	25	17	23	8	25	36	310
26	30	24	9	27	19	6	24	25	35	16	22	18	21	39	315
27	25	35	13	18	23	4	20	25	40	12	29	11	12	29	296
28	18	19	9	16	12	1	12	9	30	10	27	3	16	17	199
29	13	6	8	1	3	1	4	3	8	3	12	1	4	9	76
30	2	-	2	1	-	-	-	1	2	1	6	-	1	-	16
31	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	200	200	200	200	200	200	200	200	200	200	200	200	200	200	2800

Table 3. Catch (metric tons) and catch per hour trawling (CPUE) by month and division in 1982 and 1983.

Year	Month	1B		1C		1D		Not known		Total catch
		Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	
1982	Apr	5	0.384	-	-	-	-	-	-	5
	May	64	0.151	2	0.083	-	-	-	-	66
	Jun	185	0.142	-	-	11	0.125	-	-	196
	Jul	109	0.228	55	0.200	396	0.274	-	-	560
	Total		364	0.164	57	0.191	407	0.265	-	-
1983	Jun	42	0.223	-	-	-	-	13	0.317	55
	Jul	137	0.255	-	-	210	0.298	-	-	347
	Aug	74	0.184	-	-	6	0.140	-	-	80
	Total		254	0.225	-	-	217	0.287	13	0.317

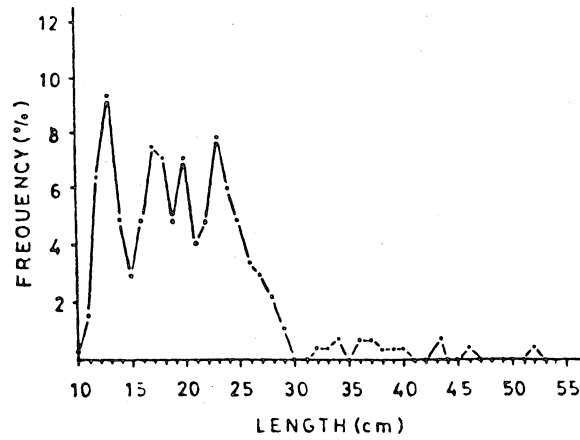


Fig. 3. Length composition of Greenland halibut taken as by-catch with shrimp off West Greenland in June - July 1983.

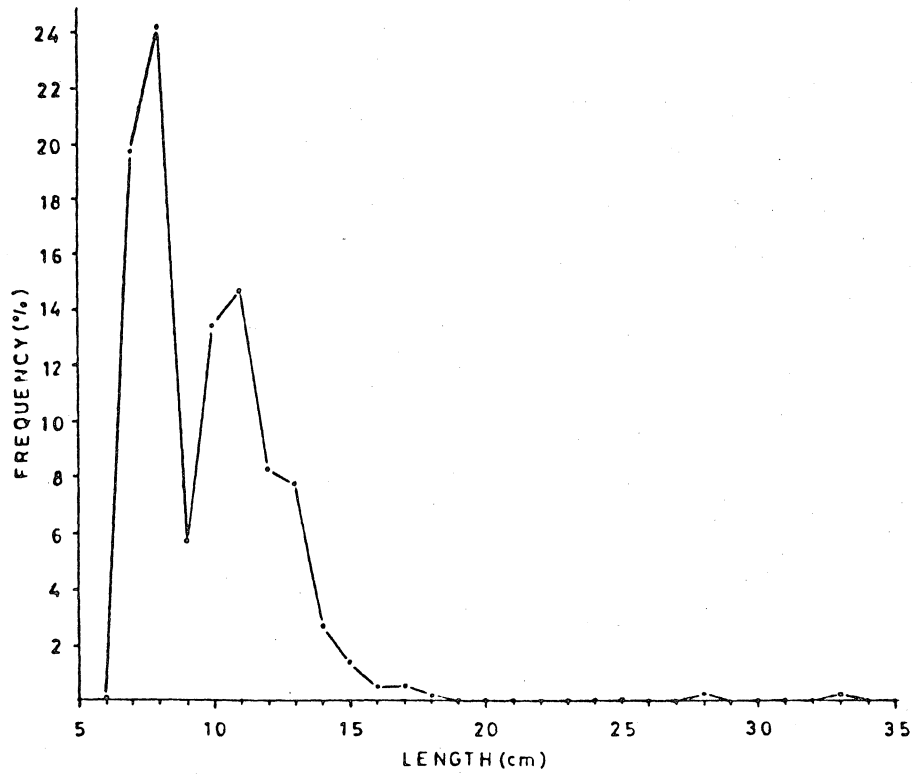


Fig. 4. Length composition of redfish taken as by-catch with shrimp off West Greenland in June - July 1983.