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The Catch Statistics of the Shrimp Fishery (*Pandalus borealis*)
in the Denmark Strait in the Years 1980 - 1992

by

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Abstract

In this paper all data available on the catch and CPUE from the fishery in the Denmark Strait for the years 1987- 1992 and all countries are compiled. Total effort and mean CPUE of all countries combined has been calculated, using figures for nominal catch for every country. It is considered here that the shrimp stock is the same on both sides of the midline between Iceland and Greenland.

The catch rates remained at the lowest level ever in this area, namely 88 kg per trawling hour in 1992 and similar to that of 1991 when CPUE was 90 kg. The nominal catch was 7207 tons in 1992 as compared to 8664 tons in 1991, and the effort peaked in 1989 with 108 thous. decreasing gradually to 82 thous. hours trawling in 1992. The average catch of the past three years was less than 9 thous. tons which is considerably lower than the catch of 11-12 thous. tons in the years 1986 through 1989.

Introduction

The shrimp grounds in the Denmark Strait area were first found in September 1976, but a fishery was first carried out in 1978 by Iceland and a year later the Norwegians started fishing in the area as well and finally in 1980 all the other nations joined in, i.e. Greenland, Denmark, Faroe Islands and France. From then on the fishery was carried out by all these 6 countries.

In this paper all data available on the catch, effort and the CPUE are gathered by months for all strata combined, first for each country area for the years 1987 - 1992. As there have been recent new logbook information and correction made on the statistics for Denmark and Faroe Islands. The tables for those two countries have been updated back to 1985 in the case of Denmark and 1986 in the case of Faroe Islands. Similar data for the years 1978 - 1986 by country have been published previously (Skuladottir, 1991).

Material and Methods

For most of the catch there is logbook data which include catch and effort. The individual authors have also calculated the CPUE by dividing the catch per month (in Kg) by the corresponding effort (in trawling hours). In order to assess the overall CPUE per every half year. The subtotal sum of the catch is divided by the subtotal sum of effort to get the CPUE per every half year. In order to assess the total effort exerted by each country in the area, the nominal catch per month is summed up by every half year. The nominal catch is often higher than the catch reported in the logbooks. Therefore the effort was corrected by every half year by dividing the total nominal catch by the CPUE of the same half year. It has been assumed here that the gear and the efficiency of all vessels of a country is more similar than that of other countries. Therefore the effort was first corrected by individual countries.

Results and Discussion

The effort, catch and nominal catch as well as calculated cpue are presented in tables 1 - 6 for the six countries fishing in the Denmark Strait. For the first years the CPUE and effort was taken from the NAFO Scientific Council Reports of 1980 and 1983 (Skúladóttir 1991). Later the CPUE and effort data were obtained from the scientists of the respective countries. For Norway the data come from Smedstad and Torheim (1989, 1992) and later Smedstad (personal communication). For France the data come from Bertrand et. al. (1988), Poulard (1990) and later from Poulard (personal communication,). The nominal catch data were obtained from Carlsson (1988) and Carlsson and Kannevorff (1989, 1990, 1991, 1992 and 1993). Sometimes there was a discrepancy between the nominal catch figures by month by Carlsson and the respective authors. In that case the higher figure was believed to be the nominal catch. The data published in 1992 for the individual countries (Skuladottir, 1992) are here republished with the corrections just made for Denmark and Faroe Islands (Carlsson, 1993). Table 7 however goes right back to year 1980. From table 7 it is notable that there is considerable

variation in the CPUE of the different countries. This could be due to different gear sizes and the difference in power of the respective vessels. For the Icelandic boats it is known that the gear size peaked in 1987 and has been stable since then. There is also a fall in CPUE in the latter part of the year. However a second peak in catch rates can occur late in the year. The yearly catch rate is calculated in table 8. The yearly CPUE has been falling gradually since the the year 1980 and 1981 or from 245 kg per trawling hour to 90 kg in 1991. In spite of doubling the effort there was little gain in addition to the 11 thousand tons fished in 1986. However in 1992 the effort has been decreased somewhat as Greenland, Denmark and Faroe Islands did not fish from June through September, but the overall CPUE is almost the same i.e. 88 kg per trawling hour. It is noticeable that although there was good fishery east of the midline in April and May that year the catches were very poor for the rest of the year (table 4). The total catch is listed in table 9 as well as the advised TAC by the Scientific Council of NAFO by years. Through the years the effective TAC has usually been moderate and similar to the advised TAC by NAFO. However from the year 1990 onwards the effective TACs have been far too high. Those unrealistic TACs of some 13 to 14 thous. tons have never been reached in the Denmark Strait not even with the additional catch east of the midline which is not included in the TAC set by the Greenland authorities, the total catch being only 7207 tons in 1992 as compared to 8664 tons in 1991.

Conclusion

The fishery in the Denmark Strait appears to have reached the stage where stock level as judged by CPUE is well below half of what it was in the early eighties.

The annual removals from the shrimp stock in the Denmark Strait seem to have gone well beyond the limit whereby further increase in effort does not give rise to larger yield in the long run.

References

- Bertrand, J., J.C. Poulard, A. Battaglia and P. Derible. 1988. Catch, effort and biological data of shrimp (*Pandalus borealis*) in the French fisheries off Greenland in 1986 and 1987. NAFO SCR Doc. No. 88/50, Ser. No. N1490. 17 p.
- Carlsson, D.M. 1988. The commercial fishery in Denmark Strait in 1987. NAFO SCR Doc. No. 88/57, Ser. No. N1497. 12 p.
- Carlsson, D.M., and Kannevorff. 1989. The commercial shrimp fishery in 1988. NAFO SCR Doc. No. 89/70, Ser. No. N1650.21p.
1990. The commercial shrimp fishery in Denmark Strait in 1989 and early 1990. NAFO SCR Doc. No. 90/42, Ser. No. N1759. 22p.
1991. The commercial shrimp fishery in Denmark Strait in 1990 and early 1991. NAFO SCR Doc. No. 91/53, Ser. No. N1936. 31 p.
1992. The commercial shrimp fishery in Denmark Strait in 1991 and early 1992. NAFO SCR Doc. No. 92/64, Ser. No. N2118. 26 p.
1993. The commercial shrimp fishery in Denmark Strait in 1992 and early 1993. NAFO SR Doc. No 93/60, Ser. No. N2243.
- Skuladottir, U. 1991. The catch statistics of the shrimp fishery (*Pandalus borealis*) in the Denmark Strait, in the years 1978 - 1990. NAFO SCR Doc. No 91/58. No. N1942 . 16 p.
1992. The catch statistics of the shrimp fishery (*Pandalus borealis*) in the Denmark Strait, in the years 1980 - 1991. NAFO SCR Doc. No. 92/49, Ser. No. N2101. 9 p.
- Smedstad, O.M., and S. Torheim 1989. Norwegian investigation on shrimp (*Pandalus borealis*) in East Greenland waters in 1988. NAFO SCR Doc. No. 89/18, Ser. No. N1594. 12 p.
1992. Norwegian investigations on shrimp (*Pandalus borealis*) in East Greenland waters in 1991. NAFO SCR Doc. No. 92/17, Ser. No. N2062. 8 p.

Table 1. Catch rates (kg per hour trawling) corresponding effort (hours trawling) and catch (tons) from the shrimp fishery in Denmark Strait by Greenland, in two periods of the year.

Year	January - June				July - December			
	Month	Cpue	Effort	Catch	Month	Cpue	Effort	Catch
1987	Jan	348	3608	1257.3	Aug	113	81	9.2
	Feb	322	4471	1439.0	Sep	253	400	101.4
	Mar	296	2965	878.6	Oct	199	753	149.7
	Apr	208	951	197.6	Nov	162	1915	309.6
	May	298	406	121.0	Dec	115	4067	468.9
	Subtotal	314	12401	3893.5	Subtotal	144	7216	1038.8
	Total	314	17666	5547.0	Total	144	7502	1080.0
	1988	Jan	301	6951	2089.8	Aug	117	1019
Feb		226	7950	1793.2	Sep	121	1487	179.4
Mar		152	6408	975.1	Oct	105	2586	270.5
Apr		104	1121	116.0	Nov	157	3207	503.3
May		114	550	62.9	Dec	205	4662	957.7
Subtotal		219	22980	5037.0	Subtotal	157	12961	2030.5
Total		219	24111	5285.0	Total	157	13820	2165.0
1989		Jan	249	6602	1646.6	Jul	27	15
	Feb	214	6361	1361.0	Aug	44	713	31.3
	Mar	131	3905	512.1	Sep	59	2290	135.3
	Apr	197	3505	690.6	Oct	96	2600	248.7
	May	68	2322	157.5	Nov	67	7031	474.1
	Jun	39	137	5.4	Dec	84	7107	598.9
	Subtotal	192	22832	4373.2	Subtotal	75	19756	1488.7
	Total	192	23343	4471.0	Total	75	20039	1510.0
1990	Jan	139	8602	1196.8	Jul	94	82	7.7
	Feb	185	8289	1533.1	Aug	59	352	20.6
	Mar	143	8299	1186.1	Sep	64	710	45.2
	Apr	473	1050	496.9	Oct	58	1734	101.4
	May	455	2133	971.5	Nov	65	2121	138.7
	Jun	45	116	5.2	Dec	79	5160	408.5
	Subtotal	189	28489	5389.6	Subtotal	71	10159	722.1
	Total	189	28956	5478.0	Total	71	10298	732.0
1991	Jan	141	6793	956.9	Jul	0	38	0.0
	Feb	128	7192	919.1	Aug	0	0	0.0
	Mar	101	6393	643.8	Sep	73	404	29.6
	Apr	128	7681	982.3	Oct	64	371	23.8
	May	85	5045	430.8	Nov	91	505	45.8
	Jun	72	471	33.9	Dec	105	892	93.8
	Subtotal	118	33575	3966.8	Subtotal	87	2210	193
	Total	118	33684	3979.7	Total	87	2572	224.6
1992	Jan	93	3691	344.3	Aug		0	0.0
	Feb	114	3780	429.1	Sep		0	0.0
	Mar	123	5395	661.0	Oct	34	139	4.7
	Apr	72	3658	264.7	Nov	88	340	29.8
	May	101	1257	126.5	Dec	104	1669	173.8
	Subtotal	103	17781	1825.6	Subtotal	97	2148	208
	Total	103	17639	1811.0	Total	97	2073	201.0
	1993	Jan	85	5959	506.8			
Feb		89	4288	380.5				
Mar		97	1394	135.8				
Apr		87	70	6.1				
Subtotal		88	11711	1029.2				
Total		88	18411	1618.0				

Table 2. Catch rates (kg per hour trawling) and corresponding effort (hours trawling) and catch (tons) from the shrimp fishery in Denmark Strait by France in two periods of the year.

Year	January - June				July - December			
	Month	CPUE	Effort	Catch	Month	CPUE	Effort	Catch
1987	Apr	227	400	90.9	Sep			94.0
	May	250	578	144.7	Oct			59.0
					Nov			170.0
	Subtotal	241	978	235.6	Subtotal			323.0
	Total	241	2599	626.0	Total			405.0
1988	Apr	147	462	68.1	Aug			2.0
	May	136	473	64.2	Sept			48.0
	Subtotal	141	935	132.3	Total			50.0
	Total	141	3138	444.0				
1989	Mar	203	247	50.2	Jul	58	116	6.7
	Apr	192	907	174.2	Aug	59	409	24.0
	May	23	23	0.5	Subtotal	58	525	30.7
	Subtotal	191	1177	225	Total	58	1536	89.8
	Total	191	1525	291.3				
1990	Mar	126	172	23.3				
	Subtotal	126	172	23.3	Total			15.0
	Total	126	286	36.0				
1991	Feb	141	206	29.0				
	Mar	93	350	32.7				
	Apr	119	468	55.8				
	Subtotal	115	1024	117.5				
	Total	115	1024	117.5				

Table 3. Catch rate (kg per hour trawling) and corresponding effort (hours trawling) and catch (tons) from the shrimp fishery in Denmark Strait by Norway.

Year	January - June				July - December			
	Month	CPUE	Effort	Catch	Month	CPUE	Effort	Catch
1987	Feb	187	802	150.0	Aug	124	258	32.0
	Mar	140	4036	565.0	Sep	135	1659	224.0
	Apr	123	4886	601.0	Oct	91	2055	187.0
	May	133	1473	196.0	Nov	47	1213	57.0
	Subtotal	135	11197	1512.0	Subtotal	96	5185	500.0
	Total	135	11353	1533.0	Total	96	5261	507.0
1988	Jan	66	30	2	Jul	71	14	1
	Feb	112	2438	273	Aug	96	2271	218
	Mar	76	4013	305	Sep	86	3267	281
	Apr	74	4635	343	Oct	71	2479	176
	May	82	3939	323	Nov	61	295	18
	June	108	259	28				
	Subtotal	83	15314	1274	Subtotal	83	8312	693
Total		15314	1274	Total		9332	778	
1989	Jan	199	422	84	Aug	35	1600	56
	Feb	129	496	64	Sep	37	6459	239
	Mar	70	2300	161	Oct	55	7309	402
	Apr	88	4318	380	Nov	47	6106	287
	May	35	457	16	Dec	94	2883	271
	June	26	538	14				
	Subtotal	84	8532	719	Subtotal	52	24358	1255
Total	84	8354	704	Total	52	27056	1394	
1990	Jan	77	1584	122	July	38	368	14
	Feb	73	2425	177	Aug	37	2162	80
	Mar	70	3914	274	Sep	43	6465	278
	Apr	66	1848	122	Oct	52	6077	316
	May	237	1899	450	Nov	52	6981	363
	June		0	0	Dec	68	3500	238
	Subtotal	98	11671	1145	Subtotal	50	25553	1289
Total	98	11982	1175.6	Total	50	26247	1324	
1991	Jan	96	3198	307	Aug	37	270	10
	Feb	70	4886	342	Sep	49	1469	72
	Mar	58	4207	244	Oct	45	4711	212
	Apr	76	5632	428	Nov	55	6473	356
	May	48	5458	262	Dec	78	3218	251
	June	47	234	11				
	Subtotal	68	23614	1594	Subtotal	56	16141	901
Total	68	23703	1600	Total	56	16195	904	
1992	Jan	72	3500	252	Aug		0	0
	Feb	71	4310	306	Sep	50	820	41
	Mar	69	5957	411	Oct	50	3180	159
	Apr	63	5381	339	Nov	74	3878	287
	May	43	4791	206	Dec	87	2701	235
	Subtotal	63	23938	1514	Subtotal	68	10580	722
	Total	63	23938	1514	Total	68	14448	986

Table 4. Catch rates (kg per hour trawling) and corresponding effort (hours trawling) and catch (tons) from the shrimp fishery in Denmark Strait by Iceland in two periods of the year.

Year	January - June				July - December				
	Month	CPUE	Effort	Catch	Month	CPUE	Effort	Catch	
1987					Jul	98	447	43.7	
					Aug	83	3399	283.6	
					Sep	92	3078	251.4	
					Oct	61	2012	123.3	
					Nov	75	1482	111.8	
					Dec	106	259	27.3	
					Subtotal	79	10677	841.1	
					Total	79	16835	1330.0	
	1988	Jan	90	23	2.1	Jul	47	977	45.7
Feb		42	21	0.8	Aug	52	4596	238.1	
Jun		108	1463	158.5	Sep	62	6257	386.1	
					Oct	52	7166	372.3	
					Nov	26	363	9.5	
Subtotal		107	1507	161.4	Subtotal	54	19359	1051.7	
Total			1769	189.5	Total		22734.8	1234.5	
1989						Aug	51	3910	197.5
		May	154	2234	344.9	Sep	41	4558	186.4
	Jun	84	4188	349.6	Oct	27	321	8.5	
	Subtotal	108	6422	694.5	Subtotal	45	8789	392.4	
	Total		7835	847.3	Total		10722	478.7	
	1990	Jan	5	8	0.04	Jul	84	40	3.4
Feb		44	11	0.5	Aug	69	168	11.7	
Apr		12	9	0.1	Sep	65	835	54.2	
Jun		81	2347	190.2	Oct	62	47	2.9	
Subtotal		80	2375	190.8	Subtotal	66	1090	72.2	
Total		80	2538	203.901	Total	66	1165	77.1	
1991						Aug	24	9	0.2
		May	252	1536	387.7	Sep	68	64	4.4
	Jun	85	394	33.4	Oct	112	350	39.2	
	Total	218	1930	421.1	Total	104	423	43.7	
	1992					Jul	105	103	10.8
Apr		325	2857	928.4	Aug	116	7	0.8	
May		127	3915	495.7	Sep	17	6	0.1	
Jun		117	23	2.7	Oct	77	13	1.0	
Total		210	6795	1426.8	Total	98	129	12.7	

Table 5. Catch rates (kg per hour trawling) and corresponding effort (hours trawling) and catch (tonnes) from the shrimp fishery in the Denmark Strait by Faroe Islands.

Year	January - June				July - December			
	Month	CPUE	Effort	Catch	Month	CPUE	Effort	Catch
1986	Feb	0	4	0.0				
	Mar	98	413	40.4				
	Apr	75	84	6.3	Dec	416	164	68.2
	Subtotal	93	501	46.7	Subtotal	416	164	68.2
	Total	93	5428	506.0	Total	416	531	221.0
1987	Jan	360	208	74.9	Nov	91	231	21.0
	Feb	226	821	185.2	Dec	115	440	50.4
	Mar	174	449	78.0	Subtotal	106	671	71.4
	Subtotal	229	1478	338.1	Total	106	2068	220.0
	Total	229	1639	375.0				
1988	Jan	204	863	175.8				
	Feb	195	1271	248.4				
	Mar	129	647	83.6				
	Apr	76	468	35.7				
	May	104	70	7.3				
	Subtotal	166	3319	550.8				
Total	166	4031	669.0					
1989	Jan	158	862	136.2	Nov	51	430	22.0
	Feb	111	626	69.3	Dec	108	1202	130.3
	Mar	108	781	84.3	Subtotal	93	1632	152.3
	Apr	297	230	68.3	Total	93	1672	156.0
	Subtotal	143	2499	358.1				
	Total	143	3064	439.0				
1990	Jan	93	1205	112.5				
	Feb	109	1307	142.2				
	Mar	85	957	81.2	Nov	65	307	13.9
	Apr	23	113	2.6	Dec	62	1357	122.7
	May	269	660	177.5	Subtotal	82	1664	136.6
	Subtotal	122	4242	516.0	Total	82	1925	158.0
Total	122	5631	685.0					
1991	Jan	112	1980	221.6	Sep	83	262	21.7
	Feb	91	2922	266.7	Oct		274	13.2
	Mar	68	1790	122.5	Nov	60	1333	79.6
	Apr	129	330	42.5	Dec	88	2759	244.1
	Subtotal	93	7022	653.3	Subtotal	77	4628	358.6
	Total	93	8610	801.0	Total	77	2659	206.0
1992	Jan	64	1808	115.5				
	Feb	66	1536	101.2	Oct	25	290	7.3
	Mar	96	1136	108.6	Nov	69	2120	145.7
	Apr	52	356	18.4	Dec	106	2514	266.7
	May	59	1472	86.2	Subtotal	85	4924	419.7
	Subtotal	68	6308	429.9	Total	85	6863	585.0
Total	68	7483	510.0					
1993	Jan	57	404	23.2				

Table 6. Catch rates (kg per hour trawling) and corresponding effort (hours trawling) and catch (tonnes) from the shrimp fishery in the Denmark Strait by Denmark.

Year	January - June				July - December			
	Month	CPUE	Effort	Catch	Month	CPUE	Effort	Catch
1985	Mar			44.0				
	Apr			96.0				
	May			10.0	Dec	137	304	41.7
	Total			150.0	Total	137	1482	203.0
1986	Jan	225	229	51.6				
	Mar	564	106	59.8				
	Apr	158	135	21.3	Nov		119	26.9
	May	157	388	61.0				
	Subtotal	226	858	193.7	Subtotal	226	119	26.9
	Total	226	1962	443.0	Total	226	252	57.0
1987	Mar	306	33	10.1	Oct	105	268	28.2
	Apr	150	422	63.1	Nov	84	234	19.7
	May	109	221	24.0	Dec	107	252	26.9
	Subtotal	144	676	97.2	Subtotal	99	754	74.8
	Total	144	2997	431.0	Total	99	1250	124.0
	1988	Feb	91	360	32.9	Sept	84	203
Mar		104	188	19.6	Oct	83	445	37.1
Apr		78	41	3.2	Nov	87	375	32.5
					Dec	155	242	37.4
Subtotal		95	589	55.7	Subtotal	98	1265	124.1
Total		95	3479	329.0	Total	98	1172	115.0
1989	Jan	232	346	80.1	Aug	52	112	5.8
	Feb	277	474	131.4	Sept	51	418	21.4
	May	169	415	70.0	Oct	68	305	20.7
	Jun	13	105	1.4	Nov	48	337	16.3
					Dec	72	264	19.0
	Subtotal	211	1340	282.9	Subtotal	58	1436	83.2
	Total	211	1336	282.0	Total	58	1450	84.0
1990	Jan	100	243	24.3	Jul	46	316	14.5
	Feb	74	140	10.3	Aug	43	454	19.3
	Mar	93	338	31.3	Sep	38	373	14.2
					Oct	47	414	19.4
					Nov	46	406	18.7
	Subtotal	91	721	65.9	Dec	17	186	3.1
	Total	91	3304	302.0	Subtotal	42	2149	89.2
1991	Mar	52	349	18.2	Sep	45	230	10.3
	Apr	81	424	34.4	Oct	69	521	35.7
	May	78	328	25.6	Nov	0	3	0.0
					Dec	52	294	15.2
	Subtotal	71	1101	78.2	Subtotal	58	1048	61.2
	Total	71	3295	234.0	Total	58	2123	124.0
1992	Jan	201	70	14.1				
	Mar	41	293	11.9	Nov	37	115	4.3
	Apr	42	212	9.0	Dec	55	197	10.9
	Subtotal	61	575	35.0	Subtotal	49	312	15.2
	Total	61	2152	131.0	Total	49	595	29.0

Table 7. Catch rates (kg per hour trawling) and corresponding effort (hours trawling) and catch (tonnes) from the shrimp fishery in Denmark Strait by all nations combined in two periods of the year.

Year	Country	January-June			July - December		
		CPUE	Effort	Catch	CPUE	Effort	Catch
1978	Iceland	215	298	64.2	314	952	299.2
1979	Iceland	186	166	30.9	229	1982	454.4
1980	Greenland, Denmark	350	1665	582.0	129	2483	320.0
	France			50.0			
	Norway	468	3108	1455.0	124	8106	1006.0
	Iceland	125	1760	219.3	101	5318	539.4
	Faroe Islands	427	9115	3892.0			341.0
	Subtotal	393	15648	6148.3	117	15907	1865.4
	Total	393	15775	6198.3	117	18815	2206.4
1981	Greenland, Denmark	395	4013	1585.0			
	France	246	1436	353.0			
	Norway	216	9296	2006.0	43	232	10.0
	Iceland	99	688	68.0	67	848	56.9
	Faroe Islands			686.0			27.0
	Subtotal	260	15433	4012.0	62	1080	66.9
	Total	260	18072	4698.0	62	1516	93.9
1982	Greenland, Denmark	220	8432	1855.0			
	France	226	1833	414.0			
	Norway	203	9337	1894.0			
	Faroe Islands			737.0			
	Subtotal	212	19602	4163.0			
	Total	212	23072	4900.0			
1983	Greenland	255	5752	1467.0			
	France	192	1516	291.0			
	Norway	163	6830	1114.0	101	6100	613.0
	Iceland	99	52	5.1	161	238	38.3
	Denmark			204.0			
	Faroe Islands			443.0			
	Subtotal	203	14150	2877.1	103	6338	651.3
	Total	203	17332	3524.1	103	6338	651.3
1984	Greenland	340	6627	2250.0			
	France	256	1951	500.0			
	Norway	191	11141	2128.0			
	Iceland	42	53	2.2	103	7164	739.6
	Denmark			443.0			
	Faroe Islands			576.0			92.0
	Subtotal	247	19772	4880.2	103	7164	739.6
	Total	247	23900	5899.2	103	8074	831.6
1985	Greenland	270	6469	1744.0	251	3389	852.0
	France	194	2594	504.0	170	814	138.0
	Norway	166	12355	2051.0			
	Iceland	88	4485	396.0	94	14944	1398.0
	Denmark			150.0	137	1482	203.0
	Faroe Islands			404.0			270.0
	Subtotal	181	25903	4695.0	126	20629	2591.0
	Total	181	28959	5249.0	126	22779	2861.0

Table 7 continued

Year	January-June			July - December			
	Country	CPUE	Effort	Catch	CPUE	Effort	Catch
1986	Greenland	288	14285	4114.0	437	3811	1667.0
	France	175	3415	597.0	218	841	183.0
	Norway	145	12845	1861.0	123	1340	165.0
	Iceland	73	3205	234.0	103	8893	916.0
	Denmark	226	1962	443.0	226	252	57.0
	Faroe Islands	93	5428	506.0	416	531	221.0
	Total	189	41140	7755.0	205	15668	3209.0
1987	Greenland	314	17667	5547.0	144	7502	1080.0
	Norway	135	11353	1533.0	96	5261	507.0
	Iceland				79	16835	1330.0
	France	241	2599	626.0			405.0
	Denmark	144	2997	431.0	99	1250	124.0
	Faroe Islands	229	1839	375.0	106	2068	220.0
	Subtotal	235	36255	8512.0	99	32916	3261.0
Total	235	36255	8512.0	99	37004	3666.0	
1988	Greenland	219	24111	5285.0	157	13820	2165.0
	Norway	83	15314	1274.0	83	9332	778.0
	Iceland	107	1769	189.5	54	22735	1234.5
	France	141	3138	444.0			50.0
	Denmark	95	3479	329.0	98	1172	115.0
	Faroe Islands	166	4031	669.0			10.0
	Subtotal	158	51842	8190.5	91	47059	4292.5
Total	158	51842	8190.5	91	47717	4352.5	
1989	Greenland	192	23343	4471.0	75	20039	1510.0
	Norway	84	8354	704.0	52	27056	1394.0
	Iceland	108	7835	847.3	45	10722	478.7
	France	191	1525	291.3	58	1536	89.8
	Denmark	211	1336	282.0	58	1450	84.0
	Faroe Islands	143	3064	439.0	93	1672	156.0
	Total	155	45457	7034.6	59	62475	3712.5
1990	Greenland	189	28956	5478.0	71	10298	732.0
	Norway	98	11982	1176.0	50	26247	1324.0
	Iceland	80	2538	203.9	66	1165	77.1
	France	126	286	36.0			15.0
	Denmark	91	3304	302.0	42	2120	88.0
	Faroe Islands	122	5631	685.0	82	1925	158.0
	Subtotal	150	52697	7880.9	57	41740	2379.1
Total	150	52697	7880.9	57	42003	2394.1	
1991	Greenland	118	33991	4016.0	87	2256	197.0
	Norway	68	23703	1600.0	56	16195	904.0
	Iceland	218	1930	421.1	104	423	43.7
	France	115	1024	117.5			
	Denmark	71	3295	234.0	58	2123	124.0
	Faroe Islands	93	8610	801.0	77	2659	206.0
	Total	99	72553	7189.6	62	23656	1474.7
1992	Greenland	103	17639	1811.0	97	2073	201.0
	Norway	63	23938	1514.0	68	14448	986.0
	Iceland	210	6795	1426.8	98	129	12.7
	France						
	Denmark	61	2152	131.0	49	595	29.0
	Faroe Islands	68	7483	510.0	85	6863	585.0
	Total	93	58007	5392.8	75	24108	1813.7

Table 8. Catch rates (kg per hour trawling) and corresponding effort (hours trawling) and catch (tons) from the shrimp fishery in Denmark Strait by years .

Year	Periods	CPUE	Effort	Catch
1980	Jan-Jun	393	15775	6198.3
	Jul-Dec	117	18815	2206.4
	Mean/Total	243	34590	8404.7
1981	Jan-Jun	260	18072	4698.0
	Jul-Dec	62	1516	93.9
	Mean/Total	245	19588	4791.9
1982	Jan-Jun	212	23072	4900.0
	Jul-Dec	-	-	-
	Mean/Total	212	23072	4900.0
1983	Jan-Jun	203	17332	3524.1
	Jul-Dec	103	6338	651.3
	Mean/Total	176	23670	4175.4
1984	Jan-Jun	247	23900	5899.2
	Jul-Dec	103	8074	831.6
	Mean/Total	211	31974	6730.8
1985	Jan-Jun	181	28959	5249.0
	Jul-Dec	126	22779	2861.0
	Mean/Total	157	51738	8110.0
1986	Jan-Jun	189	41140	7755.0
	Jul-Dec	205	15668	3209.0
	Mean/Total	193	56808	10964.0
1987	Jan-Jun	235	36255	8512.0
	Jul-Dec	99	37004	3666.0
	Mean/Total	166	73259	12178.0
1988	Jan-Jun	158	51842	8190.5
	Jul-Dec	91	47717	4352.5
	Mean/Total	126	99559	12543.0
1989	Jan-Jun	155	45457	7034.6
	Jul-Dec	59	62475	3712.5
	Mean/Total	100	107932	10747.1
1990	Jan-Jun	150	52697	7880.9
	Jul-Dec	57	42003	2394.1
	Mean/Total	109	94700	10275.0
1991	Jan-Jun	99	72553	7189.6
	Jul-Dec	62	23656	1474.7
	Mean/Total	90	96209	8664.3
1992	Jan-Jun	93	58007	5392.8
	Jul-Dec	75	24108	1813.7
	Mean/Total	88	82115	7206.5

Table 9. Nominal catch (tons) of shrimp in the Denmark Strait.

Country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ***	1993
Denmark	-	-	702	581	740	204	443	353	500	555	444	366	390	358	160	
Faroe Islands	-	-	4233	713	737	443	668	674	727	595	679	595	843	1007	1095	
France	-	-	50	353	414	291	500	642	780	1030	494	381	51	118	-	
Greenland	-	-	200	1004	1115	1467	2250	2596	5781	6627	7456	5976	6211	4202	2012	
Iceland	363	485	759	125	0	43	742	1794	1150	1330	1424	1326	281	465	1440	
Norway	-	800	2461	2016	1896	1727	2128	2051	2026	2041	2052	2098	2500	2504	2500	
Total catch	363	1285	8405	4792	4902	4175	6731	8110	10964	12178	12549	10742	10276	8654	7207	
Total catch eastern side	363	485	759	125	0	43	742	1794	1150	1330	1424	1326	281	465	1440	
Total catch western side	0	800	7646	4667	4902	4132	5989	6316	9814	10848	11125	9416	9995	8189	5767	
Advised TAC	-	-	-	-	4200	4200	4200	5000	-	-	-	10000*	10000*	10000*	8000	5000
Effective TAC western side	-	-	-	8000	4500	5725	5245	6090	7525**	7725**	8725**	9025**	14100	14500	13000	13000

* Advised for a few years as a precautionary measure.

** Not including Greenland fishery north of 66° 30' N.

*** Preliminary.