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The Bycatch in the Shrimp Fishery of Iceland at Flemish Cap in 1997 and 1998

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Abstract

In this paper are presented the data collected by observers on bycatch onboard Icelandic vessels. The three species detected in the bycatch in the shrimp fishery at Flemish Cap were redfish, greenland halibut and wolffish. The overall percentage by weight was 1.8% in year 1997. Of this redfish accounted for 1.4%.

Introduction

The bycatch in the shrimp fishery at Flemish Cap has become less serious when the distance between bars in the Nordmoor grate were reduced from 28 mm to 22 mm. The Icelandic observer scheme was initiated in January 1996. Since then there have been one observer per each Icelandic shrimp vessel observing the catch. The data here are final for the year 1997. But for 1998 the data are preliminary as only one Icelandic vessel has been fishing in the area long enough for getting the data back to the Marine Research Institute.

Material and methods

In the shrimp fishery all vessels use a trawl with mesh size 40 mm (open mesh) in the codend. The use of sorting grid so-called Nordmoor grate is compulsory. There is distance of 22 mm between the bars thus allowing only a few fish of the smallest fish to enter the codend.

Apart from doing shrimp samples a large sample (ca 60 kgs) is taken from the unsorted catch. From this the number of redfish, greenland halibut and wolffish were counted and weighed. The catch of shrimp from the same sample was then weighed. From this sample and the total catch of shrimp in the haul the total number and weight of each species was then calculated. Besides the aforementioned three species was american plaice and cod looked for.

Observer data

The redfish was not divided into species as the observers were not capable of carrying out such a difficult task. No cod nor american plaice was reported in 1997 and 1998.

Redfish was present in almost every haul in 1997 or from 0.4 % to 2 % (by weight) per month, the overall for the whole year being 1.4 % (Table 1) as compared to 1.6% in 1996 (Skúladóttir, 1997). In 1998 the percentage is 0.6% for the first four months which similar to that of 1997 in the same months (Table 2). Fig. 1 presents

the length frequency distributions (lfd) of redfish that passes through the Nordmoor grate. It appears that the age group seen in Jan-March 1996 at the size of 7 cm has been prominent in the shrimp fishery till Oct-Nov 1997 when it is at the size about 14 cm. Thus the same year class of redfish is retained partly by the gear for at least two years. Then in Jan-Feb 1997 there appears again a new year class of redfish of 7 cm which again grows to 11-12 cm in Jan-March 1998, a similar growth as of that appearing a year earlier. The third year class of redfish of 7 cm seen in Jan-March of 1998 appears to be much weaker than the first two year classes appearing in 1996 and 1997 respectively. Looking at the lfds in 1996 through 1997 it appears that redfish as large as 20-24 cm is considerable in the catch. It is possible that the observers have a tendency to miss some of the smallest redfish when sorting the catch, thereby the proportions of the bigger redfish are larger in the data. Also one suspects that in some cases the grate is not working properly and the bars may be bent to allow larger fish to pass through to the codend. It should be stressed that the space between the bars has to be checked frequently and mended when necessary.

Greenland halibut was rare as bycatch, ranging from 0.0-0.3% per month in 1997, the overall for the whole year being 0.2% (Table 3) as compared to 0.3% of the year 1996 (Skúladóttir, 1997). Wolffish was in smaller proportions as compared to 1996, being 0.1-0.5% per month in 1997 (Table 5), the overall for the whole year being 0.2% as compared to 1.1% in 1996 (Skúladóttir, 1997).

The overall bycatch for 1997 of all three species listed here was 1.8% of the catch as compared to 3% in 1996. The difference lies mainly in the greater number of wolffish in 1996. The data for year 1998 (Tables 2, 4 and 6) are too few as yet but there appears to be even less bycatch than in 1997 in the same months.

References

Skúladóttir, U. 1997 The bycatch in the shrimp fishery of Iceland at Flemish Cap in 1996 and 1997. NAFO SCR Doc. 97/80 Serial No. N2918. 4p.

Table 1. Redfish bycatch by months in 1997.

	Hauls Number	Redfish		Shrimp	Redfish	
		Weight kg	Number	Weight kg	Weight %	Number per 1000 kg shrimp
January	27	217	6871	32598	0.66	211
February	38	178	9595	44511	0.40	216
March	No data					
April	19	166	7184	39944	0.41	180
May	143	4753	75342	305185	1.53	247
June	227	7412	96586	497402	1.47	194
July	297	10586	204486	802147	1.30	255
August	206	5728	120081	479368	1.18	250
September	182	8601	192492	414777	2.03	464
October	164	3841	89697	395055	0.96	227
November	53	1922	22385	127500	1.49	176
December	No data					
Σ 1997	1356	43404	824719	3138487	1.36	263

Table 2. Redfish bycatch by months in 1998.

	Hauls Number	Redfish		Shrimp	Redfish	
		Weight kg	Number	Weight kg	Weight %	Number per 1000 kg shrimp
January	No data					
February	15	418	21295	48596	0.85	438
March	43	1137	45942	128840	0.87	357
April	33	323	13225	122065	0.26	108
Σ 1998	91	1878	80462	299501	0.62	269

Table 3. Greenland halibut bycatch by months in 1997.

	Hauls Number	Greenland halibut		Shrimp	Greenland halibut	
		Weight kg	Number	Weight kg	Weight %	Number per 1000 kg shrimp
January	27	25	175	32598	0.08	5
February	38	2	43	44511	0.00	1
March	No data					
April	19	49	511	39944	0.12	13
May	116	517	4017	250547	0.21	16
June	227	1424	10099	497402	0.29	20
July	297	1559	15367	802147	0.19	19
August	206	1009	8262	479368	0.21	17
September	181	1190	8918	414777	0.29	22
October	164	516	4731	395055	0.13	12
November	53	119	639	127500	0.09	5
December	No data					
Σ 1997	1328	6410	52762	3083851	0.21	17

Table 4. Greenland halibut bycatch by months in 1998.

	Hauls Number	Greenland halibut		Shrimp	Greenland halibut	
		Weight kg	Number	Weight kg	Weight %	Number per 1000 kg shrimp
January	No data					
February	15	19	268	48596	0.04	6
March	43	35	665	128840	0.03	5
April	33	70	2182	122065	0.06	18
Σ 1998	91	124	3115	299501	0.04	10

Table 5. Wolffish bycatch by months in 1997.

	Hauls Number	Wolffish		Shrimp	Wolffish	
		Weight kg	Number	Weight kg	Weight %	Number per 1000 kg shrimp
January	27	83	1522	32598	0.25	47
February	38	133	2986	44511	0.30	67
March	No data					
April	19	85	3509	39946	0.21	88
May	116	507	12533	305185	0.17	41
June	227	461	8543	497402	0.09	17
July	297	1093	22162	802147	0.14	28
August	206	1554	32380	479368	0.32	68
September	181	1991	37487	414777	0.48	90
October	164	1599	26709	395055	0.40	68
November	53	108	1679	127500	0.08	13
December	No data					
Σ 1997	1328	7614	149510	3138489	0.24	48

Table 6. Wolffish bycatch by months in 1998.

	Hauls Number	Wolffish		Shrimp	Wolffish	
		Weight kg	Number	Weight kg	Weight %	Number per 1000 kg shrimp
January	No data					
February	15	16	652	48596	0.03	13
March	43	153	2993	128840	0.12	23
April	33	116	3171	122065	0.09	26
Σ 1998	91	285	6816	299501	0.10	23

Redfish 3M

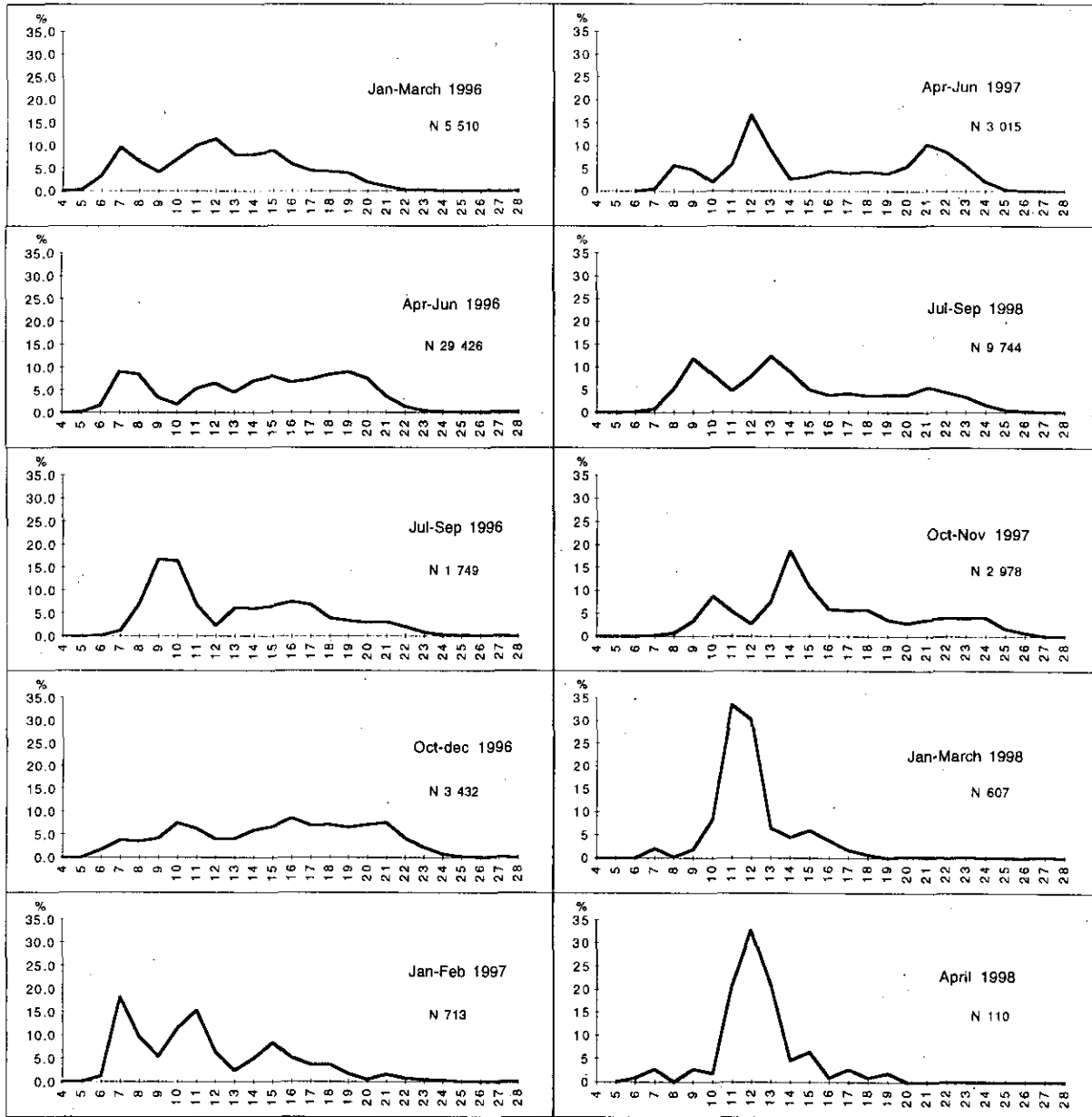


Fig. 1. Length distributions of redfish caught in a shrimp trawl after passing through a 22 mm sorting grate.