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The Icelandic Shrimp (*Pandalus borealis*) Fishery
in the Denmark Strait in 1987

by

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In 1987 the Icelandic shrimp fishery in the Denmark Strait started in July and lasted through December. The total catch was 1,330 tons compared to 1,150 tons in 1986. The mean catch per trawling hour was lower than that of 1986 or 78 kg as compared to 95 in 1986.

Table 1 shows the effort, catch and catch per trawling hour by months for the Icelandic shrimp fishery in the Denmark Strait in 1986 and 1987 as reported in logbooks. It is noteworthy that since 1983 the catch per trawling hour has gradually fallen down from 150 kg to 78 kg in spite of increase in the average size of trawl. In general, this is in agreement with the evaluations of stock size made by Smedstad (Smedstad 1988).

The proportions of males to females by strata is shown in Figs. I-IV in September and November in 1987. Fig. V shows the proportion of males to females from September to December in 1987 in the same stratum. As shown in the figure there is a great reduction in the proportion of males during the period. This reduction of males in the autumn seems to be in accordance with previous findings (Skuladóttir and Hallgrímsson 1986) where there was a reduction of males from 49% in July to about 3% in November 1985.

All the Icelandic samples have been compiled by months in promille length distributions as well as in sex categories. These are presented in Tables II-V.

Modal analysis using the method of MacDonaid and Pitcher (1979) has been carried out for the November samples pooled together. First there was a modal analysis carried out on the males and primiparous females added together. Three components were easily fitted having the mean sizes 21.5, 24.9 and 27.7 mm CL. In the multiparous females, three components could be fitted by putting a constraint on the standard error of all the components to be equal. The mean lengths were 28.0, 31.2 and 33.3 mm CL. The proportion of the "youngest" multiparous females was only about 6.6% and the "oldest" in the males and primiparous females was more numerous, being 15.4% of the total distribution.

Thanks are due to O. M. Smedstad for the many samples given to the Marine Research Institute of Iceland from the "Masi" survey in 1987.

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Table 1. On one hand catch, effort and kg/hr as reported by Icelandic logbooks, and the other, the nominal catch by month and year in the Denmark Strait.

YEAR	FROM LOGBOOKS			NOMINAL CATCH Tons
	EFFORT Tr. hours	CATCH Tons	CPUE kg/hr	
1986				
April	19	0.5	20.9	1
May	2806	206.7	73.6	229
June	64	3.4	53.1	4
July	92	11.2	122.6	12
August	2163	204.8	94.7	227
September	2689	251.6	93.5	279
October	1892	155.7	82.2	172
November	947	91.4	96.4	101
December	228	112.8	494.4	125
Total	10900	1038.1	95.2	1150
1987				
July	447	43.7	97.7	85
August	3399	283.6	83.4	373
September	3078	251.4	81.6	359
October	2012	123.3	61.3	309
November	1482	111.8	75.4	115
December	259	27.3	105.6	89
Total	10684	841.2	78.7	1330

Table II. Promille length distribution by sexual categories of all Icelandic samples in September 1987. The number of specimens amounted to 667.

CL mm	♂	♀ with st. sp.	♀ without st. sp.	All
19	1			1
20.5	1			1
21.5	1			1
22	6			6
22.5	1			1
23	3			3
23.5	6		1	7
24			3	3
24.5	21			21
25	28		1	30
25.5	24		1	25
26	31		3	34
26.5	16		1	18
27	15		6	21
27.5	15		9	24
28	27		15	42
28.5	30		10	40
29	19		27	46
29.5	18	1	58	78
30	9	1	93	103
30.5	3		90	93
31			103	103
31.5			99	99
32			63	63
32.5			49	49
33			34	34
33.5			27	27
34			15	15
34.5			4	4
35				
35.5			1	1
Total	279	2	718	999

Table III. Promille length distribution by sexual categories of all Icelandic samples in September 1987. The number of specimens amounted to 95.

CL mm	♂	♀ with st. sp.	♀ without st. sp.	All
19.5	11			11
22.5	11			11
23	21			21
23.5	11			11
24	42			42
24.5	42			42
25	53			53
25.5	74			74
26	32			32
26.5	42			42
27	32		11	42
27.5	53			53
28	53		11	63
28.5	74		21	95
29	21	21		42
29.5	21		42	63
30			53	53
30.5			53	53
31			53	53
31.5			11	11
32			53	53
32.5			53	53
33			21	21
33.5			11	11
Total	589	21	390	1,000

Table IV. Promille length distribution by sexual categories of all Icelandic samples in November. The number of specimens amounted to 2,889.

CL mm	♂	♀ with st. sp.	♀ without st. sp.	All
20	1			1
20.5	2			2
21	2			2
21.5	2			2
22	2			2
22.5	3			3
23	3		1	4
23.5	7	1		8
24	9			9
24.5	10			10
25	12			12
25.5	13		2	15
26	16		2	19
26.5	19	1	3	23
27	16		6	22
27.5	19	1	8	28
28	23	2	11	36
28.5	17	4	16	37
29	16	4	22	43
29.5	8	13	59	79
30	4	8	78	90
30.5	3	9	100	111
31	3	8	114	126
31.5	1	1	95	97
32		1	76	77
32.5			53	53
33			43	43
33.5			18	18
34			12	12
34.5			8	8
35			5	5
35.5			1	1
Total	212	53	735	1,000

Table V. Promille length distribution by sexual categories of all Icelandic samples in September 1987. The number of specimens amounted to 260.

CL mm	♂	♀ with st. sp.	♀ without st. sp.	All
18.5	4			4
19.5	4			4
20	4			4
21	4			4
22	8			8
22.5	8			8
23.5	4			4
24	12			12
24.5	8			8
25	19			19
25.5	35			35
26	15		4	19
26.5	15		15	30
27	15		8	23
27.5	23		8	31
28	31	4	12	46
28.5	27		12	38
29	15	12	27	54
29.5	8	19	50	77
30	4	19	58	81
30.5	15		73	88
31		23	77	100
31.5		4	62	65
32	4		46	50
32.5			62	62
33	4		58	62
33.5			42	42
34			8	8
34.5			8	8
35			8	8
Total	285	81	634	1,000

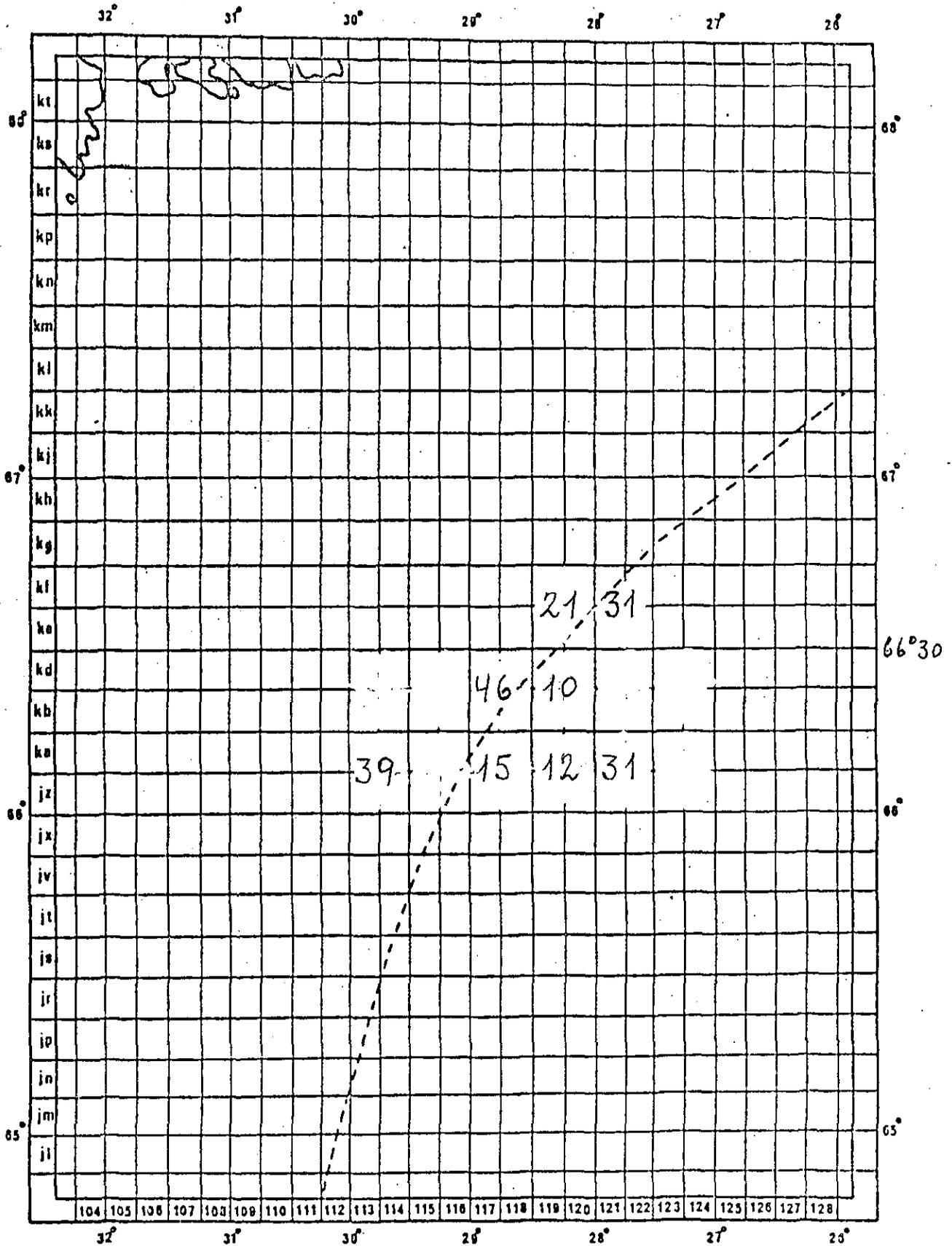


Fig. 1. Percentages of males in September 1987. Samples from the Norwegian "Masi" survey as well as from Icelandic shrimpers.

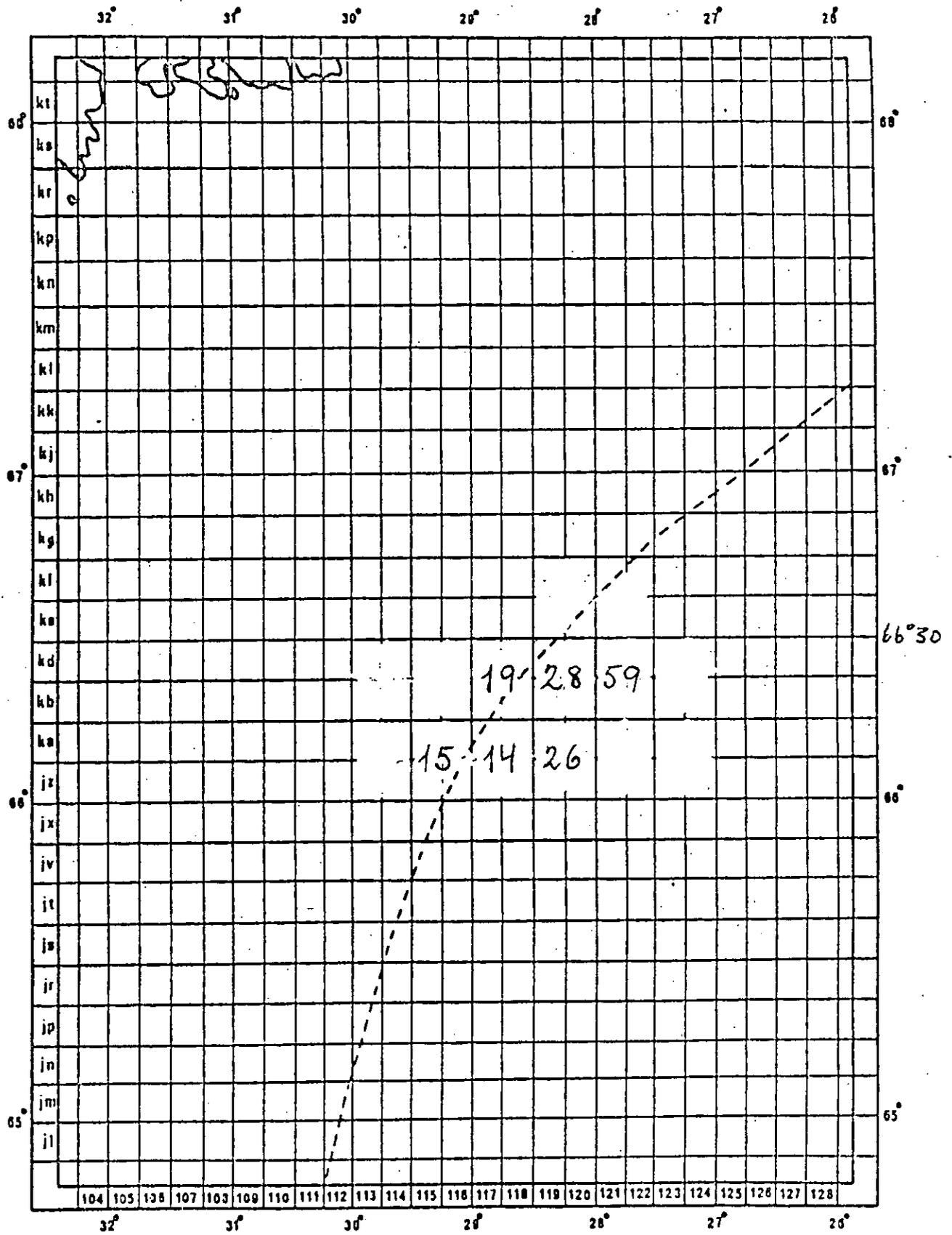


Fig. 2. Percentages of males in November 1987. Samples from Icelandic shrimpers.

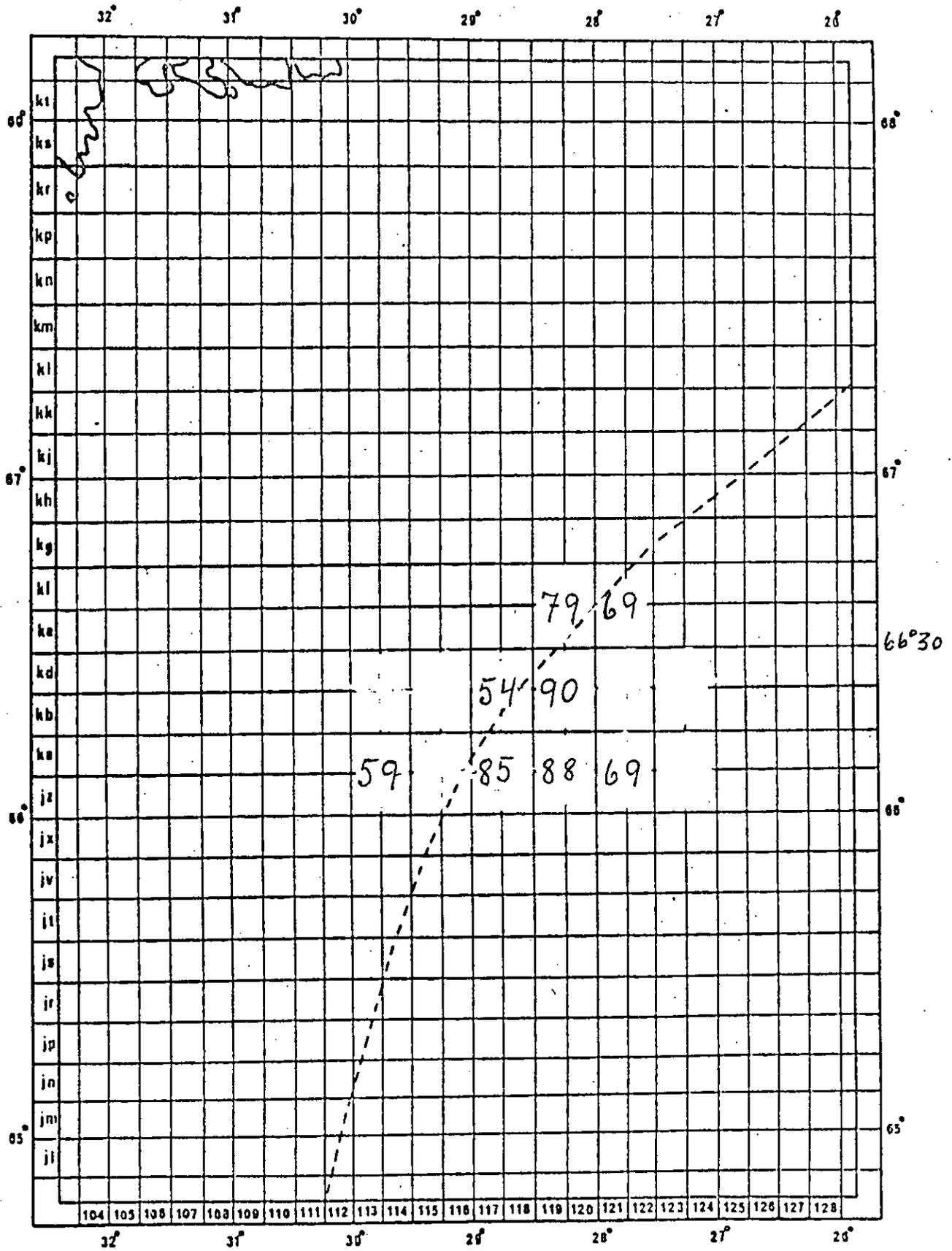


Fig. 3. Percentages of females without sternal spines in September 1987. Samples from the Norwegian "Masi" survey as well as from Icelandic shrimpers.

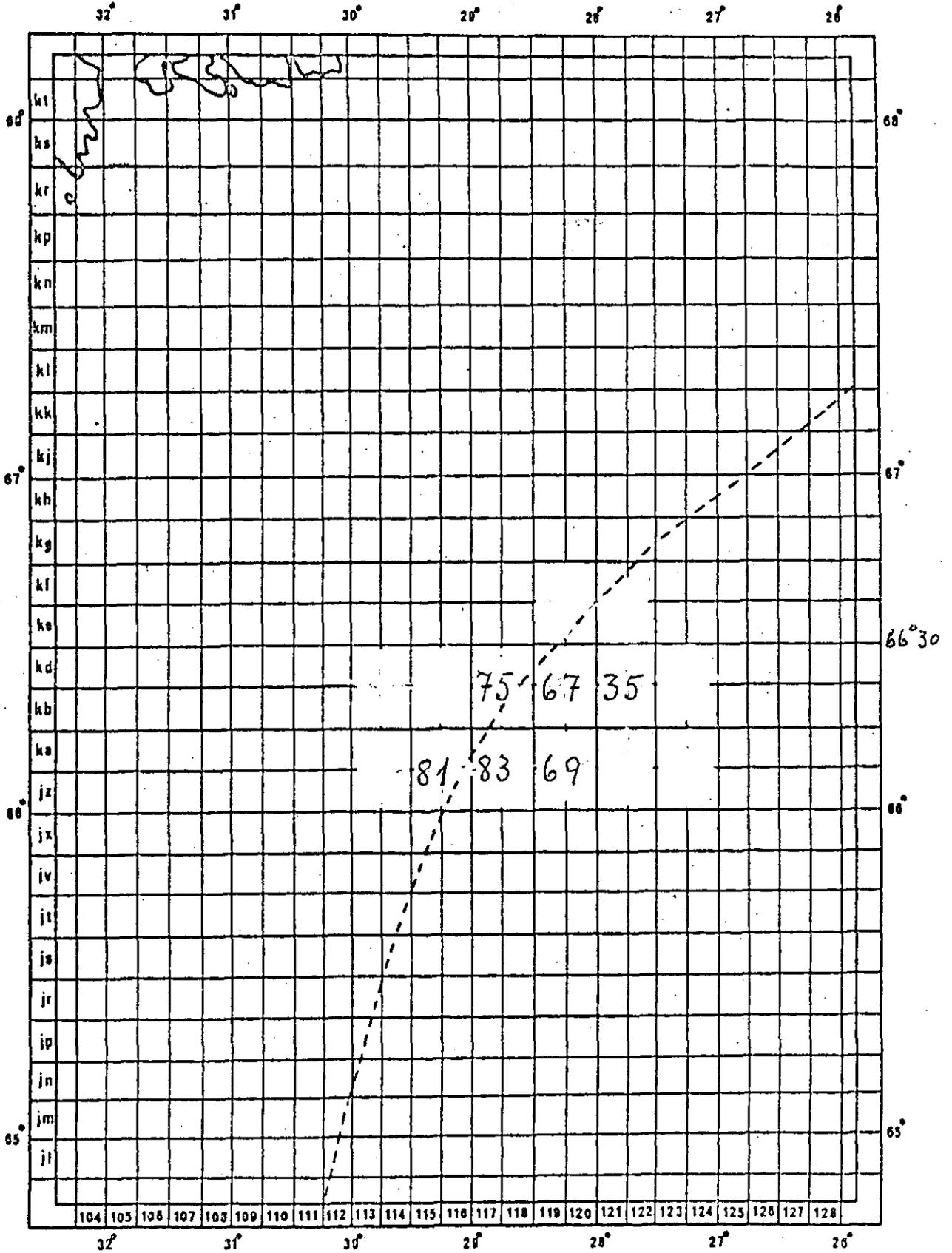


Fig. 4. Percentages of females without sternal spines in November 1987. Samples from Icelandic shrimpers.

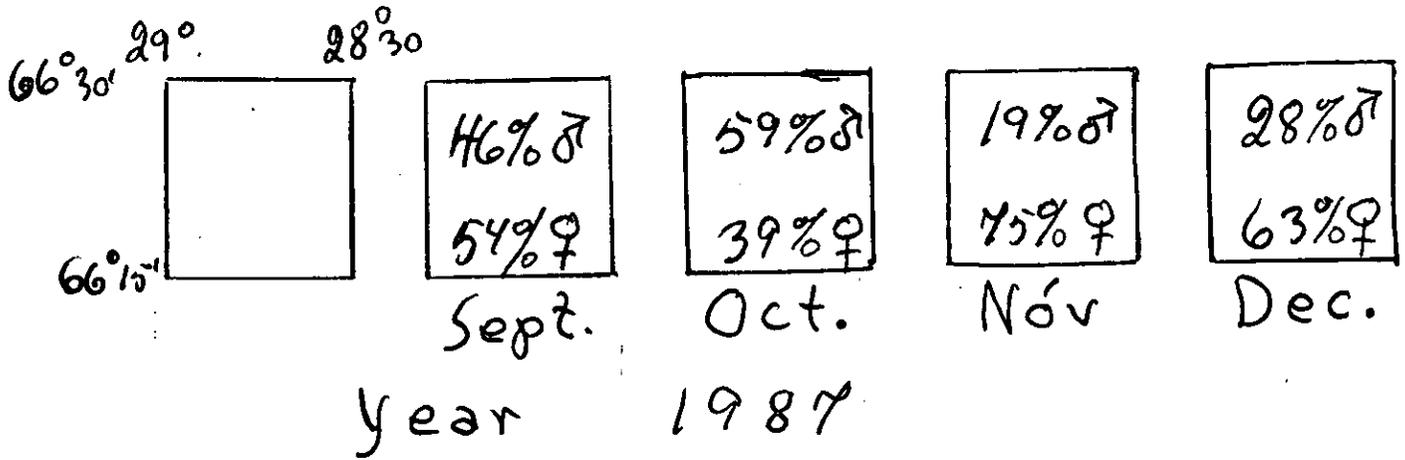


Fig. 5. Proportion of males to females from September to December 1987 in the stratum indicated in the figure.