Northwest Atlantic Fisheries Organization

Serial No. N944 NAFO SCR Doc. 85/I/10

SCIENTIFIC COUNCIL MEETING - JANUARY 1985

Catch, Effort and Biological Data of Shrimp (*Pandalus borealis*) in the French Fishery off East Greenland in 1984

by

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INTRODUCTION

The French fishery off East Greenland was conducted, as in the three previous years, during the spring of 1984 by two stern trawlers. The fishing logbooks of these two trawlers have been available to the Saint-Pierre et Miquelon laboratory and five samples of shrimp were collected on board, frozen and examined at the Boulogne laboratory.

Information on the location of the fishery, catches (effort and c.p.u.e) and on the biological characteristics of shrimp (length distribution, composition by sex) are presented in this paper.

OBSERVATIONS ON CATCHES AND FISHING EFFORT

French trawlers fished off East Greenland from March 20th to May 14th and caught 500 m.tons of shrimp against 291 m.tons from April 8th to June 18th in 1983. The gear used, as previous years, was a "kalut" otter trawl.

The fishery was located on the Dorhn Bank, on the western side of the mid-line between Greenland and Iceland.

In the end of March, most of the tows were located in the south of the Dorhn Bank : south of 66°00 N from 30°00 to 31°45 W (units JW and JI) on depth 350-400 m (fig. 1a, 1b).

In April and May, the shrimp fishery stretched from 65°30 N to 66°30 N with most of the tows inside an area restricted by 30°W and 30°30 W on depths from 300 to 475 m (fig. 2a, 2b, 3a and 3b).

A total of 35 units (representing an area of 4900 km²) was fished in 1984.

Catches, effort and average c.p.u.e obtained by the two French trawlers are given per month in the following table :

Fishing period	March 20-31	April 1-30	May 1-14	Total
Catch (tons)	42	352	106	500
Fishing effort (hours)	132	723	349	1 204
cpue (kg/hour)	316	487	304	415

The total c.p.u.e (415 kg/h) indicates an increase of 113 % compared with the 1983 c.p.u.e of 195 kg/h (BISEAU et al., 1984). But the beginning and the end of the fishing period took place fifteen days earlier than in previous years.It must be noted however that the catch rate obtained in April 1984 (487 kg/h) was the best one since French fishery for shrimp started off East Greenland. For the same period in April, from about the 15th to the 30th, for all years since 1981 catch rates were respectively : 433 kg/h (DUPOUY et al., 1981), 216 kg/h (DUPOUY et al., 1983), 165 kg/h (BISEAU et al., 1984) and 546 kg/h for April 15th to 30th 1984.

The same observation can be made for May. The French trawlers fished only during the first part of the month. BISEAU (BISEAU et al., 1984) noted that for about the same fishing effort (108 hours) the catch rate was 142 kg/h in the beginning of May 1983 (May 1st to 10th) compared with 304 kg/h in 1984 (May 1st to 14th).

Information on shrimp discards was available for one trawler. On a total catch of 260 tons, only 540 kg (less than 1% of weight) were discarded. Almost all catches were sorted in extra-large individuals (50 to 70 shrimps per kg).

By-catches reported by this trawler were composed mostly of red fishes (1315 kg) and greenland halibut (120 kg).

OBSERVATIONS ON SAMPLES

As previous years, the shrimps of each sample were sorted by reference to sexual characteristics and also to the stage of the sternal spines (DUPOUY et al., 1983).

Characteristics of the five samples collected on board Finlande III are presented in table 1. Due to damage of the bags containing frozen shrimps, the three last samples could not be seperated. So maturity stage and their evolution are not examined in this paper.

The total catch is composed of 3 % males, 4 % transitionals and 93 % females. In spring 1983, we had respectively : 15,9 and 76 % (BISEAU et al., 1984). It must be noted that in 1983, samples were collected between the end of April and mid-June while in 1984 samples were taken in April and beginning of May.

The lengths of all the individuals ranged from 20 to 35 mm with the bulk between 27 and 32 mm (table 2, fig. 4). The mean length was, before sorting, 29.1 mm compared to 28.2 mm in spring 1983 (BISEAU et al., 1984). And the average weight was 16.2 g against 15.1 g in 1983.

The male sizes ranged from 20 to 30 mm (fig. 5). Transitionals and females with spines II are distributed from 25 to 33 mm. The mean length and weight for this group were 28.8 mm and 15.2 g respectively (table 2). The lengths of females with no spines (females III) ranged from 20 to 35 mm with mean length and weight of 29.3 mm and 16.6 g respectively. Almost all the females were ovigerous (92 %).

References

BISEAU (A.), FONTAINE (B.) and FOREST (A.), 1984.- Catch, Effort and Biological Data of Shrimp (Pandalus borealis) in the French Fishery off East Greenland in 1983.- Northw.Atlant. Fish. Organ., SCR DOC 84/I/7, 17 p.

DUPOUY (H.), MINET (J.P.) and DERIBLE (P.), 1981.- Catch, Effort and Biological Characteristics of Shrimp (Pandalus borealis) in the French Fishery off East Greenland in 1981.- Northw. Atlant.Fish.Organ., SCR DOC 81/XI/157, 13 p.

DUPOUY (H.), DERIBLE (P.) and BISEAU (A.), 1983.- Catch, Effort and Biological Characteristics of Shrimp (Pandalus borealis) in the French Fishery off East Greenland in 1982.- Northw. Atlant.Fish.Organ., SCR DOC 83/I/4, 21 p.

Table 1 - Characteristics of samples collected on board Finlande III off East Greenland in 1984.

Sample nº	Date	Average position		Depth range (m)	Time of trawling (GMT)	Nº of shrimp examined	Composition by sex in percentage		
		Lat N	Long W				Males	Transitionals	Females
1	April 7	65°44'	30°12'	390-410	03:45 - 07:45	104	1.9	6.7	91.3
2	April 14	65°48'	30°00'	360-370	07:20 - 10:50	101	0.9	0.9	98.0
3	April 21	65°50'	30°09'	380-400	03:45 - 06:50	)			
4	April 28	66°15'	30°08'	374-384	16:30 - 20:05	) 326	3.4	4.3	92.3
5	May 5	65°46'	30°08'	380-392	12:00 - 14:35	)			
					Total	531	2.6	4.1	93.2

Table 2 - Length distribution by sex of shrimp collected on board FINLANDE III (April-May 1984) off East Greenland.

Lcp (mm)	Males	Transitionals and Females II	Females III	Total
20	2			2
21	4			4
22			2	2
23			2	2
24	4			4
25	6	2	6	14
26	4	6	30	40
27	2	23	98	123
28	4	45	172	221
29	2	30	206	238
30		17	156	173
31		13	100	113
32		4	43	47
33			13	13
34			4	4
Total/1000	28	140	832	1000
Mean (mm)	25.18	28.80	29.29	29.11
S.d. (mm)	2.65	1.40	1.64	1.77
PM (g)	9.3	15.2	16.6	16.2

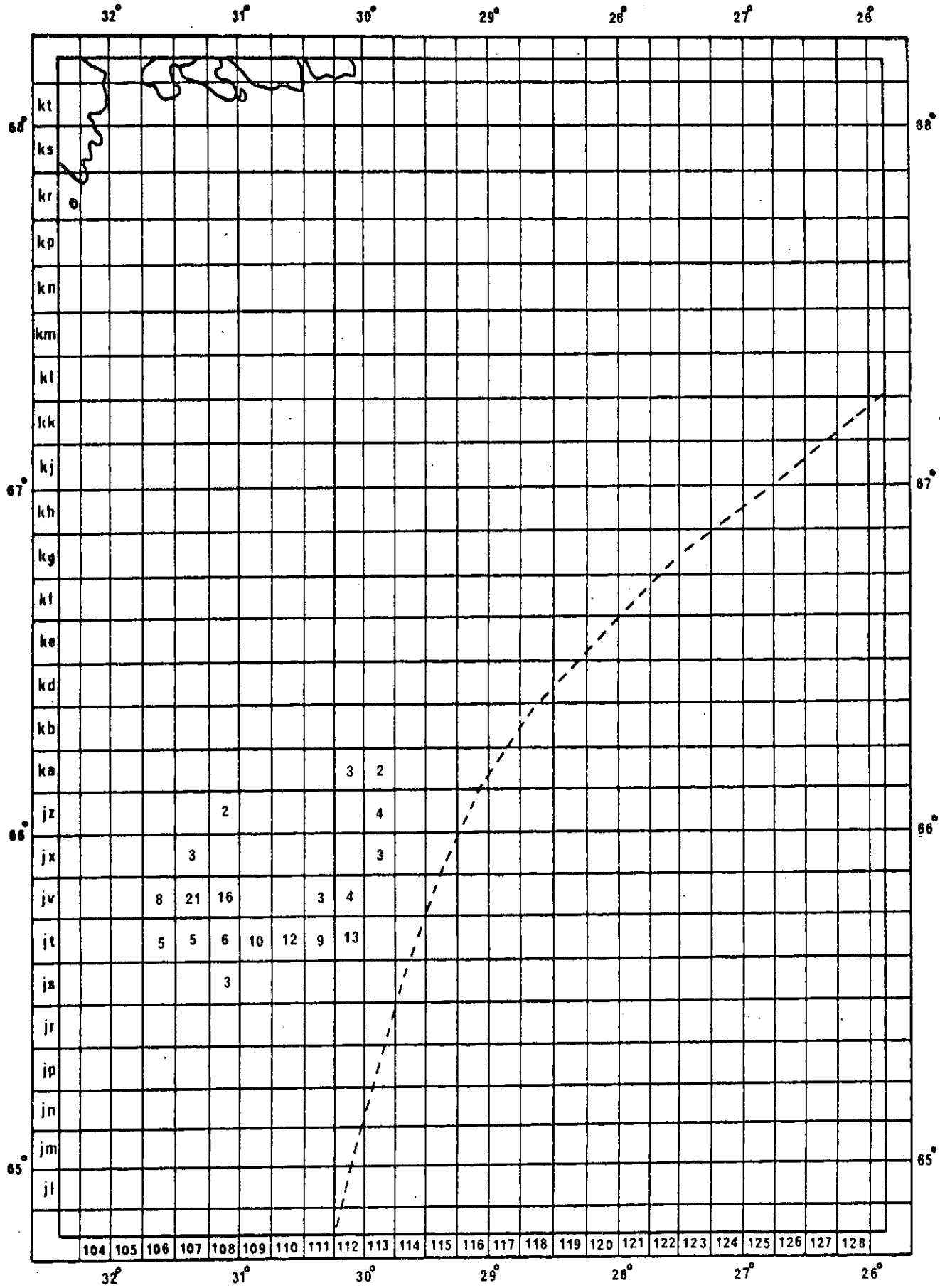

Fig. 1 a - Distribution of effort (hours) in the French fishery for shrimp at East greenland in March 1984.

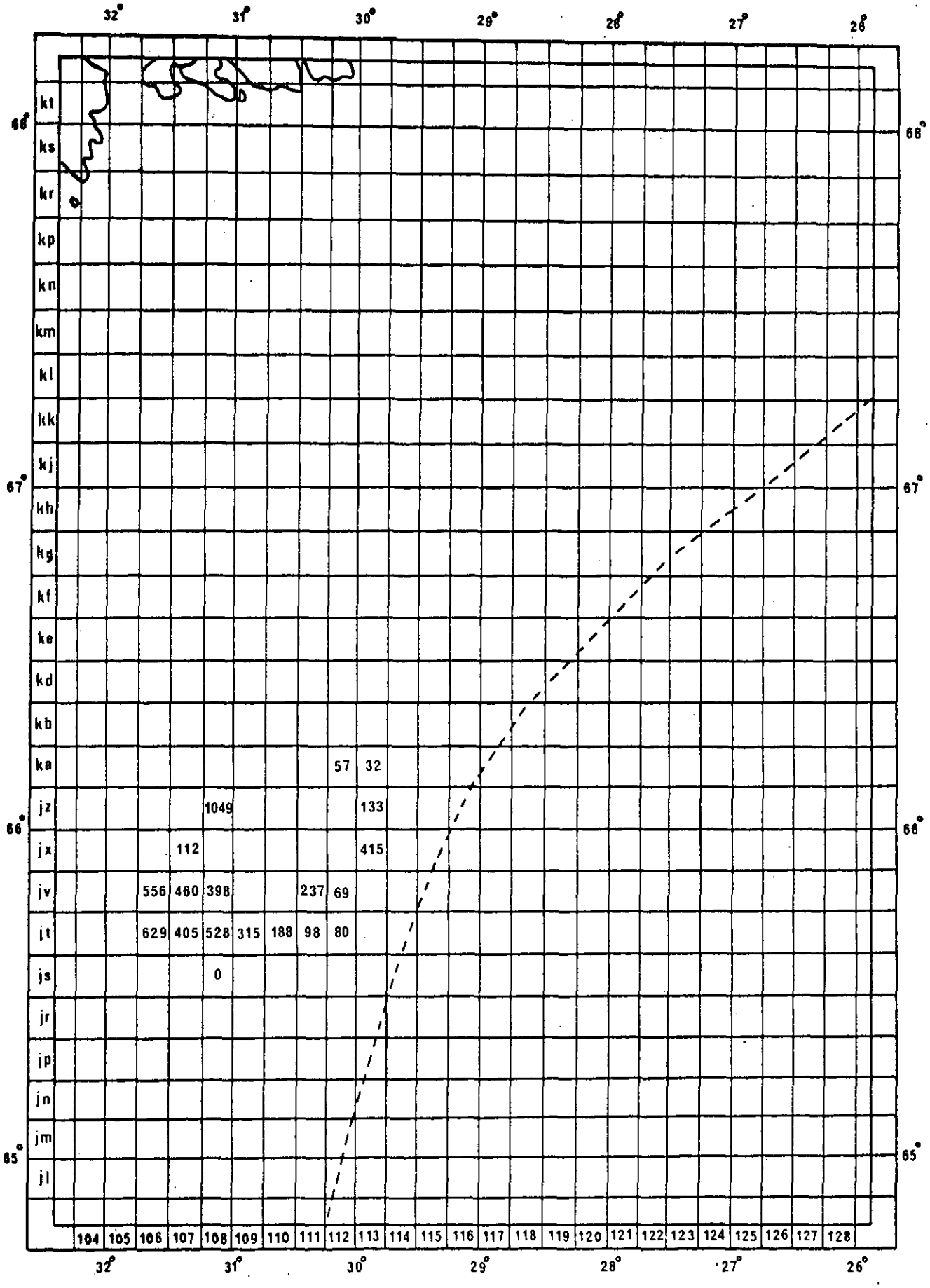

Fig. 1 b - Distribution of catch per unit of effort (kg/hour) in the French fishery for shrimp at East Greenland in March 1984.

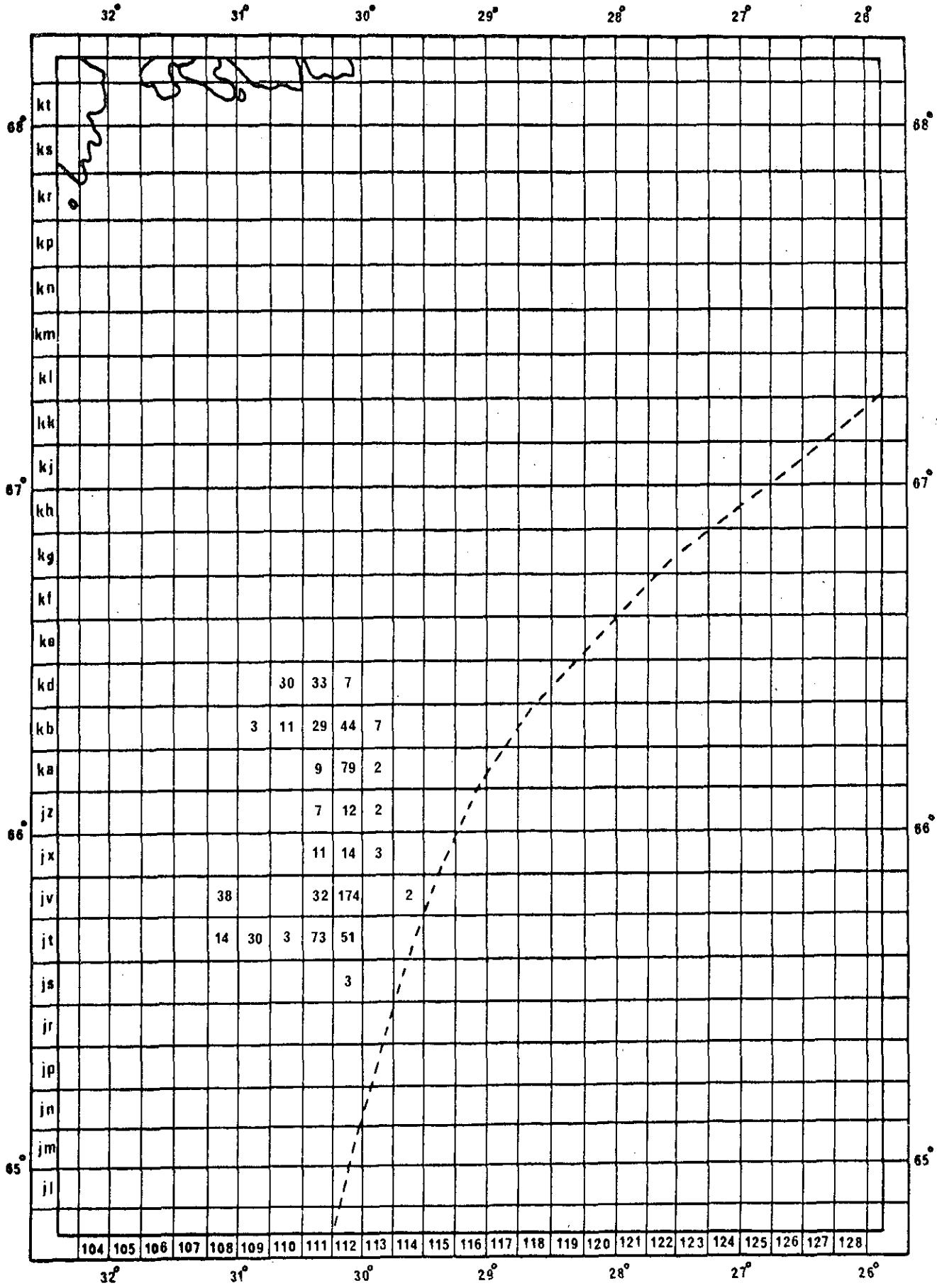

Fig. 2 a - Distribution of effort (hours) in the French fishery for shrimp at East Greenland in April 1984.

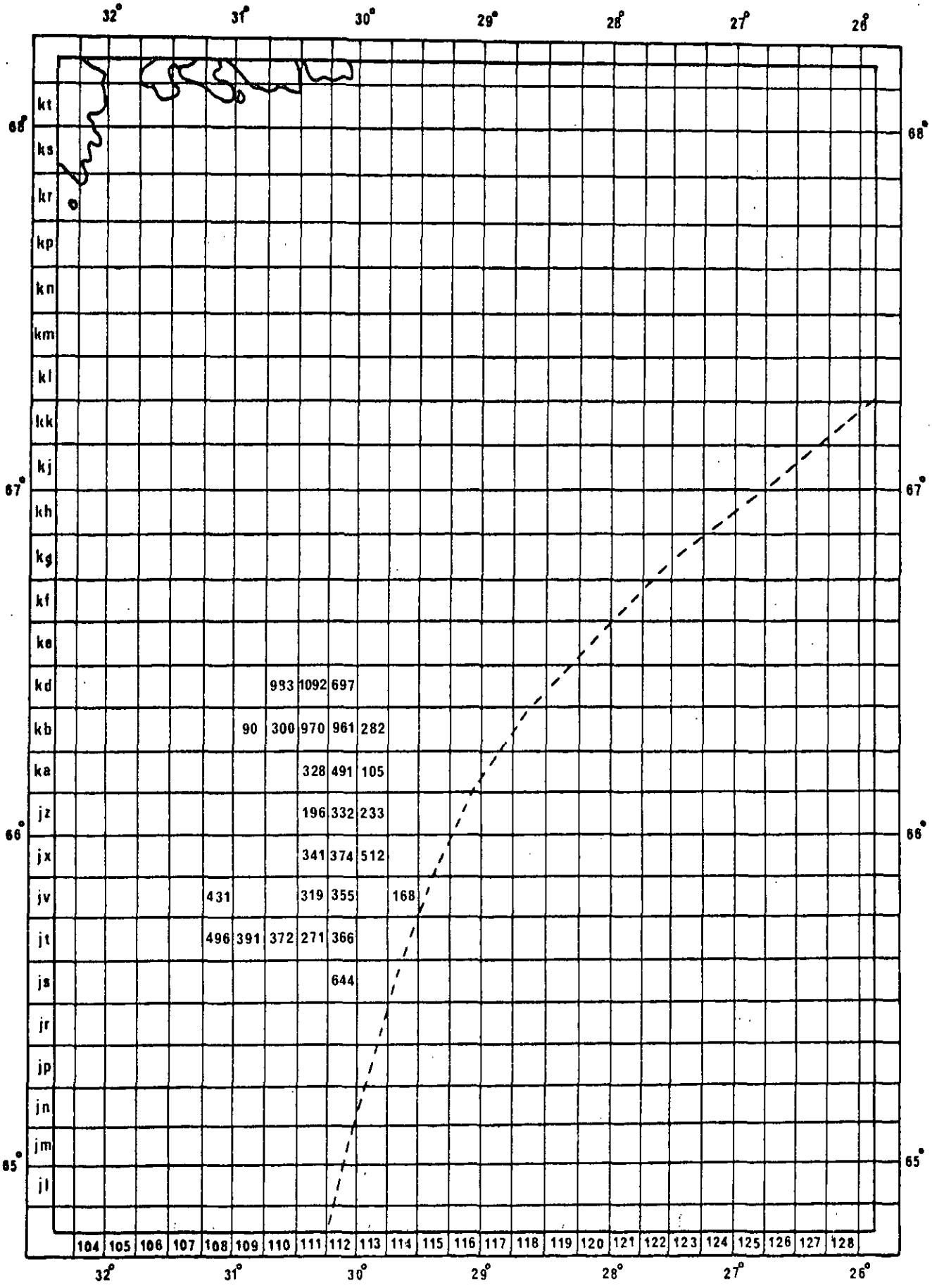

Fig. 2 b - Distribution of catch per unit of effort (kg/hour) in the French fishery for shrimp at East Greenland in April 1984.

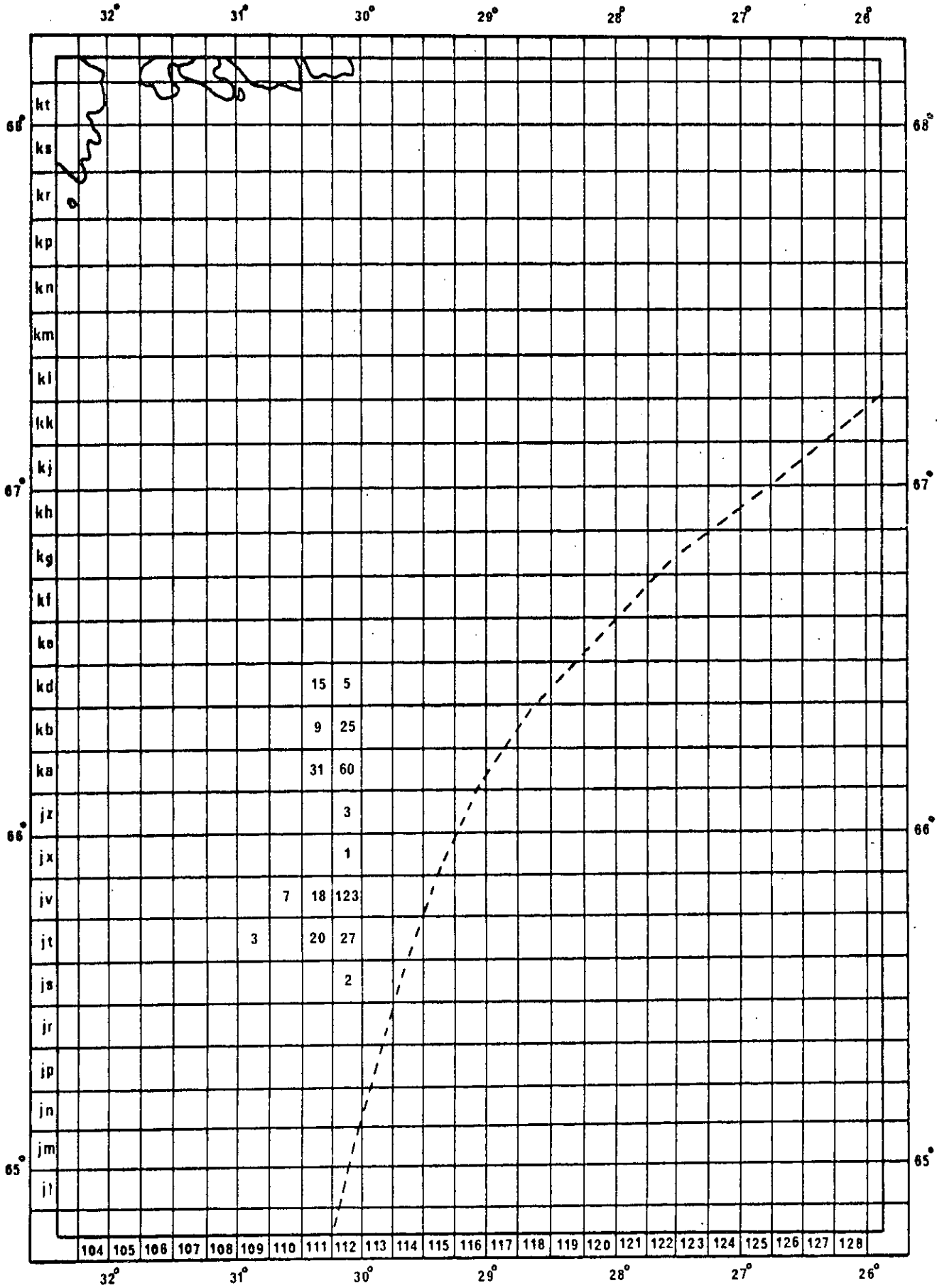

Fig. 3 a - Distribution of effort (hours) in the French fishery for shrimp at East Greenland in May 1984.

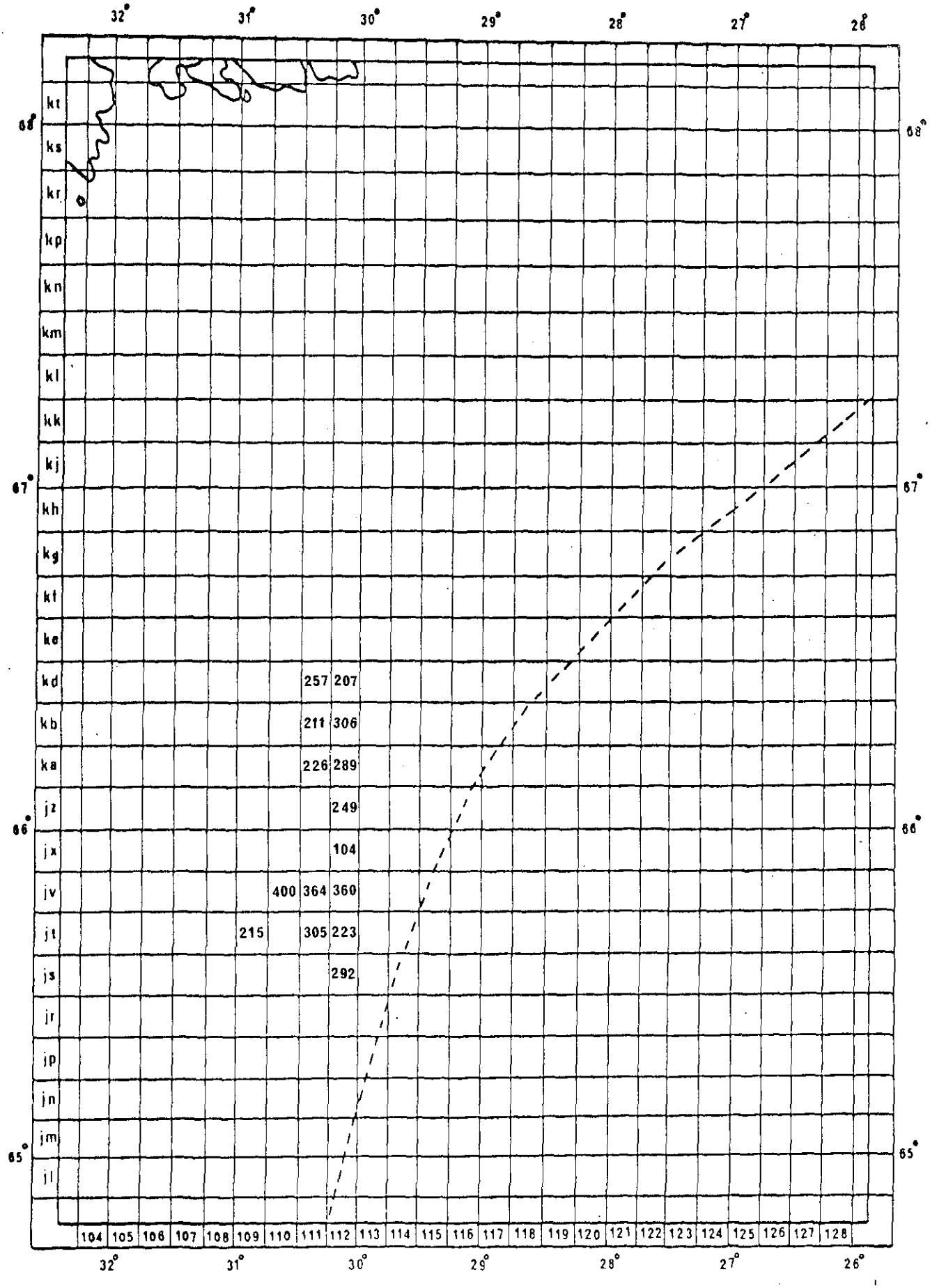

Fig. 3 b - Distribution of catch per unit of effort (kg/hour) in the French fishery for shrimp at East Greenland in May 1984.

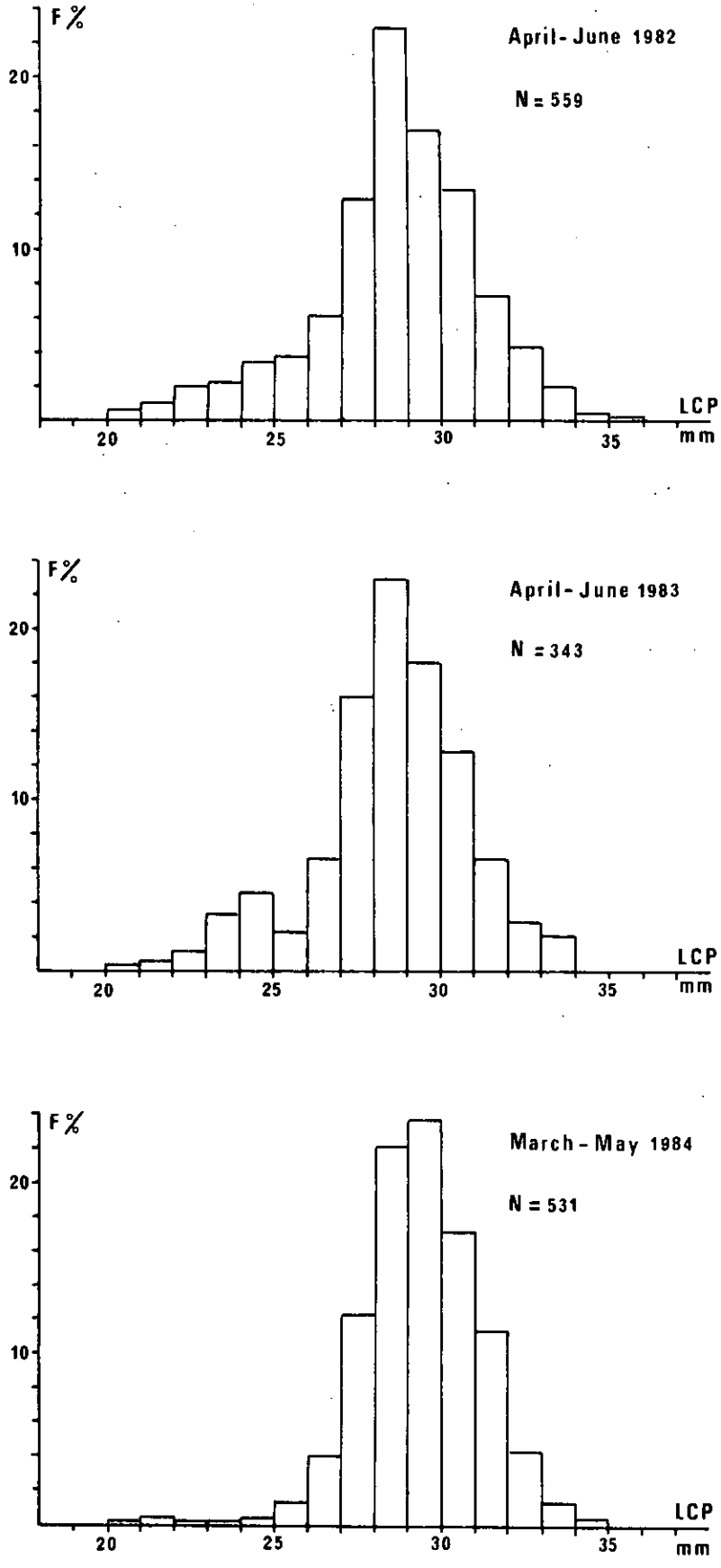

Fig. 4 - Comparison of length distributions obtained by Finlande III off East Greenland from 1982 to 1984.

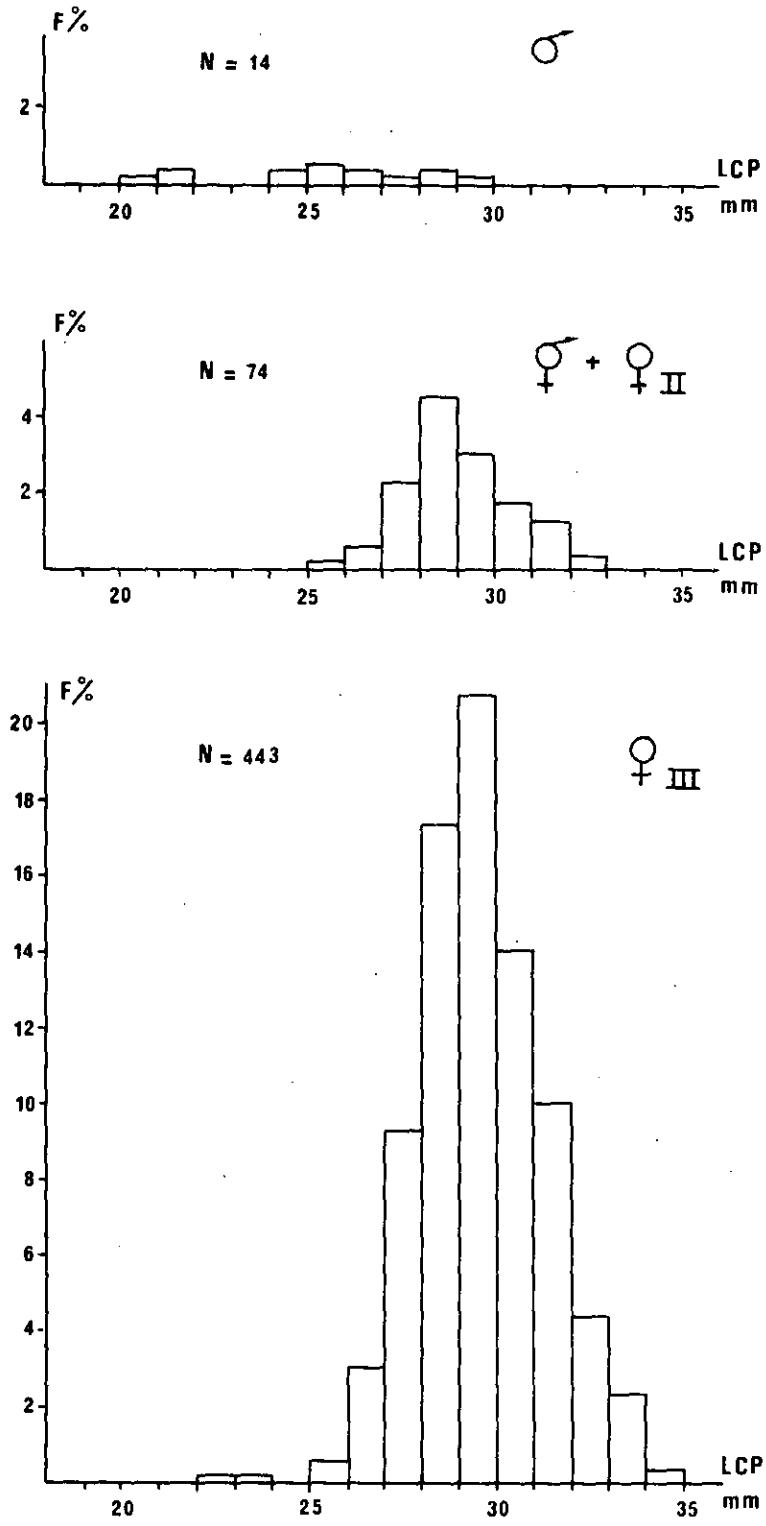

Fig. 5 - Length distributions of the males, transitionals and females with spines and females without spines (% of the total of the five samples).