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The 1981–82 foreign and joint venture squid jig fishery

by
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Contents

START A NEW SHEET EACH DAY

一日に一枚使用のこと

DATE: | Day 日 | Month 月 | Year 年 |

NOT FISHING 無操業 ☐

RADIO CALL SIGN: コールサイン

FISHING OPERATION:

LATITUDE 緯度			LONGITUDE 経度			DEPTH 深さ		SEA SURFACE TEMPERATURE 表面水温	WIND SPEED 風力	WIND DIRECTION 風向	TIME FISHING 操業時間	
度 °	分 '		度 °	分 '	E/W	Lowest Lure 最深漁具 m	Bottom 水深 m	°C	m/s	°T	Day Hours 日中	Night Hours 夜間
		S										

CATCH: 漁獲

	TOTAL CATCH (KG) 総捕獲量 (キロ)
Arrow Squid アルゼンチンイカ	
Other Squid その他のイカ	
Other (Specify) その他(明記のこと)	

	NUMBER CAUGHT 捕獲尾数
Octopus タコ	
Shark サメ	
Other (Specify) その他(明記のこと)	

TRAY TALLY: ケース数

Number of squid per tray 入尾数		1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-150	151+	TOTAL 合計
Number of trays c/s ケース数	WHOLE 丸													
	WITHOUT LEGS 足抜き													

Fig. 1: Squid logbook return form.

Introduction

New Zealand's arrow squid, *Nototodarus* spp., are among the most abundant commercial species in the 200-mile Exclusive Economic Zone and are the basis of a substantial jig and trawl fishery. The fishery is on two closely related species of arrow squid, but because of their similarity no differentiation is made in fishing or marketing operations. It is the single most valuable New Zealand fishery, with export earnings of $59 million f.o.b.

The trawl fishery is centred mainly around Auckland Islands and accounts for about 45% of the total annual squid catch of 70 000-80 000 t. The jig fishery is over a much larger area, from the North Taranaki Bight to Greymouth on the west coast and from Cook Strait down the east coast to Snares Islands.

The jig fishery started with experimental fishing by a few Japanese vessels in 1971 and has expanded to a current annual influx of 100-150 vessels from 3 nations, in both foreign licensed and joint venture capacities. The fishing season is from December to June, and the annual catch is 40 000-50 000 t. During the 1981-82 season, 136 vessels from Japan, Korea, and Taiwan caught 44 649 t.

Data presented here are from squid logbook returns (Fig. 1). The 1981-82 data are the first in a planned series of annual reports in which the New Zealand region has been divided into seven areas (I-VII) based on general areas of fishing effort and not on existing management zones.

Figure 2 shows the total catch for the whole season by ½° squares. The ½° square marked by an asterisk is totally within the 12-mile limit. Positions in this square were used as they appeared in the logbooks; however, it is possible that they were a result of recording errors.

Fishing effort has been measured as catch per vessel-day, where 1 vessel-day is a 24-hour period during which some fishing took place. Catch and effort data have been summarised in Tables 1-4 and Figs. 3 and 4.

Squid are sorted aboard jig vessels according to size and then packed into trays and frozen. For the size analysis (Fig. 5), only data from

Japanese vessels were used as only these vessels consistently use standard 8.0- to 8.5-kg trays. (Of the total fleet of 136, 84 vessels were Japanese.)

Figures 6 and 7 show average catch rates by bottom depth and sea surface temperature, respectively, in areas fished.

Position 36° 10' S, 175° 53' E, off Coromandel Peninsula, not shown because it lies outside the area examined here, was fished for 1 vessel-day in May, but no squid were taken. Twenty vessel-days fished, for which no positions were recorded in the logbooks, resulted in a total catch of 32 429 kg of squid.

TABLE 1: Squid jigging catch and effort data by nation, 1981-82

	No. of vessels	Total vessel-days squid caught (total A)	No. of hours fishing	No. of vessel-days squid caught, but no hours given*	Total vessel-days with nil catch (total B)	No. of hours fishing with nil catch	No. of vessel-days with nil catch, but no hours given†	Total catch (t)	Catch (t) per vessel-day
Japan	73	7 232	101 873	32	142	879	0	25 435.3	3.4
Korea	5	556	7 273	57	4	24	0	1 544.1	2.8
Joint venture	58	5 744	71 450	685	26	184	2	17 669.9	3.1
Total	136	13 532	180 596	774	172	1 087	2	44 649.3	3.3

* included in total A.
† included in total B.

TABLE 2: Squid jigging catch and effort data from Japanese vessels, 1981-82

Month	Total vessel-days squid caught (total A)	No. of hours fishing	No. of vessel-days squid caught, but no hours given*	Total vessel-days with nil catch (total B)	No. of hours fishing with nil catch	No. of vessel-days with nil catch, but no hours given†	Total catch (t)	Catch (t) per vessel-day
Dec	222	2 891	1	0	0	0	1 307.4	5.9
Jan	1 620	17 481	4	30	145	0	6 543.5	4.0
Feb	1 614	21 205	7	38	242	0	6 250.3	3.8
Mar	1 924	29 114	13	41	257	0	7 054.9	3.6
Apr	1 454	24 017	7	16	114	0	3 659.3	2.5
May	396	7 137	0	17	121	0	618.0	1.5
Jun	2	28	0	0	0	0	2.0	1.0

* included in total A.
† included in total B.

TABLE 3: Squid jigging catch and effort data from Korean vessels, 1981-82

Month	Total vessel-days squid caught (total A)	No. of hours fishing	No. of vessel-days squid caught, but no hours given*	Total vessel-days with nil catch (total B)	No. of hours fishing with nil catch	No. of vessel-days with nil catch, but no hours given†	Total catch (t)	Catch (t) per vessel-day
Dec	76	1 031	1	0	0	0	374.5	4.9
Jan	121	1 612	0	0	0	0	374.0	3.1
Feb	72	1 046	1	1	5	0	195.1	2.7
Mar	117	1 555	17	2	17	0	337.6	2.8
Apr	84	1 027	16	1	2	0	170.3	2.0
May	86	1 002	22	0	0	0	92.6	1.1

* included in total A.
† included in total B.

TABLE 4: Squid jigging catch and effort data from joint venture vessels, 1981-82

Month	Total vessel-days squid caught (total A)	No. of hours fishing	No. of vessel-days squid caught, but no hours given*	Total vessel-days with nil catch (total B)	No. of hours fishing with nil catch	No. of vessel-days with nil catch, but no hours given†	Total catch (t)	Catch (t) per vessel-day
Dec	356	4 172	33	2	7	1	1 667.3	4.7
Jan	1 641	17 467	200	3	22	0	5 103.8	3.1
Feb	1 292	15 866	165	8	36	1	3 910.4	3.0
Mar	1 443	19 330	200	10	86	0	4 469.7	3.1
Apr	771	11 064	80	2	24	0	2 192.3	2.8
May	241	3 551	7	1	9	0	326.4	1.3

* included in total A.
† included in total B.

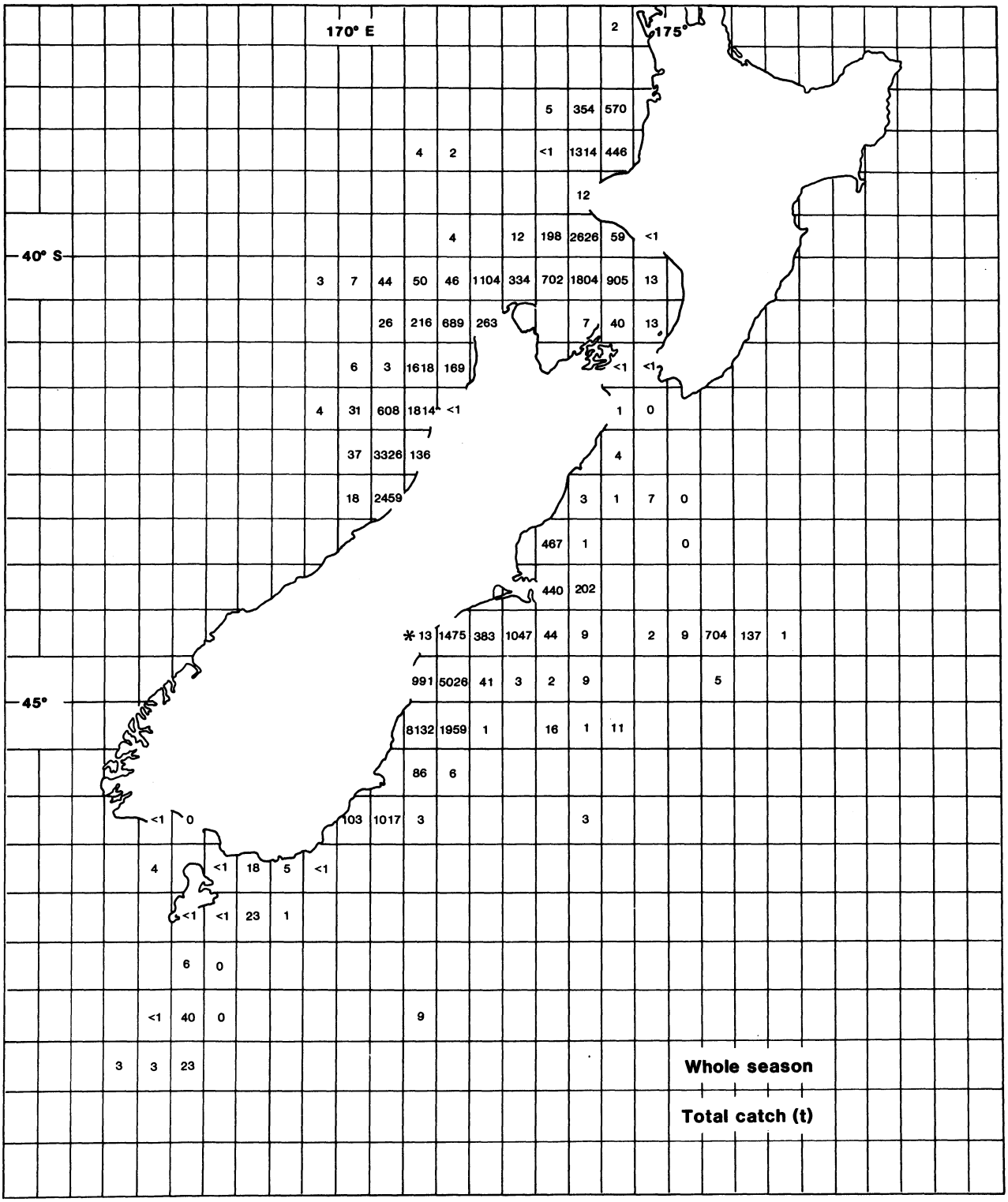


Fig. 2: Total catch (t) for the whole season by ½° squares.

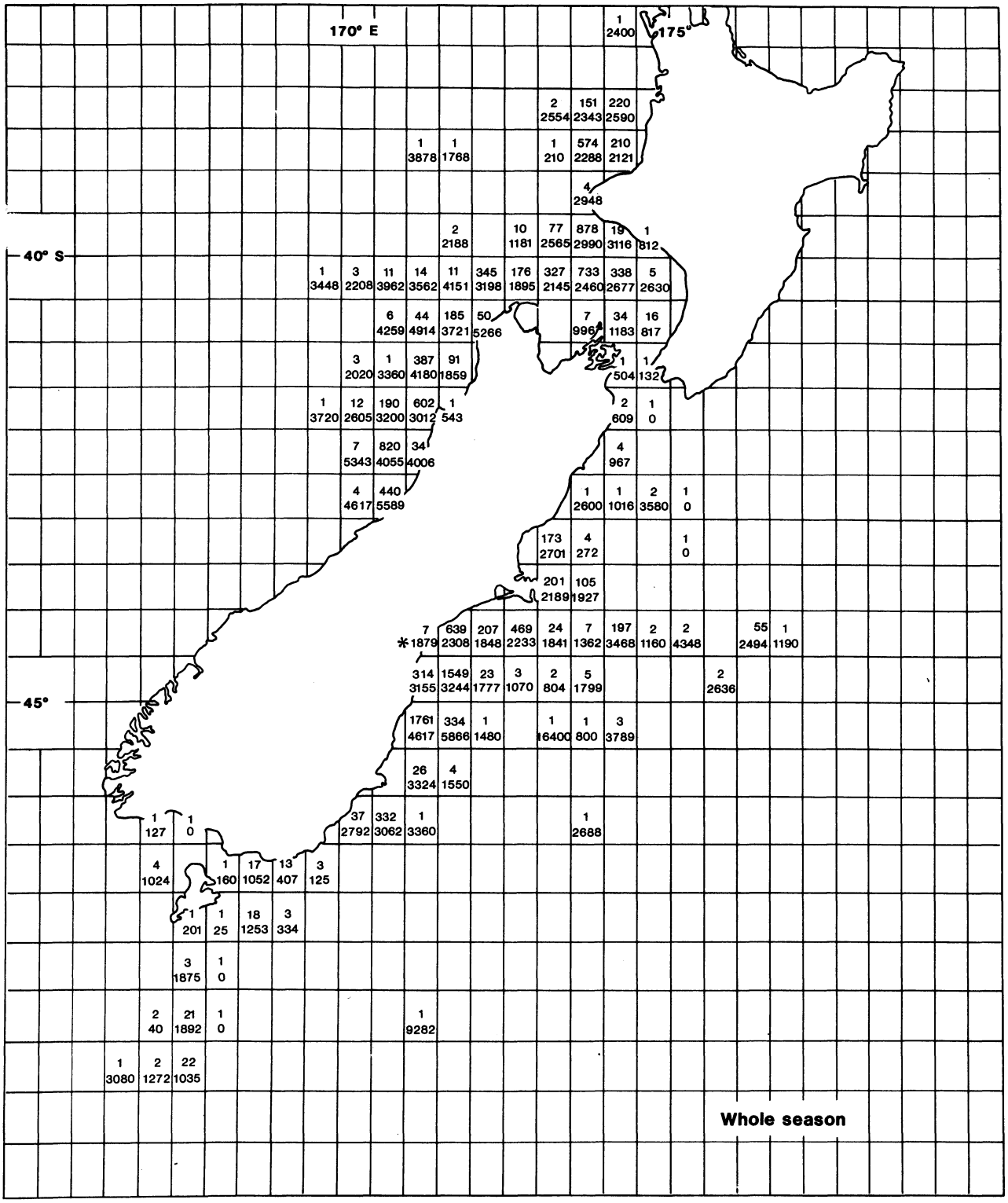


Fig. 3: Seasonal summary of vessel-days fished (above) and catch (kg) per vessel-day (below) by ½° squares.

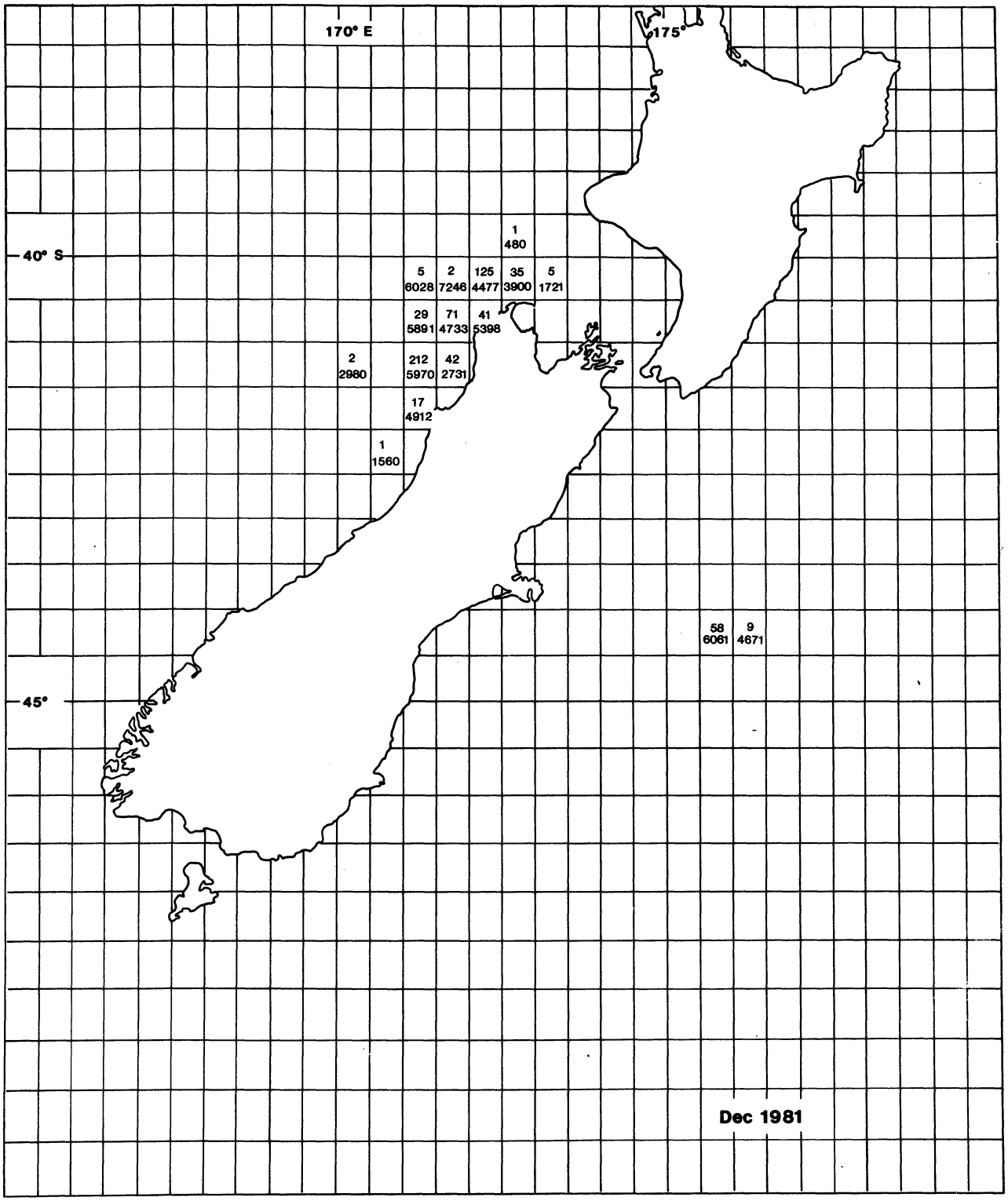
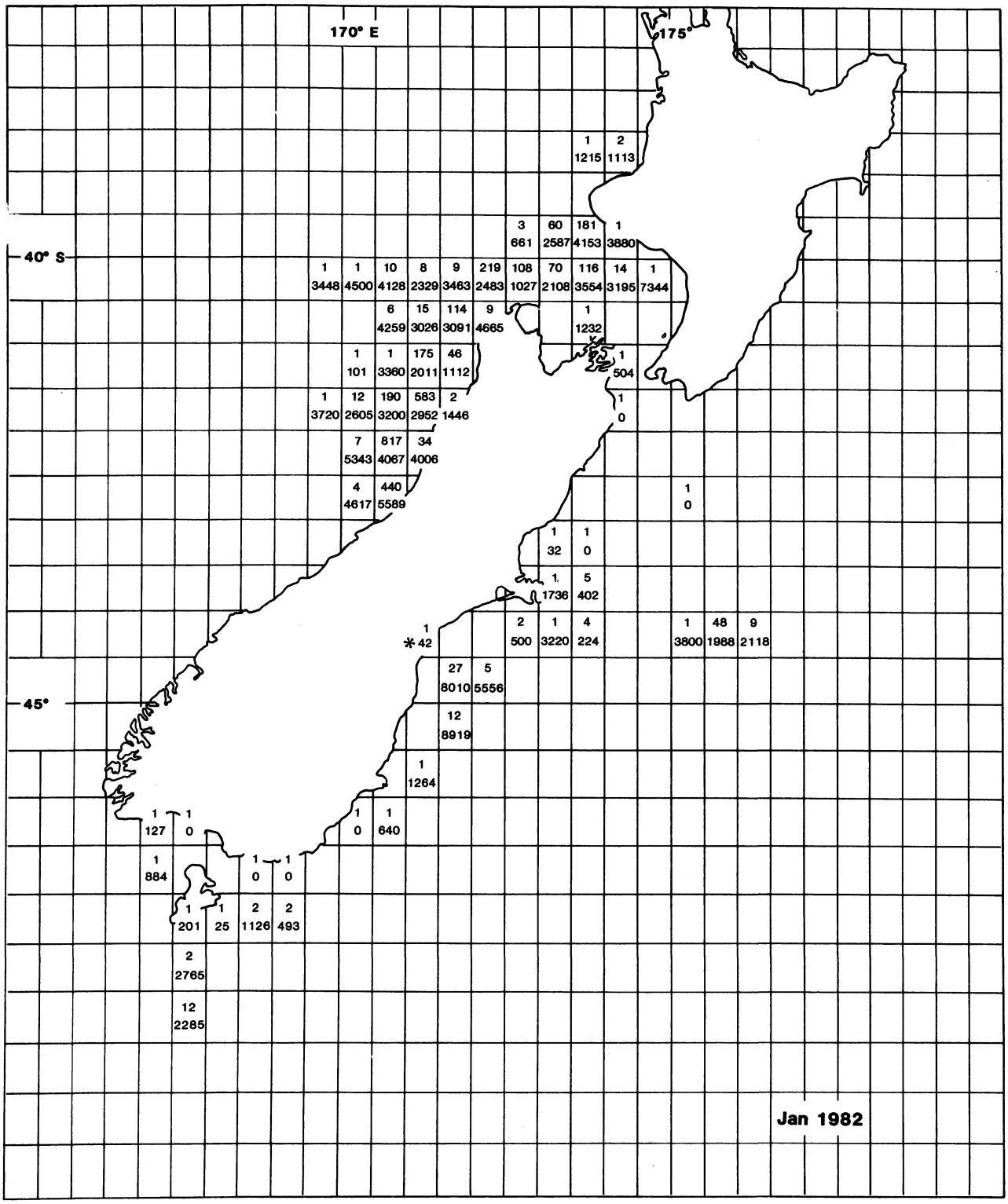


Fig. 4: Monthly summary of vessel-days fished (above) and catch (kg) per vessel-day (below) by ½° squares.



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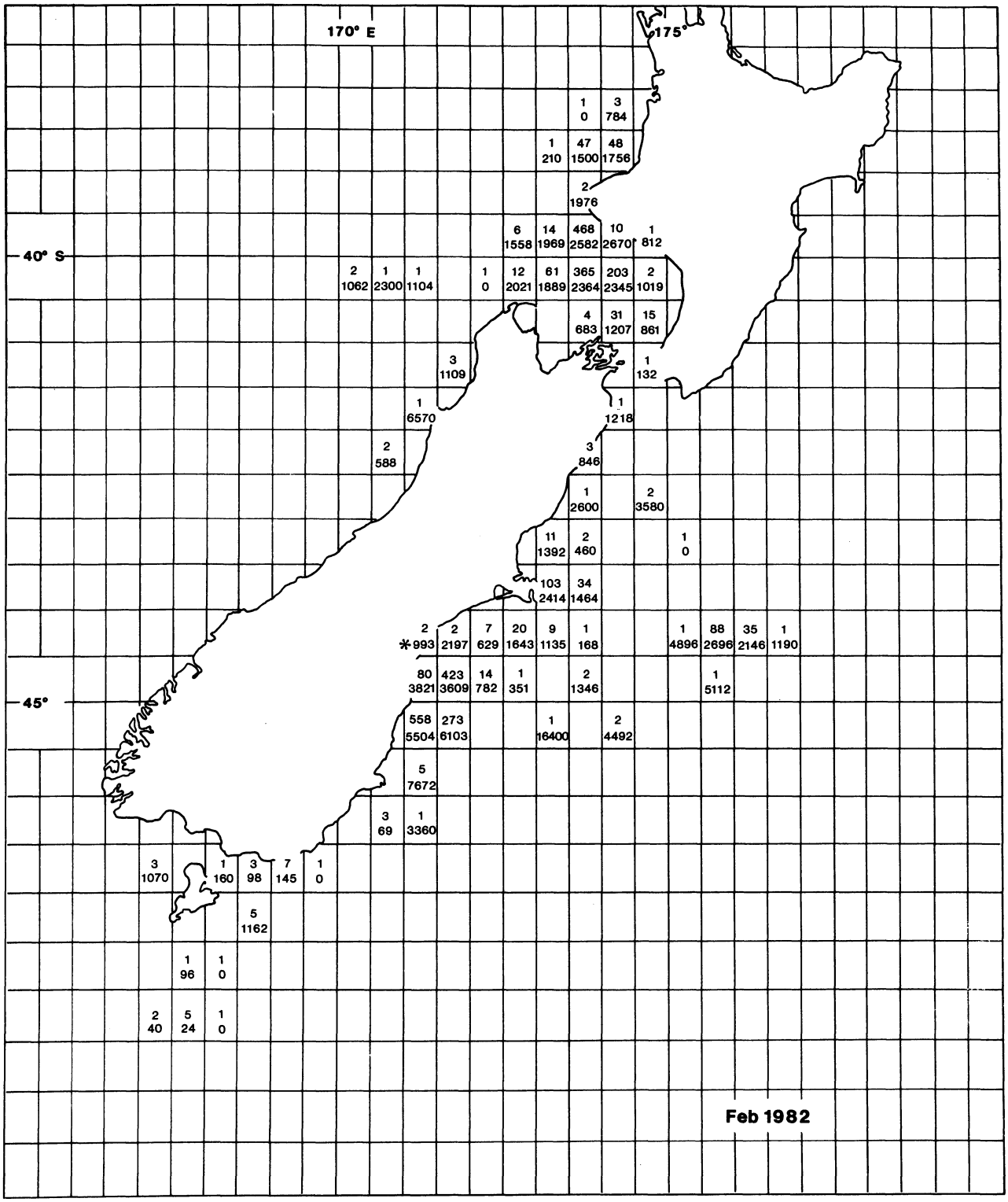

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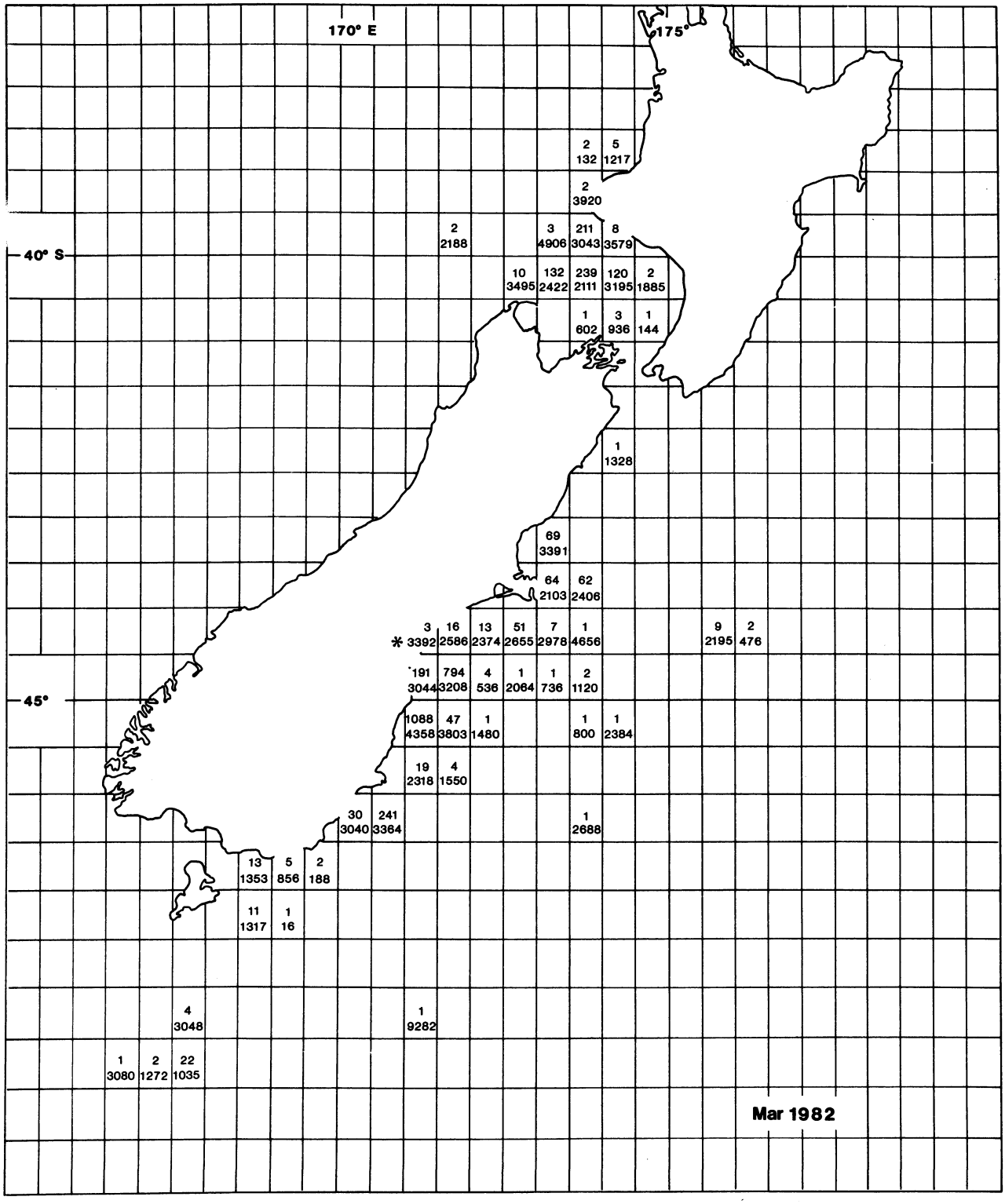

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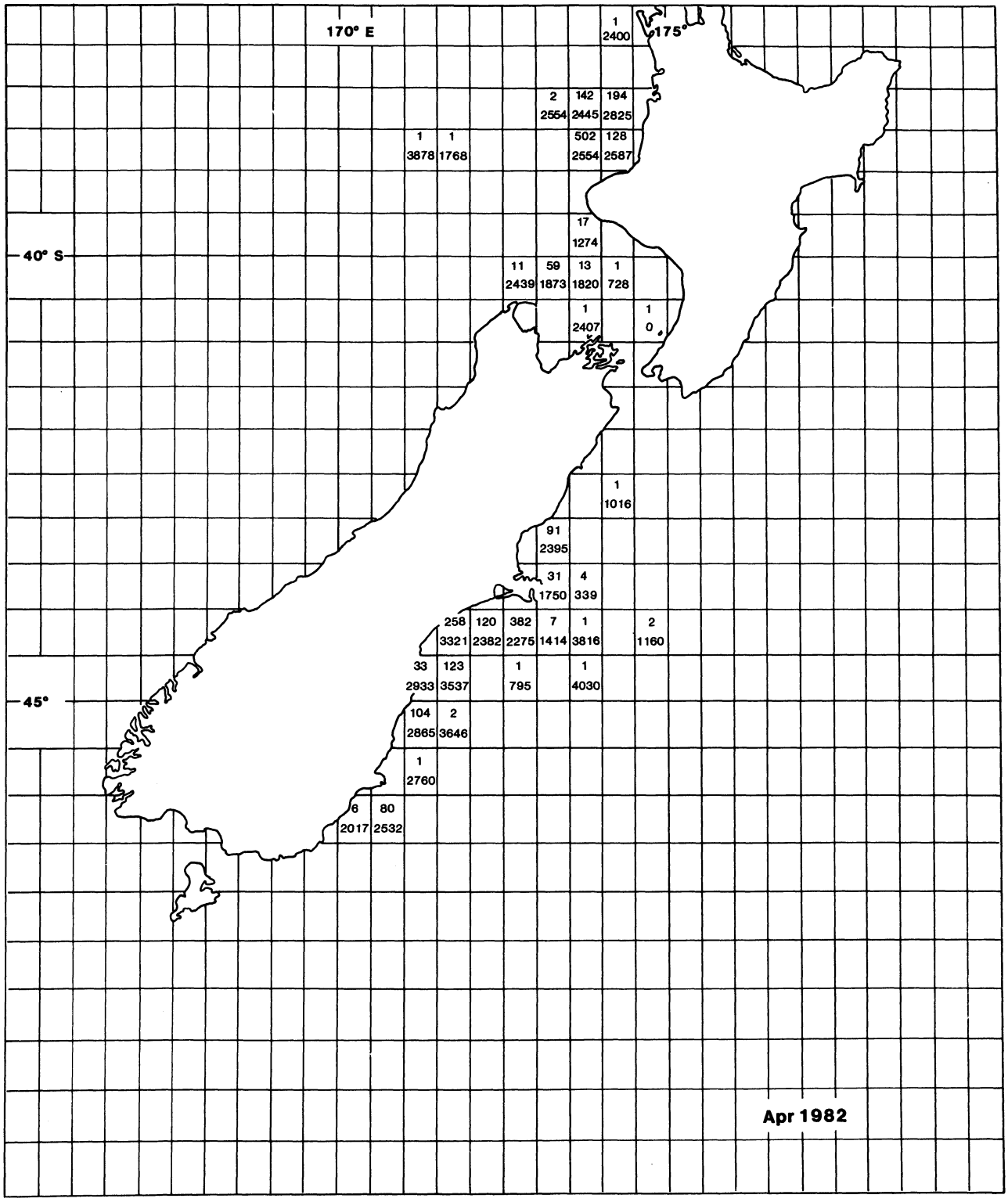

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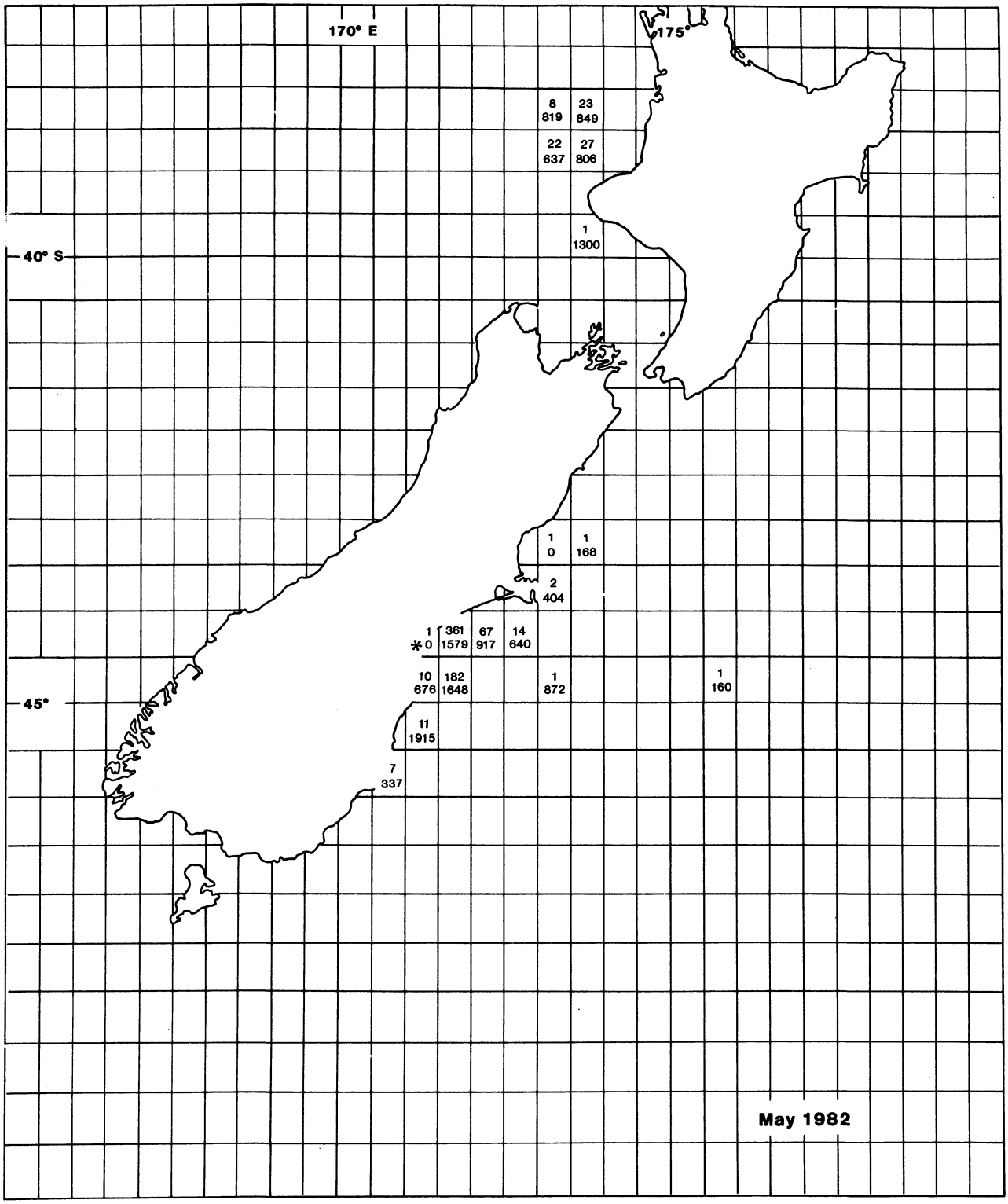

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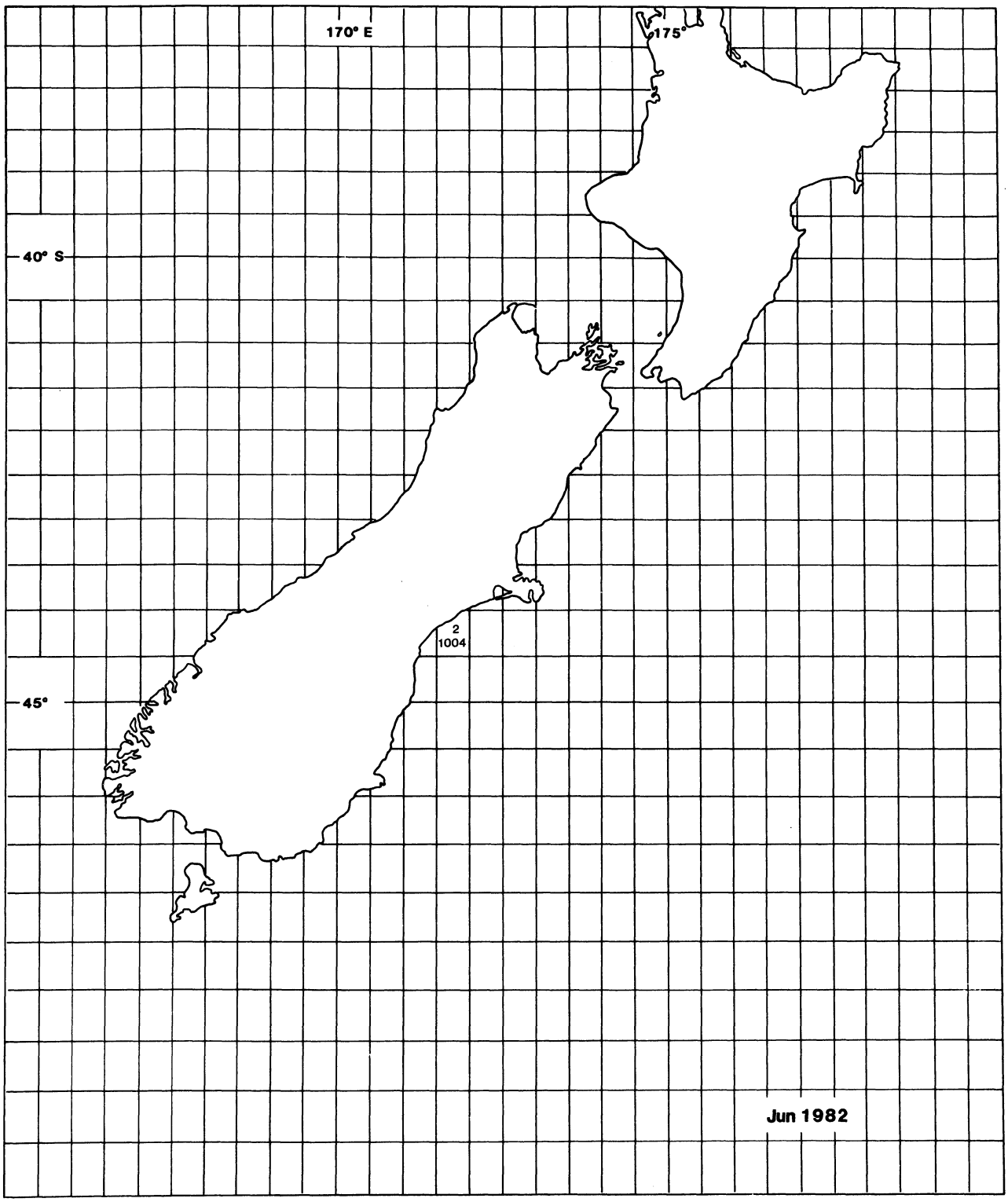

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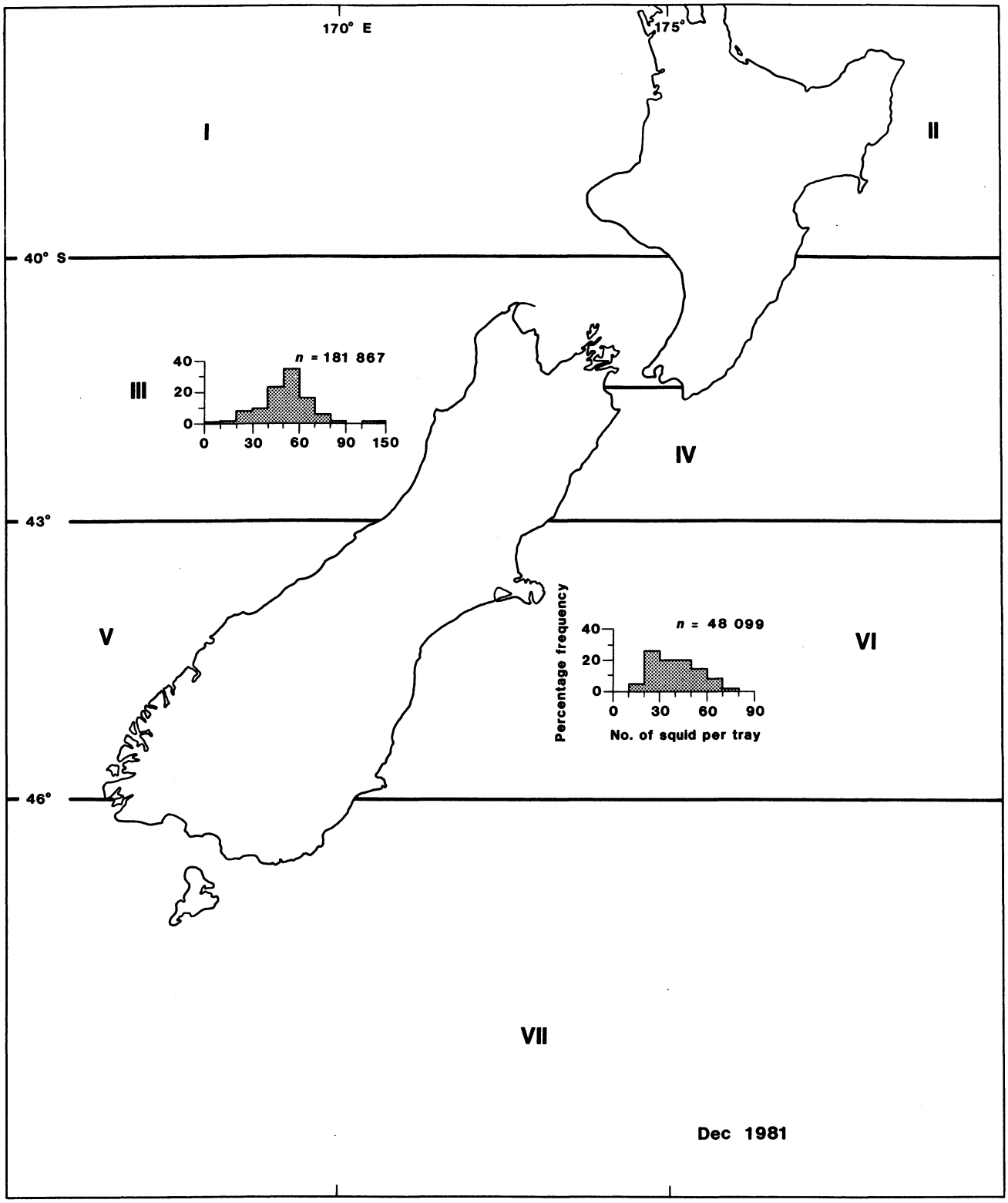
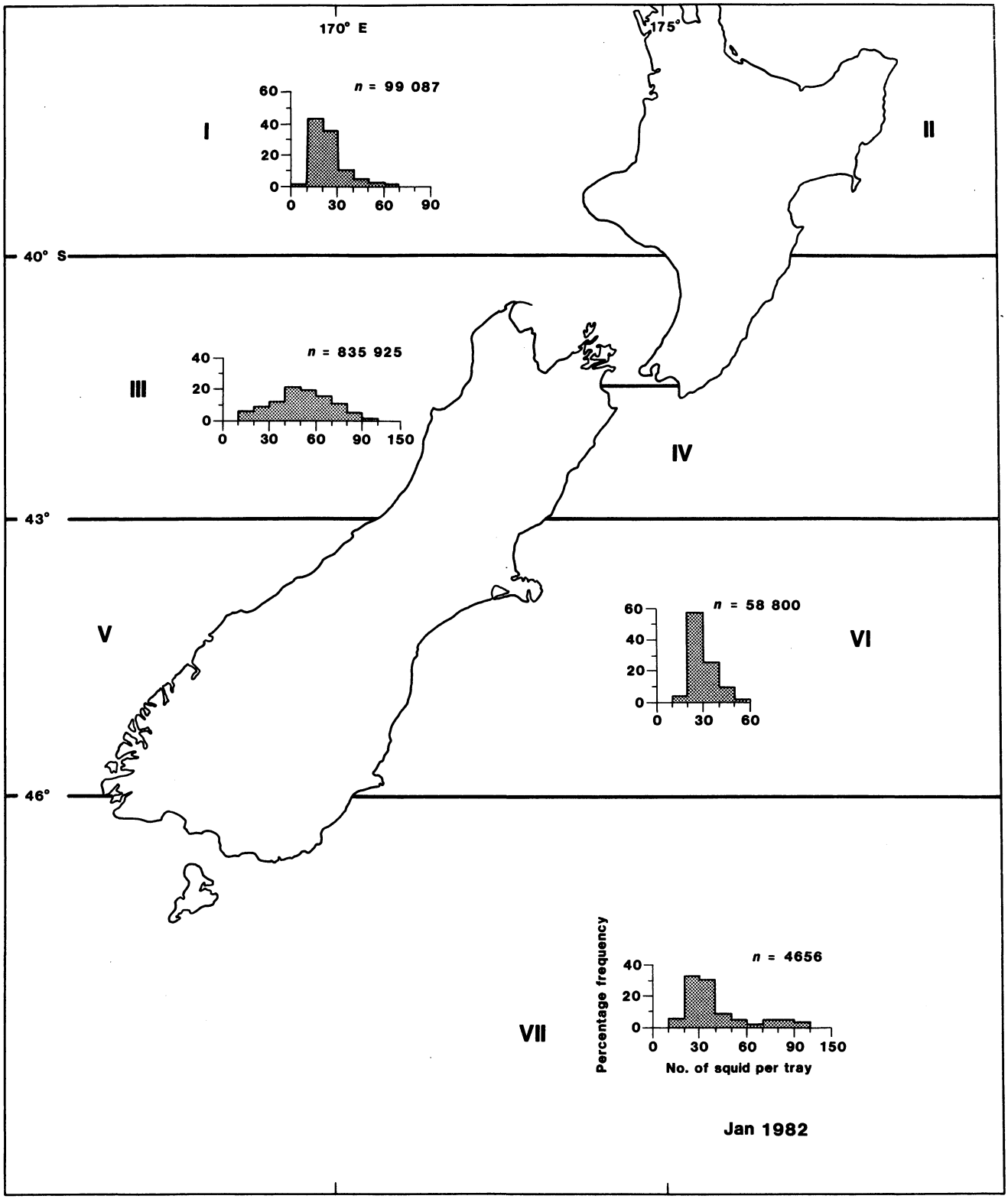


Fig. 5: Percentage frequency of the number of squid per tray by month for areas I–VII (n = total number of trays). (The 100- to 150-squid-per-tray classes have been pooled.)



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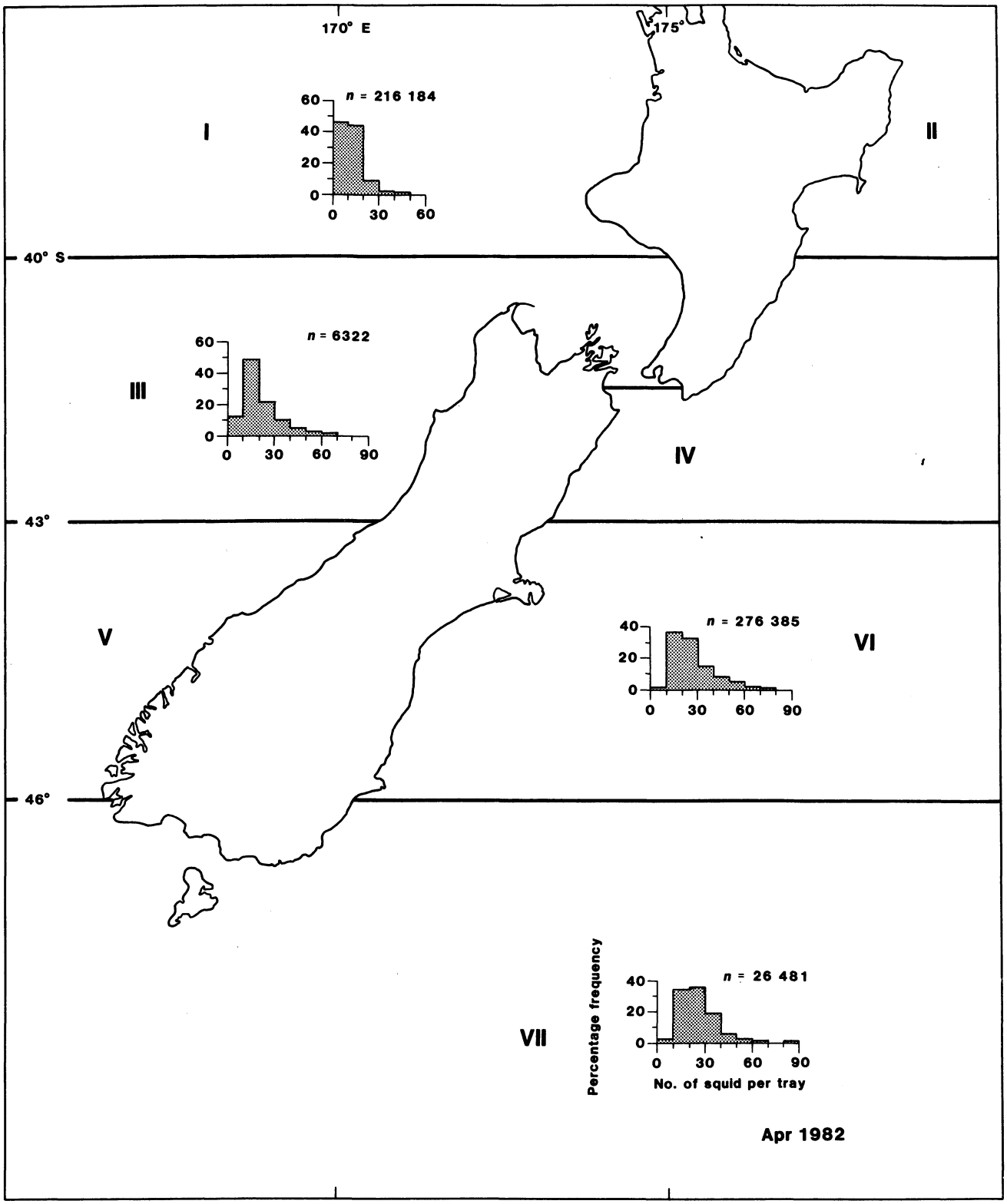

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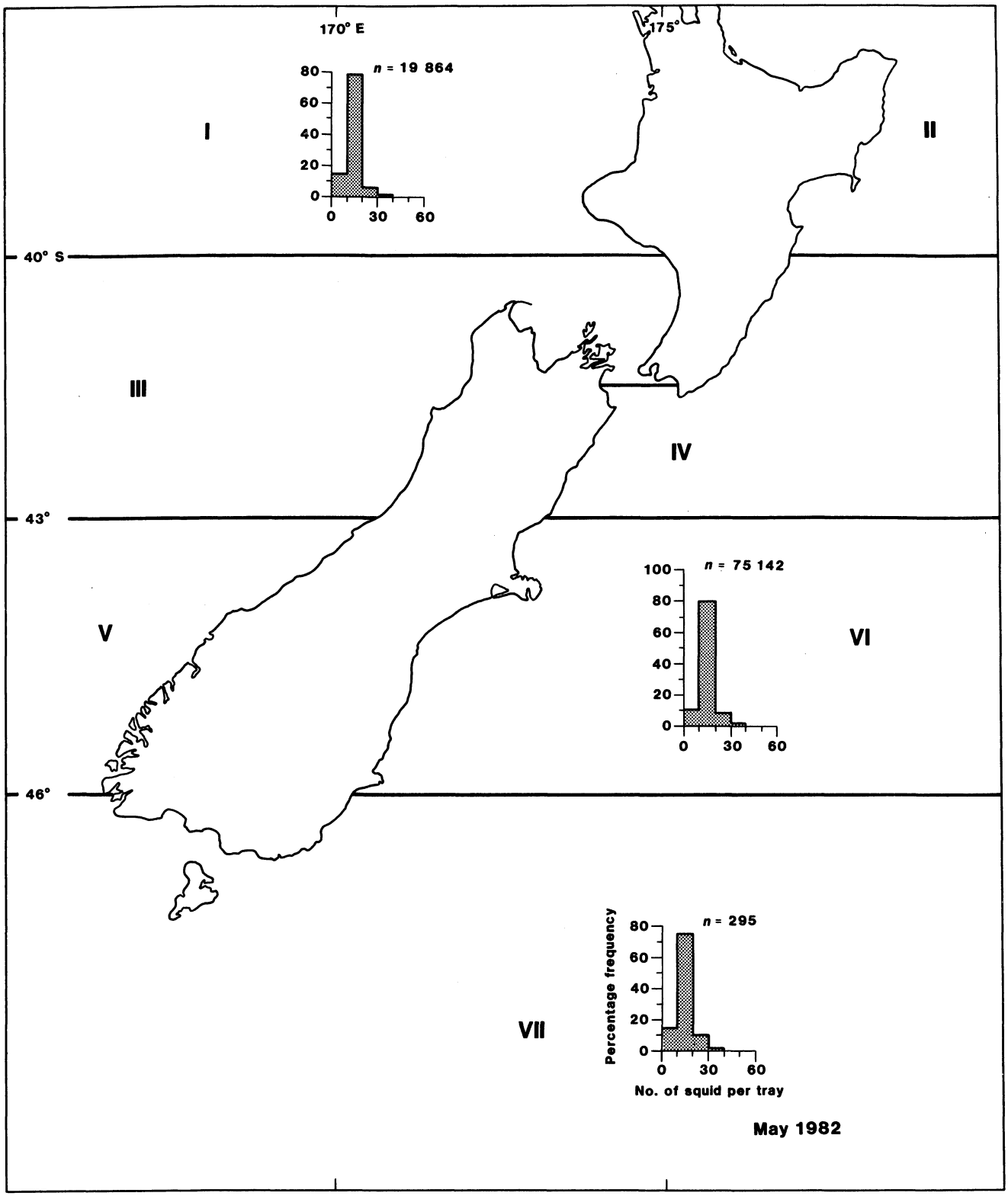

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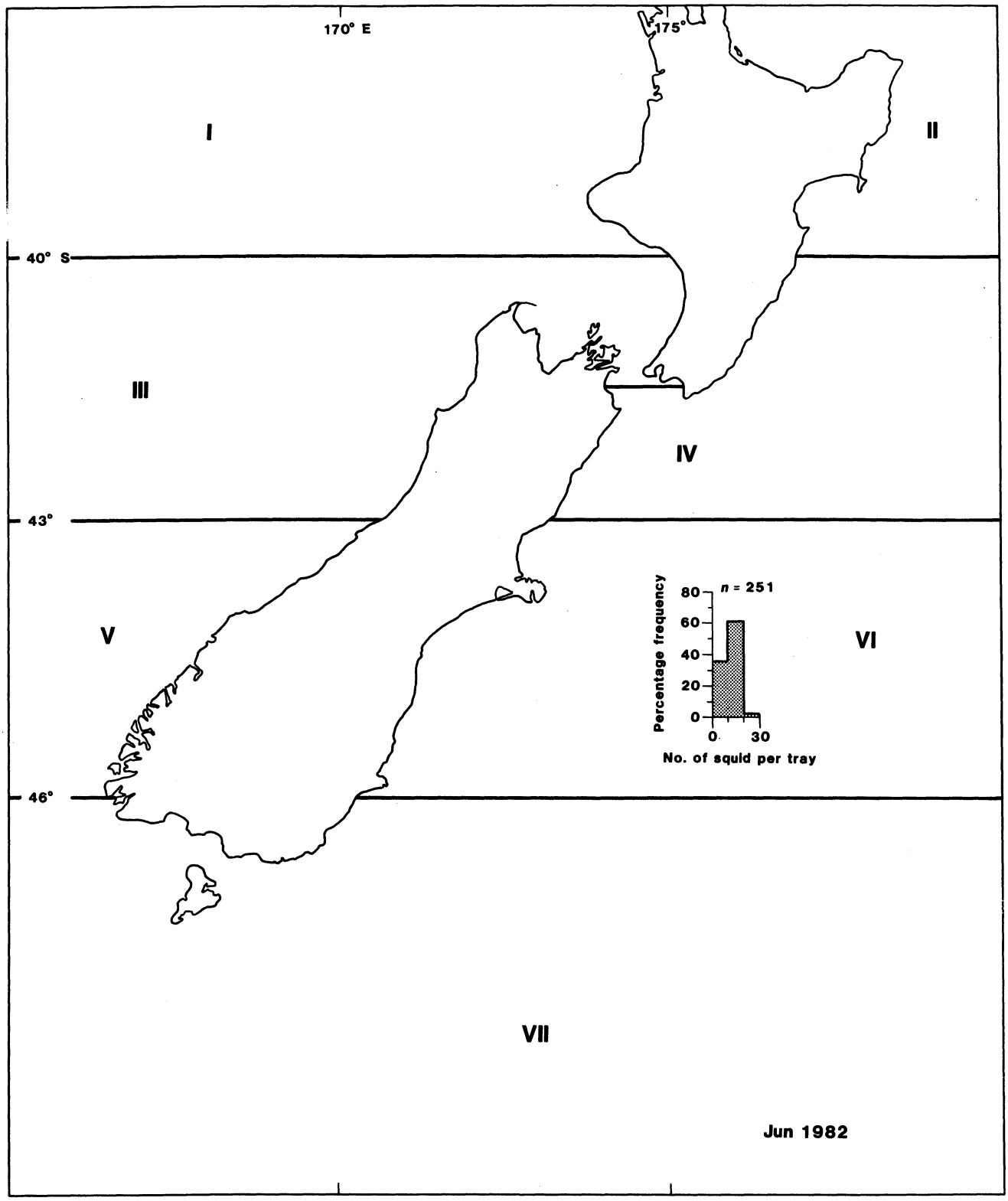

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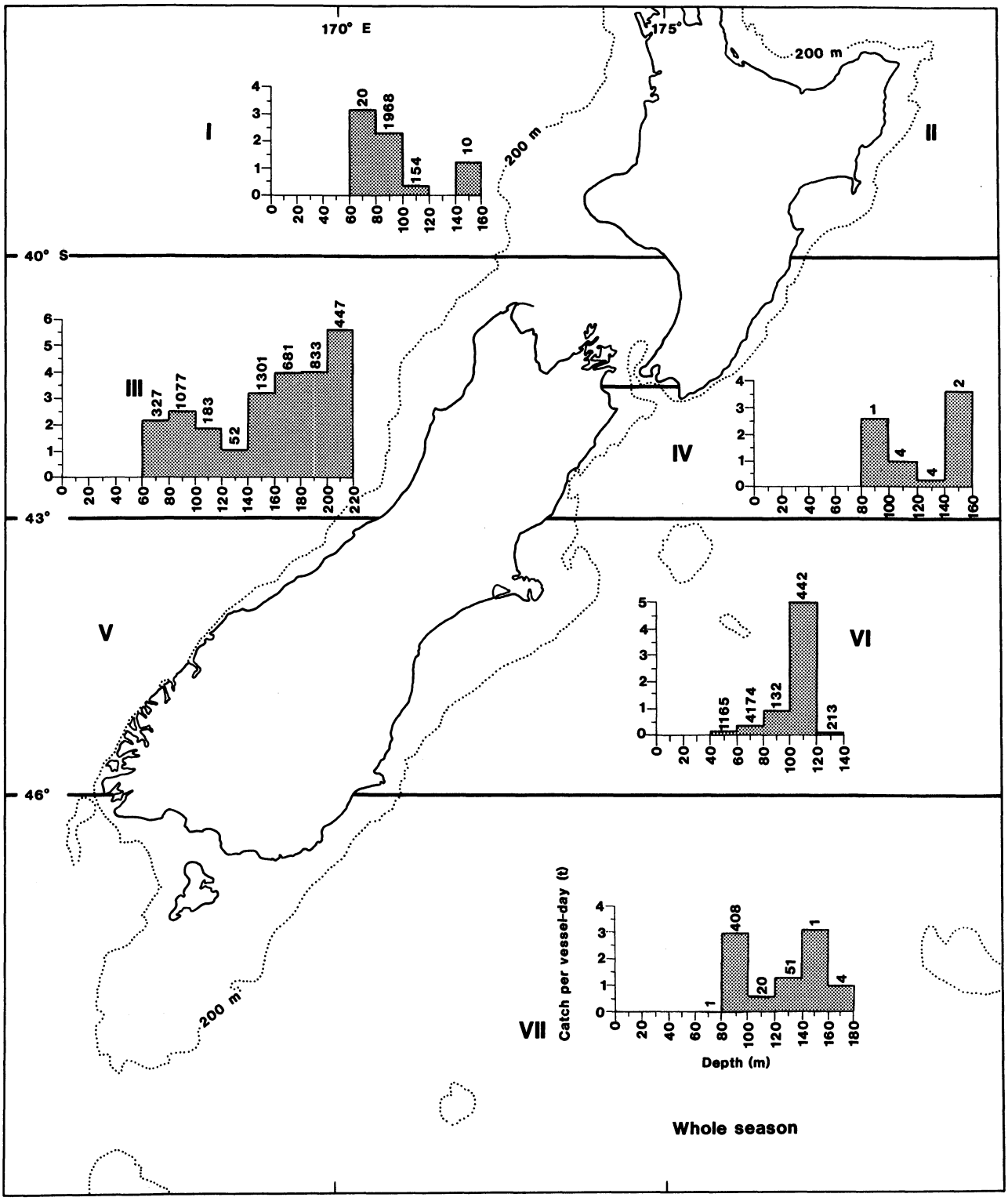


Fig. 6: Seasonal summary of catch (t) per vessel-day by mean bottom depth of fishing grounds in areas I–VII. (Individual figures above the histograms are the number of vessel-days fished in each depth range.)

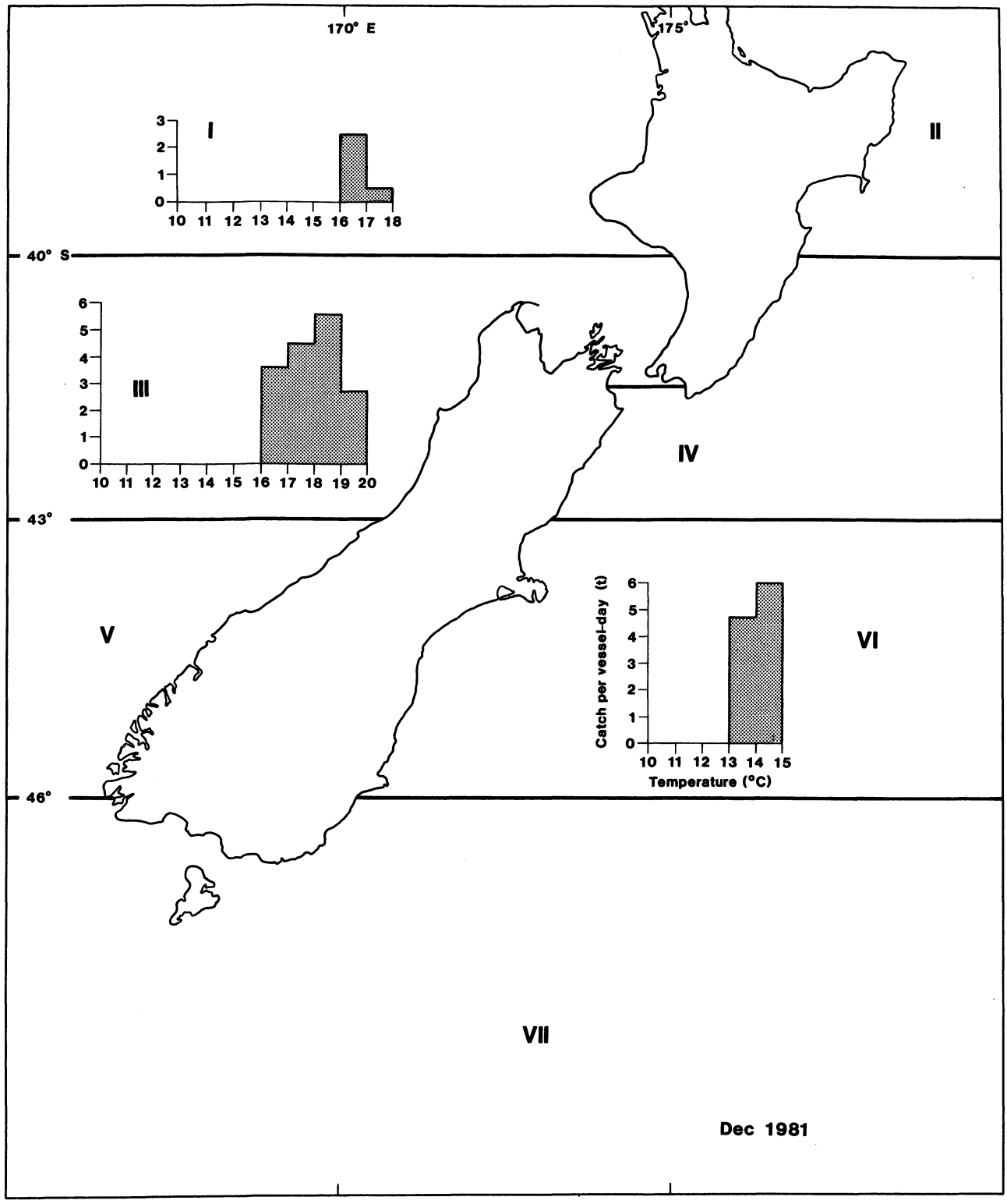
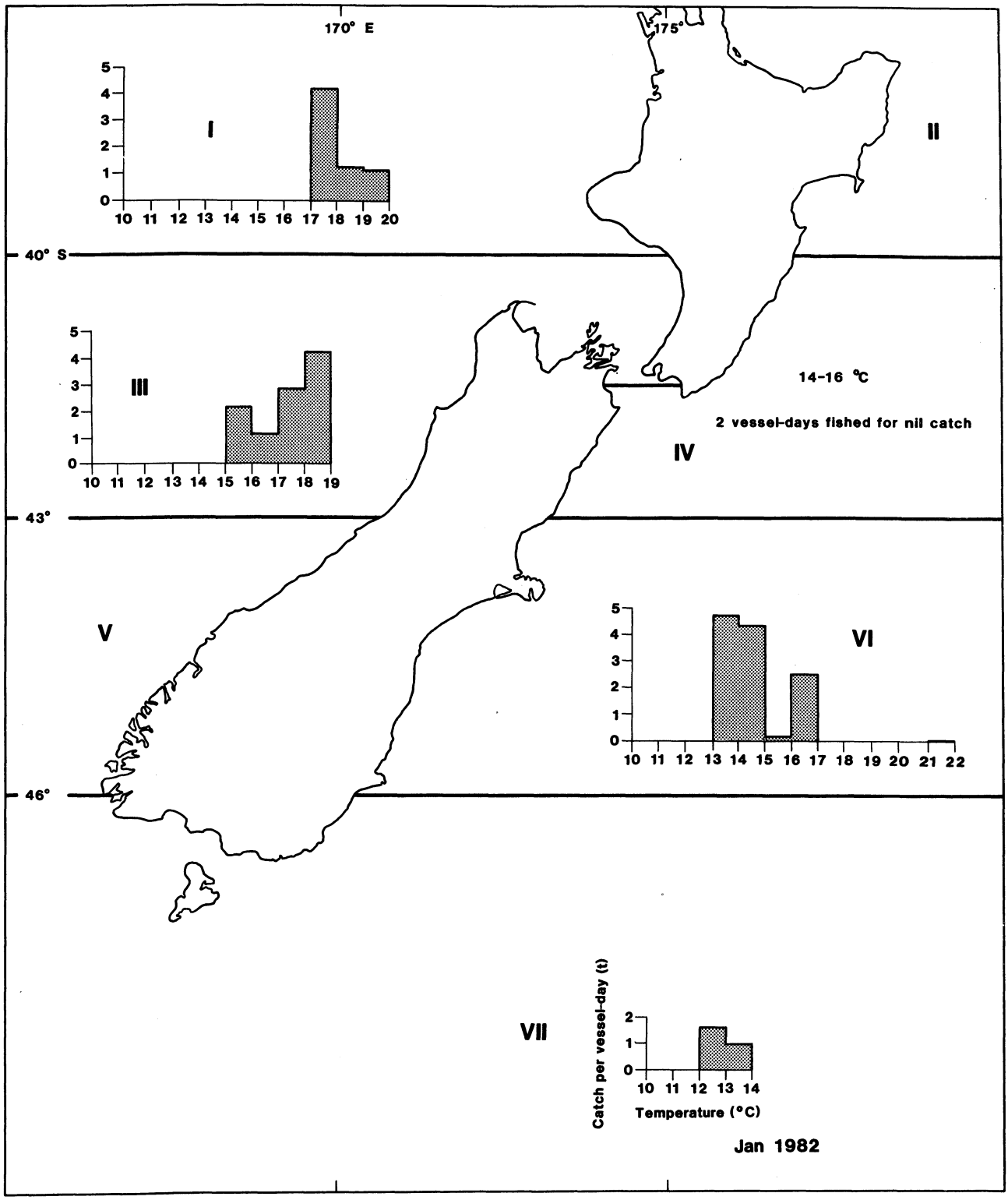


Fig. 7: Monthly summary of catch (t) per vessel-day by mean sea surface temperature (°C) of fishing grounds in areas I–VII.



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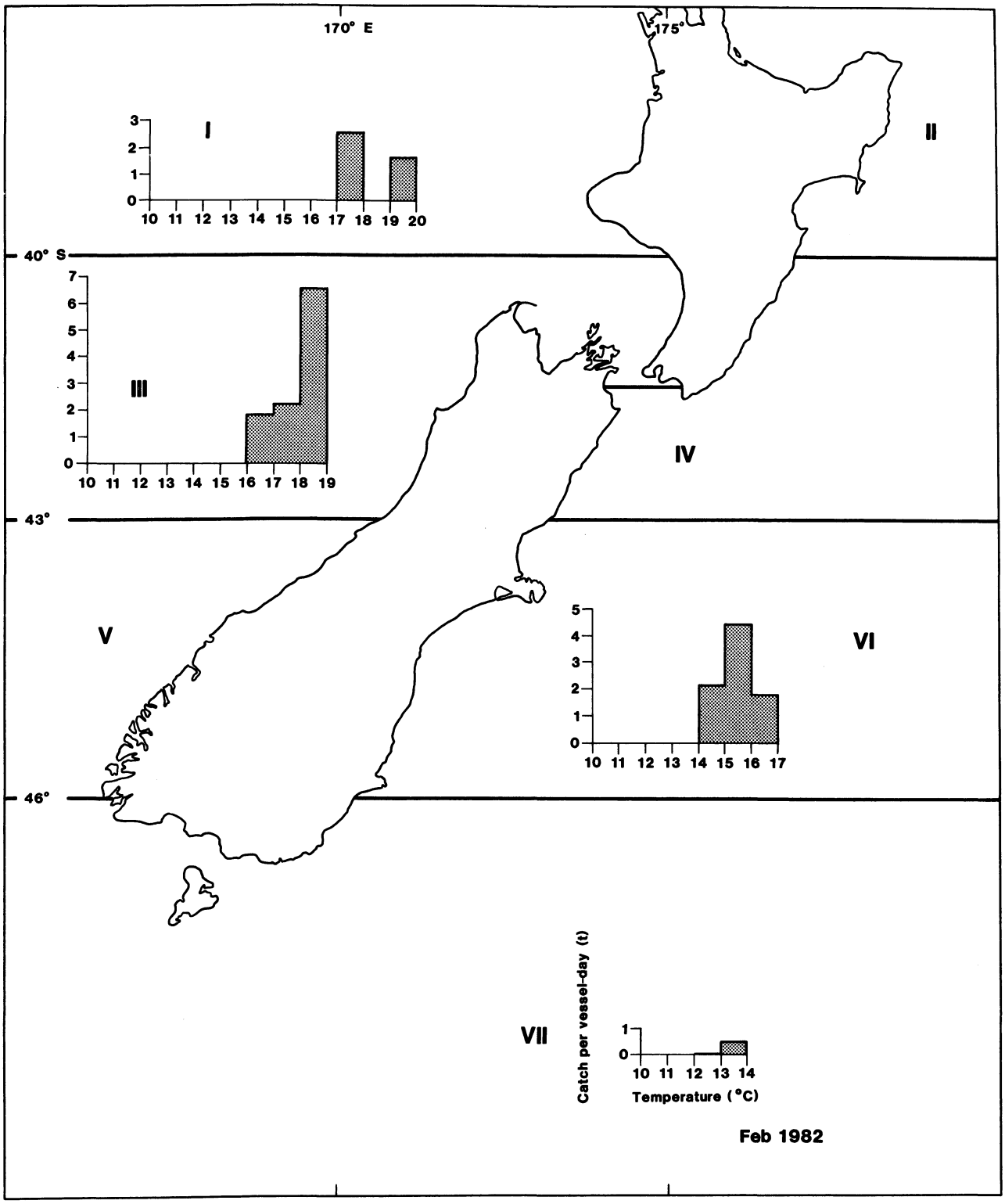

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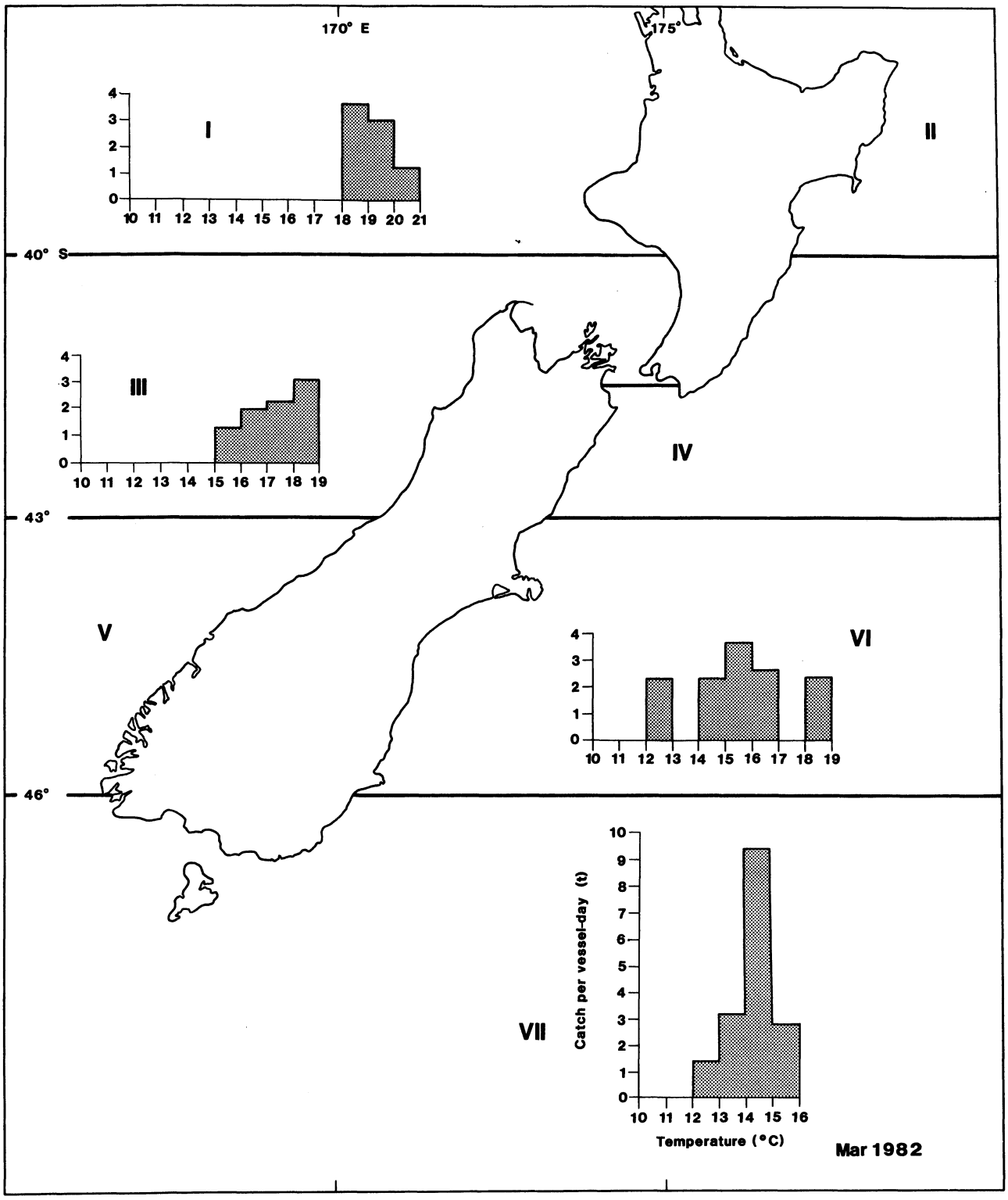

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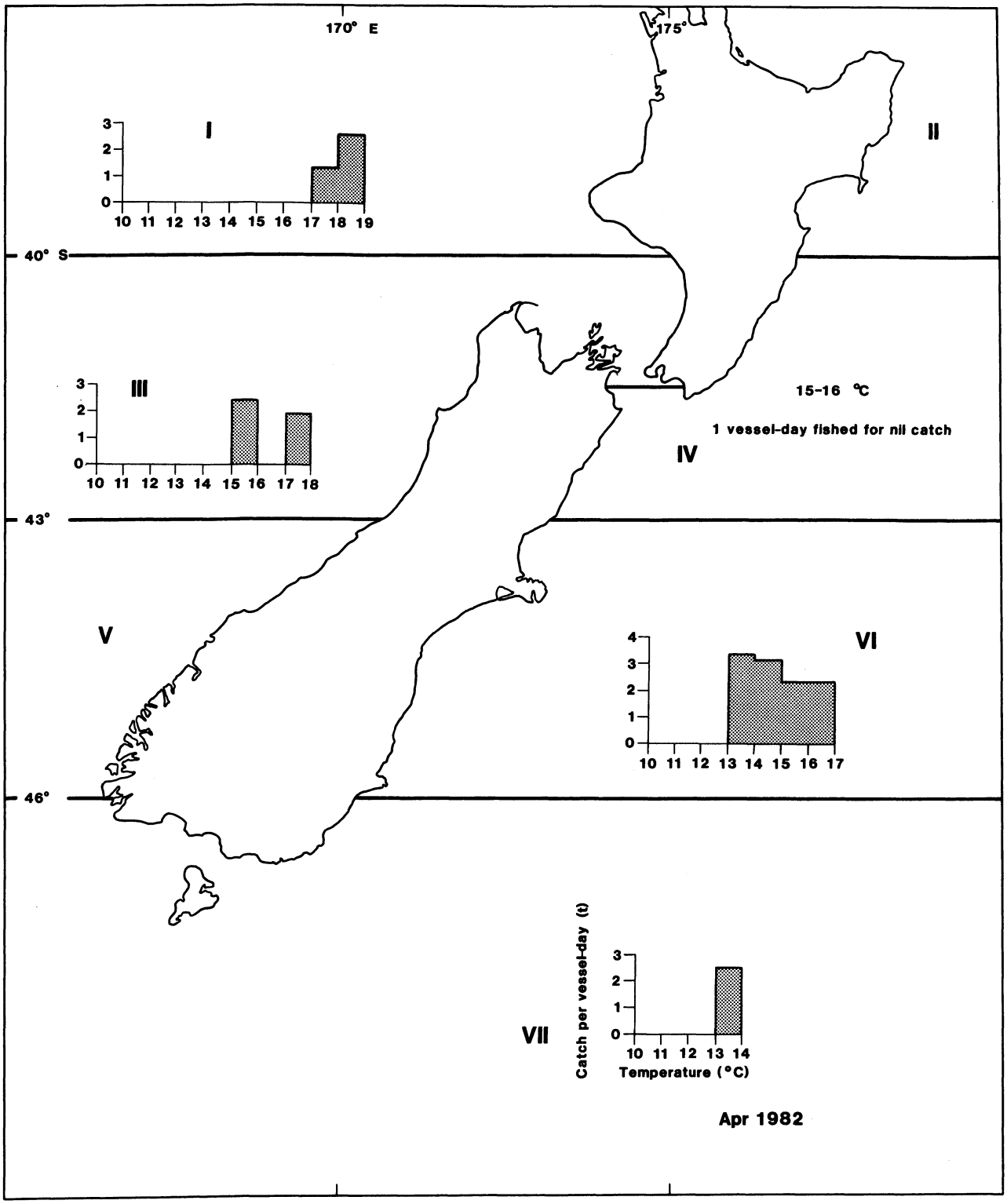

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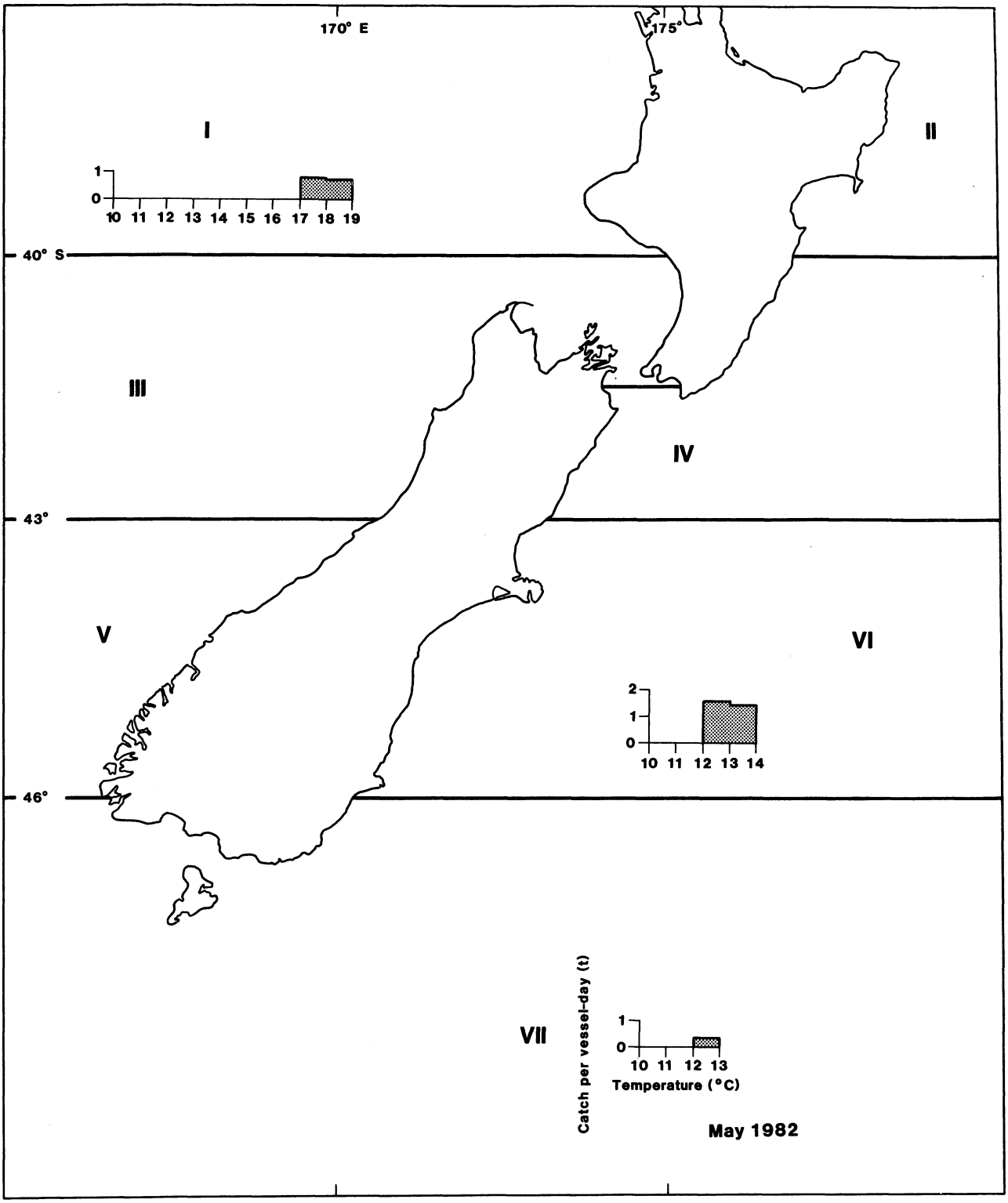

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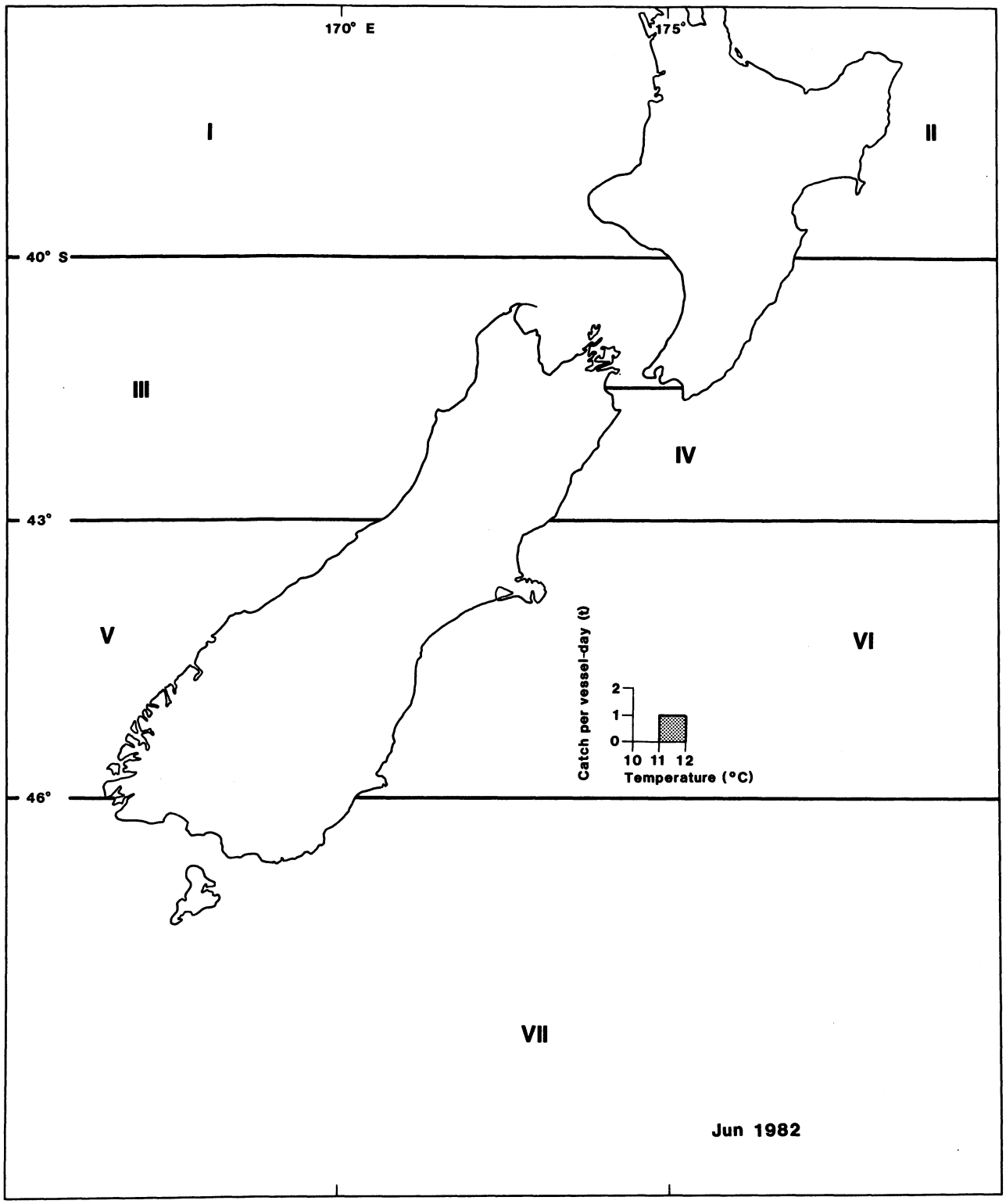

Fig. 7—*continued.*