



**NEW ZEALAND MARINE DEPARTMENT**

**FISHERIES TECHNICAL REPORT  
No. 79**

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**SURVEY OF TOHEROA STOCKS  
TE WAEWAE BAY, SOUTHLAND  
OCTOBER 1970 - FEBRUARY 1971**

***R. J. STREET***

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**WELLINGTON, NEW ZEALAND  
1972**

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R.J. STREET,  
FISHERIES DIVISION,  
MARINE DEPARTMENT,  
DUNEDIN.

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## SUMMARY

Surveys of toheroa stocks at Te Waewae Bay were made in October 1970 and February 1971. The numbers of legally takeable sized toheroa in Te Waewae Bay have remained fairly constant, at about one million since November 1969. Large toheroa over 11 cm in length are the dominant size groups present. On the one section of the beach with easiest access the population has declined markedly, however, natural mortality may have also contributed to this decline.

have remained at about the same level since November 1969. In February 1971, the estimated population of toheroa larger than 12.5 cm (over 5 inches) was 209,000, the highest since May 1966. The number of legally takeable toheroa has remained relatively stable at just over one million since November 1969.

### Size Composition

The size of all the toheroa dug in each survey is shown in Fig. 2.

There is no evidence that the large number of very small toheroa present in December 1968, March and November 1969 lead to any large increase in the numbers of takeable size toheroa (see also Table 1). The pattern of size composition in February 1971 is similar to that of May 1966, April 1967 and November 1967.

### Distribution along Beach

The number of toheroas dug in each group of 5 traverses (not the calculated total number of toheroa present in each area) along the beach is shown in Fig. 3. Toheroa smaller than 7.5 cm (approximately the 3 inch takeable size limit) are shown separately from toheroa larger than 7.5 cm.

Toheroa are most abundant eastwards of the Rowallen Burn (see Map 1).

East of the Grove Burn (traverses 1-5) the toheroa population has increased, traverses 4 and 5 especially contained good numbers of large sized toheroa. In recent years the depth of sand over the gravel underlay has become deeper and conditions have become more favourable for toheroa. Most gatherers would rather take their quota from west of the Grove Burn rather than cross it. Over half of the toheroa larger than 12.5 cm were dug east of the Grove Burn.

DISCUSSION

The numbers of legally takeable sized toheroa have remained fairly constant since November 1969. There is considerable variation in the numbers of small toheroa present, and spat mortality is high. Predation by pied oyster-catchers and the removal of spat from the beach by the scouring action of heavy seas, probably accounts for most of this mortality.

By comparison with previous surveys the two most recent surveys showed a large drop in numbers of toheroa between traverses 6 and 10, and an increase between traverses 1 and 5. Gathering is becoming more concentrated in the area between traverses 6 and 10, and some decline in numbers would be expected.

After heavy, southerly seas there are sometimes dead or moribund toheroa, together with Mactra discors exposed on the beach. Such mortalities have been noted in November 1967, April and June 1968, and September 1970.

In September 1970 dead toheroa occurred mainly along the stretch of beach between traverses 6 and 10.

The toheroa season has now been reduced to one month and further surveys will show what effects this has on the toheroa stocks.

ACKNOWLEDGEMENTS

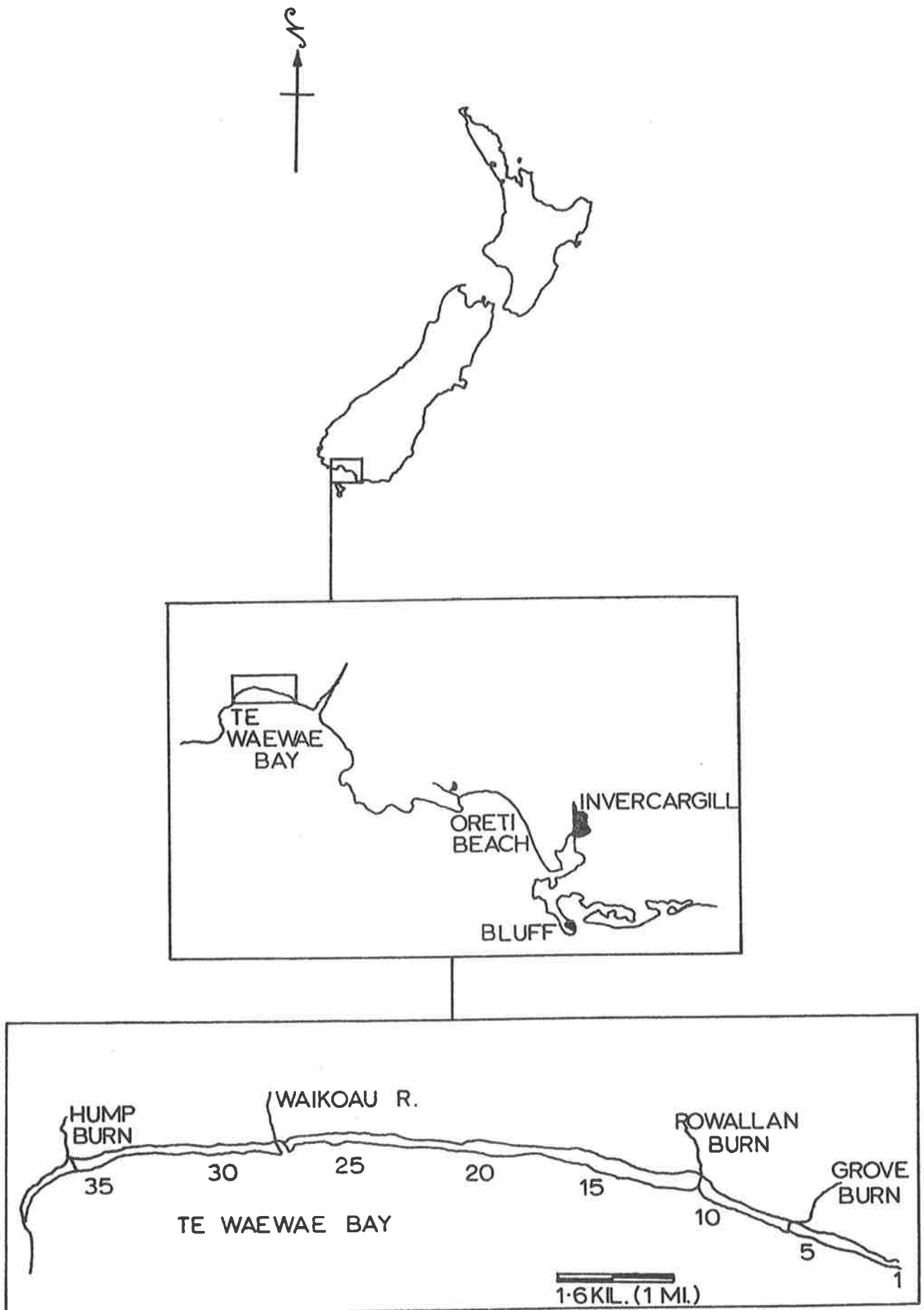
Thanks are due to Mr G.S. Crowther, Marine Department, Bluff and Mr J.S. Kirkman, Marine Department, Dunedin, who carried out the field work jointly with the writer. Mr D. Williamson drew the figures and Dr D. Eggleston criticised the manuscript.

REFERENCES

- STREET, R.J. 1971 - Studies on toheroa at Te Waewae Bay, Southland, Marine Department Fish. Tech. Rpt. No. 70. 1-22

**TABLE 1**      ESTIMATES OF TOHEROA NUMBERS AT EACH SURVEY PERIOD.  
THE MINIMUM LEGALLY TAKEABLE SIZE IS 3 INCHES.  
NUMBERS IN THOUSANDS OF TOHEROA.

Size cm. in.	Undersize		Takeable Size		Total Takeable
	0-2.4 0-1	2.5-7.4 1-3	7.5-12.4 3-5	12.5+ 5+	
May 66	45 +	277	1,789	375	2,164
Dec 66	61 +	608	1,670	190	1,860
Apr 67	112 +	450	1,590	119	1,709
Nov 67	55 +	389	1,407	142	1,549
Mar 68	293 +	592	1,754	182	1,936
Dec 68	669 +	637	1,439	116	1,555
Mar 69	601 +	531	1,239	177	1,416
Nov 69	1,007 +	969	900	171	1,071
Mar 70	148 +	777	1,034	167	1,201
Oct 70	164 +	491	928	151	1,079
Feb 71	26 +	279	1,056	209	1,265



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FIG. 1. LOCATION MAP



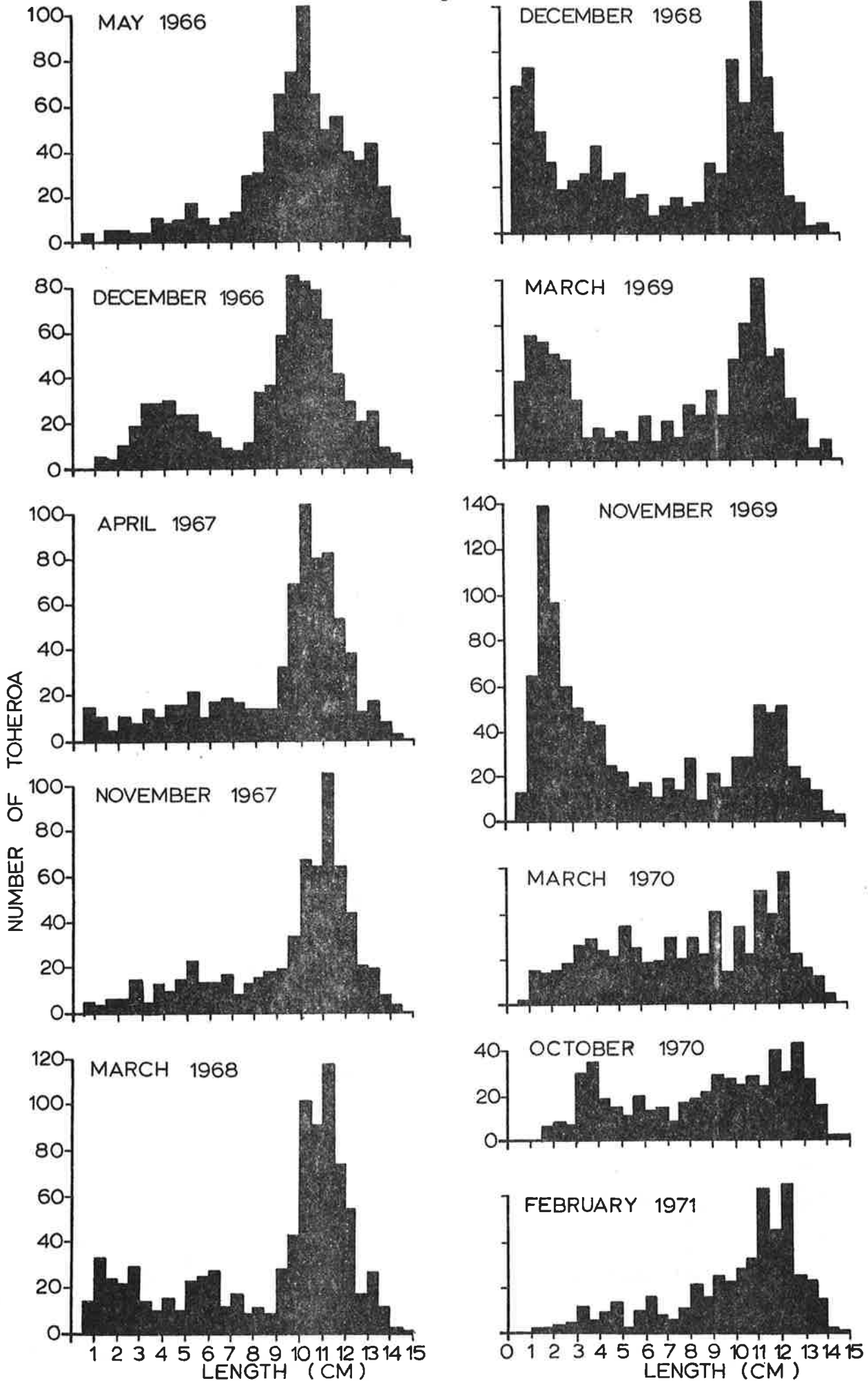


FIG. 2. SIZE COMPOSITION (Report no. 79 (1972))

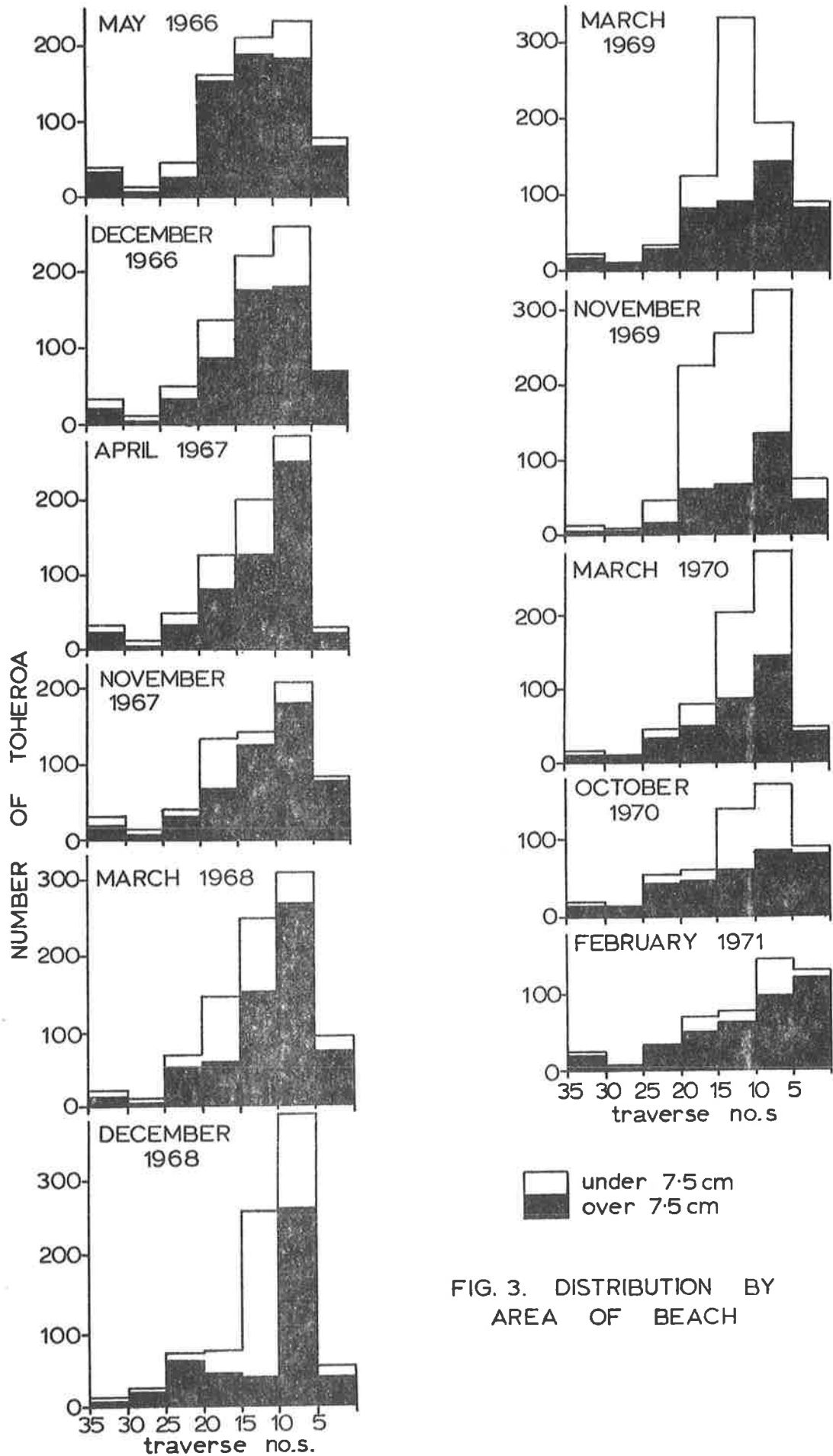


FIG. 3. DISTRIBUTION BY AREA OF BEACH



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