

B. F. Webb



NEW ZEALAND MARINE DEPARTMENT

FISHERIES TECHNICAL REPORT

No. 55

**TOHEROA SURVEY
WELLINGTON WEST COAST BEACHES
1970**

D. WILLIAMSON

WELLINGTON, NEW ZEALAND

1970

FISHERIES TECHNICAL REPORT

TOHEROA SURVEY - WELLINGTON WEST COAST BEACHES

1970

D. WILLIAMSON
FISHERIES DIVISION
MARINE DEPARTMENT
WELLINGTON

CONTENTS

	<u>Page</u>
SUMMARY	1
INTRODUCTION	2
AREA SURVEYED	2
METHODS	3
RESULTS	3
COMPARISONS WITH PREVIOUS SURVEYS	5
CONCLUSION	6
ACKNOWLEDGEMENTS	6
REFERENCES	6

SUMMARY

Toheroa, although occurring over approximately 23 miles of the beach surveyed are greatly reduced in numbers in comparison with last year's survey.

Total population is estimated at 80,000 - an 86% drop in population from the 1969 estimates. Only one undersized toheroa was found.

Toheroa are most abundant on Hokio Beach which bears 50,000 (62½% of the total population).

INTRODUCTION

In June 1970 a survey was carried out to determine whether any changes in toheroa (Amphidesima ventricosum Gray) stocks had taken place on Wellington West Coast beaches since the June 1969 survey.

Distribution, abundance, and size range of the toheroa found are outlined in this report.

AREA SURVEYED

The area surveyed is shown in Figure 1.

The total beach area of 46 miles has been subdivided into 8 parts for presentation of results.

Beaches surveyed are listed from south to north.

BEACH	LENGTH (Miles)	BOUNDARIES
Te Horo	5½	Waikanae to Mangaone Stream
Otaki	4½	Waitohu Stream to Ohau River
Hokio	5	Ohau River to Hokio Stream
South Waitarere	3	Hokio Stream to Waitarere
North Waitarere	5	Waitarere to Manawatu River
Foxton	6	Manawatu River to Himatangi
Tangimoana	6	Himatangi to Rangitikei River
Moanaroa	11	Rangitikei to Koitiata River

No toheroa have been found north or south of these boundaries.

METHODS

A one foot wide trench was dug at right angles to the sea. Digging started at about mid-tide level, and continued towards the high and low tide levels until no more toheroa were present. Trenches were dug for a minimum of 14 yards, even if no toheroa were present in initial diggings. Trenches were dug at quarter mile intervals and the intervals between trenches examined visually for signs of toheroa. The total toheroa present on each beach was calculated in proportion to the numbers in the trenches.

RESULTS

Figures 2 and 3 show the position of trenches dug and the number of toheroa in each trench.

Table 1 includes the estimated number of toheroa on each beach.

Table 1 Estimated numbers of toheroa on Wellington West Coast Beaches

<u>Beach</u>	<u>Number of Toheroa</u>	<u>Total Per Mile</u>
Te Horo	4,000	700
Otaki	8,000	1,800
Hokio	50,000	10,000
South Waitarere	1,000	300
North Waitarere	12,000	2,400
Foxton	5,000	800
	80,000	

No toheroa were found on Tangimoana or Moanaroa Beaches; Hokio has the largest and densest toheroa population.

Te Horo Beach

Toheroa occur in small numbers along the beach from about a quarter mile from Waikanae River to two miles south of the Mangaone Stream (Figure 2). Three toheroa, measuring 3.7 inches, 4.0 inches and 4.5 inches were dug.

No toheroa were found on the coarse shingle deposits between Mangaone Stream and Waitohu Stream (Figure 4).

Otaki Beach

Small numbers of toheroa occur from a quarter mile north of the Waitohu Stream until about a mile south of the Ohau River. (Figure 2). The length of the six toheroa dug ranged from 4.6 to 5.4 inches and are shown in Figure 4.

Hokio Beach

Toheroa occur from about a quarter mile from the Ohau River to a mile from the Hokio Stream, being most abundant between 2 and 3 miles north of the Ohau River.

The 38 toheroa dug ranged in length from 3.5 to 5.3 inches, (Figure 4).

South Waitarere

From the transects, but mainly from visible signs, toheroa occur for approximately half a mile about two miles south of Waiwarawa Stream.

Only one toheroa measuring 4.2 inches was dug (see Figure 4).

North Waitarere

Toheroa occur from $1\frac{1}{2}$ miles north of Waitarere to a $\frac{1}{4}$ mile south of Manawatu River.

Length ranged from 4.0 inches to 5.0 inches (see Figure 4).

Foxtton Beach

Scattered toheroa occur from 1 to 2½ miles north of Manawatu River.

Toheroa measured ranged from 2.7 to 3.7 inches. The only undersized toheroa taken during the survey was from this beach.

Tangimoana and Moanaroa Beaches

No toheroa were found.

General

No evidence was found of a successful spatfall since last year. Populations of burrowing polychaetes and the burrowing decapod crustacean Callianassa filholyi have spread and now cover the whole length of beach surveyed between mid and low tide levels.

COMPARISON WITH PREVIOUS SURVEYS

Table 2 compares the 1970 population estimates with those made in earlier years.

Table 2 Number of Toheroa 1965-1970

Beach	1965 Tunbridge (1967)	1966 Tunbridge (1966)	1968 Williamson (1969)	1969 Williamson (1969)	1970
Te Horo	5,000	Not Dug	140,000	13,000	4,000
Otaki	132,000	Not Dug	141,000	33,000	8,000
Hokio	312,000	436,000	610,000	301,000	50,000
Sth Waitarere	90,000	166,000	24,000	19,000	1,000
Nth Waitarere	386,000	203,000	153,000	148,000	12,000
Foxtton	137,000	Not Dug	106,000	41,000	5,000
Tangimoana	Not Dug	Not Dug	84,000	8,000	-
Moanaroa	Not Dug	Not Dug	13,000	1,000	-
Total -	1,062,000	805,000	1,271,000	564,000	80,000

Toheroa stocks are now at their lowest level for several years. How much of this depletion is due to public harvesting is unknown, although harvesting during the season was heavy. Large numbers of newly dead toheroa were found on some of the beaches during the summer period of 1969-70. The cause of death was unknown, but much of the mortality occurred during a period of hot weather when offshore winds reduced the height of the tide.

CONCLUSION

The number of toheroa on these beaches has dropped markedly, leaving seriously depleted stocks. There is also a marked lack in undersized toheroa.

ACKNOWLEDGEMENTS

I wish to thank those of my colleagues who participated in the arduous digging of over $1\frac{1}{2}$ miles of trenches and particularly Mr D. Macalister for his valuable assistance.

REFERENCES

- Tunbridge, B.R. 1969 - Toheroa Survey - Levin Beaches, Marine Department Fisheries Technical Report No. 44
- Tunbridge, B.R. 1967 - Toheroa Survey - Wellington West Coast Beaches, Marine Department Fisheries Technical Report No. 21.
- Williamson, D. 1968 - Toheroa Survey - Wellington West Coast Beaches 1968. Marine Department Fisheries Technical Report No. 31.
- Williamson, D. 1969 - Toheroa Survey - Wellington West Coast Beaches 1969. Marine Department Fisheries Technical Report No. 45.

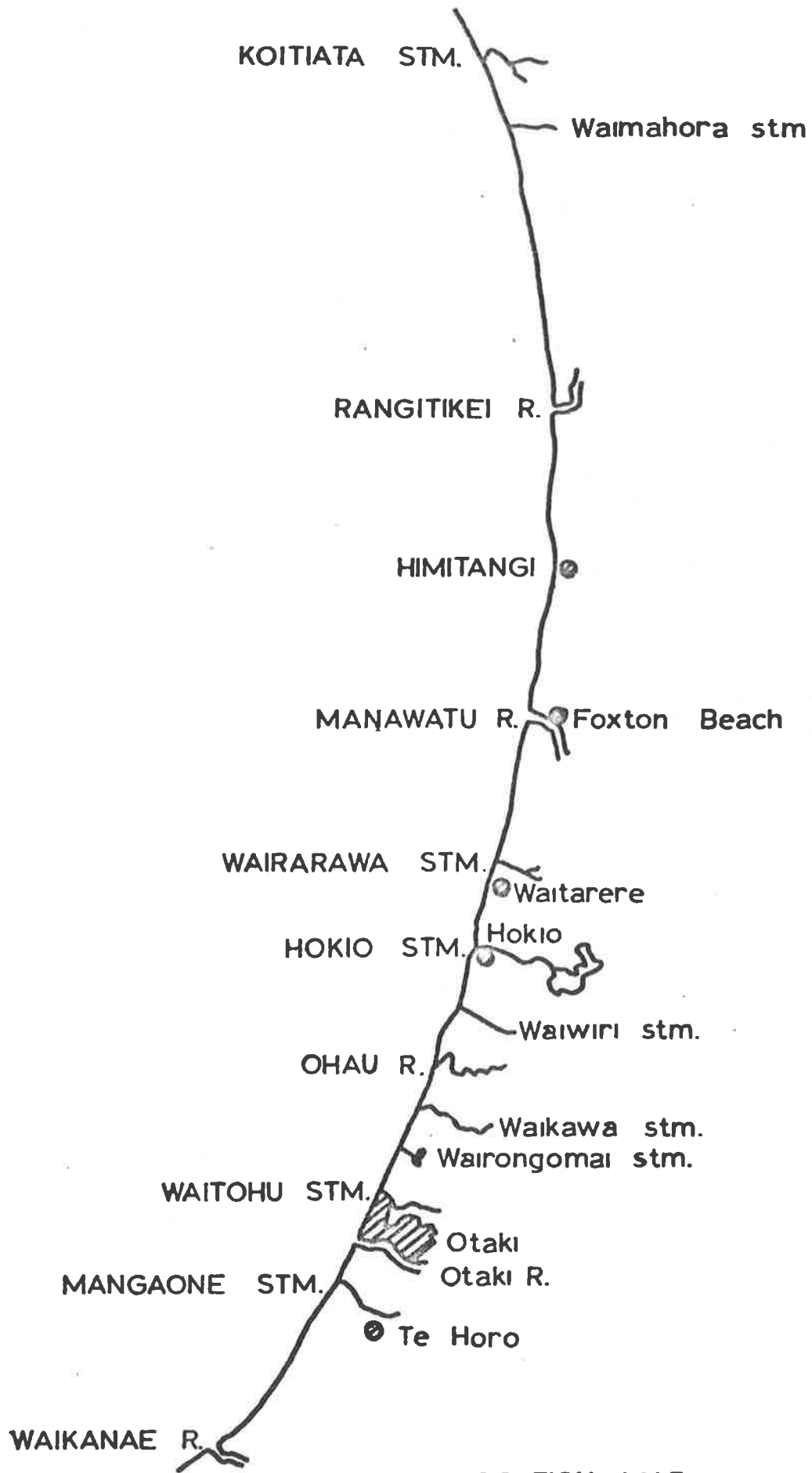


Fig. 1 LOCATION MAP

Fig. 2 TOHEROA PER TRAVERSE

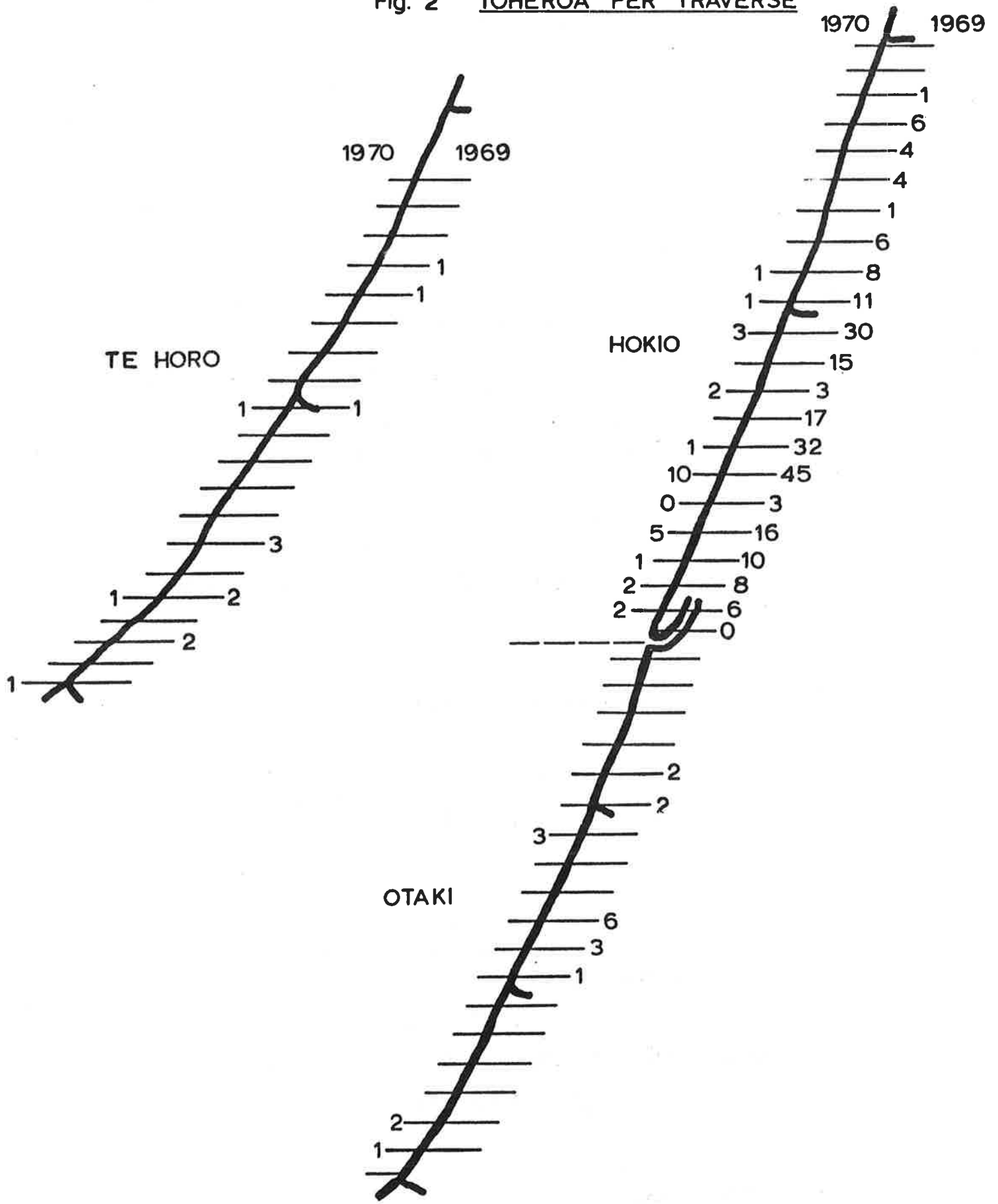


Fig. 3 TOHEROA PER TRAVERSE

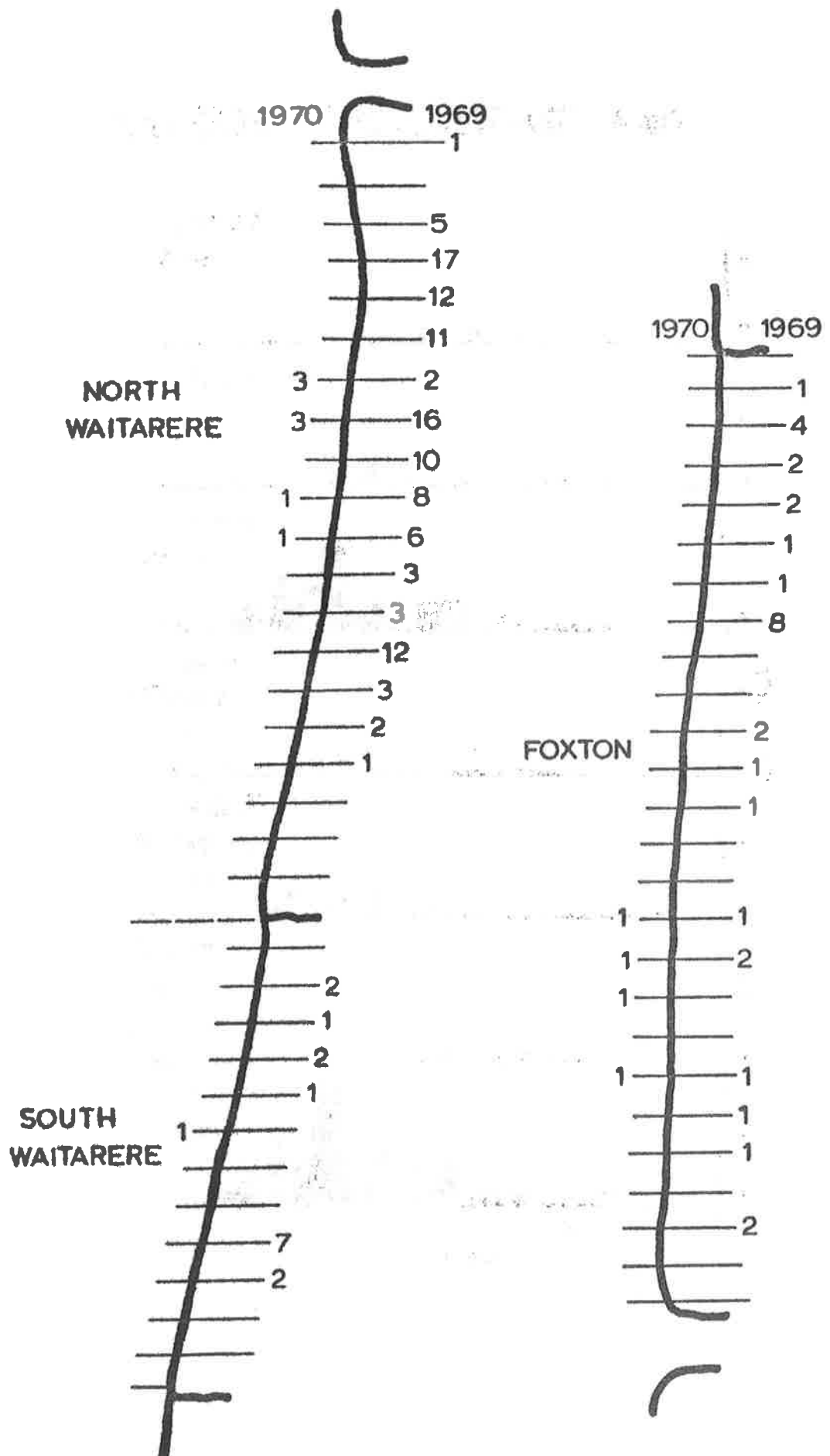
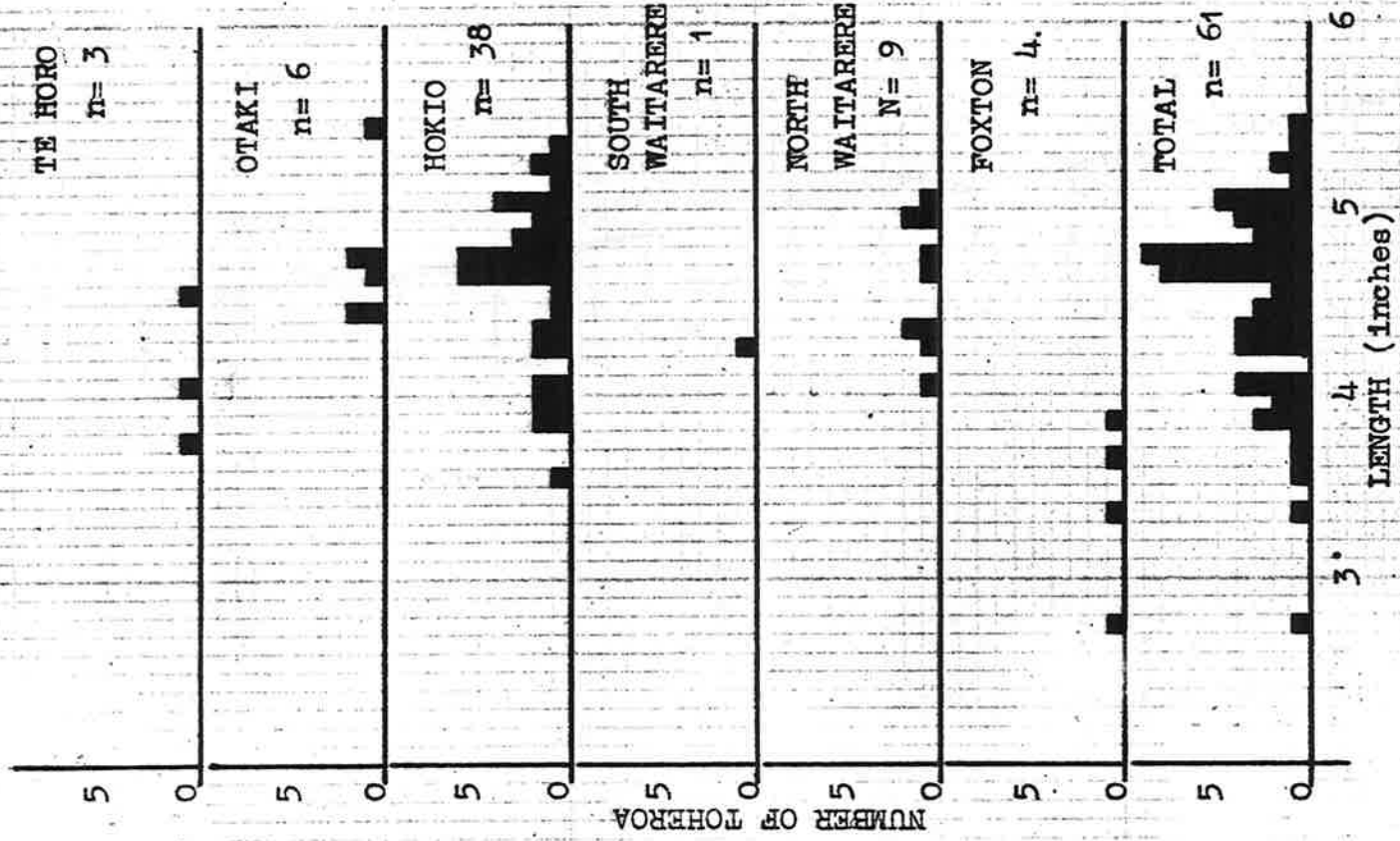


Fig. 4 TOHEROA — LENGTH FREQUENCY



B. F. Webb



NEW ZEALAND MARINE DEPARTMENT

FISHERIES TECHNICAL REPORT

No. 55

**TOHEROA SURVEY
WELLINGTON WEST COAST BEACHES
1970**

D. WILLIAMSON

WELLINGTON, NEW ZEALAND

1970