New Zealand Fisheries Assessment Research Document 97/25

A summary of information on the occurrence of the dredge oyster, *Tiostrea chilensis*, at the Chatham Islands and assessment of its potential for a fishery

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A SUMMARY OF INFORMATION ON THE OCCURRENCE OF THE DREDGE OYSTER, *TIOSTREA CHILENSIS*, AT THE CHATHAM ISLANDS AND ASSESSMENT OF ITS POTENTIAL FOR A FISHERY

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1. EXECUTIVE SUMMARY

Extensive sampling of the Chatham Islands by the Royal Society of New Zealand Expedition of 1954 recorded the presence of dredge oysters at two stations in 60 and 69 m and in a shore collection. An extensive dredge survey of scallops in 1990 found moderate numbers of oysters in scallop beds along the north coast in depths between 39 and 84 m at 24 of 105 stations. In 1995 the season for fishing oysters in the Chatham Islands was changed to match the scallop fishing season. Following this change, in 1995 1.6 t of oysters were landed as bycatch of the scallop fishery, and 5.3 t in 1996. Based on the limited distribution and low densities of oysters at the Chatham Islands oyster numbers appear insufficient to support a target fishery.

2. INTRODUCTION

2.1 Overview

This document presents all the data available on distribution and abundance of dredge oysters (*Tiostrea chilensis*) at the Chatham Islands and uses these data to assess the fishery potential of this species.

2.2 Biology

The biology of the dredge oyster, *T. chilensis*, in New Zealand was summarised by Cranfield (1979), Jeffs & Creese (1996), and Annala & Sullivan (1997).

2.3 Distribution of oysters at Chatham Islands

In 1954 the Royal Society of New Zealand Expedition extensively sampled the marine environment of the Chatham Islands. Analyses of the molluscan samples found *Tiostrea chilensis* at three stations: one at Waitangi in shore collections, one north of the Sisters in 60 m, and the third south of the Sisters (Figure 1 Area 4F) in 69 m (Dell 1960).

In 1990 MAF Fisheries surveyed of the scallop resource at the Chatham Islands using a 2.4 m wide scallop dredge used by local scallop fishers on these grounds (Bull 1990). Tow positions were determined along lines 1 n. mile apart parallel to the shore in all known areas of scallops. Tow positions were either 0.5, 1.0, or 2.5 n. mile apart depending on the expected scallop density. Tows were made at 2.5 n. mile spacing on seafloor that echosounding indicated was of the right habitat and depth range. The dredge was towed for 0.5 n. mile at each position and the catch of scallops and oysters counted. Oysters were caught at 24 of the 105 stations, most of these stations being on the north coast, east of Cape Young. A single oyster was caught in each of three tows

six n. mile offshore in Hanson Bay (*see* Figure 1). Oysters occurred in depths ranging from 39 to 84 m, considerably greater than depths in which oysters are commercially abundant in Foveaux Strait or Tasman and Golden Bays. The largest catch was 137 oysters per tow at a station 3 n. mile off Kaingaroa in 65 m of water. A catch of this size would be marginally economic in Tasman and Golden Bays, and well below economic levels in Foveaux Strait (Bull 1990).

In 1991, a special permit was issued to investigate the distribution and abundance of oysters at the Chatham Islands in a 2 n. mile grid pattern dredge survey. A Foveaux Strait oyster vessel sampled these stations between 1 November and 12 December 1991. No results of the survey are available other than that the dredge used in Foveaux Strait proved unsatisfactory in the Chatham Islands (oysters here are 2 to 2.5 times deeper than in Foveaux Strait).

There is a small fishery for scallops in the Chatham Islands (M. Cryer, NIWA, Auckland, unpublished results) and oysters are a bycatch of this fishery. Fishers, anecdotal reports suggest that the ratio of oysters to scallops is highest in the east of shellfish area 4G (Taupeka Point to Matarakau), and slightly less in the west of shellfish area 4G (Cape Young to Taupeka Point) (*see* Figure 1). Fishers have also reported that small patches of oysters not associated with scallops occur in Pitt Strait (shellfish area 4C) (B. Lanauze, MFish, Wellington pers. comm.).

2.4 Commercial Fishery

Up to 1995 none of the oyster bycatch of the scallop fishery was landed because the season for the two fisheries did not overlap. In 1995, a specific Chatham Island dredge oyster fishery season was introduced in the *Fisheries (South-East Area Commercial Fishing) Regulations 1986,* running from 1 September to 30 November, coinciding with that of Chatham Islands scallops. This regulation came into force on 1 October 1995, from which time oysters have been landed as bycatch of the scallop fishery. In 1995, 1.63 t of dredge oysters were estimated to have been landed. In 1996, 5.26 t of dredge oysters were landed (K. Drummond, MFish Central, pers. comm.).

2.5 Fishery Potential

The extensive dredge sampling of the 1991 survey explored most of the potential scallop and oyster habitat around the Chatham Islands apart from Pitt Strait. The bycatch in the scallop fishery appears too low to support a fishery for oysters alone. Even if oysters are found in the Pitt Strait area (as fishers indicate), they are unlikely to be more abundant than on the north coast, and in the absence of scallops are unlikely to prove economic to exploit. The present practice in the scallop fishery of landing the oyster bycatch for processing seems to be the only viable commercial strategy to utilise the small oyster resource of the Chatham Islands.

3 REFERENCES

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Dell, R.K. 1960: Chatham Island marine Mollusca based upon the collections of the Chatham Islands Expedition, 1954. *New Zealand Oceanographic Institute Memoir 7*: 141–157.

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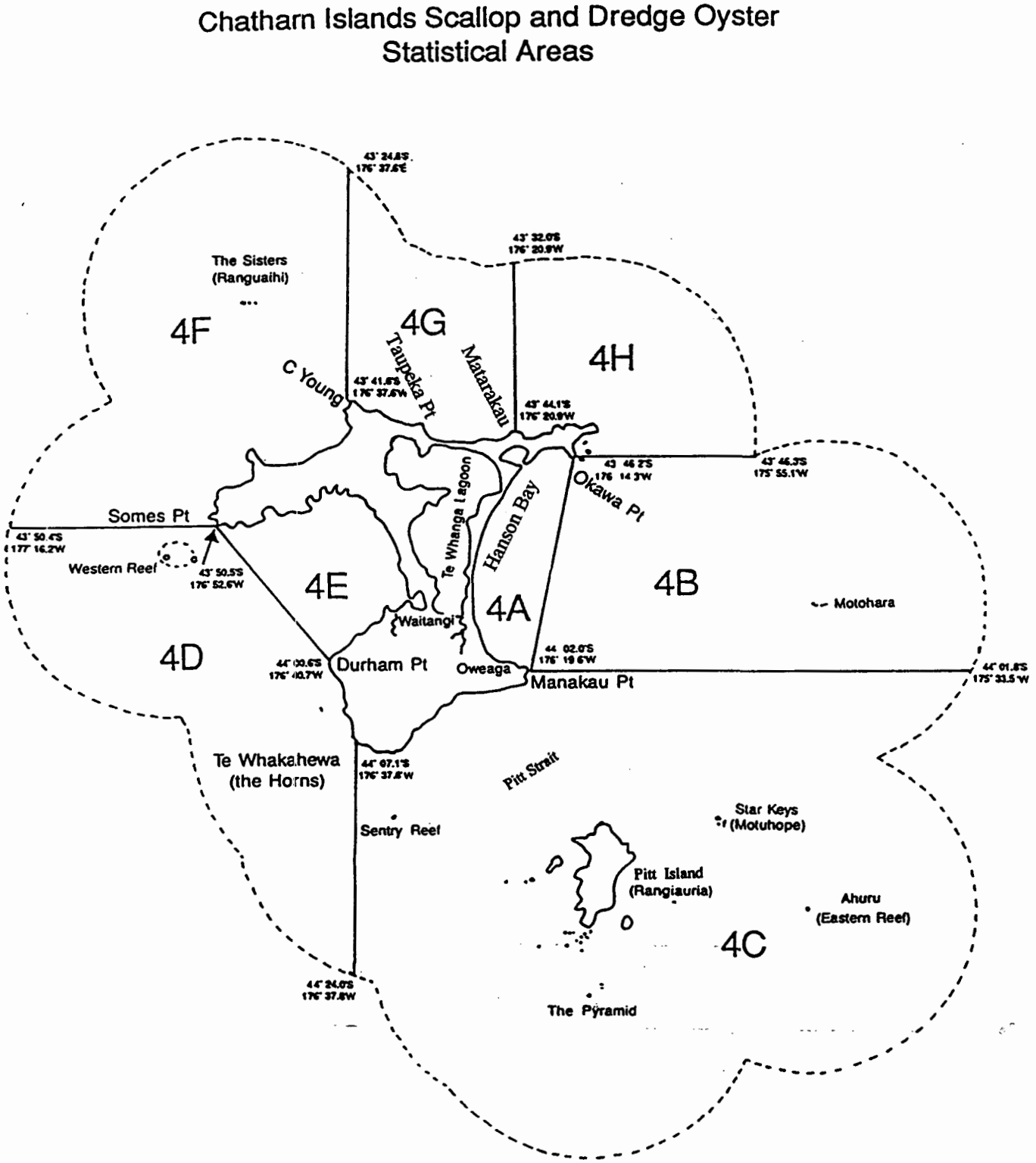
Figure 1


Chatham Islands Scallop and Dredge Oyster
Statistical Areas
43° 24.8'S
176° 37.6'E
43° 32.0'S
176° 20.9W
The Sisters
(Ranguaihi)
4F
4G
4H
C Young
Taupeka Pt
Matarakau
43° 41.8'S
176° 37.6W
43° 44.1'S
176° 20.9W
43° 46.2'S
176° 14.3W
43° 46.3'S
175° 55.1W
Somes Pt
43° 50.4'S
177° 16.2W
Western Reef
43° 50.5'S
176° 52.6W
4E
Te Whanga Lagoon
Hanson Bay
Okawa Pt
4A
4B
Motohara
Waitangi
4D
44° 00.6'S
176° 40.7W
Durham Pt
Oweaga
44° 02.0'S
176° 19.6W
Manakau Pt
44° 01.8'S
175° 33.5'W
Te Whakahewa
(the Horns)
44° 07.1'S
176° 37.8W
Pitt Strait
Star Keys
(Motuhope)
Sentry Reef
Pitt Island
(Rangiauria)
Ahuru
(Eastern Reef)
4C
44° 24.0'S
176° 37.8W
The Pyramid