NIWA

Taihoro Nukurangi

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REC S60

Benthic survey of proposed marine farm at Te Akau (Black Beach), D'Urville Island

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prepared for

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INTRODUCTION

Te Akau (Black Beach) lies north-west of Old Mans Head, on the eastern side of D'Urville Island in the Marlborough Sounds (Fig. 1). There are presently no other marine farms in this area.

This report presents the results of a dredge survey undertaken for an application for a proposed marine farm in this bay (Fig. 1). The application is for a 10 ha area to be farmed.

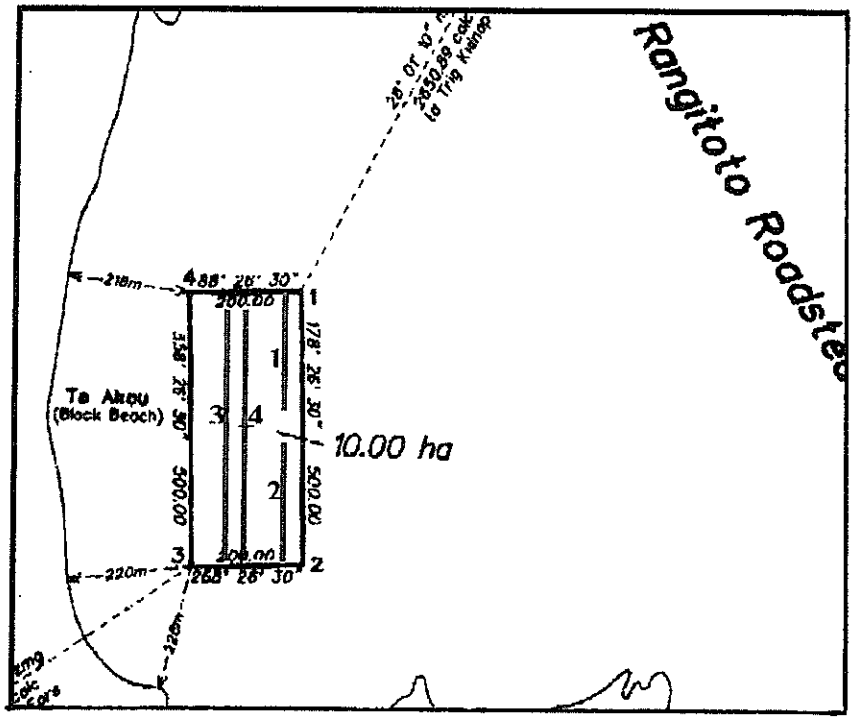


Figure 1. Proposed marine farm extension, Te Akau (Black Beach), at D'Urville Island. Red lines (1-3) indicate where the standard dredges were taken. Blue line (4) indicates where the scallop dredge was taken.

METHODS

The fieldwork for this survey was undertaken on 23 August 1999. The proposed marine farm is approximately 220 m offshore and the boundaries of the farm are 500 m long shore and 200 m wide.

Three standard dredge tows were taken where indicated in Fig. 1. The dredge tow is 600 x 260 mm wide and has a mesh of 2 mm. Dredge tows 1 and 2 were at 30-40 m depth and covered a distance of 200 m. Dredge 3 was at 17-24 m depth and covered a distance of 425 m. The scallop dredge (standard amateur dredge) was towed through the centre of the proposed marine farm at a depth of approximately 30 m.

The species collected in these dredges were preserved and returned to the lab to be identified and counted.

RESULTS

The dredge tow brought up soft glutinous mud. The conspicuous species found in the mud are tabulated (Table 1). A total of 41 species was collected.

The results of this dredge survey suggest that Te Akau bay has the typical species composition commonly found in the Marlborough Sounds area (McKnight & Grange 1991). Abundances of the organisms were generally low (<3) per tow.

The standard dredge tows produced a large variety of organisms with 14-25 species per tow. The heart urchin *Echinocardium cordatum* was the most common species in dredge 3 and was also present in dredges 1 and 2. Common bivalves (*Nemocardium pulchellum* and *Nucula strangei)* were present in all standard dredge samples, although not highly abundant. *Notocallistra multistriata* was a dominant species in the standard dredges, especially in dredge 3. Species of ecological significance found at this site were brachiopod *Magasella sanguinea* and scallop *Pecten novaezelandiae*. Neither species were recorded in numbers high enough numbers to warrant further investigation (DOC 1995).

The species diversity was greatest in Dredge 1 but the majority of the species here were recorded as rare (< 3 on abundance scale).

The scallop dredge also contained typical Marlborough Sounds organisms. *Pseudechinus albocinctus* and *Coscinasterias muricata* were both found in high numbers as expected from this type of area. Also present here was the holothurian *Stichopus mollis*.

Table 1. Species recorded from standard and scallop dredge tows at Te Akau (Black Beach) Bay at D'Urville Island. 1 = rare and 5 = abundant.

Class	Species	Common name	Std #1	Std #2	Std #3	Scal #4
Bivalvia	*Nemocardium pulchellum*	Strawberry cockle	3	2	2	-
Bivalvia	*Leptomya retiaria*		3	-	1	-
Bivalvia	*Notocallistra multistriata*		3	1	4	-
Bivalvia	*Neilo australis*		2	-	1	-
Bivalvia	*Tellina charlottae*		2	-	3	-
Bivalvia	*Modiolarca impacta*	Nesting mussels	3	1	-	2
Bivalvia	*Limaria orientalis*	Japanese file shell	1	-	-	-
Bivalvia	*Dosinia greyi*		1	-	2	-
Bivalvia	*Nucula strangei*	Nutshell	1	2	1	-
Bivalvia	*Theora lubrica*	Japanese bivalve	1	-	3	-
Bivalvia	*Cuspidaria fairchildi*		2	-	-	-
Bivalvia	*Pecten novaezelandiae*	Scallop	-	1	-	1
Bivalvia	*Chlamys zelandiae*		-	1	-	-
Gastropoda	*Struthiolaria vermis*	Ostrich foot	2	-	-	-
Gastropoda	*Zegaleurus tenuis*		2	-	1	-
Gastropoda	*Maoricolpus roseus*	Turret shell	2	1	-	-
Gastropoda	*Amalda novaezelandiae*	Olive shell	1	-	-	-
Gastropoda	*Poirieria zelandica*	Spiny murex	1	-	-	-
Gastropoda	*Amalda australis*	Olive shell	1	-	1	-
Crustacea	*Pagurus sp.*	Hermit crab	2	2	1	-
Crustacea	*Pontophilus sp.*	Shrimp	1	-	-	-
Crustacea	Unidentified amphipod	Sea lice	1	-	-	-
Crustacea	Unidentified isopod	Sea lice	-	-	1	-
Polychaeta	*Lumbrinereis sp.*	Uncased worms	2	-	1	-
Polychaeta	Unidentified worm	Cased worm	-	2	-	-
Polychaeta	*Glycera sp.*		-	2	-	-
Holothuroidea	*Heterothyone alba*	Burrowing sea cucumber	2	1	-	-
Holothuroidea	*Stichopus mollis*	Sea cucumber	-	-	-	2
Echinoidea	*Echinocardium cordatum*	Heart urchin	2	-	5	-
Echinoidea	*Pseudechinus albocinctus*	Red Urchin	-	-	-	5
Asteroidea	*Coscinasterias muricata*	11 armed starfish	-	-	-	5
Ophiuroidea	*Ophiopsammus maculata*	Brittle star	-	1	-	-
Pisces	Fish larvae		1	-	-	-
Cnidaria	*Edwardsia sp.*	Burrowing anemone	-	-	1	-
Amphineura	Unidentified chiton		-	-	2	-
Polychaeta	Unidentified polychaeta	Cased worm	-	-	1	-
Algae	*Ulva lactuca*	Sea lettace	-	-	-	1
Algae	*Carpophyllum flexuosum*		-	-	-	2
Brachiopoda	*Magasella sanguinea*	Red brachiopod	-	3	-	-
Hydroid	Unidentified hydroid		-	1	-	-
Nemertea	Unidentified flatworm		1	-	1	-
		NO. OF SPECIES	25	14	18	7

CONCLUSION

The fauna of the proposed marine farm site is typical of the Marlborough Sounds area. This area supports low densities of various invertebrates, all of which are known and

common from this area (McKnight & Grange 1991). The organisms found here are generally not considered of ecological significance (DOC 1995), and those few that are, exist in low abundance.

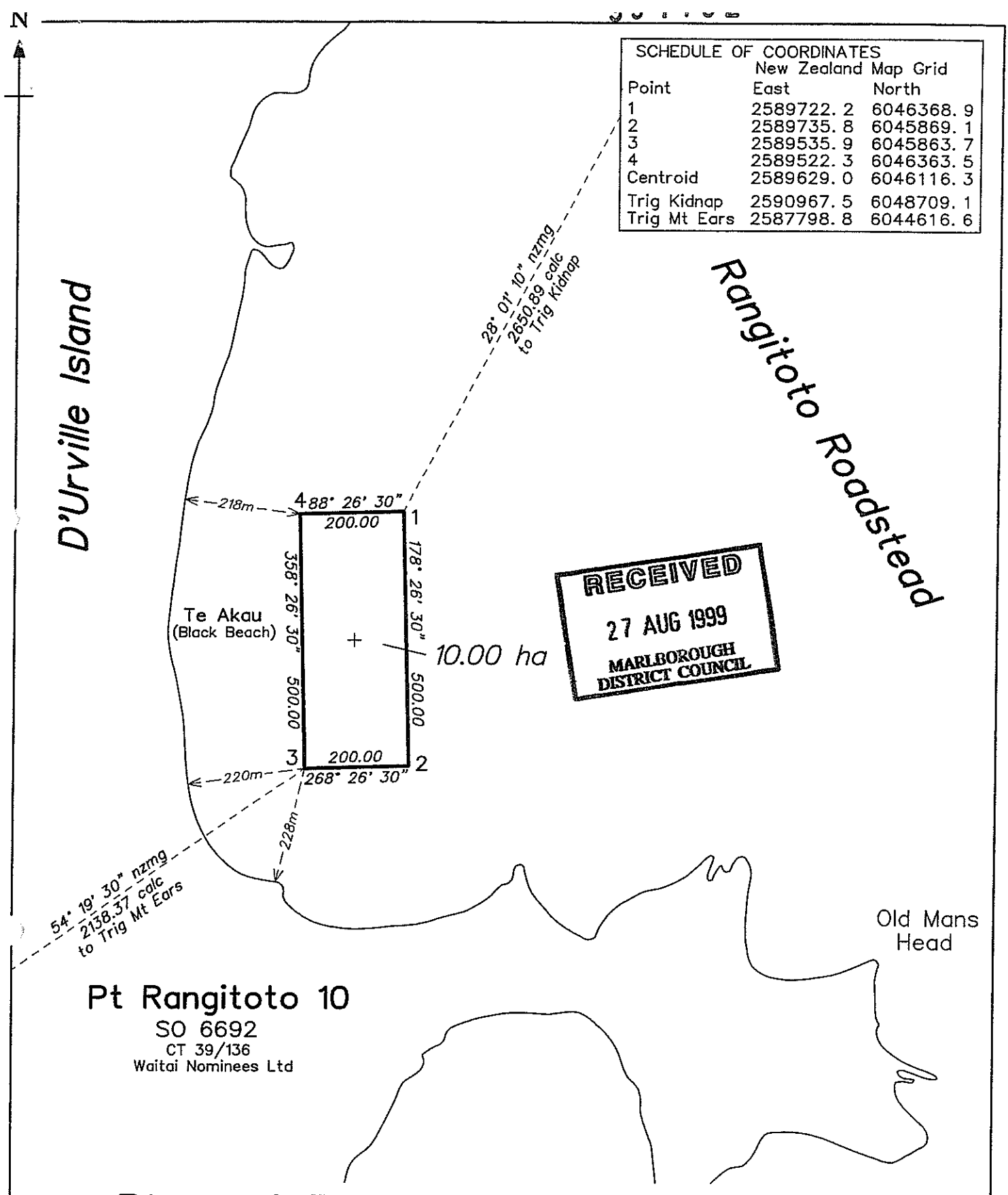
REFERENCES

Department of Conservation. 1995. Guideline for ecological investigation of proposed marine farm areas. *Occasional Publication 25,* Nelson/Marlborough Conservancy.

McKnight, D.G.; Grange, K.R. 1991. Macrobenthos-sediment-depth relationships in Marlborough Sounds. *DSIR Contract Report 1991/14, prepared for Department of Conservation, Wellington.*

ACKNOWLEDGEMENTS

Thanks to Rob Merrilees for his field assistance.



Plan of Proposed Coastal Permit

M.J. Hebberd

NOTE: The position of this application has not been surveyed.
MHWM has been derived from LINZ SDI (DCDB)

MARLBOROUGH DISTRICT COUNCIL

SCALE 1:10,000

200 100 0 100 200 300 400 500 600 700 800 m

Datum: New Zealand Map Grid

Prepared by; DRAUGHTING *Plus*

Date 25/8/99

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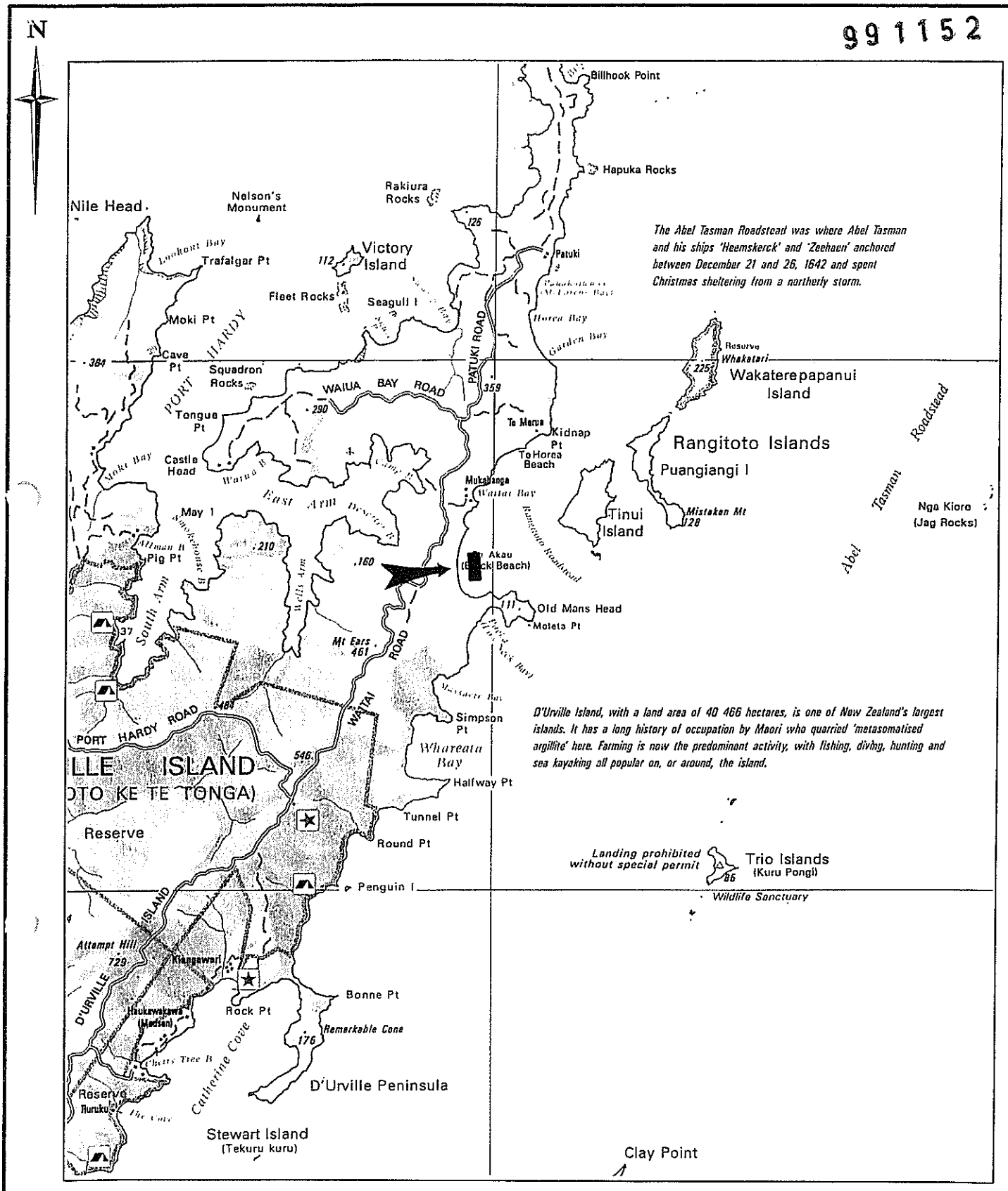

Locality Map of Proposed Coastal Permit

M.J. Hebberd

2000m 0 1 2 3 4 6 8km

SCALE 1:100,000

InfoMap 336–07