REC 676
U950450

ECOLOGICAL ASSESSMENT

FOR A

PROPOSED MARINE FARM EXTENSION

YNCYCA BAY, PELORUS SOUND

by
L.A.Bolton and A.D.Ritchie

station = southside of Yncya Bay

site = Yncya Bay

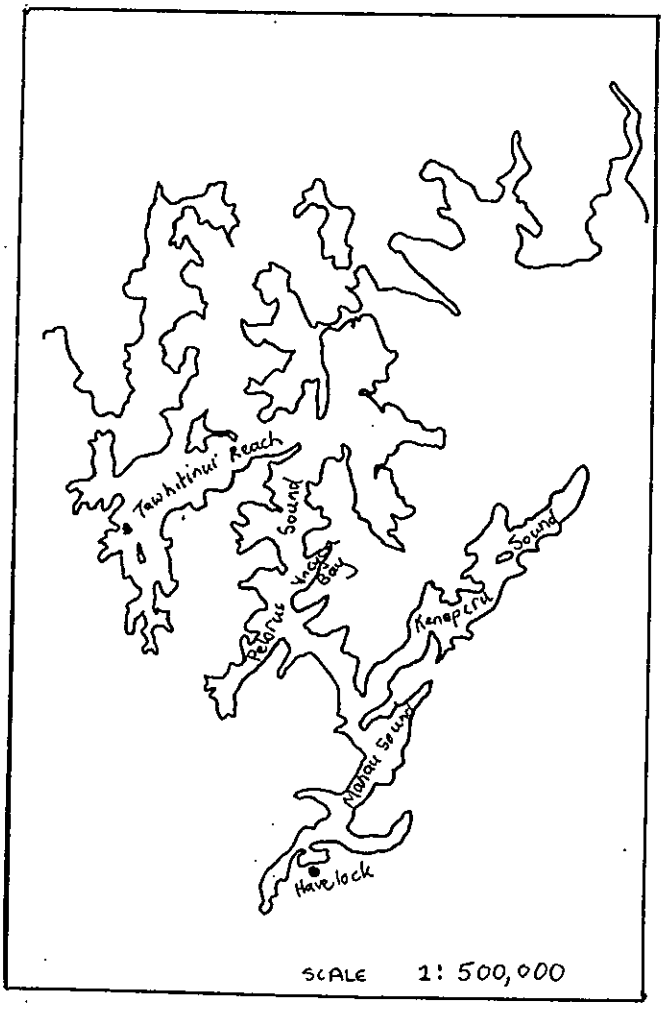
APRIL 1995

INTRODUCTION

Yncyca Bay is on the Eastern side of Pelorus sound, approximately 20 kilometres from the Port of Havelock. The existing mussel farm is on the Southern side of Yncyca Bay. (Figure 1). There are at least seven other existing mussel farms in this bay.

The present marine farm is 30-70 metres from the shore (the shoreline is indented) and is 300 metres long by 100 metres wide. The proposal is to extend both the length and width by 100 metres. This would result in a mussel farm 400 metres long by 200 metres wide.

FIGURE 1



GENERAL DESCRIPTION OF THE LOCATION

At the inner boundary the water depth is approximately 13 metres while at the proposed new outer boundary the water depth is approximately 24 metres.

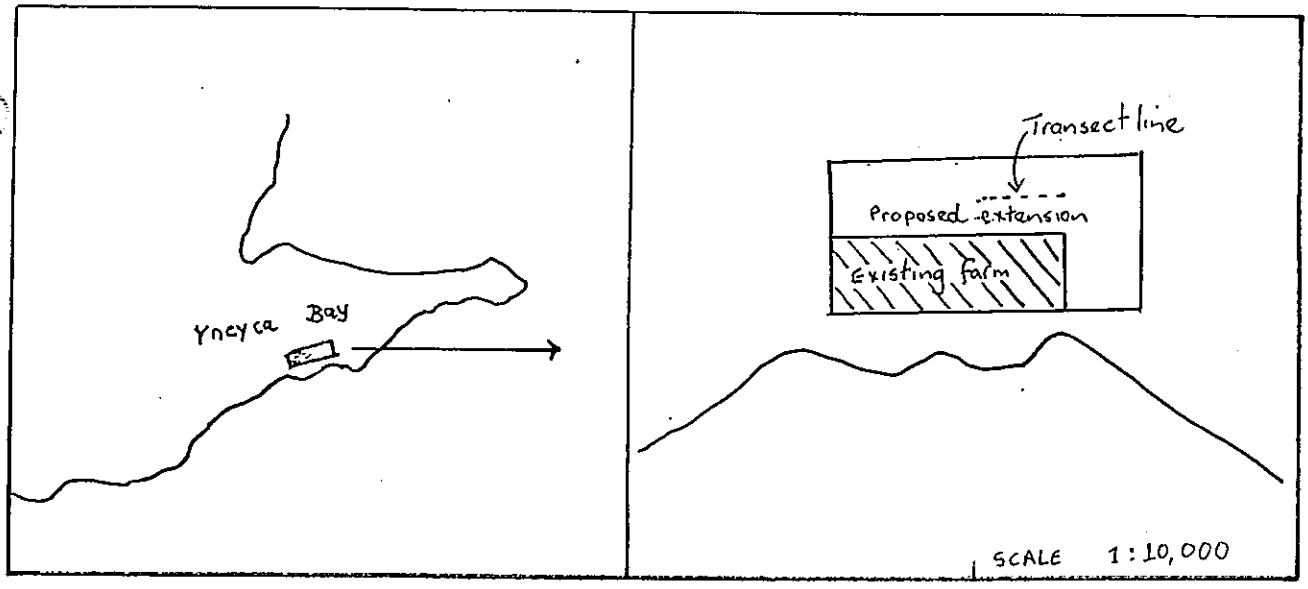
The bottom had a very gentle slope to it.

The bottom substrate at all water depths was very fine silt, (described by the diver as a 'silt desert'); it was possible to push an arm, 400 mm into the silt. At a water depth of 21 metres the depth of this fine sediment was more than 5 metres (as measured using a marked metal pole -this was the total length of the pole). It was noted that under the existing mussel farm this fine sediment was littered with broken shell material.

During the survey the visibility was up to 2 metres, with a high suspended sediment load in the water.

There was a very slight current (less than quarter of a knot) running at the time of the survey.

FIGURE 2



METHOD USED FOR MACROBENTHOS ASSESSMENT

The proposed site was surveyed on the 30th of March. Sampling was carried out using SCUBA.

An initial reconnaissance dive was used to ascertain the characteristics of the bottom in the proposed extension area and to ensure the transect site was in an area that was representative of the substrate, biota and habitats of the area. During this reconnaissance dive a list of species present under the proposed extension, was made.

Quantitative sampling was carried out along one, one hundred metre transect line. This transect line ran parallel to shore,along the 21 metre deep contour line. The location of this transect line is shown in Figure 2. An area of one metre square (quadrat) was sampled at the start and then at intervals of 10 metres along the transect. A total of 11 quadrats were sampled along each transect line. Within each quadrat the epibenthic (those living on the surface of the bottom) species present, and their abundance (number of individuals) was noted and recorded. The fish present in the vicinity of each quadrat was also noted. The fish results are recorded as an integral part of the quadrat data. Quadrat 1 (on the 0m mark of the transect) is on the inner boundary of the proposed farm and Quadrat 11 (on the 100m mark) is on the outer boundary.

RESULTS

SPECIES LIST

COMMON NAME	SCIENTIFIC NAME
Cushion starfish	*Patiriella regularis*
Encrusting sponge	Unidentified sp.
Eleven armed starfish	*Coscinasterias calamaria*
Finger sponge	*Halicondria* sp.
Horse mussel	*Atrina zelandica*
Opal fish	*Hemerocoetes monopterygius*
Scallop	*Pecten novaezelandiae*

GENERAL EVALUATION

Many of the species listed above were not present in the quadrats but were present on/above the bottom under the proposed extension area. For those species not sampled quantitatively it was noted that they were very sparse in both their abundance and distribution. The quantitative data is presented in Table 1 below.

The only difference noted in species presence and abundance under the existing farm compared to the proposed extension area was the presence of Blue mussels (*Mytilus edulis*) and green mussels (*Perna canaliculus*) under the existing farm.

The Common jellyfish (*Aurelia aurita*) was abundant in the water column at the time of sampling.

TABLE 1 : Species data for the plants and animals present along the transect.

SPECIES	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
Cushion starfish					11			i			
Finger sponge					pr		pr	pr			
Opal fish	1										
Scallop						1					
Spotty	3										

DISCUSSION

The plant and animal species present in the survey area are widespread and common Marlborough sounds species. In total 5 species were sampled quantitatively, while a total of 10 species were sighted during sampling. All species present were sparse in their distribution and abundance. This low diversity and abundance of species indicates that the substrate in this area is not a favoured habitat to colonise. Such fine sediment does not offer a stable surface for many species to colonise and also clogs up the feeding apparatus of filter feeding animals.

The extension of the mussel farm at this site would not greatly alter the substrate or have a major effect on the existing biota. Some shell material would accumulate and some live mussel would eventually colonise the bottom. This would enhance the present situation.

CONCLUSION

The substrate under the proposed extension is very fine silt.

This substrate supports a low diversity and abundance of species.

The extension of the existing mussel farm would not greatly alter the substrate or have a major effect on the existing biota.