

A P Henderson

Resource Consent Application for Repositioning Marine Farm & Inclusion of
Oysters

January 2017



Resource Consent Application

This application is made under Section 88 of the Resource Management Act 1991



MARLBOROUGH DISTRICT COUNCIL

Please read and complete this form thoroughly and provide all details relevant to your proposal. Feel free to discuss any aspect of your proposal, the words used in this form or the application process with Council staff, who are here to help.

This application will be checked before formal acceptance. If further information is required, you will be notified accordingly. When this information is supplied, the application will be formally received and processed further.

You may apply for more than one consent that is needed to cover several aspects of the activity on this form.

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Document Number:
RAF0002-C11579

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Consent No.

Case Officer:

Date Received:

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1. Applicant Details (If a trust, list full names of all trustees.)

Name:
(full legal name)

A P Henderson

Mailing Address:
(including post code)

683 Waihopai Valley Road
RD6
Blenheim 7276

Email Address: hendersonfamily5@xtra.co.nz

Phone: (Daytime) 572 4141

Phone: (Mobile)

2. Agent Details (If your agent is dealing with the application, all communication regarding the application will be sent to the agent.)

Name:

Paul Williams

Mailing Address:
(including post code)

RMco Ltd
PO Box 820
Blenheim 7240

Email Address: paul@rmco.co.nz

Phone: (Daytime) 577 9239

Phone: (Mobile) 0274 577 009

3. Type of Resource Consent Applied For

Coastal Permit Discharge Permit Land Use Subdivision Water Permit

4. Brief Description of the Activity

To formalise adjusted position of existing marine farm and to include dredge and pacific oysters to the list of species that can be grown on the farm.

5. Supplementary Information Provided?

Yes No

Council has supplementary forms for some activities, such as moorings, water permits, domestic wastewater, discharge permits, to assist applicants with providing the required information.

6. Property Details

The location to which the application relates is (address): Goulters Bay, Kenepuru Sound

Legal description (i.e. Lot 1 DP 1234): Marine farm 8485

(Attach a sketch of the locality and activity points. Describe the location in a manner which will allow it to be readily identified, e.g. house number and street address, Grid Reference, the name of any relevant stream, river, or other water body to which application may relate, proximity to any well known landmark, DP number, Valuation Number, Property Number.)

Please attach a copy of the Certificate of Title that is less than 3 months old (except for coastal or water permits).

The names and addresses of the owner and occupier of the land (other than the applicant):

Please attach the written approval of affected parties/adjoining property owners and occupiers.

Note: As a matter of good practice and courtesy you should consult your neighbours about your proposal. If you have not consulted your neighbours, please give brief reasons on a separate sheet why you have not.

7. Assessment of Effects on the Environment (AEE) *(Attach separate sheet detailing AEE.)*

I attach, in accordance with Schedule Four of the Resource Management Act 1991, an assessment of environmental effects in a level of detail that corresponds with the scale and significance of the effects that the proposed activity may have on the environment. Applications also have to include consideration of the provisions of the Resource Management Act 1991 and other relevant planning documents.

Note: Failure to submit an AEE will result in return of this application.



8. Other Information

Are additional resource consents required in relation to this proposal? If so, please list and indicate if they have been obtained or applied for.

I attach any other information required to be included in the application by the relevant Resource Management Plan, Act or regulations. Yes No

9. Fees

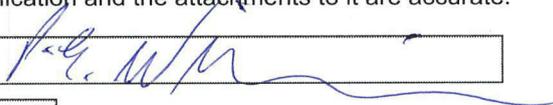
- 1. The applicable lodgement (base) fee is to be paid at the time of lodging this application. If payment is made into Council's bank account 02-0600-0202861-02, please put Applicant Name and either U-number, property number or consent type as a reference. If you require a GST receipt for a bank payment, please tick
- 2. The final cost of processing the application will be based on actual time and costs in accordance with Council's charging policy. If actual costs exceed the lodgement fee an invoice will be issued (if actual costs are less, a refund will be made). Invoices are due for payment on the 20th of the month following invoice date. Council may stop processing an application until an overdue invoice is paid in full. Council charges interest on overdue invoices at 15% per annum from the date of issue to the date of payment. In the event of non-payment, legal and other costs of recovery will also be charged.
- 3. Please make invoice out to: Applicant Agent
(if neither is ticked the invoice will be made out to Applicant)

10. Declaration

I (please print name) Paul Edwin Williams

confirm that the information provided in this application and the attachments to it are accurate.

Signature of applicant or authorised agent:



Date:

24 January 2017

Privacy Information

The information you have provided on this form is required so that your application can be processed and so that statistics can be collected by Council. The information will be stored on a public register and held by Council. Details may be made available to the public about consents that have been applied for and issued by Council. If you would like access to or make corrections to your details, please contact Council.

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1 Executive Summary

The applicant, Alexander Philp Henderson (Philip Henderson) holds marine farm License MFL166 for a 2.5ha marine farm in Goulter Bay, Kenepuru Sound. The location of this marine farm is shown on the map in Appendix 1.

This license has since been deemed a coastal permit by means of legislation. The coastal permit expires on 31 December 2024. The relevant marine farm site number is 8485.

The marine farm is not entirely in its consented position. The existing lines lie up to 110m to the south of the consented position and 32m to the east. The inshore end of the consented position is in very shallow water. It would not be practical to construct marine farming structures there.

It is proposed to shift the eastern two longlines to the western side of the farm to provide a 50m gap to the neighbouring farm 8486 to the east and to formalise this new layout by means of this application for resource consent.

Mr Henderson also wishes to add dredge oysters and pacific oysters to the list of species that can be grown on this farm.

The repositioning of the eastern two lines over to the west side of the farm will improve navigation for small craft between the subject farm and farm 8486 to the east.

The adverse effects of growing pacific and dredge oysters will be less than the effects of farming green mussels that the current coastal permit allows for.

The proposal is in accord with the objectives and policies of the Marlborough Sounds Resource Management Plan.

Overall the proposal meets the purpose of the Resource Management Act as set out in Section 5 - the sustainable management of natural and physical resources.

2 Location

Marine farm 8485 is located half way along the shoreline of Goulter Bay. Goulter Bay is located on the northern side of Kenepuru Sound and to the west of Wataria Bay.

The location is shown on the map in Appendix 1.



3 Receiving Environment

Goulter Bay is very shallow inshore of the existing marine farm. This has clearly been the reason for the farm being located further offshore than the consented position. The farm extends seaward (south) from the authorised space by between 90 and 110m and up to 30m to the east. There currently is a gap of only 35m to marine farm 8486 to the east

Plans showing the location of the existing marine farm surface structures in relation to the authorised space are found in Appendix 2.

A description of the benthic environment under the authorised and currently occupied coastal space is found in Section 4 of the Davidson Environmental Ltd report in Appendix 4.

The subject marine farm is one of nine blocks of marine farm longlines in the Bay.

Immediately adjacent land comprises of a ridge of moderately steep to steep hill country in regenerating native bush and some scattered wildling pines with easy contour alluvial valleys floors in pasture on either side.

The benthic substrate below the existing farm location and also beneath the west side where two longlines are to be relocated, comprises predominantly of marine mud inhabited by species that are common and unlikely to be significantly adversely affected by marine farming activities.

The benthic environment below the existing marine farm and within approximately 10m of its existing boundaries has been modified by the activities of the marine farm. The main modifications to the seabed are:

- (a) Sedimentation of organic-rich fine-grained particles, primarily from faeces or pseudo-faeces deposited by shellfish growing on the marine farm.
- (b) Deposition and accumulation of live shellfish, shell litter and other biota that has been dislodged from the marine farm ropes and buoys for various reasons.
- (c) Marine farm anchor blocks located on the seabed, including seaweed and other aquatic organisms that have attached to the hard substrate of the anchors.

4 Statutory Acknowledgements

Statutory acknowledgements are set out in the document *Te Tau Ihu – Statutory Acknowledgements 2014* which is an attachment to the Marlborough Sounds Resource Management Plan.



All of the Te Tau Ihu iwi have associations with the coastal environment in the Marlborough Sounds.

Ngati Kuia note specific association with Te Hoirere (Pelorus Sound) and its associated waterways. The area is wahi tapu to Ngati Kuia and a core part of their cultural identity. Ngati Kuia are identified as tangata whenua in this area which features prominently in their history and culture and has provided physical and cultural sustenance to them since first discovered and settled. Goulter Bay is specifically noted in the statutory acknowledgement document as a place of residence and cultivation for Ngati Kuia.

5 Consent Background

The marine farm is held under Marine Farm Licence (MFL) 166. This farm occupies 2.5ha. MFL166 was issued to the original consent holder in May 1981 under the Marine Farming Act 1971.

In terms of Sections 20(3) and 21(3) of the Aquaculture Reform (Repeals and Transitions Provisions) Act 2004, MFL166 was deemed to be a coastal permit and the conditions reviewed to be consistent with the Resource Management Act 1991. This deemed coastal permit was granted in August 2006. The marine farm site number is 8485.

The coastal permit is for standard long-line structures comprising of double surface rope backbones suspended on laterally placed polyethylene buoys. Subsurface culture structures provided for by this permit includes rope droppers. The specie that currently can be farmed under the coastal permit is green mussels (*Perna canaliculus*).

The coastal permit expires on 31 December 2024.

The marine farm was identified by Council as not being exactly within the co-ordinates of the consented space. Many early marine farms were not accurately positioned when established. Section 53 of the Aquaculture (Appeals and Transitional Provisions) Act 2004 provided for application for the authorised space of a marine farm to reflect the actual space occupied by surface structures. Application under this provision was made to Council in May 2012. In order to achieve a 50m spacing to farm 8486 to the east it was necessary to shift the eastern two lines of the subject farm to the west side. The plans prepared for the applicant at that time, incorrectly showed the position of the farm to the west (8484) as being too close to allow this to occur. Due to this impasse, the application under s53 was eventually not proceeded with and the farm remained in its current position.

It has now come to the attention of the applicant that the plans prepared in May 2012 did not show the correct position and orientation of the lines on farm 8484 to the west. Those lines, as can be seen in the aerial photograph in Appendix 2, are entirely within their consented space and it is in fact entirely feasible to shift the



two longlines on the eastern side of the subject farm to the west side and still achieve the required accessways between the subject farm and both farm 8484 to the west and 8486 to the east.

6 Proposal Detail

6.1 Location of Marine Farm

Due to legal timeframe restrictions for lodging applications, Section 53 of the Aquaculture (Appeals and Transitional Provisions) Act 2004 is no longer available to validate the position of incorrectly located marine farms. This application therefore is to validate the farm in the position shown in the plans in Appendix 2 as a standard resource consent application.

The eastern 2 longlines are proposed to be repositioned to the west side of the farm. This will provide a 50m gap between the surface structures on the subject farm (8485) and the next farm to the east 8486 and a 62m gap to farm 8486 to the west.

The anchors at the southern end of the farm will be located up to 330m from mean low water springs.

The number of longlines proposed to be authorised by this consent will remain as currently consented at up to 9 lines at 100m long each and the area of the consented marine farm site will remain at 2.5ha.

6.2 Inclusion of Oysters

This application is also to allow for the farming of pacific oysters (*Crassostrea gigas*) and dredge oysters (*Ostrea chilensis* also know as *Tiostrea chilensis* or *Tiostrea lutaria*) in addition to green mussels that the current coastal permit authorises to be farmed.

As with green mussels, pacific and dredge oysters are bivalve filter-feeders that feed primarily on phytoplankton.

Most farmed pacific oysters are grown on intertidal racks in New Zealand. This proposal however is to grow them in a sub-tidal culture predominantly on dropper ropes suspended from the existing double backbone surface long-lines.

Pacific oysters may also temporarily be grown on trays or baskets at certain times of their growth cycle. The trays or baskets will also be suspended on the existing double backbone surface long-lines. A pod of trays will consist of 5 trays of 1m x1m stacked 300mm apart vertically and hung to a maximum depth of 4m. The baskets will be 2m wide at 500mm centres and hung to a depth of 5m. A diagram showing the trays and baskets is found in Appendix 3. Trays and baskets used for aquaculture in this way are referred to as sea cages.



7 Activity Status

7.1 Resource Management Act

Section 12 (1)(b) of the Resource Management Act 1991 (the Act) states that (paraphrased): no person may, in the coastal marine area, erect reconstruct, place, alter, extend, remove or demolish any structure or any part of a structure that is fixed in, on, under or over any foreshore or seabed unless expressly allowed by a rule in a regional coastal plan or by resource consent.

Section 12(3) of the Act states that (paraphrased): no person may carry out an activity in, on, or over any coastal marine area, or in relation to any natural and physical resources contained within a coastal marine area, in manner that contravenes a rule in a regional coastal plan unless the activity is expressly allowed by resource consent.

7.2 Marlborough Sounds Resource Management Plan

The marine farm is located within Coastal Marine Zone Two under the Marlborough Sounds Resource Management Plan (the Plan).

Rule 35.2.5 of the Plan provides for replacement coastal permits for currently authorised marine farms as controlled activities, subject to standards listed in 35.2.5.1.

As this application includes species that were not previously approved, that component of the application is a discretionary activity in accordance with Rule 35.4.

Rule 35.4.2.9(b) requires that no part of any farm shall be located further than 200 metres from mean low water mark. As the southern anchors will be located up to 330m from mean low water springs tide mark, the proposal is a non-complying activity in accordance with Rule 35.5.

7.3 Marlborough Environment Plan (MEP)

Currently the proposed Marlborough Environment Plan does not contain provisions controlling marine farming. Marine farming remains controlled by rules in the Marlborough Sounds Resource Management Plan.



8 Assessment

An overview analysis of the requirements of Schedule 4 of the Act is found in Appendix 5.

8.1 Actual & Potential Effects

Effects on Neighbourhood, Community

The Harbour Master requires a minimum navigable gap for small craft of 50m between marine farm surface structures. The re-positioning of the two eastern lines to the west side of the farm will provide a 50m gap to farm 8484 to the east. A 62m gap will be provided to farm 8486 to the west. This will be ample room for small craft to navigate through and an improvement to the current situation.

While the location of the southern anchors will be beyond 200m from the shore they will be at the same distance from the shore to the existing lines and in a similar location as the outer structures of the adjacent marine farms.

As the oysters will be grown on structures suspended from the longline backbones, there will be no adverse effects on public access or navigational safety that cannot already occur with the existing consented marine farm.

Effects on the Locality, Landscape, Visual

The re-positioning of the two eastern lines to the west side of the farm will have no additional visual effect or effect on the local landscape. In terms of the offshore position of the farm, it has been in that location for many years now and an accepted part of the local environment.

The rope droppers used to farm the pacific and dredge oysters will have visual effects similar to the farming of green mussels. The droppers are not visible until the observer is close to the lines.

As the cages will also be suspended below the surface of the water, they will not be visible until the observer is close to the lines.

Due to the lesser stocking rate of the oysters as compared to mussels, less floats will need to be used to support the oysters and their culture structures.

Overall there will therefore be less visual effects with the farming of oysters as opposed to green mussels.



Effects on Ecosystems

The effects of leaving the marine farm in its current position are evaluated in Clause 5.3 of the Davidson Environmental report in Appendix 4 and can be summarised as follows:

The habitat under the existing offshore parts of the marine farm that are not within the authorised area are characterised by soft substratum considered suitable for marine farming activities in Marlborough. The substratum observed under the inshore part of the consent is also composed of silt and clay, however, this inshore area also supports cobbles, a substratum usually avoided. Moving structures inshore would relocate an impact into the non-impacted inshore area. It is therefore recommended that structures be left in their present position.

A review of the ecological effects of farming shellfish was undertaken by Cawthron Institute¹ in August 2009. A copy of the complete document can be found online. Sections 4.1 to 4.3.2 are relevant to this proposal and are summarised below.

It was noted that filter feeding bivalves whether they are green mussels, dredge oysters, scallops or pacific oysters, all obtain their food by filtering suspended organic particles from the water column. All process this food matter and release both faeces and also undigested material called pseudo-faeces which are heavier than water and therefore sink to the seabed.

The potential for localised phytoplankton depletion is dependent on the clearance rate for a given species and the densities at which they are farmed. The potential for organic enrichment of benthic habitats below a marine farm is dependent on the rate of processing of the food and subsequent deposition on the sea floor.

In a study of the relative potential effects of the main farmed bivalve species, the key result was that mussels generally appear to exhibit the highest clearance and excretion rates of the bi-valves considered. Similarly bio-deposition intensity greater than 400g/day/1000 individuals occurred most frequently in mussels (40%) followed by scallops (33%), cupped oysters (29%), flat oysters (11%) and clams/cockles (6%). Note that flat oysters are also variously known as dredge or Bluff oysters.

The study overall indicated that the substitution of green mussels with any other alternate species was unlikely to increase either the clearance rate of food from the water column or the deposition of organic material on the seafloor. The study concluded that other bivalve species such as scallops, oysters and cockles may be cultured at stocking densities equivalent to those used for mussels without posing additional risk to the marine environment.

¹ Review of the Ecological Effects of Farming Shellfish and Other Non-Shellfish Species in New Zealand – Cawthron Institute Report No. 1476 – August 2009.



While pacific oysters were not included in this particular study it is unlikely that a significantly different result for that species would result given the range and type of species that were included in the study. In any event, the stocking rate proposed in this application for both dredge and pacific oysters is approximately 30% of green mussels. It follows therefore that the effects of food depletion of the water column and deposition of faecal matter on the seabed will be less than for green mussels.

Effects on Aesthetic, Recreational, Scientific, Historical, Spiritual, or Cultural Values

There are no known aesthetic or scientific values on this site or on the adjacent land. Goulter Bay is noted by Ngati Kuia in the document *Te Tau Ihu – Statutory Acknowledgements 2014* as historically being a place of residence and cultivation. It is not considered that this proposal will result in any adverse effects on those historic associations with the land to any greater extent than the existing farm poses.

Effects of Discharge of Contaminants

There will be no discharge of contaminants associated with this proposal.

Risk Through Natural Hazards, Hazardous Substances, Hazardous Installations

No hazardous substances or hazardous installations are involved.

8.2 Objectives & Policies – Marlborough Sounds Resource Management Plan

The site is zoned *Coastal Marine 2* in the Plan. That is a zone where applications for marine farms can be considered. The suitability of the Goulter Bay and the wider Kenepuru Sound for marine farming is evidenced by the number of farms in this area.

Natural Character

Chapter 2, Volume 1 of the Plan deals with issues relating to natural character.

Policy 1.1 is to: *Avoid the adverse effects of subdivision, use or development within those areas of the coastal environment and freshwater bodies which are predominantly in their natural state and have natural character which has not been compromised.*

Policy 1.2 is: *Appropriate use and development will be encouraged in areas where the natural character of the coastal environment has already been compromised, and where the adverse effects of such activities can be avoided, remedied or mitigated.*

Comment: Taken together it is clear that the policy direction of the Plan is for development to occur in areas where natural character has already been compromised. The coastal environment at this locality is not



predominantly in its natural state with numerous marine farms, regenerating native bush, scattered wildling and alluvial valleys floors in pasture. This proposal does not introduce any new physical elements into this environment.

Landscape

Policy 1.1 is to: *Avoid, remedy and mitigate adverse effects of subdivision, use and development, including activities and structures, on the visual quality of outstanding natural features and landscapes, identified according to criteria in Appendix One.*

Comment: The western head of Goulter Bay at Poison Point is mapped in the Plan as having outstanding landscape values. Poison Point is located some 750m south-west of the subject farm. Given the distance to Point and the limited visual changes that will result to the existing farm, the farm will not result in any significant visual impacts that may impact on the outstanding landscape values of the Point or the landscape of the area in a general sense.

Coastal Marine

Policy 1.1 is to: *Avoid, remedy and mitigate the adverse effects of use and development of resources in the coastal marine area on any of the following:*

- a) Conservation and ecological values;*
- b) Cultural and iwi values;*
- c) Heritage and amenity values;*
- d) Landscape, seascape and aesthetic values;*
- e) Marine habitats and sustainability;*
- f) Natural character of the coastal environment;*
- g) Navigational safety;*
- h) Other activities, including those on land;*
- i) Public access to and along the coast;*
- j) Public health and safety;*
- k) Recreation values; and*
- l) Water quality.*

Comment:

Policy 1.1 should be read against the tacit acceptance for marine farming in this Bay as evidenced by the CMZ2 zoning. Absolute avoidance or mitigation of effects is not required, clearly a scale of effects is anticipated. Some activities would have greater effects and some landscapes or areas of natural character for example would have much higher values than others. Avoidance of effects would obviously be required where there were significant adverse effects on areas with high values.

In this case the adverse effects of the changes to the existing marine farm on the matters listed will be minor.



8.3 Regional Policy Statement

I have reviewed the application against the provisions of the Marlborough Regional Policy Statement (RPS). There are no matters in that document that have not already been covered by analysis of the relevant objectives and policies of the Plan.

8.4 New Zealand Coastal Policy Statement

The New Zealand Coastal Policy Statement 2010 (NZCPS) sets out objectives and policies to provide guidance on a national scale on how to achieve the purpose of the Act in respect to the coastal environment. They are principally guidance to regional Councils for their regional coastal plans. I have reviewed the application against the NZCP. Most of the relevant matters are covered by the objectives and policies of the Marlborough Sounds Resource Management Plan.

Policy 8 of the NZCPS is specific policy on aquaculture. It recognises the significant potential of aquaculture on the social, economic and cultural well-being of people and communities.

8.5 Other Relevant Statutory Provisions and Documents

There are no relevant National Environment Standards or other statutory matters that require consideration.

9 Potentially Adversely Affected Persons & Consultation

The farm has been in the current offshore position for many years now. There have been no known complaints regarding its current position. Council had however previously noted that the structures were not within its consented position.

The repositioning of the eastern two lines to the west side of the subject farm will improve access between it and farm 8484, thus a positive effect will accrue to others who utilise the Bay.

The adverse effects of growing dredge and pacific oysters on this farm will be less than the effects of growing green mussels.

It is therefore considered that there are no potentially adversely affected parties to this proposal and no consultation therefore has been undertaken.



10 Conclusions

The application is to reposition two lines of the existing marine farm 8485 to achieve required separation distances to adjacent marine farms. The application is also to validate that changed layout and the existing location from the shore and to include the farming of dredge and pacific oysters in the species able to be farmed.

The adverse effects of this proposal will be minor and will bring the farm into conformity with standards in the Marlborough Sounds Resource Management Plan.

The proposal is not contrary to relevant objectives and policies of the Marlborough Sounds Resource Management Plan or any other statutory documents.

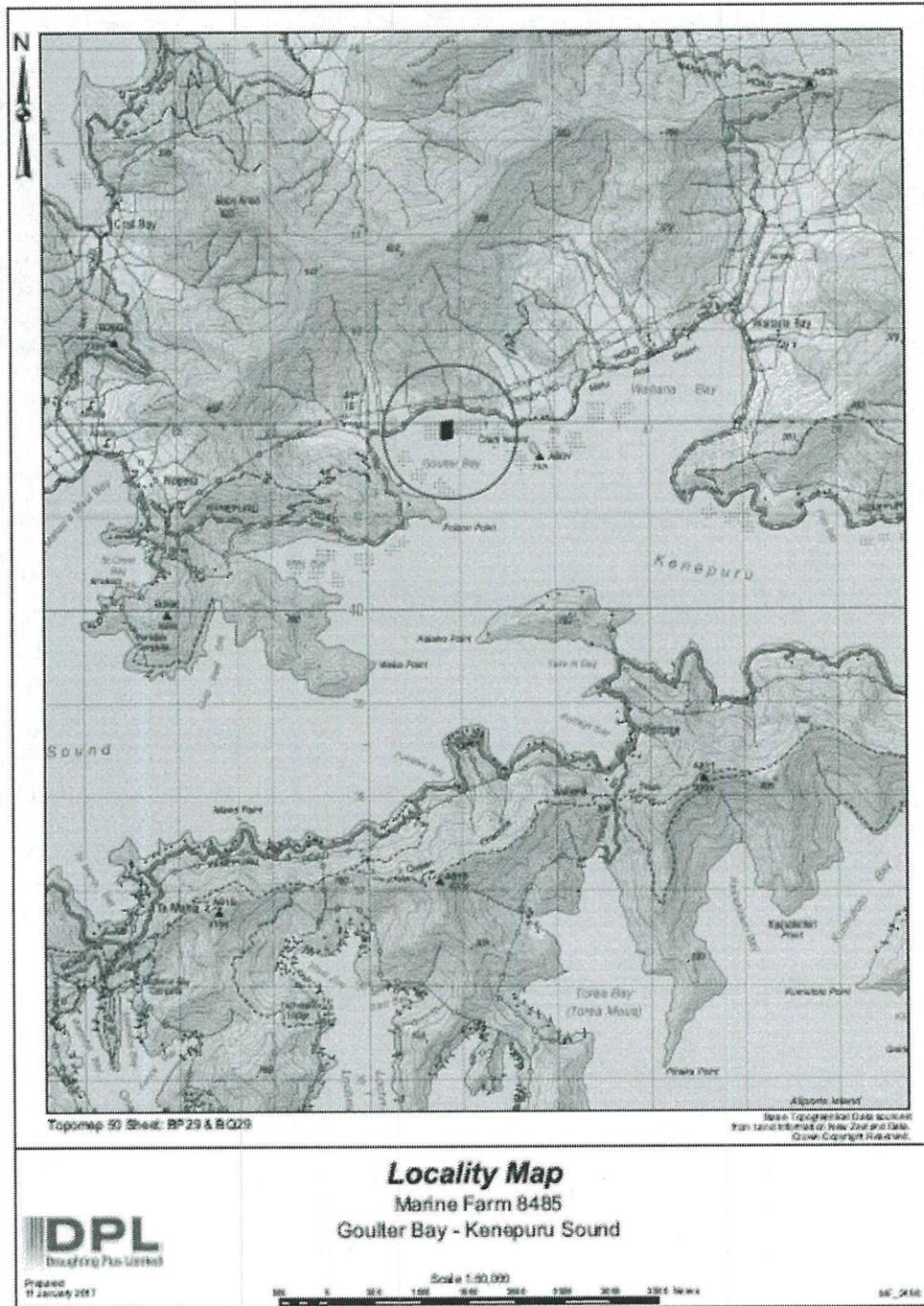
It is therefore requested that resource consent be granted to this application.

Paul Williams
Resource Management Consultant

January 2017



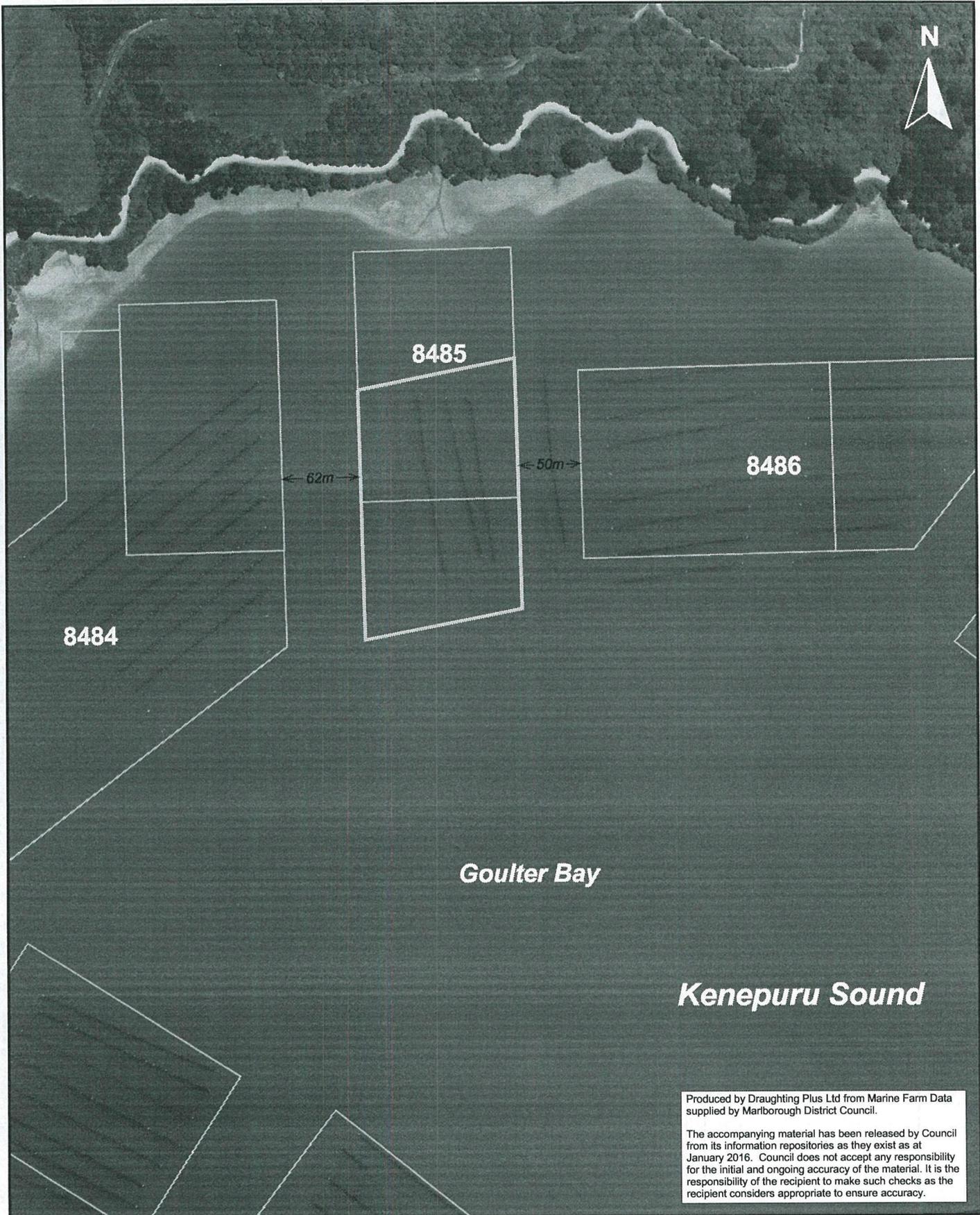
Appendix 1 – Location



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Appendix 2 – Plans

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Produced by Draughting Plus Ltd from Marine Farm Data supplied by Marlborough District Council.

The accompanying material has been released by Council from its information repositories as they exist as at January 2016. Council does not accept any responsibility for the initial and ongoing accuracy of the material. It is the responsibility of the recipient to make such checks as the recipient considers appropriate to ensure accuracy.

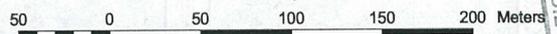
REFERENCE

-  Existing Marine Farm
-  Proposed New Position of Marine Farm 8485



Marine Farm 8485
Goulter Bay - Pelorus Sound
Aerial Overlay

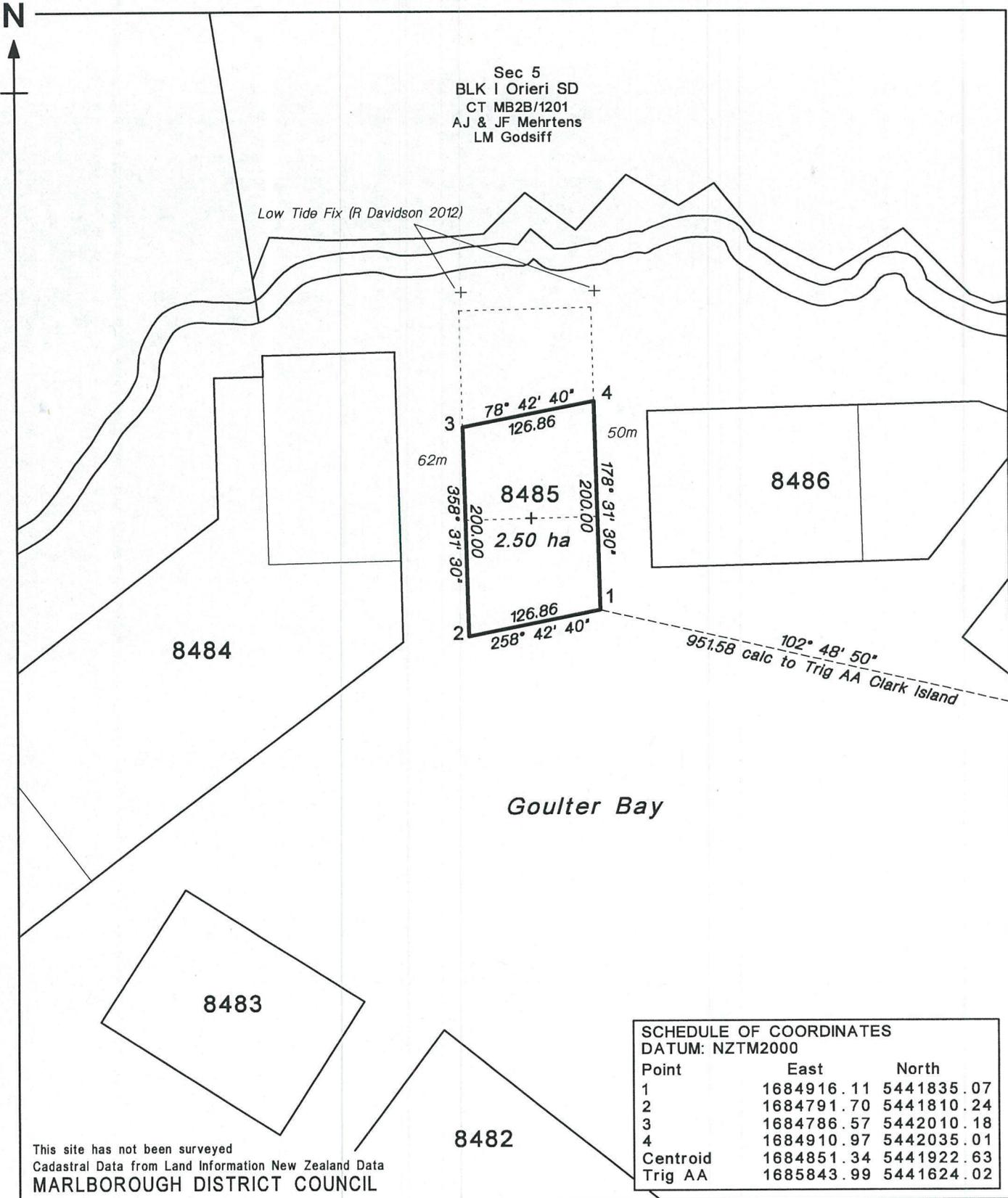
Scale 1:4,000



Aerial Photo image from MDC GIS dated 2012

12 January 2017

MARLBOROUGH DISTRICT COUNCIL
 21 JAN 2017



This site has not been surveyed
Cadastral Data from Land Information New Zealand Data
MARLBOROUGH DISTRICT COUNCIL

Proposed Coastal Permit

Re-positioning of Marine Farm Site 8485

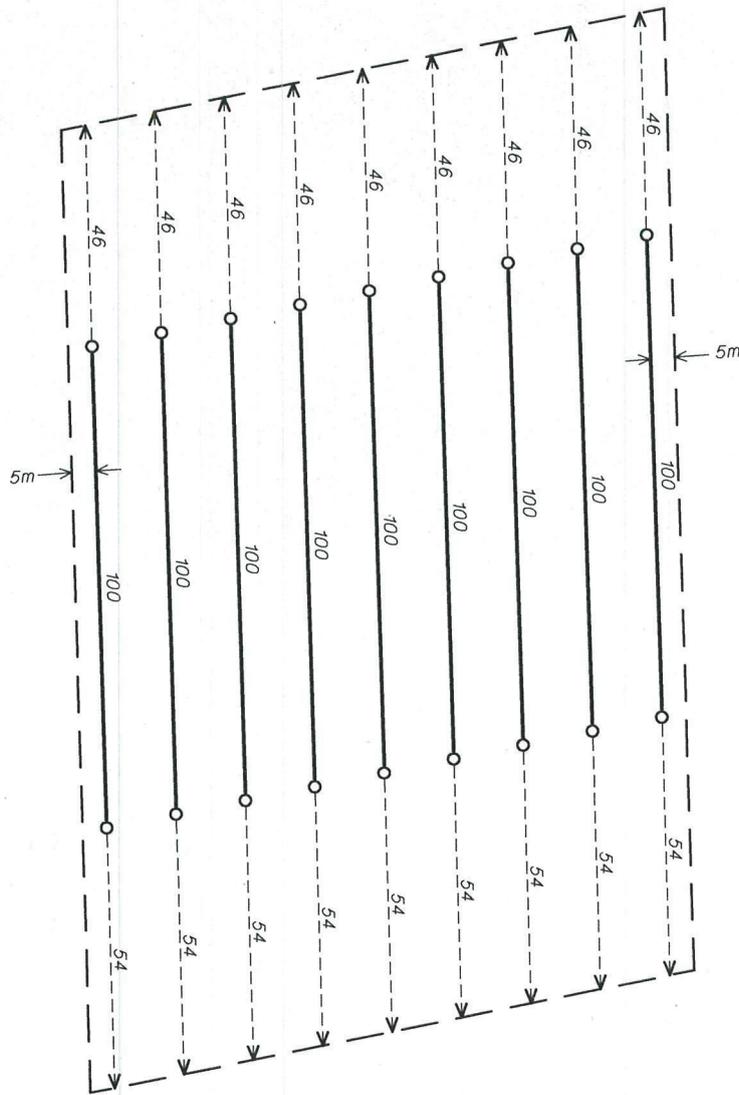
AP Henderson

SCALE 1:5,000



Prepared by
Draughting Plus Ltd
11 Jan 2017





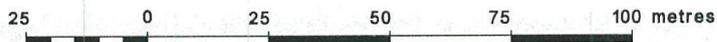
Goulter Bay

- ∧ Anchor
- Orange Float
- Backbone
- - - - Anchor Warp

Longline Spacing = 14.4m
Total Longlines = 9
Backbone Length = 100m
Total Backbone Length = 900m
Warp Surface Loss = as shown

**Structure Layout
Marine Farm Site 8485**

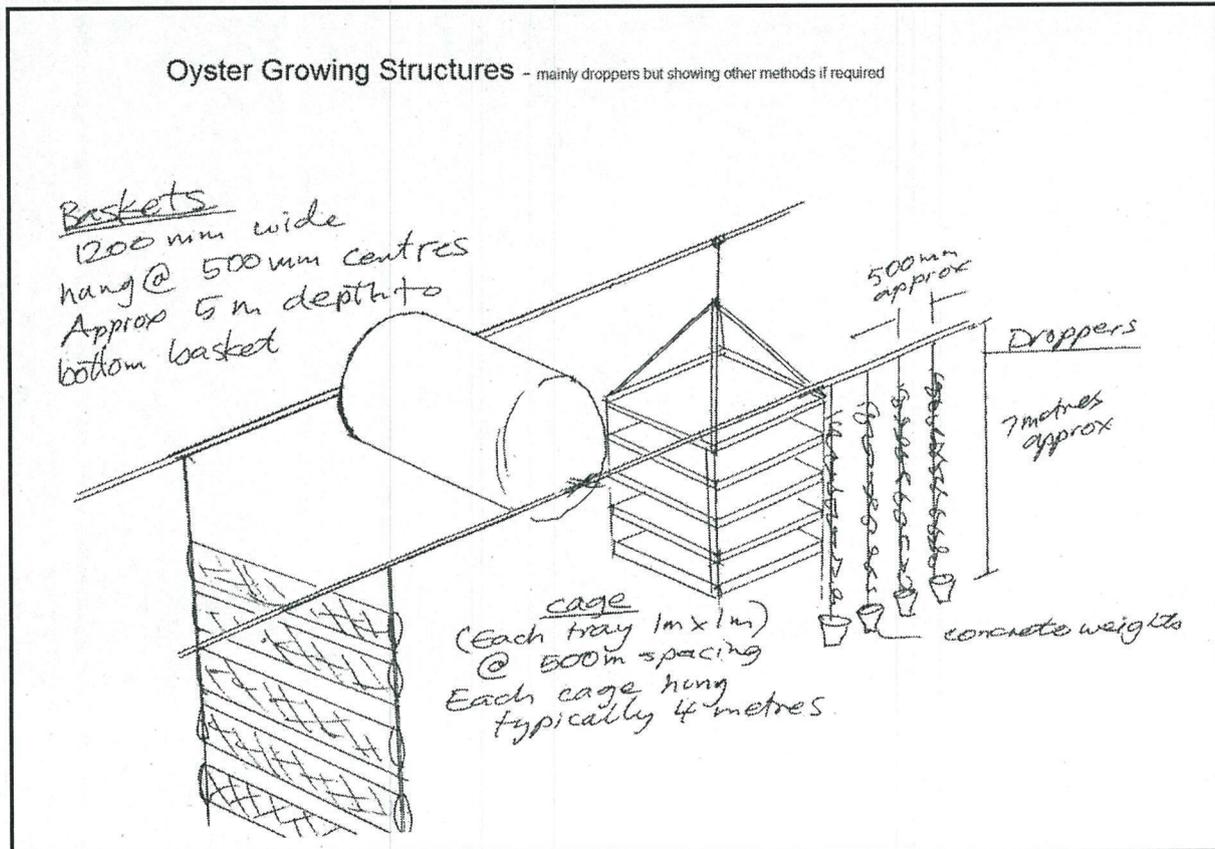
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Prepared by
DRAUGHTING PLUS LIMITED
11 January 2017

MF_2498

Appendix 3 – Diagram of Typical Structures for Growing Oysters



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Appendix 4 - Benthic Report

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Davidson Environmental Limited

Ecological report for the
proposed revalidation of
marine farm site 8485 located
in Goulter Bay, Kenepuru
Sound

Research, survey and monitoring report number 729

*A report prepared for:
Aotearoa Seafoods Ltd.
C/o RMco Ltd.
P.O. Box 820
Blenheim*

May 2012

Bibliographic reference:

Davidson, R.J.; Richards, L.A.; Bodin G.S. 2012. Ecological report for the proposed revalidation of marine farm site 8485 located in Goulter Bay, Kenepuru Sound. Prepared by Davidson Environmental Ltd. for Aotearoa Seafoods Ltd. Survey and monitoring report no. 729.

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Specialists in research, survey and monitoring

1.0 Introduction

The aim of the present study was to provide benthic biological information in relation to a proposed revalidation of a partially offshore marine farm. At present some farm structures are located offshore and partially to the east of the existing 2.5 ha consent (8485). The farm owner proposes to revalidate the site further from shore and eastward in order that the new consent boundary would fit the location of existing farm structures rather than move the structures to an inshore non-impacted part of the consent.

The farm is located along the northern coastline of Goulter Bay, Kenepuru Sound (Plates 1, 2a and 2b). The present surface structure area consists of one block of backbones comprising a 1.8 ha. The report was commissioned by Paul Williams on behalf of the farm owner, Aotearoa Seafoods Ltd.

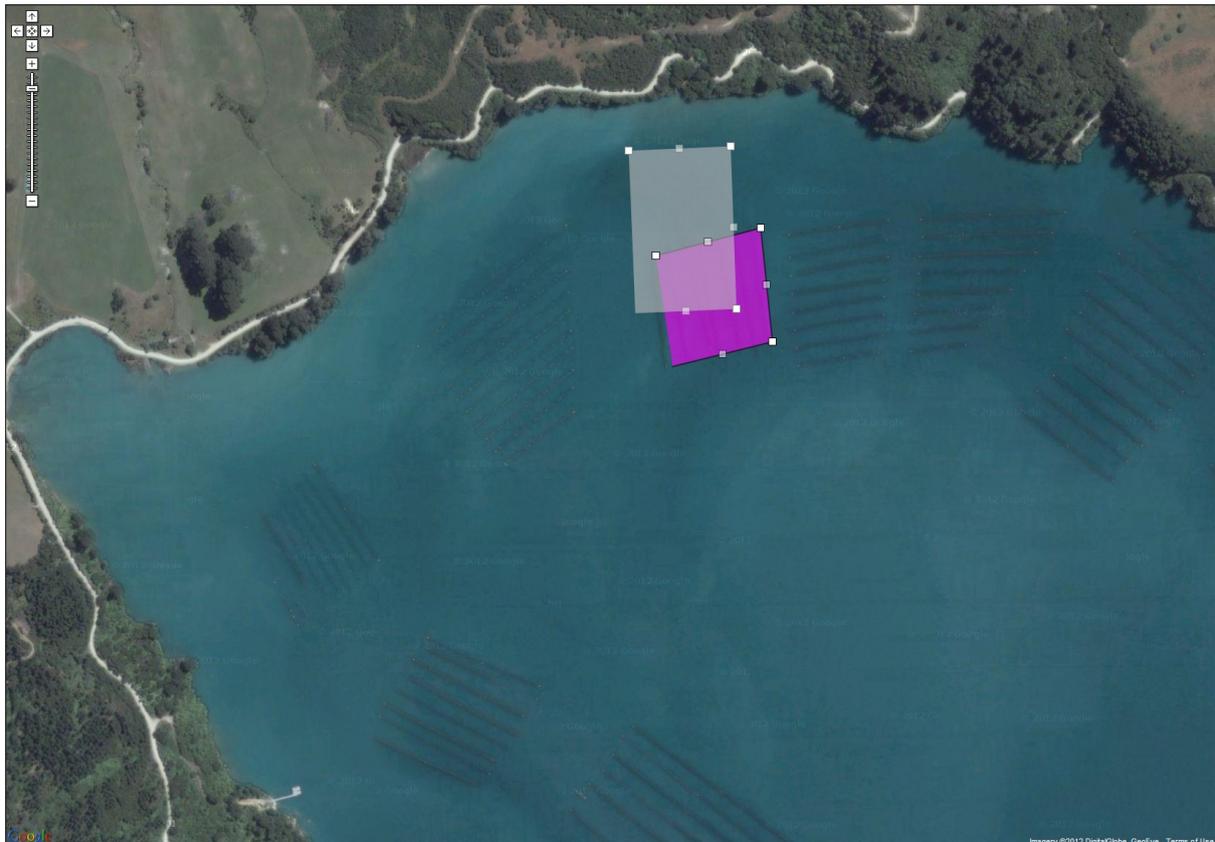


Plate 1. Marine farm consent (grey) and surface structures (pink) in Goulter Bay.



Plate 2a. Marine farm site 8485 taken near the inshore, western consent corner looking southward along the backbone lines.



Plate 2b. Marine farm site 8485 taken near the inshore eastern consent corner looking south-westward along into the consent



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2.0 Background information

2.1 Study area

Marine farm 8485 is located along the northern coastline of Goulter Bay, Kenepuru Sound (Plates 1, 2a and 2b). Goulter Bay is located on the northern side of Kenepuru Sound, approximately 28 km by sea from Havelock. Goulter Bay has a coastline length of approximately 3100 m and covers an area of sea of approximately 102 ha. The Bay is approximately 1200 m wide.

2.2 Historical reports

No historical reports in relation to marine farm 8485 were found during a literature search.

3.0 Methods

The site was sampled on 10th April 2012. Prior to fieldwork, the consent corners were plotted onto mapping software (TUMONZ Professional 6.1). The laptop running the mapping software was linked to a Lowrance LC X-15_{MT} GPS receiver allowing real-time plotting of the corners of marine farm surface structures and to pinpoint drop camera stations in the field. This GPS system has a maximum error of +/- 5 m.

The corners of the existing marine farm surface structures were surveyed by positioning the survey vessel immediately adjacent to the corner floats and the position plotted. It should be noted that surface structures can move due to environmental variables such as tidal current and wind. The plot of surface structures is variable from day to day and over the duration of tidal cycles. These data should not therefore be regarded as a precise measurement of the position of surface structures, but rather an approximate position.

The GPS position of low water mark was also plotted at a number of locations along the shore adjacent to the consent. The low tide mark was determined using a number of species that define the transition between intertidal and subtidal environments.

3.1 Drop camera stations and site depths

A total of 14 drop camera photographs were collected during the present study. Six were collected from the inshore part of the consent not presently occupied by farm structures, one from the western consent also not occupied by structures. The remaining seven photographs were collected from the offshore area presently occupied by structures but located outside the consent. At each site, a Sea Viewer underwater splash camera fixed to an aluminium frame was lowered to the benthos and an oblique still photograph was collected where the frame landed.

The cover of mussel shell debris from drop camera photographs were ranked as: None = no mussel shell debris, Low = 1-30%, Moderate = 31-50%, Moderate to High = 51-75%, and High = 76-100% cover. This assessment is displayed in Table 2 of the present report.

Photograph station locations were selected in an effort to obtain representative photo images from inshore and offshore areas and to determine the level of mussel shell debris. Additional photographs were taken when any features of particular interest (e.g. shell debris, reef structures, cobbles) were observed on the remote monitor on-board the survey vessel. All photographs collected during the survey have been included in Appendix 1.

3.2 Sonar imaging

Sonar investigations of the extension and parent farm were conducted using a Lowrance HDS-10 linked with a Lowrance StructureScan™ Sonar Imaging LSS-1 Module. This unit provides right and left side imaging as well as DownScan Imaging™. Prior to the collection of photographs, the boundaries of the consent and the proposed extension as well as the marine farm surface structure boundaries were investigated using the sonar. Any bottom abnormalities such as reefs, hard substrata or abrupt changes in depth were noted for latter inspection using the drop camera (see section 3.1).

4.0 Results

4.1 Structure corners in relation to the consent and low tide

The consent area (grey), and areas occupied by surface structures (pink) have been plotted in Figure 1. Depths and locations of all drop camera stations have been listed in Table 2 and plotted in Figure 2.

Inshore corner depths of the existing consent ranged from 0.5 m to 0.7 m, while marine inshore farm structures ranged from 3.3 m to 3.8 m depth. Offshore consent corners were 4.1 m and 4.2 m, while offshore structure depths were 4.7 m and 4.9 m (Table 1, Figure 1). A large number of marine farm surface structures were located offshore and also east of the consent area (Figure 1).

The distance between low water and the consent ranged from 16 m to 18 m distance (Figure 1).

Table 1. Depths recorded from the corners of the mussel farming surface structures and the existing consent corners. Depths adjusted to datum. Coordinates = NZTM (Northing/Easting).

| Type | No. & Depth (m) | Coordinates |
|-------------------------|-----------------|---------------------|
| Low tide | | 1684912.1,5442139.8 |
| Low tide | | 1684785.7,5442138.8 |
| Structure corner | 4.9m | 1684957.1,5441883.3 |
| Structure corner | 4.7m | 1684834.2,5441854.2 |
| Structure corner | 3.8m | 1684815.1,5441991.0 |
| Structure corner | 3.3m | 1684944.7,5442023.0 |
| Original consent corner | 1, 0.7m | 1684783.9,5442120.7 |
| Original consent corner | 2, 0.5m | 1684908.7,5442123.8 |
| Original consent corner | 3, 4.1m | 1684913.9,5441924.0 |
| Original consent corner | 4, 4.2m | 1684789.0,5441920.7 |



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4.2 Substratum and mussel debris

Substratum and habitat distribution relative to the original consent area and the proposed revalidated offshore area were based on drop camera images and sonar investigations (Table 2, Appendix 1).

The benthos throughout the offshore proposed revalidated area was dominated by silt and clay (Photos 8 - 14). Under and adjacent to offshore droppers, mussel debris was recorded at none to low levels (e.g. Photo 14) (Table 2). No hard substratum such as cobbles or bedrock was observed within the proposed offshore revalidated consent area.

The substratum observed from the inshore area of the existing consent and the western area, not presently occupied by structures, were dominated by silt and clay (Photos 1-7). Hard substratum in the form of cobbles was observed in this inshore consent area (photos 3, 4, 5 and 7). No mussel debris was observed in this inshore area.

Table 2. Coordinates of drop camera stations showing depths, substratum and level of mussel shell debris. Depths adjusted to datum. Pink = under backbone growing structures (inside or outside consent), Grey = in consent, not under backbone growing structures but can be around warps, Blue = outside of consent. Mussel shell debris in photos ranked as: None = no mussel shell debris, Low = 1-30%, Moderate = 31-50%, Moderate to High = 51-75%, and High = 76-100% cover.

| No. & Depth (m) | Coordinates | Location | Substratum | Shell debris |
|-----------------|---------------------|-----------------------------------|------------------------------|--------------|
| 1, 3m | 1684798.1,5442035.7 | In consent, inshore of structures | Silt and clay | None |
| 2, 2.8m | 1684863.4,5442056.7 | In consent, inshore of structures | Silt and clay | None |
| 3, 1.4m | 1684893.8,5442071.6 | In consent, inshore of structures | Cobles, silt and clay | None |
| 4, 1.1m | 1684799.7,5442098.1 | In consent, inshore of structures | Cobles, silt and clay | None |
| 5, 1.4m | 1684840.7,5442100.4 | In consent, inshore of structures | Cobles, silt and clay | None |
| 6, 1.2m | 1684892.5,5442093.9 | In consent, inshore of structures | Pebbles, silt and clay | None |
| 7, 4.1m | 1684809.6,5441933.8 | In consent, west of structures | Silt and clay | None |
| 8, 4.4m | 1684850.4,5441869.1 | Under backbones, outside consent | Silt and clay, mussel debris | Low |
| 9, 4.2m | 1684874.6,5441909.5 | Under backbones, outside consent | Silt and clay | None |
| 10, 4.1m | 1684895.8,5441923.3 | Under backbones, outside consent | Silt and clay | None |
| 11, 4.5m | 1684906.8,5441870.0 | Under backbones, outside consent | Silt and clay, mussel debris | Low |
| 12, 4.5m | 1684946.9,5441891.0 | Under backbones, outside consent | Silt and clay, mussel debris | Low |
| 13, 4m | 1684940.8,5441967.3 | Under backbones, outside consent | Silt and clay, mussel debris | Low |
| 14, 3.2m | 1684934.0,5442013.9 | Under backbones, outside consent | Silt and clay, mussel debris | Low |

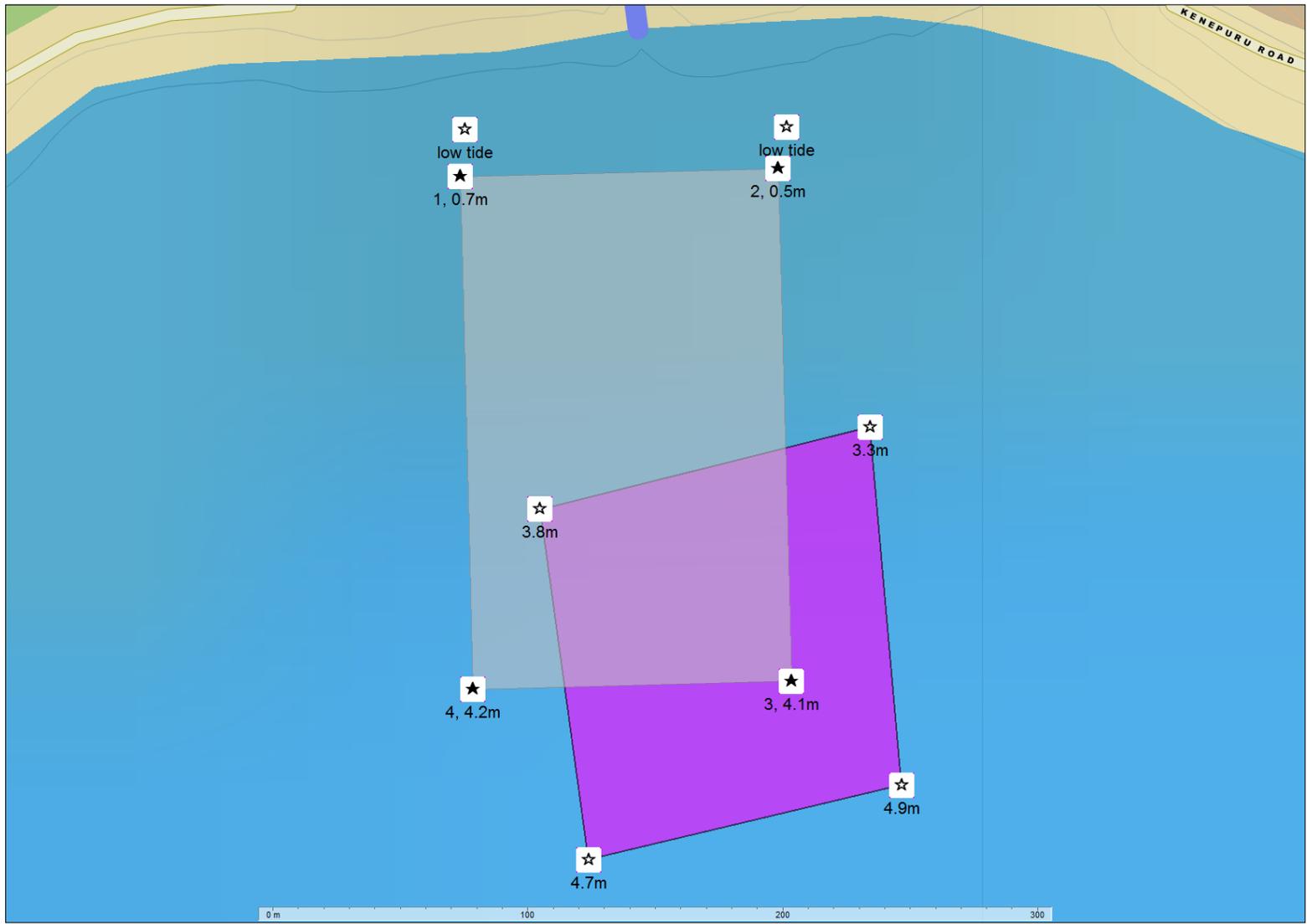


Figure 1. The existing consent consent area (grey), and location of surface structures (pink).

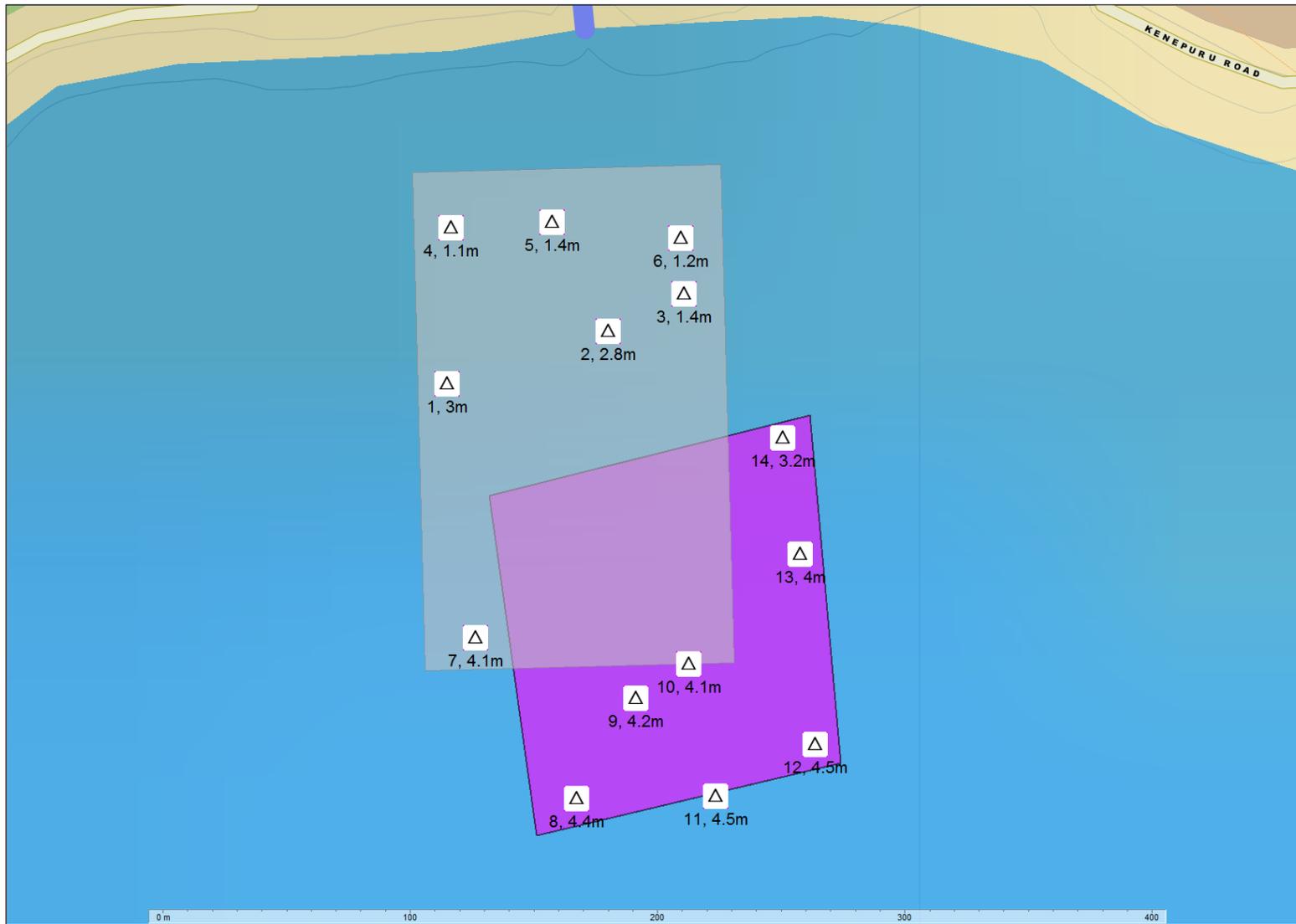


Figure 2. Location of consent area (grey) and surface structures (pink). Triangles are locations of drop camera stations; numbers are the photo number and water depth (m).

5.0 Summary and conclusions

5.1 Benthos

The benthos under the existing offshore area proposed for revalidation was dominated by silt and clay substrata. The offshore area under droppers has been impacted to a relatively low level by mussel farming activities. The benthos under the inshore part of the consent not presently occupied by structures also supported silt and clay substratum with no impact from mussel farming activities. Cobble and pebble substrata were observed in the inshore area.

No species, habitats or communities of high scientific, conservation or ecological importance were observed from inshore of offshore areas during the present study. Further, no “significant” areas are recognised within or close to the proposed revalidated area (see Davidson et al. 2011 for significant areas).

5.2 Impact

Mussel shell debris on the benthos around offshore backbone structures was observed at none to relatively low levels. This is consistent with shallow marine farm sites in the Sounds.

5.3 Boundary adjustments, revalidation and monitoring

The habitats located under the proposed offshore revalidated area were characterised by soft substratum considered suitable for consideration for marine farming activities in Marlborough. The substratum observed under the inshore part of the consent is also composed of silt and clay, however, this inshore area also supported cobbles, a substratum usually avoided. Moving structures inshore would relocate an impact into the non-impacted inshore area. It is therefore recommended that structures be left in their present position. Based on the level of impact observed and the lack of any biological features of particular importance, there appears no need to monitor the impact of the marine farm on the benthos.

References

Davidson R. J.; Duffy C.A.J.; Gaze P.; Baxter, A.; DuFresne S.; Courtney S.; Hamill P. 2011. Ecologically significant marine sites in Marlborough, New Zealand. Co-ordinated by Davidson Environmental Limited for Marlborough District Council and Department of Conservation.

Appendix 1. Drop camera photographs

Photo site 1



Photo site 2



Photo site 3

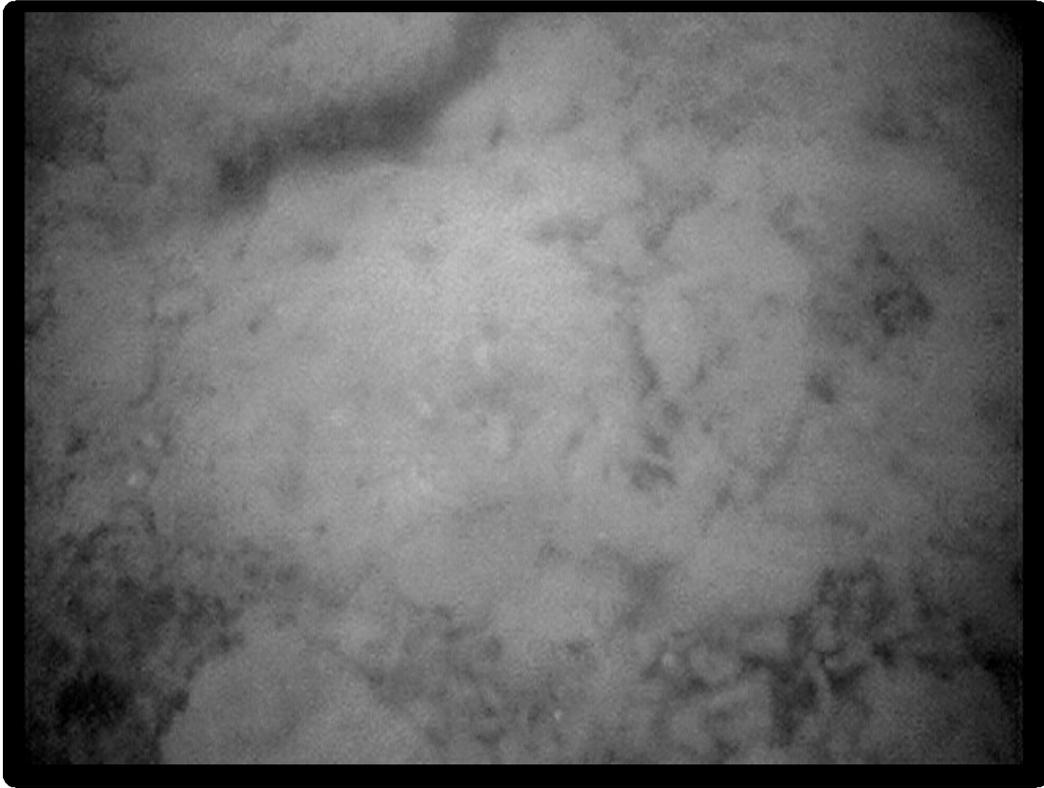


Photo site 4



Photo site 5



Photo site 6

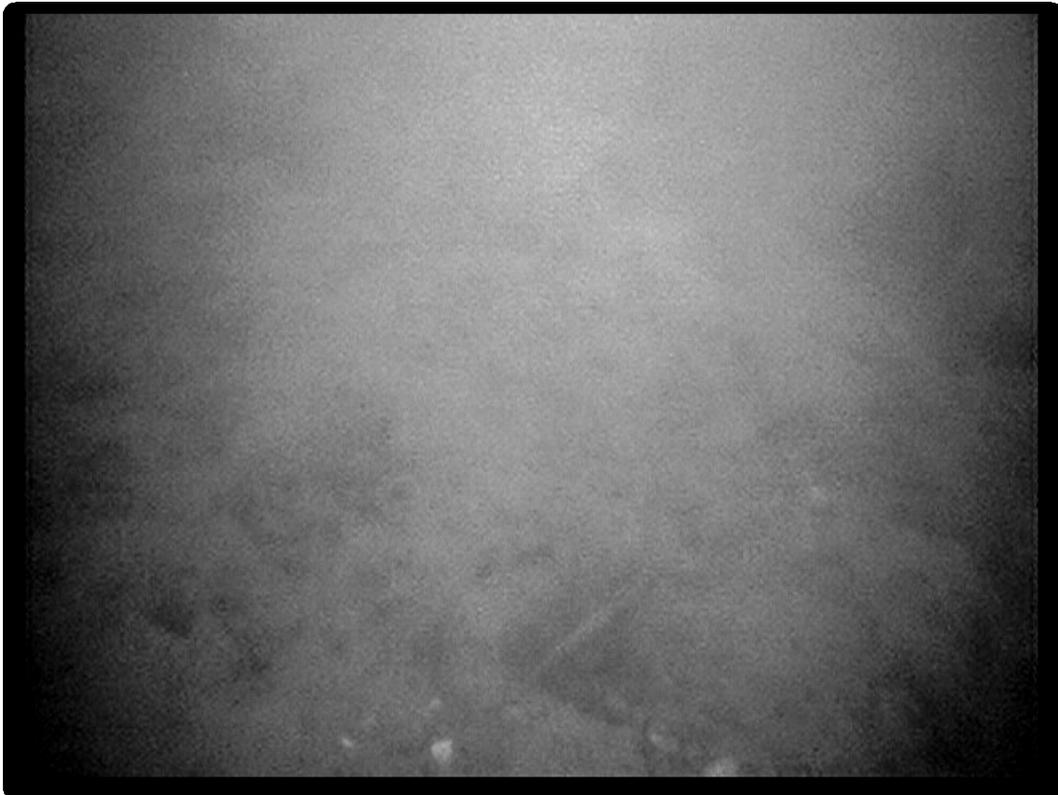


Photo site 7



Photo site 8



Photo 9



Photo 10



Photo 11

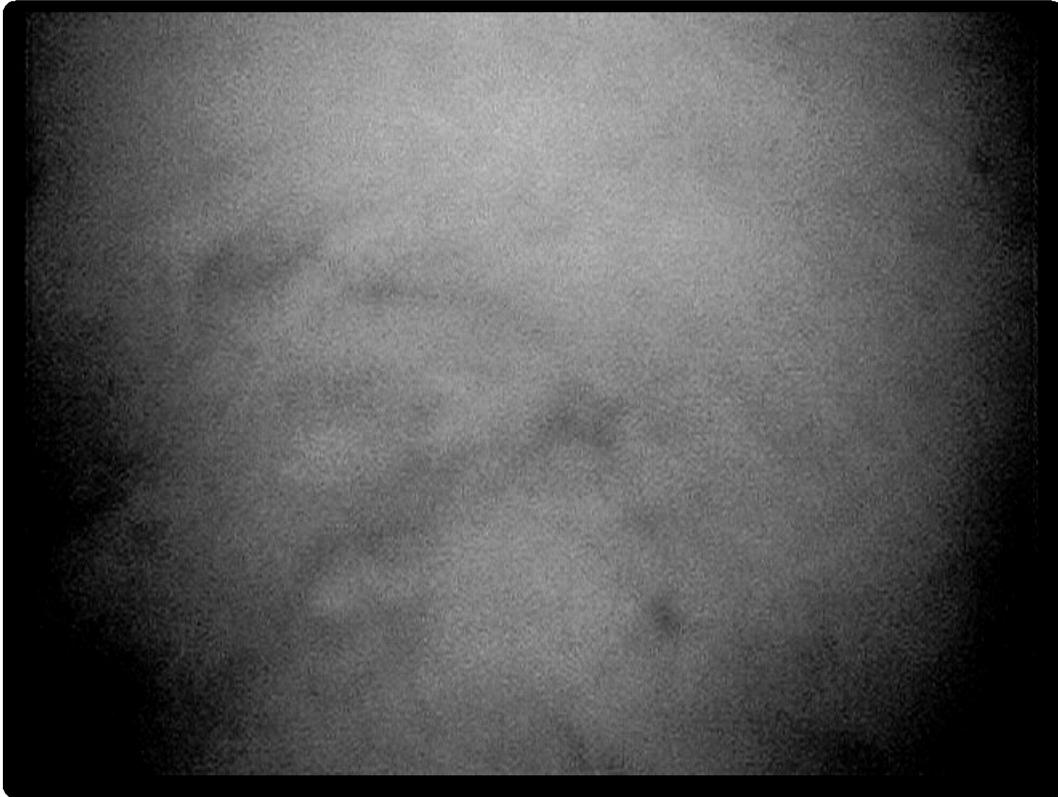


Photo 12



Photo 13



Photo 14



Appendix 5 - Analysis of Requirements of Schedule 4 of the Act

| Clause | Matter | Not relevant or applicable | Addressed in application |
|---------|--|----------------------------|--------------------------|
| 2(1)(a) | description of activity | | ✓ |
| (b) | site description | | ✓ |
| (c) | Name, address of owner or occupiers | | ✓ |
| (d) | any other activities that are part of the proposal | ✓ | |
| (e) | other resource consents | ✓ | |
| (f) | an assessment of the activity against the matters set out in Part 2 | | |
| | Section 5 – purpose of the Act | | ✓ |
| | Section 6 – matters of national importance | | |
| | (a) natural character of the coastal environment, wetlands, lakes, rivers | | ✓ |
| | (b) outstanding natural features and landscapes | | ✓ |
| | (c) significant indigenous vegetation and habitats | ✓ | |
| | (d) public access to and along the coastal marine area, lakes, and rivers | | ✓ |
| | (e) relationship of Maori with ancestral lands, water, waahi tapu, and other taonga | | ✓ |
| | (f) historic heritage | ✓ | |
| | (g) customary rights | ✓ | |
| | <i>Section 7 – Other Matters</i> | | |
| | (a)kaitiakitanga | ✓ | |
| | (aa) ethic of stewardship | ✓ | |
| | (b) efficient use of resources | ✓ | |
| | (ba) efficiency of energy use | ✓ | |
| | (c) amenity values | ✓ | |
| | (d) intrinsic values of ecosystems | ✓ | |
| | (f) quality of the environment | ✓ | |
| | (g) any finite characteristics of natural and physical resources | ✓ | |
| | (h) protection of the habitat of trout and salmon | ✓ | |
| | (i) effects of climate change | ✓ | |
| | (j) benefits from the use and development of renewable energy | ✓ | |
| | <i>Section 8</i> | | |
| | principles of Treaty of Waitangi | ✓ | |
| (g) | assessment of the activity against any relevant provisions of documents in s104(1)(b): | | |
| | (i) national environmental standard | ✓ | |
| | (ii) other regulations: | ✓ | |
| | (iii) national policy statement | ✓ | |
| | (iv) New Zealand coastal policy statement | | ✓ |
| | (v) regional policy statement or proposed regional policy statement | | ✓ |



| | | | |
|--------|---|---|---|
| | (vi) plan or proposed plan | | ✓ |
| (3) | Additional information required in some applications | | |
| | (a) demonstration of compliance of permitted activity parts of proposal | ✓ | |
| | (b) assessment of the value of the investment of the existing consent holder | ✓ | |
| | (b) assessment against Marine and Coastal Area (Takutai Moana) Act 2011 | ✓ | |
| (6) | Information required in assessment of environmental effects | | |
| | (a) possible alternative locations or methods if effects significant | ✓ | |
| | (b) actual or potential effects | | ✓ |
| | (c) if hazardous substances and installations, an assessment of risks | ✓ | |
| | (d) discharge of any contaminants, a description of— | | |
| | (i) nature of the discharge and the sensitivity of the receiving environment | ✓ | |
| | (ii) possible alternative methods of discharge | ✓ | |
| | (e) mitigation measures | ✓ | |
| | (a) persons affected, consultation undertaken | | ✓ |
| | (g) monitoring required if scale and significance of effects warrants, how & by whom | ✓ | |
| | (h) alternatives if more than minor effects on customary right | ✓ | |
| (7)(1) | Matters that must be addressed by assessment of environmental effects | | |
| | (a) effects on neighbourhood, community | | ✓ |
| | (b) effects on the locality, landscape, visual | | ✓ |
| | (c) effects on ecosystems | | ✓ |
| | (d) effects on aesthetic, recreational, scientific, historical, spiritual, or cultural values | | ✓ |
| | (e) discharge of contaminants | | ✓ |
| | (f) risk through natural hazards, hazardous substances, hazardous installations | | ✓ |

