



Wisheart Macnab & Partners



BARRISTERS & SOLICITORS

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2 March 2015

Marlborough District Council
PO Box 443
Blenheim 7240

BY HAND

Re: **Marlborough Aquaculture Limited – Application for Coastal Permit – Deep Bay Extension**

We act for the abovenamed and enclose the following:

1. Application
2. Assessment of Effects on the Environment
3. Locality Map
4. Site Plan
5. Structures Diagram
6. Ecological Report
7. Application fee \$930.00.

Please acknowledge receipt.

Yours faithfully

WISHEART MACNAB & PARTNERS

.....
DJ Clark
david@wmp.co.nz

Encl

n:\wmp\djc\let\marlbaquaculture-deepbayappln-mdc.doc

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- 2 MAR 2015

**MARLBOROUGH
DISTRICT COUNCIL**

Partners – D J Clark LLB | J C Leggett LLB | C J Murdoch LLB BA

Associate – R J Zydenbos (Registered Legal Executive - Fellow)

Registered Legal Executive – A M Woolf

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



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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 for the same activity on the same form.

For Office Use

ISO 9001:2008
Document Number
RAF0002-CI1248

Lodgement Fee Paid \$ 930-00

Receipt No. 1721422

Consent No.	
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Case Officer: _____

Name:	Marlborough Aquaculture Limited
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Mailing address:	See below
------------------	-----------

Email Address:

Phone: (Daytime) _____ Phone: (Mobile) _____ Fax: _____

Name: David Clark

Mailing address:	PO Box 138 Blenheim 7240
------------------	-----------------------------

Email Address: david@wmp.co.nz

Phone: (Daytime) 578 7269 Phone: (Mobile) Fax: 578 0173

☒ Coastal Permit ☐ Discharge Permit ☐ Land Use ☐ Subdivision ☐ Water Permit

To reposition existing marine farm licence 8056 including the surrender of the inshore area and an extension offshore. The application will extend the length of the existing longlines and add one additional longline to the existing farm and make the new site correspond to the existing marine farm immediately adjacent. The application is to enable the cultivation of Green Shell Mussels (*Perna canaliculus*), Scallops (*Pecten novaezelandiae*), Blue Shell Mussels (*Mytilus edulis*), Flat Oysters (*Tiostrea lutaria*) and seaweed species (*Macrocystis pyrifera*, *Edklonia radiata*, *Gracilaria*, *Pterocladia lucida*). To disturb the seabed with anchors, to erect the structures, to occupy the space, to cultivate and harvest the above species, including any ancillary and related discharges that occur.

Date Received

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5. Property Details

The location to which the application relates is (address): Deep Bay, Admiralty Bay

Legal description (i.e. Lot 1 DP 1234): not applicable

(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.)

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

Crown Land - seabed

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

Note: That 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.

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

I attach, in accordance with the Fourth Schedule of the Resource Management Act 1991, an assessment of environmental effects in the detail that corresponds with the scale and significance of the effects that the proposed activity may have on the environment.

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

7. 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.

Declaration

I (please print name) David Clark

agree

- (i) That I am liable for all fees and charges relating to this application.
- (ii) The lodgement fee is to be paid at the time of lodging the application for resource consent.
- (iii) That payment is due within 30 days of the issue date of any additional charges.
- (iv) That Council will charge me interest on any overdue invoices at 15% per annum from the date of issue of the invoice to the date of payment and Council may stop processing my application until an overdue invoice is paid in full. In the event of non-payment the applicant and/or agent will be liable for all legal and other costs of recovery.
- (v) That where this application is completed and signed by an agent, all communication regarding this application will be with the agent.
- (vi) The information provided in this application and the attachments to it are accurate.

Signature of applicant or authorised agent



Date 2/03/2015

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.

Reset Form

Resource Management Act 1991

FOURTH SCHEDULE

Assessment of Effects on the Environment

1. Matters that should be included in an assessment of effects on the environment

Subject to the provisions of any policy statement or plan, an assessment of effects on the environment for the purposes of section 88 should include:

(a) *A description of the proposal:*

Application

- (i) To reposition existing marine farm licence 8056 including the surrender of the inshore area and an extension offshore. The application will extend the length of the existing longlines and add one additional longline to the existing farm and make the new site correspond to the existing marine farm immediately adjacent to the north. The application is to enable the cultivation of Green Shell Mussels (*Perna canaliculus*), Scallops (*Pecten novaezelandiae*), Blue Shell Mussels (*Mytilus edulis*), Flat Oysters (*Tiostrea lutaria*) and seaweed species (*Macrocystis pyrifera*, *Edklonia radiata*, *Gracilaria*, *Pterocladia lucida*). To disturb the seabed with anchors, to erect the structures, to occupy the space, to cultivate and harvest the above species, including any ancillary and related discharges that occur.
- (ii) The particular permits that are sought are:
 - 1. To cultivate and farm the species identified in the form attached by traditional means.
 - 2. To disturb the seabed to place anchors.
 - 3. To erect the structures.
 - 4. To occupy space in the coastal marine area.
 - 5. To effect discharges that relate to traditional growing and harvesting of the species identified.
- (iii) The species are all currently being farmed in the Pelorus Sound and are naturally to be found there. There will be no introduced species and no introduced feed. The original marine farm at the site was applied for in 1999.

Applicant

- (iv) The applicant is Marlborough Aquaculture Limited, a locally based marine farming company operating since the mid-1990s principally in the Pelorus

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Sound as well as elsewhere.

- (v) Product from the farm is processed at Blenheim at Talley's factory.
- (vi) The method of the activity is by standard long line method.

Activity Status

- (vii) The application site is in the Coastal Marine Zone Two of the Marlborough Sounds Resource Management Plan ("MSRMP").
- (viii) A marine farm out to 200 metres from mean low water mark in CMZ 2 Zone is a *discretionary* activity. Beyond 200 metres is a non-complying activity. It is arguable that the proposal does lie within 200 metres of mean low water mark as shown by the fix of low tide on the plan attached depending on the interpretation of Figure 35.1 of the MSRMP. If the application does marginally extend beyond the 200 metres then nothing of any significance turns on that simply because it has been lined up to correspond with marine farm 8019 which is the adjoining marine farm to the north.

Location

- (ix) The location is Deep Bay in Admiralty Bay. Admiralty Bay itself is in a mixture of farm land commercial forestry and some areas of bush. Marine farming has been an existing activity carried out in the bay for many many years.

Ecological Assessment

- (x) Attached to this assessment is an ecological report prepared by R J Davidson.
- (xi) As can be seen from the report, there is no ecological reason identified in the report not to position the farm as requested by the application.
- (xii) The area has not been identified as an ecologically significant one. Admiralty Bay is considered to be dolphin habitat. There has recently been work undertaken surveying levels of dolphin activity in Admiralty Bay. The survey doesn't appear to indicate any level of activity at the subject site. There is the existing marine farm there in any event which is only being extended slightly and relocated.

Assessment Criteria Under ("MSRMP")

- (xiii) The proposed activity has been assessed as a *discretionary* activity under the MSRMP. There are specific assessment criteria in MSRMP for marine farming within 200 metres from mean low water mark. The specific and general assessment criteria are set out at rule 35.4.2.9.1. The criteria are considered in the following paragraphs.

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(a) Objectives and Policies of the New Zealand Coastal Policy Statement ("NZCPS")

The NZCPS is now generally supportive of aquaculture and particularly where there has already been significant modification by existing grants of consent. There is nothing that the Applicant believes is in the NZCPS that would militate against consent.

(b) Policies and objectives of the MSRMP

The MSRMP is generally supportive of marine farming in the Marlborough Sounds. It is a key industry and its vibrancy and vitality is important for the area. The MSRMP considers it a positive use in general terms subject to the specific matters which are addressed in the following paragraphs.

(c) Amenity Values

Marine farming in Deep Bay and Admiralty Bay is (as said above) an activity which has occurred for many years. As noted above the Applicants existing marine farm which is the subject of this application was originally applied for in 1999. At that time there were existing marine farms to the south and the north. The proposal is essentially moving the farm further offshore and extending the longlines and only one additional longline over the number that are already permitted.

There is no Sounds Residential Zoned land in Deep Bay (or Admiralty Bay). There are residential buildings in the southern part of Deep Bay along with a jetty but that is on the other side of an existing farm (marine farms 8020 and 8021).

Most of the land within Deep Bay is farm land. There is small wood lot forestry and some bush around some of the foreshore and around the jetty.

The land immediately to the north of the proposed marine farm is farm land with some small area of bush.

Admiralty Bay, despite its remoteness has a significant degree of modification and compromise. It is in a neither a pristine or natural state. On the date that this assessment is being made, Admiralty Bay is again being used as a site for transfer operation for equipment used in the Taranaki petrochemical industry.

(d) Demand for Services

The proposed activity will not create a demand for services which is at a cost to the wider community. The base for support and service is at Havelock. Those facilities already exist and this proposal will not generate any necessary expansion demand.

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(e) Landscape/Character of the Surrounding Area

The adjoining land is not identified as being an Area of Outstanding Landscape Value under the MSRMP. French Pass, Current Basin and most of D'Urville have been identified in the MSRMP as being outstanding natural landscapes. However that is on the western side of the ridgeline and is not related to most of Admiralty Bay and is not related to Deep Bay at all.

As said above, most of the adjoining land is in pastoral farming.

(f) Significant Environmental Features

There are no special or significant environmental features present at the subject site.

(g) Historic Site/Archaeological Site/Wahi Tapu or other Taonga

The Applicant is not aware of any specific or special feature that will be adversely affected by the proposed activity.

(h) Hazardous Substances and Contaminants

The Applicant does not propose the use of any hazardous substances or the discharge of any contaminants other than those that are naturally occurring and biodegradable.

(i) Nature of Seafloor and Species found in the area

As to the sea floor and marine species, see the attached ecological report.

(j) Navigational Issues

Admiralty Bay is remote but does have recreational boating activity. Boats can be launched from the south eastern corner of Admiralty Bay (Hamilton Bay) and they do proceed from there out to D'Urville Island and other places. French Pass itself has significant levels of recreational boating activity both localised and vessels passing through.

However it is perceived that the principal boating activity that occurs in Deep Bay will be those that access the jetty in the southern part of the Bay which is not going to be affected by the proposed relocation of the existing marine farm.

There is no jetty, log loading site or other point of access to the shore on the north side of the existing marine farm.

(k) Aesthetic and Cultural Matters

None of the landscape studies of the Marlborough Sounds (whether adopted by MDC or not) rank this particular area of the Pelorus as being outstanding or even high in landscape values.

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(l) Fishing

There is sufficient area between the existing marine farm and the shore for any fishing activity to occur there. The proposed extension is over habitat that is not particularly likely to be targeted by fishermen. It is the type of habitat that marine farms in the Pelorus are generally sited over.

(m) Alienation of Public Space

This is considered to be insignificant in terms of the area and in light of levels of public use.

(n) Precedent Issues

As the marine farm in its extended form will not exceed 200 metres from mean low water mark, given that the MSRMP is supportive of marine farming out to that distance in CMZ 2 Zone it is not considered that there will be any undue precedent issue arising from a decision in granting permission.

(o) Term

A coastal permit of 20 years is sought.

- (b) *Where it is likely that an activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:*

For the reasons given above there is not considered any significant adverse effect on the environment.

- (c) *Repealed*

- (d) *An assessment of the actual or potential effect on the environment of the proposed activity:*

There is significant recreational use of the Pelorus Sounds. The amount of use decreases with distance from the main population area from Havelock. There may be recreational fishing undertaken at the site but there is a significant inshore distance that is provided for which enables access to any fisherman targeting species that inhabit the cobble inshore of the marine farm.

- (e) *Where the activity includes the use of hazardous substances and installations, an assessment of any risks to the environment which are likely to arise from such use:*

Not applicable.

- (f) *Where the activity includes the discharge of any contaminant, a description of-*

- (i) *The nature of the discharge and the sensitivity of the proposed receiving*

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environment to adverse effects; and

See above

- (ii) *Any possible alternative methods of discharge, including discharge into any other receiving environment:*

Not applicable.

- (g) *A description of the mitigation measures (safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:*

- (i) Marlborough Aquaculture Limited has adopted the Mussel Environmental Management System which includes an environmental policy and environmental code of practice
- (ii) The marine farm is lit by an approved method and that will continue
- (iii) The applicant in addition to the Mussel Industry Environmental Management System incorporates its own farming practice which keeps the adverse effects of the operation of the marine farm to a minimum. There have been no breaches to the existing coastal permit.

- (h) *An identification of those persons interested in or affected by the proposal, the consultation undertaken, and any response to the views of those consulted:*

Contemporaneously with the application being lodged with Council, those persons considered to have an interest in the application will be provided with a copy of the application and consultation will occur. Those are considered to be the adjoining marine farmer, DOC and the land owner.

- (i) *Where the scale or significance of the activity's effect are such that monitoring is required, a description of how, once the proposal is approved, effects will be monitored and by whom.*

- (i) Mussel farming by its very nature requires good quality water. There is an active shellfish quality assurance program and a marine biotoxin monitoring program.
- (ii) It is anticipated the Council will impose a standard suite of conditions similar to the existing permit. The applicant has no objection to those being imposed.

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1AA. *To avoid doubt, clause 1(h) obliges an applicant to report as to the persons identified as being affected by the proposal, but does not:*

(p) Oblige the applicant to consult with any person; or

(q) Create any ground for expecting that the applicant will consult with any person.

1A. Matters that must be included in an assessment of effects on the environment.

An assessment of effects on the environment for the purpose of section 88 must include, in a case where a recognised customary activity is, or is likely to be, adversely affected, a description of possible alternative locations or methods for the proposed activity (unless written approval for that activity is given by the holder of the customary rights order).

This is considered by the applicant not to apply.

2. Matters that should be considered when preparing an assessment of effects on the environment.

Subject to the provisions of any policy statement or plan, any person preparing an assessment of the effects on the environment should consider the following matters:

(a) *Any effect on those in the neighbourhood and, where relevant, the wider community including any socio-economic and cultural effects:*

Socioeconomic

There is a distinct benefit to the community from the Applicant's marine farming activity. Marine farming in the Pelorus Sounds provides employment for those in the local area and those in the wider area. Farming mussels provides for employment at Blenheim, Havelock and elsewhere. This is a recognised positive effect of marine farming.

Cultural

It is not considered there will be any cultural effects as a result of the activity being granted.

(b) *Any physical effect on the locality, including any landscape and visual effects:*

Visual landscape.

The MSRMP has recognised the possibility of marine farming at the subject site. It is a discretionary activity. The Application is to extend seawards to a modest extent to surrender the existing inshore and generally reposition the existing farm.

Effects on Navigation

See above.

(c) *Any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:*

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This topic has been dealt with above.

- (d) *Any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural, or other special value for present or future generations:*

There is significant recreational use of the Pelorus Sounds. The levels of activity fall away as distance increases from the most populated areas. There is recreational use of Admiralty Bay. But the level reflects its relative remoteness. There is comparatively little recreational use of the area of the existing farm. The proposal is largely repositioning of the existing farm. There is no issue as to commercial fishing.

- (e) *Any discharge of contaminants into the environment, including any unreasonable emission of noise and options for the treatment and disposal of contaminants:*

There is no unreasonable emission of noise and treatment of contaminants is not appropriate.

As to the effect of marine farming on the benthos see the attached ecological report.

- (f) *Any risk to the neighbourhood, the wider community, or the environment through natural hazards or the use of hazardous substances or hazardous installations:*

This is not considered to be relevant to the current application.

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Topomap 50 Sheet: BP28

Base Topographical Data sourced
from Land Information New Zealand Data.
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Locality Map

Marine Farm 8056 and Proposed Extension
Deep Bay - Admiralty Bay

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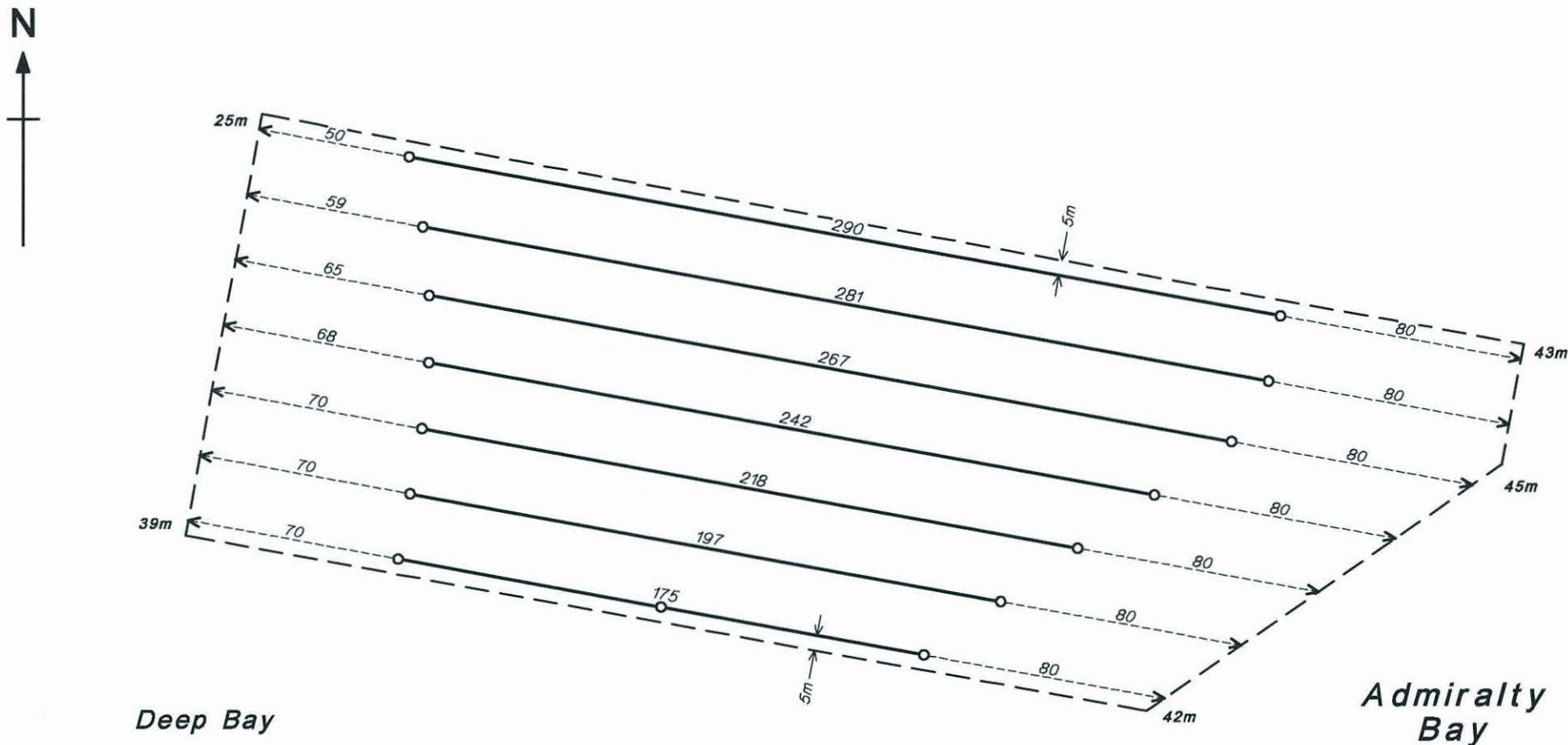
DPL
Draughting Plus Limited

Prepared
24 February 2015

Scale 1:50,000

500 0 500 1000 1500 2000 2500 3000 3500 Meters

MF_2389



- > Anchor
- o Orange Float
- Backbone
- - - Anchor Warp

Longline Spacing = 21.7m
 Total Longlines = 7
 Backbone Length = as shown
 Total Backbone Length = 1670m
 Warp Surface Loss = as shown
 Warp Ratio = 2:1 min

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Structure Layout Marine Farm 8056 & Extension

SCALE 1:2,000



Prepared by
 DRAUGHTING PLUS LIMITED
 24 February 2015

MF_2389



Davidson Environmental Limited

Ecological report for a proposed extension to marine farm 8056 located in Deep Bay, Admiralty Bay

Research, survey and monitoring report number 795

*A report prepared for:
Marlborough Aquaculture Limited
C/o Scott Madsen
120 Lindens Road RD 3
Blenheim 7273*

April 2014

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Bibliographic reference:

Davidson, R.J. 2014. Ecological report for a proposed extension to marine farm 8056 located in Deep Bay, Admiralty Bay. Prepared by Davidson Environmental Ltd. for Marlborough Aquaculture Limited. Survey and monitoring report no. 795.

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Prepared by:

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P.O. Box 958, Nelson 7040
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Mobile 027 445 3352
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April 2014

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1.0 Introduction

The aim of the present study was to provide benthic biological information in relation to a proposed extension to an existing marine farm (8056) located along the north western shoreline of Deep Bay (Figure 1, Plates 1 and 2). The initially proposed extension would add approximately 2.5 ha offshore and alongshore of the 3.6 ha parent farm.

The present investigation describes the benthos, habitats and ecological attributes associated with the extension application. The report provides biological information using GPS with remote sensing technologies (drop camera, side imaging and vertical scan sonar).



Figure 1. Location of the parent marine farm (teal) and proposed extension (grey) located in Deep Bay, Admiralty Bay.



Plate 1. Proposed marine farm extension (grey) and parent farms (teal) in Deep Bay.

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Plate 2. Looking west-ward towards the existing long-lines of the parent farm. Photo taken from a position east of the proposed extension.

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2.0 Background information

2.1 Study area

Deep Bay is situated on the western side of inner Admiralty Bay, roughly 3.5 km southwest of Clayface Point. The greater Admiralty Bay is a large area extending some 15 km in length from the head at Hamilton Bay, to a line joining Bonne Point (northwest headland) with Clay Point (northeast headland). Admiralty Bay is partially bounded by D'Urville Island to the west and is connected to Croisilles Harbour by French Pass. Deep Bay has a coastline length of approximately 2400 m and covers an area of sea of approximately 56.7 ha.

A number of existing consented marine farms are located near the present farm (Figure 2).

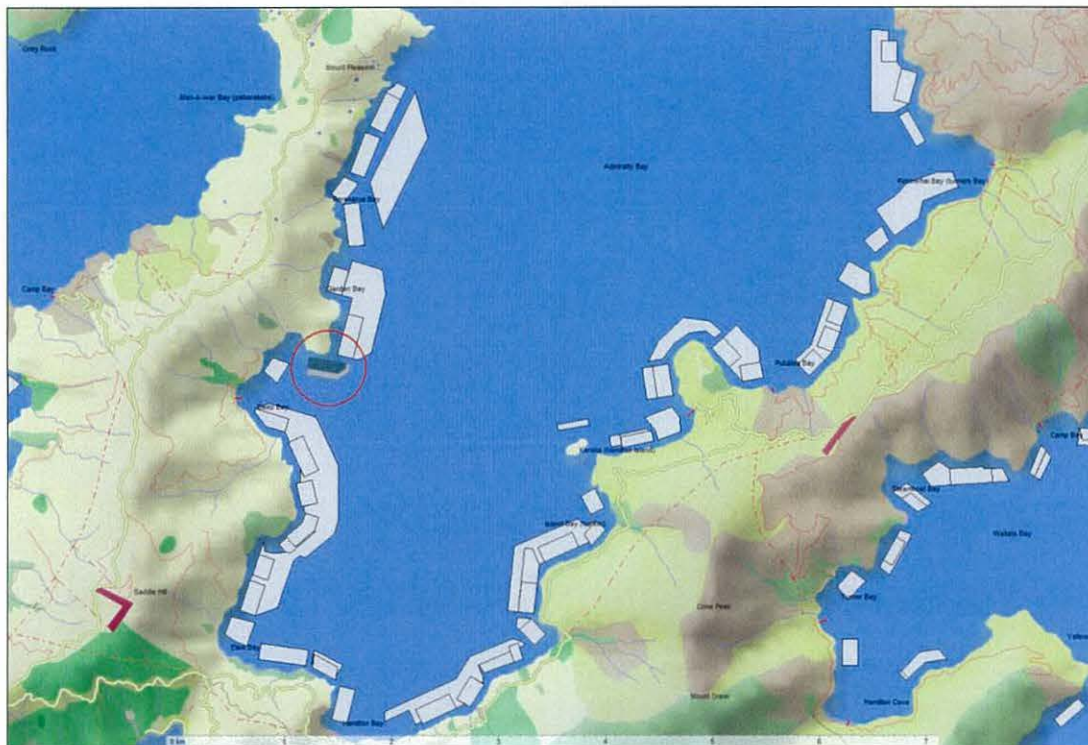


Figure 2. Location of the application and consented marine farms in the vicinity (white).

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2.2 Historical reports

One biological report was found in relation to the application for farm 8056 (U990770) by Grange *et al.* (1999). The authors of the report stated:

“Although each depth profile was slightly different, there was general similarity across the entire site. The rocky intertidal area continued below low tide as rocky reef and boulders to depths of 9-12 m, 30-50 m from MLW. In the western portion of the site, there was a relatively narrow band of cobbles and coarse shell/sand gravel from depths of 9-20 m, 30-70 m from shore. Below 20 m throughout the entire site, the sediment was dominated by sand and shell gravel. Below 25 m, the deepest sampled by SCUBA, the dredge tows indicated the sediments became progressively finer with depth. By 35-40 m, the sand and shell grit also contained quantities of silt.

The proposed farm boundaries lie over the sand/shell gravel habitat, with inshore boundary corresponding with the change from boulders to cobbles/gravel along the western end.

A total of 22 species were recorded during the dive transects. 16 species were recorded from the inshore rock/boulder habitat, including kelp, sea anemones, window oysters, limpets, and cats eye snails. This habitat also supported reasonably large numbers of juvenile blue cod and spotties.

The cobble/sand gravel habitat at the western end of the site supported species common to the shallower rock and deeper sand habitats. Only the large grey sponge *Ancorina alata* and the tubeworm *Galeolaria hystrix* were restricted to this habitat.

The sand/shell gravel habitat to a depth of 25 m supported fewer species than those containing rocks and cobbles. The community was dominated by bivalves, including horse mussels and scallops, although neither reached densities sufficient to trigger a second-order survey (see DoC, 1995). 11-armed starfish, snake stars, kina, sabellid sand tubeworms, and saddle squirts were recorded from all habitats to 25 m depth.

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DREDGE SURVEY

A tow between 28 and 33 m depths revealed the benthic community was dominated by strawberry cockles *Nemocardium pulchellum*, the small bivalve *Notocorbula zelandica*, and the introduced Japanese file shell *Limaria orientalis*. Red brachiopods (*Terebratella sanguinea*) were also very common, as were heart urchins (*Echinocardium cordatum*). The habitat in these depths was very similar to the deeper sand/shell gravel habitat sampled by SCUBA.

In depths greater than 40 m, the sediment was finer sand and shell grit, with quantities of silt. Only 8 species were recorded from the dredge tow, dominated by 2 small burrowing brittle stars, *Amphiura aster* and *A. rosea*. Heart urchins were also common.

The site is typical of much of the outer Marlborough Sounds in having a profile that consists of rock reef and boulders along the shore, extending into cobbles and sand in deeper areas. The benthic communities recorded by this survey support previous surveys in similar areas of the wider Marlborough Sounds. In addition, the deeper communities, sampled by dredge at this site correspond to similar benthic communities identified by McKnight & Grange (1991) throughout the Marlborough Sounds. They described communities dominated by *Notocorbula* and *Terebratella* in shell grit sediments between 30-40 m, and an *Amphiura*/*Echinocardium* community in muddy sediments.

No species regarded in the DoC Guidelines as having significant conservation values were recorded, and those species regarded as ecologically significant which were recorded (e.g. tubeworms, brachiopods, horse mussels and scallops) were not in sufficient densities to trigger further surveys."

3.0 Methods

A benthic biological survey for the proposed extension was conducted on 7th March 2014. Prior to fieldwork, the proposed marine farm application and parent farm corners were plotted onto mapping software (TUMONZ Professional). 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 depth at each corner of the proposed marine farm was surveyed using real-time GPS. The corner positions of marine farm surface structures associated with the parent farm were also plotted by positioning the vessel adjacent to corner floats. 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.

3.1 Sonar imaging

Sonar investigations of the area were conducted using a Lowrance HDS-10 Gen 1 and HDS-8 Gen2 linked with a Lowrance StructureScanTM Sonar Imaging LSS-1 Module. These units provide right and left side imaging as well as DownScan ImagingTM. The unit also allows real time plotting of StructureMapTM overlays onto the installed Platinum underwater chart.

Prior to the collection of underwater photographs, the boundaries of both the consent area and the marine farm surface structure area were investigated using the sonar. Any bottom abnormalities such as reefs, hard substrata or abrupt changes in depth were noted for inspection using the drop camera (see section 3.2).

3.2 Drop camera stations, site depths

A total of 20 drop camera photographs were collected during the survey. Photographs were collected from within the proposed extension area and along the inshore boundary of the parent farm (Figure 3).



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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 location of photograph stations was selected in an effort to obtain good coverage of the proposed application area. Additional photographs were taken when any features of particular interest (e.g. shell debris, reef structures, and cobbles) that were observed on the remote monitor on-board the survey vessel or from sonar and depth soundings. All photographs collected during the survey have been included in Appendix 1.

4.0 Results

4.1 Application corner depths

The depths along the inshore proposed extension boundary ranged from 37 m to 42.3 m (Figure 3). The offshore corner depths of the proposed extension ranged from 39.1 to 45 m (Table 1, Figure 3). Depths and locations of all drop camera stations have been listed in Table 2 and plotted in Figure 4.

The western inshore boundary of the parent farm was 33 m distance from low tide, while the in the east it was 65 m from low tide (Figure 3).

Most the proposed extension was located in comparable depths suggesting the area was relatively flat. Deepest areas were located in western offshore areas. The sea floor rose with decreasing proximity to the shoreline with a shallow area being located at the western inshore end of the parent farm (Figure 3).

Presently there two backbone lines associated with the parent farm. Existing marine farm surface structures were located within the parent farm consent boundaries.

Table 1. Depths recorded from the corners of proposed consent corners. Depths adjusted to datum. Coordinates = NZTM (Northing/Easting).

Type	No. & Depth (m)	Coordinates
Consent corner	13.4m	1670876.2, 5465606.5
Low tide		1670935.1, 5465628.4
Low tide		1671051.8, 5465640.2
Extension corner	1, 38.7m	1670856.3, 5465498.5
Extension corner	2, 39.1m	1670847.5, 5465438.9
Extension corner	3, 42.2m	1671134.9, 5465386.6
Extension corner	4, 45m	1671246.8, 5465461.2
Extension corner	5, 42.7m	1671256.5, 5465538.1
Extension corner	6, 37m	1670845.6, 5465439.2
Extension corner	7, 42.6m	1671211.2, 5465496.4
Extension corner	8, 42.3m	1671136.6, 5465447.1
Structure corner	A, 41.8m	1671085.7, 5465486.4
Structure corner	B, 41.8m	1671110.5, 5465498.7
Structure corner	C, 34 m	1670932.8, 5465514.3
Structure corner	D, 29 m	1670931.0, 5465532.3

4.2 Substratum, habitats and species

Substratum and habitat distribution relative to the proposed marine farm application were based on 20 drop camera images combined with depth soundings and sonar scans (Table 2, Appendix 1).

The proposed extension was dominated by silt and clay sized particles with or without a component of natural dead and broken shell (Plates 3 and 4, Table 2). No hard substrata were observed within the proposed extension area.

During an inspection of the inshore areas of the parent farm, areas of cobble and boulder substrata were observed (Plate 5). These hard substrata also extended into western parts of the consent (Plate 6).

No species or communities of scientific or fisheries interest were observed during the present study. No scallops, horse mussels or red algae were observed. Blue cod were relatively common on the boulder and cobble habitats.

4.3 Mussel shell debris

One photo was collected close to the two backbones located within the parent farm. A small clump of live mussels was recorded at this site. No other mussel debris were recorded during the present investigation, however, no other photos were collected close to droppers.

4.4 Sonar

The side imaging sonar run the proposed extension showed a relatively featureless benthos. No reef structures extended into the proposed offshore and alongshore extension (Figure 5).

Cobbles and isolated rocks were observed at particular locations along the inshore parts of the parent farm. In the west, boulders and cobbles extended into the parent farm consent. An isolated rock was also observed centrally along the inshore parts of the parent farm (Figure 5). At the eastern inshore end of the parent farm a small area of rocks (deep reef) was also detected by the sonar.

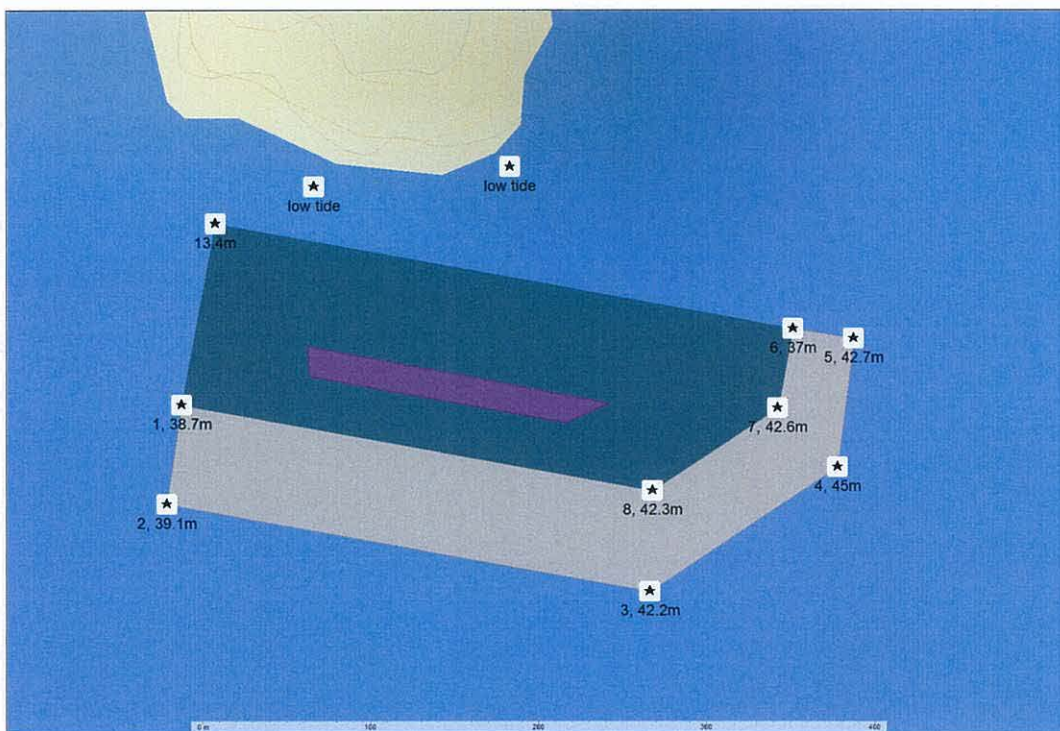


Figure 3. Depths of the proposed extension area (grey), parent farm (teal) and existing surface structures (pink). Two low tide positions have also been indicated.

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Plate 3. A representative example of silt and clay substratum recorded from the proposed extension (photo 9, 39.2 m).



Plate 4. Silt, clay and natural shell from within the proposed extension (photo 7, 40.7 m).

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Plate 5. Boulder bank from areas inshore of the parent farm (photo 13, 3 m).



Plate 6. Boulders, cobbles, silt, fine sand and natural shell substrata located within the inshore western area of the parent farm (photo 14, 16.4 m).

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Table 2. Coordinates of drop camera stations showing location relative to the marine farm application (NZTM). Colours are: blue = outside application and no farm structures, grey = inside application (under warps or in areas with no structures) teal = parent farm. Depth, substratum and biological feature data are also listed. Mussel debris in photos is 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	Position	Substratum	Shell debris
1. 37m	1671222.2, 5465542.4	In extension	No farm structures	Silt and clay, natural shell	None
2. 43.4m	1671234.1, 5465502.9	In extension	No farm structures	Silt and clay	None
3. 44.9m	1671200.5, 5465458.1	In extension	No farm structures	Silt and clay	None
4. 42.6m	1671142.2, 5465413.9	In extension	No farm structures	Silt and clay	None
5. 41.9m	1671086.1, 5465442.2	In extension	No farm structures	Silt and clay	None
6. 41.4m	1671020.1, 5465416.8	In extension	No farm structures	Silt and clay	None
7. 40.7m	1670968.1, 5465461.5	In extension	No farm structures	Silt and clay, natural shell	None
8. 39.6m	1670890.4, 5465438.7	In extension	No farm structures	Silt and clay	None
9. 39.2m	1670854.9, 5465476.0	In extension	No farm structures	Silt and clay	None
10. 6.7m	1670903.3, 5465568.4	Inshore of parent farm	No farm structures	Cobbles, fine sand, natural shell	None
11. 20m	1670908.0, 5465582.9	In parent farm	No farm structures	Fine sand, silt, natural shell, cobbles	None
12. 22.5m	1670908.8, 5465568.8	In parent farm	No farm structures	Fine sand, silt, natural shell, cobble and	None
13. 3m	1670952.5, 5465597.7	Inshore of parent farm	Close to farm backbone	Cobbles, fine sand, natural shell	None
14. 16.4m	1670956.2, 5465571.2	In parent farm	No farm structures	Cobbles, boulders, fine sand, natural shell	None
15. 25.5m	1670956.3, 5465555.1	In parent farm	No farm structures	Silt, natural shell, fine sand	None
16. 30m	1671028.5, 5465529.6	In parent farm	No farm structures	Silt, natural shell, mussel shell	Low
17. 22m	1671041.8, 5465556.2	In parent farm	No farm structures	Silt, natural shell, fine sand	None
18. 23.8m	1671107.7, 5465562.4	In parent farm	No farm structures	Silt, natural shell, fine sand	None
19. 28.8m	1671107.9, 5465541.9	In parent farm	No farm structures	Silt, natural shell	None
20. 35.4m	1671177.4, 5465542.6	In parent farm	No farm structures	Silt, natural shell	None

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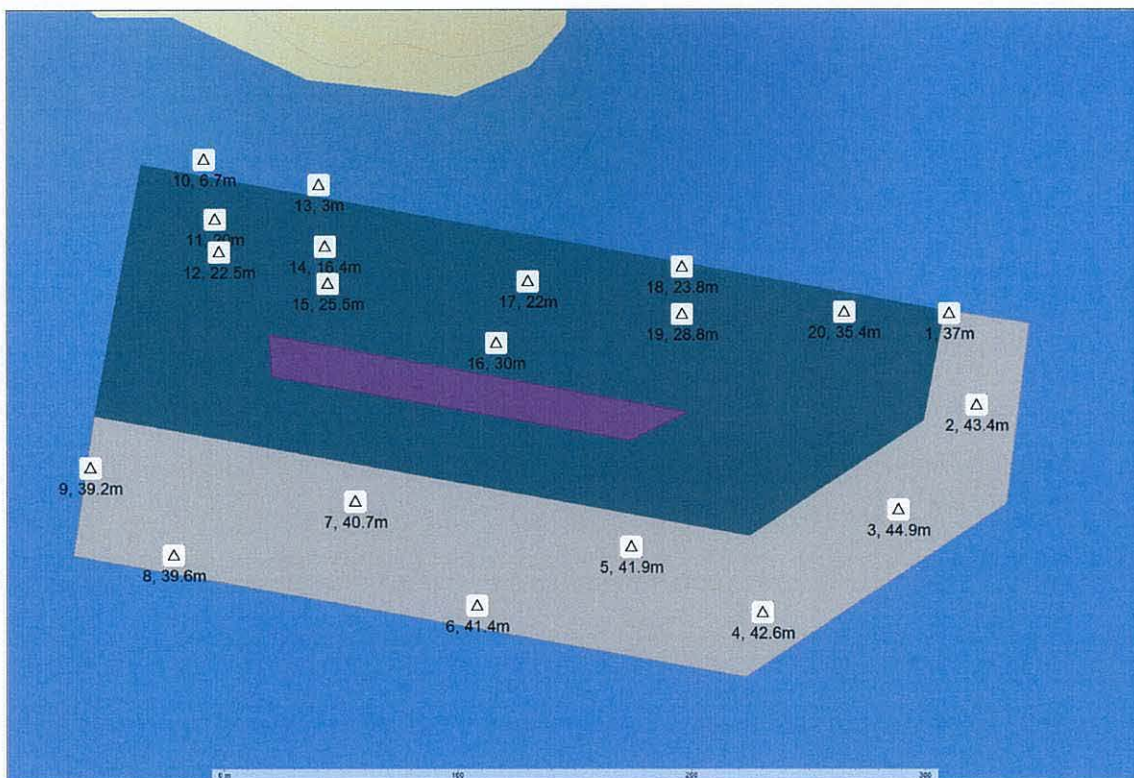


Figure 4. Drop camera stations (triangles). Numbers are the photo number and water depth (m).

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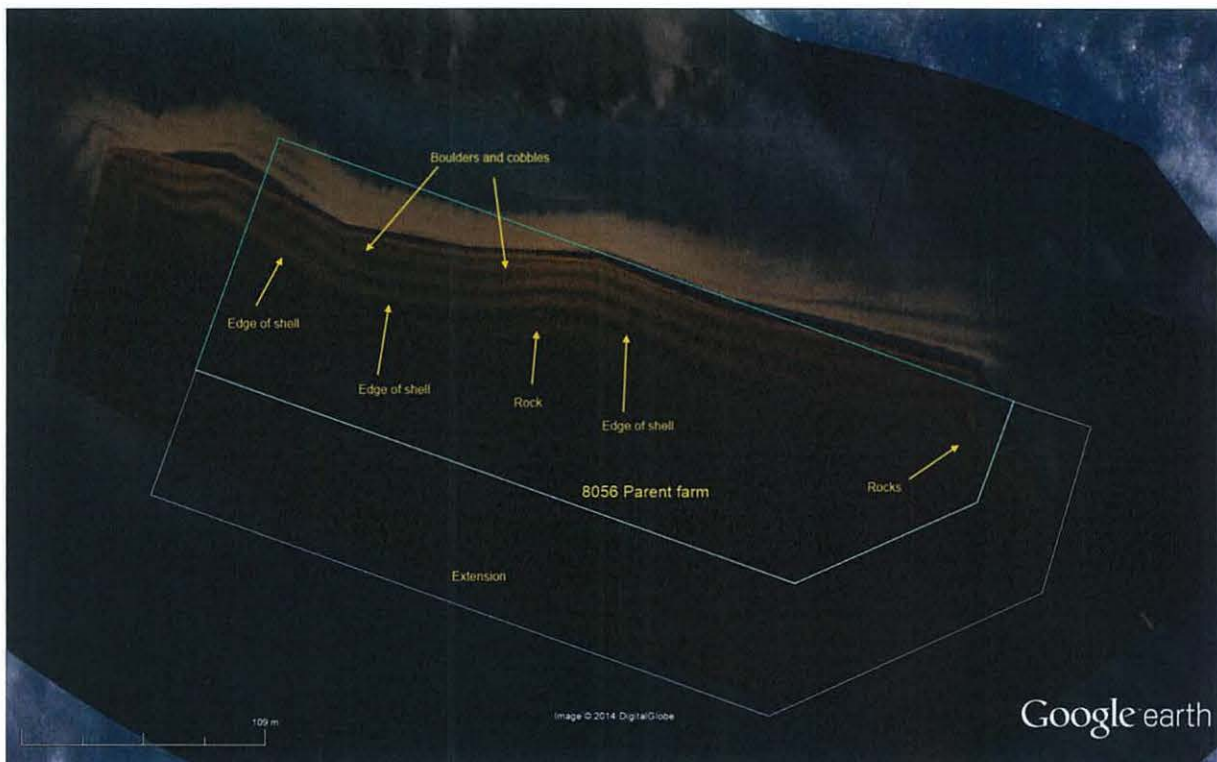


Figure 5. Sonar imaging from the extension and inshore areas of the parent. Grey polygon = proposed extension.

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5.0 Summary and conclusions

5.1 Substratum and biological values

The initially proposed extension was characterised by soft substratum composed primarily of silt and clay (mud) as well as a component of natural shell. Silt and clay and silt and clay with shell are widespread and common in the Marlborough Sounds. Mud (silt and clay) has been traditionally targeted by marine farming activities. No hard substratum was detected within the proposed extension.

No biological communities of particular interest such as scallops, red algae or horse mussels were recorded from the proposed extension area. No known species or habitats considered ecologically significant were observed from within the application area (see Davidson *et al.* 2011 for significant areas in Marlborough).

Boulder, cobble and rocky habitats were recorded from inshore areas of the parent farm. Rocky habitats are traditionally avoided for marine farming activities.

5.2 Impact

The applicant proposes to farm a variety of shellfish and the likely species farmed will be mussels. The impact of a mussel farm in the Marlborough Sounds has been well documented (see Keeley *et al.* 2009 for review) and it is probable that the present extensions, if established, will conform to the known range of impacts for this activity.

Based on existing studies on the impact of mussel farms in the Marlborough Sounds and around New Zealand, it is unlikely that impacts would be detectable beyond 10-20 m from the droppers.

Areas located within the proposed extension would be impacted by the addition of mussel lines. The habitat types located within the proposed extension are common in the Sounds and the biological change that results from farming activities on these type of substrata, seldom represents an adverse impact. In contrast, habitats found within the inshore areas of the parent farm would be adversely impacted should lines be established there. At present there are no mussel lines located over these hard substrata habitats.



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5.3 Boundary modifications and monitoring

Based on ecological data collected during the present study, it is suggested that the farm owner relinquish the inshore area of the parent farm should be proposed extension be granted (Figure 6). The aim of this reduction is to avoid inshore rocky substrata located within the parent farm. This would represent a reduction of the parent farm from 3.6 ha to approximately 2.2 ha (39% reduction). It is also suggested that the extension area be enlarged from the area initially suggested in an effort to balance some of this loss (Figure 6). This represents an increase from 2.5 ha to approximately 3.18 ha. Overall the suggested modifications represents a decline from the initial total area (parent farm plus extension = 6.1 ha) to a reduced area (parent farm and extension = 5.38 ha).

No monitoring or staging is suggested if these adjustments are implemented as all habitats of biological interest are avoided by the adjusted boundaries.

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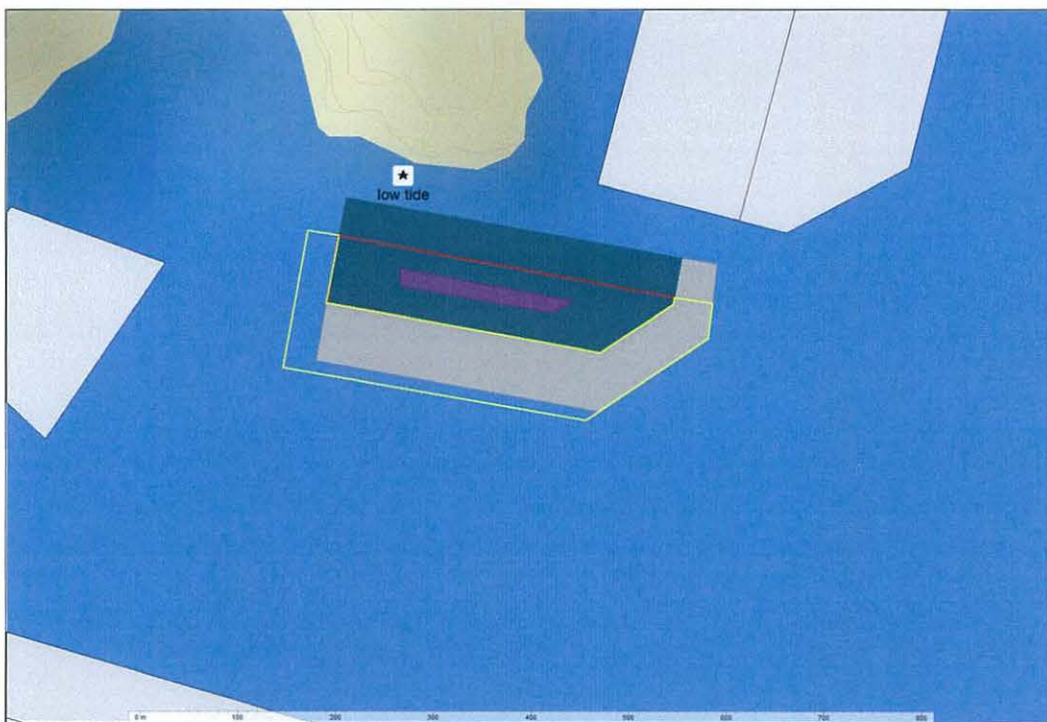


Figure 6. Suggested reduction to the parent farm (red line) and recommended adjustment to proposed extension (yellow polygon). These adjustments aim to remove inshore rocky areas from the existing consent.

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- 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.
- Grange, K.; Cole, R.; Handley, S. 1999. Benthic survey of proposed marine farm site, Deep Bay, Admiralty Bay. NIWA Client Report MUS90402/2. Unpublished report prepared for Marlborough Aquaculture Ltd.
- Keeley, N.; Forrest, B.; Hopkins, G.; Gillespie, P.; Clement, D.; Webb, S.; Knight, B.; Gardner, J. 2009. Sustainable aquaculture in New Zealand: Review of the ecological effects of farming shellfish and other non-fish species. Cawthron Report No. 1476. 150p.

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Appendix 1. Drop camera photographs

Photo site 1



Photo 2



Photo site 3



Photo 4



Photo site 5

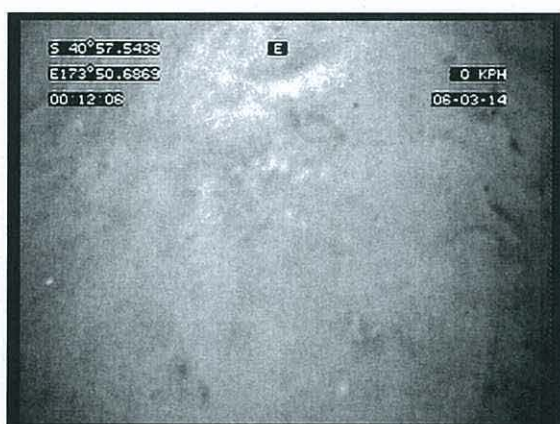


Photo 6



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Photo site 7



Photo 8



Photo 9

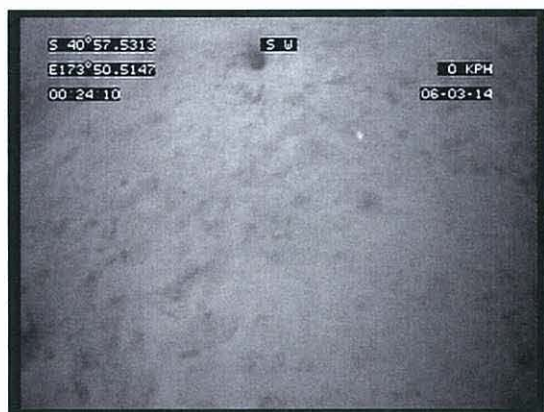


Photo 10



Photo site 11

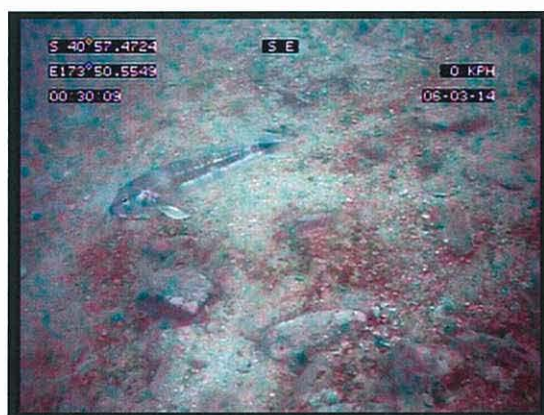


Photo 12



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Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18



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Photo 19



Photo 20



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