

Bea Gregory-5252

From: MDC
Sent: Saturday, 28 October 2017 8:55 p.m.
To: RCInbox
Subject: Application for Resource Consent: REF171022667
Attachments: REF171022667.pdf

A application for a Resource Consent has been received. Application lodgement number is REF171022667.

Submission details are attached.



PO Box 443, Blenheim 7240
Tel 03 520 7400 / Fax 03 520 7496
Email mdc@marlborough.govt.nz / www.marlborough.govt.nz

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Marlborough District Council
15 Seymour Street
Blenheim 7201
PO Box 443
New Zealand

Telephone 00 64 3 520 7400
Fascimile 00 64 3 520 7496
Email mdc@marlborough.govt.nz
Website www.marlborough.govt.nz
GST No. 50-430-960



Reference Number:	REF171022667
Submitted On:	28/10/2017 20:54
Submitted By:	Sally Neal

Important Information

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

Please provide all details relevant to your proposal. Feel free to discuss any aspect of your proposal or the application process with Council's duty planner, who is here to help. Duty planner hours are 9.00 am to 3.00 pm Monday to Friday.

This application will be checked before formal acceptance. If the application is incomplete, we are unable to accept it for processing and it will be returned to you.

If this activity requires more than one consent type, (eg both land use and discharge) you may apply for all within this application.

Applicant Details

Select as many as are applicable

Is the applicant

Is the applicant • A company

Company name PH Redwood &Co Ltd

Is the applicant

Main applicant name Redwood

Main applicant mailing address 671 Seaview Road, Seddon 7285

Main applicant email address chris@omegaseafood.com

Main contact number 5757557

Alternative contact number Not answered

Is there an agent working on behalf of the applicant? Yes

All communication regarding the application will be sent to the agent

Are you a business or an individual? Business

Company name Smart Alliances Ltd

Contact person Sally Neal

Mailing address 10 High Street, Blenheim 7201

Email address sally@smartalliances.co.nz

Main contact number 5796211

Alternative contact number Not answered

Agent reference PHREDWOOD

Application Details

Types of resource consent applied for	• Coastal Permit
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Property Details

The location to which the application relates is	Pigeon Bay, Forsyth Island
Brief description of the activity	Renewal and extension of MFL 440 and 441.

Assessment of Effects on the Environment (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 now also have to include consideration of the provisions of the Resource Management Act 1991 and other relevant planning documents)

Please upload Assessment of Effects on the Environment • [Redwood marine farm renewal- final .pdf](#)(1538648 bytes)

Plans

Please upload plans (e.g. site plan, elevation plans, scheme plan etc) of the locality and activity points. Describe the location in a manner that 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 the application may relate, proximity to any well known landmark, DP number, valuation number, property number

Site/location plan • [8135 Layout Plan.pdf](#)(223209 bytes)
• [8135-8136 Existing Farms.pdf](#)(768477 bytes)
• [8135-8136 Locality Map.pdf](#)(2640366 bytes)
• [8135-8136 Proposed Farms.pdf](#)(768788 bytes)
• [8135-8136 Proposed Lines.pdf](#)(768684 bytes)
• [8135-8136 Proposed Surface Structures.pdf](#)(768407 bytes)
• [8135-8136 Site Plan.pdf](#)(560517 bytes)
• [8136 Layout Plan.pdf](#)(220191 bytes)

Scheme plan	No files uploaded
Forest harvest plan	No files uploaded
Building plans	No files uploaded
Dam design drawings	No files uploaded

Certificate of Title

Certificate(s) of Title and legal documents	No files uploaded
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Supplementary Forms

Please indicate which supplementary forms you are adding

Technical Reports

Do you wish to upload any technical reports to be included in the application by the relevant Resource Management Plan, Act or regulations?	Yes
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Benthic report	• 8135 8136 Pigeon Bay (Redwood).pdf (4475654 bytes)
Cultural effects assessment	No files uploaded
Dam construction report	No files uploaded
DSI	No files uploaded
Ecology report	No files uploaded
Economic report(s)	No files uploaded

Engineering report	No files uploaded
Erosion and sediment management plan	No files uploaded
Geotechnical report	No files uploaded
Landscape report	No files uploaded
PSI	No files uploaded
RAP	No files uploaded
Wastewater report	No files uploaded
Any other report not covered in the list above	No files uploaded

Written Approvals

Please provide the names and addresses of the owner and occupier of the land (other than the applicant) Not answered

Please attach any written approval(s) that may have been obtained from affected parties/adjoining property owners and occupiers No files uploaded

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 why you have not below

Brief reason for not consulting with neighbours Not answered

Other Details

Are additional resource consents required in relation to this proposal? No

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 record applicant name and either property number or consent type as a reference.

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). 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.

Do you require a GST receipt for a bank payment? Yes

Please make invoice out to Applicant

The application lodgement fee Will be paid by agent

Notes Not answered

I confirm that the information provided in this application and the attachments are accurate Yes

Authorised by (your full name) Sally Neal

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 made corrections to your details, please contact Council.

Assessment of Effects on the Environment Pursuant to Schedule 4 of the Resource Management Act

Application by PH Redwood and Co Ltd for resource consent to renew and extend Marine Farm 440 and 441 in Pigeon Bay, Forsyth Island.

1 Description of Activity

The applicant proposes to renew and extend two existing marine farms on the western side on Forsyth Island. This includes correction of the farms positions to be within the consented boundaries as they are presently to varying extents outside these. Details of the marine farms are provided below;

Marine Farm License 440, Farm number 8136

3ha, 10 lines

Species provided for; Greenshell Mussels (*Perna canaliculus*), Scallops (*Pecten novaezelandiae*), Paua (*Haliotis iris*, *Haliotis australis*) and seaweed (*Macrocystis pyrifera*, *Gracilaria* sp.)

Coastal Permit expiration date; 31 December 2024

Marine Farm License 441, Farm Number 8135

4.552ha, 10 lines

Species provided for; Greenshell Mussels (*Perna canaliculus*), Blue Mussels (*Mytilus galloprovincialis*), Scallops (*Pecten novaezelandiae*), Dredge Oysters (*Tiostrea chilensis*) and seaweed.

Coastal Permit expiration date; 30 April 2018

The applicant proposes to extend both farms, realign the existing lines to be within the bounds of the proposed farms and increase the number and length of lines as illustrated in the plans below in Figures 3 and attached.

The benthic assessment of the site identified inshore areas of cobble and coarse substratum habitats. This application includes proposal to relinquish these inshore areas of both farms and replace them with additional areas in deeper water.

Consent is also sought to allow the existing seabed anchoring devices to remain, be replaced and relocated as required, to harvest marine farming product from the marine farm, to discharge seawater and discharge of biodegradable and organic waste matter that falls from lines and mussels as a result of harvesting operations and all other activities and structures that are ancillary to the operation on sites 8135 and 8136 including but not limited to lights and navigation structures.

Figure 1 – Existing Farm Layout



Figure 2 Proposed Farm Extensions



Key: *white outline, extent of existing farm*
Yellow outline; extent of proposed extension
Green lines, location of lines

The extent of the proposed extensions is described below;

Marine Farm License 440, Farm number 8136

Existing consented area 3ha, 10 lines.

Proposed; 6.68ha, 11 lines, this will result in an increase of 3.68ha in area and one additional line.

Species provided for; Greenshell Mussels (*Perna canaliculus*), Blue Mussels (*Mytilus galloprovincialis*), Scallops (*Pecten novaezelandiae*), Dredge Oysters (*Tiostrea chilensis*) Paua (*Haliotis iris*, *Haliotis australis*) and seaweed (*Macrocystis pyrifera*, *Gracilaria* sp.)

Proposed term of licence - 20 years

Marine Farm License 441, Farm Number 8135

Existing consented area 4.552ha, 10 lines

Proposed; 6.60 ha, 11 lines, this will result in an increase of 2.048ha in area and one additional line and moving 2 of the existing lines back into the consented bounds of the farm.

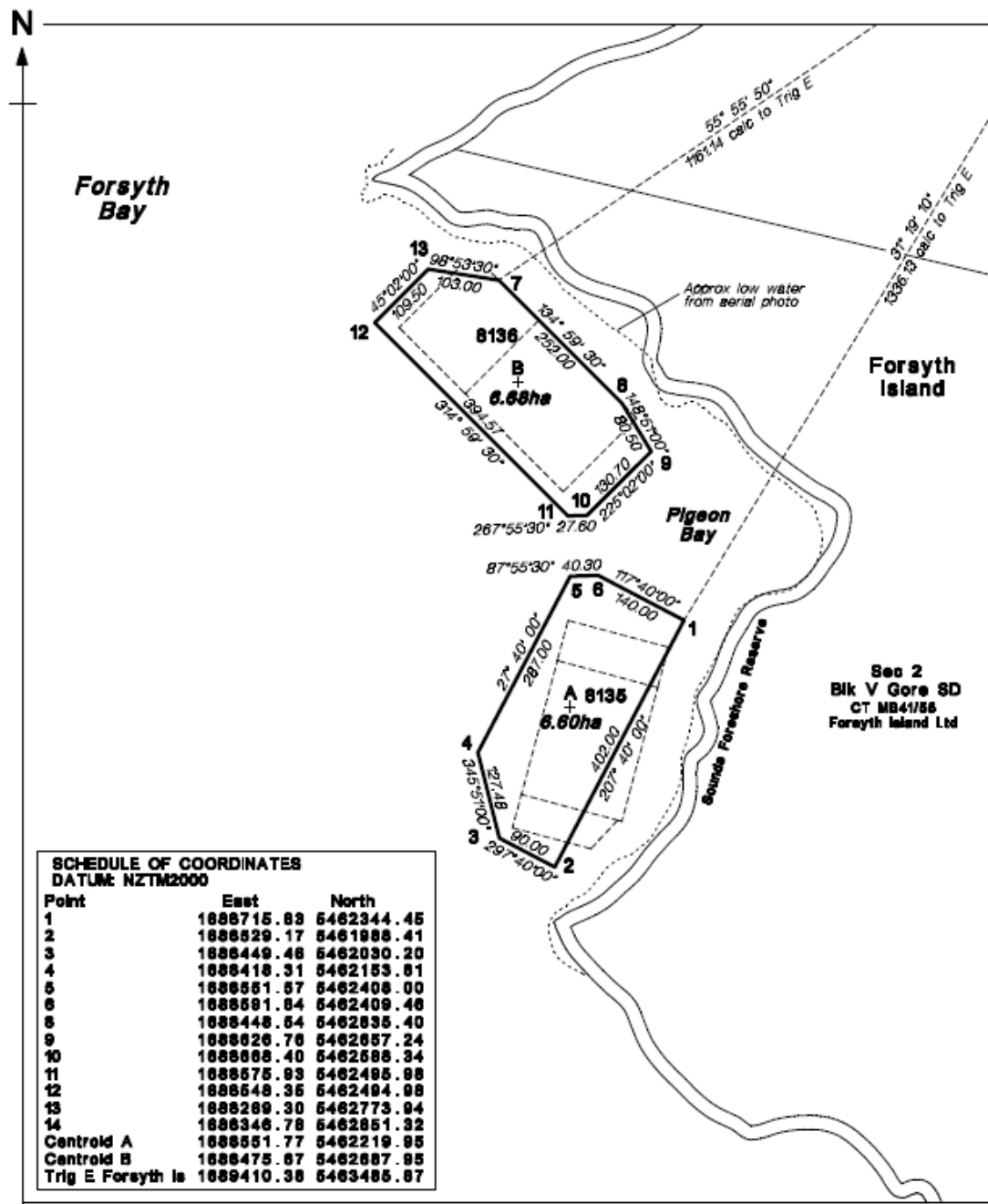
Species provided for; Greenshell Mussels (*Perna canaliculus*), Blue Mussels (*Mytilus galloprovincialis*), Scallops (*Pecten novaezelandiae*), Dredge Oysters (*Tiostrea chilensis*) Paua (*Haliotis iris*, *Haliotis australis*) and seaweed (*Macrocystis pyrifera*, *Gracilaria* sp.)

Proposed term of licence – 20 years

The extent of the proposed extensions and comparison between the existing location of the farms and the consented sites are illustrated in Figure 3 below. Scale versions of these plans are attached.

Both extensions will result in the existing lines being moved into a linear arrangement running parallel with the landward and seaward farm boundaries and result in a more efficient use of the farm areas, while providing clear navigation lines and area to anchor at the head of Pigeon Bay.

Figure 3



2 Background

Both farms were originally granted consent in 1990, when the applicants (Chris and Trish Redwood) owned and lived on Forsyth Island. The consents for these are attached.

The applicant's family has a long association with Forsyth Island, the applicant's father Pembroke Redwood moved to the island in 1945. Mr Redwood cleared and farmed the property which ran approximately 1300 sheep.

In 1990 the applicant and Mr Redwood Snr, diversified into mussel farming by obtaining two marine farm permits to farm mussels in the Pigeon Bay. These are the farms subject to this application.

In 1992 the island was sold to Fahid Valadi, the applicant retained only the mussel farms in Pigeon Bay.

Under the ownership of Mr Valadi, the island has been allowed to revert to its native state and is used as a holiday home and tourist accommodation for its owner and fee-paying guests, with approximately 90ha of clear land being retained for farming purposes.

Since leaving the island the applicant has established a further 4 mussel farms (these farms are in Guards Bay, Whakatahuri Bay, Clifford Bay and Golden Bay) (totaling 6) and set up their own mussel processing factory, Omega Seafoods, in the Cloudy Bay Business Park. Omega Seafoods employs 30 staff and produces precooked, vacuum packed half shell mussels and clams to the domestic and international market.

The two Pigeon Bay farms subject to this application make up 50% of the mussels that supply the Omega Seafoods factory and therefore are a very important to the continued viability of the Factory.

3 Site and Locality

Pigeon Bay is located on the south western side of Forsyth Island at the head of the Pelorus Sound.

The Marlborough Cruising Guide describes it as "Pigeon, Orchard and Sunday Bays on Forsyth Island are open to the winds. The heads of Pigeon and Sunday Bays give shelter in SW winds and are deep close to the shore".

The attached benthic assessment undertaken by Davison Environmental provides a more detailed description of the area, this has been copied below;

Pigeon Bay is a small, west-facing bay on the southwestern shore of Forsyth Island, a large island in the outer Marlborough Sounds. Pigeon Bay is located some 55.5 km by sea from Havelock. The bay has a coastline length of approximately 1675 m and covers an area of sea of approximately 32.3 ha. The mouth of Pigeon Bay is approximately 1100 m wide (Figure 1). The shoreline of Pigeon Bay is characterised by boulders, cobbles, a pebble beach.

The southern farm site (8135) is currently 4.552 ha. The proposed extension and relicensing area of site (8135) for this report is a total of 6.595 ha.

The northern farm site (8136) is currently 4.995 ha. The proposed extension and existing area of the site is a total of 6.688 ha.

Figure 4 below shows the location of the farms in the wider area, and Figure 5 provides a photograph looking into the head of Pigeon Bay showing how the farms appear from the bay entrance. The marine farms can be seen on the left and right margins of the photograph.

Figure 4 – Locality of Marine Farms



Figure 5 – Looking East into Pigeon Bay



Figure 6 below illustrates the current scale and layout of the farm, showing the position of the lines relative to the existing consented farm boundaries. This shows some of the lines extend partially outside the consented boundaries and portions of the consented

farms have not been utilised. These matters will be corrected by this application and the lines being proposed to be moved and realigned to be within the consented farm area.

Figure 6 – Current Farm Layout



There are no consented moorings in the bay.

Historically there was a small campsite at the head of the bay on Sounds Foreshore Reserve. This is not identified as being a Department of Conservation campsite and no information on its current condition as a campsite is available suggesting it is no longer used.

Forsyth Island forms the backdrop of the farms, the area is covered in regenerating native bush, having been cleared in the 1900's, farmed until 1992 and since then left to return to a vegetative state. The upper reaches of the bay are crisscrossed with tracks, providing access to the island for the owners and used as tracks as part of the tourist facilities for access to other parts of the island.

There are no dwellings or buildings in the bay. Resource Consent U100239 and building consents BC150095 and BC151208 have been issued for the construction of a dwelling on the point at the northern end of the bay that overlooks farm site 8136. Construction of the house has recently begun with construction of the foundations beginning this year.

With the exception of the Sounds Foreshore Reserve along the coastal margin, there are no built structures such as jetties or wharves providing access to the Island other than a ramp within the south western most bay where the farm house is located at the head of Sunday Bay from which access to the island is available.

The Island is however covered by a QE II Trust Covenant; however the island is not listed as being an area available to the public to visit with or without prior arrangement.

4 Regulatory Environment

4.1 Permitted Activities

The movement of vessels associated with operation of the marine farm is a permitted activity pursuant to Section 27 of the Marine and Coastal Area (Takutai Moana) Act 2011. This right includes anything reasonably incidental to vessel movement (s27(2)). This is copied below;

Rights of navigation

27 Rights of navigation within marine and coastal area

(1) Every person has the following rights:

- (a) to enter, and pass and repass through, the marine and coastal area by ship:
- (b) to temporarily anchor, moor, and ground within the marine and coastal area:
- (c) to load and unload cargo, crew, equipment, and passengers within the marine and coastal area:
- (d) to remain in a place within the marine and coastal area for a convenient time:
- (e) to remain temporarily in a place within the marine and coastal area until wind or weather permits departure or until cargo has been obtained or repairs completed.

(2) The rights conferred by subsection (1) include anything reasonably incidental to their exercise.

4.2 Resource Management Act

Section 12 of the Resource Management Act prescribes that no person may erect or place any structure on over or under, disturb, or occupy any part of the coastal marine area unless authorised by a rule in a regional coastal plan or proposed regional coastal plan or by resource consent.

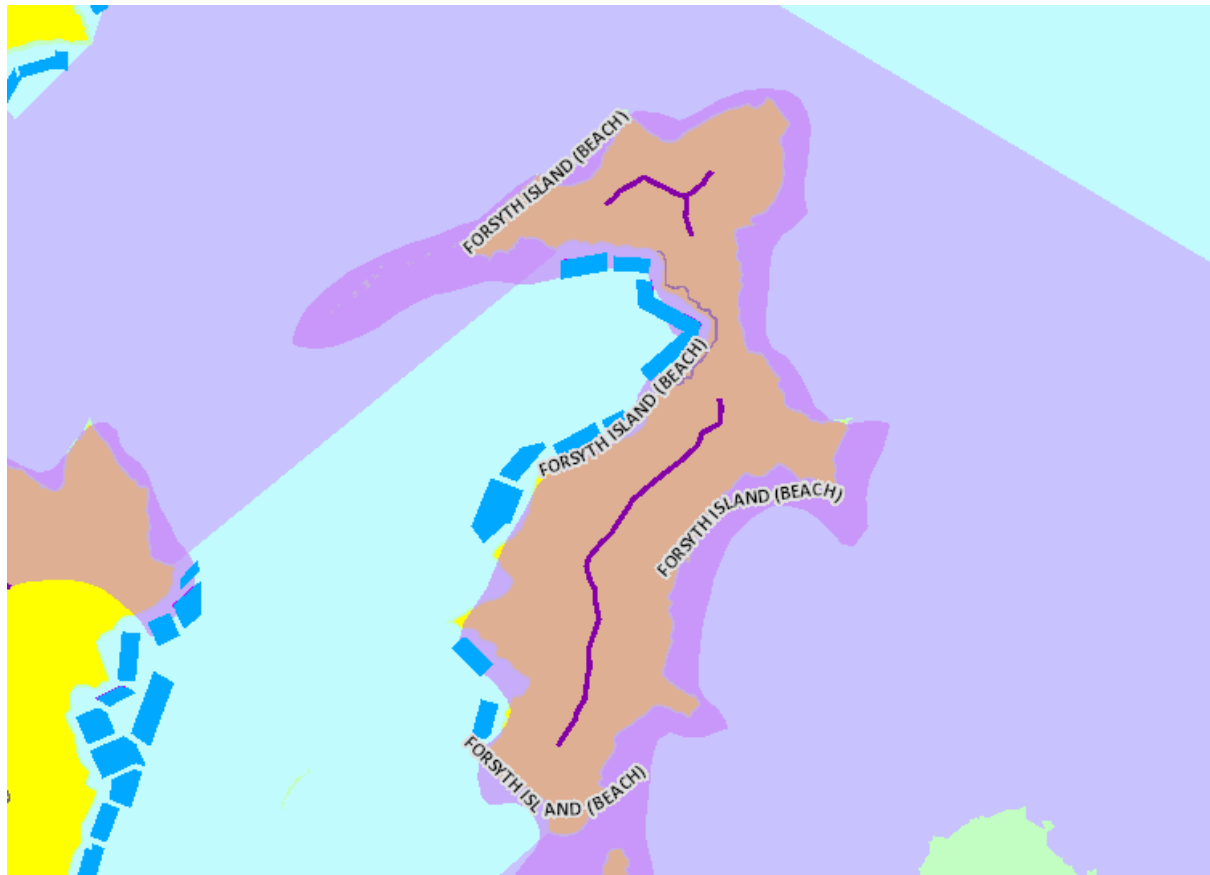
4.1 Marlborough Sounds Resource Management Plan (MSRMP)

5.2.1 Zone

Coastal Marine Zone 2

Figure 7 below, shows the location of the marine farm sites in relation to the zones, landscape overlays and identified significant ridgelines on the adjacent Forsyth Island. This map also illustrates the prevalence of other farms along the western margin of the Island. The pale blue is the Coastal Marine Zone 2, the pale purple is the Outstanding Landscape overlay area, the darker blue is current marine farms in the area. The location of the marine farms sites subject to this application are the bottom two sites. The adjoining land on Forsyth Island is shown Brown/Yellow which is the Rural Zone.

Figure 7



5.2.2 Standards and Conditions

Rule 35.2 of the Plan includes provision for marine farms as Controlled Activities if they comply with the assessment criteria prescribed in Rule 35.2.5 or are listed in Appendix D of the MSRMP.

These provisions result in both farms MFL440 and MFL441 fitting within the Controlled Activity status due to consent having been granted before 1st August 1996.

Rule 35.3.1 provides for structures and lighting systems for previously approved marine farms. As these form an integral part of a marine farm and by specific reference in standards a) and b) of the Rule 35.3.1 which refer to Standards a) to d) of Rule 35.2.5.1 including marine farms.

5. Actual and Potential Effects

Rule 35.3.1.1 lists those matters over which the Council reserves its discretion. These comprise effects from non-compliances and those matters listed in Rule 35.2.5.3 that the Council reserves control over. Effects in regard to each of these matters are described below.

5.1 Ecological Effects – Rule 35.2.5.3 h) and Disturbance of the foreshore and sea bed – Rule 35.2.5.3 e)

A benthic assessment has been carried out by Davidson Environmental. This is attached. The outcomes from this assessment are summarised below.

- The presence of the marine farm is noticeable by the shell debris beneath it; this is reported to be within the range known for mussel farms in the Marlborough Sounds and towards the low to moderate impact range. While the marine farm has been on the site for a number of years, no species or communities of scientific, conservation or ecological importance were observed during the present study or identified as affected.
- The report advises that the inshore areas support some areas of cobble and coarse substratum habitats. This application includes proposal to relinquish these inshore areas of both farms and replace them for the additional areas in deeper water. The removal of these areas in favour of deeper offshore habitats is described in the Davidson Environmental report as providing a positive ecological outcome. The application has been prepared to adopt this change.

No disturbance of the foreshore and sea bed is proposed other than what will be required to relocate the lines should the extension be granted. This will involve placement of anchors and removal of them from their present positions. The effects of this are expected to be minor due to there being no notable characteristics identified in the benthic survey.

5.2 Visual Amenities - Rule 35.2.5.3 j) and g)

The landscape and visual effects of the proposal can be divided into effects on natural character, landscape, visual amenity and cumulative effects. These are discussed below.

5.2.1 Natural character;

Forsyth Island has been identified as an area of outstanding landscape value, and its main ridge has been identified as a prominent ridge. Pigeon Bay itself has a recognisable amount of natural character with a backdrop of regenerating native scrub, but is not outstanding and natural character is reduced by lack of mature trees and presence of regenerating bush as a result of the land being allowed to revert naturally from productive farm land

Continued occupation of the marine farms within an area where the backdrop has undergone modification as a result of ownership changes and management processes, are considered appropriate in this case. The applicant has no control over the use of the surrounding land and therefore while the effects of the farms remain static, a change of landuse in the surrounding area results in an area presenting more 'natural character' than it had previously.

5.2.2 Landscape;

The key issue is visual effects. Re-consenting will not adversely affect the reasons for Forsyth Island and the margins of Pigeon Bay being identified as having outstanding landscape features (refer to MDC 2015 landscape study page 116), which describes both Forsyth Island and the Kaitira headland as having high levels of natural character.

The open waters between Port Ligar, the Kaitira headland and northern Forsyth Island are recognised as having high levels of natural character compared with the outstanding natural character attributed to Pigeon Bay. This difference is principally due to low levels of modification. As discussed earlier in section 3., this isn't entirely correct, whilst the Forsyth Island area presents a persona of natural character and of an unmodified landscape; the landscape is fluid and evolving resulting from changes in management practises allowing the land to regenerate back to a vegetated state and this is provided for by the Rural Zone applied to it that allows modification as part of the permitted uses.

At the time the marine farms were established both farms provided a highly modified landscape character of a pastoral landscape to the locality as opposed to the landscape

that is present now. The farms have formed a presence in the bay for the last 27 years, and as such could be considered to be part of and provide a developed landscape character on the basis that their presence predates the landscape classification of the area and the farms will not compromise the landscape status as they were present when the classification was undertaken.

5.2.3 Visual amenity;

Views from the land and sea are considered to be relevant. The nature of the component parts of the marine farm structures and how they are seen against the background influence visual effects.

Adverse effects on visual amenity when viewed from the land are a combination of where the farm is visible from the land and accessibility of these areas. The locations accessible to the public are either visually separated or at sufficient distance to minimise or prevent visibility of the farms.

From the sea, during calm conditions the farms may be visible for a distance of approximately 1.5km, although clarity of visibility significantly reduces after 1 to 1.5kms. Combination of this and the distances people travel past the bay and visual character of the back drops and generally darker water along the shore line significantly limit visibility and resultant visual effects. This is illustrated by Figure 5, where the farm is barely visible, when looking into the bay.

However as distance from the farms and due there being no other major dominating landmarks or features or structures in the bay the farms are a noticeable feature to people visiting the bay when distances become reduced. The effects of this may be described as less than minor for the reason that marine farms are provided for in the CMZ 2 and are an anticipated feature of the coastal landscape in this area.

From land (Forsyth Island) the farms are visible, outside of the Sounds Foreshore Reserve on the island margins, there is however no public land from which views of the farms are available. So the views from above are restricted to the owners, managers and visitors to the island. There are no dwellings in Pigeon Bay, as described above, a building consent has been issued for a dwelling on the point to the north of farm 8136.

These farms have preceded the proposed house site and therefore must be considered to be part of the accepted visual amenity of the area. When considering the amenity of the area, it is important to note that the farms make up 2 of the 9 marine farms located on the western side of Forsyth Island and were within the very first farms to be established in the area. Therefore it may be reasonable to conclude that by their existence for the last 27years, they are expected part of the amenity of the area.

5.2.4 Cumulative effects;

No further farms are being proposed in the bay, lines will be extended into areas already provided for as part of the existing marine farm consents????, the additional extension areas will provide for the warps and anchors. One extra line will be added to each farm. Taking both farms from 10 to 11 lines. These lines will be longer, but majority will remain located with the area original farm bounds, with the exception of farm 8135, that has lines that are off site and the farm is proposed to be moved to avoid an area of rock.

Therefore, the cumulative effect of the proposed extensions is an additional area being occupied by mussel lines (that was unutilised by the current farms) and two additional lines in the bay. In an unoccupied bay, with no other features or marine farms this is considered acceptable and the cumulative effects of the increased space occupied as marginal.

The conclusion of the assessment is re-consenting and minor extension of the farms will not compromise the landscape natural character and visual amenity values of Pigeon Bay. Access to the head of the bay and through the farm will be maintained and improved by realigning the lines.

5.3 Warning Devices and Signs - Rule 35.2.5.3 c)

Both farms have existing lighting on them that was previously approved by the Harbour Master. They have been designed to assist navigation around the farm and avoid it having adverse effects to navigation.

A revised lighting plan will be prepared in consultation with the Harbourmaster and form part of any consent granted and will be implemented with the placement of the new infrastructure on the sites.

5.4 Navigation and Access - Rule 35.2.5.3 d) and g)

The warning devices and signs described in Section 5.3 contribute to navigation, particularly at night.

The proposed farm extensions have been designed to provide a clear water space and access to the head of the bay. The lines will be spaces at distances that provide channels through the farm and its distance off the shore line and separation between the farms provide access to the shore line that is sufficient for boats to navigate safely and provides sufficient water space for recreational and commercial use of the water and access to the shoreline. Access into the farm between the lines is also possible and available.

No difficulties have been identified or reported since the farm was established other than occasional reports of lights failing which is not an unusual occurrence for marine systems such as this. These have been repaired each time. Regular checking and response to identified failures addresses this issue.

5.5 Information and Monitoring - Rule 35.2.5.3 b)

Monitoring requirements determined to be appropriate may be specified in any conditions of resource consent.

Monitoring of navigation and access and performance of the navigational equipment by the Harbour Master also applies in this regard.

5.6 Duration of consent – Rule 35.3.1.2 a)

Rule 35.2.5.2 specifies a maximum term of 20 years for resource consent. This application requests consent for a period of 20 years to 2037 which complies with this rule.

5.7 Survey ‘fixing’ of site location – Rule 35.3.1.2 b)

The farm presently exists and the attached plan identifies its position.

5.8 Administrative Charges – Rule 35.2.5.3 f)

This is a matter for the Council to determine. To date no charges have been made other than those related to consent processing and determination and any related to monitoring performance. No site rental charges have been made to date.

5.9 Adverse effects addressed by conditions of previous resource consents – Rule 35.2.5.3 i)

The existing resource consents are attached to this report. These include conditions concerned with managing the effects of the activity at that time. These conditions may be adopted by any new consent the Council may grant, as they address effects relating to those matters the Council has reserved control over.

No adverse effects resulting from these conditions have been identified.

6 Resource Management Policy

This is provided by the Marlborough Sounds Resource Management Plan (MSRMP), the Proposed Marlborough Environment Plan (MEP), Marlborough Regional Policy Statement (MRPS) and New Zealand Coastal Policy Statement (NZCPS). Relevant policy can be distilled into the points listed below. Discussion of the proposal is provided with regard to each.

6.1 Preservation of natural character

This is concerned with avoiding location of development within areas with uncompromised or substantially uncompromised natural character, encouraging development in areas where natural character has already been compromised and avoiding subsequent sprawling or sporadic development in the coastal environment.

The character of the area has been assessed above. The area forming the backdrop of Pigeon Bay has changed in the last 25 years, as providing an environment that has an identifiably reverted back to an area of more natural character that can accommodate the marine farm without compromising natural character. Existence of the farms is also identified as being part of this character.

The relationship between those areas of developed/changed land, areas where there is development within the CMA and those areas of land and CMA that are not developed also provides a means of identifying areas in which development such as the marine farms may be appropriate, the site of the marine farms are one of these.

The proposal is therefore in accordance with this policy.

6.2 Rehabilitation and restoration of natural character.

The locality has been assessed in the landscape and visual impact assessment as having outstanding natural features, these features are based on the elements of naturalness presented as a backdrop to the bay. This naturalness is only relatively new and will continue to develop with time, assuming that the island is retained under the same ownership and management practises. If for example the island were to be sold and returned back to a farmed environment as it has been before, that element of naturalness would be lost.

The marine farms have been in existence since before the surrounding landscape has been assessed as having outstanding natural features, therefore indicating they were not determined at that time to detract from the outstanding natural features of the area. Therefore, the removal of the farm would result in little if any noticeable return or rehabilitation of natural character.

Restoration of the backdrop landscape has and will continue to occur provided the island is retained by the same owner. Rehabilitation is entirely dependent on the Private ownership of the island.

6.3 Avoidance of adverse effects on the following features and characteristics;

- **Landforms and landscapes**

No significant landforms are specifically identified in the area, the ridge along the top of the island is identified as a prominent ridgeline. The backdrop of the island dwarfs the farm, the re-consenting and proposed extensions to the farms will not result in any adverse effects on landforms or landscapes.

- **Indigenous flora and fauna, habitats and conservation and ecological values including marine habitats, water quality,**

The benthic assessment has not identified concerns relating to water quality or fish life other than to recommend relocation of the lines away from a rocky area along the shoreline, which is proposed in order to avoid disturbance of fish life that may be attracted by this.

Effects on flora and fauna on the surrounding land are not expected and have not been experienced since the farms establishment.

- **Scenic and landscape values, landscape, seascape and aesthetic values**

These have been assessed in detail in section 5.2 above the effects of the farms are considered appropriate in these respects.

- **Cultural heritage and iwi values,**

The applicant has consulted with Raymond Smith of Ngati Kuia and received advice in support of the farms and the proposed extension.

Further inquiry in this regard will be available by the Council referral procedures. Any matters that arise from that will be able to be addressed at that time.

The farms are not having any direct physical effect on the archaeological or historical sites identified along the shoreline cliffs to the north of Pigeon Bay.

- **Navigational safety and Public health and safety**

This is provided for by combination of the navigational marks and lighting and layout of the farms ensuring they are visible during the night and enabling access through and around the farms.

- **Maintenance and enhancement of public access,**

and

- **Ensuring recreational interests are dominant over commercial interests**

The farms layout and locality allow public access within and through and to water around them and also clear access to the head of the bay where was historically a campsite.

The farm avoids any locations that anchorage or mooring may be chosen to be located or required.

The landscape and visual assessment has assessed the visual effects of the farms as not being contrary to the visual values and experiences of recreational interests.

- **Enable marine farming in appropriate places and renewal of marine farm consents issued prior to 1996 as Controlled Activities.**

This provides recognition for these farms in so far as it was established prior to this date.

This also provides a policy basis for concluding that some development in the form of marine farming is a recognised component of the character of such areas and may be expected to continue.

- **Recognition of Aquaculture**

This is concerned with recognising the contribution aquaculture provides to the well-being of the community and provision being made for it in appropriate locations. In this particular case, the farms form an integral part of the supply of mussels to the applicants processing factory, which on its own provides employment to 30 people, this does not take into account the number of people employed by the harvesting and management companies contracted to take care of the farms.

Combination of consent being previously granted, the farms existing and the relationship between the character of the locality and Plan rules and policy make provision for marine farming in CMZ 2.

7 Potentially Adversely Affected Persons & Consultation

Potentially adversely affected persons comprise those directly affected as occupants of the locality, those with passing experience of the locality and the farms as they visit and move through the area, or that have some other relationship with the locality or resource that results in an interest that may be affected.

Those people potentially directly affected comprise the owners and occupiers of Forsyth Island, who occupy the adjoining land.

Those people potentially affected as a result of a passing interest include recreational and tourism visitors to the locality. While these will include members of boating clubs, they may also include people who are not members of any such organisation.

Those people with other relationships with the locality include iwi with historical and cultural interests. Others have not been identified by our consideration of this matter.

In each of these regards however, presence of the farm in this location has provided a significant period of time during which effects and people potentially adversely affected will have been identifiable. In this regard the applicant has consulted with the owner of Forsyth Island, Mr Farhid Valadi and Raymond Smith of Ngati Kuia.

Ngati Kuia have been provided with plans of the proposal and were supportive of the proposal in principal.

The applicant has provided plans and information to the owner of Forsyth Island Mr Valadi, a meeting has been arranged for the end of October between the applicant and Mr Valadi to discuss the proposal.

8 RMA Evaluation

Evaluation is guided by the provisions of sections 104 and Part II of the RMA. These are concerned with effects on the existing environment, effects with regard to relevant policy and the overall principles of sustainability of natural and physical resources.

8.1 Section 104

The proposal has been compared with relevant objectives and policies of the New Zealand Coastal Policy Statement, Regional Policy Statement and Marlborough Sounds Resource Management Plan. The outcome from that assessment is the location of the farms in this location is not contrary to relevant policy from these documents.

Effects of the proposal will remain similar to those that have previously been determined to be appropriate and that resulted in resource consent being granted for the existing farms. Other than the relocation of the lines on the shoreline side of the farm to the outside in order to reduce potential effects of the identified inshore areas of cobble and coarse substratum habitats.

Other matters relevant to consideration of the application are, the existence of the farm as part of the existing environment of the locality, it not having been identified as causing any adverse effects of concern and the positive effects it provides to the community as a source of investment, employment, and income to the district, food production from use of natural resources, the continuing viability of the infrastructure making up the farm and associated processing facilities.

8.2 Part II

Those matters of relevance to this application are referred to below with the outcome from consideration of effects with regard to each.

8.2.1 Preservation of natural character of the coastal environment and protection of natural features;

Landscape and visual impacts are generally recognised as the most significant effects. The landscape and visual impact assessment advises that the farms continuance would have less than minor adverse effects.

8.2.2 Maintenance of public access;

Continuance of the farms are not adversely affecting this. The layout and location of the farms in relation to the shoreline facilitates access through and around it and avoids disruption or restriction to access to the coast.

8.2.3 Relationships and interests of Maori and the principles of the Treaty of Waitangi;

There are no identified archeological sites in the bay.

The applicant has consulted with representatives of Ngati Kuia and has received positive feedback

The Council referral process will assist determination of any matters that may require attention. This will also ensure the relevant iwi are provided an opportunity for involvement in the assessment and determination process as they determine is appropriate.

8.2.4 Maintenance and enhancement of amenity values, ecosystems and the quality of the environment;

Continuance of the farms in this location will not change any of the effects they presently have and they have not been found to have been adversely affected to an extent that makes the activity inappropriate.

Response to a recommendation from the benthic assessment for relocation of an inside or shore side lines to the outside of the farms and away from a rocky area along the shoreline is included in the proposal in order to provide an improvement in regard to ecological matters.

8.2.5 Sustainable use and development of natural and physical resources;

The farms have not been found to be causing loss of any natural or physical resources and is using natural resources in a manner that benefits the community.

The natural and physical resources used by the farms is not being lost, they are being utilised for the period permitted by the existing resource consents and any further term that may result from resource consent to this application.

The farms are using these resources in a manner that will provide for the foreseeable needs of future generations from use of the marine environment for food production and employment, while allowing their continued use for recreational activities by being publicly accessible, physically permeable, not restricting access to coastal resources and having less than minor effects on the landscape and visual environment of the locality.

The water quality and ecosystems within and surrounding the farms have been examined and their life supporting capacity has been found not to have been damaged by the existing farms and not expected to be damaged by the farms continuing on the site.

The manner in which farms are operated includes consideration of the matters of health and safety through the consented positions relative to the shoreline and identification of them to boat operators and continuing monitoring of them by both the Council and maritime authorities.

The farms are part of the wider marine farming industry in the Sounds that provides a significant contribution to the social and economic wellbeing of the community from employment and investment in the farms and food resource.

Maintenance of the existing investment in marine farms and the social and economic benefits they provide is reliant on continuing provision for existing farms through the consent process.

The requirement for re-consenting farms on a regular basis also provides for review of the effects they may be having on the resource they are occupying and using. To date these farms have not been found to be causing consumption of resource or use of it in a manner that is not able to be sustained without damage or loss.

9 Conclusions

The farms exist and form part of the existing environment of the locality. There is provision for consideration of the farms through a resource consent process specified in the MSRMP.

There is recognition of and provision for marine farming in the location of the farm by rules and policies in the NZCPS and MSRMP. The policy background provides a bias towards limiting disturbance of the natural environment of the Sounds, but balances this with provision for development including specific reference to marine farming and location of development within areas with development as part of their character and away from areas of undisturbed natural landscape.

The locality of the farms has a character that has components of high natural values but also in the past has included components of developed character. The balance between these provides for and accommodates the farm without adverse effect on this mix of values.

Effects of the farms now and continuing as a result of any re-consenting will be the same as they are at present and are not contrary to relevant policy or the provisions of Part II of the Resource Management Act.

Resources are being utilised in a manner that is not causing them to be lost or consumed, they remain accessible during the farms operation and occupation of the site and are not being lost from any future alternative use of the site.

The farms have not been identified as causing any inappropriate effects that may question continuing appropriateness of their location and is a form of investment and of a condition that presents a substantial physical resource.

Landscape and visual effects have been identified as the most significant effect and matter of consideration in regard to marine farms. This farm has been assessed as having less than minor effects in this regard.

Those other matters in regard to which the Council has reserved control have also been considered and reported herein as not making the activity inappropriate for re-consenting.

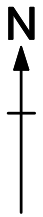
On the basis of balancing each of the matters prescribed by the provisions of Part II and with regard to the matters of Section 104 of the RMA, re-consenting of the farm would not be appropriate for the following specific reasons.

- Resource management policy applied to the Sounds includes recognition of marine farms and provision for their location within areas with developed characteristics.
- The locality of the site has had mixture of developed and natural characteristics and the balance between these and strength and nature of the natural characterises has and continues to accommodate the farm with less than minor adverse effects.
- The resource used by the farms are being used in a sustainable manner. It is not being consumed and remains available to other users and does not prevent access to or use of other resources in the locality.

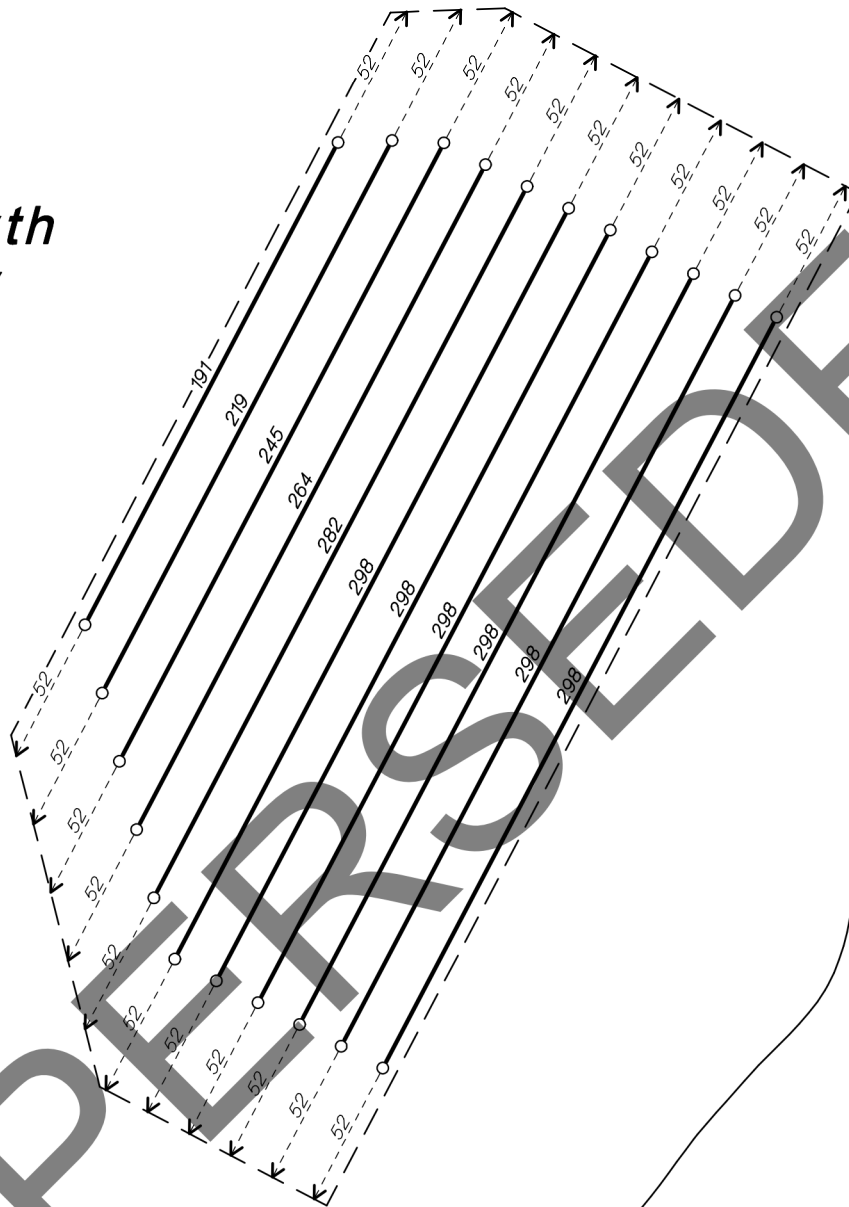
- The farms provide a means by which natural resources may be used in a manner that on balance provides beneficial effects to the welfare of the community without any significant or permanent adverse effects.

Sally Neal

20 October 2017



**Forsyth
Bay**



NOTE
Total Longlines = 11
Backbone Length = as shown
Total Backbone Length = 2989m
Warp Surface Loss = 52m

REFERENCE

- Orange Float
- < Anchors (Block or Screw)
- - - - - Anchor Warp
- Backbone

Structure Layout
Proposed Coastal Permit (Site 8135)
Pigeon Bay, Forsyth Bay

SCALE 1:2,500



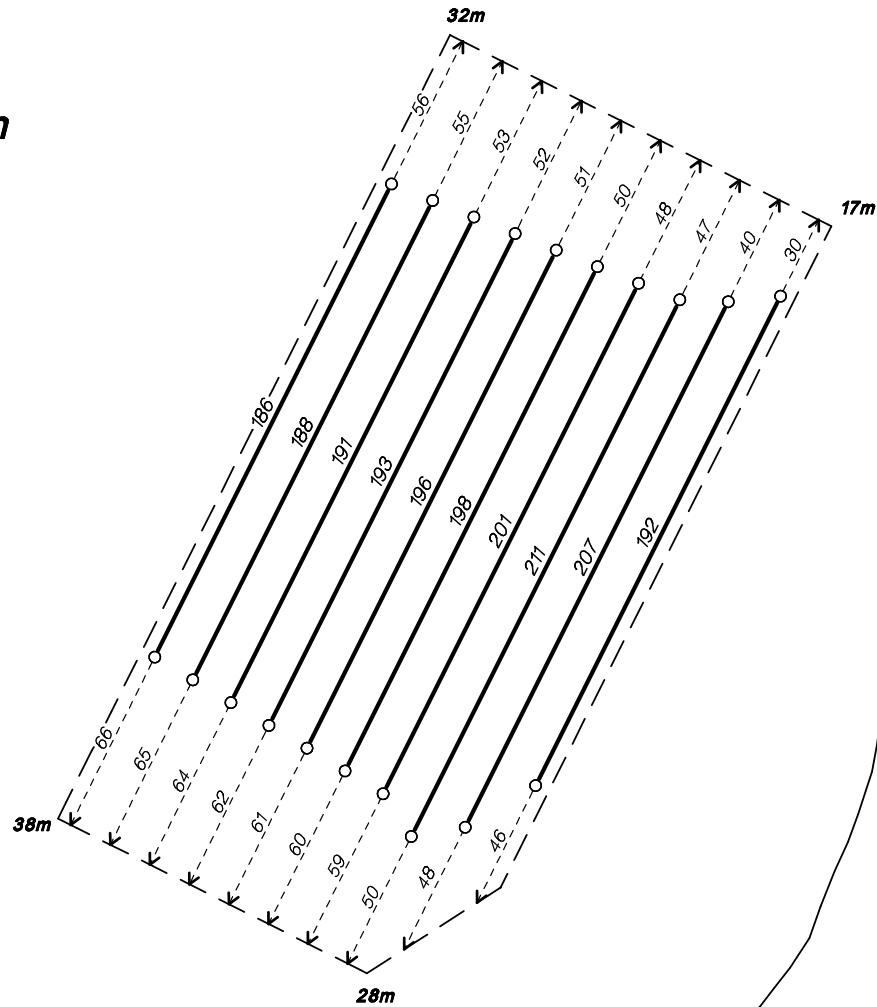
Prepared by: DRAUGHTING PLUS LTD
Date: 18 August 2017

MF_2516



Forsyth Bay

Pigeon Bay



NOTE

Longline Spacing = 15.55m
Total Longlines = 10
Backbone Length = as shown
Total Backbone Length = 1963m
Warp Horizontal Distance = as shown
Warp Ratio = 2:1 approx

REFERENCE

- Orange Float
- < Anchors (Block or Screw)
- - - - - Anchor Warp
- Backbone

Structure Layout

Proposed Coastal Permit (Site 8135)

Pigeon Bay, Forsyth Bay

SCALE 1:2,500



Prepared by: DRAUGHTING PLUS LTD
Date: 21 June 2018



MF_2516f



8136

8135

KEY

-  Surface Structures
-  Existing Marine Farm



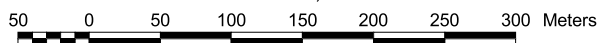
Prepared: 3 October 2017

Marine Farm Sites 8135 & 8136

Aerial Overlay

Existing Marine Farms

Scale 1:5,000



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Topomap 50 Sheet: BP29

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Prepared
18 August 2017




Locality Map

Renewal and Extension of Marine Farm 8135 & 8136
Pigeon Bay, Forsyth Bay

Scale 1:50,000
500 0 500 1000 1500 2000 2500 3000 3500 Meters



KEY

-  Surface Structures
-  Existing Marine Farm
-  Proposed Marine Farm



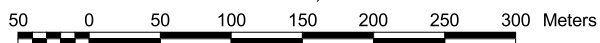
Prepared: 3 October 2017

Marine Farm Sites 8135 & 8136

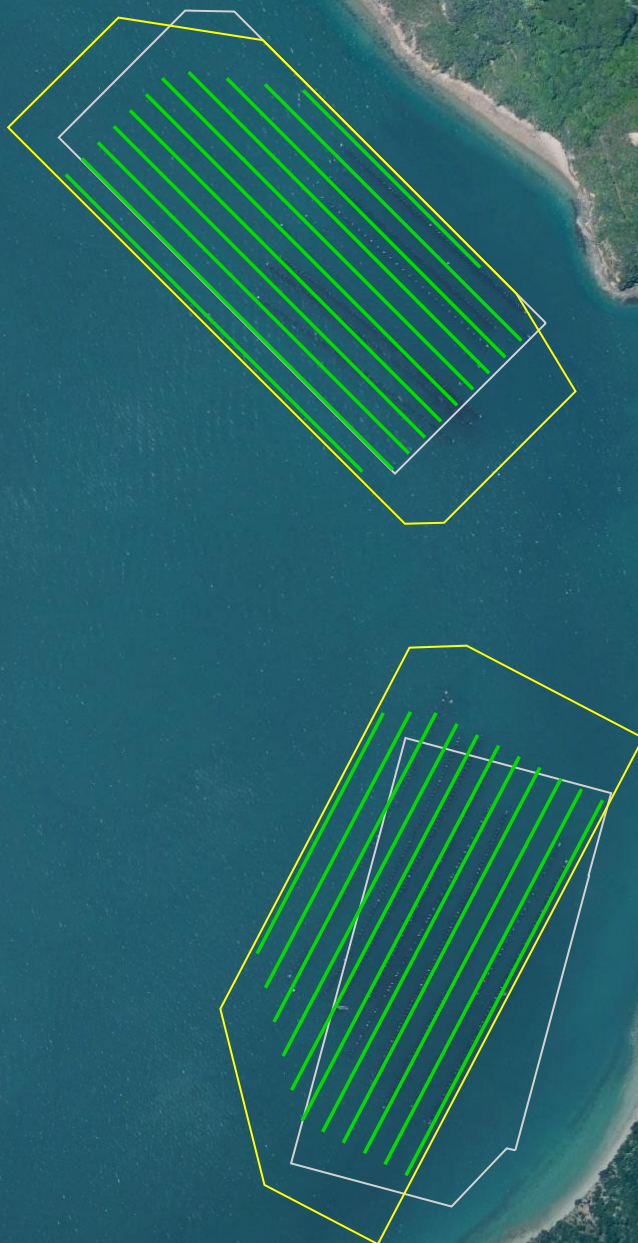
Aerial Overlay

Proposed Marine Farms




Scale 1:5,000



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KEY

-  Proposed Surface Structures
-  Existing Marine Farm
-  Proposed Marine Farm

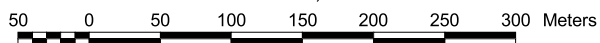


DPL
Draughting Plus Limited

Prepared: 3 October 2017

Marine Farm Sites 8135 & 8136
Aerial Overlay
Proposed Marine Farms


Scale 1:5,000



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KEY

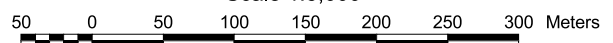
 Proposed Surface Structures



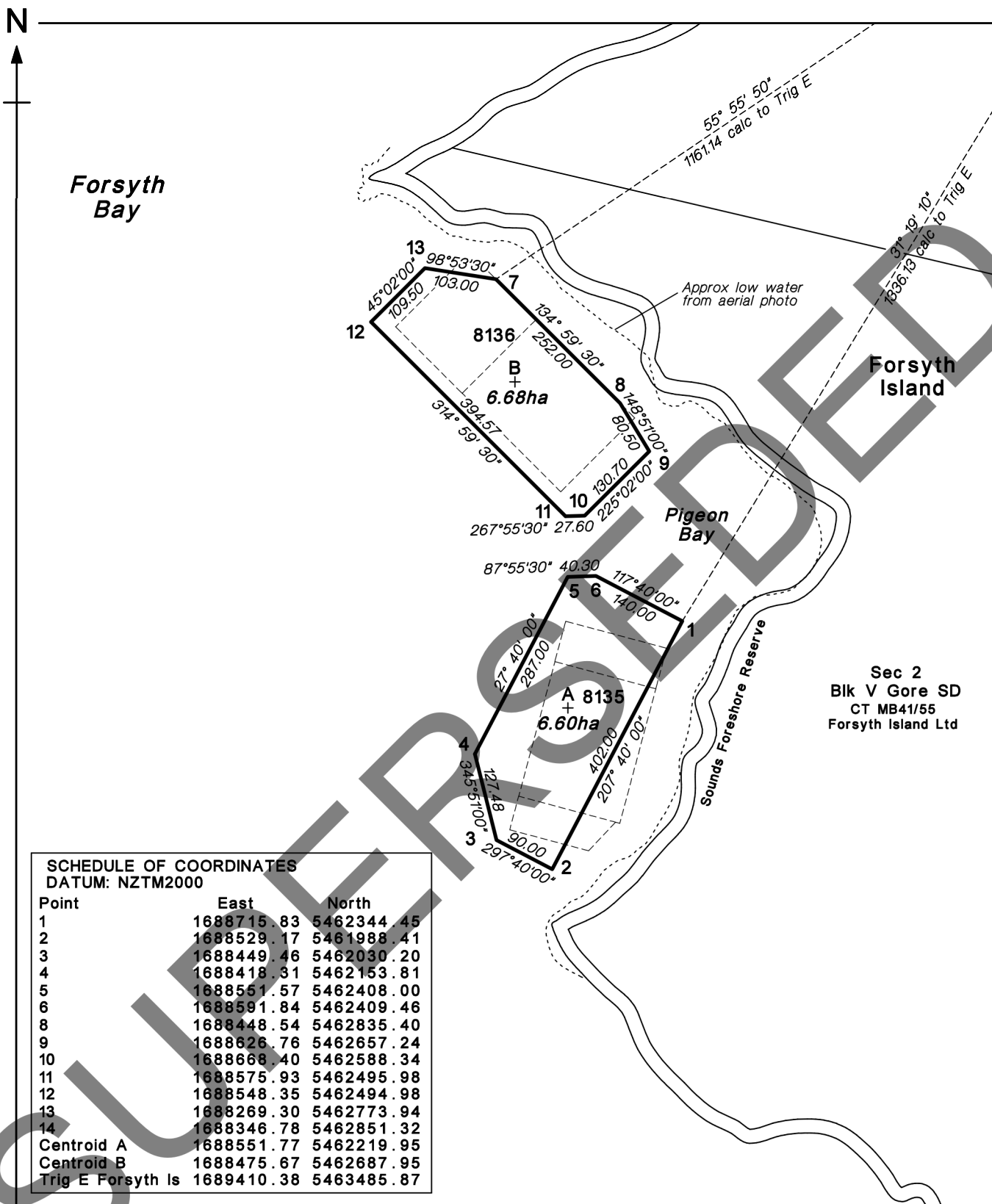
Prepared: 3 October 2017

Marine Farm Sites 8135 & 8136
Aerial Overlay
Proposed Surface Structures

Scale 1:5,000



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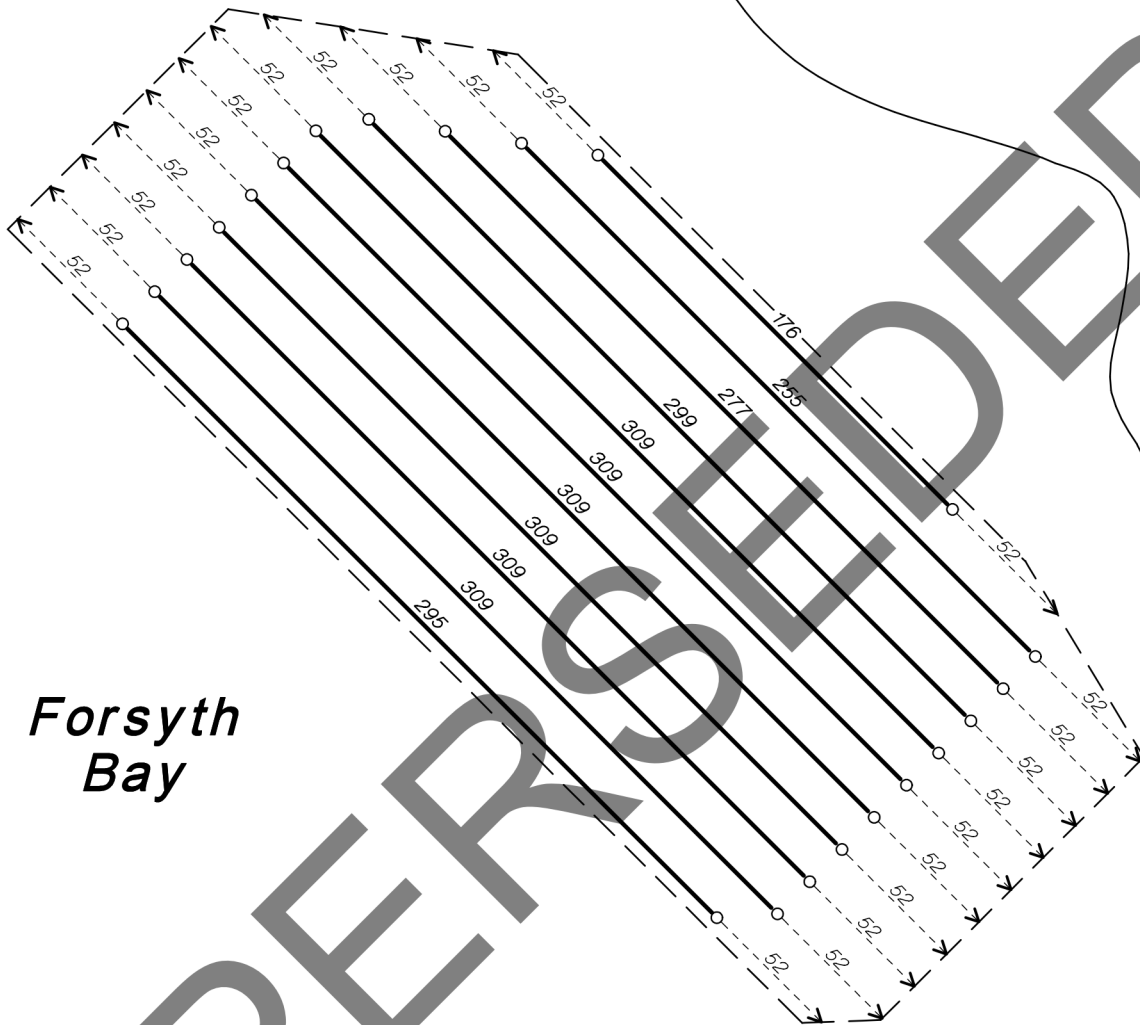
Proposed Coastal Permits **Marine Farm Sites 8136 & 8136** **Pigeon Bay, Forsyth Bay**

SCALE 1:7,500

50 0 100 200 300 400 metres

Prepared by: DRAUGHTING PLUS LTD
Date: 18 August 2017

MF_2516

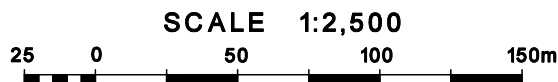


Forsyth Bay

NOTE
Total Longlines = 11
Backbone Length = as shown
Total Backbone Length = 3156m
Warp Surface Loss = 52m

REFERENCE	
○	Orange Float
△	Anchors (Block or Screw)
-----	Anchor Warp
—————	Backbone

Structure Layout Proposed Coastal Permit (Site 8136) *Pigeon Bay, Forsyth Bay*



Prepared by: DRAUGHTING PLUS LTD
Date: 18 August 2017

MF_2516



Davidson Environmental Limited

Biological report for the relicensing of marine farms 8135 & 8136, Pigeon Bay, Forsyth Island

Research, survey and monitoring report number 862

*A report prepared for:
PH Redwood & Co
Forsyth Island*

July 2017

Bibliographic reference:

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Prepared by:

Davidson Environmental Limited
6 Ngapua Place, Nelson 7010
Phone 03 545 2600
Mobile 027 445 3352
e-mail davidson@xtra.co.nz

July 2017



Specialists in research, survey and monitoring

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1.0 Introduction

The aim of the present study was to provide biological information for the proposed relicensing and small extensions in relation to two marine farm sites 8135 and 8136. Two inshore areas associated with each farm would be relinquished if the extensions are approved.

The two sites are in Pigeon Bay, along the eastern coastline of Forsyth Bay (Figure 1, Plate 1 and 2). The study describes the benthic substrata and habitats associated with both mussel farm sites. This report was commissioned by the farm owner, PH Redwood & Co.

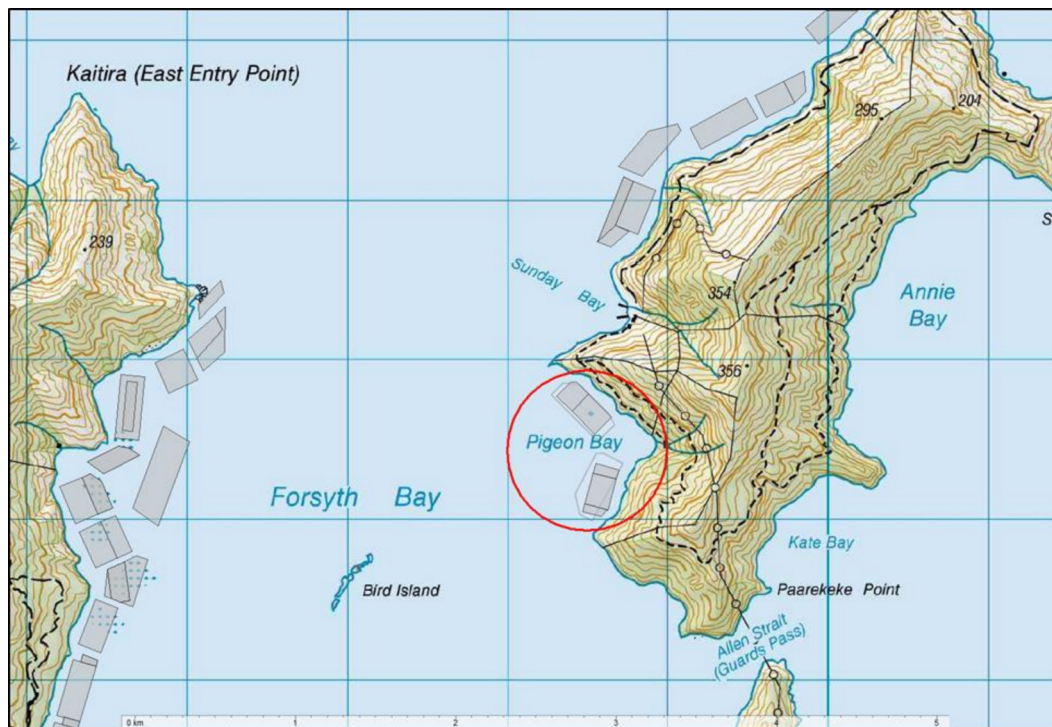


Figure 1. Location of farm sites 8135 and 8136 in Pigeon Bay (within red circle) and other

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consented marine farms (grey) along the coastline of Forsyth Bay.

2.0 Background information

2.1 Study area

Pigeon Bay is a small, west-facing bay on the southwestern shore of Forsyth Island, a large island in the outer Marlborough Sounds. Pigeon Bay is located some 55.5 km by sea from Havelock. The bay has a coastline length of approximately 1675 m and covers an area of sea of approximately 32.3 ha. The mouth of Pigeon Bay is approximately 1100 m wide (Figure 1). The shoreline of Pigeon Bay is characterised by boulders, cobbles, a pebble beach.

The southern farm site 8135 is currently 4.552 ha. The proposed extension and relicensing area of site 8135 for this report is a total of 6.595 ha. The northern marine farm site 8136 is currently 4.995 ha. The proposed extension and relicensing area of site 8136 for this report is a total of 6.688 ha.

2.2 Historical reports

Three historical ecological reports relating to site 8135 and 8136 were found during a search of available literature.

Davidson and Brown (1999) produced a report for the original 3 ha consent application at the head of Pigeon Bay, (MFL 441, 8135). These authors stated:

“Cobble and boulder substrata extended offshore from low water to 80 m distance at transect 1 and 90 m distance at transect 2. A zone of sorted shell and fine sand was recorded between 65 m to 80 m distance at transect 2. Beyond hard substrata areas, the benthos was dominated by soft sediment. Broken shell on a base of silt was recorded between 80 m to 90 m at transect 1 and between 90 m to 120 m distance at transect 2. Silt substrata with little or no shell material dominated offshore areas.

The number and composition of fish species were representative of shallow and deep reef habitats in the sheltered outer Sounds. Blue cod were regularly observed from the shallow



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cobble areas. An occasional cod was recorded from the deep cobble area. Occasional spotty and triplefin species were recorded from within the proposed farm boundaries.

Fish feeding holes in the substrata were observed between 65 m to 80 m distance from shore during the present study.”

Bradley (1999) investigated the ecological environment as part of an application to extend existing 3 ha marine farm 8136 to the northwest by 1.995 ha, (MFL440). The author reported the following:

“The proposed extension is approximately 34 m deep at the outer boundary, gradually inclining to depths of 18-20 m on the inshore boundary. The substratum beneath the extension varies from mud/sand/broken shell at the deeper depths, through to sand/broken shell/rocks. Inshore of the proposed extension, the bottom rises rapidly to the shoreline and becomes increasingly rocky.”

The author noted “many of the species occurred widely within the proposed extension and are common to the Marlborough Sounds. The biodiversity within the boundaries of the extension is limited compared to that near the shoreline.

Inshore of the inner boundary, in depths around 5-10 m, a large outcrop was observed during the transect dive. This supported a high diversity of species. One of the less common species here was gorgonian coral - approximately 5 fans were observed. The species observed below this proposed extension were either not of significant interest or did not occur at the trigger levels as indicated in the DoC guidelines.”

Bradley (2001) provided an ecological report as part of an application to extend existing 3 ha marine farm 8135 to the north and south by 1.55 ha, (MFL441). This survey concluded the following:

“The extensive depth sounder profile showed there are no significant or conspicuous features or structures (e.g. reefs or rock outcrops) beneath the proposed extensions. The depth sounder profile and free swim along the coastline also clearly showed there was no



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defined reef extending from the shoreline inshore of the existing marine farm or the proposed extensions. There is a shallower shoulder of cobbles and small rocks extending off a small headland near Extension A. However, this did not constitute a reef and did not differ from other rocky areas along the shoreline in the community it supported.

Beneath the extensions, the substratum largely consists of mud/broken shell. In shallower depths, the substratum becomes mud/sand/broken shell/rocks. The substratum becomes increasingly rocky the closer to the shoreline it gets. This rocky or cobble area extends approximately 15-25 m."

Bradley (2001) also noted these biological observations:

"Some species of interest (as defined by the DOC guidelines) were observed. These included: tubeworms (*Galeolaria hystrix*), scallops and horse mussels. However, in all cases these were well below the trigger levels mentioned in the guidelines."



Plate 1. Looking southeast towards the existing lines of northern farm site 8136. Photo taken offshore of Pigeon Bay.

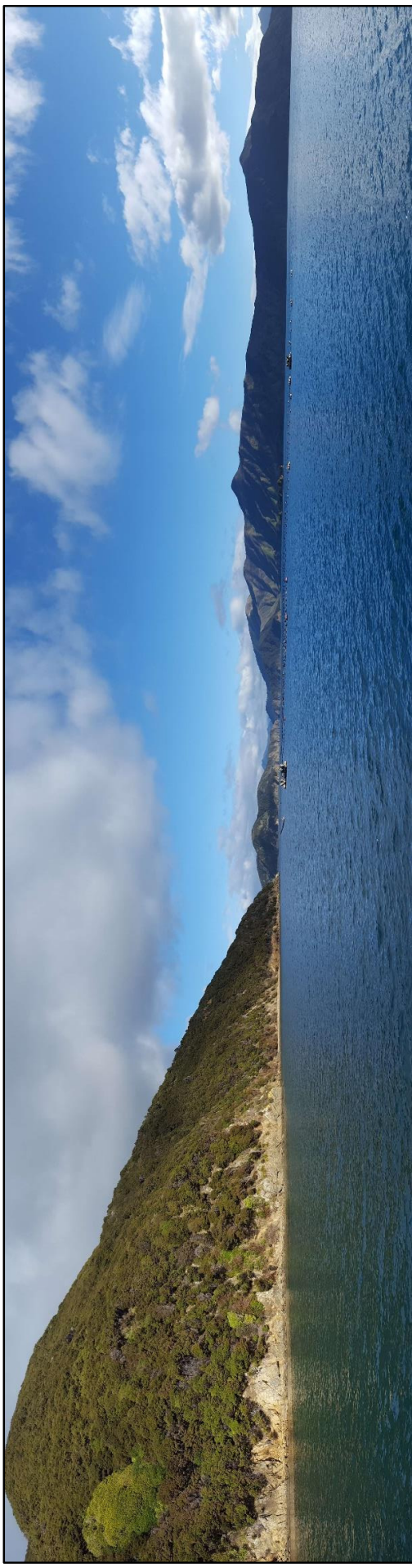


Plate 2. Looking southward to the existing lines of southern farm site 8135. Photo taken offshore in central Pigeon Bay.

3.0 Methods (present survey)

The area was investigated on July 3rd 2017. Prior to fieldwork, the consent corners were plotted onto mapping software (TUMONZ Professional). The laptop running the mapping software was linked to a Lowrance HDS-12 Gen2 with an external Lowrance Point 1 high sensitivity GPS, 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.

3.1 Sonar imaging

Sonar investigations of the area were conducted using a Lowrance HDS-12 Gen 2 and HDS-8 Gen2 linked with a Lowrance StructureScan™ Sonar Imaging LSS-1 Module. These units provide right and left side imaging as well as DownScan Imaging™. The unit also allows real time plotting of StructureMap™ overlays onto the installed Platinum underwater chart. A Lowrance HDS 10 Gen 1 unit fitted with a high definition 1kw Airmar transducer was used to collect traditional sonar data from the site.

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, depths and low tide

A total of 46 drop camera photographs were collected from the existing parent farms and extension areas, including alongside droppers and warps. At each drop camera station, a



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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 benthic mussel shell from drop camera photographs were ranked as: None = no mussel shell, 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.

The location of photograph stations was selected to obtain a representative range of habitats and depths within the consent. Additional photographs were taken when any features of interest (e.g. mussel shell, 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.

Low tide was determined at six locations inshore of the marine farm sites. The survey vessel was positioned over the low water mark and the position recorded using the mapping software. Low tide was determined by using the transition between intertidal and subtidal species.

4.0 Results

4.1 Consent corners and surface structures

The inshore consent boundary depths for site 8136 ranged from 20.6 m to 28.5 m, while offshore boundary depths ranged from 30.5 m to 34.5 m. Inshore boundary depths for site 8135 ranged from 9.7m to 16.5m, with offshore boundary depths between 31.9m to 38 m (Table 1, Figures 3a and 3b).

Table 1. Depths at the proposed extension corners and existing surface structures. Depths adjusted to datum. Coordinates = NZTM (Northing/Easting).

No. & Depth (m)		Coordinates
Extension corner	1, 9.7m	1688529.3,5461988.4
Extension corner	2, 33.9m	1688449.5,5462030.2
Extension corner	3, 38m	1688418.2,5462153.8
Extension corner	4, 31.9m	1688551.4,5462408.0
Extension corner	5, 31.9m	1688591.8,5462409.4
Extension corner	6, 16.5m	1688715.8,5462344.5
Extension corner	7, 28.5m	1688668.4,5462588.4
Extension corner	8, 30.5m	1688575.9,5462496.0
Extension corner	9, 30.5m	1688548.3,5462495.0
Extension corner	10, 34.5m	1688269.2,5462773.9
Extension corner	11, 23m	1688346.9,5462851.4
Extension corner	12, 20.6m	1688448.6,5462835.3
Extension corner	13, 25m	1688626.9,5462657.1
Structure corner	A, 25.2m	1688626.4,5462651.7
Structure corner	B, 26.7m	1688499.1,5462765.3
Structure corner	C, 29.9m	1688604.0,5462573.0
Structure corner	D, 31.6m	1688396.4,5462639.7
Structure corner	E, 30.6m	1688541.8,5462524.4
Structure corner	F, 23.9m	1688566.6,5462065.9
Structure corner	G, 19.5m	1688661.3,5462259.8
Structure corner	H, 32.3m	1688565.2,5462377.2
Structure corner	I, 36.4m	1688455.7,5462180.9
Low tide	Low tide 1	1688688.6,5462659.9
Low tide	Low tide 2	1688589.8,5462786.8
Low tide	Low tide 3	1688400.2,5462897.0
Low tide	Low tide 4	1688740.6,5462259.3
Low tide	Low tide 5	1688700.3,5462100.4
Low tide	Low tide 6	1688601.2,5461993.7

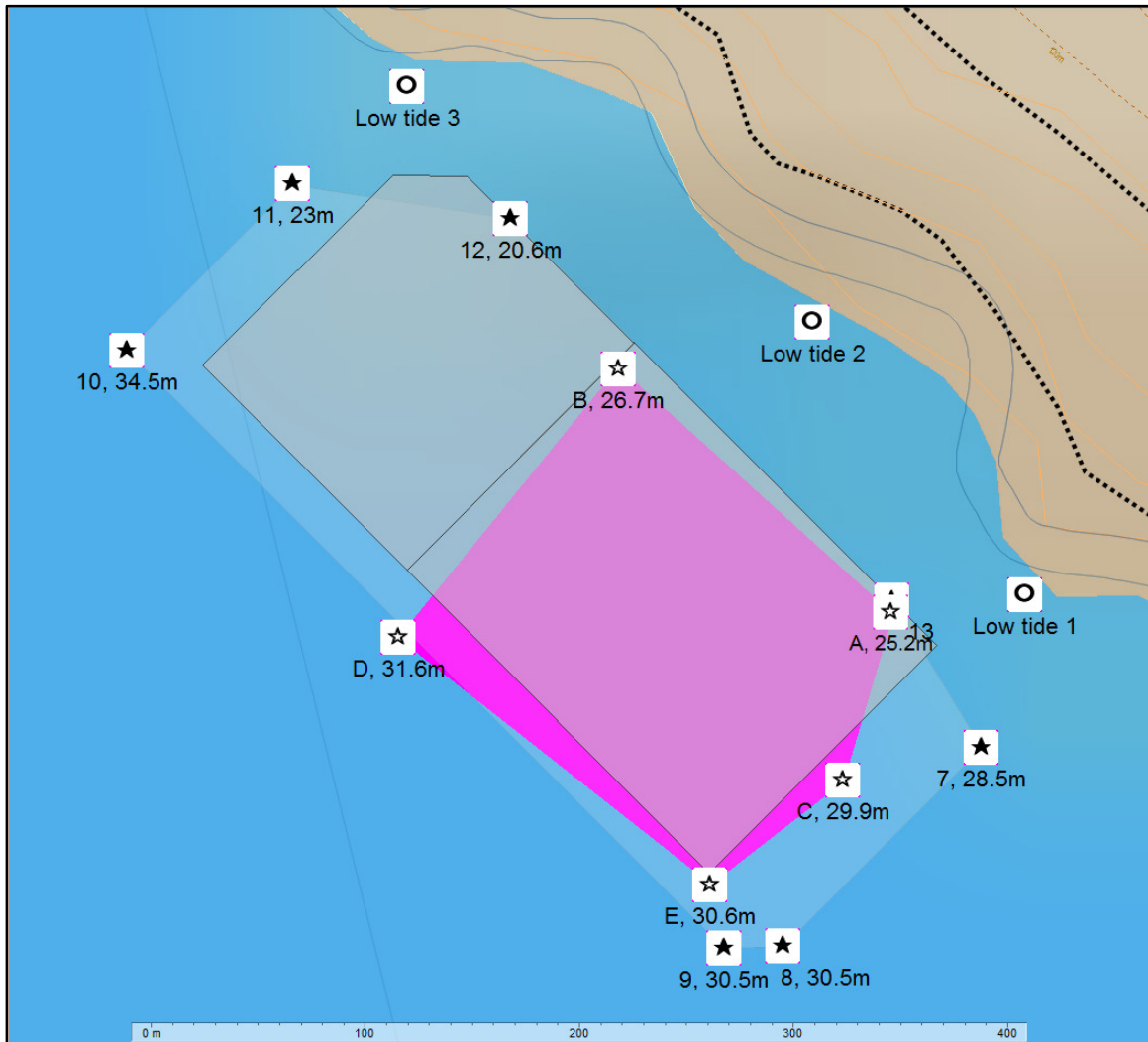


Figure 3a. Depths of site 8136 proposed relicense with extension (pale blue) and original consent boundaries (grey) of the northern block. Marine farm surface structures shown in pink.

The existing surface structures of 8136 consisted of one block of backbones covering 3 ha of the 5 ha consent.

The distance between low tide and the proposed inshore consent boundary was measured at three locations along the adjacent shoreline. The distance to the inshore boundary at the position of low tide 1 was 55 m, distance of 65 m at low tide 2, and distance of 53 m at low tide 3.

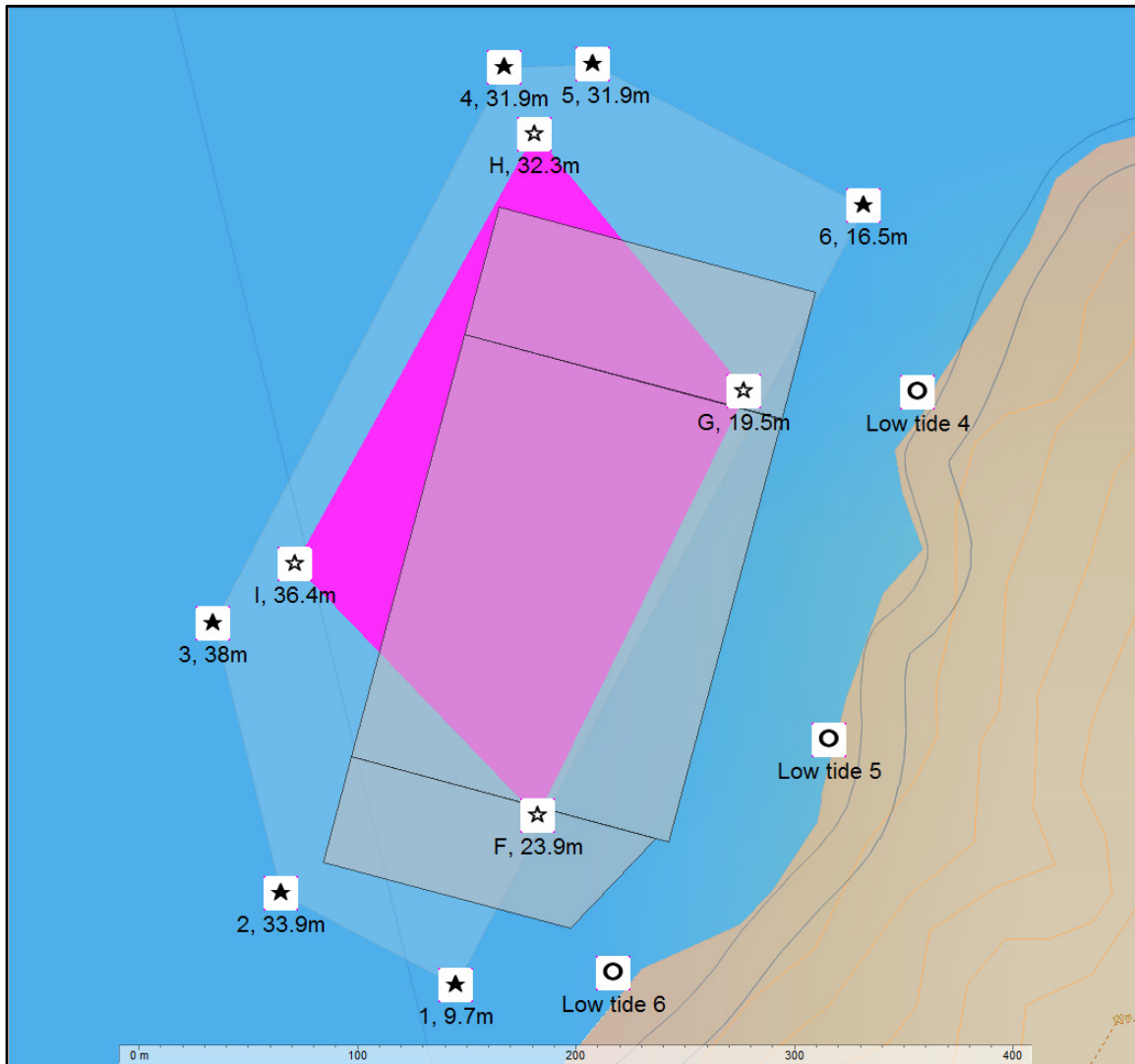


Figure 3b. Depths of site 8135 proposed relicense with extension (pale blue) and original consent boundaries (grey) of the southern block. Marine farm surface structures shown in pink.

The existing surface structures of 8135 consisted of one block of backbones covering 3.2 ha of the 4.55 ha consent.

The distance between low tide and the proposed inshore consent boundary was measured at three locations along the adjacent shoreline. The distance to the inshore boundary at the position of low tide 4 was 61 m, distance of 99 m at low tide 5, and distance of 61 m at low tide 3.

4.2 Sonar imaging

The sonar transect along the inshore proposed boundary of site 8136 revealed the area was relatively flat, with a featureless seafloor under the consent. Backbone structures and warps were recorded within the consent. A cobble bank was recorded inshore of the consent boundary (Figure 4a). Cobble material mixed with soft substrata extended further from the defined rubble bank into the consent along part of the northwest inshore boundary.

Sonar transects at site 8135 along the inshore proposed boundary and across the southern proposed extension area revealed the area was relatively flat, with a featureless seafloor under the consent. Some anchors blocks were defined by sonar within the consent area. A cobble bank was recorded well inshore of the consent boundary (Figure 4b). A bedrock reef was recorded south of the proposed consent area, with occasional boulders and cobbles present towards the consent area from this reef.

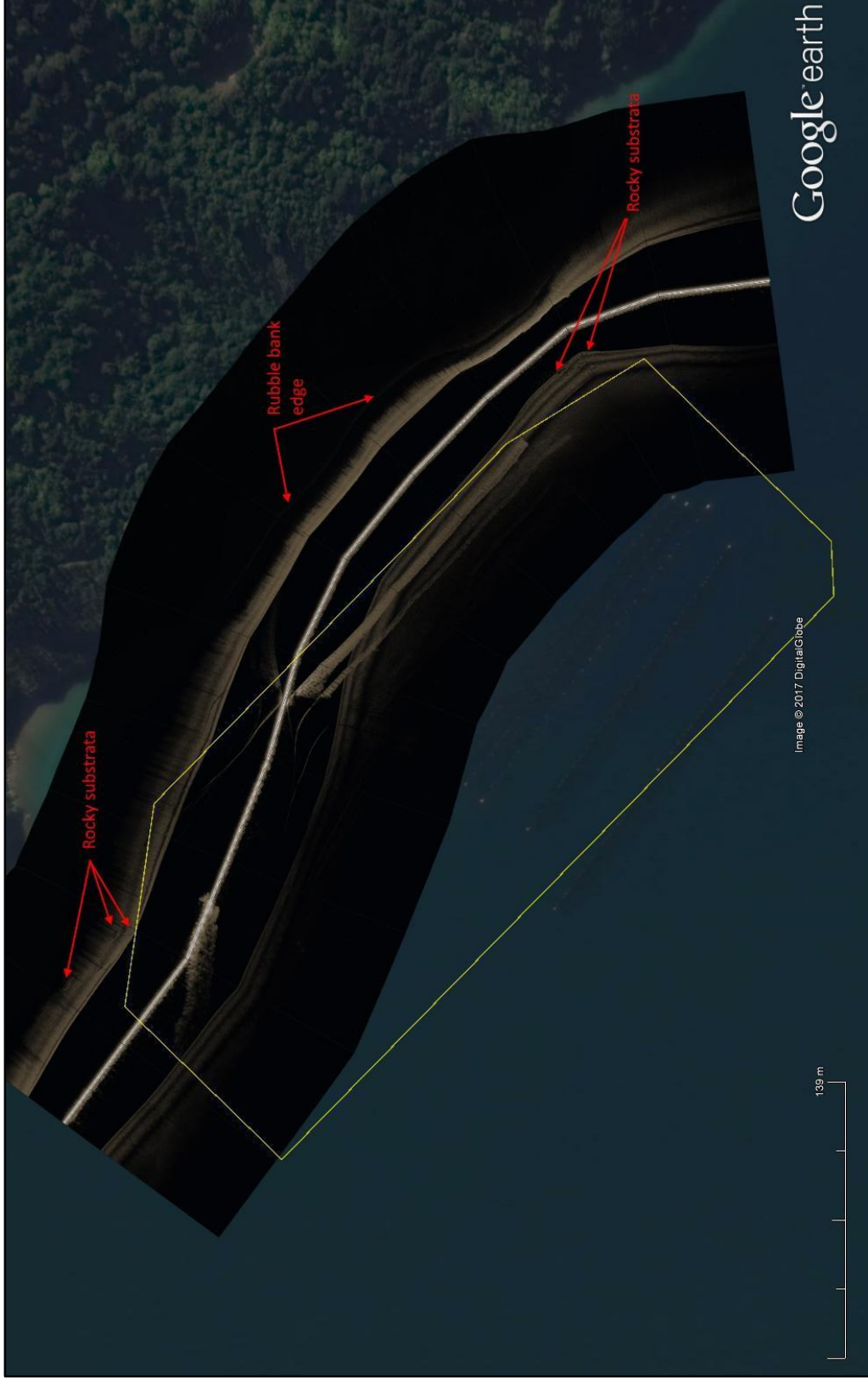


Figure 4a. Sonar transect at farm 8316. Yellow polygon = proposed new consent boundary including the extension, white line = sonar track.

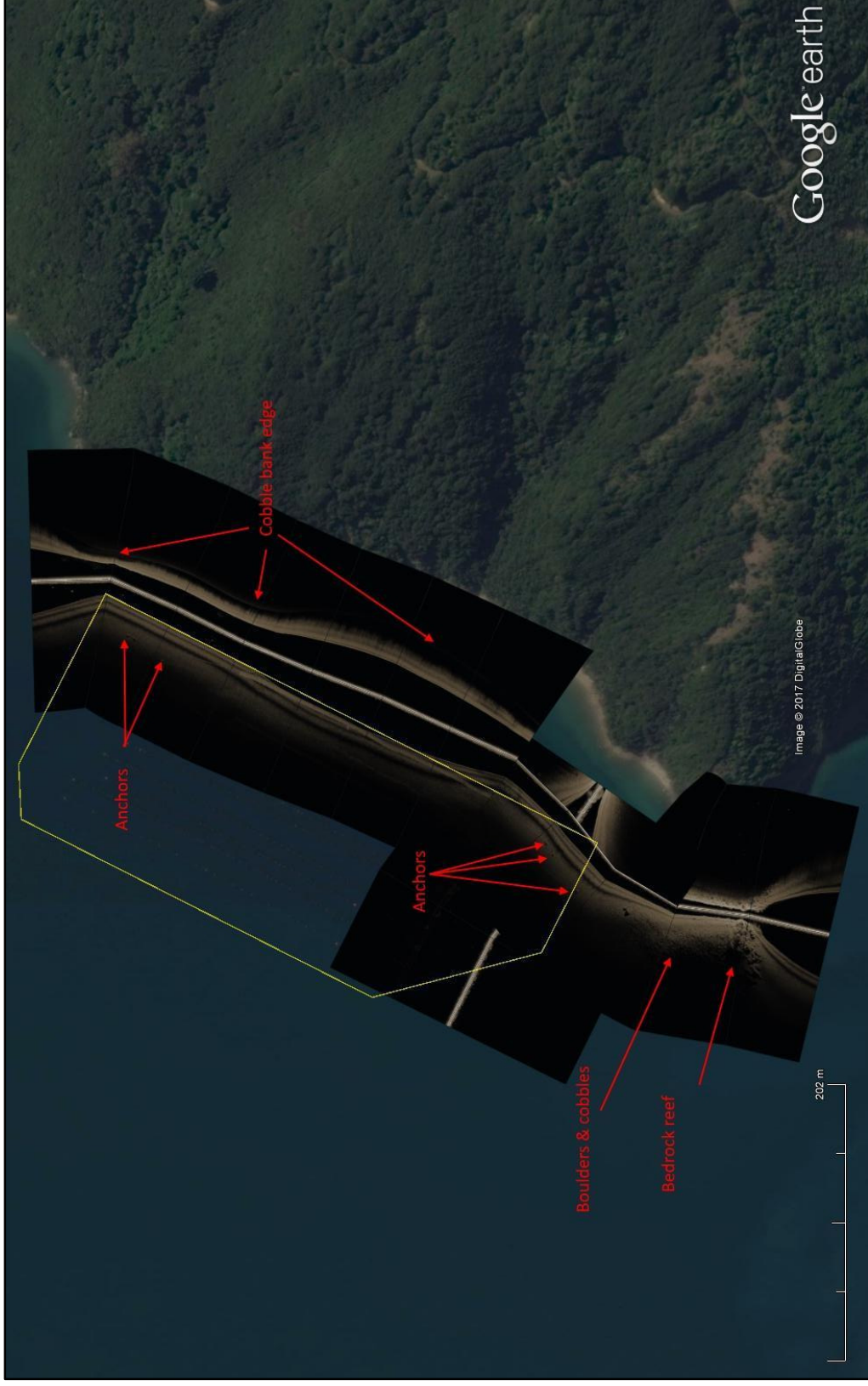


Figure 4b. Sonar transects at farm 8315. Yellow polygon = proposed new consent boundary including the extension, white line = sonar track.

4.3 Drop camera images

Drop camera photographs taken offshore, inshore, and throughout the two proposed extension and relicensing consents of 8135 and 8136, documented the distribution of benthic substratum and habitats (Table 2, Figures 5a and 5b, Appendix 1).

Hard substratum

At 8136 occasional cobbles were recorded to the proposed inshore boundary (Figure 5a, Plate 3). No other cobble, boulder or bedrock habitat was observed within 8136 proposed relicense site and extension. At 8135 cobbles were recorded at the northeast and southeast corners of the proposed relicensing and extension area. No mussel shell debris was observed on these cobble habitats at these areas were mostly located where anchors and warps are located (Figures 5a and 5b, Plate 4).

Plate 3. Silt substratum with natural shell, pebbles and occasional cobbles inshore of site 8136 boundary (photo 21, 23.1 m depth).



Plate 4. Silt and natural shell substratum with cobbles located within the extension area of 8135 (photo 37, 18 m depth).



Table 2. Coordinates of drop camera stations showing location relative to the marine farm consent area (NZTM). Colours are: grey = within consent, pale blue = within extension, pink = under backbones, dark blue = outside consent. Depth, substratum, and mussel debris data are also listed.

No. & Depth (m)	Coordinates	Location	Substratum	Shell debris
1, 30.7m	1688455.3,5462598.7	Offshore of consent, within extension, backbones present	silt	none
2, 30.6m	1688494.3,5462552.4	Offshore of consent, within extension, no structures	silt	none
3, 30.5m	1688540.1,5462494.4	Offshore of consent and extension, no structures	silt	none
4, 30.4m	1688586.0,5462532.9	Alongshore of consent, within extension, warps present	silt	none
5, 31.2m	1688622.4,5462571.9	Alongshore of consent, within extension, warps present	silt	none
6, 27.4m	1688630.7,5462626.5	Within consent, warps present	silt, natural shell, mussel shell	moderate
7, 27.8m	1688604.3,5462670.9	Within consent, backbones present	silt, mussel shell	low
8, 28.2m	1688563.7,5462704.9	Within consent, backbones present	silt, algae, mussel shell	low
9, 27.1m	1688507.8,5462756.0	Within consent, backbones present	silt, filamentous algae, mussel shell	moderate-high
10, 26.8m	1688435.3,5462815.2	Within consent, no structures	silt	none
11, 21.2m	1688397.1,5462843.3	Within consent, extension boundary, no structures	silt, natural shell, pebbles, cobbles	none
12, 23m	1688346.5,5462851.8	Alongshore of consent, extension boundary, no structures	silt, natural shell, pebbles, cobbles	none
13, 28.8m	1688352.2,5462825.4	Alongshore of consent, within extension, no structures	silt	none
14, 33.3m	1688319.1,5462743.0	Offshore of consent, within extension, no structures	silt, natural shell	none
15, 33.4m	1688360.2,5462785.1	Within consent, no structures	silt, natural shell, pebbles	none
16, 26.5m	1688396.6,5462820.1	Within consent, no structures	silt	none
17, 31.7m	1688384.3,5462670.3	Offshore of consent, within extension, no structures	silt	none
18, 31.5m	1688414.8,5462692.2	Within consent, warps present	silt	none
19, 31.4m	1688442.8,5462735.6	Within consent, warps present	silt	none
20, 29.3m	1688465.1,5462779.8	Within consent, warps present	silt, natural shell	none
21, 23.1m	1688534.3,5462754.1	Inshore of consent, no structures	silt, natural shell, pebbles, cobbles	none
22, 23.4m	1688601.2,5462701.3	Inshore of consent, no structures	silt, filamentous algae, mussel shell	low
23, 30.4m	1688559.8,5462601.5	Within consent, backbones present	silt, filamentous algae, mussel shell	low
24, 30.5m	1688501.1,5462651.2	Within consent, backbones present	silt, filamentous algae, mussel shell	low
25, 31.4m	1688415.8,5462616.5	Offshore of consent and extension, no structures	silt	none
26, 37m	1688463.0,5462166.6	Offshore of consent, within extension, warps present	silt	none
27, 34m	1688504.3,5462248.9	Offshore of consent, within extension, backbones present	silt, natural shell, mussel shell	low
28, 33.1m	1688554.1,5462339.9	Within consent, backbones present	silt, mussel shell	moderate
29, 32.2m	1688583.8,5462395.1	Alongshore of consent, within extension, warps present	silt	none
30, 28m	1688667.5,5462340.5	Alongshore of consent, within extension, warps present	silt, natural shell, mussel shell	low
31, 16.7m	1688708.8,5462326.8	Alongshore of consent, extension boundary, no structures	pebbles, natural shell, cobbles, silt	none
32, 21.1m	1688704.4,5462353.8	Alongshore of consent, extension boundary, no structures	pebbles, natural shell, cobbles, silt	none
33, 21.5m	1688654.3,5462242.4	Within consent, backbones present	silt, natural shell, mussel shell	low
34, 30.2m	1688614.2,5462160.1	Within consent, backbones present	silt, filamentous algae, mussel shell	moderate-high
35, 26m	1688577.2,5462084.7	Within consent, backbones present	mussel shell	high
36, 12.9m	1688517.8,5461988.0	Alongshore of consent and extension, no structures	silt, natural shell, cobbles	none
37, 18m	1688521.6,5462007.2	Alongshore of consent, within extension, no structures	silt, natural shell, pebbles, cobbles	none
38, 14.8m	1688541.7,5462011.4	Alongshore of consent, extension boundary, no structures	silt, natural shell, pebbles, occasional cobble	none
39, 28.7m	1688484.8,5462020.9	Alongshore of consent, within extension, no structures	silt, natural shell, pebbles, cobbles	none
40, 32.9m	1688485.1,5462042.5	Within consent, no structures	silt, mussel shell	low
41, 34m	1688454.3,5462029.4	Alongshore of consent, extension boundary, no structures	silt, natural shell	none
42, 36.5m	1688516.5,5462108.6	Within consent, warps present	silt, filamentous algae	none
43, 34.4m	1688548.9,5462174.8	Within consent, backbones present	silt, mussel shell	moderate
44, 34.6m	1688589.9,5462247.0	Within consent, backbones present	silt, shell	none
45, 33.2m	1688617.0,5462304.8	Within consent, backbones present	silt, filamentous algae	none
46, 32.9m	1688632.9,5462368.5	Alongshore of consent, within extension, warps present	silt, filamentous algae	none

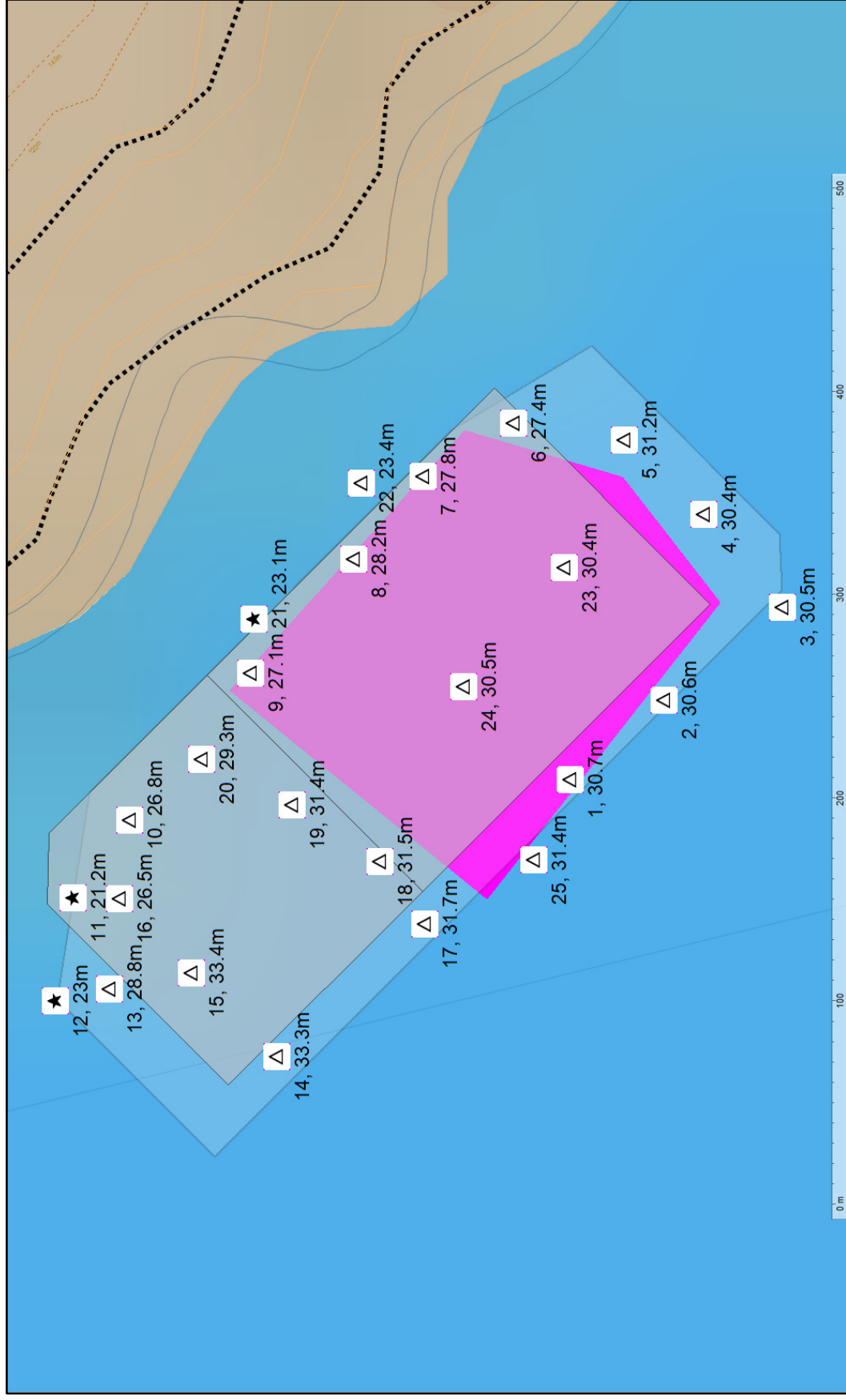


Figure 5a. Site 8136 drop camera stations (triangles = soft benthos, stars = some cobbles), consent area (grey), proposed relicense and extension (pale blue), and surface structures (pink). Numbers are photo number and water depth (m).

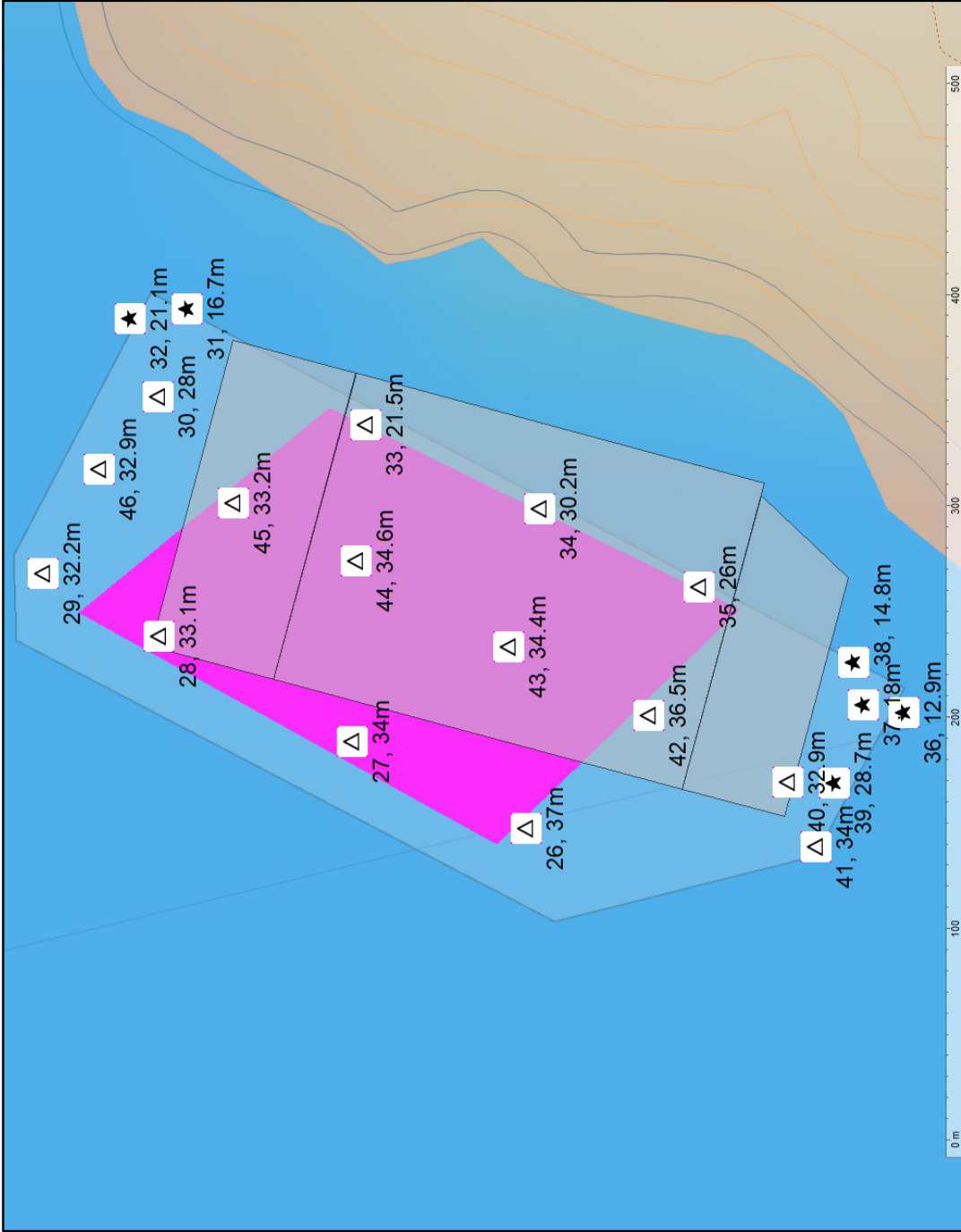


Figure 5b. Site 8135 drop camera stations (triangles = soft benthos, stars = some cobbles), consent area (grey), proposed relicence and extension (pale blue), and surface structures (pink). Numbers are photo number and water depth (m).

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Soft substratum

The benthos under sites 8135 and 8136 was dominated by silt and clay substratum (Table 2, Plate 5). Very little natural shell was observed from within the consents (Plate 6, Table 2)

Mussel shell debris was present within the consent areas, usually recorded adjacent to or underneath backbone structures. Mussel shell debris within the consent areas ranged from none to high cover (Table 2, Plate 7).

Plate 5. Silt and clay in 8136 (photo 4, 30.4 m depth).

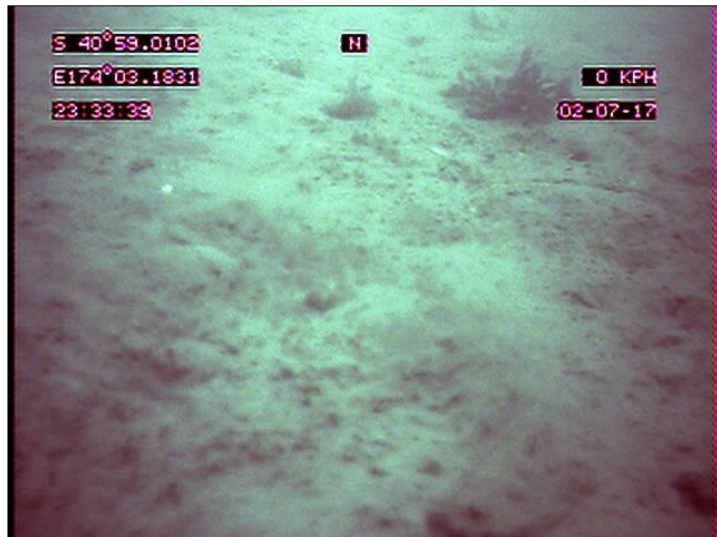


Plate 6. Silt and clay with natural shell (photo 20, 29.3 m depth).

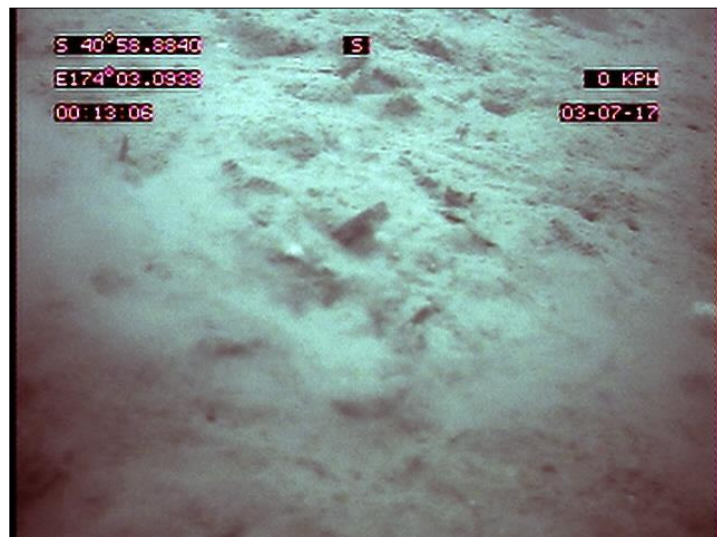


Plate 7. Silt and clay with a high level of mussel shell debris (photo 35, 26 m depth).



Photos collected in the proposed offshore area of site 8136 were characterised by a silt base with no mussel shell debris (photos 1, 2, 14, 17).

Species of interest

Filamentous algae was observed on the benthos within the consent areas, inshore and alongshore, and under existing backbone structures. No “algal bed” was documented as percentage covers were low. This algae species was recorded on the benthos amongst mussel shell debris and also areas without mussel shell debris (e.g. Plate 4).

Plate 8. Silt and clay with mussel shell debris and filamentous algae (photo 34, 30.2 m depth).



5.0 Conclusions

5.1 Benthic habitats

Substratum and habitat distribution relative to the proposed small extensions and proposed relicensed areas associated with sites 8135 and 8136 area was based on drop camera stations and sonar imaging of the benthos.

Hard substratum

Cobble substratum was recorded at inshore corners of site 8135. Cobbles were also present at three locations on the inshore boundary of site 8136. Cobble bank habitat was also observed inshore of the two relicense areas.

Cobble substratum is not traditionally considered suitable for marine farming activities as it usually is smothered by shell and likely no longer functions as a hard substratum habitat. The isolated patches of cobbles along the proposed relicensing boundaries and extensions will most likely remain unimpacted by marine farming activities. The presence of scattered cobbles in this survey is at the very edge of the proposed sites. These areas are where warps and anchors are located. Davidson and Richards (2014) reported in an 11 year study that warp areas had resulted in little impact on the benthos. The current farming activity shows little mussel shell debris in areas surveyed around existing warps (see Table 2).

Soft substratum

Most of both sites were dominated by silt and clay substratum. Silt and clay substratum is widespread the Marlborough Sounds. Mud (i.e. silt and clay) is the most common subtidal habitat in the sheltered Marlborough Sounds and has been traditionally targeted by marine farming activities. This substratum type is considered suitable for marine farming activities in the Marlborough Sounds as it the least changed due to mussel farming activities. This is in contrast to coarse substratum or rocky habitats that undergo considerable change due to farm activities.

5.2 Species and communities

Deep silt substratum under and around the growing structures supported a low number of surface dwelling species compared to inshore rubble banks in the Sounds. Filamentous algae was recorded beneath the backbones, suggesting this species can coexist with marine farming activities.

No species or communities of scientific, conservation or ecological importance were observed during the present study (see Davidson *et al.*, 2011 for criteria and biological features).

5.3 Mussel farming impacts

5.3.1 Benthic impacts

Benthic mussel shell was recorded from 15 of the 46 drop camera photos collected under and near backbones. Shell debris impact levels were within the range known for mussel farms in the Marlborough Sounds and towards the low to moderate impact range apart from directly under droppers where shell did occasionally reach higher levels.

It is probable that the impact of continued shellfish farming at this site will result in the deposition of more shell and fine sediment under and near droppers. Based on the literature and assuming the present level of activity remains relatively consistent, it is very unlikely that the surface sediments would become anoxic, especially as the site is shallow (<10 m depth) (Hartstein and Rowden, 2004; Keeley *et al.*, 2009; Davidson and Richards, 2014).

The applicant has proposed to relinquish some inshore areas of both consents if the proposed extensions are approved. These inshore areas support some areas of cobble and coarse substratum habitats. The removal of these areas in favour of deeper offshore habitats is a positive ecological outcome.

5.3.2 Productivity

Mussel farms can influence adjacent farms by slowing water flow to farms located in downstream positions. This is particularly pronounced in quiescent areas of the Sounds. However, published work by Zeldis *et al.* (2008, 2013) suggests that the major factors

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influencing productivity in the Marlborough Sounds relate to cyclical weather patterns in the summer (El Nino and La Nina) and river-derived nutrient inputs in winter. Slow crop cycles in some years are therefore a reflection of a weather cycle and much less about the number of farms.

There has been no data presented to show that the ecological carrying capacity of the Sounds has been reached. There is considerable evidence that shows the major drivers of the Pelorus system, for example, naturally leads to large within and between year variability. Relative to this, the impact of mussel farms appears to be material but relatively small compared to major environmental drivers (Broekhuizen *et al.*, 2015).

Tidal flows in Pigeon Bay are expected to be low, but winds are likely to be an important driver of water movement in this area. Water turn-over likely short due to the site proximity to the outer Sounds. It is therefore likely that phytoplankton depletion levels at this site are towards the lower end of the spectrum, however, Forsyth Bay is not known as a highly productive area, likely due to a dominance by oceanic water rather than sheltered Sounds water where plankton levels are usually higher.

5.4 Boundary adjustments, recommendations and monitoring

No modification to the proposed relicense area of sites 8135 and 8136 are recommended.

For the adjusted consent and proposed extensions, no biological values were detected that would preclude the area from being used for mussel farming. The substratum is the most common and widespread habitat type in sheltered shore of the Marlborough Sounds and the sheltered outer Sounds. The impacts for mussel farming on muddy habitats characterised by silt, clay and natural shell are usually low compared to farm impacts in shallow, habitats dominated by rocky or biogenic communities. Farm structures in this area are therefore situated over habitats traditionally considered suitable for the activity of farming mussels. Occasional cobbles were recorded in association with coarse substratum in the corners of the applications where warps and anchor would be located. These structures do not appear to impact on the benthos (Davidson and Richards, 2014).

Based on the substratum located under structures and the impact levels of the existing activity, no monitoring is suggested.

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Appendix 1. Drop camera photographs

Photo site 1



Photo site 2

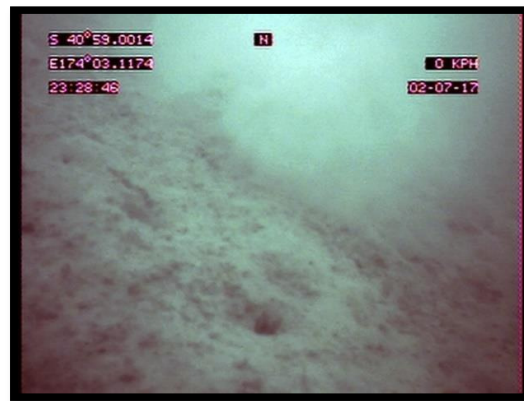


Photo site 3

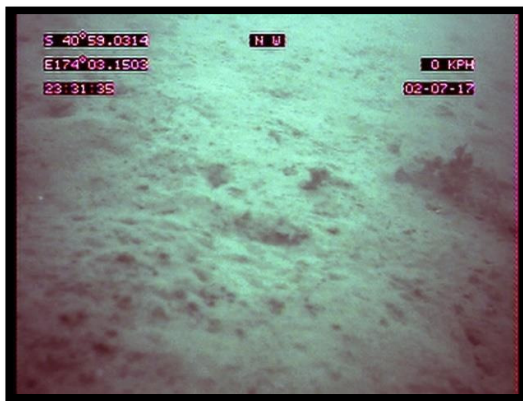


Photo site 4

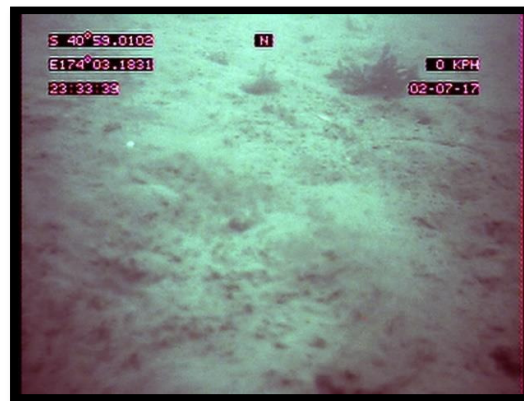


Photo site 5



Photo site 6

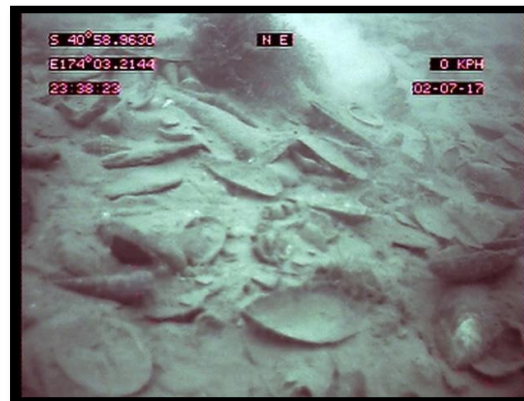


Photo site 7



Photo site 8



Photo site 9



Photo site 10



Photo site 11



Photo site 12



Photo site 13



Photo site 14



Photo site 15



Photo site 16



Photo site 17



Photo site 18

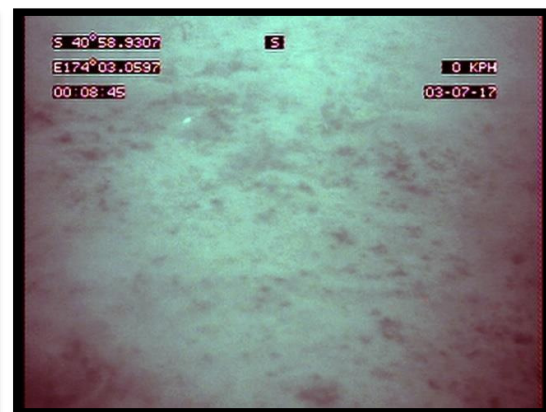


Photo site 19



Photo site 20



Photo site 21



Photo site 22

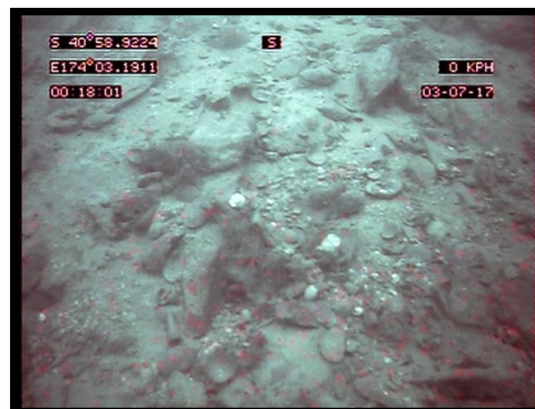


Photo site 23



Photo site 24



Photo site 25



Photo site 26



Photo site 27



Photo site 28



Photo site 29

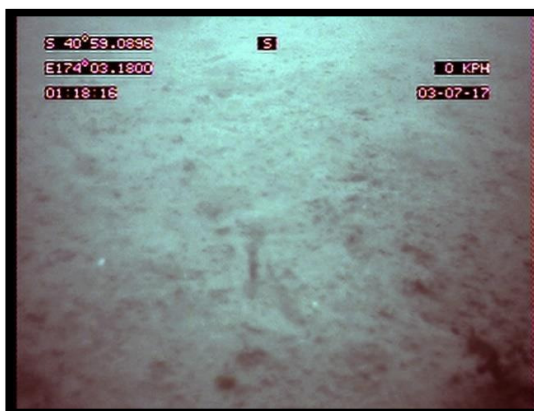


Photo site 30



Photo site 31



Photo site 32



Photo site 33



Photo site 34



Photo site 35



Photo site 36

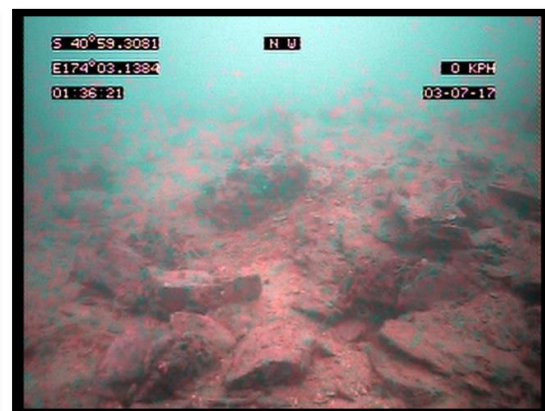


Photo site 37



Photo site 38



Photo site 39

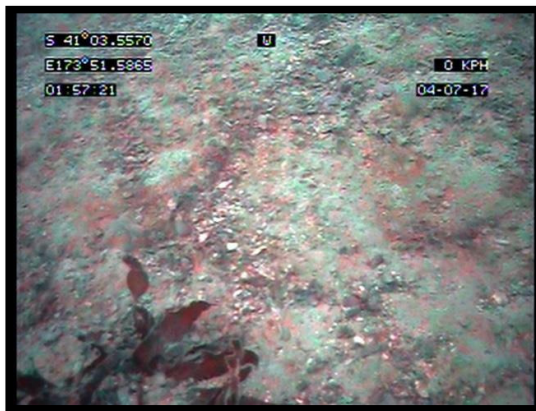


Photo site 40



Photo site 41



Photo site 42



Photo site 43



Photo site 44



Photo site 45



Photo site 46

