

Bea Gregory-5252

From: MDC
Sent: Saturday, 17 February 2018 5:52 a.m.
To: RCInbox
Subject: Application for Resource Consent: REF180214632
Attachments: REF180214632.pdf

A application for a Resource Consent has been received. Application lodgement number is REF180214632.

Submission details are attached.

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GST No. 50-430-960

Reference Number:	REF180214632
Submitted On:	17/02/2018 05:52
Submitted By:	Jonathan Tester

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	• An individual
First name	Allan
Last name	Tester
First name	Stephen
Last name	Cross
Is the applicant	
Is the applicant	
Main applicant name	Allan Tester
Main applicant electronic (email) address for service	ebla47@hotmail.com
Main applicant mailing address	26 Henry Street, Blenheim 7201
Main contact number	021485877
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?	Individual
Company name	Not answered
First name	Jonathan
Last name	Tester
Electronic (email) address for service	jonotester@gmail.com
Mailing address	PO Box 184, Blenheim 7240

Main contact number	+64275456440
Alternative contact number	+355699347093
Agent reference	Not answered

Application Details

Types of resource consent applied for	<ul style="list-style-type: none"> • Coastal Permit • Discharge Permit
The location to which the application relates is	Deep Bight, Port Underwood.
Brief description of the activity	1.536ha extension to Marine Farm 8419.
<p>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)</p> <p>I attach an assessment of the proposed activity against the matters set out in Part 2 of the Resource Management Act 1991.</p> <p>I attach an assessment of the proposed activity against any relevant provisions of a document referred to in Section 104(1)(b) of the Resource Management Act 1991, including the information required by Clause 2(2) of Schedule 4 of the Resource Management Act 1991.</p>	
Please upload assessment	• 8419 RCA - Final-signed.pdf(9051264 bytes)
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	No files uploaded
Scheme plan	No files uploaded
Forest harvest plan	No files uploaded
Building plans	No files uploaded
Dam design drawings	No files uploaded
Certificate(s) of Title and legal documents	No files uploaded

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?	No
Benthic report	No files uploaded
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

Are there other activities which are part of the proposal to which the activity relates, for example permitted activities, or building consents etc? No

If the application is affected by Section 124 or 165ZH(1)(c) of the Resource Management Act 1991 (which relate to existing resource consents), the value of the investment of the existing consent to the consent holder. *(This assessment should include more than stating a monetary value.)* Not answered

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) Jonathan Blair Allan Tester

You may apply for two or more resource consents that are needed for the same activity on the same form. You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991 (if any).

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.

If you lodge the application with the Environmental Protection Authority, you must also lodge a notice in form 16A at the same time. If your application is to the Environmental Protection Authority, you may be required to pay actual and reasonable costs incurred in dealing with this matter (see section 149ZD of the Resource Management Act 1991).

An electronic address for service must be provided if you are applying for a Fast Track consent. Under the Fast Track resource consent process, notice of the decision must be given within 10 working days after the date the application was first lodged with the council opts out of that process at the time of lodgement.

A Fast Track application may cease to be a Fast Track application under Section 87AAC(2) of the Resource Management Act 1991.

Application for Resource Consent to the Marlborough District Council

Under Section 88 of the Resource Management Act 1991

APPLICANT: Allan Tester and Stephen Cross

LOCATION: Deep Bight, Port Underwood

**CONSENTS SOUGHT
AND DESCRIPTION OF
ACTIVITIES** Coastal Permit

To extend marine farm 8419 by 1.536ha in Deep Bight, Port Underwood including the following activities:

- Undertake marine farming activity;
- Construct and maintain marine farming structures;
- Disturb the bed of the CMA; and
- Undertake harvesting activities.

Discharge Permit

To discharge contaminants to the coastal environment area, including:

- Faeces and pseudofaeces from marine farm organisms;
- Organic and biodegradable waste particularly during harvest.

(A detailed description of this activity is contained within Attachment A – *Assessment of Environmental Effects*).

**ASSESSMENT OF
EFFECTS**

Attached is an assessment of the environmental effects that the proposed activity may have on the environment in accordance with Section 88 and the Fourth Schedule of the Resource Management Act 1991. Consideration has been given to the Marlborough Sounds Resource Management Plan.

Signed for and on behalf of Allan Tester and Stephen Cross on 16 February 2018



Jonathan Tester

Deposit: The deposit will be paid by direct credit.

ATTACHMENT A.**ASSESSMENT OF ENVIRONMENTAL EFFECTS**

Prepared in accordance with Section 88 and the Fourth Schedule
of the Resource Management Act 1991

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ATTACHMENTS:

- A. Assessment of Environmental Effects**
- B. Location and layout plans** (Draughting Plus Ltd)
- C. Benthic Site Assessment** (Davidson Environmental Ltd)

1.0 Introduction

1.1. The purpose of this report

The purpose of this report is to provide a description of the proposed development and an analysis of the adverse effects on the environment from the granting of this consent. This report has been prepared in accordance with Section 88 and the Fourth Schedule of the Resource Management Act 1991 and forms an integral part of this resource consent application for a coastal permit and discharge permit.

2.0 Description of Activity

2.1. Background and Subject Site

- 2.1.1. The applicants have held the parent site since 1989 and is an integral part of their overall business which includes ownership and management of a number of farms throughout the Marlborough Sounds.
- 2.1.2. Site 8419 was originally approved in 1987 (MFL382) as a 3.0 ha site and the consent holders subsequently applied for and received an extension (U13312) to the site in 2013.
- 2.1.3. Deep Bight is a small embayment on the eastern side of the western arm of Port Underwood. A location map is provided in **Attachment B** and an excerpt of the location map is shown in Figure 1 below.
- 2.1.4. Port Underwood is a long a sound running north south and is accessed by road from Picton via Port Underwood Road.
- 2.1.5. Topographically, Port Underwood is isolated from the rest of the Marlborough Sounds. There is a long, broad promontory from the northern end of Port Underwood that extends approximately 3.5 kilometres and splits the head of the sound into two. The headland at the southern end of this promontory is named Separation Point.
- 2.1.6. The landward backdrop of Deep Bight is currently in exotic forestry land use. There are no notable features within Deep Bight except for the existing marine farming.
- 2.1.7. Marine farms are extensively developed along the western side of the promontory. The extent of this marine farming development is evident from the plans and drawings provided in **Attachment B**.
- 2.1.8. The extensive aquaculture along both sides of the promontory can also be seen in Figure 1 (bottom) which is reproduced from the Council's marine farm mapping system. It is clear that there is a strong pattern of concentration of marine farms within the CMZ2 zone and an absence in the CMZ1 zones.

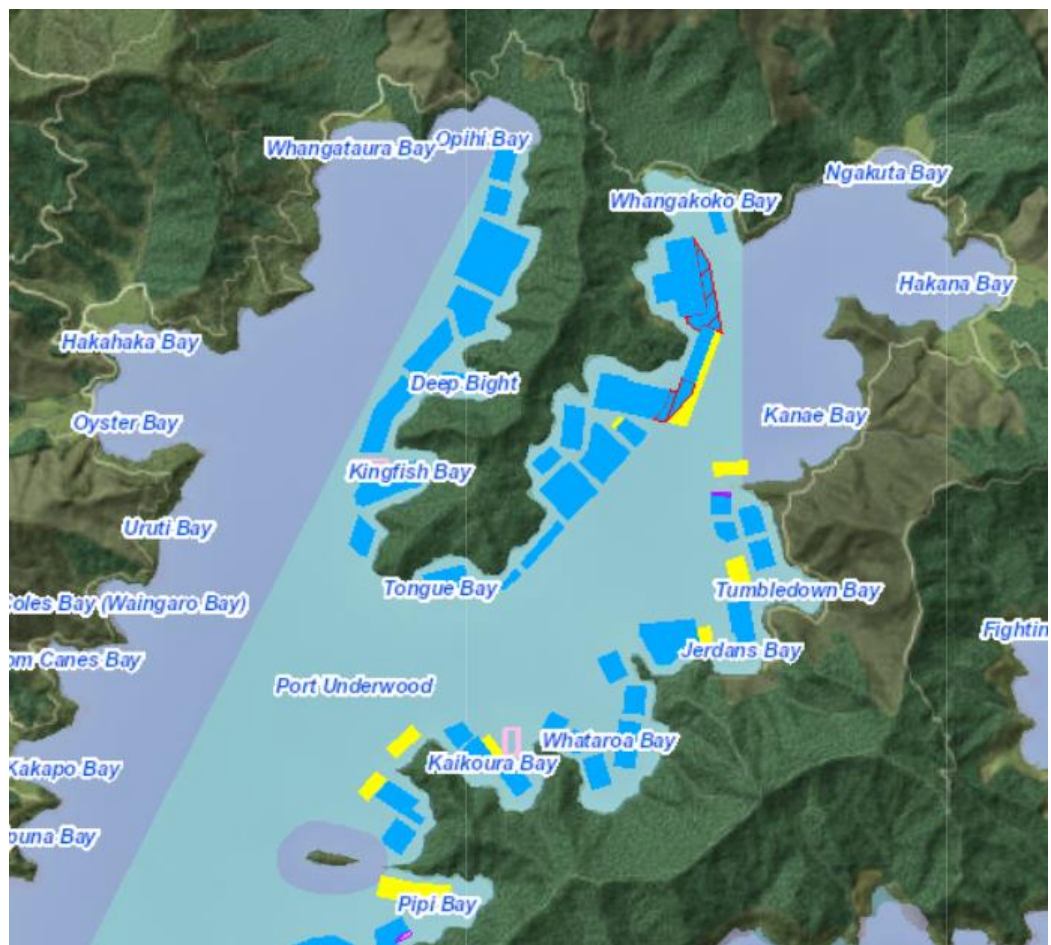
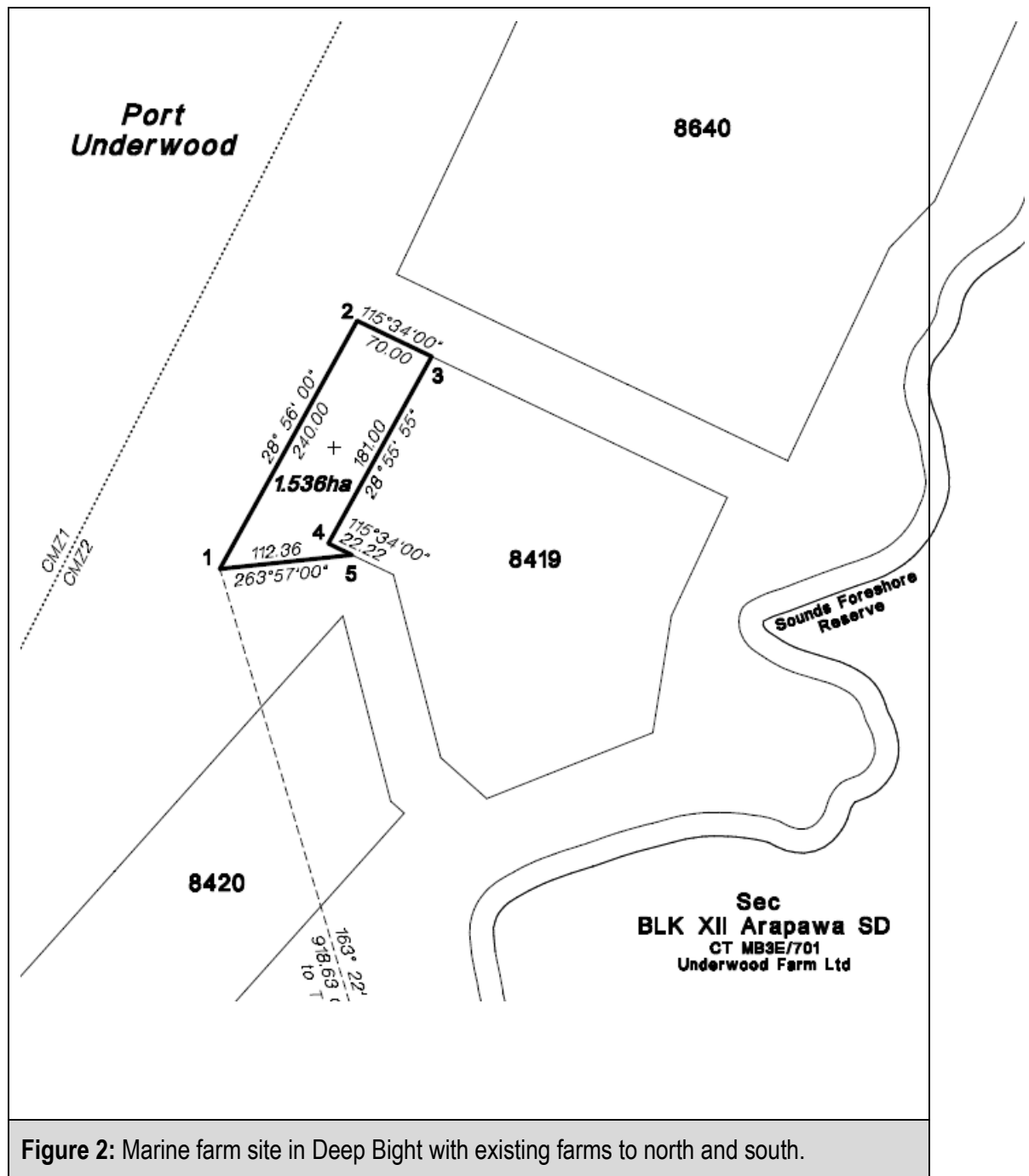


Figure 1: Top: Location of subject site in Deep Bight Bottom: existing marine farming (blue).

2.1.9. The subject site is bound by marine farms to the north (8640) and the south (8420) as shown in Figure 2.



2.2. The Marlborough Sounds Resource Management Plan

2.2.1. The application site falls within the jurisdiction of the Marlborough Sounds Resource Management Plan ("the Sounds Plan"). Volume 3 of the Sounds Plan identifies two coastal marine zones:

- Coastal Marine Zone 1 (CMZ1) is shown in a purple colour on the planning maps and identifies a zone where most existing marine farms are provided for but new marine farm developments are prohibited; and
- Coastal Marine Zone 2 (CMZ2) where new marine farms are provided for subject to compliance with the relevant rules and performance criteria.

2.2.2. Figure 2 shows an excerpt from Map 65 of the Sounds Plan. The subject location in Deep Bight is shown as being within CMZ2 along with the full length of both sides of the promontory that splits the head of Port Underwood.

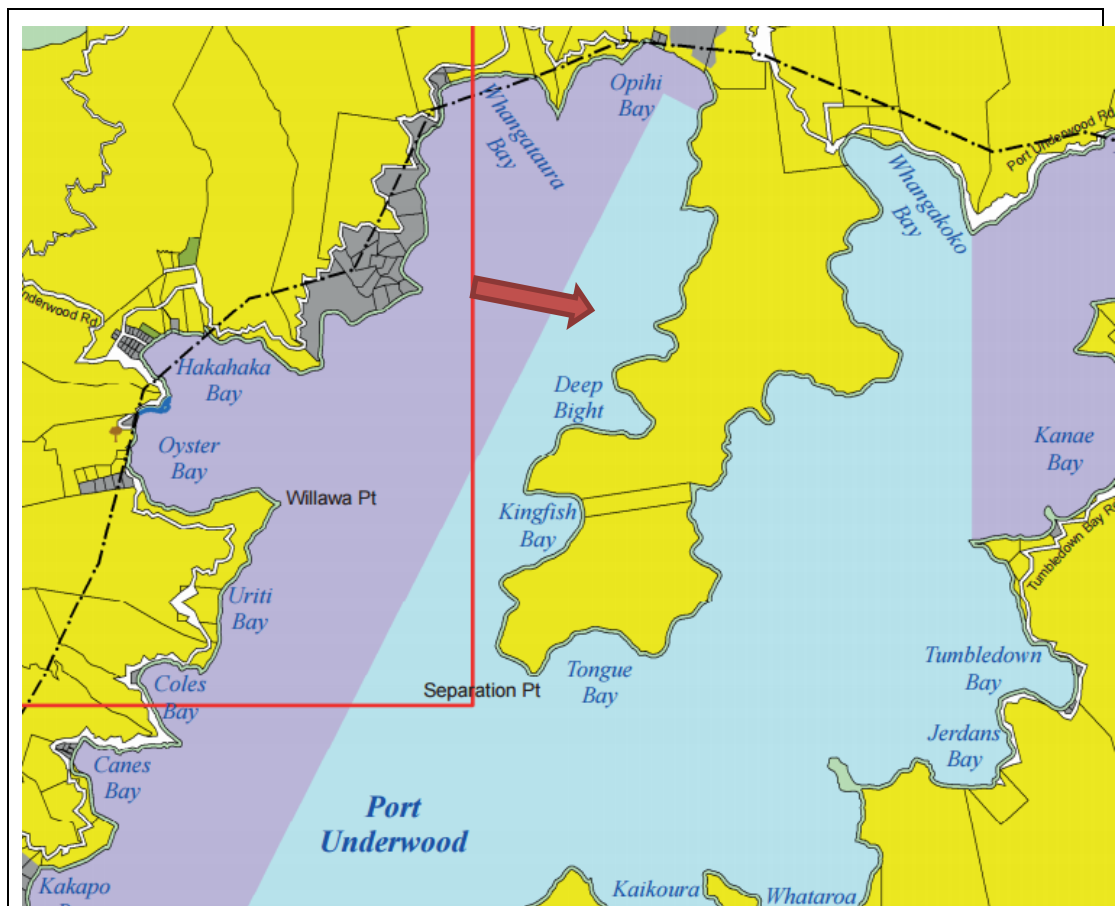
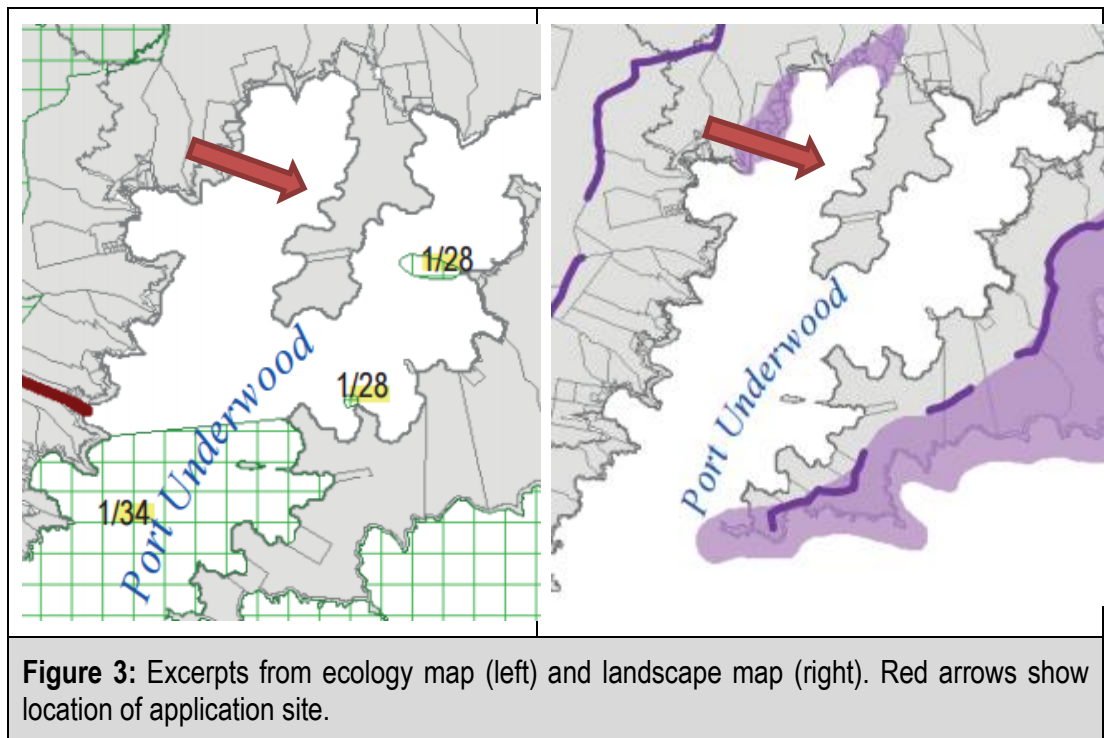


Figure 2: Excerpt of zoning map from Sounds Plan. Purple and blue colours indicate CMZ1 and CMZ2, respectively. Red arrow shows application site.

2.2.3. Volume 3 of the Sounds Plan also contains maps that identify areas of ecological (Map 72 is relevant) and landscape (Map 78) value. The relevant excerpts from these maps are reproduced in Figure 3. It is clear from these excerpts that the subject site is not subject to either Ecological Areas or Areas of Outstanding Landscape Value (AOLV).

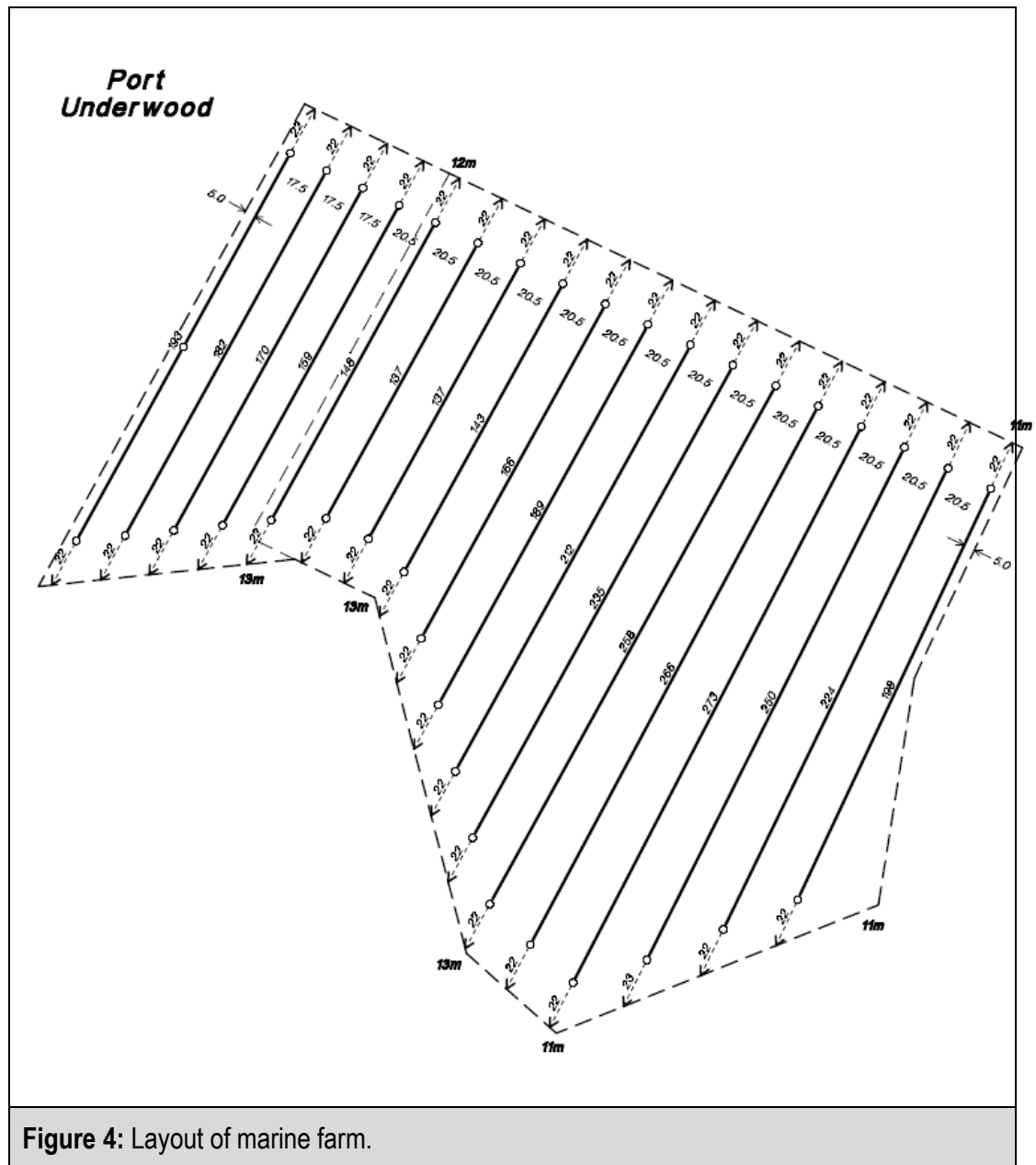
- 2.2.4. In terms of areas of ecological value there are two small locations that are referenced in Figure 3 as “1/28”. This corresponds to tube worm colonies. The second is “1/34” for which the ecological value is identified as being for Hector's Dolphin habitat.



- 2.2.5. Regarding landscape values, the promontory in the head of Port Underwood is not identified as being a Prominent Ridge, nor an AOLV.
- 2.2.6. Appendix 2 of the Sounds Plan provides information about the Natural Character Areas of the sounds. The appendix identifies the known core biophysical and ecological components that make up the natural character of the Marlborough Sounds.
- 2.2.7. Map 106 of the Sounds Plan identifies the marine ecosystem as being “mainly sheltered” and as “C Marine – Port Underwood”. The relevant information in Appendix 2 provides the following collective characteristics:
- “Sheltered, turbid, shallow waters; extensive mud bottom with narrow cobble fringe; conspicuous marine life generally sparse; off-shore red algae beds; massive tube worm colonies” (Sounds Plan, page App Two – 65)*
- 2.2.8. In contrast to several of the other marine ecosystem areas identified in Appendix 2, the Sounds Plan does not provide any “Potential for Restoration” section for Port Underwood.
- 2.2.9. The tubeworm features are clearly stated being of significance. The locations of these are well known and are not affected by the application site.

2.3. The Proposal

- 2.3.1. It is sought to extend marine farm site 8419 offshore to align with other farms along the west shore of the Tongue. The extension will encompass an area of 1.536ha and create a total area of 8.825ha as shown in Figure 4 and on the site plan in Attachment B and as described previously in this application.



- 2.3.2. The proposed site layout will involve establishment of 4 additional longlines of variable length and the extension of one existing line providing a total increase in backbone length of 713 metres.
- 2.3.3. It is proposed to farm and harvest the following species using conventional longline methods with variable length backbone to warps and anchors:
- Green Shell Mussels (*Perna canaliculus*)

- Scallops (*Pecten novaezelandiae*)
- Blue Shell Mussels (*Mytilus edulis*)
- Flat Oysters (*Toistrea lutaria*)
- Pacific Oysters (*Crassostrea gigas*)

2.3.4. The following algae are also likely to be propagated at the site:

- *Macracystis pyrifera*
- *Ecklonia radiata*
- *Gracilaria*
- *Pterocladia lucida*

2.3.5. These species are all edible species for Paua (*Haliotis* spp.) and all grow in the Marlborough Sounds. The seaweeds are highly productive and provide for a wide range of organisms which feed on it, and can be farmed using current culture systems.

2.3.6. Consent is also sought to disturb the seabed with anchoring devices and to harvest marine farm produce from the site, including the taking and discharge of seawater and the discharge of biodegradable and organic waste matter during harvesting of produce in Deep Bight, Port Underwood.

2.3.7. This will be a new marine farm licence for the site.

3.0 Status of Application

Consideration has been given to section 127 of the resource management act given the existing marine farm and resource consent. The test for 127 applications is whether an application is seeking a cancellation/variation, or whether it is seeking consent for a materially different activity. The assessment requires comparison between the activity for which consent was granted and the nature of the variations requested by the applicant.

Case law has determined that where a change will result in a fundamentally different activity, or one that seeks to expand or extend the original activity, it should be treated as a new application. Therefore, the question is then, does the change take the proposal beyond the scope of the activity for which the consent was originally granted.

It has been determined that the expansion of the existing marine farm does take the proposal beyond the scope of the original activity and does expand the original activity. As such, the rule classification has been determined against the provisions of the Marlborough Sounds Resource Management Plan however the assessment of environmental effects has been assessed against the proposed increase and not the entire application site. It is determined that the proposed extension would be processed and considered under its only application and separate from the existing resource consent. Whereas, the management of the extension would align with the management of the entire application site. Simply recognising that there are two separate consented farms.

It is worth mentioning here that Marlborough District Council has recently notified their Second-Generation plan being the Proposed Marlborough Environmental Plan. Submission hearings are to commence in earlier February. However, the plan was notified with no inclusion of marine farming provisions as these were still subject to review. For the purposes of determining the status of the proposed activity only the rules of the Marlborough Sounds Resource Management Plan are considered but the objectives and policies of the proposed plan are addressed later within the application.

The following table identifies the relevant rules of the Sounds Plan for the purpose of determining the status of these two applications under the Resource Management Act 1991:

3.1. The Marlborough Sounds Resource Management Plan

Rule	Rule Name	Activity Status	Reason
Marine Farm Structures and Activities			
35.4	Discretionary Activities	Does not comply	As the extension to the marine farm is not currently existing it falls to be considered under rule 35.4, subject to compliance with the standards specified in Rule 35.4.2.9. The proposed marine farm will not comply with the standard identified in 35.4.2.9 (b) as the boundary of the farm extends beyond 200 metres from the mean low water mark.
35.5	Non-Complying Activities	Non-Complying	Marine farms that do not meet the discretionary activity rule standards described above, and which are not identified as prohibited activities, are

			specified as non-complying activities.
Disturbance of the bed of the CMA and placement of structures			
35.4	Discretionary Activities	<i>Discretionary</i>	The disturbance of the bed and the placement of structures as a component of the establishment of a marine farm is provided for by this rule as a discretionary activity.
Harvesting marine farming produce			
35.4	Discretionary Activities	<i>Discretionary</i>	The activity of harvesting marine farming produce is provided for by this rule as a discretionary activity.
Discharges			
35.4	Discretionary Activities	<i>Discretionary</i>	The discharge of faeces and pseudofaeces from the marine farm to the coastal marine area is provided for by this rule as a discretionary activity.
35.4	Discretionary Activities	<i>Discretionary</i>	The discharge of organic and biodegradable waste during harvest to the coastal marine area is provided for by this rule as a discretionary activity.

3.2. Summary

These applications must be considered as a **non-complying activity** within the Marlborough Sounds Resource Management Plan. The relevant assessment criteria are evaluated within Section 4.

4.0 Statutory Framework and Considerations

- 4.1.1. Section 104 of the RMA provides the basis for the decision making framework under which this application must be considered. The relevant considerations for the Council in making a decision on this application are:
- (a) any actual and potential effects on the environment of allowing the activity;
 - (b) the New Zealand Coastal Policy Statement (NZCPS);
 - (c) the Marlborough Regional Policy Statement (RPS);
 - (d) the Sounds Plan; and
 - (e) Any other matters that the consent authority considers relevant and reasonably necessary to determine the application.
- 4.1.2. These Section 104 matters will be assessed later in this application when the proposal is evaluated.
- 4.1.3. As a non-complying activity Section 104D must also be considered.
- 4.1.4. Section 105 must be considered in relation to the applications for discharge permits. As a result the consent authority must have regard to:
- (a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and*
 - (b) the applicant's reasons for the proposed choice; and*
 - (c) any possible alternative methods of discharge, including discharge into any other receiving environment.*
- 4.1.5. Section 107 restricts the consent authority from granting discharge permits that may result in certain outcomes. The ability of the Council to grant the discharge permit applications under this section will be assessed later in this application.

5.0 Actual or Potential Effects on the Environment

The following assessment has been prepared after having regard to the scale and significance of the actual or potential effects (s88(2)(b)) and has been prepared in accordance with the Fourth Schedule to the Act. The '*actual or potential effects*' have been identified from the relevant '*assessment criteria*' of the Plan.

5.1. Benthic Ecology

- 5.1.1. The applicant has engaged Davidson Environmental Limited to conduct a benthic survey to inform this AEE. The Davidson Environmental report is provided in Attachment C. By way of background the report states that the main environmental effects expected beneath a shellfish farm in a sheltered embayment such as Deep Bight, are the deposition of shell and fine sediment under and near droppers.
- 5.1.2. As explained in the report a range of sampling methods were carried out to investigate the biophysical benthic conditions.
- 5.1.3. While all ecosystems have a level of intrinsic value (a point identified in Section 7 RMA), the Davidson Environmental report points out that it is the commonness of the muddy substrate benthic environment which reduces the potential adverse effect for this site. There are no unusual or notable 3-dimensional features such as reef outcrops detected on the seabed.
- 5.1.4. The report concludes:

"There were no biological values that would preclude the parent farm or the proposed extension for consideration for mussel farming". "All areas of the proposed extension are located over a habitat considered suitable for shellfish farming. This substratum is the most common and widespread habitat type in sheltered shore of the Marlborough Sounds and the sheltered outer Sounds bays like Admiralty, Anakoha Bay and Catherine Cove" (p29).
- 5.1.5. The report states that it is unlikely that significant environmental impacts will arise. From that conclusion it is therefore assessed that the effects on benthic ecology are likely to be no more than minor.

5.2. Natural Character

- 5.2.1. As can be seen from the supporting maps the coastal marine zones within Port Underwood are split into three distinct areas. The first area, on the western side of Port Underwood is entirely zoned CMZ1 within which any new aquaculture is prohibited. Secondly, similarly with three bays at the head of Port Underwood on the eastern side: Ngakuta Bay, Hakana Bay and Kanae Bay.

5.2.2. The third area down the centre of the bay Port Underwood is zoned CMZ2. This zoning takes in all of the central waters and includes the long central headland or promontory that extends southwards from the head of Port Underwood.

5.2.3. Marine farming currently almost completely surrounds this promontory. The proposed marine farm extension is proposed to sit within the existing ring of farms around this promontory and will not protrude or exhibit visibility beyond the effects of the existing marine farms.

5.2.4. Chapter 2 of the Sounds Plan sets the context for the consideration of natural character:

Natural character can generally be described as being those characteristics (qualities and features) of a particular environment. The particular environment in the case of the Plan, is the coastal environment, freshwater environments or wetlands, lakes, rivers and their margins.

The natural character of the coastal environment and freshwater bodies is comprised of a number of key elements which include:

- *Coastal or freshwater landforms;*
- *Indigenous flora and fauna, and their habitats;*
- *Water and water quality, including marine and freshwater ecosystems;*
- *Scenic or landscape values;*
- *Cultural heritage values; and*
- *Habitat of trout.*

All parts of the Marlborough Sounds coastal and freshwater environments have some or all of these qualities and to that extent, all have some degree of natural character. (MSRMP, p2-1)

5.2.5. It should be noted that the above considerations were formulated under the older 1994 NZCPS and is therefore not necessarily consistent with the current NZCPS which in Policy 13 states: that natural character “*may include matters such as:*

- (a) *natural elements, processes and patterns;*
- (b) *biophysical, ecological, geological and geomorphological aspects;*
- (c) *natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;*
- (d) *the natural movement of water and sediment;*
- (e) *the natural darkness of the night sky;*
- (f) *places or areas that are wild or scenic;*
- (g) *a range of natural character from pristine to modified; and*
- (h) *experiential attributes, including the sounds and smell of the sea; and their context or setting.”*

5.2.6. Following the matters set out in these definitions, it is apparent that the preservation of natural character is intended to apply in the CMZ1 zones on the western and eastern areas of Port Underwood.

- 5.2.7. Figure 5 provides a photo of the site of the marine farm site. It is evident that the natural character values of the site are reduced by both the modification of the sea surface by marine farming on both sides of the proposed site. The natural character values are also reduced by the exotic forestry that is the predominant land use of the land that forms the backdrop to the site. There is a ribbon of regenerating vegetation around the lower slopes of the promontory that can be seen on the photo. This ribbon contains a mixture of exotic weedy species and native shrubs.
- 5.2.8. There are no dwellings or residents within Deep Bight and it contains no notable attractions for recreation.
- 5.2.9. Overall, while the coastal marine area and coastal margin will always retain some inherent natural character, at this site it is considered that the reduction in natural character will be less than minor. From the zoning and development pattern within Port Underwood it is clear that the more accessible and visible western and eastern margins are of principle importance for retaining the over-arching natural character of the sound.



Figure 5: View of marine farm site looking east

5.3. Landscapes, Seascapes and Natural Features

- 5.3.1. The central promontory is not identified as an Area of Outstanding Landscape Value.
- 5.3.2. As stated previously both the landscape backdrop and the seascape around the site is modified by exotic forestry and marine farming, respectively.

- 5.3.3. The proposed marine farm will result in a small offshore extension in line with other farms to the north and south. As a result the adverse effects on landscape and seascape values will be no more than minor.

5.4. Public Access and Navigation

- 5.4.1. Deep Bight is not recognised as a particular recreation destination. With a large area of space within Port Underwood that is zoned CMZ1 which will remain free of marine farming, it is considered that there are ample fishing and landing locations elsewhere that will be significantly more attractive for recreation.
- 5.4.2. In any event the gaps between the proposed extension and the existing farms to the north and south will be sufficient to allow retain readily navigable access through the area.
- 5.4.3. The outer boundaries of the farm will not protrude westwards beyond the line formed by the farms to the north and south, and will therefore not be a risk to north south navigation.

5.5. Amenity Values

- 5.5.1. There are no dwellings on the land that forms the backdrop to the site. There are also no other sensitive land uses within the vicinity of the site. As a result there are no adverse effects on the amenity of any dwelling or sensitive activity as a result of this activity.
- 5.5.2. Visual amenity effects may arise from people on the water. However, the proposed extension is small (in comparison to surrounding farms). The proposed extension will extend offshore in alignment with marine farms to the north and south. Given the presence of other marine farms along the tongue, the buoys associated with the proposed extension would have only a minor additional impact on visual amenity. In a visual sense the farm will be enclosed by existing marine farming along the western side of the tongue. Visual amenity will remain essentially the same for residents or the boating public

5.6. Cumulative Effects

- 5.6.1. The proposed extension will cause a small increase in the density of marine farms in the CMZ2 zone on the western side of the promontory.
- 5.6.2. Cumulative effects will occur in relation to several of the spheres of effect discussed above including, benthic ecology, natural character, public access and amenity values. However, in all cases the magnitude of incremental adverse effects are very small and assessed as less than minor.
- 5.6.3. As stated below, the Sounds Plan intends that the development of further marine farming should (all else being equal) be “encouraged in areas where the natural character of the coastal environment has already been compromised ...” (Policy 2.1.2.2)

- 5.6.4. Whilst, logically, it could be argued that this assessment of cumulative effects may result in unfettered growth of marine farming, this cannot occur in Port Underwood due to the extensive areas of CMZ1 zone which are free of marine farming. Therefore it is appropriate that farming be concentrated in existing developed areas.

5.7. Cultural Heritage Values

- 5.7.1. Statutory Acknowledgements are in place for all Te Tau Ihu Iwi for the Coastal Marine Area.
- 5.7.2. Te Tau Ihu Iwi have not been consulted for this application. However, based on experience it is not anticipated that this proposal will have adverse effects either on the interest of the Iwi, or on their cultural values.

6. Provisions of the Sounds Plan

6.1. Support for Marine Farming where Appropriate

- 6.1.1. The Sounds Plan and the NZCPS provide a level of support for marine farming in locations and ways that it is “appropriate”. Determining the appropriateness or otherwise of a given application is too be based on the outcome that the objective or policy is seeking to achieve.
- 6.1.2. Policy 8 of the NZCPS is to “recognise the significant existing and potential contribution of aquaculture to the social, economic and cultural well-being of people and communities ...” The policy notes the social and economic benefits of aquaculture.
- 6.1.3. In relation to natural character, Objective 2.2.1 of the MSRMP is as follows
- 6.1.4. Objective 2.2.1: The preservation of the natural character of the coastal environment, wetlands, lakes and rivers and their margins and the protection of them from inappropriate subdivision, use and development.
- 6.1.5. This objective is consistent with the higher statutory documents: the NZCPS and Part 2 of the Act. Also consistent is its use of the term “inappropriate”. What is inappropriate in the context of the objective should be informed by analysis of the relevant supporting policies and what is to be achieved by the objective.
- 6.1.6. Policies 2.2.1.1 and 2.2.1.2 are as follows:
- 6.1.7. Policy 2.2.1.1: Avoid the adverse effects of subdivision, use or development within those areas of the coastal environment and freshwater bodies which are predominantly in their natural state and have natural character which has not been compromised.
- 6.1.8. Policy 2.2.1.2: Appropriate use and development will be encouraged in areas where the natural character of the coastal environment has already been compromised, and where the adverse

effects of such activities can be avoided, remedied or mitigated.

- 6.1.9. Broadly, when read in concert these policies seek to avoid development where the coastal environment is predominantly in its natural state, and to encourage development in areas where the natural character of the coastal environment has already been compromised. This approach is supported by the zoning framework (CMZ1 and CMZ2) employed in the Sounds Plan.
- 6.1.10. In Port Underwood there are, as already described, three distinct areas with new marine farming prohibited on the western and eastern sides of the sound, and provided for through the centre part of the sound. This centre area is reasonably intensively developed. Policy 2.2.1.2 supports this intensity and seeks that where additional farming is appropriate, that it be located within this central area. Logically, additional farming would be placed within the existing ribbon.
- 6.1.11. Chapter 9.0 of the Sounds Plan provides an extensive suite of provisions to guide development in the CMA. Objective 9.2.1.1 makes it clear that appropriate activities may be accommodated in the coastal marine area.
- 6.1.12. Policy 9.2.1.1.14 is:
- 6.1.13. "To enable a range of activities in appropriate places in the waters of the Sounds including marine farming, tourism and recreation and cultural uses"
- 6.1.14. As such, marine farming is specifically identified as an activity that may be appropriate in the Sounds.
- 6.1.15. Overall, it is considered that there is support within the statutory documents for marine farming in appropriate locations.

6.2. Natural Character and Landscape

- 6.2.1. Natural character values were considered previously in this application document. The site is relatively unremarkable being positioned along a rocky coastline that is already fringed with extensive marine farming.
- 6.2.2. In accordance with Policy 2.2.1.2, providing for additional development in amongst the existing farmed area is appropriate and will result in a less than minor reduction in natural character. Importantly, concentrating marine farming in the CMZ2 will help retain the natural character of other areas of Port Underwood such as the relatively undeveloped CMZ1 zone and areas such as the Knobbies and other headlands and promontories.
- 6.2.3. The site is not identified as an Area of Outstanding Landscape Value. Therefore the provisions of Chapter 5 do not apply.

6.3. Effects on Ecological Values

- 6.3.1. The Sounds Plan identifies areas of significant ecological value. The application site is not subject to, nor is it located in a location to potentially affect, any of these areas.
- 6.3.2. Policy 11 of the NZCPS also seeks to protect indigenous biological diversity in the coastal environment. Policy 11(a) does not apply as there are no species identified that meet the criteria set out therein. The Davidson Environmental report (Attachment C) does not identify any features, habitats or species that would qualify under Policy 11(b) and therefore it is considered that this provision, also, does not apply
- 6.3.3. The Davidson Environmental report concludes that there are unlikely to be any significant effects on the benthic environment.

6.4. Public Access and Recreation

- 6.4.1. Objectives and Policies in Chapters 8 and 9 of the Sounds Plan emphasises that the recreational activities and public access is a priority in the Sounds, particularly in certain locations.
- 6.4.2. The objective and policies under Section 8.3 seeks to avoid, remedy or mitigate adverse effects on public access caused by structures, works or activities.

- 6.4.3. Policy 8.3.1.3 states:

“To prevent the erection of structures and marine farms that restrict public access in the coastal marine area where it is subjected to high public usage.”

- 6.4.4. Deep Bight is not subject to high public usage. Areas with CMZ1 within Port Underwood are considerably more attractive and accessible to fishing and other forms of informal recreation.
- 6.4.5. The outer boundaries of the farm will be in keeping with the line formed by the farms to the north and south, and will therefore not be a risk to north south navigation.

6.5. Precautionary approach

- 6.5.1. Both the NZCPS and the Sounds Plan promote a precautionary approach to be taken to decisions on resource consents where the effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse.
- 6.5.2. In the case of this application the applicant has obtained a benthic survey.

- 6.5.3. As there are no areas of significant ecological value identified in the Sounds Plan, and with

knowledge of the benthic environment and potential changes and effects that may occur, it is not considered likely that there are any unknown effects that would reach the threshold set out in Policy 3 of the NZCPS.

7.0 Section 104D Assessment

- 7.1. Because the proposed activity falls to be considered as a non-complying activity Section 104D of the Act must be considered. The section requires that the consent may not be granted unless either the effects of the activity are no more than minor, or the activity is not contrary to the objectives and policies of the Sounds Plan.
- 7.2. With regard to the former, it is considered that overall the effects of the activity are no more than minor for the reasons given previously. Significantly, the site already heavily developed on either side. The proposed farm will be small and fit between two existing farms without protruding into the open bay. The land backdrop is heavily modified for use for exotic forestry and there are no dwellings on the land that would be adversely affected by the marine farm. Further, there are no identified ecological effects that are likely to be more than minor.
- 7.3. Turning to the objectives and policies of the Sounds Plan. The Plan is supportive of marine farm development in appropriate locations, and supports development in areas that have already been compromised. Sensitive locations such as AOLV, areas of ecological value have been avoided, and natural character is reduced by the presence of existing farms. Overall the development of a small marine farm extension in this location is not inconsistent with the objectives and policies of the Plan.
- 7.4. For the purposes of assessment against Section 104D it is considered that the proposal passes both gateways and can therefore be considered under Section 104.

8.0 The Proposed Marlborough Environment Plan (PMEP)

- 8.1.1. The PMEP was publicly notified on 9 June 2016 and is, at the time of writing is subject to the public hearing process.
- 8.1.2. The PMEP does not include provisions managing marine farming, and is therefore of very limited relevance to this application. However, while specific marine farming provisions are beyond the scope of the PMEP, a range of relevant objectives and policies are included for which it is appropriate that a brief assessment is made. The PMEP is at an early stage of the Schedule 1 (RMA) process and therefore does not yet hold a high level of weight under the assessment of resource consents.
- 8.1.3. Volume 4 of the PMEP contains the maps. The following maps are relevant:
 - Coastal Natural Character (Map 4)
 - Landscapes (Map 5)
 - Ecologically Significant Marine Sites (Map 14)

- 8.1.4. None of these maps identify the application site as being within the area of the values respectively identified on these maps. i.e. the site is not identified as having any status within the Coastal Natural Character Rating scale. Nor is the site within or adjacent to an Outstanding Natural Feature or Landscape. Nor have any ecologically significant marine sites been identified.
- 8.1.5. Chapter 6 of the PMEP contains policy guidance in relation to natural character. The Chapter 6 policy framework emphasises the retention of natural character in areas with high or better natural character. Proposed Policy 6.2.5 is to “recognise that development in parts of the coastal environment ... that have already been modified by past and present resource use activities is less likely to result in adverse effects on natural character.”
- 8.1.6. Overall, a broad general read of the PMEP does not indicate that the proposal is likely to be inconsistent with the direction of the PMEP. It is restated that no rules have yet been proposed in the PMEP for marine farming.

9.0 Part 2 RMA Analysis

- 9.1. This application is to be primarily assessed under the provisions of the Sounds Plan and the NZCPS. These relevant statutory documents were both promulgated under the current Part 2 provisions and therefore give effect to those provisions. Nevertheless, Schedule 4 of the Act (under which this application is made) requires an assessment of the activity against the matters set out in Part 2.
- 9.2. Section 6 of the Act sets out the matters of national importance. The act requires that all persons shall recognise and provide for these matters. The matters that are relevant to this application are:
- (a) *the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*
 - (d) *the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*
 - (e) *the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*
- 9.3. With the protection of much of Port Underwood through the extensive CMZ1 zone within the sound, the concentration of marine farming in the subject location will not adversely affect the overall natural character of Port Underwood.
- 9.4. Public access remains appropriately provided for in the areas of high public usage. Access to the area inshore of the proposed extension remains practicable.
- 9.5. The marine farm will not compromise the values of Maori.
- 9.6. Section 7 of the Act sets out other matters to which particular regard must be had. The matters that are relevant to this application are:

- (a) *kaitiakitanga*:
- (b) *the efficient use and development of natural and physical resources*:
- (c) *the maintenance and enhancement of amenity values*:
- (d) *intrinsic values of ecosystems*:
- (f) *maintenance and enhancement of the quality of the environment*:

9.7. It is an efficient use of the available sea-space to allow additional marine farming in areas that are already compromised, and where adverse effects on the environment are no more than minor.

9.8. Ecosystems and the overall quality of the environment will be maintained.

9.9. Section 8 of the Act states that:

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

9.10. While the Coastal Marine Area is significant to all Te Tau Ihu tribes, it is not anticipated that a small marine farm in this location will be of concern.

9.11. Section 5 sets out the purpose and principles of the Act.

9.12. This proposal will provide for the wellbeing of the applicants. There are no resources that will be consumed by this activity such that future generations cannot provide for their own wellbeing.

9.13. The life-supporting capacity of the environment will not be affected to anything more than a minor extent. The benthic habitat is not rare or unusual and is well represented in the Sounds, including in the CMZ1 zone for which marine farming is prohibited. The site is not one of significant ecological value.

9.14. Overall the proposal is consistent with the purpose of the Act.

10.0 Term

10.1. A term to coincide with that of the parent farm is sought to expire on 1 December 2033.

11.0 Overall Assessment

11.1. The location of this application is within the area of existing marine farming in Port Underwood. A small seaward extension to existing marine farm 8419 is sought to be established in Deep Bight.

11.2. The benthic environment has been described as relatively uniform and with a substrate and community assemblage that is typical of a large area of the Sounds. The terrestrial backdrop to the site is modified and the predominant land use is exotic forestry.

- 11.3. The marine farm will extend seaward of the line that is 200 metres from MLWS. As a result the application is for a non-complying activity.
- 11.4. The application will have only minor or less than minor effects on natural character, landscape values, ecological values, public access and navigation.
- 11.5. The application is not inconsistent with the provisions of the Sounds Plan, the NZCPS and Part 2 of the Act. As such, it is appropriate that the application be granted under Sections 104 and 104B of the Act.

Attachment B:
Location and Layout Plans (Draughting Plus Ltd)



Topomap 50 Sheet: BQ29

Base Topographical Data sourced
from Land Information New Zealand Data.
Crown Copyright Reserved.



Locality Map

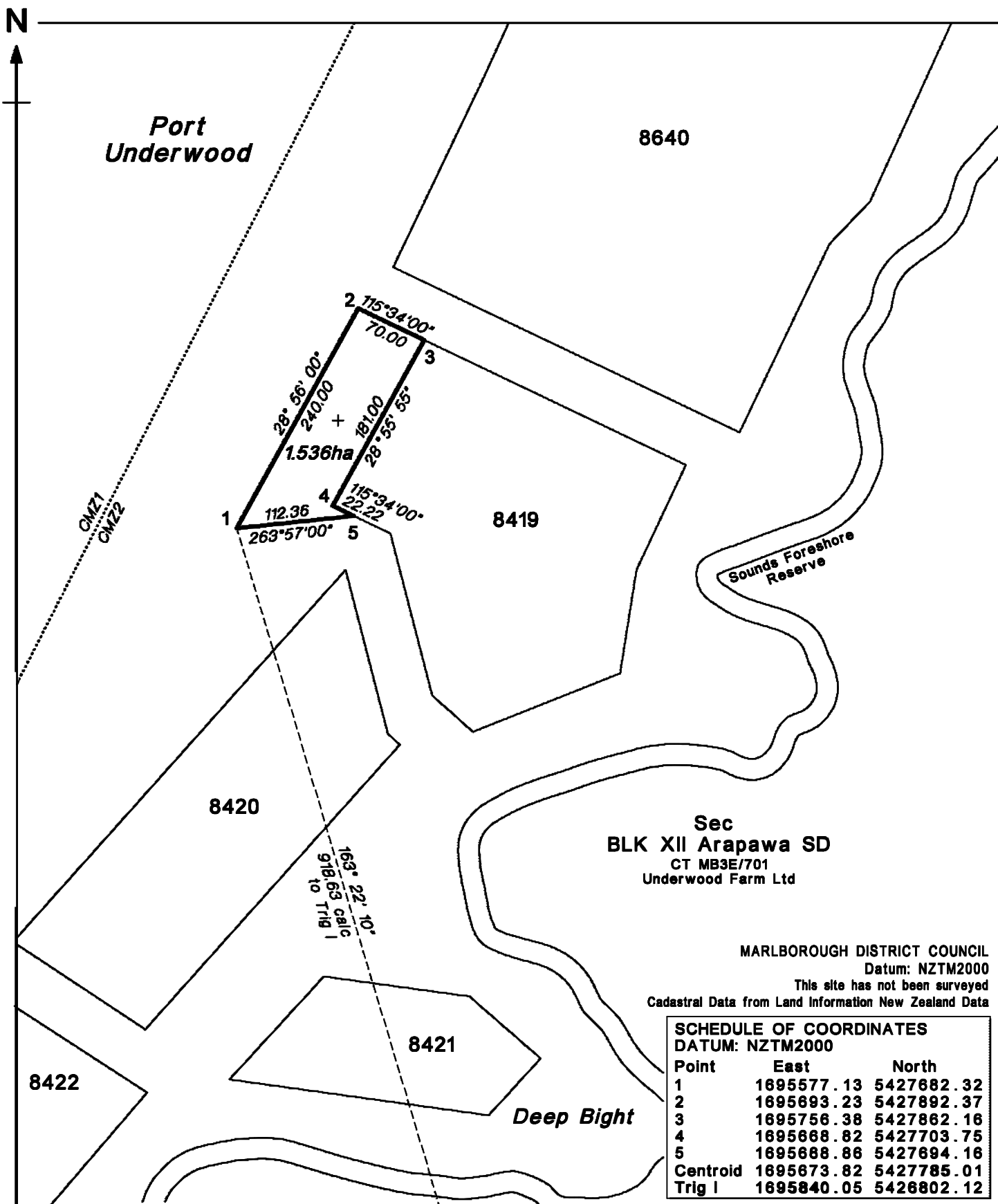
Extension to Marine Farm 8419
Port Underwood

Scale 1:50,000

500 0 500 1000 1500 2000 2500 3000 3500 Meters

Prepared: 14 November 2017

MF_2544



Proposed Coastal Permit **Being Extension to Marine Farm 8419** **Port Underwood**

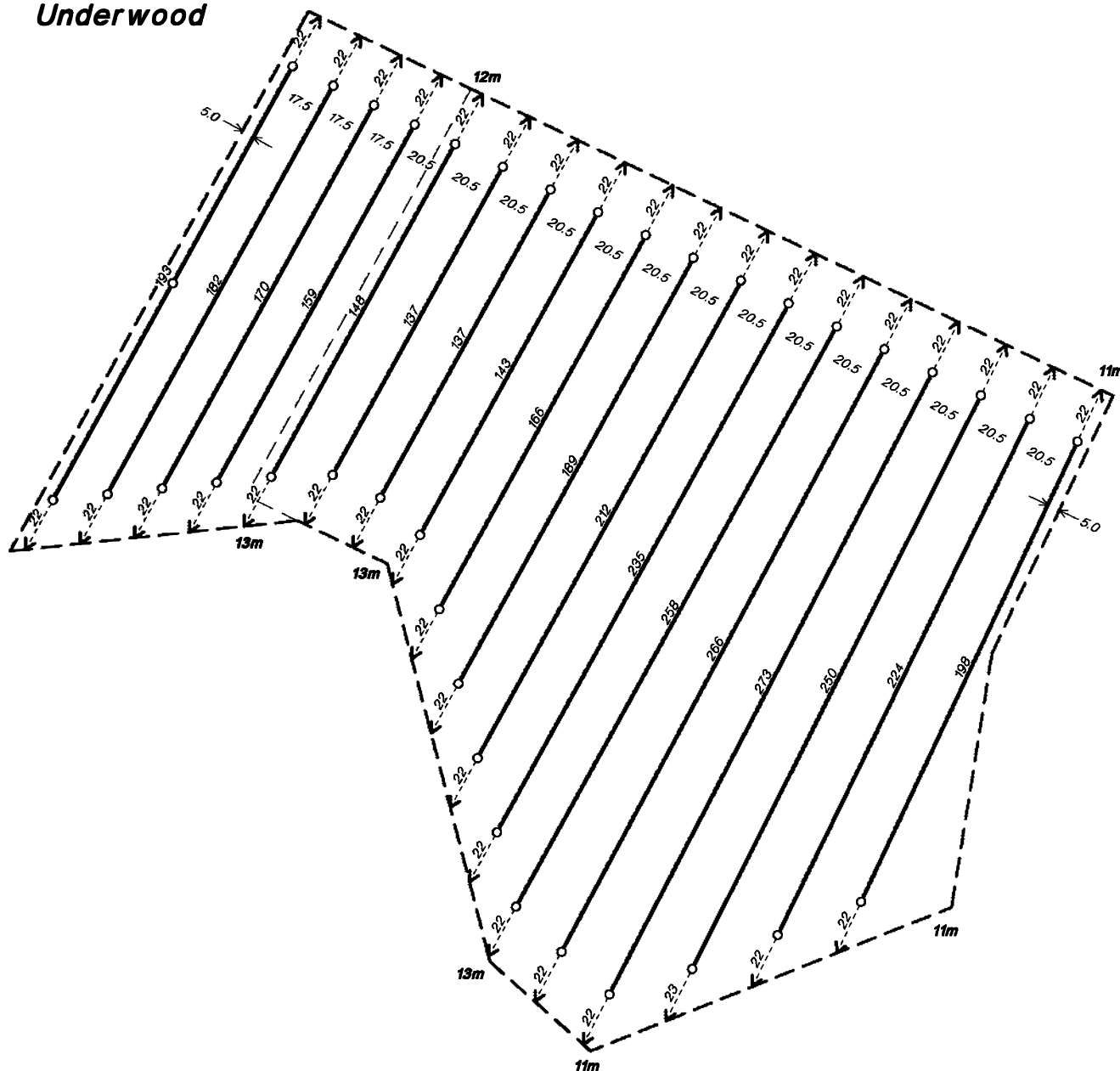
SCALE 1:5,000



Prepared by
DRAUGHTING PLUS LTD
Date: 8 November 2017
Drawing Ref: MF_2544



Port Underwood



Layout Details

**Proposed Coastal Permit
(Marine Farm 8419 & Extension)**



Prepared by
DRAUGHTING PLUS LTD
Date: 14 November 2017
Drawing Ref: MF_2544

Attachment C:
Benthic Site Assessment (Davidson Environmental Limited)



Davidson Environmental Limited

Ecological report for a proposed extension to marine farm 8419, Port Underwood

Research, survey and monitoring report number 878

A report prepared for:
Allan Tester
C/o Jonathon Tester
P.O. Box 184
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February 2018

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Specialists in research, survey and monitoring

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1.0 Introduction

The aim of the present study was to describe the biological features associated with a 1.536 ha proposed extension located on the offshore side of marine farm 8419. The proposed extension and associated parent farm is located north of Deep Bight and south of Opihi Bay, Port Underwood. The parent marine farm is 7.3 ha in size (Figure 1, Plates 1 and 2).

This report was commissioned by Jonathon Tester.

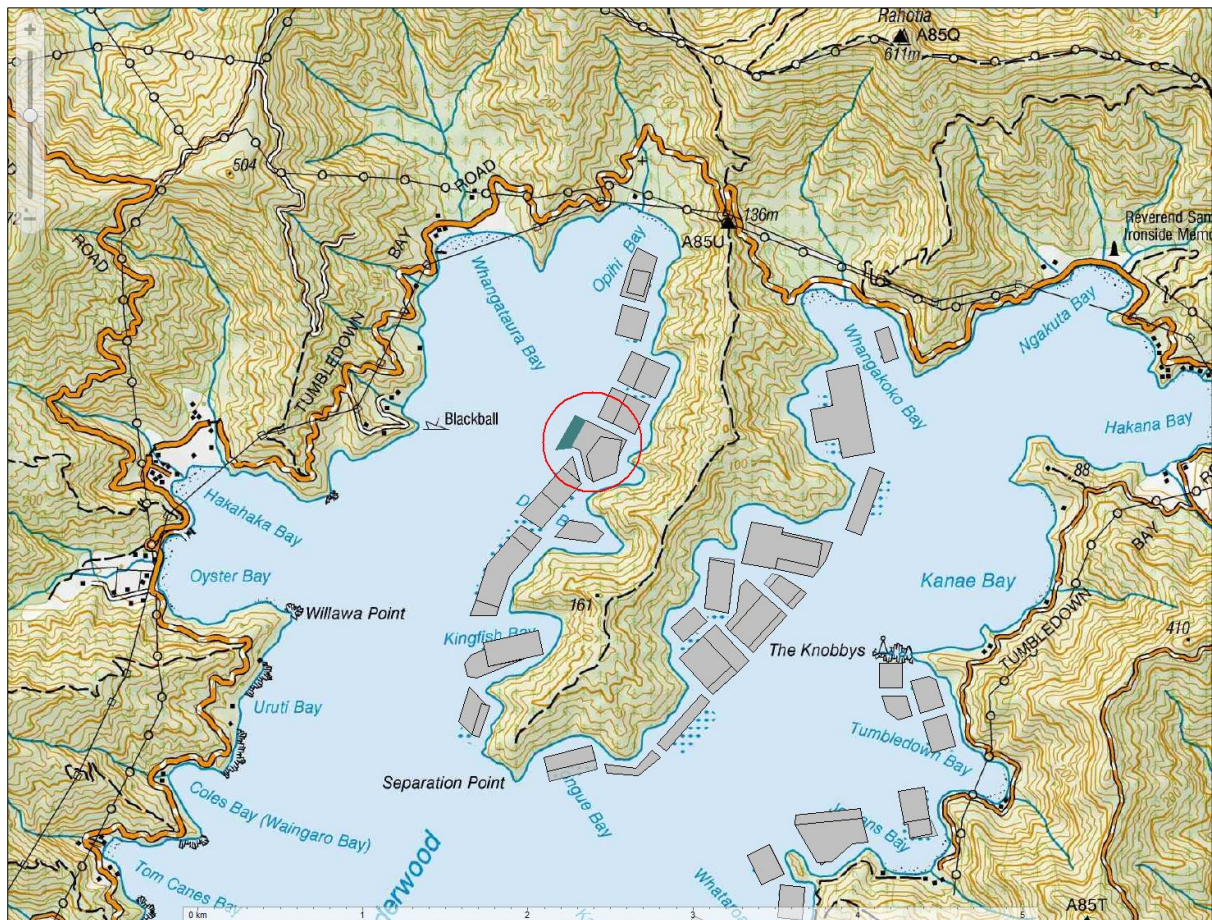


Figure 1. Location of existing marine farm site 8419 (red circle) north of Deep Bight, Port Underwood.



Plate 1. Marine farm site 8419. Taken from a location north of the offshore backbones, looking southwards into the consent and area proposed as an offshore extension.

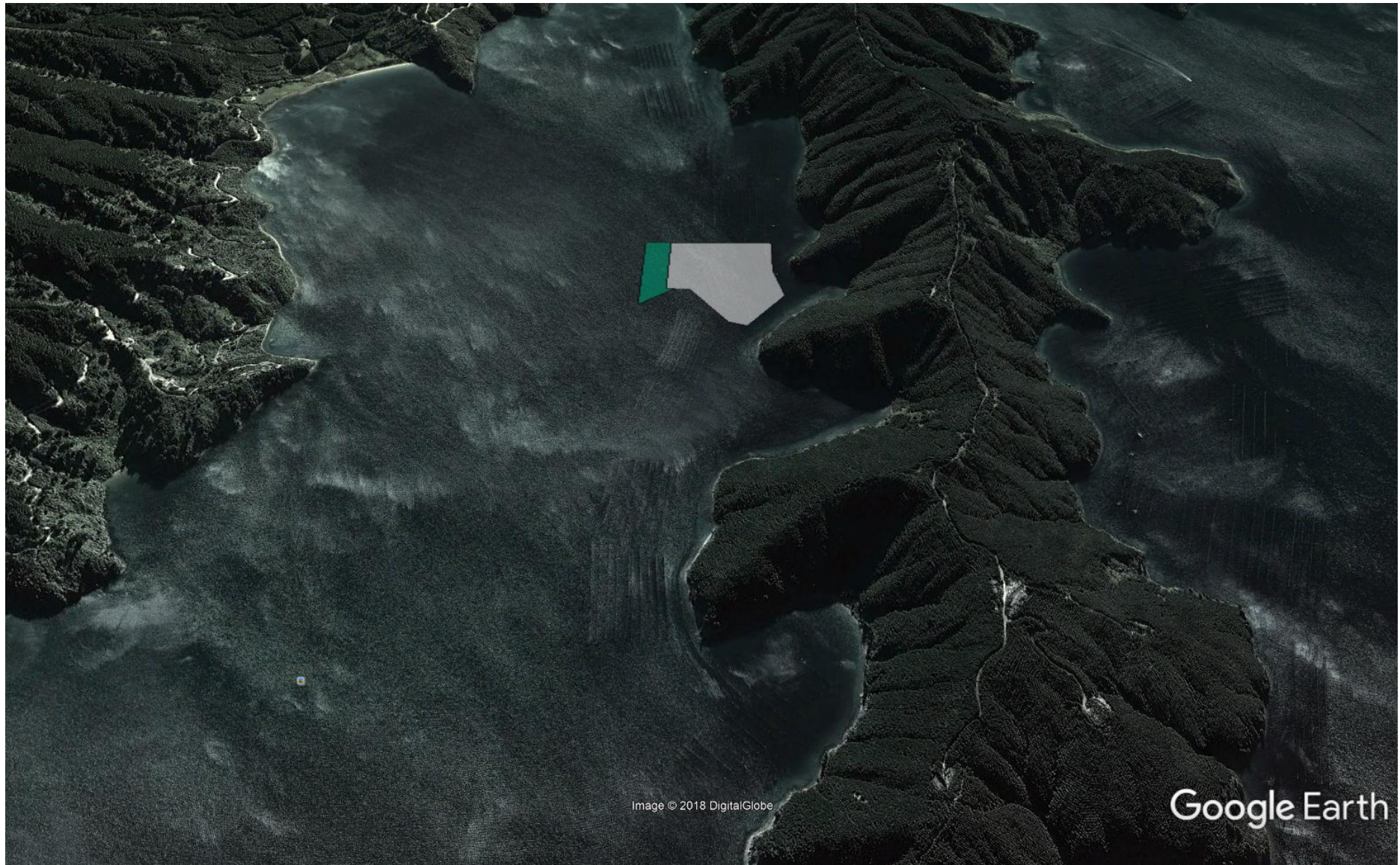


Plate 2. Oblique view of existing consent 8419 (grey) and proposed extension (teal) north of Deep Bight.

2.0 Background information

2.1 Study area

Marine farm 8419 is located along the eastern coastline south of Opihi Bay and north of Deep Bight (Figure 2). The proposed extension is located offshore of the existing parent farm and forms part of a line of nine mussel farms.



Figure 2. Location of parent farm (red polygon), proposed extension (teal) and other marine farm consents in the area. Note: farms 8417 and 8418 located immediately north have been recently joined and extended further from shore (see insert map from MDC).

2.2 Historical reports

Three historic biological reports were found in relation to farm site applications near the presently proposed marine farm extension (Grange and McLean, 1994; Barter, 1999; Davidson, 2013).

Grange and McLean (1994) investigated an area located south of the proposed extension. The authors stated:

“sediment was soft, grey silt and mud, with an easily disturbed flocculant surface layer. It was easy to push and arm into the sediment at least 30 cm. The species recorded from the transects in the area of the proposed extension are shown in Table 2. A total of 11 species were recorded from under the existing farm and 15 from the proposed extension area. All 11 species recorded from the existing farm were also recorded from the proposed extension area, and those additional species from the proposed extension area were only seen as a few individuals.”

Table 2. Species recorded in the area adjacent to LIC 382, Port Underwood, October 1994.

Group	Species	Relative abundance
Algae		
	<i>Ulva lactuca</i>	drift plants
	<i>Chnoospora minima</i>	3 plants recorded
Sponges		
	<i>Cliona</i> sp (yellow)	common
	<i>Ircinia</i> sp (grey)	common
	Unidentified small white	common
Anemones		
	<i>Edwardsia</i> (burrowing anemone)	3 seen
Polychaetes		
	Chaetopterid worm tubes	common
Crabs		
	<i>Cancer novaezelandiae</i>	uncommon
Bivalves		
	<i>Myadora boltoni</i>	common
	<i>Atrina zelandica</i> (horse mussel)	common
	<i>Perna canaliculus</i>	occasional
Gastropods		
	<i>Poirieria zelandica</i> (murex)	1 seen
	<i>Philine angasi</i>	1 seen
Sea slugs		
	<i>Aphelodoris luctuosa</i>	1 seen
Starfish		
	<i>Patiriella regularis</i>	common



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Barter (1999) investigated an area located in Deep Bight approximately 400 m south of the present application. The author reported:

“Polychaete worm and a microalgal mat were observed along both transects but not in high densities. Occasional horse mussels were observed but densities were below the DOC guideline value. Results were consistent with a similar survey conducted recently for a proposed marine farm extension just to the west of the currently proposed site by Davidson and Brown (1999). No features of special ecological significance were noted. “

Davidson (2013) conducted a survey of an extension area immediately inshore of the presently proposed extension that is now part of the parent farm. The author stated:

“The extension was characterised by silt and clay substratum. No natural shell was recorded from the extension area. Localised areas of what appeared to be parchment tubeworms were observed on the silt and clay substratum. These tubeworms were heavily coated in sediment. Only one photo collected close to droppers had mussel debris. Cobbles and natural shell were not observed within the proposed extension, however they were observed inshore of the extension. The sonar run across the extension and adjacent coast revealed the reef substrata was located inshore of the proposed extension.

At particular locations in the extension area parchment worms were observed. In some photos they were relatively common, while at other they were absent suggesting a patchy distribution. These worms were heavily fouled with sediment making identification difficult. This species is regularly observed in Port Underwood and other sheltered locations in the Sounds where a soft sediment substratum dominates. This species of tubeworm appears very tolerant of fine sediment or high turbidity. It is therefore likely that fine sediment generated by new lines at this location would have little impact on this biological feature.”

3.0 Methods for present study

The area was investigated on 11th January 2018. 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 therefore be regarded as an approximate position.

3.1 Sonar imaging

Sonar investigations of the proposed extension area were previously conducted by Davidson (2013). That author used 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 Airmar transducer was used to collect traditional sonar data from the site.

These data were redigitized and plotted in relation to the present application.

3.2 Drop camera stations and site depths

Drop camera photographs were collected from the marine farm site during the present study. A total of 18 photographs have been collected from the existing farm (n=3) and proposed extension area (n=15). At each drop camera station, 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 and camera landed.

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The cover of benthic mussel shell from drop camera photographs were ranked as: None = no benthic 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.

4.0 Results

On the day of the survey, low tide was 0.45 m at 9.38 am and high tide was 1.58 m at 3.50 pm. During the present biological survey, the tide was incoming.

4.1 Consent corners and surface structures

Corner depths of the existing marine farm consent ranged from 11 m to 12.6 m. The proposed extension is in depths ranging from 12 m to 12.7 m (Table 1, Figure 3). The bottom topography under the existing consent and the proposed extension comprised a gently sloping shore that increased very gradually from inshore to offshore.

Existing surface structures consisted of one block of backbones covering an area of 5.77 ha of the parent farm consent.

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

Type	No. & Depth (m)	Coordinates
Consent corner	A	1695724.2,5427677.3
Consent corner	B	1695763.7,5427522.8
Consent corner	C	1695802.6,5427488.0
Consent corner	D	1695943.4,5427544.1
Consent corner	E	1695959.7,5427643.5
Consent corner	H	1696006.2,5427742.6
Extension corner	1, 12.7m	1695577.13,5427682.32
Extension corner	2, 12.1m	1695693.23,5427892.37
Extension corner	3, 12m	1695756.38,5427862.16
Extension corner	4, 12.6m	1695668.82,5427703.75
Extension corner	5, 12.6m	1695688.86,5427694.16
Structure corner	A, 12m	1695748.3,5427841.6
Structure corner	B, 12.6m	1695679.6,5427723.4
Structure corner	C, 12.5m	1695731.9,5427693.6
Structure corner	D, 12m	1695793.6,5427507.2
Structure corner	E, 11m	1695909.8,5427544.0
Structure corner	F, 11m	1695993.5,5427727.1

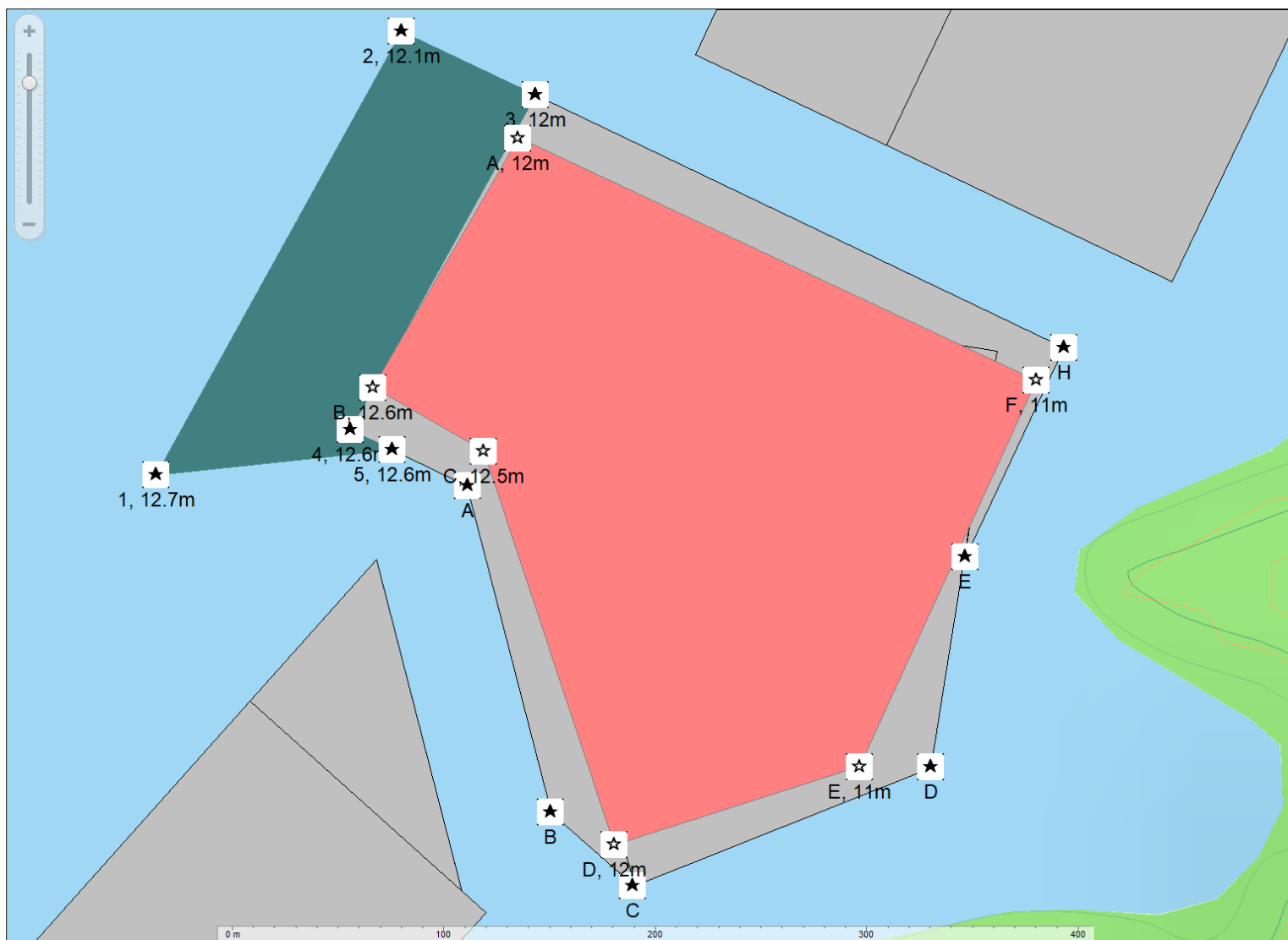


Figure 3. Depths of the existing consent area (grey), proposed extension (teal) and existing surface structures (red).

4.2 Drop camera stations

Substratum and habitat distribution relative to the consent area were based on drop camera images (Table 2, Figure 4, Appendix 1) and sonar.

Substratum under the existing consent and proposed extension was dominated by base of silt and clay (Plate 3). No mussel shell was observed from the three photos collected within the parent farm or from the any of the extension photos (Table 2, Appendix 1). Drift macroalgae was observed from one photo collected under the parent farm. This material presumably came from the growing structures.

Parchment worms were observed on the seafloor at most photo sites within the proposed extension (Table 2, Plate 4). Their abundance was variable ranging from rare/uncommon to sparse and common. Parchment worms were also observed from two of the three photos collected from within the parent farm. At photos station 16 located between dropper lines, tubeworms were assessed at the common abundance level (Plate 5).

4.3 Sonar

The sonar run revealed a flat, featureless seafloor in the proposed extension (Figure 5). No rocky substratum was observed from the scan.

Table 2. Coordinates of drop camera stations showing depths, substratum, and level of benthic mussel shell. Depths adjusted to datum. None = no benthic mussel shell, Low = 1-30%, Moderate = 31-50%, Moderate to High = 51-75%, and High = 76-100% cover.

No. & Depth (m)	Coordinates	Location	Substratum & features	Abundance
1, 12.7m	1695582.6,5427685.1	In extension, no structures	Silt & clay	
2, 12.7m	1695627.6,5427696.4	In extension, no structures	Silt & clay, parchment worms	Sparse
3, 12.6m	1695661.1,5427709.1	In extension, no structures	Silt & clay, parchment worms	Sparse
4, 12.5m	1695688.6,5427753.4	In extension, no structures	Silt & clay, parchment worms	Rare
5, 12.2m	1695711.8,5427795.3	In extension, no structures	Silt & clay, parchment worms	Common
6, 12.2m	1695737.2,5427838.3	In extension, no structures	Silt & clay, parchment worms	Sparse
7, 12.5m	1695646.2,5427728.5	In extension, no structures	Silt & clay, parchment worms	Common
8, 12.4m	1695665.1,5427764.9	In extension, no structures	Silt & clay	
9, 12.2m	1695686.6,5427809.3	In extension, no structures	Silt & clay, parchment worms	Sparse
10, 12.2m	1695713.6,5427852.0	In extension, no structures	Silt & clay	
11, 12.5m	1695605.5,5427713.0	In extension, no structures	Silt & clay, parchment worms	Sparse
12, 12.5m	1695637.0,5427758.4	In extension, no structures	Silt & clay, parchment worms	Rare
13, 12.2m	1695653.7,5427795.2	In extension, no structures	Silt & clay	
14, 12.2m	1695672.8,5427842.1	In extension, no structures	Silt & clay, parchment worms	Common
15, 12.1m	1695692.8,5427881.8	In extension, no structures	Silt & clay	
16, 12.7m	1695767.9,5427683.7	In consent, under backbones	Silt & clay, parchment worms	Common
17, 11.9m	1695791.0,5427718.7	In consent, under backbones	Silt & clay, parchment worms	Sparse
18, 12.4m	1695807.9,5427750.7	In consent, under backbones	Silt & clay	

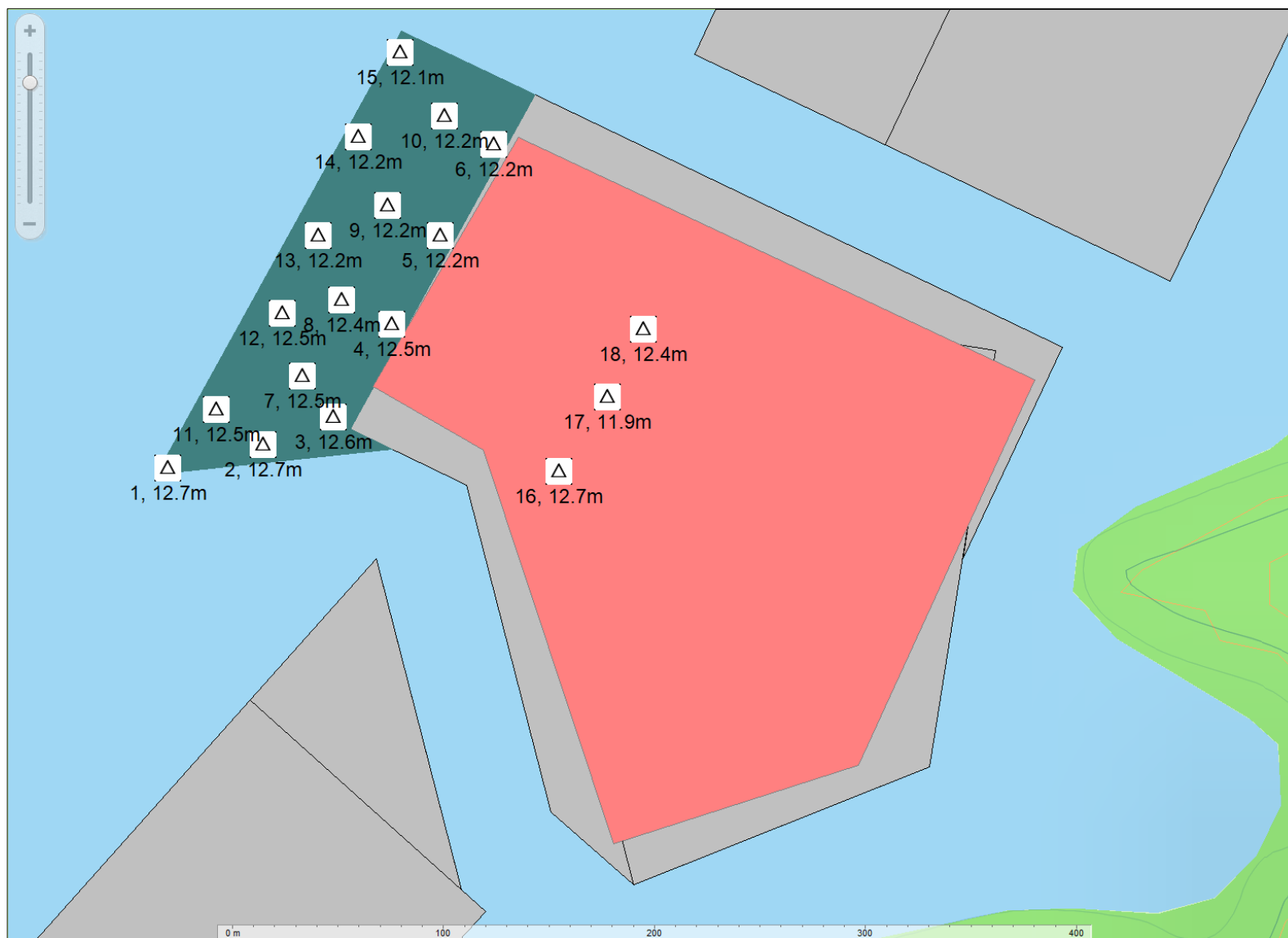


Figure 4. Existing consent (grey), proposed extension (teal), surface structures (pink) and drop camera stations with depths (triangles).



Plate 3. Silt and clay substratum located in the proposed extension (photo 13, 12.2 m depth).



Plate 4. Silt and clay with parchment worm tubes in the proposed extension (photo 3, 12.6 m depth).



Plate 5. Silt and clay with parchment worm tubes in the existing marine farm (photo 16, 12.7 m depth).

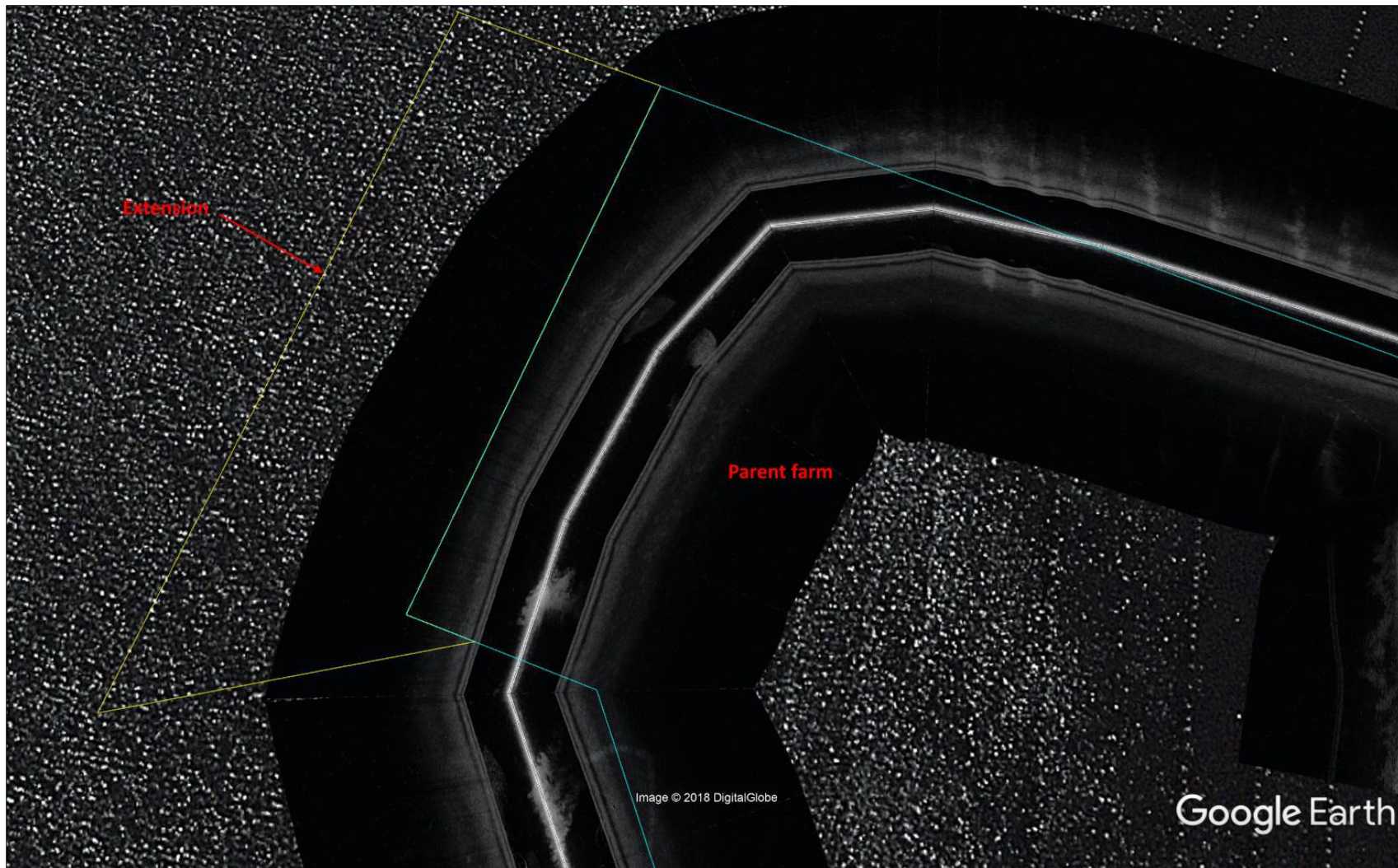


Figure 5. Sonar run at farms 8419. Yellow polygon = proposed extension, white line = sonar track.

5.0 Summary and conclusions

5.1 Benthos

The benthos under the proposed extension was dominated by silt and clay with little or no natural shell. This type of substrata dominates most of Port Underwood and many areas of the sheltered Marlborough Sounds.

A rocky shore was observed inshore of the parent farm. No rocky substrata were detected within the proposed extension during the present study.

Mussel shell debris was not observed in the extension or from the three photos collected under the parent farm. Shallow farms often have low levels of mussel shell deposition (author, pers. obs.). Further, it is likely any dead mussel shell coming from the farm would have sunk into the very soft sediment over time or has been smothered by further fine sediment.

5.2 Species and communities

Relatively few invertebrate species were observed on the silt and clay areas of the consent. Species abundance and diversity increased in the inshore area but was still relatively low compared to most rocky shores in the Marlborough Sounds. All areas in the proposed extension were likely characterised by infaunal species representative of mud shores in sheltered locations in the Sounds (McKnight and Grange, 1991).

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). No scallops or horse mussels were seen under the Consent or proposed extension.

Parchment worms were observed at most sites within the proposed extension. When present, their abundance was variable and patchy ranging from rare/uncommon to sparse and to common. Tubeworms were also observed under the parent farm. Overall, the extension supports a patchy parchment worm population, typical of many areas in Port Underwood. The abundance of tubeworms in the extension was well below that recorded at some sites in the Port where they reach high levels of abundance.

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Handley and Alcock (1999) recorded parchment worms during a survey for a proposed extension further south. The authors stated “*Spiochaetopterus* sp. was mostly found on the sloping mud between 14-17 m. This species could not be fully identified and could be a new species endemic to New Zealand with a wide distribution (C. Glasby, NIWA, pers. comm.).” The authors also stated that “as this species appears to bind sediment together and produced elongated tubes, it is not expected that they will be significantly adversely impacted by marine farming activities unless they become smothered from mussel shell drop.”

5.3 Mussel farming impacts

5.3.1 Benthic impacts

Benthic mussel shell was not recorded from drop camera photos collected under and near backbones. Shell debris impact levels were assessed at the low impact level compared to the range of impact levels known from other farms in the Sounds.

It is probable that the impact of continued shellfish farming at this site will result in the deposition of 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 (<13 m depth) (Hartstein and Rowden, 2004; Keeley *et al.*, 2009; Davidson and Richards, 2014). Tidal flows are expected to be low; however, winds are likely to be an important driver of water movement in this area.

It is noted that benthic impacts of mussel farms are not permanent. If structures are removed, the benthos recovers over a period of approximately 10 years (Davidson and Richards, 2014).

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 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

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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).

Port Underwood is near Cook Strait and receives sediment from the nearby Wairau River. It is likely that Cook Strait and the nearby rivers deliver nutrients to the area.

5.4 Marine mammals

Hector's dolphin (*Cephalorhynchus hectori hectori*), is endemic to New Zealand and is currently listed as Nationally Endangered by the NZ threat classification scheme (Baker *et al.*, 2010) and considered Endangered by the IUCN since 2000 (Reeves *et al.*, 2008). Based on a series of historic boat and plane surveys conducted from 1997–2001, their abundance around the South Island was estimated at approximately 7300 animals (95% 5303–9966; Slooten *et al.*, 2004). In the most recent aerial survey found Hector's dolphin abundance to be approximately 9130 (CV: 19%; 95% CI: 6342–13 144) in summer and 7456 (CV: 18%; 95% CI: 5224–10 641) in winter (MacKenzie and Clement, 2014). The authors stated that the population of Hector's dolphin was larger than expected from previous estimates. MacKenzie and Clement (2014) stated this difference was mainly due to approximately half of their summer estimate being distributed across previously un-surveyed regions in offshore waters between 4 and 20 nautical miles. The authors emphasized that, at least in summer, a large portion of the ECSI Hector's dolphin population occurs in waters around Banks Peninsula and within Clifford and Cloudy Bays.

Hector's and other species of dolphin overlap with marine farms areas parts of New Zealand. An overlap for Hector's dolphin occurs around Banks Peninsula, East Bay and Port Underwood, Marlborough Sounds. Admiralty Bay in the Marlborough Sounds supports many mussel farms and is visited annually in winter by large numbers of dusky dolphins (Markowitz,

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2002). Despite these spatial overlaps between dolphins and mussel farms, no entanglements have been documented.

There are, however, two reported incidences of dolphin entanglement and death at a salmon farm in New Zealand, both from the Marlborough Sounds (M. Aviss, MDC). In one, an unidentified dolphin species became trapped while a predator net was being replaced, and in the other case, a Hector's dolphin became trapped under a predator net. Internationally, fatal entanglements of dolphins in predator nets on finfish farms have been reported from Australia (Gibbs and Kemper, 2000; Kemper and Gibbs, 2001; Kemper *et al.*, 2003) and Italy (Díaz López and Bernal Shirai, 2007). This may reflect attraction of dolphins to a food source (Kemper and Gibbs, 2001) although such interactions between finfish farms and cetaceans have not been proven (Kemper *et al.*, 2003).

There is also one record of a marine mammal becoming trapped or tangled in a mussel farm (i.e. a Bryde's whale) (Wursig and Gailey, 2002). The low incidence of mussel farm entanglements is probably related warps and backbones being under tension thereby reducing the chance of entanglement. This is in stark contrast to lobster pots that have a single line to the surface. This line is usually under little or no tension. Whales migrating up the east coast of the South Island pass hundreds of lobster lines that present a serious entanglement threat. Wursig and Gailey (2002) stated that entanglements by larger whales in aquaculture facilities are relatively rare events.

Displacement of Hector's dolphin by new marine farms have been discussed in a report in Pegasus Bay (DuFresne *et al.*, 2010). The authors considered that there existed the "*possibility that mussel farms may not be optimal habitat for Hector's dolphin, and in that case, some level of displacement was possible.*" The authors reported that in Golden Bay, Hector's dolphins have been observed at least in the access lanes between blocks of lines in a mussel farm (Slooten *et al.*, 2001). In the same farm, there are anecdotal reports of dolphins regularly entering the farm area (Slooten *et al.*, 2001), however, a lack of before-after data, and in this case a general paucity of data, preclude making any statements about the impact or otherwise of this farm on Hector's dolphins. DuFresne *et al.* (2010) concluded that "*there are no easy answers to the question of whether Hector's dolphins will be displaced by a mussel farm*", but they did state that "*Given the size of the proposed marine farm in Pegasus Bay (i.e.*

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2695 ha) relative to available Hector's dolphin habitat in the immediate vicinity, the presence of a mussel farm was unlikely to have a catastrophic impact on the dolphins".

Port Underwood is known as a significant site for Hector's dolphin (Site 8.11 In: Davidson et al., 2011) and part of the Cook Strait whale migratory corridor (Site 7.15 In: Davidson et al., 2011). The latter area includes the greater Cook Strait, Cloudy and Clifford Bays, Tory Channel and Queen Charlotte Sound (Figure 1). The authors stated *"The Cook Strait is part of a migratory corridor along the NZ coast for humpbacks, as they move north from Antarctic feeding grounds to tropical waters for calving and breeding during the winter months (May - August). The Cook Strait is also utilised by other large whales including southern right whales (winter months), blue whales (possibly all year round but very little known about this species distribution) and sperm whales (probably all year round in the deeper waters of the Strait i.e., 300m and below). Humpback whales in New Zealand are part of the oecania subpopulation and in 2008 were recently reclassified by the international union for Conservation of nature (IUCN) as endangered. They were previously classed as Vulnerable but research on the oecania subpopulation has indicated this population is more threatened than previously thought. The Department of Conservation has conducted systematic annual surveys of humpbacks as they migrate through Cook Strait during the winters of 2004 to 2010, as well as collecting anecdotal sightings of humpbacks all year round to improve our understanding of the distribution and abundance of these species in New Zealand waters. Nationally endangered southern right whales are also seen in New Zealand coastal waters, including the Cook Strait, in winter months. The New Zealand subpopulation of southern right whales is thought to be very small, with potentially as few as four to eleven breeding females (Patenaupe, 2003). Other marine mammal species that have been observed utilising the Cook Strait area include sperm, minke and blue (Endangered) whales as well as orca (Nationally Critical), common, dusky, bottlenose (Nationally Endangered) and Hector's (Nationally Endangered) dolphins."*

Opihi Bay is included the present marine farm are within both marine mammal sites. Hector's dolphins are occasionally seen in the Port, but most sightings have been recorded between the Wairau and Awatere River Mouths (DuFresene and Matlin, 2009). Other marine mammals may visit the area but their use is likely temporary and uncommon. Large whales occasionally enter the Port. Overall, there is a low risk of entanglement and displacement should the extension be granted.

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Seals are present in Port Underwood and often occupy areas of coast near the mussel farms. Seals are often observed swimming within mussel farm structures and resting on floats (Plate 8). There are no records of seals becoming tangled in mussel farm structures. It is possible seals feed on small fish attracted to mussel droppers.

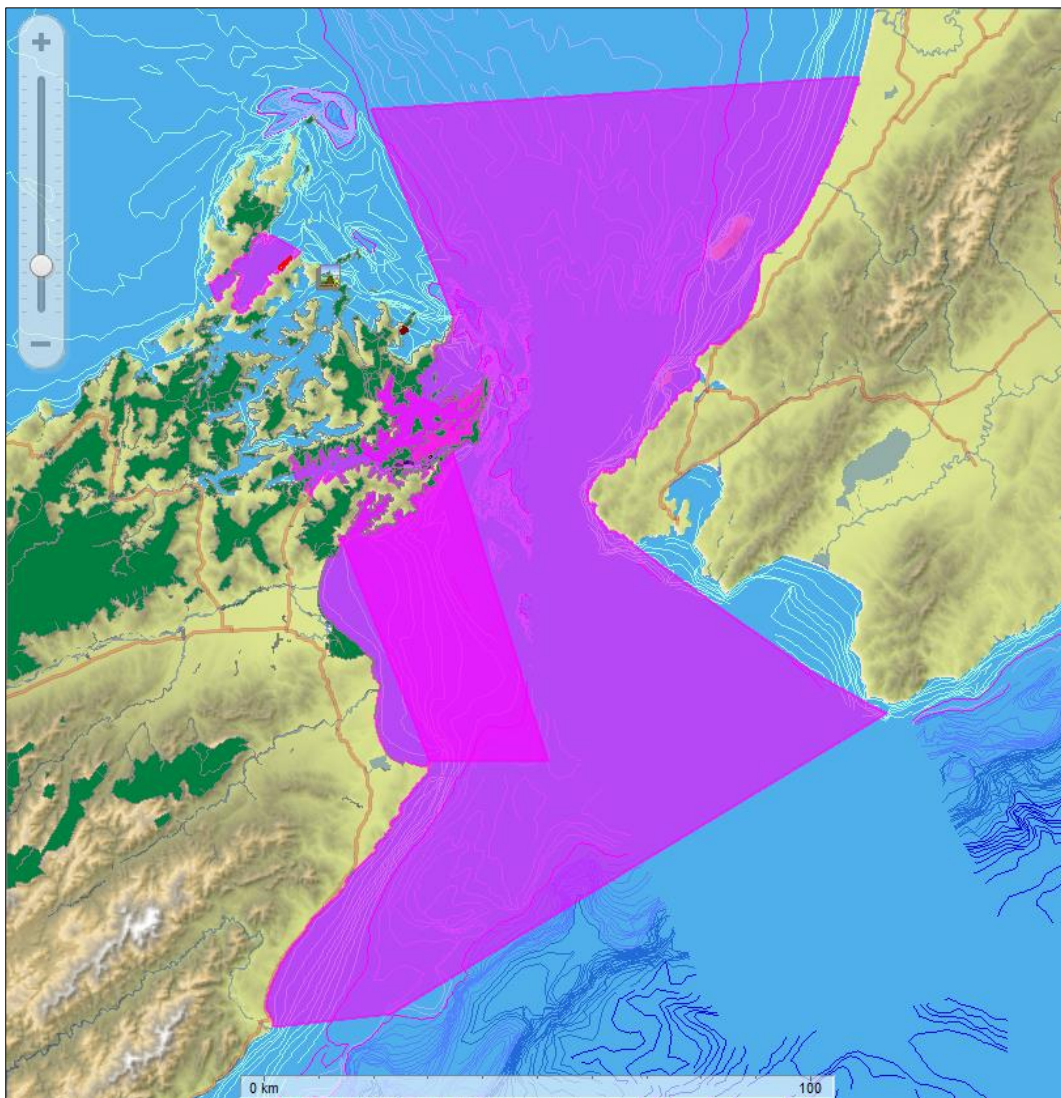


Figure 7. Marine mammal significant sites in the Marlborough Sounds (from Davidson *et al.*, 2011).



Plate 8. Three seals at a mussel farm in Admiralty Bay (2016).

5.5 Seabirds

There are no known seabird significant sites located in Port Underwood. Site 7.14 located along the outer Cook Strait coast north of the Port. A variety of seabirds visit Port Underwood and can often be observed resting on floats (pers. obs.).

Based on the few studies that have investigated the interactions between mussel farms and birds, mussel aquaculture can potentially affect seabirds by altering their food resources, cause physical disturbances (e.g. noise) and/or introduce possible entanglement risks. The

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structures associated with aquaculture may also provide benefits including additional perching and feeding opportunities (Plate 8). For example, in the Marlborough Sounds, the Nationally endangered king shag has largely abandoned mainland roost sites presumably in favour of mussel floats (Brown, 2001). Further, variable oyster catchers are regularly observed feeding on mussel backbones and floats (author pers. obs.).

Overall, New Zealand (Butler, 2003) and overseas studies (Ross *et al.*, 2001; Roycroft *et al.*, 2004; Kirk *et al.*, 2007) suggest that the general attraction of particular seabirds to mussel farms is likely due to increased foraging success on fish and biofouling, and even on the cultured stock itself. The consequences of this attraction will likely depend on the species' dietary preferences and response to both direct and indirect ecosystem changes induced by mussel cultivation.

Birds are potentially at risk from operational by-products of farms, including ties and plastics. The threat is considered greater after stormy weather (Page *et al.*, 2000) and at poorly operated farms. Butler (2003) found young and adult Australian gannets (*Sula serrator*) in the Marlborough Sounds entangled in discarded rope ties from mussel farms that had been incorporated into nests by parents. The closest gannet colony is 16.7 km from Onapua Bay, however, a variety of shags are present in the area and may potentially use ties as nesting material. It is therefore important that marine farmers minimize the introduction of ties into the marine environment.

The mussel industries Environmental Management System (EMS), formally known as the Environmental Code of Practice seeks to minimise such risks, and they are likely to be minimal on well-maintained farms (Keeley *et al.*, (2009).

King shag (*Leucocarbo carunculatus*) is a rare seabird, endemic to the Marlborough Sounds. Colonies are dotted throughout the Sounds, from the western coast of D'Urville Island through to Queen Charlotte Sound. Until recently, most colonies were located towards the outer edges of the Sounds. However, a new colony has recently been observed at Tawhitinui Bay towards inner Pelorus Sound. The most recent census in 2015 counted 839 individuals at eight colonies king shag breeding, roosting and feeding areas have been identified in the Marlborough Sounds (Schuckard and Melville, 2015). The closest breeding colony to the

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present application site is at White Rocks located in outer Queen Charlotte Sound some 30 km distance.

Kings shag feeding has been recorded over many years by Rob Schuckard (Figure 8). No feeding records exist in Port Underwood, however, it is unclear whether the survey extended into this area.

5.6 Boundary adjustments, recommendations and monitoring

There were no biological values that would preclude the parent farm or the proposed extension for consideration for mussel farming. Parchment worms were assessed at an abundance level that would unlikely be considered a tubeworm bed or a biogenic habitat. Further, the presence of tubeworms under the parent farm suggest they may not be adversely impacted should the extension be granted.

All areas of the proposed extension are located over a habitat considered suitable for shellfish farming. This substratum is the most common and widespread habitat type in sheltered shore of the Marlborough Sounds and the sheltered outer Sounds bays like Admiralty, Anakoha Bay and Catherine Cove.

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. The present structures are therefore situated over habitats traditionally considered suitable for the activity of farming mussels. No reduction to the application area is therefore recommended on ecological grounds.

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

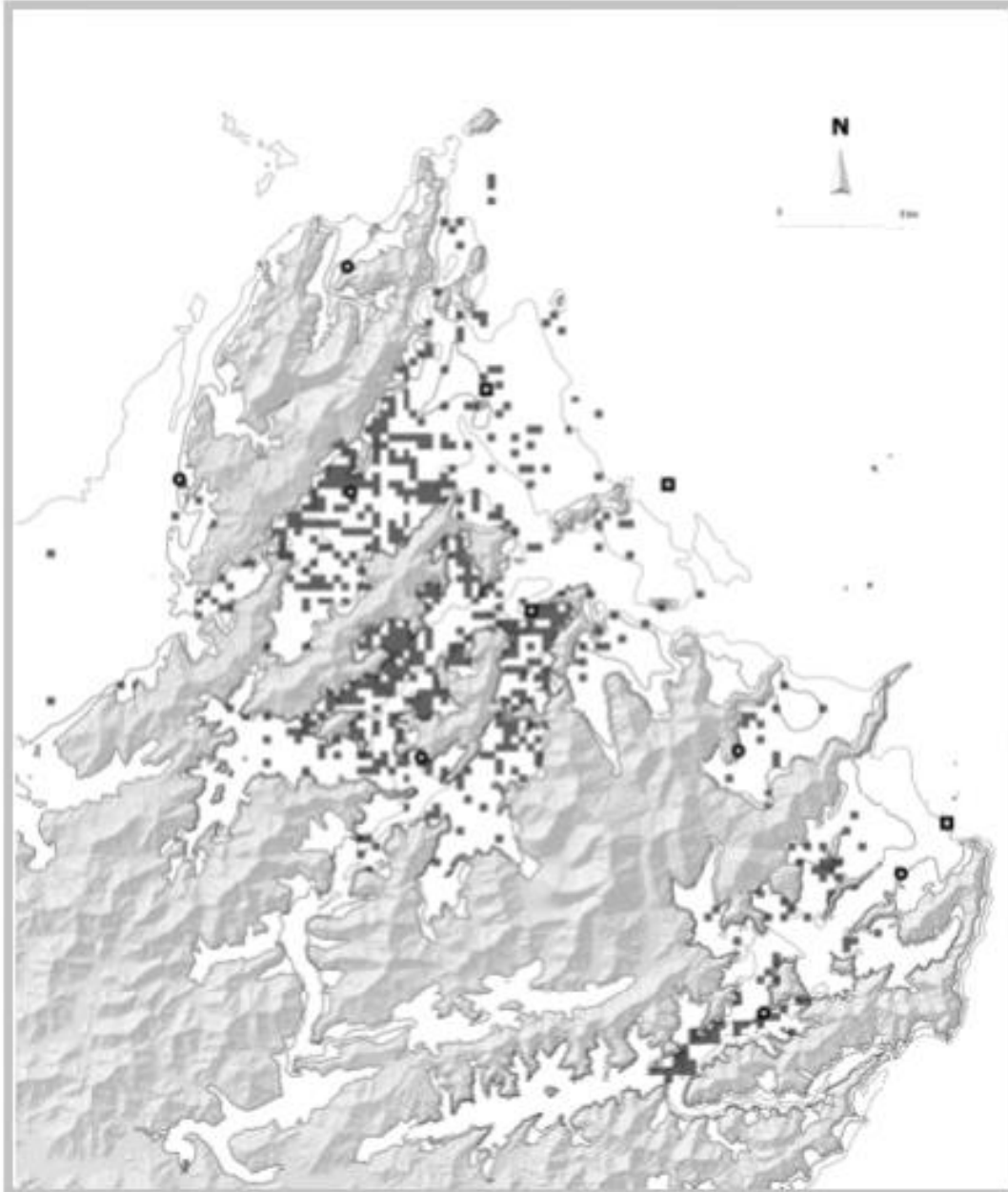


Figure 8. King shag foraging observations (n=~1,000). Taken from Schuckard (2015): Statement of Evidence dated 13 March 2015.

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Appendix 1. Drop camera photographs

Photo site 1 Silt & clay



Site 2 Silt & clay, parchment worms



Site 3 Silt & clay, parchment worms



Photo site 4 Silt & clay, parchment worms



Site 5 Silt & clay, parchment worms

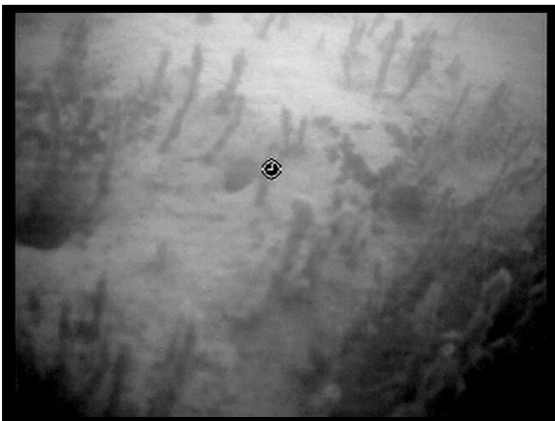
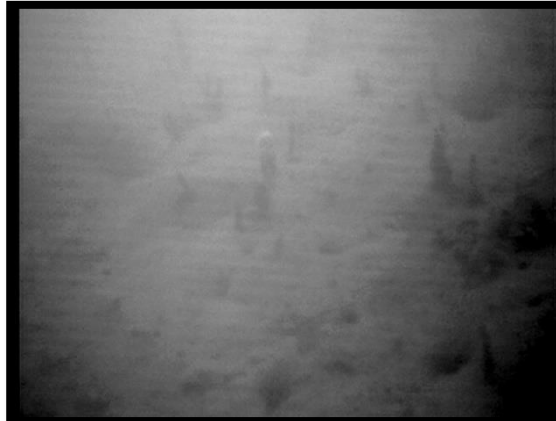


Photo site 6 Silt & clay, parchment worms



Site 7 Silt & clay, parchment worms

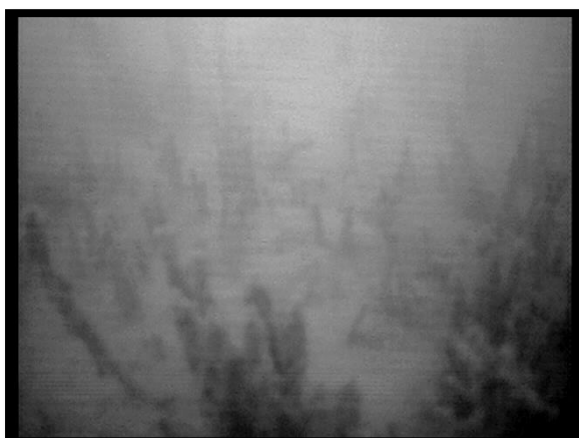
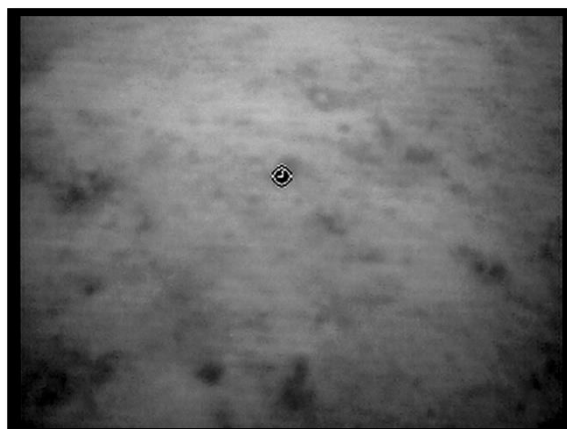


Photo site 8 Silt & clay, parchment worms



Site 9 Silt & clay, parchment worms



Photo site 10 Silt & clay, parchment worms



Site 11 Silt & clay, parchment worms

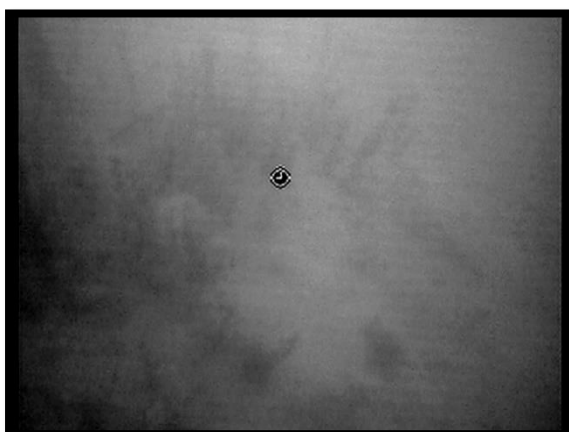


Photo site 12 Silt & clay, parchment worms



Site 13 Silt & clay, parchment worms



Photo site 14 Silt & clay, parchment worms



Photo site 15 Silt & clay



Photo site 16 Silt & clay, parchment worms



Site 17 Silt & clay, parchment worms

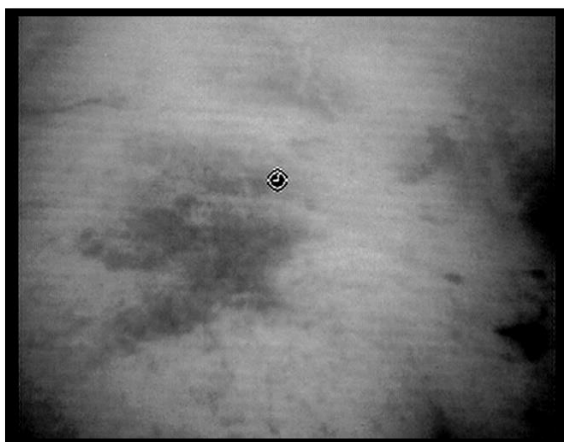


Photo site 18 Silt & clay

