

Resource Consent Application



**MARLBOROUGH
DISTRICT COUNCIL**

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

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

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

You may apply for more than one consent that is needed for the same activity on the same form.

For Office Use

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Receipt No. 1853168

Consent No.

Case Officer:

Date Received:

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20 DEC 2018
**MARLBOROUGH
DISTRICT COUNCIL**

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

Name:
(full legal name)

Clearwater Mussels Limited
Attention: John Young

Mailing address:
(including post code)

P. O. Box 68
HAVELOCK 7150

Email Address: j.young@clearwaterbouy.co.nz

Phone: (Daytime) 03 573 4909

Phone: (Mobile) 021 341 868

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

Name: R D Sutherland

Mailing address:

Property and Land Management Services Ltd
PO Box 751
BLENHEIM 7240

Email Address: palmsltd@xtra.co.nz

Phone: (Daytime) (03) 578 1733

Phone: (Mobile)

027 220 7299

3. **Consent/Application Details**

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

4. **Brief Description of the Activity**

It is proposed to renew marine farm site 8335 being marine farm licence MFL 219, to enable the continuing cultivation of Green Shell mussels (*Perna canaliculus*), over a 3.0 ha of water space.

Consent is also sought to disturb the seabed with anchoring devices and to harvest marine farming produce including taking and discharge of coastal seawater and discharge biodegradable and organic waste matter during harvest. Length of term requested is 20 years to 2038. MFL 219 will be surrendered on confirmation of consent being issued.

5. **Supplementary Information Provided?**

☐ Yes ☐ No

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

6. **Property Details**

The location to which the application relates is (address): Marine farm site 8335, South East Bay, Central Pelorus Sound East

Legal description (i.e. Lot 1 DP 1234): _____

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

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

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

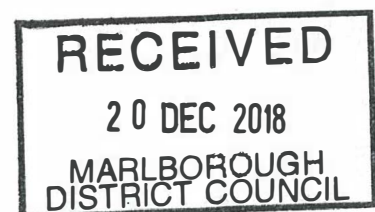
Please attach the written approval of affected parties/adjoining property owners and occupiers.

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

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

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

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



8. **Other Information**

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

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

9. **Fees**

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

10. **Declaration**

I (please print name) R D Sutherland

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

Signature of applicant or authorised agent:

R D Sutherland

Date

20-12-2018

Privacy Information

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





Topomap 50 Sheet: BP28

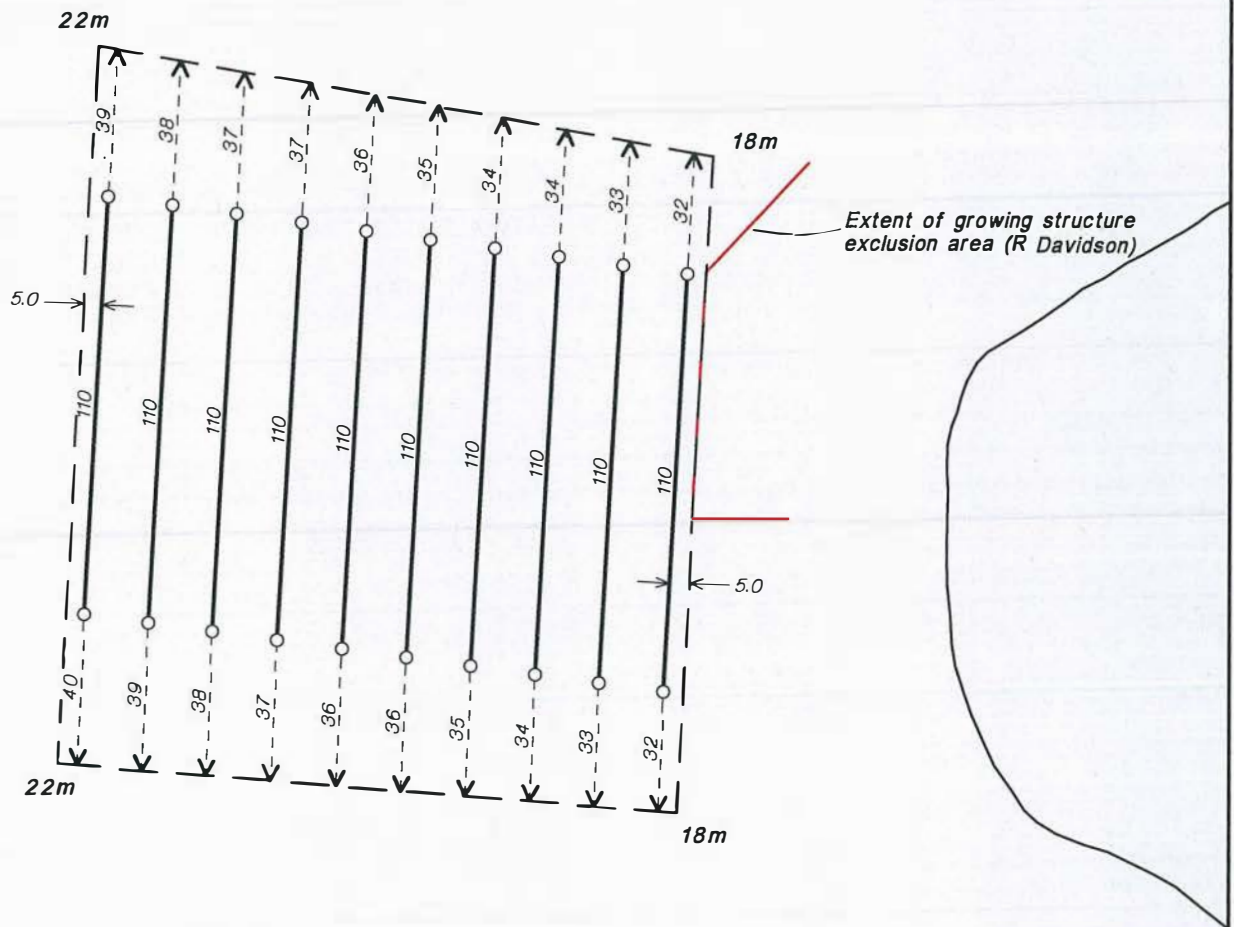
Base Topographical Data sourced from Land Information
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Locality Map

Renewal of Marine Farm 8335
South East Bay, Pelorus Sound



South East
Bay

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NOTE: Longline Spacing = 17.2m
Total Longlines = 10
Backbone Length = 100m
Total Backbone Length = 1100m
Warp Length = 34m - 47m
Warp Surface Loss = as shown
Warp Ratio = 2:1 minimum

REFERENCE

- Orange Float
- △ Anchors
- Anchor Warp
- Backbone



PALMS

20 December 2018

Structure Layout

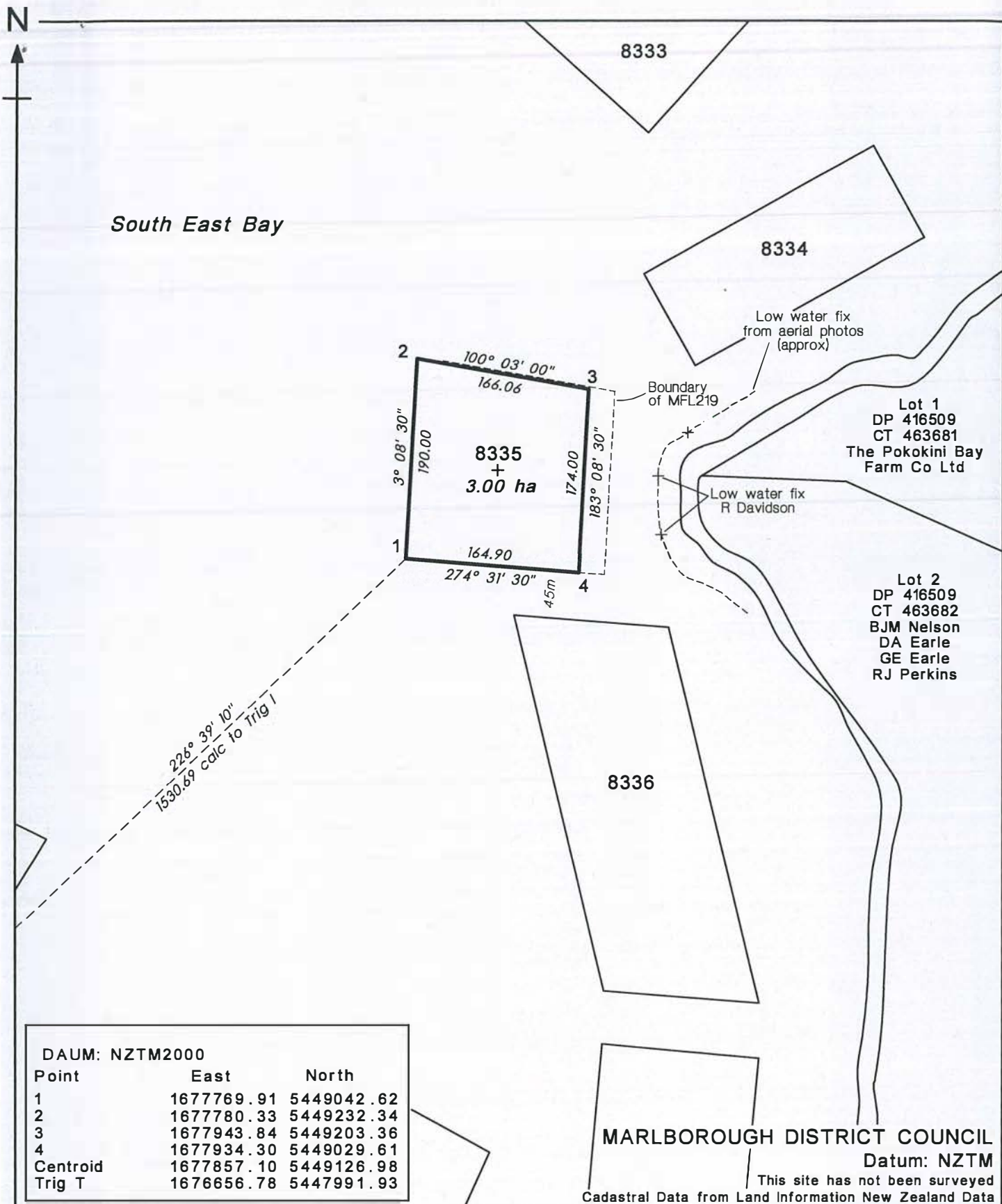
Renewal of Marine Farm 8335

South East Bay, Pelorus Sound

SCALE 1:2000

50 0 50 100m

MF_2603a



Proposed Coastal Permit **Renewal of Marine Farm 8335** **South East Bay, Pelorus Sound**

SCALE 1:5,000



**ASSESSMENT OF ENVIRONMENTAL IMPACT
FOR A COASTAL PERMIT OCCUPANCY
AND DISTURBANCE OF THE SEABED**

**APPLICATION BY CLEARWATER MUSSELS LIMITED,
FOR RENEWAL OF MARINE FARM SITE 8335, BEING MARINE FARM LICENCE
MFL 219 SOUTH EAST BAY, CENTRAL PELORUS EAST**

1.0 INTRODUCTION

Site 8335 lies on the eastern shore of South East Bay. It was originally licenced in May 1982, and assigned to Pickering, Brownlee and Talleys Mussels (1988) and in 2007 the site was transferred to Clearwater Mussels Limited. The site was revalidated in September 2007. During the benthic assessment in 2018 it was found an area of reef and cobble lay in the north east segment of the consent, and as a consequence the inshore zone has been removed from the consent and shifted offshore. One line inshore will be moved to the outer side of the consent. There is no change to consent area, or structures.

2.0 THE PROPOSAL

It is proposed to renew marine farm licence MFL 219 at site 8335, a 3.0 ha marine farm in South East Bay for a further 20-year term to 2038.

The area of the site is unchanged and will remain at 3.0 ha and the number of longlines will remain at ten. The site will continue to cultivate and harvest the following species using conventional longline methods for Green shell mussels (*Perna canaliculus*).

Consent is also sought to continue to disturb the seabed with anchoring devices and to harvest marine farm produce including the taking and discharge of coastal seawater and discharge of biodegradable organic matter during harvest. Term of consent sought is for twenty years to 2038. Existing consents will be relinquished on confirmation of consent being issued.

This is an application by existing permit holders for the site and activities permitted by existing consent and as such must be processed under Section 165ZH. Further matters outlined in Section 165ZJ also come into play in that the applicants have:

- a) Complied with the relevant Regional Coastal Plan, and
- b) Complied with resource consent conditions for the current aquaculture activities undertaken by the applicants.

2.1. Existing Permitted Activities

The harvesting of produce which includes taking and discharge of coastal seawater and discharge of biodegradable and organic waste, is permitted under rule 35.1 of the operative Marlborough Sounds Resource Management Plan (the Plan).

The movement of vessels in a Permitted Activity S27 Marine and Coastal Area (Takatai Moana) Act 2011 and includes anything reasonably incidental to vessel movement (S27(2)).

3.0 STATUS OF THE APPLICATION

The site is located within the Coastal Marine Zone 2 (CMZ2) in the Marlborough Sounds Resource Management Plan (the Plan). The site is the one of seven marine farms in this part of Tawhitinui Reach. Although marine farm licence MFL 219 was applied for prior to 1996, the farm does not meet the controlled activity standards at 35.2.5.1, as the structures are not the same as those originally applied for. The entire site was validated in its actual position on 10 September 2007.

The site is beyond 50 metres and 200 metres, of the mean low water, as shown on the diagram at Appendix A. Therefore, the application should be assessed as a Non-complying Activity under rule 35.4.

Existing consents for marine farm site 8335 will be relinquished on confirmation of a grant of consent for the existing area.

4.0 LOCATION

4.1. The Site

The inshore boundary of the proposed site lies beyond 70 metres from the mean low water mark at which gives adequate clearance from the shoreline and avoids cobble and boulder habitat identified inshore.

4.2. Site Dimensions

The site dimensions are shown on the site plan and the proposal is to create a regular and consistent shape.

The dimensions of the proposal are 166.06 m northern boundary, 174.00 m eastern boundary and 190.0 m western boundary, and 164.90 m southern boundary.

4.3. Site Layout

It is proposed to maintain 1 set of 10 longlines, each longline is 110.0 m in length with a longline spacing of 17.2 m. Warp lengths are variable ranging from 30.0 m to 42.0 m. (See line layout diagram for longline lengths). Total backbone length is 1100 m. Screw and block anchors will be utilised

5.0 THE PRESENT ENVIRONMENT

3.1 The Marine Environment

Two historic biological assessments were taken at the site, one by Davidson Environmental Limited in 2007 and for an extension in 2012

Mr R J Davidson outlined the main findings of his study in 2007

"The site was characterised by fine sand with varying amounts of natural shell. Soft silt was also observed and mussel debris was relatively high under structures."

A subsequent assessment by Davidson Environmental Ltd, of the ecology of the marine area of the site was undertaken in December 2018. Their conclusions from the report are listed below;



5.2 Sonar

The sonar run identified rocky substrata that extended some 14m into the consent. All other areas were characterised by soft substrata.

5.3 Benthos

Within the consent the bottom was characterised by soft substratum (mud) and with the propose modification to the inshore boundary the reef and cobble zone will be avoided and a buffer created from the nearest marine farm backbone.

5.2 Species and communities

Species abundance and diversity from most of the consent was relatively low compared to high current locations. ...species typical of silt substratum.. horse mussel, microagal mat, cushion seastar, sea cucumber and 11 arm seastar, spotty and blue cod were observed near the reef.

5.3 Seabirds and King Shag

Gannets are known to frequent the area from the Waimaru colony. Several species of shag also visit the area. King shag have been observed foraging in Popoure reach off shore from South East Bay. Davidson 2018 and the writer have seen this activity there. Davidson discusses king shag in depth in his report attached at pages 29-31

5.4 Marine mammals

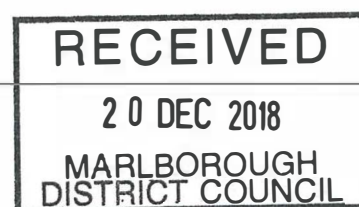
Dusky, common and bottlenose dolphins frequent the Pelorus Sound at various times of the year. Killer whales have also been seen and NZ fur seal have also established in the Sound at various locations and often use mussle floats as haul out areas.

The Davidson Environmental Ltd report (2018) is attached and is an integral part of this application.

3.2 The Land Environment

The land adjacent is owned by J.J. Wain and A.J. Naysmith and is regenerating indigenous vegetation with scattered wilding pines present. The coastal margin is characterized by rocky cobble beach with short coastal boundary rising to steep hill country.

6.0 NAVIGATION MATTERS



The right to navigate to and from the farm, and to temporarily anchor, moor and load crop is preserved by s27 of the Marine and Coastal Area (Takutai Moana) Act 2011.

6.1. The Shoreline

The distance from the shoreline holds with the conventions established in the Marlborough Sounds Resource Management Plan. That is, the inshore boundary of the farm is beyond 50 metres from the mean low water mark (73 metres). The outer boundary is in excess of 200 metres offshore (331 metres) and is therefore a Non-complying Activity in the Marlborough Sounds Resource Management Plan.

It lies 50 metres from site 8334 to the north (MacLab (NZ) Ltd) and 45 metres of site 8336 to the south (KPF Investments Ltd).

6.2. Headlands

There are no headlands in the area.

6.3. Navigational Routes

The area lies inside of the navigational route along the eastern shore of Pelorus Sound and into Pokokini Bay. Navigation into the head of the bay can be made between the site and the shore, through the farm and on the outside of the site.

6.4. Anchorages or Mooring Areas

There are no moorings in the area but moorings have been observed to the north of the site and jetties are also present at Pokokini Bay and to the south at the head of the south side of South East Bay. There are no known formal anchorages adjacent to the site. Vessels from time to time do tie up to the marine farm and may travel inside the marine farm to obtain shelter from wind and waves. There is ample room for vessels to navigate into this area.

6.5. Water Ski Lanes

There are no water ski lanes in the vicinity.

6.6. Sub-Aqueous Cables

There are no sub-aqueous cables in the vicinity.

7.0 AESTHETIC & LANDSCAPE MATTERS

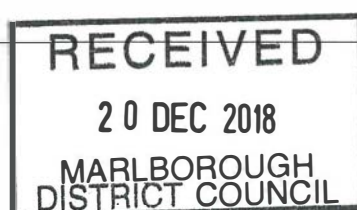
7.1. Land Zoned For Residential Use or Proximity to Residences

There are two residences in the vicinity of the site. To the north there is a residence at Pokokini 680 metres to the north east of the site and to the south there are several holiday homes some 976 metres in excess of a kilometre distant. The land adjacent has not been subdivided for residential use.

7.2. Scenic Value – Marlborough Sounds Resource Management Plan

The area has been identified within the Marlborough Sounds Resource Management Plan as being of outstanding scenic landscape value, but it lies within the "working" environment of the Sounds where marine farming, traditional pastoral farming and forestry have been practised in the past. The land is now substantially regenerated to indigenous cover and wilding pines.

The effect on the scenic value will be little different from the present use of this part of the Marlborough Sounds.



7.3. Effects on Natural Character – Marlborough Environment Plan

The area is considered to have a very high coastal natural character rating. The 2014 Boffa Miskell study *Natural Character of the Marlborough Coast*, which is reflected in the natural character maps in the MEP, does map the waters of the area as having high natural character. The land immediately adjoining the site is also mapped as having high natural character rating that should be protected. The area is mapped as Marlborough Sounds Coastal Landscape.

According to Rob Davidson, the marine farm will have limited effect on the marine environment at the site. This limited effect, combined with the productive nature of the bay, means that the farm renewal will not have a significant effect on the natural character values at that location.

7.4. Effects on Landscape

The site is not within or adjacent to an Area of Outstanding Landscape Value (AOLV) in the Plan. The proposed Marlborough Environment Plan (MEP) does not identify the waters of South East Bay as an outstanding natural feature and landscape (ONFL). The adjoining land is not mapped as an ONL. The area does not form part of the high amenity value Marlborough Sounds Coastal Landscape, which includes all of the Marlborough Sounds.¹

The waters of the area were not mapped as ONFL in the 2009 Boffa Miskell Marlborough Landscape Study.

The site lies within the “working” environment of South East Bay where marine farming and farming have been practiced in the past, and continue to this day.

The marine farm site renewal is consistent with the scenic values of this part of the South East Bay given its present use.

The site will not have an effect on the Marlborough Sounds Coastal Landscape, which is vast compared to this very small area in South East Bay where it has been part of the landscape since 1980.

8.0 AMENITY VALUES

Visual and noise effects are considered to be minor. Vessels visit the area to service the farm on an irregular basis but at least fortnightly for 2 to 4 hours. Because this is a remote location vessels working this are unlikely to detrimentally affect visual and noise effects on the environment.

The site has been present since 1982 and is one of a number of marine farms in South East Bay. It is consistent with what people would expect to see in this mixed-use part of the Sounds. The buoys associated with renewal of the existing site would have only a minor additional impact on visual amenity. The site blends with the strong coastal bluffs behind.

The applicant is mindful of the effects of its activities on residents and other users of the coastal marine area. It is a member of the Marine Farming Association's Environmental Certification Programme, which recognizes companies that actively participate in and adhere to the Industry Standard Operating Procedures and Codes of Practice. This includes the Code of Practice to avoid, remedy or mitigate noise from marine farming activities in the Marlborough Sounds, Golden Bay and Tasman Bay on other users and residents. Clearwater's staff receive ongoing training as

¹ Based on the 2015 Boffa Miskell Marlborough Landscape Study.



part of this programme. Clearwater also adheres to the A+ Sustainable Management Framework, which includes objectives relating to noise and odour.

9.0 ECOLOGICAL VALUE

There is no ecological value identified in the Plan for the immediate area. Ecological values that have been identified are described in the Davidson Environmental Ltd Report, particularly for those areas inshore of the proposal. These areas will not be adversely affected by this proposal.

9.1. Benthic Effects

Mussel debris at this site ranged from 1 – 80% cover, within the range known for the Marlborough Sounds, and at the moderate to high end of the impact range. All sites where mussel debris were observed were either under or close to droppers (even for the two sites where shell was observed outside the consent area). While the redox layer will likely move closer to the surface compared to sites away from the farm, this would represent only a mild level of enrichment.

Effects are reversible upon removal of the farm, with recovery time estimated at 5-7 years in this location.

9.2. Effects on King Shags/seabirds

A range of seabirds frequent Pelorus Sound. Schuckard identified concentrations of King Shag feeding in eastern Tawhitinui Reach with colonies focused primarily at Duffers Reef and small rock stacks of D'Urville Island. Recently a colony has established on the mainland in Tawhitinui Bay.

Some foraging occurs through this section of Pelorus Sound, however there has been no suggestion that the presence of marine farms has disadvantaged the species in foraging in this part of the Sounds.

9.3. Effects on Marine Mammals

Davidson reports that at least 5 species of marine mammals regularly and/or seasonally transit through the Pelorus Sound including fur seal, three species of dolphin and orca. Bottlenose dolphins are consistently observed in the Sound and Dusky Dolphin are also seen here and New Zealand fur seal can be observed throughout the Sound all year.

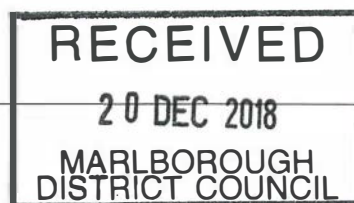
This part of Pelorus Sound has not been ranked as a significant site for marine mammals.

10.0 RECREATIONAL VALUE

In terms of recreational use, there is boat access only to the area. This is a remote area subject to heavy swells under north west conditions. It is not an area that has significant recreational use. Some recreationalists may visit inshore along South East Bay but the applicants advise this is highly infrequent.

The visual impact of the marine farm will not cause any significant alteration to the physical environment in what is essentially already a commercial marine farming area. This marine farming site is consistent with the productive character of this part of South East Bay.

10.1. Recreational Fishing



It is the applicant's view that the marine farm at the site enhances opportunities for recreational fishing, as marine farms generally tend to create an ecosystem which is conducive to the presence of both reef fish, and other fish species such as cod and snapper. Access to the coast for recreationalists is maintained.

Recreational fishing does take place along the coastline utilising the small reefs and rubble shore which is inhabited by fish targeted by recreational fishers. The marine farm itself is located offshore and will encourage the presence of fish species over time. In the long run, as with other marine farms in the bay, fish are drawn to marine farm sites. Recreational fishing is an activity encouraged by the applicant.

11.0 HISTORICAL OR CULTURAL VALUES

The New Zealand Historical Places Trust Inventory has been consulted to identify any sites of significance in this location. None appear in published information.

From the applicant's knowledge no sites of historical or traditional value are present in the area. Given that site has had previous consultation it is not expected that values important to iwi would be affected.

12.0 COMMERCIAL FISHING

Commercial fishing is known to occur in parts of Pelorus Sound but it is unlikely in this part of South East Bay.

13.0 EFFECTS ON WATER QUALITY AND ECOLOGY

The water quality of the area is high. The site relies on excellent water quality to enable the process of marine farming to flourish. It is a large area with good capacity for mixing of water with tidal current, wind and wave action.

Consent is required for the amount of organic waste matter which is discharged during the harvesting process and for the take and use of coastal water. No significant historical adverse effects have been recorded or are anticipated, and any visual evidence of harvesting quickly dissipates in the coastal environment.

14.0 EFFECTS ON PRODUCTIVITY

Water quality is unlikely to be a problem to marine farming. The activity in itself is unlikely to create any significant detrimental effects on water quality. This renewal has no effect on the productivity of existing marine farms in the general vicinity, because of the separation distances between farms and large water area of this section of South East Bay, with its close proximity to the waters of the main stem of Pelorus Sound.

15.0 ALIENATION OF PUBLIC SPACE

This site has been utilised by marine farmers since 1982. Recreation and commercial boat owners are aware of the marine farm in this area and recreational fishermen have the opportunity to use the sites and transit through them. Given the 17.2 m spacing existing between longlines for this farm, there are opportunities for vessels wanting to transit through the site.



From time to time, vessels utilise the longlines for mooring and over-nighting. This process as far as the applicant is concerned, will continue.

16.0 ON SHORE FACILITIES

The applicant does not require onshore marine farm facilities. The farm work is undertaken by the applicant and existing marine farming contractors.

17.0 VALUE OF INVESTMENT

As part of this application to renew site 8335, the applicant has considered the value of the site. It is anticipated the applicants will surrender the existing consent when the application is granted for a period of 20 years. As a result, this is an application to which s165AH(1)(c) applies and the Council must, when considering the application, have regard to the value of the investment of the existing consent holder under s104(2A).

The site has been held by the applicants since 1982. Equipment costs were \$15,000.00 per line and total investment of the existing site is \$150,000.00.

Harvest and growth rates reflect climatic conditions and spat source. Kaitaia spat tends to be slower and has a 20-24 month cycle while Wainui spat has a 15-18 month cycle. Costs of seeding and maintenance per year are \$20,000.00 per year cycle.

The farm produces some 35 tonnes per crop line (Green Weight Tonne) and is sold directly to Talleys Group Limited for processing.

Returns to the grower have averaged in the order of \$550 tonne with a range of \$450 to \$950 tonne is essential to return and to the processor. Current values have an average of \$1,100.00 per tonne. The current values of the crop is approximately \$38,500 allowing for a price of \$1,100 per tonne.

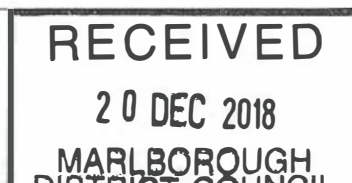
18.0 ECONOMIC, SOCIAL AND EMPLOYMENT BENEFITS

Clearwater currently has 90 farms in the Marlborough Sounds, and produces around 17,000 tonnes per annum, which amounts to a significant portion of Marlborough's total production. The company consistently achieves an above average yield per hectare compared to most mussel farms in the Sounds.

Some Clearwater's water space is used for spat catching and holding, with juvenile mussels from different locations (Golden Bay, Kaitaia and parts of the Sounds) held on farms in the Sounds until it is mature enough to be re-seeded elsewhere for on-growing to adult mussels. Reliability of spat supply is essential to the mussel industry.

Site 8335 produces approximately 175 tonnes of mussels per year. This product contributes to ensuring a consistent supply of mussels to processing factories, which in turn maintains year round employment for staff and assists in retaining skilled employees within the Marlborough region. Most product is exported, however this site contributes approximately \$192,500 per year to the Marlborough economy.

Clearwater currently employs 40 people in the growing part of its business, who live in Nelson and Marlborough. Most of the product is processed by Talley's Group Limited's factories in Blenheim



and Motueka, which employ approximately 200 people. Some product is sold as inputs for high value nutraceutical products. The applicant is committed to providing high quality employment, with an income well above the Marlborough average, ongoing training, promotion opportunities and an employee investment reward scheme.

Clearwater operates six vessels out of its base at Havelock. It provides business to a large number of third party product and service providers, including in the freight, engineering, transport and hospitality sectors.

19.0 PART II RESOURCE MANAGEMENT ACT ISSUES

19.1. Section 5

In terms of the enabling provisions in Section 5 of the Resource Management Act the marine farm industry has been, and will continue, to be a source of substantial revenue production and in turn employment in the Sounds and in the Nelson/Marlborough regions.

In addition, export income for the nation is generated. Applications such as this enable sustainable use of the marine resources in a way that enables people and communities to provide for their economic and social wellbeing.

The site is in the CMZ1 and has a Non-complying Activity status. The site can be farmed substantially and management of environment criteria can be achieved. It is in the "working" environment of the Sounds. The site position and distances from other facilities are not detrimental to other uses of the area. Section 5 of the Act is given effect through the New Zealand Coast Policy Statement 2010 ("NZCPS"), the Marlborough Regional Policy Statement and the Plan. The MEP is still in the hearing phase. The application is assessed against the relevant provisions of these documents below, and in Appendix A, B and C.

19.2. Section 6

Matters of national importance have been assessed under the requirements of the Plan.

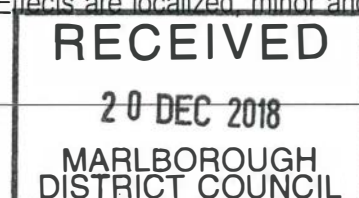
The proposal recognises the:

- (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:*

Section 6(a) is given effect through Policy 13 of NZCPS, which is considered later in this application. The adjacent vegetation is primarily farm land. The existing farm does not affect that. Effects on the biophysical aspects of marine natural character are localized, minor and reversible.

- (b) *The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*

Section 6(a) is given effect through Policy 15 of NZCPS, which is considered later in this application. The site does not lie in an area identified as an ONFL in the MEP, and is adjacent to an AVOL in the Plan. This site is adjacent to other marine farms. The adjacent land is regenerated farmland with pockets of exotic forest. The marine farm is appropriate in this context. The farm will not affect the high values of the adjoining area. Effects are localized, minor and reversible. See section 7.3 above.



- (c) *The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*

The vegetation is grassland with some exotic forest adjacent, with scattered indigenous shrub lands along the coast and extensive native forests at altitude around the bay. See sections 5.1, 14.0 and 15.0. Effects on King Shag, marine mammals have been discussed above.

- (d) *The maintenance and enhancement of public access to an along the coastal marine area, lakes, and rivers:*

Public access is maintained with good separation from the coast and main navigational routes. The site has been positioned to allow access around the coast without impediment, and access between the shore and structures has been maintained.

- (e) *The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*

The applicants are unaware of any historical site on land nearby. The site has been positioned to avoid habitat that may be important to Maori. This will be confirmed with consultation with Iwi.

19.3. Section 7

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 have particular regard to –

- (a) *Kaitiakitanga:*

A number of iwi are identified as having interests in the Sounds and South East Bay. The proposal has been developed to avoid offending the guardianship and protection of resources valued by Iwi. It is an existing long established site. The notion of care and protection of the environment and resources is also an important concept in management of resources, which the applicant also holds as important in its day to day management of water space.

- (b) *The efficient use and development of natural and physical resources:*

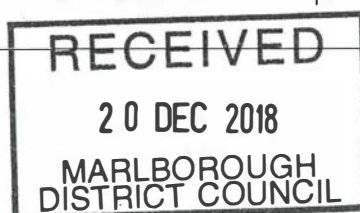
The proposal is confined and concentrated in a locality out of the way of normal public access and resource use. Being confined and sited together with another marine farm brings efficiencies in applying resources to manage the growing of mussels.

- (c) *The maintenance and enhancement of amenity values:*

Amenity values will only be affected to a minor degree by the renewal. The farm is near to a number of other farms and land-based primary production activities. It is consistent with what a viewer will see elsewhere in this area.

- (d) *Intrinsic values of ecosystems:*

The values of the ecosystems have been identified in the report prepared, to detail the benthic environment. Importantly no significant resources have been identified on the site. The structures are situated over a mud benthos that is widespread in the Marlborough Sounds and is identified as the environment most suited to have aquaculture over it. Species are low in number and diversity. Mr Davidson has recommended a structures exclusion area to avoid the small portion of reef on the inshore edge of the consent.



- (e) *Recognition and protection of the heritage values of the sites, buildings, place, or areas:*
There are no heritage sites, buildings or places in the near vicinity.
- (f) *Maintenance and enhancement of quality of the environment:*
The quality of the environment will not be endangered by the proposal to grow mussels. The process needs high water quality and, as filter feeders, mussels will enhance water quality by the filtration process during feeding.
- (g) *Any finite characteristics of natural and physical resources:*
The proposal is to occupy a small part of the bay. Mussels are naturally occurring in the water column and filter feed off naturally occurring phytoplankton and zooplankton. Phytoplankton is likely to recover to background levels beyond the consent boundaries.
- (h) *The protection of the habitat of trout and salmon.*
Section (h) is not relevant to this application.

19.4. Treaty of Waitangi

Matters of potential concern in relation to the Treaty of Waitangi have also been considered earlier in the original proposals to the site. No matters of concern were raised at that time. See also section 23.1 below.

20.0 NEW ZEALAND COASTAL POLICY STATEMENT 2010 (NZCPS)

The NZCPS 2010 is of general relevance to this application and all policies have been considered in the development of the proposal. The NZCPS policies of immediate relevance to the applications are policies 2, 6, 8, 11, 13, 15, 18, 22 and 23.

23.1 Policy 2

Policy 2 sets out a number of matters which are relevant to the taking into account of the principles of the Treaty of Waitangi and kaitiakitanga, in relation to the coastal environment.

The applicant recognizes that Ngāti Apa ki te Rā Tō, Ngāti Kuia, Rangitāne o Wairau, Ngāti Kōata, Ngāti Rārua, Ngāti Tama ki Te Tau Ihu, Te Ātiawa o Te Waka-a-Māui and Ngāti Toa Rangatira have statutory acknowledgements in the area of the application site. Those acknowledgements have been considered during the preparation of this application, as outlined above.

The applicant has also reviewed the Iwi management plans of Ngāti Kōata, Te Ātiawa o Te Waka-a-Māui and Ngāti Kuia. No areas of conflict have been identified.

There are no taiāpure or mahinga mātaītai in the area of the application. There are also no established areas of protected customary rights or customary marine title within the meaning of the Marine and Coastal Area (Takutai Moana) Act 2011.

The applicant will discuss the proposal further with relevant Iwi representatives.

23.2 Policy 6

Policy 6 of the NZCPS is in two parts, the first dealing with activities in the coastal environment more broadly, and the second with those in the coastal marine area more specifically.



The farm is consistent with the character of the existing built environment in that part of South East Bay. No areas of indigenous biodiversity or historic heritage value have been identified in relation to the site, so the farm complies with subpart 1(j).

Subpart 2 of the Policy 6 is particularly relevant. Mussel farming clearly has a functional need to be located in the coastal marine area. It directly contributes to the social and economic wellbeing of people and communities, in accordance with subpart 2(a). This is discussed in relation to Policy 8 below.

23.3 Policy 8

Policy 8 of the NZCPS provides for the recognition of the significant existing and potential contribution of aquaculture to the social, economic and cultural wellbeing of people and communities by:

- a) *Including in regional policy statements and regional coastal plans provision for aquaculture activities in appropriate places in the coastal environment, recognizing that relevant consideration may include:*
 - i). *The need for high quality water for aquaculture activities; and*
 - ii). *The need for land-based facilities associated with marine farming.*
- b) *Taking account of the social and economic benefits of aquaculture, including an available assessments of national and regional economic benefits; and*
- c) *Ensuring that development in the coastal environment does not make water quality unfit for aquaculture activities in areas approved for that purpose.*

The application will enable production from the site, contributing to the social and economic benefits of aquaculture to the community as outlined above. No changes to the impact on water quality are anticipated. This application satisfies the requirement of Policy 8.

23.4 Policy 11

Policy 11 relates to protecting the indigenous biological diversity of the coastal environment.

The farm is located over mud habitat and with the proposed structure exclusion area, will avoid any reef areas or any other areas of significant biodiversity. Marine mammals are known to periodically frequent Pelorus Sound. No adverse effects on dolphins has been reported from this site. There will be no adverse effects indigenous biodiversity. While the site is within the foraging range of the King Shag, it represents a very small percentage of the total available foraging habitat.

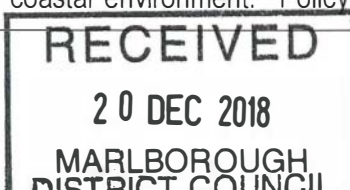
23.5 Policy 13

Policy 13(1)(a) provides for the avoidance of significant adverse effects on areas of the coastal environment with outstanding natural character. Policy 13(1)(b) requires the avoidance of significant adverse effects and the avoidance, remediation and mitigation of other adverse effects on natural character.

Significant adverse effects will be avoided, as discussed above at section 7.3.

23.6 Policy 15

Policy 15(a) provides for the avoidance of adverse effects of activities on outstanding natural features and outstanding landscapes in the coastal environment. Policy 15(b) provides for the



avoidance of significant adverse effects and the avoidance, remediation, and mitigation of other adverse effects of activities on other natural features and natural landscapes in the coastal environment.

This application is adjacent to an AVOL under the operative Plan, and is not within or adjacent to an ONFL in the proposed MEP. The site lies within a bay and coastline with substantial human modification, and is consistent with those existing patterns of development.

The effects of the application on the landscape will be minor and the effects are not likely to impact on the values which contribute to the landscape, as discussed above under section 7.

23.7 Policy 18

Policy 18 recognises the need for public open space within and adjacent to the coastal marine area, for public use and appreciation including activities and passive recreation.

There is no access by road. Most of the access to this area is by boat. Nevertheless, the visual impact of the marine farm will not change. The area has a low viewing audience. Access to the coast for recreationalists is maintained.

Opportunities for recreational fishing may be enhanced by the presence of the marine farm.

23.8 Policy 22

Policy 22 requires an assessment of sedimentation levels, and that use will not result in a significant increase in those levels. Davidson's biological report, stated that while shell and fine sediment would be deposited under and in proximity to droppers, the farm structures are located over habitat considered suitable for this type of activity (save for the small structures exclusion area). No monitoring appeared to be necessary.

23.9 Policy 23

Subpart 1 of Policy 23, which relates to managing discharges to water in the coastal environment, is relevant to this application. Silts and organic matter released at harvest are readily assimilated into the water column and seabed. The effects of harvesting mussels are only transitory, and quickly become indistinguishable from background sedimentation.

21.0 REGIONAL POLICY STATEMENT/MARLBOROUGH SOUNDS RESOURCE MANAGEMENT PLAN

Certain provisions of the Marlborough Regional Policy Statement have relevance to this application and are considered in Appendix A.

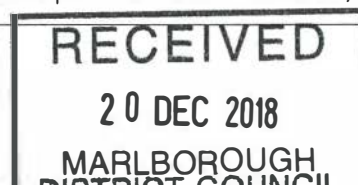
The Plan contains a number of provisions that are relevant to this application. An assessment of the application against the requirements of that plan is contained in Appendix B.

Conclusion

Taken overall, the application is consistent with the relevant objectives and policies of the Regional Policy Statement and Marlborough Sounds Resource Management Plan.

22.0 PROPOSED MARLBOROUGH ENVIRONMENT PLAN

Rules applying to marine farming have been specifically excluded from the proposed MEP at this stage, hence consideration of the proposal under the operative Plan. However, some recognition



does need to be given to the relevant policies in the MEP. An analysis table assessing the proposal against the relevant provisions is included at Appendix C.

MEP objectives and policies relevant to the proposal include:

- Chapter 4 – Natural & Physical Resources
- Chapter 5 – Allocation of Public Resources
- Chapter 6 – Natural Character
- Chapter 9 – Public Access and Open Space
- Chapter 15 – Resource Quality

Note that the provisions of chapter 13, Use of the Coastal Environment, specifically do not apply to marine farms.

All are considered to be relevant to such applications as this and have been generally outlined in this AEE. In my view the proposal provides for the needs of primary production and tourism.

Infrastructure is protected. The nature and character of the Sounds is protected. Access to coastal water is maintained and exclusive occupation of water space is minimized allowing access between lines and the shore.

Adverse effects in areas of outstanding natural character, outstanding natural landscapes, and outstanding natural features have been avoided, as has any effect on ecosystems and biodiversity.

Heritage values are recognized, and are unaffected, including Maori Culture and traditions. Structures and activities are “clustered” in South East Bay and do not diminish amenity values.

The character of South East Bay is one of reverted farm land, with multiple sites of marine farming. Residential housing is present to the south of the site.

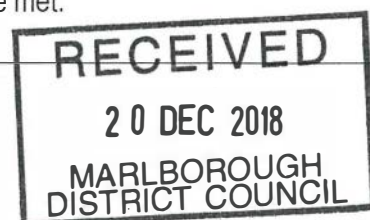
23.0 CONSULTATION

An initial letter has been sent to all Iwi listed below identifying the site.

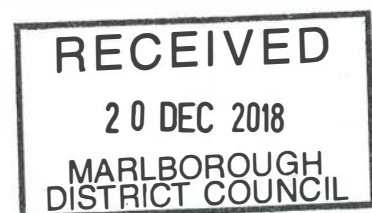
Name	Address	Phone
Ngati Koata Trust	PO Box 1659, Nelson 7040	(03) 548 1639
Te Runanga a Rangitane o Wairau	PO Box 883, Blenheim 7240	(03) 578 6180
Te Runanga O Ngati Kuia	PO Box 1046, Blenheim 7240	(03) 579 4328
Ngāti Apa ki te Rā Tō	PO Box 708, Blenheim 7240	(03) 578 9695
Te Atiawa Manawhenua Ki Te Tau Ihu Trust	PO Box 340, Picton	(03) 573 5170
Ngati Toarangatira Manawhenua Ki Te Tau Ihu Trust	PO Box 5061, Blenheim 7240	(03) 577 8801
Ngati Rarua Trust	PO Box 1026, Blenheim 7240	(03) 577 8468

24.0 CONCLUSION

The applicant considers that the use of this area for aquaculture is appropriate. The activity enables people and communities to provide for the social, economic and cultural wellbeing, while ensuring the principles of sustainable management are met.

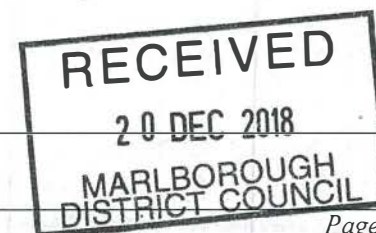


RD Sutherland
Property and Land Management Services Limited,
On behalf of the Applicants



APPENDIX A: MARLBOROUGH REGIONAL POLICY STATEMENT – POLICY ANALYSIS

Objective	Policy	Assessment
5.3.2: That water quality in the coastal marine area be maintained at a level which provides for the sustainable management of the marine ecosystem.	5.3.5: Avoid, remedy or mitigate the reduction of coastal water quality by contaminants arising from activities occurring within the coastal marine area.	No artificial feed or attractants are added. No chemicals, antibiotics or other therapeutants added. Any discharges of organic matter associated with harvesting will be transitory.
5.3.10: The natural species diversity and integrity of marine habitats be maintained or enhanced.	5.3.11: Avoid, remedy or mitigate habitat disruption arising from activities occurring within the coastal marine area.	Any disruption associated with the existing mooring of the farm is minor in scale and transitory. The seabed is already in a modified state due to terrestrial run off.
7.1.9: To enable present and future generations to provide for their wellbeing by allowing use, development and protection of resources provided any adverse effects of activities are avoided, remedied or mitigated.	7.1.10: To enable appropriate type, scale and location of activities by: <ul style="list-style-type: none"> • Clustering activities with similar effects; • Ensuring activities reflect the character and facilities available in the communities in which they are located; • Promoting the creation and maintenance of buffer zones (such as stream banks or 'greenbelts'); • Locating activities with noxious elements in areas where adverse environmental effects can be avoided, remedied or mitigated. 	The marine farm is consistent with the current Policy and the designated consented site has been in place since 1982.
	7.1.12: To ensure that no undue barriers are placed on the establishment of new activities (including new primary production species) provided the life supporting capacity of air, water, soil and ecosystems is safeguarded and any adverse environment effects are avoided, remedied or mitigated.	This area has a primary production character, and is well suited to marine farming. This policy supports the proposed renewal. The life supporting capacity of the area will be safeguarded.



APPENDIX A: MARLBOROUGH REGIONAL POLICY STATEMENT – POLICY ANALYSIS

Objective	Policy	Assessment
7.2.7: The subdivision use and development, of the coastal environment, in a sustainable way.	7.2.8: Ensure the appropriate subdivision, use and development of the coastal environment.	The marine farm is within a bay well established for marine farming. The marine farms activity is biologically sustainable.
	7.2.10(a) – (d)	The marine farm is located within the consented area which is approved for marine farming.
7.3.2: Buildings, sites, trees and locations identified as having significant cultural or heritage value are retained for the continued benefit of the community.	7.3.3: Protect identified significant cultural and heritage features.	No sites of cultural or heritage significance have been identified on the area of the application site.
8.1.2: The maintenance and enhancement of the visual character of indigenous, working and built landscapes.	8.1.3: Avoid, remedy or mitigate the damage of identified outstanding landscape features arising from the effects of excavation, disturbance of vegetation, or erection of structures.	The site is within an area of outstanding natural landscape but will have no additional impact on landscape values. The farm is well managed and will comply with the Aquaculture New Zealand A+ Sustainable Management Framework for Mussels.
	8.1.5: Promote enhancement of the nature and character of indigenous, working and built landscapes by all activities which use land and water.	The marine farm will have no additional impact on landscape values.
	8.1.6: Preserve the natural character of the coastal environment.	The site will have only minor effect on the already modified natural character of the coastal environment.



APPENDIX B: MARLBOROUGH SOUNDS RESOURCE MANAGEMENT PLAN – POLICY ANALYSIS

Objective	Policy	Assessment
Ch 2, 2.2, Obj 1: The preservation of the natural character of the coastal environment of the coastal environment, wetlands, lakes, and rivers and their margins and the protection of them from inappropriate subdivision, use and development.	Policy 1.1: Avoid the adverse effects of subdivision, use of 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.	This application is set in an area which is dominated by other human modifications, including farming, forestry, woodlots, roads, tracks, and a marine farms.
	Policy 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.	As above.
	Policy 1.3: To consider the effects on those qualities, elements and features which contribute to natural character, including: <ul style="list-style-type: none"> a) Coastal and freshwater landforms; b) Indigenous flora and fauna, and their habitats; c) Water and water quality; d) Scenic or landscape values; e) Cultural heritage values, including historic places, sites of early settlement and sites of significance to Iwi; and f) Habitat of trout. 	These matters have been considered in the assessment of environmental effects in the Davidson Environment Report.

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DISTRICT COUNCIL**

APPENDIX B: MARLBOROUGH SOUNDS RESOURCE MANAGEMENT PLAN – POLICY ANALYSIS

	<p>Policy 1.4:</p> <p>In assessing the actual or potential effects of subdivision, use or development on natural character of the coastal and freshwater environments, particular regard shall be had to the policies in Chapters, 3, 4, 5, 6, 12, 13 and Sections 9.2.1. 9.3.2 and 9.4.1 in recognition of the components of natural character.</p>	<p>The application will not have any additional impact on the components of these policies which impact natural character values.</p>
	<p>Policy 1.6:</p> <p>In assessing the appropriateness of subdivision, use or development in coastal and freshwater environments regard shall be had to the ability to restore or rehabilitate natural character in the area subject to the proposal.</p>	<p>Any residual impact on natural character will naturally rehabilitate on removal of the farm.</p>
	<p>Policy 1.7:</p> <p>To adopt a precautionary approach in making decisions where the effects on the natural character of the coastal environment, wetlands, makes and rivers (and their margins) are unknown.</p>	<p>The effects of this application are not unknown and are discussed elsewhere in the assessment of environmental effects. A precautionary approach is not justified.</p>
<p>Ch 4, 4.3, Obj 1:</p> <p>The protection of significant indigenous flora and fauna (including trout and salmon) and their habitats from the adverse effects of use and development.</p>	<p>Policy 1.2:</p> <p>Avoid, remedy or mitigate the adverse effects of land and water use on areas of significant ecological value.</p>	<p>The farm is not sited over an area of significant ecological value.</p>
<p>Ch 5, 5.3. Obj 1:</p> <p>Management of the visual quality of the Sounds and protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.</p>	<p>Policy 1.1:</p> <p>Avoid, remedy and mitigate adverse effects of subdivision, use and development, including activities and structures, on the visual quality of outstanding natural features and landscapes, identified according to criteria in Appendix One.</p>	<p>The application site is not within an area of outstanding landscape value identified in the Plan. The effects of the application on the landscape will be similar to other marine farm sites. The effects are not likely to impact on the values which contribute to the landscape.</p>



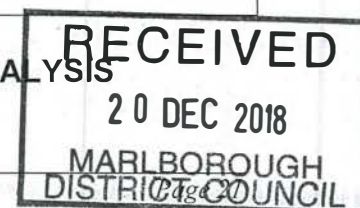
APPENDIX B: MARLBOROUGH SOUNDS RESOURCE MANAGEMENT PLAN – POLICY ANALYSIS

Ch 6, 6.1.2, Obj 1: Recognition and provision for the relationship of Marlborough's Maori to their culture and traditions with their ancestral lands, waters, sites, waahi tapu and other taonga.	Policies 1.1 – 1.5:	In preparing this application, the applicants have had regard to the Statutory Acknowledgements and have reviewed the statements of association for each Iwi. No areas of conflict have been identified by the applicants. Consultation will be undertaken with iwi including sending an initial letter regarding the proposal. The applicants understand there are no known wahi tapu, taiapure, mataitai or other areas of significance to Maori in the vicinity of the application.
Ch 8, 8.3, Obj 1: That public access <i>to and along</i> the coastal marine area, lakes and rivers be maintained and enhanced.	Policy 1.2: Adverse effects on public access caused by the erection of structures, marine farms, works or activities in or along the coastal marine area should as far as practicable be avoided. Where complete avoidance is not practicable, the adverse effects should be mitigated and provision made for remedying those effects, to the extent practicable.	There are no additional adverse effects on public access caused by the marine farm as the farm has been in place since 1982. Access inshore and between lines is maintained.
	Policy 1.3: 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.	There are no additional adverse effects on public access caused by the marine farm.
	Policy 1.8: Public access to and along the coastal marine area should be maintained and enhanced except where it is necessary to [circumstances do not apply].	There are no additional adverse effects on public access caused by the marine farm.

APPENDIX B: MARLBOROUGH SOUNDS RESOURCE MANAGEMENT PLAN – POLICY ANALYSIS**RECEIVED****30 DEC 2018
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DISTRICT COUNCIL**

<p>Ch 9, 9.2.1, Obj 1: The accommodation of appropriate activities in the coastal marine area whilst avoiding, remedying or mitigating the adverse effects of those activities.</p>	<p>Policy 1.1: Avoid, remedy and mitigate adverse effects of use and development of resources in the coastal marine area on any of the following:</p> <ul style="list-style-type: none"> a) Conservation and ecological values; b) Cultural and lwi values; c) Heritage and amenity values; d) Landscape, seascape and aesthetic values; e) Marine habitats and sustainability; f) Natural character of the coastal environment; g) Navigational safety; h) Other activities, including those on land; i) Public access to and along the coast; j) Public health and safety; k) Recreation values; and l) Water quality. 	<p>The way in which adverse effects on the stated values will be avoided, remedied and mitigated is addressed elsewhere in the assessment of environmental effects. Overall, the proposal is consistent with this policy.</p>
	<p>Policy 1.2: Adverse effects of subdivision, use or development in the coastal environment should as far as practicable be avoided. Where complete avoidance is not practicable, the adverse effects should be mitigated and provision made for remedying those effects to the extent practicable.</p>	<p>Adverse effects from the proposal will be minor and will be mitigated to the extent practicable.</p>
	<p>Policy 1.3: Exclusive occupation of the coastal marine area or occupation which effectively excludes the public will only be allowed to the extent reasonably necessary to carry out the activity.</p>	<p>Consistent with other marine farms in the Marlborough Sounds, exclusive occupation of the consent area is not sought, other than for the area physically occupied by the lines and anchoring devices.</p>

APPENDIX B: MARLBOROUGH SOUNDS RESOURCE MANAGEMENT PLAN – POLICY ANALYSIS



	Policy 1.6: Ensure recreational interests retain a dominant status over commercial activities that require occupation of coastal space and which preclude recreational use in Queen Charlotte Sound, including Tory Channel, but excluding Port and Marina Zones.	Not applicable.
	Policy 1.7: Avoid adverse effects from the occupation of coastal space in or around recognized casual mooring areas.	Exclusive occupation of the consent area is not sought. The farm will not impede access to the nearby mooring or jetties. There is no change to the existing environment.
	Policy 1.12: To enable a range of activities in appropriate places in the waters of the Sounds including marine farming, tourism and recreation.	Policy 1.12 enables marine farming in appropriate places. Site 8335 is consented for marine farming and this area has been consented for marine farming since 1982. Overall, the application is consistent with this policy.
	Policy 1.13: Enable the renewal as controlled activities of marine farms authorized by applications made prior to 1 August 1996 as controlled activities, apart from exceptions in Appendix D2 in the Plan.	This existing farm is a controlled activity enabled by this policy.
Ch 9, 9.3.2, Obj 1: Management of the effects of activities so that water quality in the coastal marine area is at a level which enables the gathering or cultivating of shellfish for human consumption (Class SG).	Policy 1.1 to 1.11:	This application is not anticipated to have any impact on shellfish quality.

APPENDIX B: MARLBOROUGH SOUNDS RESOURCE MANAGEMENT PLAN – POLICY ANALYSIS

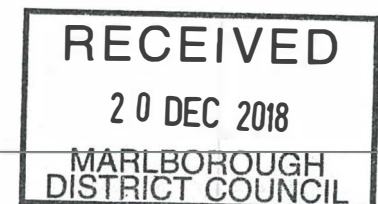


Ch 9, 9.4.1, Obj 1:	Policy 1.1: Avoid, remedy or mitigate the adverse effects of activities that disturb or alter the foreshore and/or seabed on any of the following : [criteria specified in Plan].	There will be no additional disturbances of the seabed. The owners of the farm in South East Bay have regular beach clean ups in which the greater percentage of rubbish is from recreational users of the Sounds.
Ch 9, 9.4A.1, Obj 1:	N/A	These policies are no longer relevant due to abolition of AMAs through legislation.
Ch 19, 19.3, Obj 1: Safe, efficient and sustainably managed water transport systems in a manner that avoids, remedies and mitigates adverse effects.	Policy 1.1: Avoid, remedy or mitigate the adverse effects of activities and structures on navigation and safety, within the coastal environment.	There have been no reported navigational incidences in the bay. There will be no changes to the existing consent conditions regarding the navigational aids placed on the farm. The navigational lighting requirements will provide better navigational aids within the Bay.
Ch 22, 22.3, Obj 1: To avoid, remedy and mitigate the adverse effects of unreasonable noise, while allowing for reasonable noise associated with port activities.	Policy 1.1: Avoid, remedy or mitigate community disturbance, disruption or interference by noise within coastal, rural and urban areas.	The farm is not positioned to any residence in the area. The applicants servicing vessel is estimated to spend approximately 65-90 hours maintaining and harvesting the lines per year. The applicants comply with the 'Code of Practice' to avoid, remedy or mitigate noise from marine farming activities in the Marlborough Sounds on other users and residents.



RESOURCE CONSENT APPLICATION BY CLEARWATER MUSSELS LIMITED
APPENDIX C
Analysis of Consistency with the Proposed Marlborough Environment Plan (Volume 1)

MEP Provision	Evaluation
<p>Objective 3.2 – Natural and physical resources are managed in a manner that takes into account the spiritual and cultural values of Marlborough’s tangata whenua iwi and respects and accommodates tikanga Māori.</p> <p>[RPS]</p>	<p>No particular customary activities have been identified for the site. However, recognition is given to Māori culture and traditions and confirmation from Iwi will be sought to ensure the proposal does not affect these values.</p>
<p>Objective 3.3 – The cultural and traditional relationship of Marlborough’s tangata whenua iwi with their ancestral lands, water, air, coastal environment, waahi tapu and other sites and taonga are recognised and provided for.</p> <p>[RPS]</p>	<p>The applicant has had regard to Kaitiakitanga and will consult with Iwi, recognising their relationship with the waters of Te Tau Ihu. Consultation on the matter will be with Ngāti Apa ki te Rā Tō, Ngāti Kuia, Rangitāne o Wairau, Ngāti Kōata, Ngāti Rārua, Ngāti Tama ki Te Tau Ihu, Te Ātiawa o Te Waka-a-Māui and Ngati Toa Rangatira, recognising rohe under Statutory Acknowledgment protocols.</p> <p>The applicant has also reviewed the Iwi management plans of Ngāti Kōata and Te Ātiawa o Te Waka-a-Māui and Ngati Kuia. No areas of conflict have been identified.</p> <p>The applicant is aware of the importance of the waters of the Marlborough Sounds to Iwi.</p>
<p>Objective 3.5 – Resource management decision making processes that give particular consideration to the cultural and spiritual values of Marlborough’s tangata whenua iwi.</p> <p>[RPS]</p>	<p>The applicant has given particular consideration to the matters in objective 3.5, as discussed above and in the AEE, in order to assist decision makers.</p>
<p>Policy 3.1.1 – Management of natural and physical resources in Marlborough will be carried out in a manner that:</p> <p>(a) takes into account the principles of the Treaty of Waitangi/Te Tiriti o Waitangi, including kāwanatanga, rangatiratanga, partnership, active protection of natural resources and spiritual recognition.</p> <p>(b) recognises that the way in which the principles of the Treaty of Waitangi/Te Tiriti o Waitangi will be applied will continue to evolve;</p> <p>(c) promotes awareness and understanding of the Marlborough District Council’s obligations under the Resource</p>	<p>See above.</p>

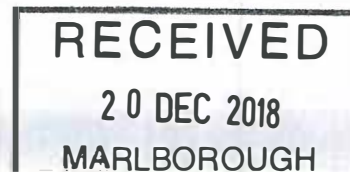


MEP Provision	Evaluation
<p>Management Act 1991 regarding the principles of the Treaty of Waitangi/Te Tiriti o Waitangi among Council decision makers, staff and the community;</p> <p>(d) recognises that tangata whenua have rights protected by the Treaty of Waitangi/Te Tiriti o Waitangi and that consequently the Resource Management Act 1991 accords iwi a status distinct from that of interest groups and members of the public; and</p> <p>(e) recognises the right of each iwi to define their own preferences for the sustainable management of natural and physical resources, where this is not inconsistent with the Resource Management Act 1991.</p> <p>[RPS]</p>	
<p>Policy 3.1.2 – An applicant will be expected to consult early in the development of a proposal (for resource consent or plan change) so that cultural values of Marlborough’s tangata whenua iwi can be taken into account.</p> <p>[RPS]</p>	<p>[To be undertaken].</p>
<p>Policy 3.1.3 – Where an application for resource consent or plan change is likely to affect the relationship of Marlborough’s tangata whenua iwi and their culture and traditions, decision makers shall ensure:</p> <p>(a) the ability for tangata whenua to exercise kaitiakitanga is maintained;</p> <p>(b) mauri is maintained or improved where degraded, particularly in relation to fresh and coastal waters, land and air;</p> <p>(c) mahinga kai and natural resources used for customary purposes are maintained or enhanced and that these resources are healthy and accessible to tangata whenua;</p> <p>(d) for waterbodies, the elements of physical health to be assessed are:</p> <ul style="list-style-type: none"> i. aesthetic and sensory qualities, e.g. clarity, colour, natural character, smell and sustenance for indigenous flora and fauna; ii. life-supporting capacity, ecosystem robustness and habitat richness; iii. depth and velocity of flow (reflecting the life force of the river through its changing character, flows and fluctuations); iv. continuity of flow from the sources of a river to its mouth at the sea; 	<p>The applicant has had regard to the matters in Policy 3.1.3, as set out above, and in the AEE. Ecological effects have been assessed by Rob Davidson in his report.</p> <div data-bbox="1653 1185 2013 1386" style="border: 2px solid black; padding: 10px; text-align: center;"> <p>RECEIVED</p> <p>20 DEC 2018</p> <p>MARLBOROUGH DISTRICT COUNCIL</p> </div>

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<p>v. wilderness and natural character;</p> <p>vi. productive capacity; and</p> <p>vii. fitness to support human use, including cultural uses.</p> <p>(e) how traditional Māori uses and practices relating to natural and physical resources such as mahinga maataitai, waahi tapu, papakāinga and taonga raranga are to be recognised and provided for.</p> <p>[RPS]</p>	
<p>Policy 3.1.5 – Ensure iwi management plans are taken into account in resource management decision making processes.</p> <p>[RPS]</p>	<p>The applicant has reviewed the Iwi management plans of Ngāti Kōata and Te Ātiawa o Te Waka-a-Māui and Ngati Kuia. No areas of conflict have been identified.</p>
<p>Objective 4.1 – Marlborough’s primary production sector and tourism sector continue to be successful and thrive whilst ensuring the sustainability of natural resources.</p> <p>[RPS]</p>	<p>The proposal ensures the sustainability of natural resources, as the adverse effects of aquaculture in South East Bay are likely to be limited. Within 5-7 years of removing the farms, any trace of their presence will dissipate, and visual effects are instantaneously reversible. Therefore, the proposal does not restrict the ability of future generations to decide how they wish to use these resources. Moreover, the farming of algae will assist in countering the effects of ocean acidification.</p> <p>The proposal has economic and employment benefits to the applicants and community</p>
<p>Policy 4.1.2 – Enable sustainable use of natural resources in the Marlborough environment.</p> <p>[RPS]</p>	<p>As above at Objective 4.1.</p>
<p>Policy 4.1.3 – Maintain and enhance the quality of natural resources.</p> <p>[RPS]</p>	<p>The proposal will have less than minor effects on the quality of the natural resources at South East Bay, and those effects are reversible upon removal of the farms.</p>



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<p>Objective 4.3 – The maintenance and enhancement of the visual, ecological and physical qualities that contribute to the character of the Marlborough Sounds.</p> <p>[RPS]</p>	<p>The ecological character of the site will be maintained (see Davidson report). The application site is located over a muddy habitat, typical of sheltered muddy areas in the Sounds. An area of cobble and reef was discovered on the inshore of the site. To accommodate this the site has been moved offshore and one line will be removed and positioned on the outside of the site. The effects of mussel farming are not likely to be significant. The farm would not have adverse effects on the water column. Shellfish farming at the site would have little impact on sediment enrichment and the infauna.</p>
<p>Policy 4.3.1 – Integrate management of the natural and physical resources within the Marlborough Sounds environment.</p> <p>[RPS]</p>	<p>Integrated management is arguably a matter for Council under Policy 4 of the NZCPS.</p>
<p>Policy 4.3.2 – Identify the qualities and values that contribute to the unique and iconic character of the Marlborough Sounds and protect these from inappropriate subdivision, use and development.</p> <p>[RPS]</p>	<p>The applicant has had regard to the qualities and values identified by the Council in the MEP, as indicated elsewhere in this policy assessment and in the application. Overall, the proposal is appropriate.</p>
<p>Policy 4.3.3 – Provide direction on the appropriateness of resource use activities in the Marlborough Sounds environment.</p> <p>[RPS]</p>	<p>The aquaculture provisions of the MEP have yet to be notified. The proposed site in South East Bay is appropriately be zoned as CMZ2 under the operative MSRMP.</p> <p>Policy 9.2.1.1.14 of the MSRMP enables marine farming in appropriate places, with zoning being a key method of implementation. The AEE shows that the proposed farm will have no significant adverse effects on these values.</p>
<p>Policy 4.3.4 – Enhance the qualities and values that contribute to the unique and iconic character of the Marlborough Sounds.</p> <p>[RPS]</p>	<p>The proposal will not have significant effects on the qualities and values of the Sounds, and any effects are reversible upon removal of the farms.</p>
<p>Policy 4.3.5 – Recognise that the Marlborough Sounds is a dynamic environment</p> <p>[RPS]</p>	<p>The applicant recognises that the Sounds is a dynamic environment. South East Bay has the capacity to absorb change, particularly given the backdrop of farm land. The appropriateness of the farm can be re-assessed by future generations in the context of the future</p>



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	environment of the bay through the resource consenting process.
Objective 5.10 – Equitable and sustainable allocation of public space within Marlborough’s coastal marine area. [RPS, C]	The applicant acknowledges that it is a privilege to occupy public space in the coastal marine area. The public will still have access around and through the site, and the proposal will not affect the ability of future generations to enjoy that public space.
Policy 5.10.1 – Recognition that there are no inherent rights to be able to use, develop or occupy the coastal marine area. [RPS, C]	The applicant recognises that it has no right to occupy and use the coastal marine area, and requires a resource consent for the proposed activity.
Policy 5.10.2 – The ‘first in, first served’ method is the default mechanism to be used in the allocation of resources in the coastal marine area. Where competing demand for coastal space becomes apparent, the Marlborough District Council may consider the option of introducing an alternative regime. [RPS, C]	The applicant considers that the first in first served method of allocation is appropriate in respect of the proposed site in South East Bay. The farm is in existence and the existing consent holder is applying for a replacement consent
Policy 5.10.3 – Where a right to occupy the coastal marine area is sought, the area of exclusive occupation should be minimised to that necessary and reasonable to undertake the activity, having regard to the public interest. [RPS, C]	The design of the site layout ensures the public will have access inshore of and through the farm. Access ways have been provided around the site. Exclusive occupation is not sought.
Policy 5.10.4 – Coastal occupancy charges will be imposed on coastal permits where there is greater private than public benefit arising from occupation of the coastal marine area. [C]	The applicant would be comfortable paying coastal occupancy charges to reflect the private benefit from occupying space in South East Bay. However, it is concerned that the level of these charges or at least the method of setting these, is not set out in the MEP.
Policy 5.10.5 – The Marlborough District Council will waive the need for coastal occupancy charges for the following: ... (b) monitoring equipment; [C]	If any monitoring equipment is required to be permanently installed at the site as a condition of consent, the applicant agrees that coastal occupancy charges for that equipment should be waived. However, Mr Davidson concluded that there were no biological reasons for site specific monitoring.



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<p>Policy 5.10.6 – Where there is an application by a resource consent holder to request a waiver (in whole or in part) of a coastal occupation charge, the following circumstances will be considered: [(a) – (d)]</p> <p>[C]</p>	<p>The applicant does not request a waiver of coastal occupancy charges.</p>
<p>Objective 6.1 – Establish the degree of natural character in the coastal environment, and in lakes and rivers and their margins.</p> <p>[RPS]</p>	<p>The applicant has had regard to the natural character overlay in the MEP. The area no natural character ranking in the overlay.</p>
<p>Policy 6.1.1 – Recognise that the following natural elements, patterns, processes and experiential qualities contribute to natural character:</p> <p>(a) areas or water bodies in their natural state or close to their natural state;</p> <p>(b) coastal or freshwater landforms and landscapes (including seascape);</p> <p>(c) coastal or freshwater physical processes (including the natural movement of water and sediments);</p> <p>(d) biodiversity (including individual indigenous species, their habitats and communities they form);</p> <p>(e) biological processes and patterns;</p> <p>(f) water flows and levels and water quality; and</p> <p>(g) the experience of the above elements, patterns and processes, including unmodified, scenic and wilderness qualities.</p> <p>[RPS]</p>	<p>Between them, the applicant and Rob Davidson have assessed the effects of the proposal on biological processes and people's perceptions of those processes.</p> <div data-bbox="1778 868 2145 1086" data-label="Image"> </div>
<p>Policy 6.1.2 – The extent of the coastal environment is identified in the Marlborough Environment Plan to establish the areas of land and coastal marine area to which management may need to be applied in order to protect the natural character of the coastal environment from inappropriate subdivision, use and development.</p> <p>[RPS]</p>	<p>This is a matter for Council; however, the applicant has been mindful of the extent of the coastal environment in making this application.</p>
<p>Policy 6.1.3 – Determine the degree of natural character in both the coastal marine and coastal terrestrial components of the coastal environment by assessing:</p> <p>(a) the degree of human-induced modification on abiotic systems and landforms, marine and terrestrial biotic</p>	<p>The Council has undertaken this assessment in the MEP. The natural character of the coastal marine and terrestrial area of South East Bay has been assessed as very high on the water.</p> <p>The land in South East Bay is mapped as having high Natural</p>

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<p>systems and experiential qualities; and</p> <p>(b) natural character at a range of scales.</p> <p>[RPS]</p>	<p>Character. There is substantial human modification on the land, with farm land for grazing, tracks and roads in forestry within South East Bay.</p>
<p>Policy 6.1.4 – Identify those areas of the coastal environment that have high, very high or outstanding natural character.</p> <p>[RPS]</p>	<p>The Council has not identified the coastal marine area of South East Bay as having very high natural character. The terrestrial and marine environments combine to create the natural character value of this location, with an overall rating of Moderate. Reverted farm land dominates the area immediately to the east and to the south forestry has been recently harvested. That causes some disruption to natural processes, (reducing natural science values) and reduces perceptual/sensory values (through reduced perceived naturalness, coherence and visual amenity). The existing site is a minor component in a land and seascape that is dominated by other activities.</p>
<p>Objective 6.2 – Preserve the natural character of the coastal environment, and lakes and rivers and their margins, and protect them from inappropriate subdivision, use and development.</p> <p>[RPS, R, C, D]</p>	<p>The proposal is appropriate, fits with the existing context and will not adversely compromise the existing values of the area.</p>
<p>Policy 6.2.1 – Avoid the adverse effects of subdivision, use or development on areas of the coastal environment with outstanding natural character values...</p> <p>[RPS, R, C, D]</p>	<p>South East Bay is identified in the MEP as having very high natural character values at this location on the marine zone but not on the land. The rationale for that criteria is unclear and inappropriate in a highly-modified area.</p>
<p>Policy 6.2.2 – Avoid significant adverse effects of subdivision, use or development on coastal natural character, having regard to the significance criteria in Appendix 4.</p> <p>[RPS, R, C, D]</p>	<p>The proposal avoids significant adverse effects. The degree of modification is not high, with no damage, loss or destruction. The effects are reversible upon removal of the farm. This is an existing farm occupying space, so the effects are understood. The location is resilient to change, as it is able to absorb the proposed farm given the layout and extent of surrounding marine farms.</p>
<p>Policy 6.2.3 – Where natural character is classified as high or very high, avoid any reduction in the degree of natural character of the coastal environment or freshwater bodies.</p> <p>[RPS, R, C, D]</p>	<p>The natural character of the coastal marine area in South East Bay is mapped as having very high natural character in the MEP. Some of the surrounding terrestrial area is mapped as having no, or moderate natural character. The farm will not impact on the terrestrial ecology</p>



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	of the values that lead to that classification.
<p>Policy 6.2.4 – Where resource consent is required to undertake an activity within coastal or freshwater environments with high, very high or outstanding natural character, regard will be had to the potential adverse effects of the proposal on the elements, patterns, processes and experiential qualities that contribute to natural character.</p> <p>[RPS, R, C, D]</p>	<p>Assessment of the natural science (biophysical) values of the site as being low-moderate overall. Rob Davidson notes that the application site is located over a mud habitat, typical of sheltered muddy areas in the Sounds, and has identified an area of cobble and reef to be avoided. Structure relocation and boundary shift will ensure a buffer away from this area. The epibiota and infaunal communities are typical of muddy sheltered areas in the Sounds. It is well established that mussel farming has a less than minor impact on the biophysical attributes of natural character.</p> <p>The site is of mixed character set within a wider working landscape. There are existing structures, but the “managed” character of the context dominates. Vegetation patterns are fragmented. There is some sense of remoteness and enclosure. While the farm would reduce the perceived naturalness, and have a light to moderate effect on natural character, the site is considered able to absorb the proposed level of change because it is consistent with other uses in the area..</p>
<p>Policy 6.2.5 – Recognise that development in parts of the coastal environment and in those rivers and lakes and their margins that have already been modified by past and present resource use activities is less likely to result in adverse effects on natural character.</p> <p>[RPS, R, C, D]</p>	<p>The wider bay has extensive forest land and reverted farm land that has left highly visible roading and track patterns. There are dwellings nearby. The proposal is less likely to have an adverse effect on natural character given this existing development. Forest access tracks traverse the hill slopes..</p>
<p>Policy 6.2.6 – In assessing the appropriateness of subdivision, use or development in coastal or freshwater environments, regard shall be given to the potential to enhance natural character in the area subject to the proposal.</p> <p>[RPS, R, C, D]</p>	<p>No enhancement is proposed.</p>



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<p>Policy 6.2.7 – In assessing the cumulative effects of activities on the natural character of the coastal environment, or in or near lakes or rivers, consideration shall be given to:</p> <p>(a) the effect of allowing more of the same or similar activity;</p> <p>(b) the result of allowing more of a particular effect, whether from the same activity or from other activities causing the same or similar effect; and</p> <p>(c) the combined effects from all activities in the coastal or freshwater environment in the locality.</p> <p>[RPS, R, C, D]</p>	<p>This is a cluster of marine farms in the bay. There are no significant adverse cumulative effects. Navigational lighting at night would be less intrusive than lighting associated with dwellings should there be any established.</p> <p>Visually the farm, it is not likely to have an adverse effect in that context above what is currently consented too.</p>
<p>Policy 6.2.9 – Encourage and support private landowners, community groups and others in their efforts to restore the natural character of the coastal environment, wetlands, lakes and rivers.</p> <p>[RPS, R, C, D]</p>	<p>N/A</p>
<p>Objective 7.2 – Protect outstanding natural features and landscapes from inappropriate subdivision, use and development and maintain and enhance landscapes with high amenity value.</p>	<p>The proposal will not have an impact on the values that lead to the entirety of the Marlborough Sounds being mapped as a high amenity landscape. The impacts are localised, and would occur in a bay that is not particularly representative of the values listed in Appendix 1.</p>
<p>Policy 7.2.1 – Control activities that have the potential to degrade those values contributing to outstanding natural features and landscapes by requiring activities and structures to be subject to a comprehensive assessment of effects on landscape values through the resource consent process.</p> <p>[R, C, D]</p>	<p>The seascape of South East Bay is not an ONFL. The criteria establishing that conclusion is not clear as it is a highly modified zone in the Sounds.</p>
<p>Policy 7.2.3 – Control activities that have the potential to degrade the amenity values that contribute to those areas of the Marlborough Sounds Coastal Landscape not identified as being an outstanding natural feature and landscape by:</p> <p>(a) using a non-regulatory approach as the means of maintaining and enhancing landscape values in areas of this landscape zoned as Coastal Living;</p> <p>(b) setting standards/conditions that are consistent with the existing landscape values and that will require greater assessment where proposed activities and structures exceed those standards; and...</p>	<p>Policy 7.2.3(b) does not apply to the proposed site, because aquaculture rules have yet to be included in the MEP. As a result, this application must be assessed against the rules applying under the operative MSRMP. This has been done in a separate policy analysis table.</p>

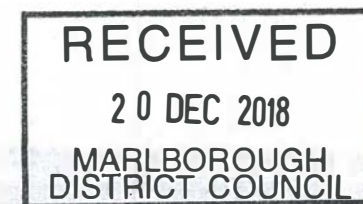


MEP Provision	Evaluation
[C, D]	
<p>Policy 7.2.4 – Where resource consent is required to undertake an activity within an outstanding natural feature and landscape or a landscape with high amenity value, regard will be had to the potential adverse effects of the proposal on the values that contribute to the landscape.</p> <p>[R, C, D]</p>	<p>The proposal will not have an effect on this wider landscape. South East Bay is capable of absorbing the level of activity. .</p>
<p>Policy 7.2.5 – Avoid adverse effects on the values that contribute to outstanding natural features and landscapes in the first instance. Where adverse effects cannot be avoided and the activity is not proposed to take place in the coastal environment, ensure that the adverse effects are remedied.</p> <p>[R, C, D]</p>	<p>South East Bay seascape is an ONFL. The site fits the environment of the Bay.</p>
<p>Policy 7.2.7 – Protect the values of outstanding natural features and landscapes and the high amenity values of the Wairau Dry Hills and the Marlborough Sounds Coastal Landscapes by:</p> <p>(a) In respect of structures:</p> <ul style="list-style-type: none"> (i) avoiding visual intrusion on skylines, particularly when viewed from public places; (ii) avoiding new dwellings in close proximity to the foreshore; (iii) using reflectivity levels and building materials that complement the colours in the surrounding landscape; (iv) limiting the scale, height and placement of structures to minimise intrusion of built form into the landscape; (v) recognising that existing structures may contribute to the landscape character of an area and additional structures may complement this contribution; (vi) making use of existing vegetation as a background and utilising new vegetation as a screen to reduce the visual impact of built form on the surrounding landscape, providing that the vegetation used is also in keeping with the surrounding landscape character; and (vii) encouraging utilities to be co-located wherever possible... 	<p>The farm follows the contour of the shoreline. Mussel buoys are low profile and predominantly black, save for orange navigation buoys required for navigational safety. The remainder of policy 7.2.7 does not apply to marine farming structures.</p>



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[R, C, D]	
Policy 7.2.8 – Recognise that some outstanding natural features and landscapes and landscapes with high amenity value will fall within areas in which primary production activities currently occur. [C, D]	South East Bay seascape is an ONFL. Existing farming, forestry and recreational housing, along with other marine farms, already occurs within the bay. The proposal is consistent with this primary production character of the environment.
Policy 7.2.9 – When considering resource consent applications for activities in close proximity to outstanding natural features and landscapes, regard may be had to the matters in Policy 2.2.7. [R, C, D]	N/A - The site is not in close proximity to an ONFL (on the terrestrial area of South East Bay) Policy 7.2.7 has been considered above.
Policy 7.2.10 – Reduce the impact of wilding pines on the landscape by: (a) supporting initiatives to control existing wilding pines and limit their further spread; and... [D]	N/A.
Objective 8.1 – Marlborough's remaining indigenous biodiversity in terrestrial, freshwater and coastal environments is protected.	The applicant has had regard to Objective 8.1 in preparing this application, as outlined in relation to the policies below.
Objective 8.2 – An increase in area/extent of Marlborough's indigenous biodiversity and restoration or improvement in the condition of areas that have been degraded.	Avoidance of the cobble and reef zone inshore will assist in maintenance of the biodiversity of that zone.
Policy 8.1.1 – When assessing whether wetlands, marine or terrestrial ecosystems, habitats and areas have significant indigenous biodiversity value, the following criteria will be used: (a) representativeness; (b) rarity; (c) diversity and pattern;	The applicant has had regard to the significance criteria, and notes that these are based on the criteria in Davidson's 2011 report <i>Ecologically Significant Marine Sites in Marlborough, New Zealand</i> . Davidson undertook a biological survey of the proposed site in 2018, and has identified ecosystems or marine habitats of note in the area. The application site is located over a mud habitat, typical of sheltered muddy areas in the Sounds. He concluded that the effects of low

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<p>(d) distinctiveness;</p> <p>(e) size and shape;</p> <p>(f) connectivity/ecological context;</p> <p>(g) sustainability; and</p> <p>(h) adjacent catchment modifications.</p> <p>For a site to be considered significant, one of the first four criteria (representativeness, rarity, diversity and pattern or distinctiveness/special ecological characteristics) must rank medium or high.</p>	intensity farming are low.
Policy 8.1.2 – Sites in the coastal marine area and natural wetlands assessed as having significant indigenous biodiversity value will be specifically identified in the Marlborough Environment Plan.	The applicant has had regard to the ecologically significant marine sites mapped in volume 4 of the proposed MEP. These are discussed in Mr Davidson's report
Policy 8.1.3 – Having adequate information on the state of biodiversity in terrestrial, freshwater and coastal environments in Marlborough to enable decision makers to assess the impact on biodiversity values from various activities and uses.	The applicant notes that the Council will continue to undertake surveys to improve knowledge. A site specific assessment was undertaken by Rob Davidson for this proposal. His report will add to the general body of knowledge.
Policy 8.2.1 – A variety of means will be used to assist in the protection and enhancement of areas and habitats with indigenous biodiversity value, including partnerships, support and liaison with landowners, regulation, pest management, legal protection, education and the provision of information and guidelines.	The proposal is consistent with policy 8.2.1. It is prepared over habitat appropriate for marine farming. A buffer is proposed to reef and cobble habitat inshore.
Policy 8.2.3 – Priority will be given to the protection, maintenance and restoration of habitats, ecosystems and areas that have significant indigenous biodiversity values, particularly those that are legally protected.	Protection to the reef and cobble system is proposed by shifting the boundary further offshore and relocating a line to the outside of the site.
Policy 8.2.7 – A strategic approach to the containment/eradication of undesirable animals and plants that impact on indigenous biodiversity values will be developed and maintained.	N/A



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Policy 8.2.8 – Where monitoring of ecosystems, habitats and areas with significant indigenous biodiversity value shows that there is a loss of or deterioration in condition of these sites, then the Marlborough District Council will review the approach to protection.	The applicant is aware of this policy, and acknowledges the Council's role in protecting biodiversity.
<p>Policy 8.2.9 – Maintain, enhance or restore ecosystems, habitats and areas of indigenous biodiversity even where these are not identified as significant in terms of the criteria in Policy 8.1.1, but are important for:</p> <ul style="list-style-type: none"> (a) the continued functioning of ecological processes; (b) providing connections within or corridors between habitats of indigenous flora and fauna; (c) cultural purposes; (d) providing buffers or filters between land uses and wetlands, lakes or rivers and the coastal marine area; (e) botanical, wildlife, fishery and amenity values; (f) biological and genetic diversity; and (g) water quality, levels and flows. 	<p>Marine farming in South East Bay would not interfere with the continued functioning of ecological processes, biological and genetic diversity or water quality, levels and flows to any noticeable degree.</p> <p>The presence of surface buoys and harvest vessels would have some impact on amenity values, particularly for owners and users of nearby dwellings if they were present. They are not.</p> <p>The applicant recognises that resources are finite. Future generations could decide to remove the farm, and the effects will be reversible. In particular, amenity would be restored instantly upon removal of the farm.</p>
Policy 8.2.10 – Promote to the general public and landowners the importance of protecting and maintaining indigenous biodiversity because of its intrinsic, conservation, social, economic, scientific, cultural, heritage and educational worth and for its contribution to natural character.	The applicant recognises the importance of protecting and maintaining indigenous biodiversity. Natural character has been considered above in relation to the policies in chapter 6.
Policy 8.2.12 – Encourage and support private landowners, community groups and others in their efforts to protect, restore or re-establish areas of indigenous biodiversity.	N/A
<p>Policy 8.3.1 – Manage the effects of subdivision, use or development in the coastal environment by:</p> <ul style="list-style-type: none"> (a) avoiding adverse effects where the areas, habitats or ecosystems are those set out in Policy 11(a) of the New Zealand Coastal Policy Statement 2010; (b) avoiding adverse effects where the areas, habitats or ecosystems are mapped as significant wetlands or ecologically significant marine sites in the Marlborough Environment Plan; or (c) avoiding significant adverse effects and avoiding, remedying or mitigating other adverse effects where the 	<p>South East Bay is not specifically recognised as an important area. There is nothing to suggest that the site is significant for marine mammals. The site lies within king shag foraging habitat and represents a very small proportion of the total area available. It has been noted king Shag foraging is concentrated towards the main stem of Popoure Reach</p>



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<p>areas, habitats or ecosystems are those set out in Policy 11(b) of the New Zealand Coastal Policy Statement 2010 or are not identified as significant in terms of Policy 8.1.1 of the Marlborough Environment Plan.</p>	
<p>Policy 8.3.2 – Where subdivision, use or development requires resource consent, the adverse effects on areas, habitats or ecosystems with indigenous biodiversity value shall be:</p> <p>(a) avoided where it is a significant site in the context of Policy 8.1.1; and</p> <p>(b) avoided, remedied or mitigated where indigenous biodiversity values have not been assessed as being significant in terms of Policy 8.1.1</p>	<p>South East Bay is not included in the Whale and Dolphin Overlays in the MEP. A statement on the effect of marine farms on whales and dolphins has been included. In the application prepared by R. Davidson. In any event, adverse effect on whales can be avoided, as per discussion above.</p>
<p>Policy 8.3.5 – In the context of Policy 8.3.1 and Policy 8.3.2, adverse effects to be avoided or otherwise remedied or mitigated may include:</p> <p>(a) fragmentation of or a reduction in the size and extent of indigenous ecosystems and habitats;</p> <p>(b) fragmentation or disruption of connections or buffer zones between and around ecosystems or habitats;</p> <p>(c) changes that result in increased threats from pests (both plant and animal) on indigenous biodiversity and ecosystems;</p> <p>(d) the loss of a rare or threatened species or its habitat;</p> <p>(e) loss or degradation of wetlands, dune systems or coastal forests;</p> <p>(f) loss of mauri or taonga species;</p> <p>(g) impacts on habitats important as breeding, nursery or feeding areas, including for birds;</p> <p>(h) impacts on habitats for fish spawning or the obstruction of the migration of fish species;</p> <p>(i) impacts on any marine mammal sanctuary, marine mammal migration route or breeding, feeding or haul out area;</p> <p>(j) a reduction in the abundance or natural diversity of indigenous vegetation and habitats of indigenous fauna;</p> <p>(k) loss of ecosystem services;</p>	<p>The proposal avoids the adverse effects in Policy 8.3.5. In particular, South East Bay is not a marine mammal sanctuary, migration route, breeding, feeding or haul out area.</p> <p>In terms of sub-policy (g) King Shag do forage in Popoure reach, although primarily in the main stem of the reach. The extent to which marine farms exclude King Shag from foraging is uncertain. The species have been observed foraging within farms in the Sounds. A colony has established at Tawhitinui Bay during the life of this consent. Reconsenting of these structures will retain the status quo, including any positive or negative effects.</p> <div data-bbox="1621 1214 1975 1414" style="border: 1px solid black; padding: 5px; text-align: center;"> <p>RECEIVED</p> <p>20 DEC 2018</p> <p>MARLBOROUGH DISTRICT COUNCIL</p> </div>

MEP Provision	Evaluation
<p>(l) effects that contribute to a cumulative loss or degradation of habitats and ecosystems;</p> <p>(m) loss of or damage to ecological mosaics, sequences, processes or integrity;</p> <p>(n) effects on the functioning of estuaries, coastal wetlands and their margins;</p> <p>(o) downstream effects on significant wetlands, rivers, streams and lakes from hydrological changes higher up the catchment;</p> <p>(p) natural flows altered to such an extent that it affects the life supporting capacity of waterbodies;</p> <p>(q) a modification of the viability or value of indigenous vegetation and habitats of indigenous fauna as a result of the use or development of other land, freshwater or coastal resources;</p> <p>(r) a reduction in the value of the historical, cultural and spiritual association with significant indigenous biodiversity held by Marlborough's tangata whenua iwi;</p> <p>(s) a reduction in the value of the historical, cultural and spiritual association with significant indigenous biodiversity held by the wider community; and</p> <p>(t) the destruction of or significant reduction in educational, scientific, amenity, historical, cultural, landscape or natural character values.</p>	N/A.
<p>Policy 8.3.8 – With the exception of areas with significant indigenous biodiversity value, where indigenous biodiversity values will be adversely affected through land use or other activities, a biodiversity offset can be considered to mitigate residual adverse effects. Where a biodiversity offset is proposed, the following criteria will apply:</p> <p>(a) the offset will only compensate for residual adverse effects that cannot otherwise be avoided, remedied or mitigated;</p> <p>(b) the residual adverse effects on biodiversity are capable of being offset and will be fully compensated by the offset to ensure no net loss of biodiversity;</p> <p>(c) where the area to be offset is identified as a national priority for protection under Objective 8.1, the offset must deliver a net gain for biodiversity;</p> <p>(d) there is a strong likelihood that the offsets will be achieved in perpetuity;</p> <p>(e) where the offset involves the ongoing protection of a separate site, it will deliver no net loss and preferably a</p>	<p>N/A.</p> <div data-bbox="1666 1230 2047 1450" data-label="Image"> </div>

MEP Provision	Evaluation
<p>net gain for indigenous biodiversity protection; and</p> <p>(f) offsets should re-establish or protect the same type of ecosystem or habitat that is adversely affected, unless an alternative ecosystem or habitat will provide a net gain for indigenous biodiversity.</p>	
<p>Objective 9.1 – The public are able to enjoy the amenity and recreational opportunities of Marlborough’s coastal environment, rivers, lakes, high country and areas of historic interest.</p> <p>[RPS, R, C, D]</p>	<p>The proposal is a single marine farm. The public will still have access between longlines and inshore of the site. The layout is designed to minimise the visual amenity impact from the water. No properties onshore are affected. There are no registered moorings in the immediate vicinity of the site, and no formal water ski lanes. Opportunities for recreational fishing may be enhanced by the presence of the marine farm.</p>
<p>Policy 9.1.1 – The following areas are identified as having a high degree of importance for public access and the Marlborough District Council will as a priority focus on enhancing access to and within these areas:</p> <ul style="list-style-type: none"> (b) high priority waterbodies for public access on the Wairau Plain and in close proximity to Picton, Waikawa, Havelock, Renwick, Seddon, Ward and Okiwi Bay; (c) coastal marine area, particularly in and near Picton, Waikawa and Havelock, Kaiuma Bay, Queen Charlotte Sound (including Tory Channel), Port Underwood, Kenepuru Sound, Mahau Sound, Mahikipawa Arm and Croiselles Harbour, Rarangi to the Wairau River mouth, Wairau Lagoons, Marfells Beach and Ward Beach... <p>[RPS]</p>	<p>This part of South East Bay is not identified as an area having a high degree of importance for public access. This area is not frequented by recreationalists and the general public to any significant degree due to its remote location. The public will not be excluded from the area of the proposed site.</p>
<p>Policy 9.1.2 – In addition to the specified areas in Policy 9.1.1, the need for public access to be enhanced to and along the coastal marine area, lakes and rivers will be considered at the time of subdivision or development, in accordance with the following criteria:</p> <ul style="list-style-type: none"> (a) there is existing public recreational use of the area in question, or improving access would promote outdoor recreation; (b) connections between existing public areas would be provided; (c) physical access for people with disabilities would be desirable; and (d) providing access to areas or sites of cultural or historic significance is important. <p>[RPS, C, D]</p>	<p>See above. The farm will not prevent access to areas or sites of cultural and historic significance in the area.</p>



MEP Provision	Evaluation
<p>Policy 9.1.5 – Acknowledge the importance New Zealander’s place on the ability to have free and generally unrestricted access to the coast.</p> <p>[RPS, C, D]</p>	<p>The applicant acknowledges the importance to New Zealanders of having unrestricted access to the coast. The site design ensures that the public will continue to have access through the site and along the shore.</p>
<p>Policy 9.1.7 – Recognise there is an existing network of marinas at Picton, Waikawa and Havelock, publicly owned community jetties, landing areas and launching ramps that make a significant contribution in providing access for the public to Marlborough’s coastal areas.</p> <p>[RPS, C]</p>	<p>The applicants will make use of this existing network of facilities. The proposed farm will not affect access.</p>
<p>Policy 9.1.8 – Enable public use of jetties for the purposes of access to the Sounds Foreshore Reserve and legal road along the coast.</p> <p>[RPS, C]</p>	<p>There are no jetties in the vicinity of the site.</p>
<p>Policy 9.1.13 – When considering resource consent applications for activities, subdivision or structures in or adjacent to the coastal marine area, lakes or rivers, the impact on public access shall be assessed against the following:</p> <p>(a) whether the application is in an area identified as having a high degree of importance for public access, as set out in Policy 9.1.1;</p> <p>(b) the need for the activity/structure to be located in the coastal marine area and why it cannot be located elsewhere; ...</p> <p>(d) the extent to which the activity/subdivision/structure would benefit or adversely affect public access, customary access and recreational use, irrespective of its intended purpose;</p> <p>(e) in the coastal marine area, whether exclusive rights of occupation are being sought as part of the application;</p> <p>(f) for the Marlborough Sounds, whether there is practical road access to the site of the application;</p> <p>(g) how public access around or over any structure sought as part of an application is to be provided for;</p> <p>(h) whether the impact on public access is temporary or permanent and whether there is any alternative public access available; and</p> <p>(i) whether public access is able to be restricted in accordance with Policies 9.2.1 and 9.2.2.</p>	<p>The structures have a functional need to be located in the coastal marine area. The public will have access through and around the site. Exclusive occupation is not sought. There is no road access. The proposed farm will not restrict boat access to this area. Any impact on public access would be temporary, being reversible upon removal of the farm. Any restrictions on public access will be consistent with the purpose of a resource consent to farm, in line with policy 9.2.1. The effects on public access will be no more than minor, in accordance with policy 9.2.2.</p>



MEP Provision	Evaluation
[C, D]	
Policy 9.3.2 – Seek diversity in the type and size of open spaces and recreational facilities to meet local, district, regional and nationwide needs, by: ... (d) recognising and protecting the value of open space in the coastal marine area, high country environments and river beds. [RPS, C, D]	The applicant recognises the value of open space and has designed the site layout with this in mind.
Policy 9.3.3 – Support the management of reserves through strategies and reserve management plans prepared under the Conservation and Reserves Acts. [D]	N/A.
Objective 10.1 – Retain and protect heritage resources that contribute to the character of Marlborough. [RPS]	The applicant has had regard to historic and cultural sites within the vicinity of the proposed farm. The application will not have an impact on heritage resources.
Policy 10.1.3 – Identify and provide appropriate protection to Marlborough’s heritage resources, including: (a) historic buildings (or parts of buildings), places and sites; (b) heritage trees; (c) places of significance to Marlborough’s tangata whenua iwi; (d) archaeological sites; and (e) monuments and plaques. [RPS, C, D]	The Historic Places Inventory notes has been consulted and none are recorded nearby. If sites are present the proposed farm will not impact adversely on these sites. The applicant is aware of the importance of the waters of the Marlborough Sounds to Iwi. It recognises that there are Maori archaeological sites within the wider Sounds. Iwi have been consulted and will be provided with a final copy of the proposal at lodgement.
Chapter 13 objectives and policies.	N/A – Chapter 13 expressly states that it “does not contain provisions managing marine farming.”

MEP Provision	Evaluation
<p>Objective 15.1a – Maintain and where necessary enhance water quality in Marlborough’s rivers, lakes, wetlands, aquifers and coastal waters, so that:</p> <p>(a) the mauri of wai is protected;</p> <p>(b) water quality at beaches is suitable for contact recreation;</p> <p>(c) people can use the coast, rivers, lakes and wetlands for food gathering, cultural, commercial and other purposes;</p> <p>... (f) coastal waters support healthy ecosystems.</p> <p>[RPS, R, C]</p>	<p>Marine farming will not have an adverse effect on water quality within the bay.</p>
<p>Policy 15.1.1 – As a minimum, the quality of freshwater and coastal waters will be managed so that they are suitable for the following purposes:</p> <p>(a) Coastal waters: protection of marine ecosystems; potential for contact recreation and food gathering/marine farming; and for cultural and aesthetic purposes; ...</p> <p>[RPS, R, C]</p>	<p>Aquaculture requires excellent water quality. The proposed farm will not have an adverse effect on water.</p>
<p>Policy 15.1.9 – Enable point source discharge of contaminants or water to water where the discharge will not result:</p> <p>(a) in any of the following adverse effects beyond the zone of reasonable mixing:</p> <p style="padding-left: 40px;">(i) the production of conspicuous oil or grease films, scums, foams or floatable or suspended materials;</p> <p style="padding-left: 40px;">(ii) any conspicuous change in the colour or significant decrease in the clarity of the receiving waters;</p> <p style="padding-left: 40px;">(iii) the rendering of freshwater unsuitable for consumption by farm animals;</p> <p style="padding-left: 40px;">(iv) any significant adverse effect on the growth, reproduction or movement of aquatic life; or</p> <p>(d) in the flooding of or damage to another person’s property.</p> <p>[R, C]</p>	<div data-bbox="1624 1189 1982 1388" style="border: 2px solid black; padding: 10px; text-align: center;"> <p>RECEIVED</p> <p>20 DEC 2018</p> <p>MARLBOROUGH DISTRICT COUNCIL</p> </div>

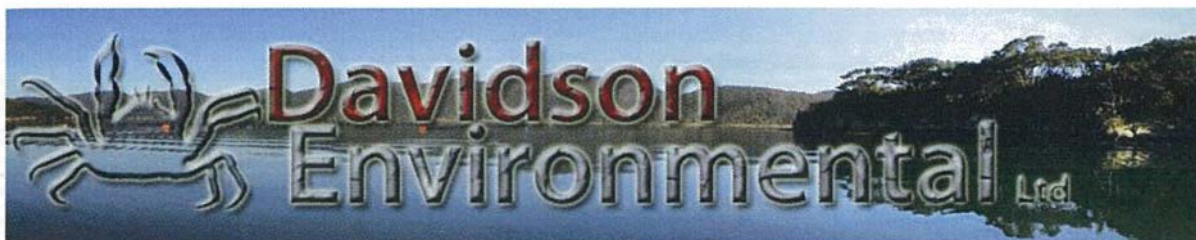
MEP Provision	Evaluation
<p>15.1.10 – Require any applicant applying for a discharge permit that proposes the discharge of contaminants to water to consider all potential receiving environments and adopt the best practicable option, having regard to:</p> <p>(a) the nature of the contaminants;</p> <p>(b) the relative sensitivity of the receiving environment;</p> <p>(c) the financial implications and effects on the environment of each option when compared with the other options; and</p> <p>(d) the current state of technical knowledge and the likelihood that each option can be successfully applied.</p> <p>[RPS, R, C]</p>	<p>The 2018 Davidson Environmental Ltd report assessed the likely sedimentation levels and their impact on the coastal environment. Discharge occurs during harvesting, and the effects are momentary and insignificant. Contaminants are materials that are already in the water column, such as sediments and organic materials trapped by lines and structures.</p> <p>A buffer zone is to be created to avoid Reef and cobble habitat inshore.</p>
<p>15.1.11 – When considering any discharge permit application for the discharge of contaminants to water, regard will be had to:</p> <p>(a) the potential adverse effects of the discharge on spiritual and cultural values of Marlborough’s tangata whenua iwi;</p> <p>(b) the extent to which contaminants present in the discharge have been removed or reduced through treatment; and</p> <p>(c) whether the discharge is of a temporary or short term nature and/or whether the discharge is associated with necessary maintenance work for any regionally significant infrastructure.</p> <p>[RPS, R, C]</p>	<p>No particular customary activities have been identified for the site. However, as above, recognition is given to Māori culture and traditions and confirmation from Iwi is sought to ensure the proposal does not affect these values.</p> <p>The applicant is aware of the importance of the waters of the Marlborough Sounds to Iwi. Iwi will be consulted and will be provided with a final copy of the proposal at lodgement.</p> <p>Discharge during harvest is temporary in nature and sedimentation soon reverts to background levels.</p>
<p>15.1.12 – After considering Policies 15.1.10 and 15.1.11, approve discharge permit applications to discharge contaminants into water where:</p> <p>(a) the discharge complies with the water quality classification standards set for the waterbody, after reasonable mixing; or</p> <p>(b) in the case of non-compliance with the water quality classification standards set for the waterbody:</p> <p>(i) the consent holder for an existing discharge can demonstrate a reduction in the concentration of contaminants and a commitment to a staged approach for achieving the water quality classification standards within a period of no longer than five years from the date the consent is granted; and</p>	<p>Water discharged during harvesting of mussels will comply with SG standards.</p> <div data-bbox="1675 1209 2033 1417" data-label="Image"> </div>

MEP Provision	Evaluation
<p>(ii) the degree of non-compliance will not give rise to significant adverse effects.</p> <p>[RPS, R, C]</p>	
<p>Policy 15.1.14 – Except as provided for by Policy 15.1.15, apply a zone of reasonable mixing to the receiving waters for all point source discharges to water. The zone shall not exceed (as measured from the discharge point):</p> <p>(d) For coastal waters, limited to the extent necessary to achieve effective mixing, having regard to:</p> <ul style="list-style-type: none"> (i) the characteristics of the discharge, including the contaminant type, concentration and volume; (ii) the coastal processes that exist at and near the point of discharge; and (iii) the nature, sensitivity and use of the coastal waters. <p>[R, C]</p>	
<p>Policy 15.1.16 – The duration of any new discharge permit will be either:</p> <p>(a) Up to a maximum of 15 years for discharges into waterbodies or coastal waters where the discharge will comply with water quality classification standards for the waterbody or coastal waters;</p> <p>... (c) no more than five years where the existing discharge will not comply with water quality classification standards for the waterbody or coastal waters.</p> <p>With the exception of regionally significant infrastructure, no discharge permit will be granted subsequent to the one granted under (c), if the discharge still does not meet the water quality classification standards for the waterbody or coastal waters.</p> <p>[R, C]</p>	<p>NB. Policy relates to point source discharges</p> <p>This policy is inconsistent with s 123A of the Resource Management Act, which provides for a minimum 20 year term for coastal permits authorising aquaculture activities, unless a shorter period is required to ensure that adverse effects on the environment are adequately managed. This high threshold is not met in these circumstances. The applicants seek a 20 year term of consent.</p>
<p>Policy 19.1.3 – Enable primary industries to adapt to the effects of climate change.</p> <p>[R, C, D]</p>	<p>Part of the purpose this application proposal is to enable algae to be cultivated and harvested in South East Bay to counter the emerging threat of ocean acidification.</p>



MEP Provision	Evaluation





Davidson Environmental Limited

Biological report for the reconsenting of marine farm 8335 in South East, Popoure Reach, Pelorus Sound

Research, survey and monitoring report number 929

A report prepared for:
Clearwater Mussels
c/o PALMS
P.O. Box 751, Blenheim

December 2018



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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
davidsonenvironmental@gmail.com

December 2018



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1.0 Preface

The present report provides biological information for a proposed reconsent of an existing marine farm in South East Bay, Popoure Reach, Pelorus Sound. The farm is owned by Clearwater Mussels Ltd.

2.0 Background information

2.1 Popoure Reach

South East Bay is one of several bays that are located along Popoure Reach. The Reach connects Hikapu Reach with the central Pelorus Sound between Four Fathom Bay and Old Homewood Bay (Figure 1). Popoure Reach aligns approximately north-south. The Reach is influenced by moderate to strong tidal currents on both incoming and outgoing tides, however, the side bays are subjected to mild currents. Offshore areas are relatively flat and dominated by mud and a component of shell substratum. The Reach edges are composed of mostly cobble and boulder shores with intermittent bedrock substrata usually located near or at headlands. The side bays are often relatively shallow with a narrow boulder, cobble fringe.

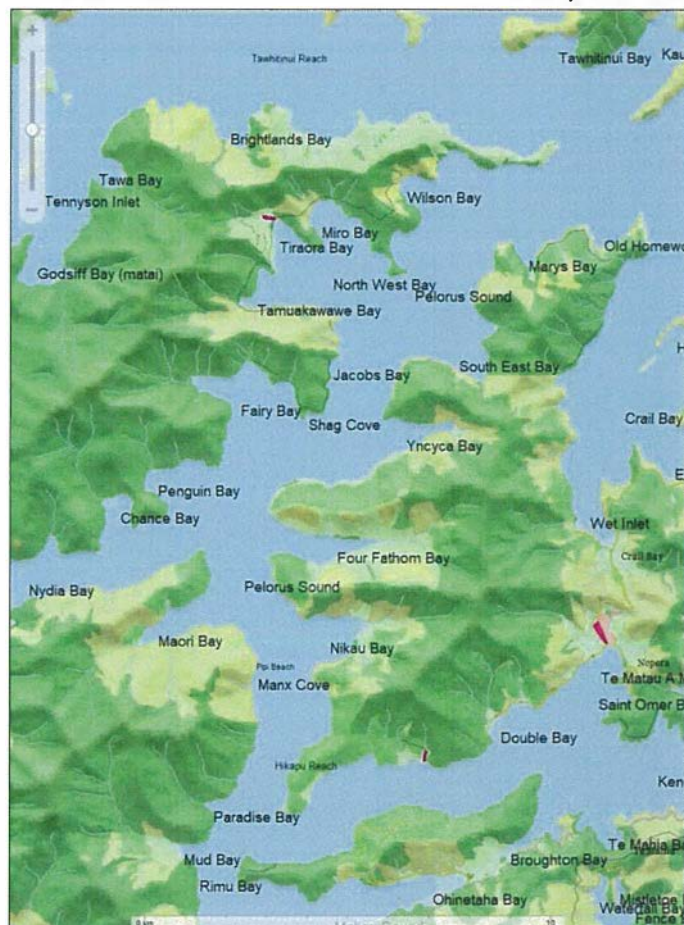


Figure 1. Popoure Reach located between Four Fathom Bay and Old Homewood Bay, Pelorus Sound.



2.2 Marine farming

There are many shellfish farms in the side Bays along Popoure Reach including South East Bay (Figure 2). Marine farm consents are predominantly used for farming mussels.

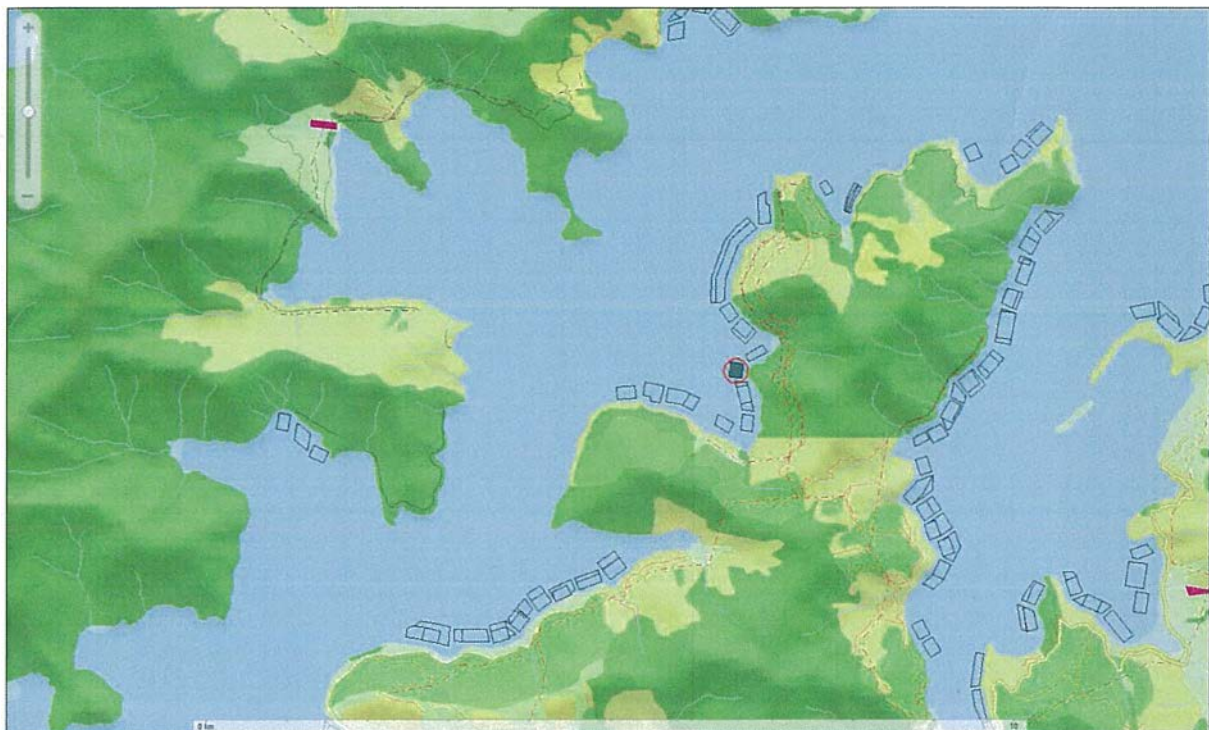


Figure 2. Marine farms located in the South East Bay area, Popoure Reach.

2.3 Catchments

The adjacent land and catchments are mostly regenerating and mature native vegetation. Reserves are located at a variety of locations (e.g. Stafford, Yncyca and Fairy and Penguin Bays Scenic Reserves). The remainder of land is in private ownership. Several forestry blocks are located on the hillsides around South East, Yncyca and Mays Bays.

2.4 Fishing

Commercial fishing in Popoure Reach is limited to scallop dredging (Figure 3a). No trawling occurs inside the Reach (Figure 3b). No data is available on recreational fishing, however, based on observations it is a regular occurrence.

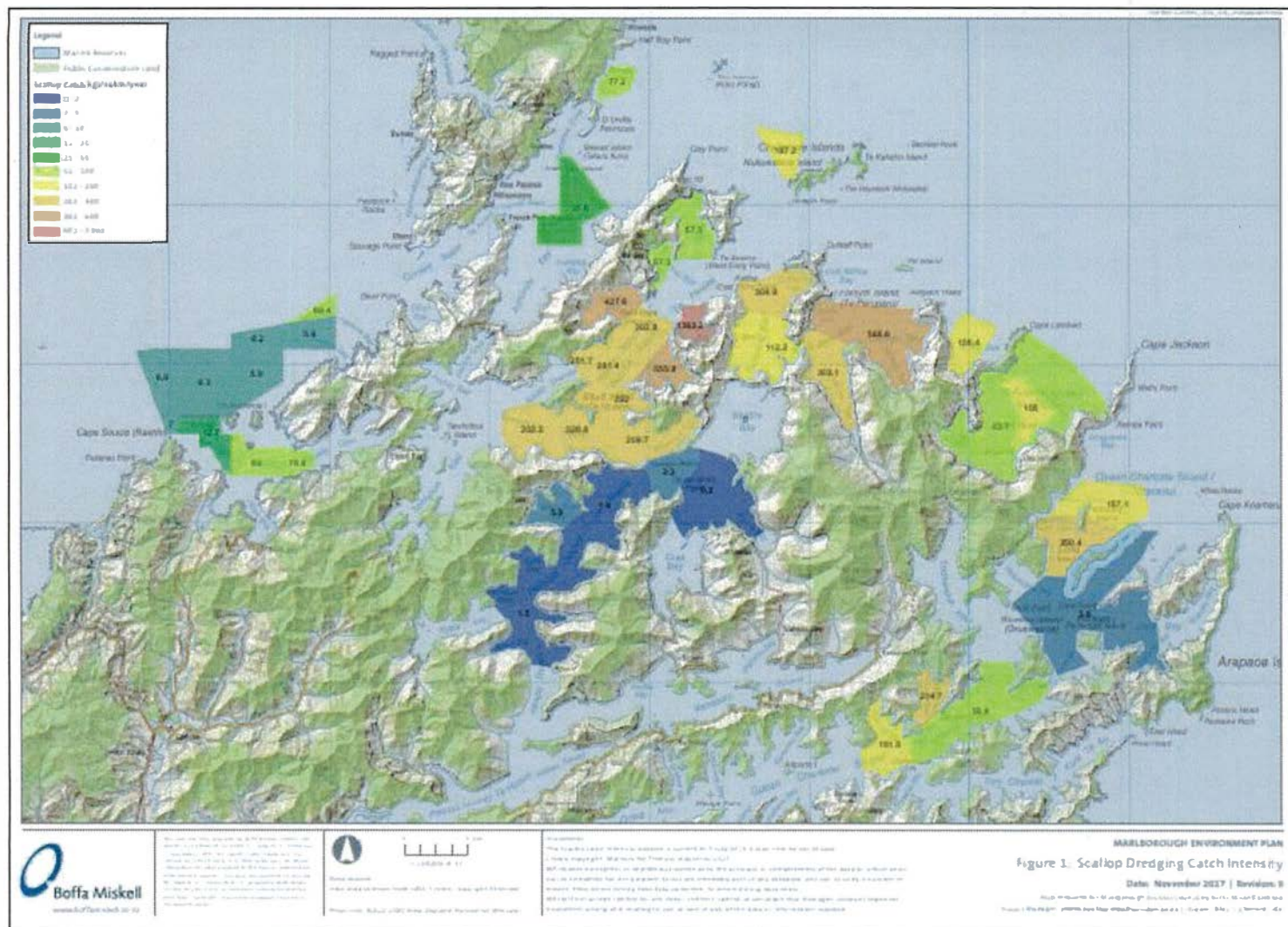
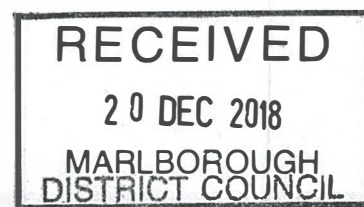


Figure 3a. Scallop catch data to July 2014 (from Boffa Miskell maps produced for MDC Coastal Plan).



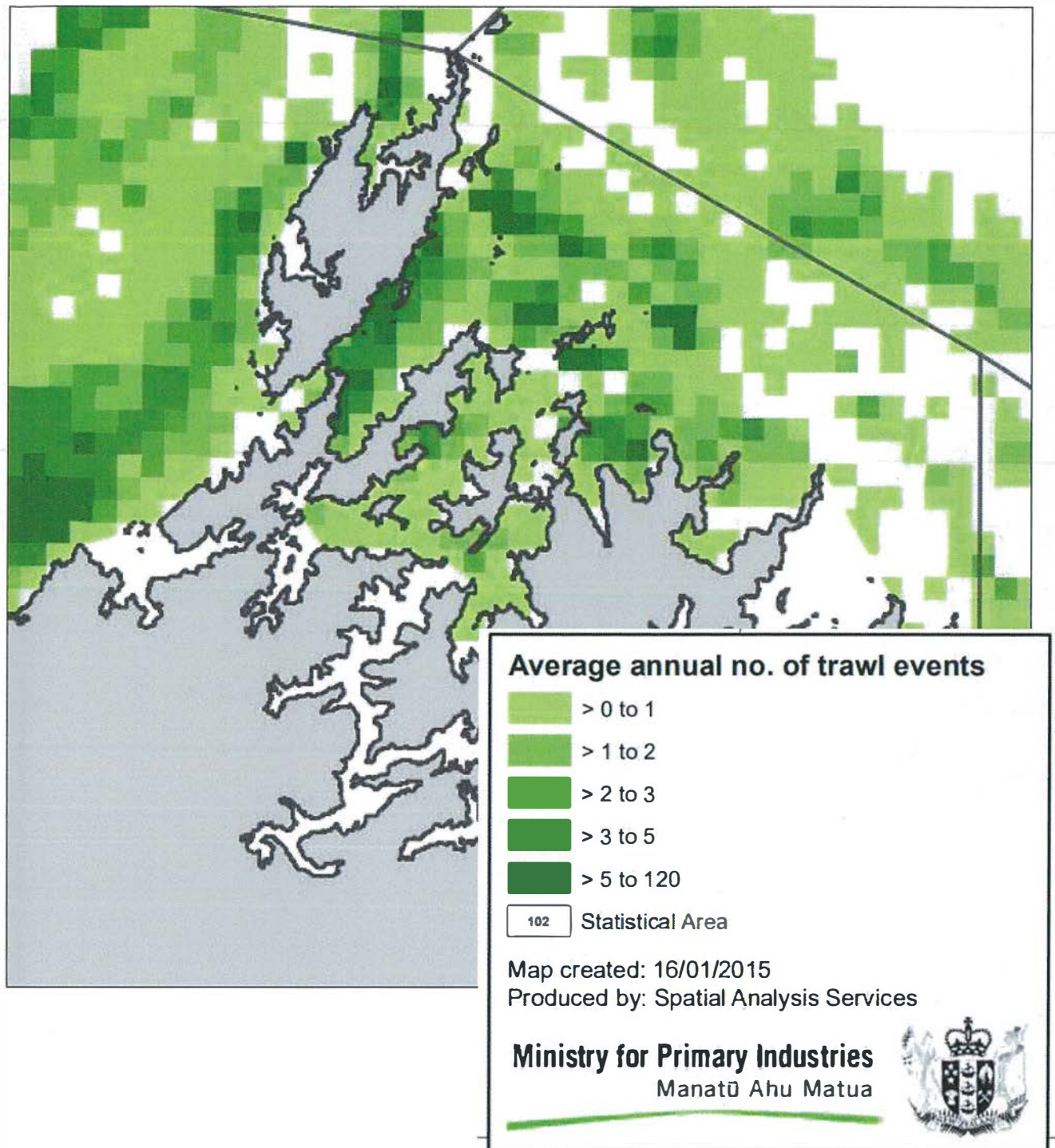


Figure 3b. Average annual number of trawl events between 2007 and 2013. The annual number of trawl events is shown for the position where each trawl event started, averaged for all events starting in each 1 nautical mile grid cell and for six fishing years 2007-13. Five colour shades are: lightest green (low number of events) to darkest green (high number of events) = 0-1, 1-2, 2-3, 3-5, and 5-120 trawl events. Source: MPI.



2.5 Existing biological studies and data

Many biological studies and investigations have occurred in Popoure Reach and the adjacent bays (Figure 4). Most data points have been commissioned by the marine farm industry, particularly in relation to new farms and extension applications. There are also a small number of species, habitat or community-based studies. Despite the large number of data points in the area, there are only a small number of recognized significant biological sites.

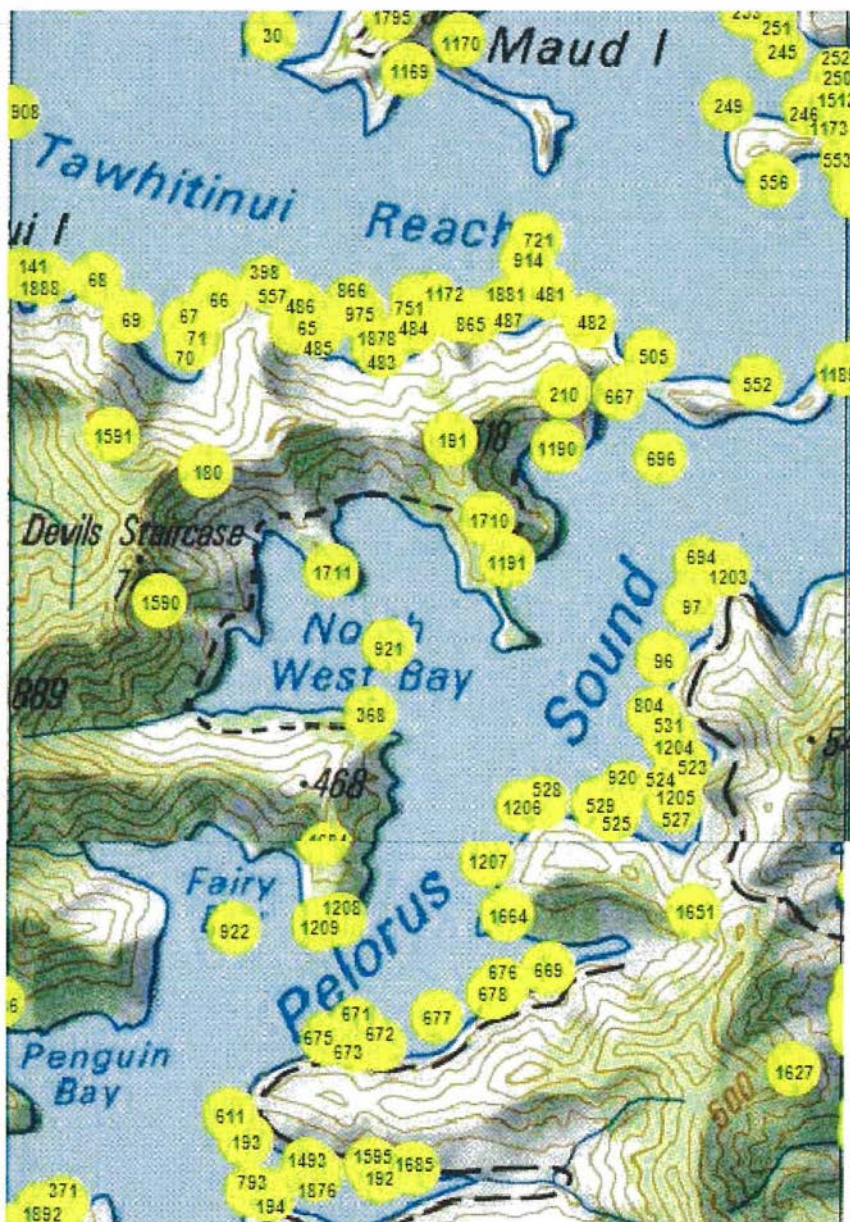
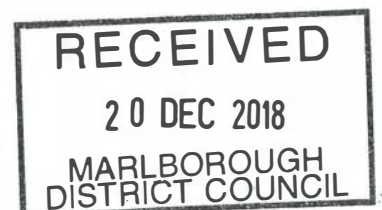


Figure 4. Summary of existing studies from Popoure Reach.



2.6 Significant sites

There is one known significant site in Popoure Reach at Tawero Point (site 3.11, Davidson *et al.*, 2011) (Figure 5).

Significant site 3.11 (Tawero Point)

Davidson *et al.* (2011) stated “There is a wide variety of filter feeding organisms including biogenic habitat formers such as bryozoans, sponges, ascidians, horse mussels and hydroids present at this site. Fish, particularly blue cod, are common and these communities also provide habitat for juvenile blue cod. These are some of the best examples of tidally swept habitats within the Pelorus biogeographic area.”

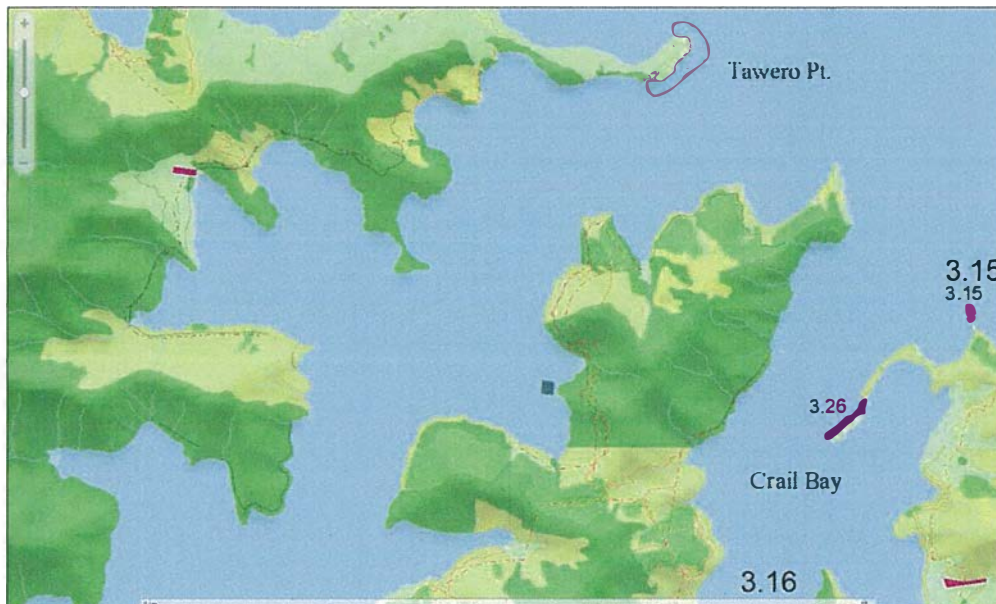


Figure 5. Known significant sites in Tawhitinui Reach (red polygons).

2.7 Marine mammals

At least five marine mammal species regularly and/or seasonally transit through Pelorus and the western regions of the outer Sounds (see Slooten *et al.* 2002, Markowitz *et al.* 2004, Merrimen *et al.* 2009, Clement and Halliday, 2014). These species include the New Zealand fur seal (*Arctocephalus forsteri*), bottlenose dolphin (*Tursiops truncatus*), dusky dolphin (*Lagenorhynchus obscurus*), common dolphin (*Delphinus delphis/capensis*) and orca (killer



Specialists in research, survey and monitoring

whales - *Orcinus orca*). Low numbers of New Zealand fur seals (status = not threatened) can be observed year-round within central Pelorus Sound.

Bottlenose dolphins (status = Nationally endangered: Baker *et al.*, 2010) is the species most consistently observed within Pelorus Sound (authors, pers. obs.). A semi-residential population of animals is known to associate with the Marlborough Sounds region for most of the year, regularly and systematically moving from one end of the Sounds to another (Merriman *et al.*, 2009). Bottlenose dolphins within the Sounds represent one of three isolated subpopulations around New Zealand's coastline; the others are found along the northeast coast of the North Island and within Fiordland in the south-west of the South Island. This species nationally endangered status is due to their restricted ranges and the fact that the other two sub-populations have reported general population declines over the last decade. Such factors make this species potentially more vulnerable to disturbance or changes within their distribution range (D. Clement, pers. comm.).

Starting in 1998, Markowitz *et al.* (2004) studied dusky dolphin (status – not threatened) presence within the Marlborough Sounds, and in particular Admiralty Bay. The authors found that the number of dusky dolphins increased significantly over the winter months and are periodically seen inside Pelorus Sound. While no studies have focused specifically on the presence of common dolphins (status = not threatened) in outer Pelorus, Clement and Halliday (2014) suggest that outer Sounds bays such as Admiralty may serve as important habitat for at least a proportion of the common dolphin population found around New Zealand. Common dolphins appear most abundant in the outer Sounds bays during mid- to late winter and early spring, often coinciding with dusky dolphins while in the region (Clement and Halliday, 2014). Seasonal trends and the high re-sighting rates of identified individuals within the area over consecutive seasons and years indicates that common dolphins are either seasonally migrating to this region (i.e. like dusky dolphins) or use it as part of a large home range, like bottlenose dolphins (D. Clement, pers. comm.).

Several studies have aimed at investigating marine mammal interactions with aquaculture (Markowitz *et al.*, 2004; Vaughn *et al.*, 2007; Pearson *et al.*, 2012), Department of Conservation (e.g. B. Lloyd unpubl. data; Merriman, 2007) and aquaculture-funded research (Clement and Halliday, 2014).

Popoure Reach is not ranked as a significant marine mammal site with bottlenose dolphins being the species most often observed with other dolphins rarely seen (author pers. obs.).

2.8 King shag

King shag is one of the world's rarest seabird species. The species is endemic to the Marlborough Sounds, and is seldom observed outside of this region. The species nests at a small number of colonies, usually on rock stacks that are separate from the mainland, however there are two mainland colonies presently used by birds (Hunia and Tawhitinui Bay). Most historical counts have been undertaken by boats, however, most recent surveys have been aerially surveyed and photographed during the breeding seasons of 2016 (2 surveys), 2017 and 2018 (Schuckard *et al.*, 2015; 2018). The most recent count has shown a 24% decline in the number of adult birds (Schuckard, 2018). The total number of nests range from 187 in 2015 to 89 (June 2016), 117 (July 2016) and 153 nests June 2017 (Schuckard, 2018). No or very few nests have been recorded from the colony in Admiralty Bay at Stewart Island. Schuckard (2017) identified concentrations of feeding activity in outer South East Bay (Figure 6). King shags appear to regularly used the main Popoure Reach offshore of South East Bay as a foraging area (author pes. Obs.). Diet studies have shown that king shags feed on a variety of fish. Lalas and Brown (1998) recorded 683 prey items of which flatfish accounted for 90% of items.

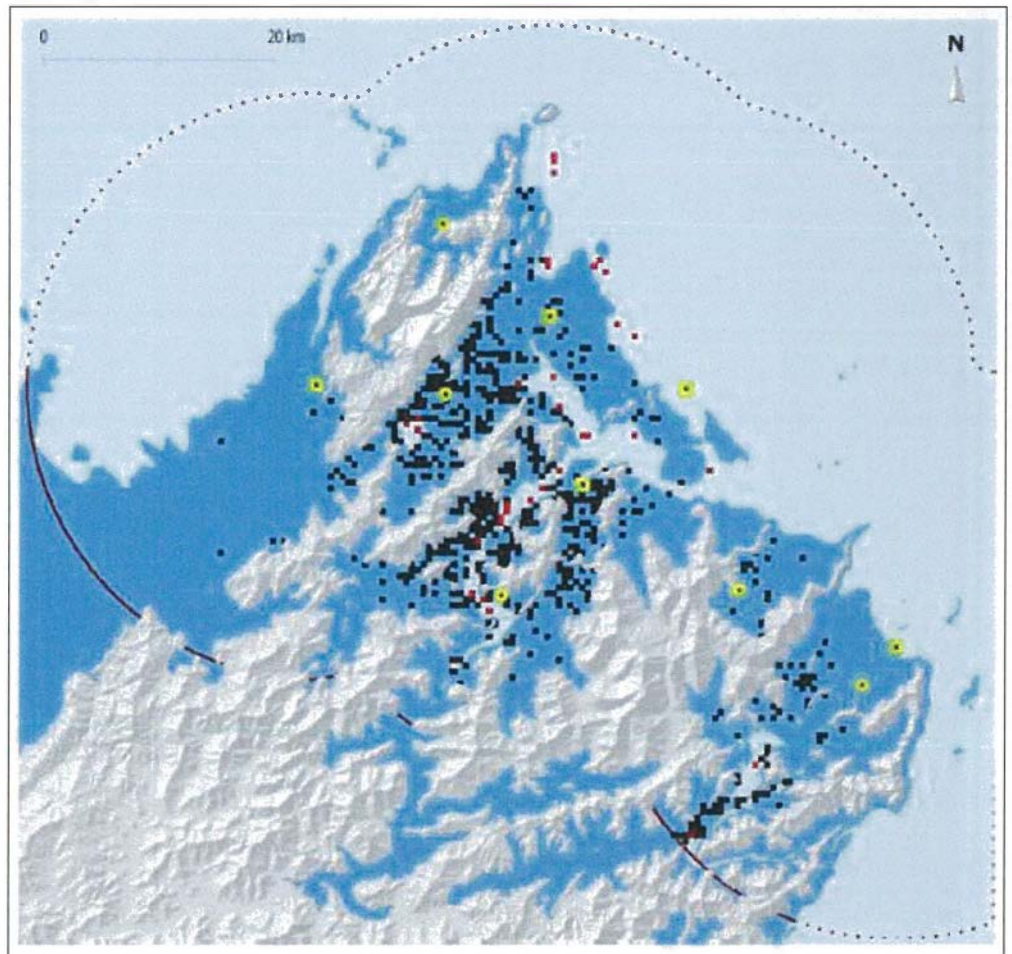
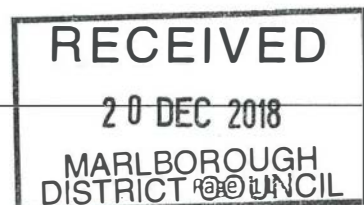


Figure 6. Distribution of foraging by king shags in the Marlborough Sounds. Figure from Schuckard (2017 unpublished evidence).

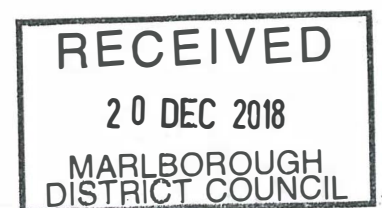


2.9 Benthic

Most benthic studies that have occurred in Popoure Reach have been in relation to marine farms, however, there have been several other scientific studies.

Duffy *et al.* (in prep) qualitatively described the biota from 360 sites around the Marlborough Sounds including Tawhitinui Reach. The edges of the Reach are swept by moderate to strong currents in the east and often support filter feeding species such as hydroids, sponges, ascidians and in places bryozoans. In the west, currents are light and the biota more typical of sheltered areas of central Pelorus Sound. Where current are present, offshore soft bottom areas are often coarse. Mud and shell are widespread in current swept areas. Macroalgae is restricted to a narrow band around low tide or can be absent.

Duffy *et al.* (in prep) found rocky reef sample sites were grouped with their Site Group 1. This was the largest group with 11 sub-groups including Queen Charlotte Sound (34 sites) Pelorus (31 sites), Port Hardy (2), Admiralty Bay (8), Cherry Bay at D'Urville Island (1), Squally Cove in Croisilles (1), Catherine Cove (2), Guards Bay (2), Anakoha Bay (2) and Forsyth Island (5). The most common rocky habitat type was cobble banks. Although the group had few indicator species, it was the most species-rich of the inner sounds site groups (average 31 species per site). Duffy *et al.* (in prep) stated the best indicator species were *Maoricolpus roseus*, *Galeolaria hystrix* and *Forsterygion lapillum*.



3.0 Marine farm 8335

The present report provides biological information in relation to marine farm 8335 located in South East Bay, Popoure Reach, inner Pelorus Sound (Figure 7, Plate 1).



Figure 7. Proposed consenting marine farm site (teal) in Pelorus Sound and other marine farms in the area.

3.1 Summary

Marine farm number:	8335
Owner:	Clearwater Mussels Limited
Location:	South East Bay, Pelorus Sound
MPI exclusion area present:	No
Consented size:	3 ha
Proposed size:	3 ha
Changes suggested:	New production structure exclusion zone or shift consent further from shore.
Reason for suggested changes:	Rocky substrata extends into part of consent.

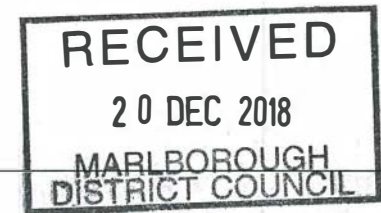




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Plate 1. Looking southwards through the existing backbone lines of farm 8335 with Popoure Reach in far right of photo. Photo taken from a position north of the inshore backbone.



4.0 Historical reports

Two historical biological reports were found in relation to marine farm 8335.

Davidson (2006) produced a report for an off-site marine farm revalidation. The authors stated:

“Substratum type is based on drop camera images. Apart from areas inshore of the existing structures, all areas photographed within the consent and offshore of the consent area were characterised by soft substratum (i.e. silt and clay and/or broken natural shell). Cobble and boulder habitat was observed inshore of the first backbone. With the presence of cobbles and boulders inshore of the inshore line, it is suggested that the offshore line be validated and the inshore area of the existing consent be removed from the existing consent to avoid the inshore hard substratum.”

Davidson (2012) produced a report for a proposed extension to the parent farm. The author stated:

“The proposed extension area was characterised by silt and clay sized particles. Variable, but relatively low levels of natural whole dead shell were also observed in association with mud. Relatively few surface dwelling (epibenthic) species were recorded in photos. Cushion seastar, sea cucumber, 11 arm seastar, scallop were the most often observed species. Scallop although present, only appeared in one photo suggesting they were not abundant.

A reef structure and associated cobble substrata were recorded inshore of the parent farm consent. Cobble substratum extended into the consent and was recorded under the central area of the inshore backbone line.

Hard substratum is traditionally avoided for marine farming activities. It is therefore recommended that should the extension be granted, the applicant relinquish the inshore 20 m of the parent farm consent. The inshore line could then be relocated further offshore once the crop has been harvested.”



5.0 Methods (present survey)

The area was investigated on 3rd December 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 is 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.

5.1 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 5.2).

5.2 Drop camera stations, mussel debris and low tide

A total of 22 drop camera photographs were collected from the farm (including alongside droppers and warps) and adjacent areas inside and offshore of the consent. 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 landed.

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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. Percentage cover of mussel shell was also estimated by a trained observer viewing drop camera photographs.

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 strategic locations inshore of the consent. The survey vessel was positioned over the low water mark and the position plotted using the mapping software. Low tide was visually determined using the transition between intertidal and subtidal species. This process was also guided by the known state of the tide at the time of the inspection.

6.0 Results

On the day of the survey, the tide was high at 6.38 am (2.2 m) and low at 12.54 pm (0.8 m). During fieldwork, the tide was outgoing. In general, mean water currents at this site are low and approximately <0.1 m/sec (Broekhuizen *et al.*, 2015).

During the present study no tidal flow was observed.

6.1 Consent corners and surface structures

The inshore corner depths of the consent area ranged from 13.4 m to 16.4 m. Offshore boundaries of the consent area ranged from 17.2 m to 18.2 m depth (Table 1, Figure 10). A deep area was also observed in central parts of the consent. Existing surface structures consisted of one block of backbones covering a total area of approximately 1.8 ha. Surface structures were mostly located inside the consent apart from one offshore backbone.

The distance between low tide and the consent boundary was measured at three positions along the adjacent shoreline. The distance to the inshore boundary at the position of low tide 1 was 52 m, at low tide 2 was 46 m, and at low tide 3 was 72 m (Plate 2, Figure 9).

6.2 Sonar imaging

A sonar run collected from the benthos under and adjacent to the consent revealed one area of rocky substrata that reached the inshore boundary of the consent and extended approximately 14 m into the consent (Figure 11). This rocky substratum is part of a rocky reef that extends towards the consent from the adjacent promontory. All remaining areas scanned in the consent were characterised by a low feature terrain (i.e. soft substrata).

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

Type	No. & Depth (m)	Coordinates
Consent corner	1, 13.4	1677968.8,5449201.3
Consent corner	2, 16.4m	1677959.2,5449027.6
Consent corner	3, 18.2m	1677795.0,5449040.7
Consent corner	4, 17.2m	1677805.3,5449230.3
Structure corner	A, 22m	1677778.0,5449084.4
Structure corner	B, 19.1m	1677791.4,5449193.3
Structure corner	C, 15.3m	1677949.9,5449171.4
Structure corner	D, 16.1m	1677949.2,5449060.6
Low tide	Low tide 1	1678013.5,5449065.2
Low tide	Low tide 2	1678010.5,5449120.9
Low tide	Low tide 3	1678038.7,5449162.5

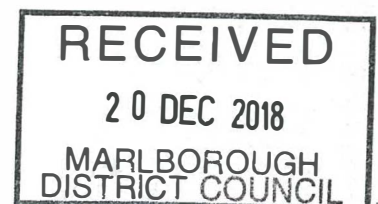


Plate 2. Aerial view of three low tide GPS locations relative to the inshore farm boundary (red polygon).

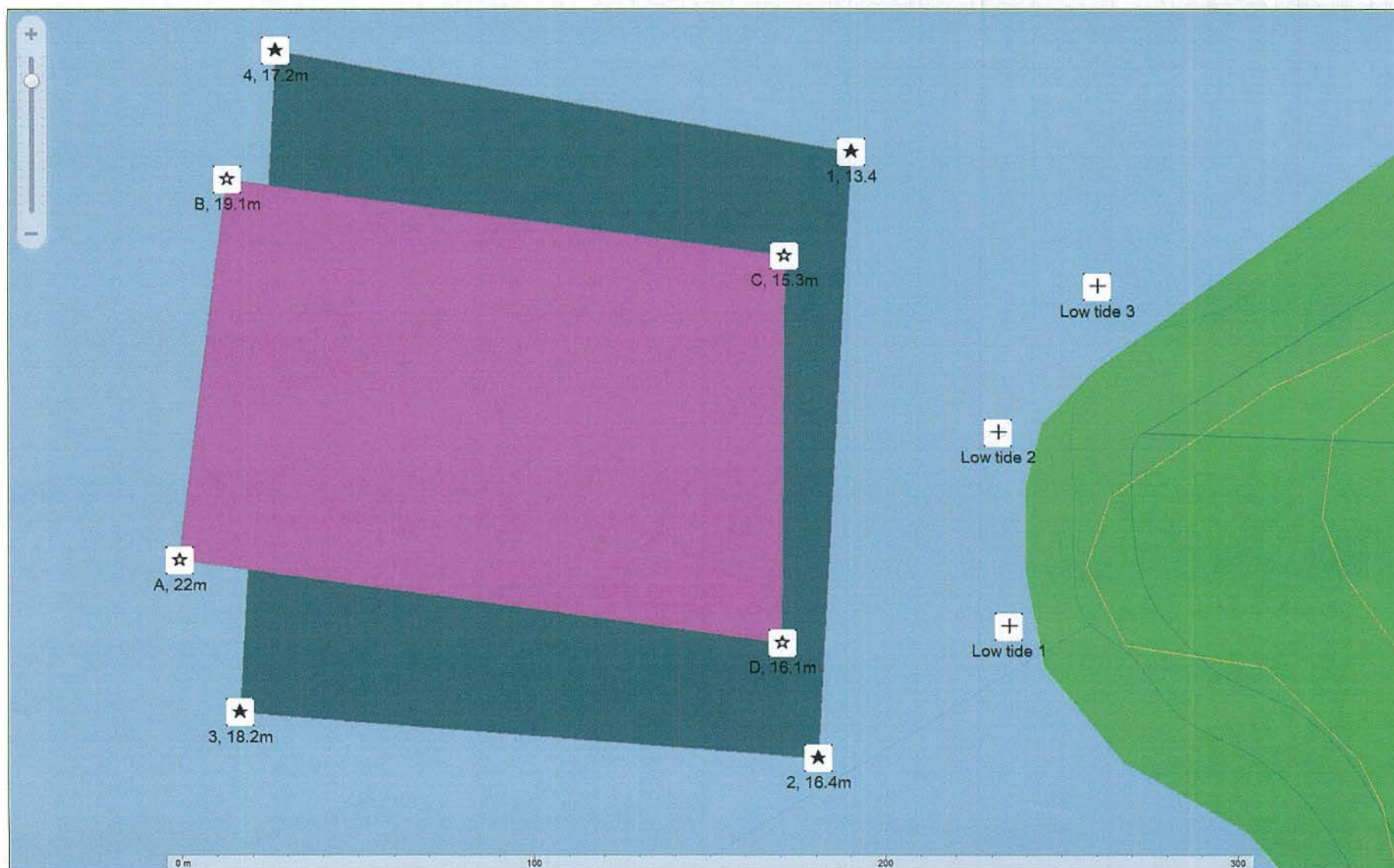


Figure 10. Depths of the proposed reconsent area (teal) and existing marine farm surface structures (pink). Three low tide locations are also plotted (crosses).



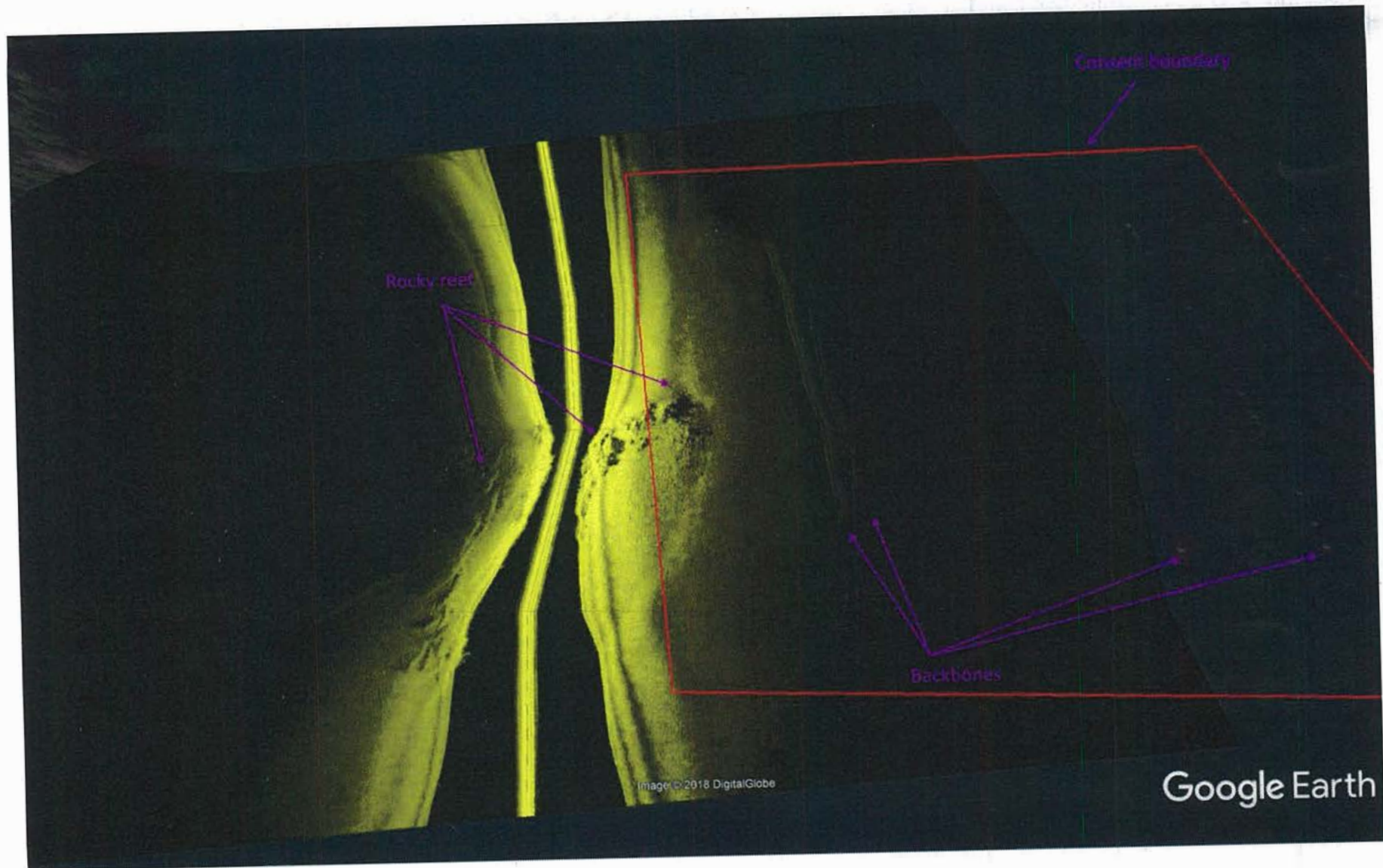
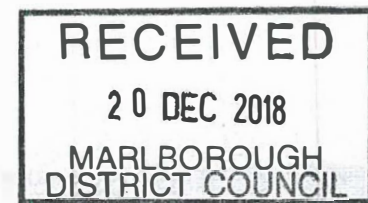


Figure 11. Sonar run at farm site 8335. Red polygon = consent boundary, yellow line = sonar track.



6.3 Drop camera images

Drop camera photographs were taken throughout the existing consent as well as inshore and offshore of the consent (Table 2, Figure 12, Appendix 1). Photographs were used to describe the benthic substratum, mussel shell debris cover and presence of biological characteristics.

Within the consent

Most of the benthos within the consent was characterised by soft substratum. Almost all the consent was dominated by silt (mud) with a variable but usually small component of natural shell (Plate 3).

At one location near the inshore consent boundary an area of rocky reef comprising bedrock, boulder sand cobbles were recorded (Plates 4 & 5). This reef extended approximately 14 m into the consent.

Filamentous algae was present at many stations. Mussel shell was present in areas occupied by farm backbone structures and to a lesser extent under warps.

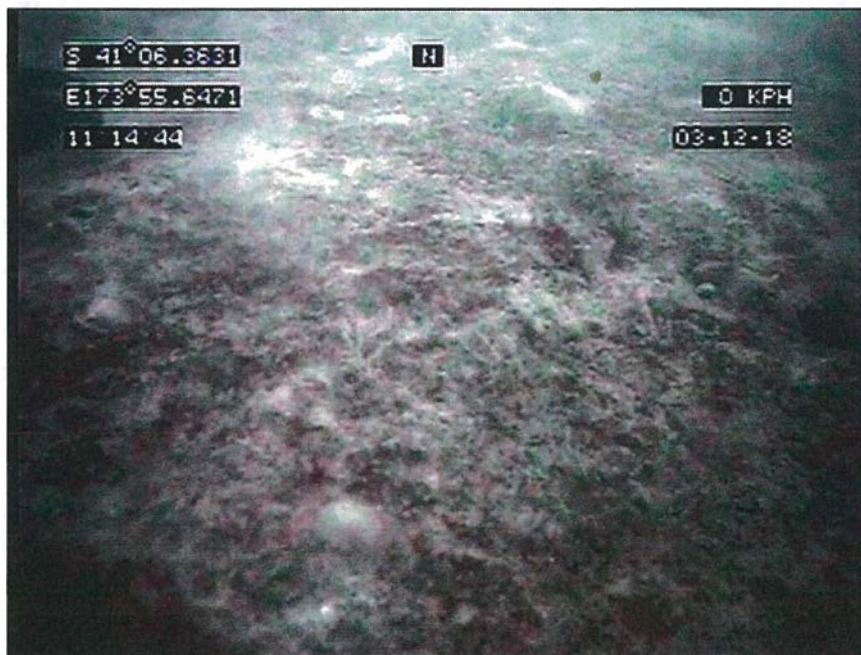


Plate 3. Silt and clay from the consent (photo 14, 20.5 m depth).



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*Plate 4. Bedrock reef
inside consent (photo 2,
10.2 m depth)*



*Plate 5. Cobbles, sand and
shell with mussel shell
inside consent (photo 22,
12.7 m depth).*



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Mussel shell

Mussel shell debris was observed from 11 of 19 consent photos and from one photo taken offshore of the consent, but close to backbones (Figure 13). In the consent, mussel shell debris, when present, ranged from 1 to 80% under the backbones (Plate 6) (Table 2). Mussel shell debris was recorded from three warp photos at low levels (Figure 13). Shell debris was recorded inshore of the existing inshore backbone where an historic line was once positioned.



Plate 6. Silt with a high level of mussel shell debris under backbones located in the consent (photo 7, 15.1 m depth).

6.4 Red algae

A low percentage cover of red algae was recorded along inshore areas of the consent (Figure 14, Plate 8). Apart from one photos the cover was < 10 % (Table 2).

Plate 8. Low percentage cover of red algae along the inshore edges of the consent (photo 11, 14.6 m depth).

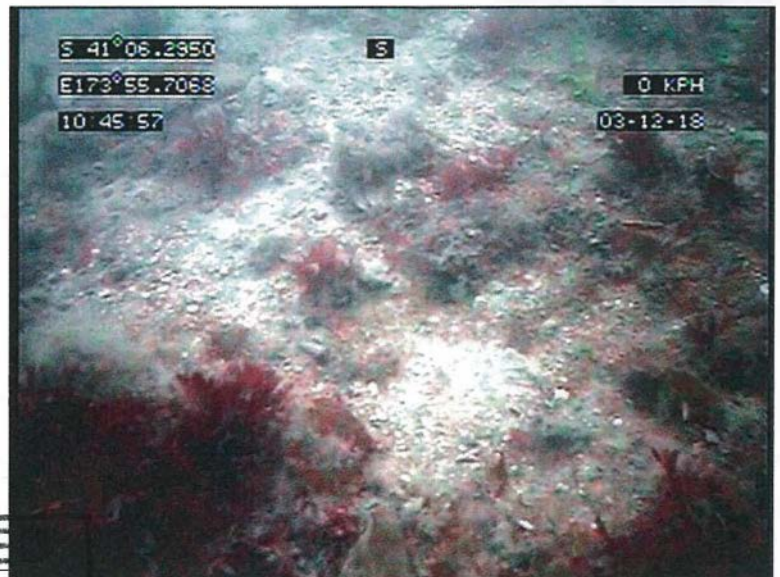


Table 2. Coordinates of drop camera stations showing location relative to the marine farm consent area (NZTM). Colours are: grey = within consent, pink = under backbones, blue = outside consent. Depth, substratum, level of mussel shell debris are listed.

No. & Depth (m)	Coordinates	Location	Substratum	Red algae	% mussel shell
1, 14.6m	1677958.1,5449183.0	In consent, no structures	silt, natural shell, red algae	25	0
2, 10.2m	1677959.5,5449138.8	In consent, no structures	bedrock, boulders, cobbles, mussel shell	0	0
3, 11.1m	1677961.1,5449111.0	In consent, no structures	silt, shell hash, filamentous algae	0	0
4, 14.6m	1677958.5,5449071.1	In consent, no structures	silt, natural shell, mussel shell, filamentous algae	2	10
5, 16.5m	1677962.5,5449029.1	Inshore of consent, no structures	silt, natural shell	0	0
6, 18.1m	1677936.9,5449187.7	In consent, under warps	silt, mussel shell	0	5
7, 15.1m	1677946.3,5449162.8	In consent, under backbones	silt, mussel shell, red algae	5	80
8, 14m	1677941.9,5449141.5	In consent, under backbones	silt, natural shell, mussel shell, red algae	5	70
9, 15.3m	1677939.2,5449106.0	In consent, under backbones	silt, mussel shell	0	40
10, 18.3m	1677933.7,5449051.7	In consent, under warps	silt, filamentous algae	0	0
11, 18.7m	1677881.9,5449197.7	In consent, under warps	silt, mussel shell	0	5
12, 19.9m	1677876.5,5449145.1	In consent, under backbones	silt, mussel shell	0	25
13, 26.3m	1677874.4,5449104.8	In consent, under backbones	silt, mussel shell	0	5
14, 20.5m	1677870.9,5449054.9	In consent, under warps	silt, clay	0	0
15, 16.9m	1677815.3,5449211.3	In consent, under warps	silt, clay, mussel shell	0	1
16, 17.7m	1677808.3,5449161.7	In consent, under backbones	silt, clay, mussel shell	1	15
17, 26.9m	1677826.8,5449107.2	In consent, under backbones	silt, clay	0	0
18, 18.4m	1677819.4,5449045.0	In consent, under warps	silt, clay	0	0
19, 20.7m	1677772.6,5449183.6	Offshore of consent, no structures	silt, clay	0	0
20, 20.8m	1677773.7,5449134.5	Offshore of consent, no structures	silt, clay, mussel shell	0	15
21, 22.1m	1677773.3,5449083.0	Offshore of consent, no structures	silt, clay, mussel shell	0	0
22, 12.7m	1677949.1,5449130.0	In consent, under backbones	sand, shell, cobbles, mussel shell	10	20



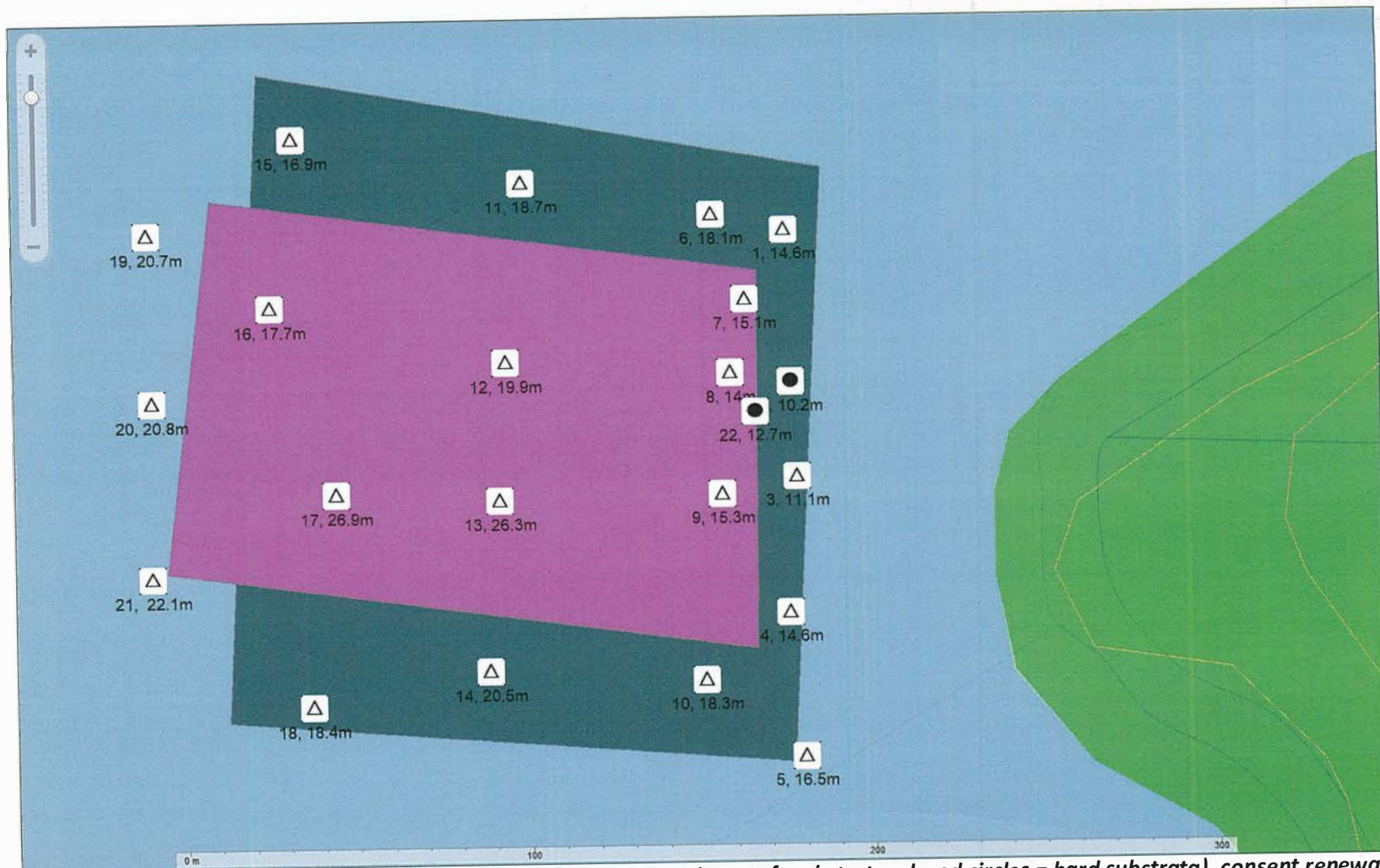
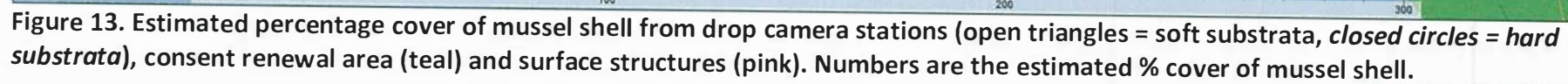
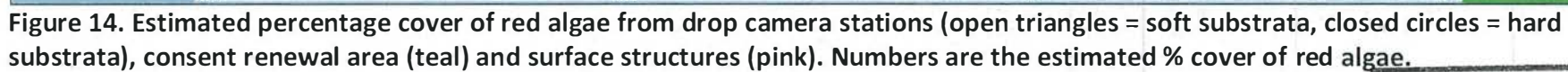


Figure 12. Drop camera stations of the reconsent area (open triangles = soft substrata, closed circles = hard substrata), consent renewal area (teal) and surface structures (pink). Numbers are the photo number and water depth (m).





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7.0 Conclusions

7.1 Benthic habitats and substratum

Substratum and habitat distribution relative to the consent area was based on drop camera stations and sonar imaging of the benthos. Most of the consent area was located over a relatively featureless benthos dominated by silt substratum with or without a small component of natural shell. An area of bedrock, cobbles and boulders extended from the adjacent promontory into the consent.

Mud (i.e. silt) is the most common subtidal habitat in sheltered areas of the Marlborough Sounds (McKnight and Grange, 1991) and has been traditionally targeted for marine farming activities. This substratum type is considered suitable for consideration for marine farming activities in the Marlborough Sounds.

Unlike mud, rocky substratum is not traditionally considered suitable for marine farming activities as it is likely smothered by shell debris and may no longer function as a hard substratum habitat. The small area of rock located inside the consent presently has no backbone located overhead, however, an historic line was located over the reef and has resulted in the deposition of some mussel shell.

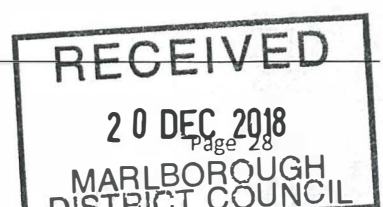
7.2 Species and communities

Species abundance and diversity from most of the consent was relatively low compared to high current locations in the Sounds. Benthic observations within soft substratum dominated areas of the consent confirmed the area supported species typical of silt substratum in the central Pelorus Sound (e.g. horse mussel, microalgal mat, cushion sea star, sea cucumber, 11 arm seastar). Spotty and an occasional blue cod were observed from drop camera photos near the reef.

No scallops were observed during the present survey; however, it is likely they will exist at this location but the absence from photos suggest they are not common. No species, habitats or communities regarded as ecologically significant (see Davidson *et al.*, 2011) were observed within the consent.

7.3 Sea birds

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

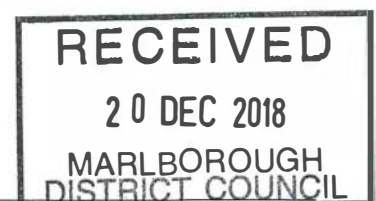
Overall, New Zealand (Butler, 2003) and overseas studies (Ross *et al.*, 2001; Roycroft *et al.*, 2004; Kirk *et al.*, 2007) suggest that the general attraction of particular seabirds to mussel farms is likely due to increased foraging success on fish and biofouling, and even on the cultured stock itself. 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. 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 16.3 km at Waimaru Peninsula in Beatrix Bay and well within their flight range. A variety of shag species are also 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). The Marine Farming Association also provides an Environmental Certification Programme that requires vessel crews demonstrate their knowledge and adherence to the industry Standard Operating Procedures and Codes of Practices in relation to the (1) Noise Code of Practice, (2) Pollution and Emissions Code of Practice and (3) Reducing Waste taken to Landfill Code of Practice.

7.4 King shag

A variety of authors have also outlined human activities that may impact king shags including aquaculture (Schuckard, 2006); commercial fishing (McClellan, 2017), colony disturbance (Butler, 2003; Davidson *et al.*, 2018), and predation (Nelson, 1971). Apart from aquaculture, little research has occurred on these topics despite their potential importance on a high-status species.



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Brown (2001) and Lalas (2001) produced evidence in relation to the interactions between marine farms and king shag. Brown (2001) stated that he observed king shags feeding under mussel lines at long-established marine farms on eight separate occasions between April 1999 and June 2002. The author concluded that observations of successful foraging under farms suggest that at least farms do not totally preclude foraging and subjectively also may indicate that at least some farms do not alter food chains or feeding ecology to the detriment of king shags. Lalas (2001) also produced evidence in relation to a marine farm application. The author stated that based on observations collected in Forsyth Bay, two of the 19 records (11%) were for king shags within existing farms. Lalas (2001) concluded "these records demonstrate that shoreline mussel farms do not preclude foraging king shags".

Butler (2003) undertook the first review of the possible effects of marine farms on king shag. He described the potential effects in three categories: physical effects (structures of farms, lights, debris from farms, and shell waste); effects of activities (disturbance, noise and water pollution); and effects on marine ecology (hydrography, sediment and water column changes, creation of new habitat, exclusion of trawlers, unwanted organisms). Butler (2003) considered that most king shag feeding occurred in deeper water, and that potential impacts resulting from mussel farms excluding king shag foraging may become apparent if deeper-water mussel farms were developed. Lloyd (2003) reviewed the effects of aquaculture on seabirds and cetaceans. He also appeared to believe the existing pattern of inshore mussel farms was less likely to affect king shag foraging compared to proposals for extensive mid-bay mussel farms in Admiralty Bay. Fisher and Boren (2012), undertook a rigorous study of king shag foraging distribution in Admiralty Bay; see Section 2.4) and concluded that deep water marine farms posed a greater threat compared to inshore sites.

The most recent general review of the ecological effects of aquaculture (Sagar, 2013) only specifically mentioned king shag in relation to disturbance but discussed the main effects of 'filter feeder species' farms on seabirds in general, and their significance. The authors stated the eight key effects were: entanglement with farm structures, habitat exclusion, smothering of benthos, changed abundance of prey, provision of roosts, disturbance by farm activities, ingestion and entanglement with farm debris, and attraction to lights. Sagar (2013) considered that the potential effects of habitat exclusion and smothering of benthos were, in general, insignificant to seabirds given the small area occupied by filter feeder farms. However, he qualified this, noting that the significance of effects "will depend on the spatial scale of the aquaculture facility in relation to the distribution and abundance of prey



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species”, and concluded that effective management could be achieved by avoiding locating farms in key foraging areas of species with restricted habitat requirements (see Sagar, 2013). The review listed “home ranges or location of important feeding and breeding habitats for most populations of seabird species “as being a key information gap for every one of the eight key potential effects.”

Of all the threats, most attention had been given to the potential effects of mussel farms on king shags, and the possibility that king shags are excluded from the area under and around a mussel farm due to physical structures inhibiting foraging, and/or changing the habitat causing decreases to key prey species (McClellan, pers comm.). Unfortunately, the extensive data that has been collected on the locations of foraging king shags has, however, not been able to answer this key question.

The present marine farm consenting site is located at depths between 12 m and 22 m and is therefore potentially seldom used as this species usually forages in depths 20-55 m. King shags do forage in areas near this farm and in the main Reach (Schuckard, 1995, 2017, author pers obs.).

The applicant proposes that the present farm site size and consented structure number remains unchanged. Should the farm be shifted further from shore to achieve a 50 m separation between low water and the consent, it is unlikely that king shags foraging habitat will be lost due to the depths involved. It is also noted that a mussel line is already located offshore of the consent.

7.5 Marine mammals

International research demonstrates that the nature and scale of any direct displacement or avoidance varies greatly between culture methods and marine mammal species (MPI, 2013). While particular species of whales or dolphins will be highly sensitive to disturbance, other species (such as bottlenose dolphins) and pinnipeds may actually be attracted to the structures (Clement and Halliday, 2014; Davidson and Richards, 2017).

For mussel farming, occupied farm areas may be perceived by some marine mammals (particularly those that echolocate) as a physical, visual or acoustic obstruction within their habitat. Based on research to date in Admiralty Bay, dusky dolphins appear unable to cooperatively herd schooling fish when adjacent to or within mussel farm structures (see

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Pearson *et al.*, 2012). Clement and Halliday (2014) also noted the reluctance of common dolphins to enter or feed near farm structures within the Admiralty Bay region. Over the course of five consecutive winters between 1998 and 2002, Markowitz *et al.* (2004) found that dolphins spent significantly less time in areas occupied by mussel farms than other parts of the inner bay. Pearson *et al.* (2012) also reported similar findings from tracking dolphin groups both inside and outside of mussel farms across all of Admiralty Bay during the winters and springs of 2005-2006. To test specifically whether these results were due to the fact that dusky dolphins might not use habitats closer to shore in general, rather than avoiding the farm areas themselves, Markowitz's study looked at the amount of time groups spent near farms (<200 m) and Pearson's study looked at time spent within the nearshore zone (<400 m of the shoreline) around inner and all of Admiralty Bay, respectively. Both studies found dolphins frequented areas occupied by mussel farms significantly less often than similar areas near farms or within the general nearshore zone.

The significance of such 'disruptions' to their foraging and feeding success over time may range from minor, (i.e. they simply employ other foraging strategies or move to other sources), to major implications (i.e. the loss of a primary food source begins to have population-level effects, such as reduced reproduction rates). It is difficult to assess whether these foraging limitations are impacting on the survival and reproduction of these dolphins at the population level and research can take several decades to determine and population dynamics (e.g. closed versus open structure) can affect the efficiency with which data can be collected (D. Clement, pers. comm.).

Displacement

For dusky and common dolphins, the existing farm may represent an area lost as foraging habitat, however, central Pelorus is not an area used regularly by these species. The present proposal, however, is applying for no additional water space, therefore any change to foraging behavior will remain unchanged.

Based on migratory patterns and behaviour it is unlikely these farms represent a threat to echolocating whales.

Some species such as NZ fur seals, may be attracted to mussel farms as hauling outs (Clement and Halliday, 2014; Davidson and Richards, 2017). Farm structures may also attract bottlenose dolphin, and possibly killer whales, due to these species' curious natures

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and the associated aggregations of possible prey species under and near farms. Bottlenose dolphins have been frequently recorded 'sweeping' through mussel farms within the greater Admiralty Bay region (D. Clement, pers. comm) and Pelorus Sound (author pers. obs.).

Entanglement

There are four reported incidences of dolphin entanglement and death at a salmon farm in New Zealand, both from the Marlborough Sounds (M. Aviss, MDC, <https://www.stuff.co.nz/national/108920343/->). In one, an unidentified dolphin species became trapped while a predator net was being replaced, in another case, a Hector's dolphin became trapped under a predator net. In 2018, two separate instances of a dolphin becoming trapped in salmon cage nets were reported in Pelorus Sound. Internationally, fatal entanglements of dolphins in predator nets on finfish farms have been reported from Australia (Kemper and Gibbs, 2001; Kemper *et al.*, 2003; Kemper *et al.*, 2005) 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. A humpback first spotted by DOC staff near Banks Peninsula with a cray pot buoy line tangled around its tail stock and flukes then became entangled in mussel floats when it swam alongside a farm in Tory Channel several days later. This animal was cut free from the cray pot lines by a mussel farmer (Scott Madsen) and was released alive.

Wursig and Gailey (2002) stated that entanglements by larger whales in aquaculture facilities are relatively rare events.

The present marine farm utilizes standard mussel farming structures that are under tension and therefore present a low risk of entanglement to marine mammals. Marine farm consents also require that inorganic debris is to be retrieved and structures maintained in good working order at all times.

7.6 Biosecurity issues

The applicant belongs to mussel industries Environmental Management System (EMS). As a member, the applicant and his contractors are bound by good environmental practices. As well as all aspects of farming such as establishment, seeding, and harvesting, the Code includes guidelines on the transfer of mussel seed and the NZ Mussel Industry Seed Transfer Code. All members of the ECOP are also bound by the Biosecurity Act 1983, as well as the Hazardous Substances and New Organisms Act 1996.

7.7 Mussel farming impacts

7.7.1 Benthic impacts

Mussel shell debris was recorded from 11 of the 19 consent area photos. Mussel shell was also observed from one photo collected outside the consent, but close to backbones. Mussel debris was most abundant under backbones and ranged from 1-80% cover. Mussel shell debris was recorded from three photos collected under warps at <10% cover.

Shell debris impact levels were within the range known for mussel farms in the Marlborough Sounds. The farm impact at this site is at a moderate level of the impact range compared to other farms in the Sounds. This is consistent with a study by Harstein and Rowden (2004) who investigated the impact of mussel farming at three sites in Pelorus Sound. The authors had one of their study farms located in this wider area of Pelorus. The authors stated impacts were relatively high in sheltered areas.

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 farming activity remains consistent, it is very likely that the redox layer will become shallower compared to sites away from the farm (Hartstein and Rowden, 2004; Keeley *et al.*, 2009). This is indicative of an increased level of enrichment under marine farming structures. Redox records under mussel farms vary depending on environmental variables such as wave exposure and substrata. In general, redox values under farms are at the lower end of enrichment spectrum (Keeley *et al.*, 2009).

The reef located at the inshore edge of the consent has been impacted by mussel shell from a historic mussel line. Levels of shell were not high, however, and it is expected that this area will recover. Recovery of the benthos takes approximately 5-7 years on deep soft

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substratum as shell is often smothered thereby reducing recovery times compared to inshore coarser substratum areas (Davidson and Richards, 2014).

7.7.2 Productivity

Mussel farms can influence adjacent farms by slowing water flow to farms located in downstream positions (Ogilvie, 2000). 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 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 the ecological carrying capacity of the Sounds has been reached, however, this topic is not well researched. There is considerable evidence showing 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 the main channel of Popoure Reach are moderate to high, but low in this part of South East Bay (Broekhuizen, 2015). Winds are likely to also be a significant driver of water movement in this area, especially during north-west and south-east events. The proximity of the farm to the main channel means water turnover times are likely to be relatively short compared to bays well distant to main reaches in Pelorus Sound (e.g. Hallam Cove).

Based on these considerations and the existing literature, it is probable the site will likely cause phytoplankton depletion inside its boundaries; however, these are expected to quickly return to background levels soon after water leaves the consent. The present reconsenting application represent no change to the number of consented lines and therefore represents no change to phytoplankton predation and water flows in the bay.

7.8 Boundary adjustments, line adjustments and monitoring

No biological communities of particular interest were found inside the consent during the present survey. Further, most of the consent is located over silt substratum with a small

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component of natural shell. This substratum is the common and widespread habitat type in sheltered shores of the Marlborough Sounds. The impacts associated with mussel farming on muddy habitats characterised by silt are low compared to farm impacts over habitats dominated by rocky or biogenic communities. This is limited to where the backbones have been situated. Warps are known to have little or no impact on benthic communities (Davidson and Richards, 2014). At this site the benthos under warps appeared relatively natural, with little mussel shell debris present under these structures.

Any effect, be it positive or negative, on king shag and marine mammals would likely remain little changed if the farm is re-consented

A small area of rocky substrata reaches into the inshore portion of the consent. This extends from the adjacent promontory. It is suggested that this be avoided by growing structures (i.e. backbones). This can be achieved by either (A) imposing a 25 m wide growing structure exclusion zone (Figure 15), or (B) adjusting the consent further from shore.

No other changes to the present consent boundaries are suggested on biological grounds.

Habitats and species associated with the site are typical of the inner Sounds Bays and as such no monitoring is suggested.

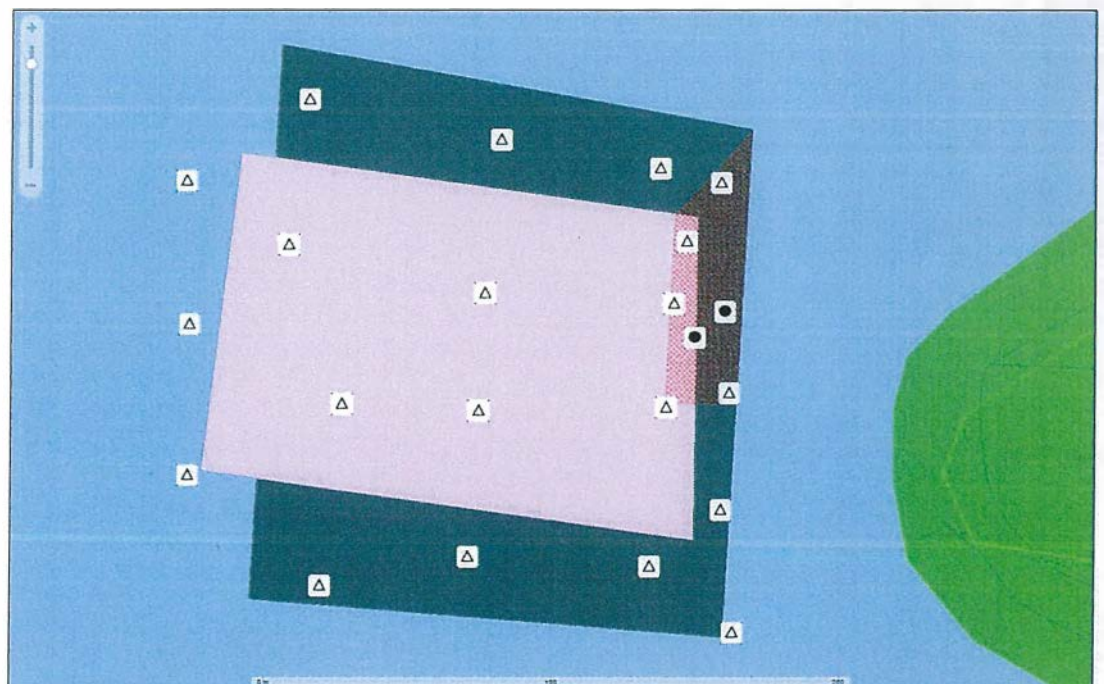


Figure 15.

Suggested growing structure exclusion area (hatched) designed to avoid rocky substrata and provide an additional buffer zone.



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Appendix 1. Drop camera photographs

Photo 1 silt, natural shell, red algae

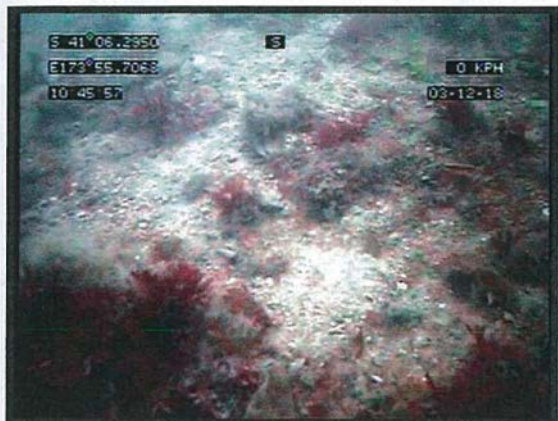


Photo 2 bedrock, boulders, cobbles, mussel shell



Photo 3 silt, shell hash, filamentous algae



Photo 4 silt, natural shell, mussel shell, filamentous algae

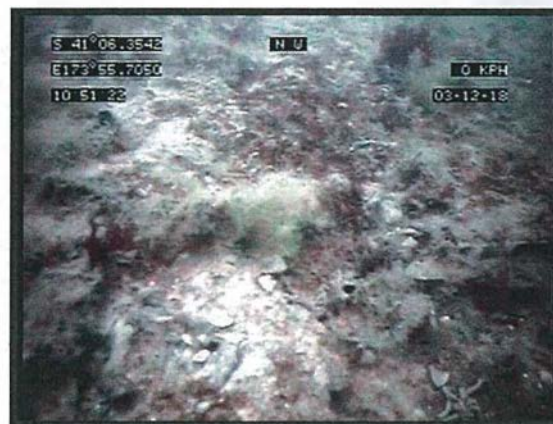


Photo 5 silt, natural shell



Photo 6 silt, natural shell

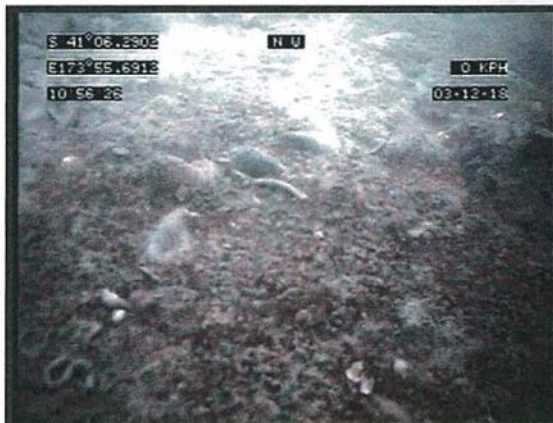


Photo 7 silt, mussel shell, red algae



Photo 8 silt, natural shell, mussel shell, red algae



Photo 9 silt, mussel shell



Photo 10 silt, filamentous algae



Photo 11 Silt, mussel shell



Photo 12 silt, mussel shell



Photo 13 silt, mussel shell



Photo 14 silt, clay



Photo 15 silt, clay, mussel shell

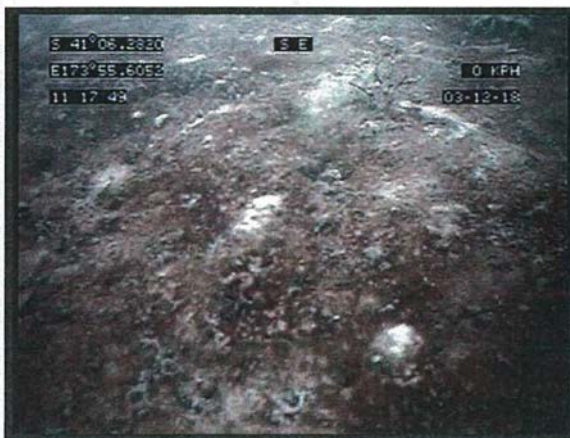


Photo 16 silt, clay, mussel shell



Photo 17 Silt, clay

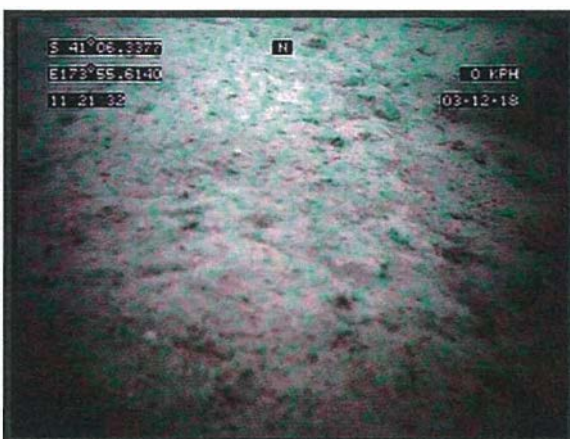


Photo 18 silt, clay

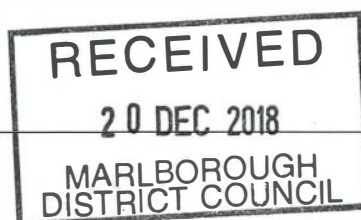
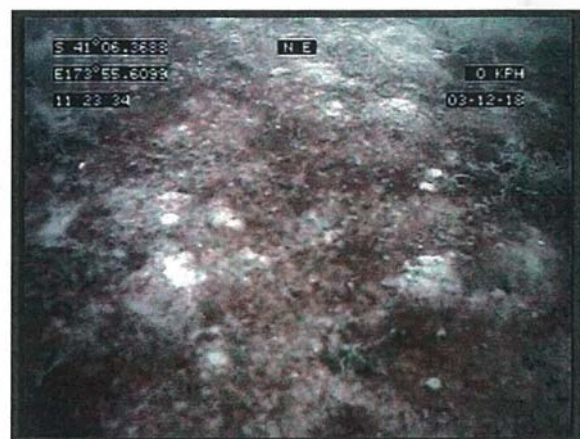


Photo 19 silt, clay



Photo 20 silt, clay, mussel shell



Photo 21 silt, clay, mussel shell



Photo 22 sand, shell, cobbles, mussel shell



PALMS LTD

From: Rob Davidson <davidson@xtra.co.nz>
Sent: Wednesday, 12 December 2018 4:12 p.m.
To: Sutherland Ron
Subject: Re: 8335 report

Could shift the consent offshore to get 50 m separation or more and/or create a production structure exclusion zone (MPI) over any reef left in the consent. My exclusion (hatched area) includes a buffer around the reef.

Rob Davidson
Davidson Environmental Limited
6 Ngapua Place
Atawhai
Nelson 7010
New Zealand
Phone (03) 5452600
Mobile (027) 4453352

davidson@xtra.co.nz
davidsonenvironmental@gmail.com

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On Wed, 12 Dec 2018 at 16:04, palmsltd <palmsltd@xtra.co.nz> wrote:
Invoice to Palms. Do we need to do anything inshore?

Sent from my Samsung Galaxy smartphone.

----- Original message -----

From: Rob Davidson <davidson@xtra.co.nz>
Date: 12/12/18 3:35 PM (GMT+12:00)
To: Sutherland Ron <palmsltd@xtra.co.nz>
Subject: 8335 report

Hi Ron
Attached report for South East Bay site.
Small reef area at inshore boundary.
Do you want the invoice to PALMS or shall I send it to John ?
Cheers
Rob



Rob Davidson
Davidson Environmental Limited
6 Ngapua Place
Atawhai
Nelson 7010
New Zealand
Phone (03) 5452600
Mobile (027) 4453352

davidson@xtra.co.nz

davidsonenvironmental@gmail.com

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Blenheim
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Fax. (03) 5207496

Copy Only

Tax Invoice

GST No 50-430-960

20/12/2018 Receipt No: 1853168

To: Clearwater Mussels Ltd
 PO Box 68
 Havelock

Qty/Applic	Reference	Amount
GL Receipt		
Qty 1, GL2211014450		\$852.17
1 x new RC App Clearwater Mussels Ltd - PCL1		
GST		\$127.83

Total Amount: \$980.00

Includes GST of: \$127.83

Amounts Tendered	
Cheque	\$980.00
Total	\$980.00
Rounding	\$0.00
Change	\$0.00
Nett	\$980.00

Thank you for your payment

Printed 20/12/2018 4:06:00p.m.
Cashier: CASHLEN4

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