

**From:** [George Lay](#)  
**To:** [SEMP](#)  
**Subject:** submission on marine reserve proposal  
**Date:** Saturday, 21 March 2020 2:37:36 PM  
**Attachments:** [reserve submission.docx](#)

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Hi My name is George M Lay and as a recreational fisher I would like to register my submission with you in regards to the Orau reserve proposal, between St Clair beach south end through to Lion rock.

Submission enclosed

Sent from [Mail](#) for Windows 10

George M Lay

s9(2)(a)

Recreational fisher

s9(2)(a)

## **I wish to register my opposition to the proposed Marine reserve Orau**

*I am a recreation fisher who has had the pleasure of using this piece of coastline for the past 40 years plus, my father before and my children and whanau to come.*

*Access to this piece of coastline has been gained via privately owned property with permission of landowners to either fish or spear fish at seal point.*

*In later years many a fisherman has gained access via boat launching at Smails beach then in more recent years access through tomahawk beach. Fishing from this beach gives us good safe gateway to areas such as white island, green island, blackhead, through to lion and toe rock.*

*Safety is paramount in all fishing expeditions especially with the size of craft that would be used for beach launching, a quick entry and exit point to these fishing grounds is necessary.*

*between north end of smails beach through to bolder beach has always been protected from the activities of the commercial Paua industry, and due to the efforts of local fishermen it has remained so.*

*I have read the proposal to close this area off to all fishing and would take strong issues with this.*

*The unique habitats as mentioned in your proposal have not been effected in any way through past and future fishing techniques, as land access is limited to tomahawk beach.*

*Secondly you mention the rocky reefs dominated by bull kelp (*Durvillaea*), rock lobster and a range of reef fish. This I would agree makes it a beautiful place to visit, but with limit bags and fish sizes governed by M.A.F the survival of these species is in no doubt. Bull Kelp is always prone to water temp changes, and exposure to excessive temperatures during low tide. Rock lobster will always be constant as juvenile lobster arrive as spat from areas far south of our coastline as you know.*

*It is true that our coast has some unique species of wild life , as mentioned in your proposal, however, very little feeding takes place in shallower waters for yellow eyed penguin , and the NZ hookers sea lion, as scientific evidence received from tracking data shows that Yellow eye penguin, and sea lion feed way beyond and at greater depth.*

*Scientific study of this area and areas similar are important, but this can be carried out without total closure. Taking of selected fish species and Paua should remain the right of fisherman who have spent a great part of there life enjoying this privilege.*

### **Summation.**

***This reserve would create overfishing stresses on adjacent fishing areas, while increasing safety issues for operators of smaller fishing vessels***

***The gathering of Paua, and recreational fishing in this area should remain as well as access through smails beach.***



**From:** [Kelvin Milne](#)  
**To:** [SEMP](#)  
**Subject:** Marine protection areas  
**Date:** Wednesday, 25 March 2020 4:47:15 PM

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1. - GreenIsland

Kina are turning into a area with no kelp

20years ago there were no Kina

We need to be able to take Kina and from other sites

2 - there is no easy access to the reserve for families ( Like Lee )

Who is going to visit the sites. Evan for training they are boat dives

3 - larger areas needed

4 - overall I am happy with the proposed area

Kelvin milne

s9(2)(a)

Ph s9(2)(a)

**From:** [Barry Walker](#)  
**To:** [SEMP](#)  
**Subject:** Re New Non Fishing Proposals Zone D1  
**Date:** Saturday, 28 March 2020 2:47:59 PM

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Dear Sir

I am writing to express my views re the above proposals that are currently being discussed. I am a landowner who has a coast frontage to the D1 zone stretching from the exit of Stoney Creek in the north to a point 1.5kms to the south.

When I purchased this farm many years ago the farm was completely unsecure and had no protection from sightseers, fishermen and other poachers seeking paua. I was alarmed at what was happening as the previous owner had not lived on site for a number of years. Trail bikes and 4wd vehicles were destroying the dunes and foreshore and this shocked me and I was determined to put a stop to this.

I arranged for an area of 18 acres to be fenced off and placed into a Q E 2 Covenant and restricted access to foot traffic only. This has enabled the dunes and marram grass to regenerate to its former state. This has greatly reduced people fishing and only the most dedicated walkers hike the 600+ meters to the beach. Part of this area has been planted out in native trees and flaxes with more to be added.

Along with this measure I erected a heavy locked gate at the only road access to the farm which is locked at all times other than when farm work is carried out. From feedback that I received over the years, this move generated some anger from paua gathers/poachers, but has resulted in a lift in paua numbers which is excellent

All this has not fazed me at all as I in my own way wanted to stop the plundering of sea life as I do have an interest in conservation. I do not fish or collect paua, but I must declare that some of my Family when they do come for a few days at Xmas collect and consume one feed of paua which is a Family tradition

As this current proposal sits, I have to say that I do not support the impost of a blanket ban as I feel that I have sufficient "impediments" in place to deter poachers and would prefer instead a slightly relaxed version of this proposal or a small reduction in the northern boundary of D1

Sincerely

Barry Walker

Sent from [Mail](#) for Windows 10

13 / 3 / 20

Submission on Proposed Type 2 Marine Protected Area - South - East coast of the South Island.

Written by D.E. Robertson on behalf of North Otago Dolphin Protection.

D.E. Robertson

s9(2)

s9(2)(a)

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s9(2)(a)

s9(2)(a)

Phone

Fisheries New Zealand and the Department of Conservation are both aware that the greatest threat to Hector's Dolphin and one of the greatest threats to Hoi-Ho (yellow eyed penguins) are the commercial fishing practices of set netting and trawling.

We have seen no Hector's Dolphins at North Otago beaches this summer. The Otago population would appear to be functionally extinct, perhaps still existing in very small numbers.

Most of the smaller Hoi-Ho breeding sites have been abandoned. Moeraki point is the largest colony left on the mainland and is in decline.

The measure which would have given these iconic species a chance at survival, would have been to prohibit set netting and trawling within the 25-30km that is the boundary of the South-East coast area.

The marine protected areas and marine reserves proposed cover only a limited proportion of the area and will therefore offer little protection. This will not save either species from extinction. Neither will it have impact on the fish-dumping to fit quota, and by-catch, that is driving fish species into serious decline.

These proposals would appear to be a mechanism to achieve perceived goals of ~~the~~ of the N.Z. Marine Protected Areas Policy and New Zealand's obligations under the United Nations Convention on Biological Diversity by doing the least possible, whilst protecting the fishing industry from perceived costs and changes and allowing its most destructive practices to continue.

Marine Conservation policy would now appear to be totally under the control of the fishing industry, with the ministry as its mouthpiece. Our group has decided to focus on a more detailed submission to the United Nations, opposing the hypocrisy and deficiencies inherent in what is planned for the South-East coast of the South Island.

Yours sincerely

s9(2)(a)

On behalf of North Otago Dolphin Protection

**From:** [Carol Hamilton](#)  
**To:** [SEMP](#)  
**Subject:** Submission on proposed marine protected areas for NZ's Sth Island East Coast  
**Date:** Wednesday, 1 April 2020 7:43:41 PM  
**Attachments:** [SUBMISSION ON PROPOSED MARINE PROTECTED AREAS FOR NZs SOUTH ISLAND SOUTH EAST COAST.docx](#)

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To whom it May Concern  
Please find attached Submission

Regards  
Nick Maclean

This communication contains information which is confidential and may also be privileged. It is for the exclusive use of the addressee. If you are not the addressee, please note that any distribution, dissemination, copying or use of this communication or the information in it is prohibited. If you have received this message in error, please notify the sender immediately at the above e-mail address or telephone number and delete the information from your computer system. Attachments are virus checked, but the company does not accept any liability in respect of any virus which is not detected.

SUBMISSION ON PROPOSED MARINE PROTECTED AREAS FOR NZs SOUTH ISLAND SOUTH EAST COAST

Nick MacLean, s9(2)(a)

Email s9(2)(a)

I have been a recreational fisherman for a large part of my nearly seventy years both sea and fresh water. My fishing mate and myself have an ex surf club inflatable which we launch from Tomahawk beach. Beach launching needs a lot of caution and often when we get to the beach after it appeared to be safe to go out fishing. We are looking at the sea checking wind and relying on our many years experience, we cancel, such is Dunedin weather. Fishing the Otago coastline can be a difficult task due to our harsh weather and unpredictable seas. With our modest boat we are restricted to 3 or 4 km's from shore as we are mindful of regular sea and wind deteriorations and our ability to return to shore safely. I think I can sincerely say we are restricted to 15 to 18 days fishing.

While out fishing we never see any more than 1 or 2 other boats within sight. We always manage to catch enough fish for our needs. We have never taken our full quota and our observations lead us to the conclusion our fish stocks are extremely healthy and certainly not over fished. The quota may be looked at but this is a totally separate issue to be discussed at another time.

I am totally opposed to the reserves proposed being implemented. Being an interested party, I have read as many papers and documents about the reserves and can find no scientific or even reasonable reason to impose these reserves.

I believe the reserves are being forced upon us for ideological reasons not conservation of our coast. I also believe that after the public submissions on the proposed reserves and supplying the areas to be considered to the public, without any advice to the interested parties the areas proposed were enlarged. If these proposals are to be for scientific reasons why was this done with no further public submissions. This makes me very wary of further details coming from the Ministry.

It is often stated that fishing in New Zealand is a privilege not a right. I Totally disagree with this. I believe as New Zealand is an island it is our birthright to fish within the regulations and gather seafood but I am totally dedicated to taking no more than needed so we leave healthy fish stocks for our next generation.

PLEASE PLEASE LET COMMON SENSE PREVAIL AND KEEP THE STATUS QUO

Kind Regards

Nick MacLean



**From:** [Laurel Teirney](#)  
**To:** [SEMP](#)  
**Subject:** Re: Improved submission on Proposed southeast marine protected Consultation document (20-2530)  
**Date:** Wednesday, 3 June 2020 5:01:13 PM  
**Attachments:** [Improved SE Coast Submission 13 April 2020.docx](#)

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Appreciate the opportunity to resubmit my earlier submission.

The attached is an amended version of my 9 April Submission.

Many thanks

Laurel (Teirney)

On 3/06/2020, at 3:50 PM, SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)> wrote:

Tenā koe Laurel

On 13 April 2020 you made a submission via email on the proposed southeast marine protected areas (SEMP) network on the south-east coast of the South Island. Your submission is attached.

On 9 April 2020, consultation was withdrawn due to New Zealand's emergency response to the global COVID-19 pandemic, which meant people could no longer participate meaningfully in the SEMP public consultation process. **Because your submission was received after 9 April 2020, you were sent an auto-reply email stating that your submission would not be considered but that you could resubmit it once consultation had recommenced.**

On 3 June 2020, the Department of Conservation (DOC) and Fisheries New Zealand recommenced the SEMP public consultation for two months. We are again inviting public feedback on the proposed network, which remains unchanged from the proposed network you have submitted on.

**DOC and Fisheries New Zealand acknowledge the time and effort taken in making your submission.**

Now that public consultation has recommenced, here are your options for your submission:

1. **Resubmit your submission by replying to this email.** You can amend your submission if you wish. Your submission will be considered in this new public consultation process
2. **Withdraw your submission by replying to this email,** advising us you wish to do so. Your submission will not be considered

**Submissions are now due by 3 August 2020.**

For further information, please visit the DOC website: <https://www.doc.govt.nz/our-work/south-eastern-south-island-marine->

[protection/](#). DOC is investigating options for live online question and answer sessions with the public. Should they proceed, details of these sessions will be on the DOC website.

DOC also plans to provide email updates to stakeholders during the consultation period. If you have any further questions or would like to opt out of these updates please email DOC at [semp@doc.govt.nz](mailto:semp@doc.govt.nz).

Kind regards  
PublicVoice

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**From:** Laurel Teirney [mailto:[s9\(2\)\(a\)](#)]  
**Sent:** Monday, 13 April 2020 9:31 AM  
**To:** S Nash (MIN) [s9\(2\)\(a\)](#)  
**Subject:** 20-2530 Improved submission on Proposed southeast marine protected Consultation document

Laurel Teirney

[s9\(2\)\(a\)](#)

[s9\(](#)

[s9\(2\)\(a\)](#)

[s9\(2\)\(a\)](#)

13 April 2020

Hon Stuart Nash

Minister of Fisheries

Parliament

Wellington

Dear Stuart

***Proposed southeast marine protected areas - Consultation document***

On 9 April I wrote to you attaching my submission on the above consultation document. Given I was trying to submit before Easter, and in time for the 17 April deadline, my submission was very rough. Since then I have tidied it up and now it's more the quality I expect of myself.

Please replace the earlier submission with the one attached below.

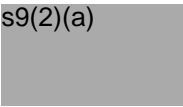
Many thanks

Laurel (Teirney)

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<Improved SE Coast Submission 13 April 2020.docx>

s9(2)(a)

A rectangular grey box redacting the text below the label 's9(2)(a)'. The box is positioned to the right of the text and covers the text completely.

## Proposed southeast marine protected areas - Consultation document (February 2020)

**Submission:** Laurel Teirney

**Contacts:** Phone - s9(2)(a) Address - s9(2)(a)

s9(2), E-mail - s9(2)(a)

### Background

In 1973, I was employed by the Ministry of Agriculture and Fisheries (now Fisheries NZ), as a freshwater scientist. In 1989, I joined the MFish South region and became the Policy Manager in 1991. From then on until 1999, when I left the Ministry, I was involved in all the fisheries research and management issues and decisions within the South region, including the southeast area.

Since then, I have facilitated the Fiordland Marine Guardians and compiled the Fiordland Marine Conservation Strategy (2003). When the Fiordland Marine Management Act was passed in 2005, I was appointed Chair of the Guardians. I performed some of the same functions for Te Korowai, the Kaikoura equivalent, from 2006-2008. From 2011, I carried out the same role for Environment Southland who produced the Fiordland Marine Pest Pathway Plan in 2017 - the first of its kind.

My submission is based on the knowledge and experience gained in these roles.

#### 1. 'Protection' - a misnomer

Marine Protected Area policy, together with the primary legislative provision, marine reserves, purport to '*protect*' areas of New Zealand's coastal and oceanic environment.

To '*protect*' marine environments all human activities that impact adversely on these environments must be effectively controlled/managed. There is rather a long list of such activities contributing to the observed degradation of the Southeast coastal area:

*Discharge of sediment, plant nutrients and toxins* from land based activities such as farming/agriculture and urban waste/stormwater entering into streams, rivers and lakes and being carried downstream are having a significant impact on estuaries, river mouths and the marine environment via currents up and down the coast and out into the ocean.

*Irrigation of farm land*, particularly with the intensification of dairying over the past 20 years, has lowered flows and exacerbated the peaks and troughs of flow regimes in most rivers and streams flowing into the Southeast coastal area with resultant impacts on the marine environment.

*Hydro-electric generation* has significantly altered river channels, the movement of sediment and the flow regimes of the Waitaki and Clutha River catchments impacting the adjoining coastal environment.

*Invasion of marine pest species* brought into our waters by vessels, and spread in the same way, are substantially modifying the biota and habitats along the Southeast coast.

*Climate change* from human activities such as transport (vehicles, aircraft et al), out of control burn offs and many other activities, is warming the atmosphere, changing climate patterns and altering flow regimes (major floods occur at time of short, intense rainstorms and lower than normal flows result from extended droughts). The demise of glaciers in the headwaters of our major rivers are contributing to lower than normal flows with serious future consequences. Rising sea levels are impacting coastal processes resulting in accelerated erosion and loss of coastal land and buildings into the Southeast coastal environment.

*Harvesting flora and fauna* removes a component of the biota and harvesting methods can damage the habitat. Harvesting is currently controlled/managed along the Southeast coast by Fisheries regulations, Customary Fisheries provisions and the Quota Management System administered by Fisheries NZ. Department of Conservation (DOC) administers the rules relating to the harvesting of native fish species, such as whitebait, in estuarine and freshwater habitats.

*Suggestion: To ‘protect’ the marine environment of the Southeast coastal area all current adverse impacts need to be considered. Harvesting is only one activity that impacts the marine environment and the extent of that impact may not be as significant as some of the others.*

## **2. What do Marine reserves actually ‘protect’?**

Marine reserve legislation (administered by DOC) prohibits harvesting (customary, recreational, and commercial) and the movement of vessels carrying flora and fauna through reserves. Whether prohibiting harvesting by establishing marine reserves along the Southeast coastal area is the best way to ‘protect’ the fishery resources and environment is questionable. Indeed, the fisheries provisions contain rules to manage and to prohibit harvesting when that is required for the recovery or sustainability of the resource. An amendment to the Fisheries provisions could provide for the long term banning of harvesting flora and fauna to achieve the same result as marine reserves. Then the selection of such areas could

be based on sensible biological criteria rather than an arbitrary selection based on opinion or trade-offs for sometimes political purposes.

***Suggestion:** The Fisheries legislation contains management and control provisions that could be amended to achieve the same result as marine reserves. There would be considerable advantages and savings for the government and all involved in the process if the unresolvable differences between the various community interests, highlighted in this prolonged (six years) and expensive (\$3+million) process, could be rationalised in this way.*

### **3. An alternative inclusive process for ‘looking after’ the Southeast coastal area**

***An integrated iwi/community/agency approach*** for managing marine areas evolved from bringing Kai Tahu (Treaty partners), recreational and commercial fishers and environmental interests together in 1990 to work on resolving their common concern for paua stocks and fisheries along the southeast and southern coast. The resultant Otago Southland Paua Management Working Group, facilitated by MFish South, produced a Management Plan for Paua 5 (1992 - 1997). Provisions were implemented by the then Minister of Fisheries, Hon Doug Kidd in 1993 with voluntary provisions actioned by the participating harvesting groups.

This approach was then tailored for Paterson Inlet, Banks Peninsula, Fiordland and the Kaikoura Marine Areas. It has resulted in two Acts - the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005, and the Kaikoura (Te Tai o Marokura) Marine Management Act 2014.

Following is a brief summary of the process and critical success factors inherent in this approach:

***The Process:*** Formation of a representative community working group (later to become the Fiordland Marine Guardians), an agreed vision, sharing information about the history and trends observed in the Fiordland marine area, inviting all the relevant agencies on board, identifying issues, negotiating solutions, compiling a draft Fiordland Marine Conservation Strategy, consulting with the wider community, finalising and delivering the strategy to the Ministers (Environment, Fisheries and Conservation) whose agencies implemented the strategy together

with iwi and community interests, followed by compliance and monitoring the management package.

***Critical success factors:***

- *Iwi representatives* (Treaty partners) selected by Iwi
- *Community interests* (all those who use and value the coastal marine area) selected by each participating interest. Local knowledge is the key to defining a vision for the area, documenting values and trends over time, identifying issues and negotiating solutions.
- *Agencies* (both central and local government with legislative responsibilities for aspects of the marine area involved) are represented. Agency support and advice is fundamental to the approach, in particular, advice about available/best mechanisms to put the negotiated solutions in place.
- *Independent facilitation/guidance* through the process. To provide guidance the facilitator needs to have an understanding of marine areas, the way they are managed, as well as the Treaty partner and community interests involved.
- *Involvement of the wider community* requires consultation over management proposals, including feedback on the consideration and agreement reached by the entire working group.
- The *integrated management* of each marine area needs to be guaranteed. This may require over-arching mechanisms with the involvement of central government. For instance, an over-arching provision Sec. 13b in the Fiordland Act, gives the Fiordland Marine Guardians responsibility for ensuring an integrated approach to managing the Fiordland Marine Area.

**4. Problems with the Southeast MPA process**

In my view, the failure of the Southeast Forum to reach an agreed solution about required '*protective*' provisions for the Southeast marine area is the result of the then Minister of Conservation, Nick Smith, attempting to emulate the integrated iwi/community/agency approach whilst retaining government control.

On 11 July 2017, Lou Sanson, the Director General of Conservation, sought my view on why the process, that had been modelled on the Fiordland approach, was not delivering the same result.

My response was: *“I have only been peripherally involved and accordingly the following thoughts may not be based on accurate information.*

***The current situation:***

- *Real trouble at the end of the process - \$1+million spent.*
- *2800 submissions made public on 11 July to show transparency because of the unresolved debate (ODT 6 April - Fishing Industry).*
- *The issue is a decision about 20 proposed sites for marine reserves from Timaru to Waipapa. Seem to be no agreed criteria to guide the choice, leaving everyone in confusion.*
- *Forum deliberations to Ministers of Conservation and Primary Industries by end of September - a deadline that’s already had to be extended.*
- *An election, delaying final recommendations until after the election?*
- *Deadline for final recommendations is under review - Forum aiming to complete the report by end 2017.*

***Possible reasons for the current situation:***

- *The legislation under which this initiative was taken (Marine **Protected** Areas).*
- *Agenda/Vision was defined by the Minister of Conservation, not defined by the community.*
- *Appointment of the Forum members by the Minister.*
- *Appointment of the facilitator by the Minister.*
- *Facilitator might have understood the law/policy but did not have a background in the management of marine areas nor the ‘feelings’ of all parts of the community involved.*
- *A Guide is needed for this type of initiative - must understand the issue, all components, the community and the legislation - and work towards bringing everyone together - not achieving what the Minister/government wants.*

*I understand some of the community involved are considering taking legal action over the process and decisions made - but that is only one brief*



*comment made during a presentation I heard recently. Have just re read my submission made in December 2016 and you'll find much of the above is incorporated."*

Lou Sanson responded, "Hugely appreciate this. You are so good at this stuff."

I followed up with some ideas about a way forward.

**Comment:** On reflection, three years and a further \$2 million? spent, the current situation seems to be very similar! What is different is the Minister of Conservation has made a decision between the two points of view from the Forum and released that for consultation. And, at the same time, the proposed marine reserves in this decision have each been notified for consultation under the Marine Reserves Act, meaning the two processes are being conducted simultaneously. There seems to be a 'procedural issue' in taking such an approach.

## **5. The way forward**

**Suggestion:** *In my view this unfortunate situation could be addressed relatively easily.*

1. The current process could be realigned to an ***integrated iwi/community/agency approach*** whereby **EVERYONE WINS - the iwi, community, agencies and Ministers.**
2. **Most important of all though, the marine environment wins as much as we can facilitate that outcome, including biodiversity, and flora and fauna whether utilised by us or not.**
3. There has been enough time (20 years), and successes to have confidence in this approach, provided the fundamental principles and critical success factors are adhered to.
4. Much of the background information on which decisions about 'looking after' the Southeast Marine Area already exists.
5. Information gaps have been identified and, in some cases, studies are already underway to answer these questions.
6. What is required is the formation of an integrated iwi/community/agency working group based on each 'community interest' selecting their own representatives according to a set of criteria, who are then appointed by the government.

I am confident such an approach could produce a meaningful management plan for the Southeast coast, or at least sensible components within the area, in a reasonable period and without additional \$ millions spent.

*I hope some of the thoughts and views in this submission help resolve the current situation.*

**From:** [Rene and Alison Vaughan](#)  
**To:** [SEMP](#)  
**Subject:** FW: Submission for South East Marine Protected Area Network  
**Date:** Wednesday, 10 June 2020 11:32:50 AM  
**Attachments:** [South East Marine Protected Area Network Submission Form \(3\).docx](#)

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Thank you, just resubmitting my submission  
Kind regards  
Alison

Sent from [Mail](#) for Windows 10

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**From:** SEMP <southeast.marine@publicvoice.co.nz>  
**Sent:** Wednesday, June 3, 2020 3:59:21 PM  
**To:** s9(2)(a)  
**Cc:** semp@doc.govt.nz <semp@doc.govt.nz>  
**Subject:** FW: Submission for South East Marine Protected Area Network

Tenā koe Alison

On 25 April 2020 you made a submission via email on the proposed southeast marine protected areas (SEMP) network on the south-east coast of the South Island. Your submission is attached.

On 9 April 2020, consultation was withdrawn due to New Zealand's emergency response to the global COVID-19 pandemic, which meant people could no longer participate meaningfully in the SEMP public consultation process. **Because your submission was received after 9 April 2020, you were sent an auto-reply email stating that your submission would not be considered but that you could resubmit it once consultation had recommenced.**

On 3 June 2020, the Department of Conservation (DOC) and Fisheries New Zealand recommenced the SEMP public consultation for two months. We are again inviting public feedback on the proposed network, which remains unchanged from the proposed network you have submitted on.

**DOC and Fisheries New Zealand acknowledge the time and effort taken in making your submission.**

Now that public consultation has recommenced, here are your options for your submission:

1. **Resubmit your submission by replying to this email.** You can amend your submission if you wish. Your submission will be considered in this new public consultation process
2. **Withdraw your submission by replying to this email,** advising us you wish to do so. Your submission will not be considered

**Submissions are now due by 3 August 2020.**

For further information, please visit the DOC website: <https://www.doc.govt.nz/our-work/south-eastern-south-island-marine-protection/>. DOC is investigating options for live online question and answer sessions with the public. Should they proceed, details of these sessions will be on the DOC website.

DOC also plans to provide email updates to stakeholders during the consultation period. If you have any further questions or would like to opt out of these updates please email DOC at

[semp@doc.govt.nz](mailto:semp@doc.govt.nz).

Kind regards  
PublicVoice

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**From:** Rene and Alison Vaughan s9(2)(a)  
**Sent:** Saturday, 25 April 2020 2:25 pm  
**To:** SEMP <southeast.marine@publicvoice.co.nz>  
**Subject:** Submission for South East Marine Protected Area Network

Good afternoon, please find attached my submission  
Kind regards  
Alison

# Proposed Southeast Marine Protected Areas 2020 – Submission Form

## 1. Your details

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Please tell us your name

First name: Alison Last name: Vaughan

What is your contact email address?: s9(2)(a)

Are you responding as an individual or as an organisation?: An Individual

Do you identify as tangata whenua?: No

Which category best describes your main interest in this area?: Interested member of the public

## 2. Proposed marine protection measures

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I would like to make a submission on the establishment of the full network: Yes please

## 3. The full network of marine protection measures

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Do you agree with our initial analysis of the costs/impacts of maintaining the status quo?: Yes

Why do you agree? Please provide evidence to support your answer:

I agree that maintaining the status quo will effectively have no immediate economic or environmental impacts on fisheries so the analysis is accurate as status quo will mean "business as usual".

Are there other costs/impacts that have not been described in our initial analysis?:

This analysis does not factor in long-term impacts of having no protected areas – both economic and environmental. I believe the status quo will lead to negative economic impacts in the long term due to the potential impact of continued environmental degradation and lack of control to provide safe breeding areas for fish. Research suggests that networks of MPAs can enable fish to increase in biomass and therefore increase their spawning mass within the protected areas (this happened with lobsters in Leigh), which can increase breeding numbers and potential spillover into the unprotected areas. The numbers provided for the provision of catch affected through implementation of the MPAs don't appear to allow for the potential long term gains in fish numbers in the reduced fishing area as a result of combining the use of MPAs with the Quota Management System and Area currently in place. They don't also factor in the potential for existing numbers to reduce due to a lack of sustainability with the existing management system not providing protected areas for marine life.

Do you agree with our initial analysis of the benefits of maintaining the status quo?

No

Why do you agree or disagree? Please provide evidence to support your answer:

I disagree because I believe we should be looking long-term, and the assuredness of no impact from maintaining status quo is only a short-term viewpoint as we have no scientific evidence currently to understand whether our current management system is adequate to ensure long-term sustainability without a network of MPAs.

What is your preferred option, the status quo, the network or another option?:

My preference is the network proposal

Why do you support the network? Please provide evidence to support your answer:

I support the network because there is growing evidence that a network of MPAs can increase biomass and spawning biomass for fish within protected zones, giving fish a chance to recover and breed. Fishery volumes should not be the only consideration when making this decision, and I believe the biodiversity protection that will be obtained through introducing the network of MPAs will be considerable. New Zealanders have a strong connection with the ocean, and through taking steps to protect important and varied aspects of our South Island coast by placing them in marine reserves we can ensure our future generations are able to enjoy the ocean and its abundance of life too.

## 4. Comments and supporting documents

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Please add any final comments to your submission:

This article provided some interesting points on the benefits of the marine reserve at Goat Island

<https://www.tandfonline.com/doi/full/10.1080/00288330.2013.810160>

I also obtained some information from this video – including the MPA imposed directly by fishermen in the Canary Islands to improve fishery stock <https://www.youtube.com/watch?v=9-BdqS54q8>

**From:** [Daniel Heslop](#)  
**To:** [SEMP](#)  
**Subject:** Re: Consultation for Proposed Marine Protected Areas on the South East Coast of the South Island  
**Date:** Friday, 5 June 2020 5:59:12 PM  
**Attachments:** [Marine Reserve Submission.pdf](#)

---

Kia ora,

Attached is my resubmitted submission.

Regards,  
Daniel Heslop

> On 5/06/2020, at 8:21 AM, SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)> wrote:

>

> Kia ora Daniel,

>

> We will withdraw your current submission and await your updated submission.

>

> Best regards,

> Jared

>

> -----Original Message-----

> From: Daniel Heslop [s9\(2\)\(a\)](#)

> Sent: Wednesday, 3 June 2020 6:30 pm

> To: SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)>

> Subject: Re: Consultation for Proposed Marine Protected Areas on the South East Coast of the South Island

>

> Kia ora,

>

> I wish to resubmit my consultation form for the proposed Marine Protected Areas.

>

> Nga mihi,

>

> Daniel Heslop

>

> Sent from my iPhone

>

>> On 3/06/2020, at 4:03 PM, SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)> wrote:

>>

# Proposed Southeast Marine Protected Areas 2020 – Submission Form

## 1. Your details

---

Please tell us your name

First name: Daniel

Last name: Heslop

What is your contact email address?: s9(2)(a)

Are you responding as an individual or as an organisation?: An Individual.

Do you identify as tangata whenua?: No.

Which category best describes your main interest in this area?:

Commercial Fisher:

Recreational Fisher:

Customary Fisher:

Local Resident:

Frequent Visitor:

Infrequent Visitor:

Interested member of the public: I am an interested member of the public.

Other (please specify):

## 2. Proposed marine protection measures

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I would like to make a submission on the establishment of the full network: Yes please.

## 3. The full network of marine protection measures

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Do you agree with our initial analysis of the costs/impacts of maintaining the status quo?:

Yes, I agree with all points raised. I have provided justification below for only a few points that stood out for me.

Why do you agree? Please provide evidence to support your answer:

Firstly, I agree that maintaining the status quo would mean, as a country, falling short of meeting our international and domestic commitments. As a party of the Convention on Biological Diversity treaty, New Zealand made commitments under the Aichi Biodiversity Targets to have established by 2020 at the latest, protection of at least 10% of our coastal and marine areas. According to New Zealand's Fifth National Report to the United Nations Convention on Biological Diversity, as of 2013 7% of New Zealand's territorial seas were protected by marine reserves, whilst a further 1.14% were protected by other marine protected areas. This, along with the progress made since 2013, goes a long way to meeting our commitments. However, with plans for another convention to be held later this year which will set about deciding on new and more ambitious targets for after 2020, and with the recommendation by the IUCN World Parks Congress of 2014 that at least 30% no-take MPA coverage is needed, New Zealand needs to look proactively to the future. Therefore, by maintaining the status quo here, we will make it harder for ourselves as a country to meet these future targets and to be a potential role model for the world.

Furthermore, I agree that doing nothing would mean stressors on the local marine ecosystems would remain and become exaggerated in the face of climate change. Type 1 and 2 MPAs either prohibit extractive and destructive activities entirely (with few exceptions) or prohibit certain extractive and destructive techniques. For example, both prohibit the use of practices that are destructive to slow recovering benthic environments, such as bottom trawling (Ministry of Fisheries and Department of Conservation, 2008; Kaiser, *et al.*, 2006). Furthermore, both restrict the use of fishing techniques that capture large amounts of fish in short periods of time or capture indiscriminately (Ministry of Fisheries and Department of Conservation, 2008). By not implementing a network of MPAs in the proposed region, these destructive activities may continue creating serious impediments to biotic recovery. Therefore, by maintaining the status quo we may see stressors brought about by fishing and other marine activities mix with stressors brought on by climate change in a way that may see the future loss of marine taonga.

Finally, I agree with the analysis that maintaining the status quo would create an opportunity cost for scientific research. With a general lack of type 1 and 2 MPAs in the South East coastal region of the South Island, we are missing out on important mātauranga. Notably, we forgo data for how healthy ecosystems operate in this unique locality. This has impacts on our understanding of how to best adapt to a changing climate and ocean. The Goat Island Marine Reserve is a good example of the scientific knowledge that can be gained through MPAs and the resulting benefits for not only the scientific community, but also for the fishing community and the wider community for those who value marine recreation, tourism and education

(Babcock, 2013; Ballantine, 2014). Furthermore, Ballantine (2014) described MPAs as vital to conservation research in that “they are controls for the uncontrolled experiment that is happening due to fishing and other human activities.” Therefore, by not implementing these proposed MPAs we will miss out on important knowledge that will help protect not only the environment, but also the interests of communities and tangata whenua in the area for years to come.

Are there other costs/impacts that have not been described in our initial analysis?:

Unsure.

Do you agree with our initial analysis of the benefits of maintaining the status quo?

I agree to a certain degree.

Why do you agree or disagree? Please provide evidence to support your answer:

The document states that a few benefits of maintaining the status quo would be the lack of economic, cultural and social impacts to existing fisheries, tangata whenua, and recreational fishers. I agree with this when considering short term impacts, however when looking at the larger picture I begin to disagree. Healthy marine ecosystems naturally harbor greater amounts of biodiversity and biomass, and bring with them greater economic, cultural and social benefits (Grafton, Kompas & Van Ha, 2009; Rees, *et al.*, 2015). By implementing the MPAs more fish and more revenue would be enjoyed in the future and in a way that is sustainable. By doing nothing, any benefits now will be dwarfed by the negative impacts in the future.

This concept is related to the point raised concerning management and compliance costs. It is true that not having the MPAs will forgo the costs required to run them, however these costs pale in comparison to the costs of forgoing a healthy marine ecosystem. The benefits a healthy marine ecosystem would have on recreation, tourism and fishing would bring far more economic benefits than any forgoing of management costs would.

What is your preferred option, the status quo, the network or another option?:

I personally would like to see the proposed network of MPAs to become established.

Why do you support the network? Please provide evidence to support your answer:

I support the proposed network for many reasons. Firstly, it covers a unique stretch of New Zealand’s coast that is conspicuously lacking any meaningful protection and is sufficiently large enough to make a difference. Secondly, these large protected areas are well placed to allow for mobility of marine organisms whilst retaining their protected status. Thirdly, as highlighted in the consultation document, the network covers a variety of key species and ecosystems and provides insurance in the form of covering these certain species and ecosystems in multiple areas. When considering all of these points, I strongly believe implementing the proposed network of MPAs would go a long way in the recovery of these marine ecosystems and, therefore, will lead to more benefits in the future for all concerned parties. Furthermore, in light of a changing climate not implementing this network could see compounding stressors on the local marine ecosystem and ultimately mean the loss of these ecosystems and their biota. A loss of something so important and so unique to this country would surely serve to diminish New Zealand’s mana.

#### 4. Comments and supporting documents

Please add any final comments to your submission:

References:

- Babcock, R. (2013). Leigh Marine Laboratory contributions to marine conservation. *New Zealand Journal of Marine and Freshwater Research: 50 Years of the Leigh Marine Laboratory, New Zealand*, 47(3), 360-373.
- Ballantine, B. (2014). Fifty years on: Lessons from marine reserves in New Zealand and principles for a worldwide network. *Biological Conservation*, 176(C), 297-307.
- Grafton, R. Quentin, Kompas, Tom, & Van Ha, Pham. (2009). Cod today and none tomorrow: The economic value of a marine reserve.(Report). *Land Economics*, 85(3), 454-469.
- Kaiser, M., Clarke, K., Hinz, H., Austen, M., Somerfield, P., & Karakassis, I. (2006). Global analysis of response and recovery of benthic biota to fishing. *Marine Ecology Progress Series*, 311, 1-14.
- Ministry of Fisheries and Department of Conservation. 2008. *Marine Protected Areas: Classification, Protection Standard and Implementation Guidelines*. Retrieved from: <https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/marine-protected-areas/marine-protected-areas-classification-protection-standard-and-implementation-guidelines/>
- Rees, S., Mangi, S., Hattam, C., Gall, S., Rodwell, L., Peckett, F., & Attrill, M. (2015). The socio-economic effects of a Marine Protected Area on the ecosystem service of leisure and recreation. *Marine Policy*, 62, 144-152.



**From:** [Warna Karunanayake](#)  
**To:** [SEMP](#)  
**Subject:** Re: South East Marine Protected Area Network Submission Form  
**Date:** Thursday, 4 June 2020 1:21:47 PM  
**Attachments:** [Dialogue 3 .docx](#)  
[Dialogue 3 .pdf](#)

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Dear whoever it may concern,  
I wish to resubmit my proposal for the SEMP.  
Below I have attached my documents in docx and pdf format  
Kind regards,  
Warna Karunanayake

On 3/06/2020, at 3:58 PM, SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)> wrote:

Tenā koe Warna

On 24 April 2020 you made a submission via email on the proposed southeast marine protected areas (SEMP) network on the south-east coast of the South Island. Your submission is attached.

On 9 April 2020, consultation was withdrawn due to New Zealand's emergency response to the global COVID-19 pandemic, which meant people could no longer participate meaningfully in the SEMP public consultation process. **Because your submission was received after 9 April 2020, you were sent an auto-reply email stating that your submission would not be considered but that you could resubmit it once consultation had recommenced.**

On 3 June 2020, the Department of Conservation (DOC) and Fisheries New Zealand recommenced the SEMP public consultation for two months. We are again inviting public feedback on the proposed network, which remains unchanged from the proposed network you have submitted on.

**DOC and Fisheries New Zealand acknowledge the time and effort taken in making your submission.**

Now that public consultation has recommenced, here are your options for your submission:

1. **Resubmit your submission by replying to this email.** You can amend your submission if you wish. Your submission will be considered in this new public consultation process
2. **Withdraw your submission by replying to this email,** advising us you wish to do so. Your submission will not be considered

**Submissions are now due by 3 August 2020.**

For further information, please visit the DOC website: <https://www.doc.govt.nz/our-work/south-eastern-south-island-marine-protection/>. DOC is investigating options for live online question and answer sessions with the public. Should they proceed, details of these sessions will be on the DOC website.

DOC also plans to provide email updates to stakeholders during the consultation period. If you have any further questions or would like to opt out of these updates please email DOC at [semp@doc.govt.nz](mailto:semp@doc.govt.nz).

Kind regards  
PublicVoice

---

**From:** Warna Karunanayake s9(2)(a)  
**Sent:** Friday, 24 April 2020 1:39 pm  
**To:** SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)>  
**Subject:** South East Marine Protected Area Network Submission Form

Dear whoever it may concern,  
Below I have attached the pdf and docx form of the submission for this proposal below as I do not know which format you prefer.

Kind regards,  
Stay safe

Warna Karunanayake  
<Dialogue 3 .docx><Dialogue 3 .pdf>

# Proposed Southeast Marine Protected Areas 2020 – Submission Form

## 1. Your details

Please tell us your name

First name: **Warna**

Last name: **Karunanayake**

What is your contact email address?: s9(2)(a)

Are you responding as an individual or as an organisation?: **An Individual**

Do you identify as tangata whenua?: **no**

Which category best describes your main interest in this area?:

Commercial Fisher:

Recreational Fisher:

Customary Fisher:

Local Resident:

Frequent Visitor:

Infrequent Visitor:

Interested member of the public: **University of Auckland Student**

Other (please specify):

## 2. Proposed marine protection measures

I would like to make a submission on the establishment of the full network: **Yes please**

## 3. The full network of marine protection measures

Do you agree with our initial analysis of the costs/impacts of maintaining the status quo?: **Yes**

Why do you agree? Please provide evidence to support your answer: I do agree that the costs of maintaining the status quo are substantial enough to put the network into place. The costs reap no benefit to us economically or environmentally. Without implementation of the network, it would mean we accept ongoing decline in our oceans due to over-fishing, climate change, habitat destruction, pollution<sup>1</sup>.

Are there other costs/impacts that have not been described in our initial analysis?: Ocean acidification and the implications of coral bleaching to whole reefs, ultimately displacing whole ecosystems can prove another cost to maintaining status quo. As without marine reserves, these displaced species that are affected by unfavourable abiotic conditions would not have a stable habitat to live in.

Do you agree with our initial analysis of the benefits of maintaining the status quo? **No**

Why do you agree or disagree? Please provide evidence to support your answer: I disagree that these benefits would seem as equal footing as the benefits of implementing the network. I do not disregard that in doing so, areas such as commercial fishing and recreational fishing would be hurt economically and on a location basis, however, these are obstacles that have the potential to recover over time by getting used to such changes. Even in one such marine reserve in Goat Island, the spill-over effect was enough to balance out the 'lost' fishing of the spiny lobster due to the MPA in the areas<sup>5</sup>. The recovery of such reserves would not be too significantly affected either as it is not a large percentage of the New Zealand ocean that will be an MPA. Currently the percentage of no-take MPAs globally is 1.89% only<sup>2</sup>. Without marine reserves, ocean ecosystems will continue to rapidly decline on a global scale. In helping our south-east coast, it will have an ultimate global significance as ocean ecosystems are much more intertwined than terrestrial networks, referred to as the spill-over effect<sup>1</sup>. With the current state of potential overfishing in the South Island and habitat destruction from trawlers, it could greatly reduce very important (keystone) species such as snapper that preys on urchins. Snapper numbers can drop rapidly and stem a boost in urchin numbers, leaving no chance for kelp forests to be maintained and arid urchin barrens to appear. However, at the Leigh marine laboratory, their marine reserves have found the greatest effect to be the large reduction in urchin barrens and became completely gone by 2001 which saw to an increase in species diversity<sup>4</sup>.

**What is your preferred option, the status quo, the network or another option?:** My preferred option is the network option. I strongly believe that immediate action to protect marine ecosystems must be under place, not only to recover marine food webs but in order to tackle the issue of climate change as well. As humans have displaced many ecosystems in the sea to leave place for urchin barrens, ocean acidification, coral bleaching, and organism displacement in the ocean<sup>1</sup>.

**Why do you support the network? Please provide evidence to support your answer:** The benefits of the reserves are not only good for the fish and marine ecosystems but long term benefits are there towards humans. As, the replenishment of ecosystems, leading fish and marine life to thrive will provide ample commercial fishing supplies to meet the demand for seafood as the reproductive output is greatly increased in marine reserves: as fish are known to be larger in MPAs, without certain environmental pressures, those that were found to grow up to 4x their original size are known to lay 64X more eggs<sup>1</sup>. Not only will MPAs be helpful for the animals and humans, but also because it will protect New Zealand's mauri of the ocean as a large number of marine species are endemic. We must take action as soon as possible as there have been many international initiatives to implement MPAs, but none of been achieved despite the due date having passed, such as USAs Aichi target 11 from their Convention of Biological Diversity to have 10% coverage of their oceans with MPAs by 2020<sup>2</sup>. While making plans such as these are important, we need to be proactive and take action immediately, especially since ocean ecosystems are very sensitive, which is why I am in full support of implementing the MPA network. Marine reserves such as the first one in New Zealand in 1977 have proved successful to this day, showing evidence that they do work, followed by various other marine reserves almost totally 50 in total<sup>3</sup>.

## 4. Comments and supporting documents

---

Please add any final comments to your submission:

### References

- [1] [https://www.youtube.com/watch?v=9\\_-BdqS54q8](https://www.youtube.com/watch?v=9_-BdqS54q8)
- [2] <https://www.iucn.org/resources/issues-briefs/marine-protected-areas-and-climate-change>
- [3] <https://www.sciencedirect.com/science/article/abs/pii/S0006320714000160>
- [4] <http://www.int-res.com/abstracts/meps/v246/p1-16/>
- [5] <https://www.sciencedirect.com/science/article/pii/S0006320714001748>

**From:** [Jared Bothwell](#)  
**To:** [SEMP](#)  
**Subject:** FW: Southeast Marine Reserve Submission Form  
**Date:** Friday, 14 August 2020 2:25:18 PM  
**Attachments:** [South East Marine Protected Area Network Submission Form.docx](#)

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**From:** Jared Bothwell  
**Sent:** Wednesday, 13 May 2020 6:37 am  
**To:** [semp@doc.govt.nz](mailto:semp@doc.govt.nz)  
**Subject:** FW: Southeast Marine Reserve Submission Form

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**From:** Chris Bondoc [s9\(2\)\(a\)](#)  
**Sent:** Tuesday, May 12, 2020 6:35:27 PM  
**To:** SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)>  
**Subject:** Southeast Marine Reserve Submission Form

Hello,

I've attached a submission form for the implementation of the network of marine reserves in Southeast New Zealand.

Regards,  
Chris Bondoc

# Proposed Southeast Marine Protected Areas 2020 – Submission Form

## 1. Your details

---

Please tell us your name

First name: Christopher

Last name: Bondoc

What is your contact email address?: s9(2)(a)

Are you responding as an individual or as an organisation?: An Individual

Do you identify as tangata whenua?: No

Which category best describes your main interest in this area?: Student taking Marine Science course at U of Auckland

Commercial Fisher:

Recreational Fisher:

Customary Fisher:

Local Resident:

Frequent Visitor:

Infrequent Visitor:

Interested member of the public: Yes

Other (please specify):

## 2. Proposed marine protection measures

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I would like to make a submission on the establishment of the full network: Yes please

## 3. The full network of marine protection measures

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Do you agree with our initial analysis of the costs/impacts of maintaining the status quo?: Yes

Why do you agree? Please provide evidence to support your answer: I agree with these costs and impacts of maintaining the status quo because they address the different types of ecosystem services (provisioning, regulating, cultural services, etc.) that are necessary for a sustainable ocean.

Are there other costs/impacts that have not been described in our initial analysis?: Under heading 'Biodiversity conservation', it would help to specify the goals underlined by New Zealand's international and domestic commitments. Also, to further strengthen the proposal, it would be helpful to specify the unique research that could come from the marine reserves in Southeast New Zealand. Although, I'm sure this is done in detail in the body of the document.

Do you agree with our initial analysis of the benefits of maintaining the status quo? Yes

Why do you agree or disagree? Please provide evidence to support your answer: Similar to the costs and impacts of the status quo, the initial analysis covers concerns from both the human and natural environment perspective. However, I'm from the US and I'm not sure if the general public would much care about biodiversity conservation. Unfortunately, it seems as if the status quo of economic status is the most important aspect. If there is some way to emphasize the importance of biodiversity for human AND intrinsic value, this proposal would be especially strong.

What is your preferred option, the status quo, the network or another option?: The network of marine reserves is the soundest option.

Why do you support the network? Please provide evidence to support your answer: From different case studies of marine reserves around the world, allowing natural processes to continue has shown an increase in number of species of plants and animals, recovery of the food chain, and a practice of sustainable fishing around the reserve. The idea of a network is even more important; aquatic animals need to be able to travel between protected areas. Additionally, implementing a network of marine reserves in New Zealand serves as a model for other countries to follow.

## 4. Comments and supporting documents

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Please add any final comments to your submission:

Links to various media concerning marine reserves:

Goat Island Marine Reserve

<https://youtu.be/RKFym5GTBJ4>

Marine protected areas and climate change

<https://www.iucn.org/resources/issues-briefs/marine-protected-areas-and-climate-change>

Fifty years on: Lessons from marine reserves in New Zealand and principles for a worldwide network

<https://www.sciencedirect.com/science/article/abs/pii/S0006320714000160>

**From:** [roger\\_deacon](#)  
**To:** [SEMP](#)  
**Subject:** SE marine conservation areas  
**Date:** Tuesday, 7 July 2020 9:41:06 PM

---

Dr Roger Deacon s9(2)(a)

Re proposed marine reserves

We would both be very supportive of any new protection areas including all the proposed areas.

This is mainly that we have so pitifully small protected areas in mainland areas and if we wish to maintain a veneer of minimum acknowledgement that marine conservation areas are a good idea then these bits give a token nod to this process.

I understood that protected areas give support to fisheries in adjacent zones and also the treaty of waitangi in summary says we don't need to fuck up all our coastline without pause.

If we are really serious, it would also need them be appropriately policed and appropriate penalties.

With thanks for your consideration.

Roger and Kathleen Deacon



**From:** [Quota](#)  
**To:** [SEMP](#)  
**Subject:** Proposed Southeast Marine Protection Areas ( SEMPA ) Consultation document Feb 2020  
**Date:** Tuesday, 7 July 2020 3:24:27 PM  
**Attachments:** [Quota\\_Transfer\\_Prices-KBB3G-Tonne-2020-07-02 \(1\).pdf](#)  
[QuotaOwned\\_byStock-KBB3G-2012-09-27 \(1\).pdf](#)  
[QuotaOwned\\_byStock-KBB3G-2012-09-28.pdf](#)

---

Dear Sir/Madam,

Attached is our submission with regards to South East Marine Protection Area ( SEMPA ).

Please confirm via email you have received our letter and documents.

Thank you.

Regards

Dominic J Preece

Managing Director

Aotearoa Quota Brokers Limited

PO Box 6420

Dunedin North

Dunedin

9059

Office Phone s9(2)(a)

Cellphone s9(2)(a)

Email s9(2)(a)

Notice of Legal Status and Confidential Information: This electronic mail message and any accompanying attachments may contain information that is privileged and CONFIDENTIAL. If you are not the intended recipient you are advised that any use, review, dissemination, distribution or reproduction of the information is strictly prohibited and may be unlawful. If you have received this document in error, please notify the sender immediately and destroy the message.

The enquiry from the farming community to purchase KBB3G Quota has been huge with farmers coming under pressure to be greener etc and a lot are looking at natural alternative fertilizers – such as Kelp fertilizers.

Our holding now is s9(2)(b)(ii) quota shares which equates to s9(2) tonnes or on today's market:

s9(2)(b) tonnes x s9(2)(b)(ii) per tonne = s9(2)(b)(ii) + gst on today's average price of bladder kelp quota, which is without any development- document attached for reference.


As we have shifted to Dunedin to develop the bladder kelp fishery down the southern zone, we are wondering how your government is going to compensate us since the government sold it to us in 2012?

I find the actions taken by the government to be unreasonable, repugnant, disgusting and unforgivable.

We look forward to your prompt reply on this urgent matter.

Thank you.

s9(2)(a)



Regards  
Dominic J Preece  
Managing Director  
Aotearoa Quota Brokers Limited  
PO Box 6420  
Dunedin North  
Dunedin  
9059  
Office Phone s9(2)(a)  
Cellphone s9(2)(a)  
Email s9(2)(a)

## 2017

We settled in court with Southern Response sold up and left Christchurch bound for Dunedin to start developing the bladder kelp industry in the southern part, due to NZ Kelp Ltd developing the northern area out of Akaroa.

## 2018

s9(2)(a)

## 2019

Purchased boats and started upgrading one to start the harvest of KBB3G Quota that the government sold our company in 2012.

## 2020

Consultation document- SEMP (T Kelp Forest)

We are still the second largest KBB3G quota holder and have had no contact at all from the SEMP. We are still being deliberately kept in the dark.

The SEMP documents are completely misleading about the facts of bladder kelp, they only quoted one scientific experiment (the Geange article).

99.9% of all scientific research shows that harvesting of bladder kelp has no measurable effect on the growth and reproduction of bladder kelp or any associated plants/animals.

The main danger is from land-based pollution and sedimentation.

**ITQ Property Rights are not just fishing property rights, these are developmental property rights for the future.**

The Crown sold our company s9( or s9(2) tonnes of bladder kelp in 2012.

Now under the SEMP if this goes through the Crown is effectively stealing s9(2) of our ITQ Property Rights back which we paid for.

This taking of our Kelp Quota Rights goes against the Purpose of the Fisheries Act 1996 – **Sustainable Utilization.**

This taking of our Kelp Quota Rights fails the **Undue Effects Test.**

There was no **Cost Benefit Analysis** done on the taking of our Kelp Quota Property Rights.

The **Cabinet Economic Development Committee** has been misled into thinking there are bad outcomes from commercially harvesting Giant Kelp and that no one will be commercially affected.

The Application for an exemption from a **Regulatory Impact Assessment** was supported by misleading information. They said they have consulted Stakeholders, in the case of Kelp Quota Owners they have conducted no consultation.

Our KBB3G is a property right and we are wondering how the Crown is going to compensate us for this substantial loss of a property right and future development of KBB3G?

We have vessels that have been purchased and set up to harvest bladder kelp however the Crown is trying to steal back the quota it sold to us in 2012.

**RE- Proposed Southeast Marine Protection Areas (SEMPA), Consultation document Feb 2020**  
**Bladder Kelp**  
**(*Macrocystis Pyrifera*)**

**I am completely opposed to Bladder Kelp becoming non-commercial within the SEMP Area.**

I am writing to you to express our deep concerns with the above topic.

**A brief on my marine experience:**

1998- 2007 Boat building, served my time as an apprentice at Miller & Tunnage in Port Chalmers Careys Bay Dunedin,

I had 12 staff and several contractors working for me as we contracted to Toll Consolidated Ltd and was a major contractor working on re furbishing the trains for Auckland and Wellington.

2005- Now Brokering quota, boats, valuing quota and commercial items etc in the marine industry.

We have been the largest and most respected broker in the industry for a decade now due to our knowledge and expertise.

All the main banks use us for quota reports along with NZ's largest fishing companies & Iwis such as Aotearoa Fisheries Ltd, Sealord, Te Oh Kai Moana Trustee Ltd, Moana Pacific, OPC, Ngati Whatua, Ngati Rarua, Lee Fish Ltd, OPC and many independent owner operators within the Seafood Industry.

Our family has been involved in the fishing and marine industry for generations and we are paving the way for the next generation to follow in our footsteps.

**2010**

Bladder Kelp entered the Quota Management System (QMS) on 1<sup>st</sup> of October 2010 – s9(2)(b)(ii) tonnes TACC in KBB3G.

**2012**

In September 2012 the Crown sold s9(2) or s9(2) tonnes to our family company- documents attached (Quota Owned by stock)

During this time were the Christchurch earthquakes and our home was severely damaged in the Eastern part of the city and we had to fight Southern Response, ( the old AMI Insurance that the government took over ), to get our insurance entitlement through the High Court.

This was extremely stressful on our family as the government tried to screw us out of our entitlement by giving us low ball offers and to top it off the government paid Thompson & Clark to spy on myself, my wife and our child.

**2014 - 2016**

The SEMP stakeholder consultation happened and being the second largest quota holder of KBB3G we have not been involved with any consultation or even contacted regarding this which I find very odd and it looks like we have been deliberately kept in the dark along with the other KBB3G quota owners.

## Quota Owned by Stock



Date as at: **28 September 2012**  
Stock code(s): **KBB3G - Bladder Kelp**

Stock	Client	Account	Total shares	Restricted	Trans-ferable
KBB3G	9791803 - s9(2)(b)(ii)	Normal	s9(2)(b)(ii)		s9(2)(b)(ii)
KBB3G	9791706 - s9(2)(b)(ii)	Settlement	s9(2)(b)(ii)		s9(2)(b)(ii)
KBB3G	8470162 - s9(2)(b)(ii)	Normal	s9(2)(b)(ii)		s9(2)(b)(ii)
KBB3G	8600300 - s9(2)(b)(ii)	Settlement	s9(2)(b)		s9(2)(b)
KBB3G	9792709 - s9(2)(b)(ii)	Normal	s9(2)(b)(ii)		s9(2)(b)(ii)

If you have any queries regarding this report please contact the FishServe helpline stated below.



## Quota Owned by Stock



Date as at: **27 September 2012**  
Stock code(s): **KBB3G - Bladder Kelp**

Stock	Client	Account	Total shares	Restricted	Trans-ferable
KBB3G	8600000 - Her Majesty the Queen in Right of New Zealand Acting by and through the Minister of Fisheries or the Ministry for Primary Industries, either individually or collectively	Normal	s9(2)(b)(ii)		s9(2)(b)(ii)
KBB3G	s9(2)(b)(ii)	Settlement	s9(2)(b)(ii)		s9(2)(b)(ii)
KBB3G	s9(2)(b)(ii)	Normal	s9(2)(b)(ii)		s9(2)(b)(ii)
KBB3G	s9(2)(b)(ii)	Settlement	s9(2)(b)		s9(2)(b)
KBB3G	s9(2)(b)(ii)	Normal	s9(2)(b)(ii)		s9(2)(b)(ii)

If you have any queries regarding this report please contact the FishServe helpline stated below.



Report Name	Stock	Period	Quantity Traded	No. Transfers	Low \$
Quota Transfer Prices	KBB3G	2 Jul 2018 - 2 Jul 2020	s9(2)(b)	3	s9(2)(b)(ii)

Average \$	High \$	Transfers incl.	Date As At
s9(2)(b)(ii)	s9(2)(b)(ii)	3	2/07/2020



# Registration Notice Quota Share Transfer

(Copy)

28 September 2012



Ministry for Primary Industries  
C/- Cathy Ward  
PO Box 2526  
WELLINGTON 6140

**Document Number:** QTR0010348

**Date Received:** 28/9/2012

## Quota Owner

8600000

Her Majesty the Queen in Right of New Zealand Acting by and through the Minister for Primary Industries or the Ministry for Primary Industries, either individually or collectively

## Transferee

9791803

Aotearoa Quota Brokers Limited

THIS NOTICE IS CONFIRMATION THAT THE TRANSFERS OF QUOTA SHARES DETAILED BELOW HAVE BEEN RECORDED ON THE QUOTA REGISTER IN ACCORDANCE WITH SECTION 159 OF THE FISHERIES ACT 1996.

Line Number	Stock Code	Owner Account	Transfer Amount	Transferee Account	Registration Date
1	CRA3	UNE	s9(2)(b)(ii)	NOR	28/9/2012
2	KBB3G	UNE		NOR	28/9/2012
3	KBB3G	UNE		NOR	28/9/2012
4	KBB3G	UNE		NOR	28/9/2012
5	KBB3G	UNE		NOR	28/9/2012
6	PAD8	UNE		NOR	28/9/2012
7	PAD8	UNE		NOR	28/9/2012
8	PAD8	UNE		NOR	28/9/2012

Please note that this quota share transfer will not generate a catch entitlement for the remainder of this fishing year. These shares will generate catch entitlement in future fishing years.

You are entitled to apply for a correction of the register if you believe it does not accurately record the correct details of the application. An application for correction must be received within 14 days of receiving this notification. For more information please refer to section 164 of the Fisheries Act 1996.

If you have any queries regarding this registration notice please contact the FishServe helpline on (04) 460 9555.

**From:** [Mary Sutherland](#)  
**To:** [SEMP](#)  
**Subject:** submission  
**Date:** Wednesday, 15 July 2020 12:09:42 PM

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South East Marine Protection      Submission    14<sup>th</sup> July 2020

I have found the on-line submission process too cumbersome and difficult, but wish to support the proposals put forward for marine protection particularly the type 1 reserves.

Congratulations are due for the proposals for some protection for the marine environment on the South Eastern coast. This large area which has had little protection for far too long has so much richness and many rare species which rely on it, (yellow eyed penguins, sea lions, seals and cetaceans) and is the base for a significant tourism industry (and yes, tourism will continue especially environmentally aware nature tourism - I have just returned from a visit to Kaikoura where I was lucky to purchase the last four spaces on a whale watch trip over the two week school holiday period!) I am pleased to support the proposals as a first step. More is needed.

In particular, I am disappointed that there is insufficient protection in the Catlins area, the southern end of the area and recommend that this matter be attended to with urgency. The proposed Long Point Reserve and the older recommended area at the Nuggets both offer high bio-diversity. Working in partnership with iwi would be advised.

I also recommend that proposed protected areas be increased in size, taking the Waitaki Reserve out to the 12 mile would be an example. Also having a reef only partially protected within a reserve (off Lawyers Head, St Clair) is not a good idea. Including Tow Rock in this reserve would make a better reserve.

The protection of our marine environment is very important and increasingly urgent.

Mary Sutherland

s9(2)(a)

**From:** [Marilyn Bartlett](#)  
**To:** [SEMP](#)  
**Subject:** Pleasant River marine Reserve proposal.  
**Date:** Friday, 17 July 2020 12:21:17 PM

---

Submission Against the Marine Reserve Proposal For the Pleasant River.

My name is Roger Bartlett of s9(2)(a) Retired Commercial Fisherman and current Quota Holder. I started Commercial fishing from Karitane in 1978 and served on the executive of the Federation of Commercial Fishermen for about 10 years and was President for 2 years until the QMS was in Place. As such I am familiar with the rationale behind decisions which resulted in the review of the Fisheries Act at that time.

I am also familiar with the Two previous attempts to establish Marine Reserves In Otago which failed for well found Reasons and whilst this attempt is little more than a thinly disguised political artifice I believe that democracy should have its day and can accept an argument based on constitutional fairness good science.

Having experienced the derby fishing days, and the deleterious effect that had, to the spectacular recovery of all species under the QMS and the Fact that Marine Reserves contribute nothing positive to fisheries management I fail to see why this proposal needs to involve such a vast area of most productive lobster grounds to the extent lobster fishing as a livelihood from Karitane will cease.

The Quota I own is caught by a Karitane fisherman to Fund my Retirement if I have to send it elsewhere to be caught the reduction in income I will have to bear. In the event the fishermen are forced from these grounds this can only result in serial depletion and ultimate reductions in TACC further reducing My income and value of my Quota. To me this is state appropriation of personal property rights without compensation which any where else would be considered unconstitutional.

There has been a consultative process underway for some time which appears to have failed mainly I think because there have been no clear management proposals or strategic objectives. I fail to see how stock assessments can be carried out without sustainable utilization.

The QMS is a sophisticated management system world recognised and copied and to make such large adjustments with no scientific basis is courting disaster.

Roger Bartlett

s9(2)(a)

s9(2)(a)

**From:** [Ken Anderson](#)  
**To:** [SEMP](#)  
**Subject:** Submission  
**Date:** Saturday, 18 July 2020 5:21:01 PM

---

## **Submission on the Proposed South-Eastern South Island Marine Protected Areas**

On behalf of The Anderson Family Trust Partnership

We are owners of paua and crayfish quota in the affected areas. The impact of the proposed MPA's on these commercial fisheries is unknown but the both the paua and crayfish industry representatives are adamant it will be detrimental. Abalone (Paua and Lobster (crayfish) are significant contributors to New Zealand's economic wellbeing because of their export value. It is foolish at a time when New Zealand is relying on the primary export industries to drive an economic recovery, to challenge such industries with experiments that have unknown benefit verses risk effects.

Ken Anderson

s9(2)(a)

s9(2)(a) -

**From:** [Penelope Todd](#)  
**To:** [SEMP](#)  
**Subject:** Marine reserves  
**Date:** Wednesday, 22 July 2020 5:39:34 PM

---

I endorse the proposed network of marine protected areas on the south-east coast of the South Island.

Penelope Todd,  
s9(2)(a)

**From:** [Jim Mackay](#)  
**To:** [SEMP](#)  
**Subject:** Endorsement  
**Date:** Wednesday, 22 July 2020 9:21:16 PM

---

I support all proposed MPAs on the southwest coast of New Zealand.

James Mackay

s9(2)(a)

**From:** [Tessa Mills](#)  
**To:** [SEMP](#)  
**Subject:** Marine Protection  
**Date:** Wednesday, 22 July 2020 9:28:50 PM


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Kia Ora

I'm just writing to say that I endorse the marine protected areas proposals.

I wish the areas could be extended in order to better protect our marine life but this is a good first step.

Yours sincerely  
Tessa Mills

s9(2)(a) 


**From:** [Valerie Dyer](#)  
**To:** [SEMP](#)  
**Subject:** Marine protection  
**Date:** Thursday, 23 July 2020 10:51:50 AM

---

I endorse all the proposed marine protected areas.

Valerie Dyer

s9(2)(a)

A large grey rectangular redaction box covers the signature area, obscuring the name and any handwritten notes or dates that might have been present.



**From:** [Helen Davidson](#)  
**To:** [SEMP](#)  
**Subject:** Proposed Marine areas  
**Date:** Thursday, 23 July 2020 10:52:06 AM

---

I wish to submit that I endorse the proposed marine reserves even if they are not as large as I had hoped.

Thank you DOC.

I live at s9(2)(a) and am acutely aware of a reduced biodiversity.

Ngā mihi,  
Kind regards.

**Helen Davidson**  
**LAWYER**



**KLINKERT LAW**

s9(2)(a)



**From:** [Josephine Wineti](#)  
**To:** [SEMP](#)  
**Date:** Thursday, 23 July 2020 5:52:46 PM

---

I vote no to making our seashores off limits me and my whanau like to gather Kai and we dnt want to have to go hours away just to get a kai

**From:** [S Easton](#)  
**To:** [SEMP](#)  
**Subject:** Dunedin proosal  
**Date:** Thursday, 23 July 2020 6:07:23 PM

---

To whom it may concern

I was born in Dunedin, raised in Karitane. I grew up fishing and I continue the tradition of fishing with my family now. With the proposed closures and the local taipouri the accessible grounds that we can access will be nill.

The generational family tradition is very dear to us and in fact crucial to our diet.

Removing our ability to gather healthy, local produce is criminal in itself.

Pushing weekend fisherman further from land and rescue is negligent.

Dunedin Harbour is by far the safest access bar crossing within an hours drive to Moreki.

If you want to protect our waters, ban the large trawlers of international origin that return nothing to our country and underpay their crews. Depleat our fisheries and hurt the local economy.

Do not punish the people that live here.

Simon Easton

**From:** [Chris Baillie](#)  
**To:** [SEMP](#)  
**Date:** Thursday, 23 July 2020 6:18:00 PM

---

I endorse the proposed marine reserve areas.

Chris Baillie

**From:** [Chris Newton](#)  
**To:** [SEMP](#)  
**Subject:** Submission on southeast South Island marine reserve  
**Date:** Thursday, 23 July 2020 7:53:45 PM

---

Hi,

I fully disagree with all options presented in this submission.

What needs to happen is a drastic reduction in recreational and commercial take.

The best way for this to happen is to implement a tag and take system for paua as they have in California for their abalone and to reduce bag limits on all other seafood.

There needs to be an outright ban on all non NewZealand citizens taking ANY seafood unless they are on a charter.

The third and most vital part is to have drastic shake up of the QMS for commercial fishermen that requires the quota owner to be on the vessel when fish are being caught. This will stop the rape of OUR oceans by the big corporations and overseas companies who couldn't care less about our rules in NZ. The fact this hasn't happened already shows how corrupt and incompetent the whole system is. If you care about NZ and your children you will act on this recommendation.

Thanks,

Chris Newton

Sent from my iPhone

**From:** [Dreamrages Misc](#)  
**To:** [SEMP](#)  
**Subject:** Reserve for Papanui / Cape saunders area.  
**Date:** Thursday, 23 July 2020 8:38:27 PM

---

Hi Team,

Totally disagree with this, the new blue cod rules as of 1/7/2020 is great and will sustain the fishery in this area.

If anything, place a commercial ban as their impact on the fishery/habitat is significantly higher compared to recreational fishers.

Cheers  
VT

**From:** [Casey Patterson](#)  
**To:** [SEMP](#)  
**Date:** Thursday, 23 July 2020 8:10:37 PM

---

Hi my name is Casey im 20 and I live just south of Dunedin, I've been fishing and diving around my coast line ever since I could remember. I've dived all the way from shag point all the way down to the catlins and i think it is one of there best place to catch and gather seafood. I've been free diving for quite a few years now and from what I've seen I that time, there is no shortage in all marine creatures along our coast and it just a wounderfull sight to see. I think the closure off the coast line for fishing and diving would have a massive negative affect on a lot of family the survive and live off the sea like me and my family do. I hope that this decision go through because I would hate to not be able to feed my family and friends with fresh seafood, it would so sad and for the next generation would never get to gather seafood for there families.

Thanks Casey

**From:** [Gary Kent](#)  
**To:** [SEMP](#)  
**Subject:** Sempa proposal  
**Date:** Saturday, 25 July 2020 3:05:07 PM

---

Please find attached submissions on the proposed South East Marine Area.

Gary Kent



What parts of the south-east marine protection area are most concerning for you (please tick)?

Marine reserves

- Waitaki Marine Reserve (B1)
- Te Umu Koau Marine Reserve (D1)
- Papanui Marine Reserve (H1)
- Ōrau Marine Reserve (I1)
- Okaihae Marine Reserve (K1)
- Hākinikini Marine Reserve (M1)

Type 2 marine protected areas

- Tuhawaiki (A1)
- Moko-tere-a-torehu (C1)
- Kaimata (E1)
- Whakatorea (L1)
- Tahakopa (Q1)

Kelp protection area

- Arai Te Uru bladder kelp protection area (T1)

Why are these areas most concerning to you?

- IS EXACTLY WHERE WE HAVE SAFELY & SUSTAINABLY FISHED FOR GENERATIONS.
- IS A WELL WATCHED & PROTECTED AREA ALREADY BY COMMUNITY & MPI.

Why do you support or oppose the proposal?

- GREATLY EFFECTS ABILITY TO LEASE QUOTA.
- DIRECTLY IMPACTS THE VALUE OF THE QUOTA AND COULD RESULT IN FURTHER QUOTA REDUCTIONS.
- ALREADY HAVE BEEN GREATLY EFFECTED BY KARITANE TAIA PURE
- PUTS MY SONS LIVES IN GREATER DANGER.

Do you support or oppose the south-east marine protection areas proposal?

- OPPOSE SIZE & FORMAT

Why do you support or oppose the proposal?

- Too hard to Police
- Too large OF AREA
- IMPACTS THE LOCAL COMMUNITY DEEPLY,

How will the proposed marine reserve area affect you and your family personally?

- IMPACTS OUR INCOME & ABILITY TO FEED MY FAMILY
- SMALL RECREATION VESSELS HAVE TO TRAVEL FURTHER & INTO DEEPER MORE DANGEROUS WATERS.
- HAVE TO ACCESS MORE DANGEROUS LAUNCH AREAS WITH NO KNOWLEDGE OR EXPERIENCE.

Can you foresee any positive effects of the proposed marine reserve areas?

NONE

Can you foresee any negative effects of the proposed marine reserve areas?

- TAKES AWAY OUR ACCESS TO SAFE FISHING.
- CREATES FURTHER DISTRUST BETWEEN FISHERMAN & MPI AUTHORITIES.
- PUTS RECREATIONAL BOATS WELL BEYOND SAFE LIMITS.
- MY FAMILY HAVE GENERATIONS OF KNOWLEDGE & EXPERIENCE OF THE AREA, WHICH WILL BE LOST.

**SUBMISSION ON THE PROPOSED SOUTH-EASTERN SOUTH ISLAND MARINE PROTECTED AREAS**

**SUBMITTER DETAILS**

Name of submitter:	G R KENT
Postal address:	s9(2)(a)
Email:	s9(2)(a)
Telephone number:	s9(2)(a)
Signature:	

I do not wish for my name and address to be released under the Official Information Act 1982.

I do not wish the commercially sensitive information that I have provided, to be released under the Official Information Act 1982

**What is your connection to the CRAMAC7 (CRA7) fishery?**

- OWN CRA7 & WET FISH QUOTA IN AREA.
- LIVED ENTIRE LIFE IN THE AREA
- FISHED AREA FOR 38 YEARS.
- GENERATIONS OF CULTURAL HERITAGE TO THE AREA.

**How are you involved with the proposed marine protected areas?**

- MEMBER OF THE KARITANE FISHERMANS ASSOCIATION
- CAUGHT s9(2)(b)(ii) IN AREA.
- CAUGHT s9(2)(b)(ii) IN AREA.
- GENERATIONS OF KNOWLEDGE OF THE AREA.

**Do you support or oppose the south-east marine protection areas proposal?**

OPPOSE !!!

**From:** [Glen Taylor](#)  
**To:** [SEMP](#)  
**Subject:** Marine reserves  
**Date:** Sunday, 26 July 2020 1:11:30 AM

---

Hello my name is GlenTaylor..first off I would like to talk about Hakinikini (Akatore) reserve I would like to say that mother nature takes care of that in the way of diving and fishing ,it is a very often rough part of the coast it is certainly more common to turn around with no dive than get in even when you think it should be good. I don't believe in making a reserve when not needed the roughness of our coast line is far different than the weather up north where they can go out most of the time, so just because they have reserves does that mean we should, I don't think so that's two totally different weather pattern areas that does mean alot, even trying to get out fishing across the tairei mouth bar is so weather dependent in a big way. I have nothing against lowering the blue cod limit with recreational fishermen even to 20 or halved at 15..please don't take our coast away for me akatore and tairei mouth coast is a big part of my life and don't get to fish dive much with weather as it is, I am sure alot of people feel the same about their areas.

Sincerely  
Glen Taylor

**From:** [Jared Bothwell](#)  
**To:** [SEMP](#)  
**Subject:** FW: Submission: Proposed Southeast Marine Protected Areas  
**Date:** Tuesday, 18 August 2020 9:52:33 AM  
**Attachments:** [Coastal use over 12 months.docx](#)

---

**From:** Jared Bothwell  
**Sent:** Monday, 27 July 2020 10:11 am  
**To:** semp@doc.govt.nz  
**Subject:** FW: Submission: Proposed Southeast Marine Protected Areas

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**From:** Joan Merrilees [s9\(2\)\(a\)](#)  
**Sent:** Sunday, July 26, 2020 10:05:55 PM  
**To:** SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)>  
**Subject:** Submission: Proposed Southeast Marine Protected Areas

Please find submission attached

Kind regards

Alex & Joan Merrilees

Sent from [Mail](#) for Windows 10

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Virus-free. [www.avast.com](http://www.avast.com)

## Submission Proposed Southeast Marine Protected Areas

### Family History:

We are Alex and Joan Merrilees. Alex's parent farmed the property at Akatore and taught their family about fishing. They learned about the vagaries of fishing on an open coastline, how to read the sea and to keep themselves safe. When Alex's parents retired Alex and Joan took on the farm and raised their family there. We taught our children about fishing, and water safety when fishing on such a rugged coastline. Our children all learned to have a healthy respect for the treasured environment that they grew up in. We now enjoy seeing our children still being able to enjoy the place that they grew up in and teaching our grandchildren to love and respect the sea. It is great to see the enjoyment they get out of catching a wrasse on an old bamboo fishing rod baited with mussel meat.

Alex has lived on the Akatore coast at Akatore for 60 years and Joan for forty-eight years. It is an amazing coastline that we enjoy and appreciate. From having spent the greater part of our lifetime we probably know more about this piece of the coastline than most people. The coast has changed over the time we have lived there however everything changes.

You mention the geology and the rocky pools etc that have not changed and only will if we get a major earthquake. When Alex was a child if a seal was spotted it was something to talk about. Today you can count 20/30 seals quite easily and sea lions visit at certain times of the year. Some fish species are not as plentiful as they used to be but that could be caused by some extremely healthy seals living on this stretch of the coastline.

Alex has made a table of the available coastal use for fishing over a period of 12 months. It is not scientific but based on observation and living there for 60 plus years. He started with 100% of fishing time available at the start of a 12-month period and has deducted times when the coast cannot be fished from the rocks.

12-month period	100%
Can only be fished from the rocks at low tide	50%
High tide 50% Low tide 50%	
Cannot fish at night-time (unsafe) 50% of low tides at night	25%
Deduct 10% for low tides in the winter	15%
Rough seas winter and summer -10%	5%
Availability for rock fishing over a 12-month period	<b>5%</b>

### Fish:

Predominantly wrasse is caught off the rocks. Wrasse is a bony fish that needs to be eaten fresh. Greenbone (Butterfish) and Moki can only be caught off the rocks by set netting. This is banned on the East Coast, so these species are already protected. Blue cod is not caught off the rock of this area.

Paua current bag limit is 10 per person gather the shellfish. This is too high a bag limit so reduce the bag limit. We also suggest lowering the limit of other shellfish. Do not allow commercial fishing in this area. Fishing bag limits are too high (Blue Cod cut), reduce recreational take. Approach is currently one size fits all, however with the recommendations that public can access walking along the coastline to fish, you are disadvantaging landowners with many generations of customary fishing and gathering of food from the seabed.

**Birdlife:**

There is also a wide range of birdlife on this coastline. Black Backed gulls, Black Oystercatchers, Terns, Spur Winged Plovers, Mutton Birds, Pied Stilts, Shags and sometimes Penguins. Sea Gannets are often seen fishing offshore. Most of these birds breed along this coastline.

**Geology and Water Clarity:**

This coastline is a rough open seacoast facing east/ south east with extremely limited access. This means that shore based recreational fishing has little impact when it can only be fished for approximately 5% of the year. This coastline is self-protecting and does not need a total no take reserve when a managed reserve would achieve the same result.

A no take reserve does not change the geology which has been that way for an exceptionally long time. It would take a major earthquake to effect any change. There is a variety of different rock types and features along this coastline. Your consultation document talks of connectivity of the type of rocky coastline. That rocky coastline will always be there regardless of fishing! Connectivity of rocky coastline types is not a reason to make a no take fishing Marine reserve.

Water clarity is affected by the weather patterns. Some days the water is extremely clear and other days the North East wind and southerly swell can stir up the sandy seabed.

Outer sand base and rough seas can cause lack of clarity in the water. The prevailing winds are southerly and south westerly during the winter months and the nor easterly in the summer months. There is an extremely limited land-based access which protects itself without being a total no take marine reserve. The Akatore Coast Forestry behind this reserve is going through its second harvest which creates a lot of topsoil disturbance. The result of this is that the soil finds its way into the sea and the sea water becomes discoloured and cloudy. Also, in flood situations in the upper reaches of the Clutha river, there is a lot of excess water spilled by the Clyde and Roxburgh dams. This is referred to as flushing and is a method that increases discolouration of the coastal waters. Making this area (Hākinikini) a Marine Reserve with a no take policy will not improve the clarity of the coastal waters.

**Summary:**

While this area meets all the criteria you have set for a Marine Reserve, we consider your approach is very one dimensional when you have many options available to utilise. We would like to see this area as a managed reserve. We see this as no commercial paua take and a limit on the recreational take of paua, shellfish and other species. Your one-dimensional no take approach disadvantages landowners with many generations of customary fishing and food gathering from the sea. A managed reserve would allow us to line fish off the rocks, continue to educate our grandchildren around living by the sea and teach them to love the coastal environment as we do.

If you place a total ban on a limited access stretch of coastline you are just ensuring that other area will become depleted of many fish species and also spoiled by more numbers of people utilising fewer areas to fish. New Zealand is an island that has a food source that has been accessed for generations and this should be allowed to continue for all New Zealanders.

We have read all your Consultation Documents and have found no compelling reasons for a no take reserve that a managed reserve would not achieve.

**From:** [Ross Kane](#)  
**To:** [SEMP](#)  
**Subject:** Marine Reserves Proposal  
**Date:** Monday, 27 July 2020 4:03:56 PM

---

Hello,

I would like to make a submission for the proposed marine reserves in the Otago region. I support marine reserves and most importantly support lowering daily quotas as well as wider areas that are restricted for commercial fishing. I support the Papanui and Kaimata area going ahead as well as Hakinikini. I also strongly support the kelp protection area as long as spearfishing, recreational line fishing, and landbased recreational fishing is still permitted.

Even though they can be hit quite hard by people fishing I don't support the closure of some coastal areas to recreational fishermen. I don't support choosing Te Uma Koau, Orau, or Okaihau as an area that is fair and suited to being a marine reserve. If D1 didn't include Danger Reef (which is a fantastic area) I would support it.

Orau, is an area that is right on Dunedins doorstep and it has quite a few nice diving spots that most people don't go to because it is often inaccessible due to the weather, and my overall fear is that it is such a large section of coast that it will negatively impact spearfishing. Spearfishing focuses on selectively targeting only a few fish and seeing new areas, this is why I would very much support lowering the overall bag limit for everything over losing such a large section of coastal spearfishing/fishing. I would suggest 5 Paua per diver and lowering all types of line/spear caught fish limits in the Otago region. Certain areas can have Paua limits lowered or be no take zones as well, such as Karitane is currently while still being open to fishing so it is possible to achieve this.

The majority of the boats hammering these areas so hard are large enough that they will be able to find access to other places, this is why I support offshore marine reserves such as Papanui and Kaimata. I also believe that marine reserves (or drastically lowered take limits) is very important. However, it is important that this is supported by equally limiting the commercial fishing in the Otago region so that the whole experiment isn't just moving something from one hand to the other. It is also important that regular New Zealanders and their families have access to close coastal areas because they should always come first. I don't support any exemption for taking undersized seafood, more than your daily limit, or gathering Paua with scuba tanks. I have also called 0800-4-Poacher on more than one occasion and then seen the same group back in the same area with no negative repercussions, so I also support steeper fines and more MPI presence overall/volunteer MPI officers.

Thanks for putting this all together and giving the public the opportunity to voice their opinions and ideas. I'm looking forward to hearing back from you and seeing how it all turns out.



Thanks,

Ross Kane

**From:** [David Hey](#)  
**To:** [SEMP](#)  
**Subject:** The South East Marine Protection Area Proposal  
**Date:** Monday, 27 July 2020 5:44:47 PM

---

Sirs

Please find attached a submission and comments on the Proposals.

Regards

David Hey

s9(2)(a) [redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]

s9(2)(a) [redacted] (cellphone)

**What parts of the south-east marine protection area are most concerning for you (please tick)?**

*Marine reserves*

- Waitaki Marine Reserve (B1)
- Te Umu Koau Marine Reserve (D1)
- Papanui Marine Reserve (H1)
- Ōrau Marine Reserve (I1)
- Okaihae Marine Reserve (K1)
- Hākinikini Marine Reserve (M1)

*Type 2 marine protected areas*

- Tuhawaiki (A1)
- Moko-tere-a-torehu (C1)
- Kaimata (E1)
- Whakatorea (L1)
- Tahakopa (Q1)

*Kelp protection area*

- Arai Te Uru bladder kelp protection area (T1)

**Why are these areas most concerning to you?**

D1 IS A WELL-REGARDED AREA FOR RECREATIONAL FISHING, AND THERE IS NO PROVEN NEED TO PROTECT FISH STOCKS IN THIS AREA.

Why do you support or oppose the proposal?

RESTRICTING FISHING IN THIS PROPOSED AREA FORCES SMALL CRAFT FURTHER OUT TO SEA. GREATER CHANCE OF PROBLEMS, AND POSSIBILITY OF NEED TO RESCUE. MORE FUEL USAGE AND HIGHER CHANCE OF RUNNING OUT OF FUEL. NO PROVEN NEED TO RESTRICT THIS AREA

How will the proposed marine reserve area affect you and your family personally?

GREATER RISK IN GOING TO OTHER WATERS.

Can you foresee any positive effects of the proposed marine reserve areas?

NO. PLENTY OF OTHER AREAS THAT ARE MORE REMOTE AND NOT USED BY COMMERCIAL OR RECREATIONAL FISHERMEN.

Can you foresee any negative effects of the proposed marine reserve areas?

GREATER RISK TO LIFE OF RECREATIONAL FISHERMEN

**SUBMISSION ON THE PROPOSED SOUTH-EASTERN SOUTH ISLAND MARINE PROTECTED AREAS**

**SUBMITTER DETAILS**

Name of submitter:	DAVID A. HEY
Postal address:	s9(2)(a)
Email:	s9(2)(a)
Telephone number:	
Signature:	s9(2)(a)

I do not wish for my name and address to be released under the Official Information Act 1982.

I do not wish the commercially sensitive information that I have provided, to be released under the Official Information Act 1982

**What is your connection to the CRAMAC7 (CRA7) fishery?**

PROFESSIONALLY, NONE; EXCEPT KARITANE RESIDENT FOR  
LAST 12 YEARS AND HAVE REGULARLY FISHED  
THIS AREA RECREATIONALLY.

**How are you involved with the proposed marine protected areas?**

RECREATIONAL FISHERMAN IN THIS AREA

**Do you support or oppose the south-east marine protection areas proposal?**

OPPOSE THE CURRENT D1 PROPOSAL  
BY SEMPA.

**From:** [Governance](#)  
**To:** [SEMP](#)  
**Subject:** ECan's submission on proposed Southeast Marine Protection  
**Date:** Tuesday, 28 July 2020 12:26:17 PM  
**Attachments:** [ECan submission on proposed Southeast Marine Protection - Jul 20.pdf](#)

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Kia ora

Please find *attached* Environment Canterbury's submission on proposed Southeast Marine Protected Areas consultation document.

Ngāi mihi

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**Governance**



Environment Canterbury

PO Box 345, Christchurch 8140  
Customer Services: 0800 324 636  
24 Hours: 0800 76 55 88

s9(2)(a)

[ecan.govt.nz](http://ecan.govt.nz)



23 July 2020

Department of Conservation and Fisheries New Zealand  
Conservation House  
PO Box 10420  
Wellington 6143  
New Zealand

By email: [southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)

Dear Department of Conservation and Fisheries New Zealand

**Canterbury Regional Council's submission of views on the proposed Southeast Marine Protected Areas consultation document**

1. Canterbury Regional Council (CRC) appreciates the opportunity to provide views on the proposed Southeast Marine Protected Areas that have been released for consultation by the Department of Conservation (DOC) and Fisheries New Zealand (FNZ).
2. CRC is responsible for the Coastal Marine Area and Coastal Hazard Zones 1 and 2 from north of Kekerengū in the north to the Waitaki River in the south. The Canterbury Regional Policy Statement 2013 (CRPS) and Regional Coastal Environment Plan for the Canterbury Region 2011 (RCEP) recognise the many areas of significance along the Canterbury coastline.
3. CRC supports the need for a network of Marine Protected Areas (MPAs) along the Canterbury coastline and recognises New Zealand's international obligations under the United Nations Convention on Biological Diversity 1993 that are reflected in the New Zealand Biodiversity Strategy. The CRPS and RCEP contain a planning framework that supports the additional protection of the Coastal Marine Area.
4. CRC supports the MPA policy objective to "*Protect marine biodiversity by establishing a network of marine protected areas that is comprehensive and representative of New Zealand's marine habitats and ecosystems.*" Currently the southeast coast of the South Island has no network of MPAs in place and CRC view it as a matter of urgency to implement protection.
5. The proposed MPAs that are within CRC's jurisdiction are:
  - a. Tuhawaiki (Type 2 MPA); and
  - b. Moko-tere-a-torehu (Type 2 MPA); and
  - c. Arai Te Uru Bladder Kelp protection area

6. Tuhawaiki and Moko-tere-a-torehu as proposed will provide for a Type 2 MPA to extend from Timaru to south of the Waitaki River. Arai te Uru kelp protection area is proposed to extend from Timaru in the north to Taiaroa Head in the South.
7. CRC supports the Type 2 MPAs along the South Canterbury Coast and the prohibition on fishing related seabed disturbances.
8. CRC also supports the addition of the giant bladder kelp protection area, Arai Te Uru. It would be more beneficial if this kelp protection applied to all brown, red and green algae species. Brown algae species provide important habitat for many invertebrate and fish species as well as important ecosystem services. The red algae all provide important habitat and food for many invertebrate species including pāua.
9. CRC notes that the Minister of Fisheries and the Minister of Conservation have recently announced decisions on a revised Hector's and Maui Dolphins Threat Management Plan (TMP). CRC notes, and is supportive of, the wider restrictions on fishing methods within marine mammal sanctuaries, and the extension of the geographic area covered by sanctuaries including the Banks Peninsula Marine Mammal Sanctuary (currently the subject of further consultation). However it is unclear how the proposed Type 2 MPAs align with the amendments to the TMP. More clarity on this would ensure consistent and well-integrated management along the coastline.
10. Given the significance of Hector's and Maui dolphins, CRC notes that they have not been classed as Taonga species in Appendix 5 to the consultation document.
11. CRC agree with Ngāi Tahu concerns that care needs to be taken when setting MPA areas so that fishing pressures are not displaced into other areas.
12. We thank you for providing the opportunity to comment and look forward to reviewing the confirmed proposals.

Yours sincerely,

s9(2)(a)

**Jenny Hughey**  
Chair



**From:** [Marilyn Bartlett](#)  
**To:** [SEMP](#)  
**Subject:** Submission Against The south East marine Protection Proposal.  
**Date:** Tuesday, 28 July 2020 9:05:25 PM

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My Name is Roger Bartlett. Retired

s9(2)(a)

I have been a recreational Fisherman on the Otago Coast Since 1957 and currently still fish from Karitane where I have a boat on a Mooring.

My objections stem from the lack of scientific information and subsequent management rationale forwarded from the outset. The only management strategy forwarded to me was the protected areas would be put in place then a strategy would be developed.

No land based reserves are established on this basis.

The Ocean is no longer up for Grabs by all and sundry. The management rights are all allocated and cover all of New Zealands territorial sea and are managed for all New Zealanders under the Quota Management System.

Since its inception the recreational fishing has marked improved in this area.

The notion that the best fishing areas should be set aside without management defies belief.

There has been No discussion as to the desirability or otherwise of protected areas just a time and money wasting so called consultation toward a predetermined outcome.

To establish a protected area presupposes there is a threat that needs protection against but there has been no evidence forwarded that this is the case.

As our population increases more recreational fishing areas will be needed not less and as the fish populations approach virgin Biomass the yield will approach zero.

In our case at Karitane serial depletion and effort shift is going destroy the customary fishing area as it will be the only area available.

As one who has a background in natural resource management there are so many faults, legal and constitutional ,in this proposal one can only surmise it is a political appeasement strategy which has no place in what requires facts and science.

R.O.Bartlett

**From:** [Tim Ritchie](#)  
**To:** [SEMP](#)  
**Subject:** Submission on south-eastern South Island marine protected areas  
**Date:** Wednesday, 29 July 2020 12:41:22 PM

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Dear Southeast Marine,

This submission on the proposed marine protected areas (MPAs) in the southeast region is written from my perspective as one of the recreational fishing sector representatives of the Southeast Marine Protection Forum/Roopu Manaaki ki te Toka (SEMPF).

The primary intent of this submission is to encourage the relevant ministers to accept Network 1 in its entirety, with the enlargement and/or addition of areas where this would add to the representativeness and scientific validity of this network.

The aim of the SEMPF was to come to a consensus agreement on a network of marine protected areas. Network 1 is largely the result of concessions ceded to commercial and recreational interests in a multi-year process of aiming for consensus. Were it clear from the outset that the commercial Forum representatives and one of the recreational representatives were not intending to arrive at consensus, I have no doubt that the remaining Forum members would have designed a considerably more representative and scientifically valid network of MPAs. Network 1 therefore represents the bare minimum of what is an acceptable outcome from the SEMPF process.

I expect that commercial interests will submit that Network 1 is commercially unacceptable. I would like to make the point that a network of MPAs without commercial impact is likely to be devoid of biodiversity.

I envisage that recreational interests will submit that the recreational impact of Network 1 is unacceptable. From my position as a recreational representative I can state that the vast majority of areas identified within the southeast region as being of significant recreational fishing interest have been excluded from Network 1. Additionally, recreational fishing opposition to type 2 MPAs is actually illogical given that most common recreational fishing methods are permitted in a type 2 MPA.

In the final chapter of the SEMPF process, it is my hope that the Ministers are able to modify Network 1 in order to salvage the most representative and scientifically valid network possible. Specifically:

(i) Te Umu Koau Marine Reserve

Te Umu Koau Marine Reserve is the only MPA in Network 1 that contains deep reef habitat. Whilst there may be commercial interest in the deep reef within the Te Umu Koau Marine Reserve, there is no other area of deep reef in the southeast region that appears to be more suitable from a commercial perspective. To meet the aims of the forum it will be necessary to retain this area of significant habitat within the boundaries of the Te Umu Koau Marine Reserve.

(ii) Ōrau Marine Reserve

The boundaries of this marine reserve currently bisect the Gull Rocks/Lion Rock/Tow Rock reef system, primarily due to concessions made to commercial interests (i.e. excluding Tow Rock). A fundamental marine reserve design principle is that reef systems must not be bisected. The Ōrau Marine Reserve needs to include the reef surrounding Tow

Rock in order to encompass the entirety of the reef system in this area.

(iii) Arai Te Uru kelp protection area

The macrocystis forests of the southeast region form habitat for a multitude of species. In a process where protection of habitat is fundamental, it makes utmost sense to prohibit the harvesting of habitat. This is a unique and visionary proposal that would come at the expense of minimal actual commercial impact.

(iv) Continuation of the Moko-tere-a-torehu Type 2 Marine Protected Area out to the 12 mile limit was an option considered at length by the SEMPF in order to protect an area of trawled habitat. Unfortunately, the trawl grounds of this area were ceded to commercial interests (under controversial circumstances) and the Moko-tere-a-torehu MPA was significantly truncated. As the proposed Long Point MPA was the only remaining MPA which contained trawl ground, there is now essentially no trawl ground represented in Network 1. In order to represent a region of significant trawl ground it would make most sense to extend the seaward boundary of the Moko-tere-a-torehu Type 2 Marine Protected Area out to the 12 mile limit.

(v) Commercial interests are likely to argue that set netting has no bottom impact and is therefore not necessary to meet the aims of a type 2 MPA. However, set net bans must be included as an integral part of all proposed type 2 MPAs in order to protect the megafauna which are an integral component of the biodiversity of these regions.

(vi) Network 1 has an almost complete lack of representation of the Catlins region. Clearly this issue needs to be resolved in order to meet the stated aim of a representative network of MPAs for the southeast region.

Kind regards,

Dr Tim Ritchie

Recreational fishing representative, Southeast Marine Protection Forum/Roopu Manaaki ki te Toka

**From:** [NZCA](#)  
**To:** [SEMP](#)  
**Subject:** NZCA Submission: Southeast Marine Protected Areas  
**Date:** Wednesday, 29 July 2020 4:51:48 PM  
**Attachments:** [NZCA submission - Proposed southeast MPAs - Jul 2020 - DOC-6252208.pdf](#)

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Kia ora

Please see attached the submission from the New Zealand Conservation Authority (NZCA) on the proposed Southeast Marine Protected Areas.

Ngā mihi

**Lorna Travers**

NZCA Servicing Officer / Statutory Bodies Advisor  
Governance and Treaty Group  
Department of Conservation—*Te Papa Atawhai*

E: s9(2)(a)

M: s9(2)(a)

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# CONSERVATION AUTHORITY

TE POU ATAWHAI TAIAO O AOTEAROA

## Proposed Southeast Marine Protected Areas

### SUBMISSION FROM THE NEW ZEALAND CONSERVATION AUTHORITY

Date	29 July 2020
To	<a href="mailto:southeast.marine@publicvoice.co.nz">southeast.marine@publicvoice.co.nz</a>
Name of organisation	New Zealand Conservation Authority
Contact Person	Dr Rick McGovern-Wilson, Executive Officer
Postal address	PO Box 10420, Wellington 6143
Telephone	s9(2)(a)
Email address	s9(2)(a)

### The Legislative Basis for the New Zealand Conservation Authority submission

1. The New Zealand Conservation Authority (the NZCA) was established under the Conservation Act 1987, with members appointed by the Minister of Conservation. It is an independent statutory body with a range of functions, but primarily acts as an independent conservation advisor to the Minister and the Director-General of Conservation.
2. The NZCA has a growing role as an objective advocate on matters of national significance and interest in the conservation arena and provides high quality independent advice to the Minister of Conservation and to the Department of Conservation (DOC) on its strategic direction and performance. Marine biodiversity is a matter of national importance; the NZCA has consistently identified marine protection in its strategic priorities, and has developed marine principles that address governance, conservation and protection, and sustainable use of the marine environment (attached as Appendix One).
3. The NZCA has a range of powers and functions, under the Conservation Act 1987, as well as under other conservation related legislation. Under the Conservation Act, Section 6C(2)(c), the NZCA has the power to “advocate the interests of the NZCA at any public forum or in any statutory planning process.”
4. The NZCA has consistently advocated for protection of the marine environment, including making a submission on the 2016 Marine Protected Areas Act Reform.
5. Following the logic of the above powers and functions, the NZCA supports work to establish a marine protection network in the southeast of the South Island and appreciates opportunities to provide feedback on how this will be achieved.
6. The NZCA submission is based on their analysis of the *Proposed Southeast Marine Protected Areas: Consultation Document*.

## General Comments

7. The NZCA does not support *Option 1: Maintaining the status quo*. The marine biodiversity in this region is currently unprotected and with increasing and emerging contemporary pressures, such as climate change and a growing commercial fishing industry, the ecosystems in this area will continue to suffer.
8. The NZCA strongly supports the implementation of the proposed network, as presented as Option 2 in the consultation document.
9. The Department of Conservation (DOC) has set a series of conservation “Stretch Goals” to be achieved by 2025. One of these Stretch Goals is to have *a nationwide network of marine protected areas in place, representing New Zealand’s marine ecosystems*. The NZCA strongly supports these Stretch Goals and has required that all departmental planning documents, as they are reviewed, include them and indicate how plan objectives will contribute to their attainment. The NZCA is of the view that if the DOC Stretch Goal is to be achieved by 2025, this proposed Marine Protection Network must be implemented in its entirety.
10. The Authority find that the proposed network achieves the MPA Policy objective by providing a comprehensive network of marine habitats and ecosystems that are representative of the regions habitat types.
11. The NZCA supports a co-management of the MPAs by Ngāi Tahu and the Crown. This approach is in line with the NZCA’s marine principles.<sup>1</sup> It is vital that decision-making is informed by traditional knowledge of tangata whenua, along with new sources of information and research and robust science, in order to ensure the marine environment will be governed in accordance with the Principles of the Treaty of Waitangi, and for the benefit of all New Zealanders.

## Te Umu Koau Marine Reserve (D1)

12. In their 2016 submission on the proposed reforms to the management of marine protected areas, the NZCA proposed that the protection of biodiversity is paramount, and that varying levels of use are provided for, including consideration of existing and future uses and values. In the instance of D1, the NZCA urges an approach that will achieve this objective by ensuring a balance between biodiversity protection and sustainability.
13. D1 is a valuable Marine Reserve, offering protection to a wide variety of habitats within a relatively small area; in addition, it is the only reserve to represent deep reef and estuarine habitats. It will be important to manage sustainable use of resources in this area; and, in doing so, take account of the rights of customary, individual, and corporate users.
14. The area of D1 encompasses Puketeraki takiwa and is on the boundary to Moeraki. The two Runanga have members that practice customary and commercial fishing operations within the area of the proposed marine reserve. The NZCA is of the view that the reserve would unduly affect existing users, as the affected iwi will be significantly impacted.<sup>2</sup> The NZCA encourages a mutual resolution to the establishment of D1 to ensure longevity in the marine protection of this area, and notes that the core issue highlighted by Ngāi Tahu is in the scale of the D1 proposal.
15. The NZCA suggests exploring reducing the size of the D1 area to achieve a balance between the conservation of marine biodiversity, and the sustainable fishing practices of Moeraki and Puketeraki Runanga.

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<sup>1</sup> NZCA Marine Principles; Principles 2,3, and 4

<sup>2</sup> Counter to the Cost and benefits assessment of D1 in the Appendices document, pg42

16. An alternative solution, which the NZCA suggests is worthy of consideration, could be for Te Umu Koau to be a Type 2 MPA. In this way, it might be possible for the breadth of habitats to be protected, prohibiting fishing methods that involve dragging gear across the seabed (i.e. bottom trawling, dredging, Danish seining), but still permitting methods utilised by recreational and customary fishing practices.
17. This type of MPA can allow certain types of fishing, if they are consistent with the purposes and principles of the Fisheries Act 1994. In particular, crayfishing via the use of craypots, may be permitted as a condition of the creation of the reserve, thus enabling the runanga to continue the running of a lucrative fishery.

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# CONSERVATION AUTHORITY

TE POU ATAWHAI TAIAO O AOTEAROA

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## NZCA Marine Principles (2016)

### Marine Principles

Adopted 2016

Reviewed and amended 2016

NZCA has developed marine principles that include governance, conservation<sup>3</sup> and protection, and sustainable use of the marine environment<sup>4</sup>.

#### Governance

1. Protection of marine biodiversity, marine ecosystems, the water column, benthic environments and marine landforms unique to New Zealand is a national, international and intergenerational responsibility.
2. The marine environment will be governed for the benefit of all New Zealanders.
3. The principles of the Treaty of Waitangi will be upheld and the resulting obligations will be delivered.
4. Decision-making will be informed by traditional knowledge of tangata whenua along with new sources of information and research and robust science.
5. Any allocation of rights to use marine resources will be based on robust and appropriate research and science
6. The marine environment should be regularly monitored: new information and research results reviewed, and management continually adjusted to incorporate findings
7. Where there is insufficient information, the precautionary principle will apply.

#### Conservation and protection

8. Marine protected areas are one essential element of marine management for the delivery of an ecosystem based approach and provide the framework to implement those measures necessary to conserve the most critical ecosystems, including species survival and reproduction, migration corridors, spawning grounds, and nursery areas. Our unique indigenous marine flora and fauna will be the priority for protection.
9. This will be achieved through a network approach to marine protected areas that are comprehensive, representative and effectively managed throughout New Zealand's territorial sea and exclusive economic zone.
10. Well designed and properly managed marine protected areas are integral to an ecosystem based approach to marine management providing safe havens for marine biodiversity.

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<sup>3</sup> Conservation includes the concepts of preservation, protection and restoration

<sup>4</sup> Marine environment includes the territorial sea (12nm) and the Exclusive Economic Zone (EEZ) (200nm)



11. Intergenerational equity requires that non-extractive values of the marine environment – intrinsic values, wildness values, spiritual values, ecosystem services - are protected.<sup>5</sup>
12. A spectrum of protection mechanisms will be employed to enable communities to be involved in the protection, conservation, restoration and use of marine ecosystems. This includes upholding the principles of the Treaty of Waitangi and delivering against its obligations. Concepts of maitaitai and taiapure, should be integral to the development of marine protected areas, to recognise customary non-commercial rights.
13. Representative, rare, and special marine ecosystems will be conserved in perpetuity as "no take"<sup>6</sup> areas within the limit of the EEZ.
14. Marine management regimes should acknowledge the changes brought about by natural processes including natural hazards, extreme weather events, and climate changes.

### **Sustainable use**

15. The marine environment will be sustainably managed in a way that maintains its potential for future generations, and taking account of the rights and interests of customary, individual and corporate users.
16. The marine and coastal environments will be managed in an integrated way that recognises the complex inter-relationships of land, sea and air.
17. Rights to use the marine environment should be exercised in an ecologically sustainable manner ensuring the maintenance of biological diversity to meet the needs of present and future generations.

Where finite resources are being used e.g. mining of finite resources, this is to be carried out in a manner that mitigates the adverse impacts of the activity on the marine environment and in accordance with the polluter/user pays principle.

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<sup>5</sup> Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth.

<sup>6</sup> By "no take" the Authority means nothing to be taken in the column from sea surface to seabed

**From:** [Craig Werner](#)  
**To:** [SEMP](#)  
**Subject:** In support of protection  
**Date:** Thursday, 30 July 2020 2:57:17 PM

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I am in support of the southeast marine protection area which is proposed.

Craig Werner

s9(2)(a)

**From:** [Steve Wing](#)  
**To:** [SEMP](#)  
**Subject:** Submission on SEMPF proposal  
**Date:** Thursday, 30 July 2020 4:16:02 PM  
**Attachments:** [SEMPF submission 2020 .pdf](#)  
[ATT00001.htm](#)

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Please find attached my submission on the SEMPF proposal

I watched with interest as the parties selected to be involved in the South-east Marine Protection Forum discussed, and now have arrived at a proposal for marine protection along the Otago/Southland coastline. The stated aim (s) of the exercise, from the consultation document, was to ‘..provide comprehensive and representative marine protection for the region and help to meet New Zealand obligation under the United Nations Convention on Biological Diversity.’ The proposal as it stands does neither.

The participants should be commended in their efforts to reach a consensus in the process but from the proposal put forward, and the clear philosophical divide in the group, it is apparent that there was opposition to the value of marine protected areas in achieving marine protection. The science is clear, no take marine reserves protect biodiversity and spawning populations of exploited fish and invertebrates. If applied sensibly they can enhance both the biodiversity values and the productivity of marine systems. This can be seen globally, in myriad scientific reports and working examples (reviewed by Halpern 2003; Willis 2013, Edgar et al. 2014, Gaines et al. 2010), as well as here in New Zealand (e.g. Pande et al. 2008). Most recently the economic and biodiversity values of marine protection was demonstrated in the case of the Fiordland Marine Management Act 2005 where following marine protection the commercial rock lobster quota doubled and has remained at the new high for over 10 years, and biodiversity values of the region were enhanced and protected (Wing and Jack 2014, Jack and Wing 2010, Jack and Wing 2013, Wing and Jack 2013 ).

Sadly, the current proposal for marine protection offered by the South-east Marine Protection Forum does not recognize or endorse these positive benefits and offers a proposal with far less than 4% of the coastal area put into no take marine reserves. The New Zealand government’s target was 10% by this year (2020), and the IUCNs recommendation is to have 30% of key habitats put into non-extractive marine reserves. New Zealand’s marine protected area policy additionally states that ‘a marine reserve will be established to protect at least one sample of each habitat or ecosystem type in the network’. This policy is not achieved in the current plan. These measures are often seen as ‘locking up the coast’ or ‘excluding people from the resource’ when in fact they are designed to increase fecundity and reproduction of important stocks as well as preserve biogenic habitats that are key to the productivity and biodiversity of the coast. Unfortunately, this is not either recognized or appreciated by the proposal put forward by the South-east Marine Protection Forum.

The Otago/Southland coast ‘a wildlife capital of New Zealand’ contains a high diversity of iconic species (Yellow-eyed penguin, Little blue penguin, Hooker sea lion, New Zealand fur seal, Hector’s dolphin) that are critically dependent on a productive and diverse marine environment free of the disturbances and competition for resources caused by commercial and recreational fishing (Slooten & Dawson 2010, Robertson & Chilvers 2011, Darby & Dawson 2000). Additionally, the coastal fisheries resources are clearly showing the effects of a long history of overexploitation as well as waste from bycatch and discards (Durante et al. 2020). The region is in critical need of fisheries restoration that can only be achieved by

protecting key spawning stocks and setting aside regions where a significant portion of the spawning biomass is free of exploitation (e.g. Gaines et al. 2010, Jack and Wing 2013). Areas of biogenic habitat and unique features of the benthic biodiversity of the region are not adequately protected in the plan, either by percentage area in protected area status or by representation in the plan. While the aim of protecting kelp forests as critical biogenic habitat is admirable, there is little scientific evidence that the largest threat to their existence is harvest pressure. In fact, kelp forests are quick to regenerate from moderate harvest if the physical conditions are conducive to growth. Far greater threats to kelp forests lie in the fine sediment runoff and eutrophication wrought by ineffective catchment and estuarine management in the region. These issues should be urgently addressed by the regional council (s) involved whose remit includes effective catchment and coastal management.

I give you this opinion based on evidence as someone who has conducted scientific studies of marine systems for over 30 years, in New Zealand and internationally, and has been intimately involved in both fisheries and biodiversity management. New Zealand has recently demonstrated to the world that good things can happen if you take scientific advice, and take the necessary, often difficult steps to achieve a positive outcome. This should be just as true in management of our natural heritage and coastal resources, the health of our oceans, as with our personal health.

I urge the government to extend both the breadth and depth of marine protection on the Otago/Southland coastline and take the necessary positive steps required to safeguard our natural treasures in this globally unique ecosystem.

## References

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**From:** [Roger Beattie](#)  
**To:** [SEMP](#)  
**Cc:** s9(2)(a)  
**Subject:** SEMPA Submission Giant Kelp 3G Quota Owner Group  
**Date:** Thursday, 30 July 2020 6:14:53 PM  
**Attachments:** [SEMPA Submission - Giant Kelp 3G Quota Owner Group.pdf](#)  
[Kelp beds Wainui map.pdf](#)  
[Kelp beds South East Otago main map.pdf](#)  
[Kelp beds South East Otago maps - South.pdf](#)  
[Kelp beds South East Otago maps - Middle.pdf](#)  
[Kelp beds South East Otago maps - North.pdf](#)

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Good evening

Please find attached SEMPA submission for Proposed Southeast Marine Protected Areas Consultation Document February 2020.

Cheers

Roger Beattie

s9(2)(a)  
[Redacted]  
[Redacted]  
[Redacted]  
[Redacted]

# Giant Kelp 3G Quota Owner Group

Proposed Southeast Marine Protection Network  
 Department of Conservation  
 PO Box 10420  
 Wellington 6143

30<sup>th</sup> July 2020

Emailed to: [southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)

## Submission on the Proposed South-East Marine Protected Areas (Consultation Document June 2020)

Giant Kelp 3G – (GK3G) Quota Owner Group represents the majority of quota and owners for the seaweed Giant Kelp (*Macrocystis pyrifera*) (KBB3G) commercial fishery in FMA3.

The address for service for this submission is:

Bill Chisholm  
 Chisholm Associates  
 s9(2)(a)

email: s9(2)(a)

s9(2)(a)

(*Macrocystis pyrifera*)



“Giant Kelp (*Macrocystis*) is the fastest growing and most prolific of all plant species found on Earth”

*Schiel & Foster (2015)  
 The biology and ecology of  
 Giant Kelp Forests*

**Figure 1.** Map of attached bladder kelp (*Macrocystis pyrifera*) Quota Management Area (KBB3G).

**GK3G Quota Owner Group opposes the Consultation Document’s T1 proposal, as described in the Consultation Document, dated June 2020, Section 3.5 (pages 48 & 49).**

**GK3G Quota Owner Group has no specific comment to make on the other proposals outlined in the Consultation Document, except that GK3G Quota Owner Group supports the joint submission made by the NZ Rock Lobster Industry Council, the Pāua Industry Council, and Fisheries Inshore New Zealand; and endorses all points made in their submission.**



## **Response to two Questions from Consultation Document**

1. The Consultation Document 2020 Section 3.2 (Option 1) poses the Question “*Do you agree with our initial analysis of the effects of maintaining the status quo?*”

GK3G Quota Owner Group’s answer to this question is no.

Section 3.2 (Option 1) then asks some supplemental questions: “*If not, why not? Please provide evidence to support your answer. Are there other benefits or impacts that have not been described here?*”

In response to these supplemental questions, there is reference in the Consultation Document (Section 3.2) to the status quo as “no protection provided”. This is deliberately misleading and attempts to undermine the QMS. There is plenty of evidence that the QMS, through the value of quota ownership, creates incentives for harvesters to look after their resource and defend it from environmental attack. Rather than cite endless examples of the strength of protection mechanisms provided by the QMS; for brevity, Roger Beattie cites a personal example:

“**In the early 1990s a developer in Wainui on Banks Peninsula was** wanting to dump treated human effluent into Akaroa Harbour. Roger took the developer to the Planning Tribunal to protect his Paua Quota, Marine farming assets and his access to clean healthy kelp. Roger paid for an alternative land-based disposal report – which has since been picked up by several other Akaroa Harbour communities with the result that there is cleaner water than there would have been.

Property Rights are the best form of protection that can be provided.

**No one’s property is no one’s care, someone’s property is someone’s care.**

Neither DOC nor green groups were interested in cutting down on pollution and protecting the environment of Akaroa Harbour.

Roger Beattie is helping with new research that will identify through DNA where land-based runoff from Dirty Dairy farms and Dirty Logging operations are located. From this Roger and others will take legal, political and media action against those polluters of our kelp beds.

No one has the incentive nor the will to look after the environment and protect it better than those who have invested their money and effort into its sustainable use. They more than anyone else have a vested interest in a vibrant clean protected environment.

The SEMPA is about preservation not utilisation.

**We should be very careful that we don’t confuse preservation with** protection. The purpose of the Fisheries Act is sustainable utilisation, not preservation. “Preservation” does not protect.

2. The Consultation Document Section 3.5 discusses the creation of T1, and poses the question: “*Do you agree with the costs and benefits identified for this site?*”

GK3G Quota Owner Group’s answer to this question is no.

The Consultation Document 2020 Section 3.5 Question then asks a series of supplemental questions: *“If not, why not? Please provide evidence to support your answer. Are there other benefits or impacts that have not been described here? Please consider the stated costs and benefits described above. What changes to the site or fishing restrictions would you like to see? Why? Please provide evidence to support your answer.”*

The rest of this submission answers all these supplemental questions.

**Description of the KBB3G fishery**

Kelp harvest has occurred in New Zealand (principally on the Chathams and KBB3G area) for the last 30 years. “Attached Bladder Kelp” (KBBG) was introduced into the Quota Management System (QMS) on 1 October 2010, within FMA 3 (SI South East Coast) and FMA 4 (Chatham Islands) only. These have the reporting codes KBB3G and KBB4G, respectively. The Total Allowable Catch (TAC), for commercial, recreational, customary and other mortality allowances for KBB3G are:

- Total Allowable Commercial Catch (TACC) 1236 tonnes
- Customary non-commercial catch allowance 0.1 tonnes
- Recreational catch allowance 0.1 tonnes
- Other (non-fishing) causes of mortality 1.0 tonnes

On 1 October 2010, when Giant Kelp came into the QMS, s9(2)(b)(iii) was allocated to s9(2)(b)(ii) (as a result of High Court action and subsequent agreement between MFish and Roger Beattie) and s9(2)(b)(ii) was allocated to s9(2)(b)(ii) as part of the fisheries settlement process. On 28<sup>th</sup> September 2012 the Crown sold the remaining s9(2)(b)(ii) to s9(2)(b)(ii) and s9(2)(b)(iii) to s9(2)(b)(ii) Ltd. KBB3G quota owners in 2012 are listed below:

**Quota Owned by Stock**



Date as at: 27 September 2012  
 Stock code(s): KBB3G - Bladder Kelp

Stock	Client	Account	Total shares	Restricted	Trans-ferable
KBB3G	8600000 - Her Majesty the Queen in Right of New Zealand Acting by and through the Minister of Fisheries or the Ministry for Primary Industries, either individually or collectively	Normal	s9(2)(b)(ii)		s9(2)(b)(ii)
KBB3G	s9(2)(b)(ii)	Settlement			
KBB3G		Normal			
KBB3G		Settlement			
KBB3G		Normal			



KBB3G Kelp Quota has been bought and sold since that time. There are currently seven Giant Kelp Quota owners of KBB3G Quota. These are listed in the table below:

### Quota Owned by Stock



Date as at: **20 July 2020**  
 Stock code(s): **KBB3G - Bladder Kelp**

Stock	Client	Account	Total shares	Restricted	Trans-ferable
KBB3G	9791803 -	s9(2)(b)(ii)	Normal	s9(2)(b)(ii)	s9(2)(b)(ii)
KBB3G	9791956 -	Normal			
KBB3G	8440865 -	Normal			
KBB3G	9790940 -	Normal			
KBB3G	9791706 -	Settlement			
KBB3G	9791695 -	Normal			
KBB3G	8470162 -	Normal			

Bladder kelp, like all other large seaweeds, occurs in one of three states: attached (growing on the substrate); free-floating; and beach cast. The attached growing state of bladder kelp is the only state managed under the QMS.

Giant kelp harvest is restricted by the TACC of KBB3G Quota of 1236 tonnes and a maximum cutting depth of 1.2m.

Restrictions on commercial harvest of KBB3G are based on the Californian fishery, John Pirker's research (including Pirker et al. 2000) and Dr Schiel's research (all which have been provided to the Forum in the 2016 submission from Roger Beattie).

Commercial catch data since 2001-2002 is presented below:

Reported landings for KBB G in greenweight (t) by fishing year. Blank cells indicate nil catches.  
From 1 October 2010 catch under QMS.

Fishing Year	KBB3G	KBB4G	TACC KBB3G	TACC KBB 4G
2001-02	105	0.37		
2002-03	37			
2003-04	8			
2004-05	18			
2005-06	3			
2006-07	8			
2007-08	6	2.1		
2008-09	64			
2009-10	28			
2010-11	53		1236	272
2011-12	34		1236	272
2012-13	35		1236	273
2013-14	94		1236	273
2014-15	62		1236	273
2015-16	31		1236	273
2016-17	42		1236	273
2017-18	41		1236	273
2018-19	67		1236	273
2019-20	52		1236	273
TOTAL	787			
TOTAL - Since 2010	511			

NZ Kelp, which leases quota from Roger Beattie, has harvested s9(2)(b)(ii) of kelp from Akaroa Harbour and Shag Point from April 1st, 2010 up to June 2020. For the last two decades NZ Kelp has worked hard to develop markets and distribution channels for this new industry. The number of products is expanding, and sales are increasing, providing sustainable eco-friendly products to a multitude of end users, whilst also providing valuable employment and income for New Zealanders.

NZ Kelp reports all its annual catch to MPI through daily Electronic Returns and Monthly Harvest Returns electronically.

Giant Kelp is used for animal dietary supplements, pasture and cropping foliar sprays, soil amendments, human condiments and health supplements.

## **Reasons for GK3G Quota Owner Group's opposition to T1**

### **1. Loss of economic opportunity and quota value**

GK3G Quota Owner Group wishes to develop the KBB3 fishery to its full potential. The current 1236 tonne TACC is a small fraction of what the sustainable TACC could be.

Those who have funded the scientific research and won a High Court battle to bring KBB3G into the QMS, and those who have bought KBB3G quota off the Government in September 2012, have not done so to have their rights taken away without fair compensation.

The T1 area has many all-weather boat launching facilities and adjacent areas for harvesting Giant Kelp – not all areas where Giant Kelp occurs in area KBB3G have good boat access or sheltered areas suitable for harvesting. Shorelines south of Otago Harbour are mostly too high-energy for safe harvesting, and Giant Kelp is not as common. These southern shorelines are also more remote. They are further away from processing, transport and marketing facilities, making it less efficient and less economic to harvest.

## **2. Dialogue with Giant Kelp Quota owners has been non-existent**

GK3G Quota Owners have not been consulted directly by the Forum. Given the scale and extent of potential economic harm of the T1 proposal, it should be expected that the Forum would have involved Giant Kelp Quota owners in regular and meaningful dialogue. The commercial fishing representatives on the Forum did not have a mandate to represent the interests of Giant Kelp quota owners, nor did they have the necessary expertise in Giant Kelp harvesting, processing and marketing to provide the Forum with an accurate picture of the adverse effects of the T1 proposal.

Despite this NZ Kelp made a detailed submission on Forum proposals in 2016. This submission provided comprehensive information on harvest dynamics, scientific knowledge of kelp harvest, environmental issues, economic information, and harvest logistics. It would be fair to expect some or all of NZ Kelp's information to feature in the current proposals, but none of it has. This information has been wholeheartedly ignored.

## **3. Consultation process a charade**

The High Court decision of *Air New Zealand Limited v Wellington International Airport Ltd* summarised the relevant considerations for consultation to be as follows:

- *The essence of consultation is the communication of a genuine invitation to give advice and a genuine consideration of that advice.*
- *The effort made by those consulting should be genuine, not a formality; it should be a reality, not a charade.*
- *Sufficient time should be allowed to enable the tendering of helpful advice and for that advice to be considered. The time need not be ample but must be at least enough to enable the relevant purpose to be fulfilled.*
- *It is implicit that the party consulted will be (or will be made) adequately informed to enable it to make an intelligent and useful response. The party obliged to consult, while quite entitled to have a working plan in mind, should listen, keep an open mind, and be willing to change and if necessary start the decision-making process afresh.*
- *The parties may have quite different expectations about the extent of consultation.*

While the invitation to “consult” with Giant Kelp Quota owners in 2016 might have been genuine, there has been no genuine consideration of the advice given by Roger Beattie. If the Forum was genuine, it would have noted in the Consultation Document or Recommendations to Ministers Report that harvest of kelp through the QMS poses no risk to kelp plants, the wider environment or the wider ecosystem supported by kelp forests. All information provided by NZ Kelp in its 2016 submission has been overlooked.

#### **4. False, misleading, and defamatory statements made in the Consultation Document and Recommendations to Ministers Report**

The Consultation Document has a series of false and misleading statements which appear to be based on the random musings of its author(s), rather than hard facts. For example – Section 3.5:

*...kelp harvesting adds an additional and unwarranted risk to the value provided by this species.*

*This site was proposed for protection to prevent kelp forests from being affected by commercial harvesting in the event that harvesting operations are developed in this area.*

These statements pre-suppose that all of the work done to bring Kelp into the QMS gave no consideration to the effects of commercial harvest on protection of kelp forests. This is patently absurd. Exhaustive efforts were made to ensure that the effects of commercial Kelp harvesting had no adverse effects on the marine environment, as required by Sections 8(2) and 9 of the Fisheries Act 1996.

#### **GK3G Quota Owners do not appreciate the Consultation Document being circulated to the NZ public containing defamatory statements about Kelp harvesters.**

Similarly, the Recommendations to the Minister of Conservation and the Minister of Fisheries report February 2018 (the Recommendations Report) contains false and misleading statements which are clearly biased against Kelp harvesters and ignorant of Fisheries Act 1996 requirements. For example, Section 2.4.14 of that document states:

**2.4.14 Kelp Forest – Site T1 (Type Other)** (From Recommendations to Ministers Report February 2018)

*Site T1 ... does contribute to the objective of the MPA policy by directly enhancing biodiversity protection.*

This is a bald statement with no supporting data or references relating to the enhancement of Giant Kelp forest biodiversity or its protection. It demonstrates the political agenda of the majority of Panel members. Numerous similar statements appear in the Recommendations Report.

Commercial Kelp harvest has no detrimental effect on biodiversity. In fact, commercial harvest helps recruitment and juvenile frond growth by creating light wells.

e.g. Pirker et al (2000) states:

“harvesting canopy biomass had no measurable effect on *Macrocystis* plants, or the dominant understory species, including juvenile *Macrocystis*, *Ecklonia radiata* and macroinvertebrates”

Harvesting also reduces the ripping out of entire beds of kelp including holdfasts. This is done by reducing ‘rafting’ and by having a more diverse maturity profile i.e. better balance between old mature fronds and immature fronts. The research shows that associated species are not affected by commercial harvesting.

The Recommendations Report (Section 2.4.14) states:

*Macrocystis is managed under the Quota Management System. However, this management tool is primarily designed to ensure sustainability of the exploited species rather than being focussed on sustaining the broad ecosystem services that are provided by a biogenic habitat like Macrocystis. As such, the proponents of Network 1 consider that a harvest ban is required to protect the biodiversity associated with Macrocystis in the most significant kelp forest habitats in the Forum region.*

Whomever the “proponents of Network 1” are, they clearly demonstrate a lack of understanding of the purpose and function of the QMS. The purpose of the Fisheries Act 1996 is “to provide for the utilisation of fisheries resources while ensuring sustainability”. This purpose is very explicit, sensible and wise – **providing** for utilisation and **ensuring** sustainability. The Fisheries Act 1996 was specifically written to stop the kind of feel-good stealing proposed in the Recommendations Report and Consultation Document.

The QMS can be summarised by Section 8 of the Fisheries Act 1996, which ensures sustainability as follows:

*ensuring sustainability means—*

*(a) maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and*

*(b) avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment*

The “proponents of Network 1” are clearly wrong in their assessment of the QMS, and this needs to be reflected in the final decision. There is no evidence that a harvest ban would achieve any form of additional protection to the kelp forests on the proposed T1 region or anywhere else.

The Recommendations Report (Section 2.4.14.2) also states:

*WHY THIS SITE HAS BEEN RECOMMENDED*

*...harvesting provides an additional and unwarranted risk to the values provided by *Macrocystis*, a species already threatened by other stressors. Harvesting can impact directly on *Macrocystis* populations (e.g. by reducing reproductive output) and indirectly on the ecosystem services they provide.*

There are no information, data or references provided which back up this statement. Indeed, in its 2016 submission to the Forum, NZ Kelp produced a significant dossier of information on the harvest dynamics of kelp, and how environmental risks can be avoided, remedied and mitigated to the extent where they are no more than minor. This information appears to have been ignored.

In summary, this litany of false and misleading statements and anti-harvester bias has been widely circulated to the public, officials and Ministers with zero consideration of the facts and no genuine consideration of the advice given by Kelp harvesters. Accordingly, no faith can be given to the Recommendations Report Section 2.4.14.3 “what submitters said” nor any of the conclusions made in that report and the Consultation Document.

**5. No analysis of T1 against the protection standard**

To be a formal ‘Marine Protected Area’, the management tool or combination of tools used must be sufficient to meet the protection standard, which states that the tool(s) must:

*Enable the maintenance or recovery of the site’s biological diversity at the habitat and ecosystem level to a healthy functioning state. In particular, the management regime must provide for the maintenance and recovery at the site of:*

- (a) the physical features of the site and the biogenic structures that support biodiversity*
- (b) ecological systems, natural species composition (including all life-history stages) and trophic (the position an organism occupies in a food chain) linkages*
- (c) potential for the biodiversity to adapt and recover in response to perturbation (changes in the normal state or regular movement of something).*

No such analysis has been undertaken. Instead, the “proponents of Network 1” have stated:

*While this site does not contribute to the MPA network as it does not meet the protection standard as a Type 2 MPA, it does contribute to overall biodiversity protection.*

This is another bald statement with no supporting information. The “proponents of Network 1” are attempting to circumvent the formal due-diligence process by manufacturing T1 as a separate class of “protected area”, which does not warrant the necessary scrutiny because of its “contribution to biodiversity protection”. Without meeting the protection standard, the T1 recommendation is therefore redundant; and without the necessary due diligence, its gazettal is probably unlawful.



It should be noted that when choosing potential sites for marine protection, information related to social and economic interests should be considered to minimise adverse impacts on existing users. Such information may include current **and potential** use for the purposes of extraction or exploration, or the contribution to economic or intrinsic value by virtue of its protection. No analyses have been provided by the Consultation Document or anywhere else which could be considered of sufficient quality to meet these information requirements. NZ Kelp (Mr Roger Beattie) has been available to assist with any or all of these investigations. However, to date Mr Beattie's phone has remained silent.

## **6. Not using the best available information**

The Consultation Document relies on one scientific paper by Geange 2014 – (Growth and reproductive consequences of photosynthetic tissue loss in the surface canopies of *Macrocystis pyrifera*). It then cherry picks what is included and excluded.

Schiel & Foster 2015 (titled “Giant Kelp Forests “, which is the definitive book on the biology and ecology of Giant Kelp) was not mentioned in any of the Consultation Documents.

Pirker et al. 2000 (“Seaweed products for barrel culture paua farming”) is New Zealand's largest Giant Kelp study. It was not mentioned in any of the Consultation Documents.

SEMPA documents repeat many times the quote “*It (Giant Kelp) is long lived, and recovers slowly (if at all depending on harvest method).*” The above quote is not from Geange but from the SEMPA Committee.

Dr Schiel & Foster 2015

Page 23 “*Macrocystis* can quickly colonize surfaces, grow rapidly, and become reproductive in less than a year.”

Page 25 “Fronds can grow very rapidly while forming a surface canopy. For example, Clendenning (1971a) found their maximum elongation rate to be ‘the fastest autotrophic elongation on record for any marine or land plant.’ He estimated a maximum growth rate of around 50cm day<sup>-1</sup>.”

In an email from Dr Foster to Roger Beattie, 30-11-16 Dr Foster explains that:

- “...whole plants live for only 2-6 years, fronds live for 4-9 months. Individual plants recover rapidly from reasonable harvest.”
- “If Geange (2014) means commercial harvesting as you do it, **then his experiments are irrelevant** to determining harvesting effects.”

Dr Schiel - Distinguished Professor (Marine Science), Canterbury University, PhD, FRS-NZ, FMBA quotes below (from personal conversation between Roger Beattie and Dr Schiel 25.7.2020) when asked about the statement “*Macrocystis pyrifera* ... It is long-lived, recovers slowly (if at all depending on harvesting method)” - Dr Schiel’s response was

“Simply not correct, not even arguable”

“Called seaweed for a reason”

“What is the evidence for (long lived and recovers slowly)?”

“One of the reasons it is so persistent, so prolific each plant puts out billions of spores”

“The part we harvest regenerates continuously”

“There is no credible evidence that Giant Kelp doesn’t recover from surface harvesting”

Geange (2014) harvested **individual** plants down to 1.2m and also cut off all the reproductive parts – the Sporophylls (at the bottom of the plant).

Commercial harvesting, harvests groups of fronds. Which can legally be harvested to 1.2m deep but are mostly harvested to only 0.5m deep. **Commercial harvest does not harvest Sporophylls.**

Geange (2014) said (in the 2<sup>nd</sup> to last paragraph page 74):

*“This study differed from the loss of the surface canopies due to catastrophic storm events and commercial harvesting in an important manner – experimental algae were surrounded by the intact canopy of their neighbors, whose holdfasts were typically tens of centimeters to a few metres away. Catastrophic storm events and commercial harvesting remove virtually all canopies in a given area, facilitating light penetration.”*

The SEMPA documents made no mention of the above caution by Geange (2014).

Geange (2014) experiments were the equivalent to giving someone a haircut and cutting off their testicles, then saying that cutting your hair makes you sterile or kills you.

## 7. Cost benefit analysis

A proper cost-benefit analysis has not been done on the destruction of KBB3G Kelp quota rights, the potential economic activity, regional development and employment through the imposition of T1.

Current TACC	Current Quota Value	Economic Loss
s9(2) tonnes KBB3G	s9(2)(b) /tonne	s9(2) of the available harvestable kelp from Area 3 (KBB3G) is in the SEMPA area
Sustainable harvest from Banks Peninsula estimated to be s9(2) tonnes p.a.		
Future conservative TACC 10,000 tonnes for KBB3G		
SEMPA area potential harvest s9(2) tonnes p.a. *see attached maps of Kelp beds in Akaroa Harbour and South East Otago.	s9(2)(b) /tonne	Loss of potential Quota value s9(2)(b)(ii)

### NZ Kelp harvesting and financial figures

Current harvesting of s9(2) tonnes p.a. and growing	Number of employed 2 FTE employed at present doing harvesting, drying, processing, sales & marketing & dispatch	NZ Kelp sales grew from s9(2)(b)(ii) (2019) to s9(2)(b) (2020) s9(2) growth. This will translate into harvesting more. Approx. s9(2)(b)(ii) wet weight.  (Our markets are growing especially in the Regenerative Farming area.)
At s9(2) tonnes p.a. harvesting x s9(2)(b) tonne = s9(2)(b)(ii) gross income p.a.	For the Kelp industry this would support 100 plus contractors and employees doing harvesting, drying, processing, sales & marketing, dispatch, R&D Science and management	The future economic income loss of not being able to harvest s9(2) tonnes p.a. = s9(2)(b) x s9(2)(b) = s9(2)(b)(ii)

## **8. Undue Effects Test**

No Undue Effects Test has been done. Undue effects of T1 include (but are not limited to):

- Logistic difficulties of harvesting elsewhere outside T1,
- Increased costs of harvesting elsewhere outside T1
- Reduction in the ability to effort-spread the current TACC harvest (1236T)
- Increased carbon emissions caused by harvesting elsewhere outside T1
- Health and Safety problems caused by harvesting elsewhere outside T1

## **9. Cabinet Economic Development Committee**

The Cabinet Economic Development Committee has been misled into thinking there are bad outcomes from commercially harvesting Giant Kelp and that no one will be commercially affected.

## **10. Regulatory Impact Assessment**

The Application for an exemption from a Regulatory Impact Assessment was supported by misleading information. It was said that “Stakeholders” had been consulted. In the case of Kelp Quota Owners such consultation was confined to submissions invited in 2016, and no genuine consideration of the submission provided by Roger Beattie on behalf of the Kelp harvesting industry.


## **11. Relief sought**

GK3G Quota Owner Group submits that either:

- Area T1 be removed from the Proposed Southeast Marine Protected Areas (as outlined in the Consultation Document) in its entirety, or
- All marine reserve and MPA proposals outlined in the Consultation Document are withdrawn

Yours faithfully

s9(2)(a)



W.P Chisholm  
 pp: Roger Beattie, Chairman,  
 Giant Kelp 3G Quota Owner Group

## References:

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Seaweed Products for barrel culture Paua  
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Canterbury TBGF Project: Contract  
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Geange, Shane W. 2014  
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photosynthetic tissue loss in the surface  
canopies of *Macrocystis pyrifera*.  
School of Biological Sciences, Victoria  
University of Wellington, New Zealand.  
Journal of Experimental Marine Biology  
and Ecology 453 (2014) 70-75

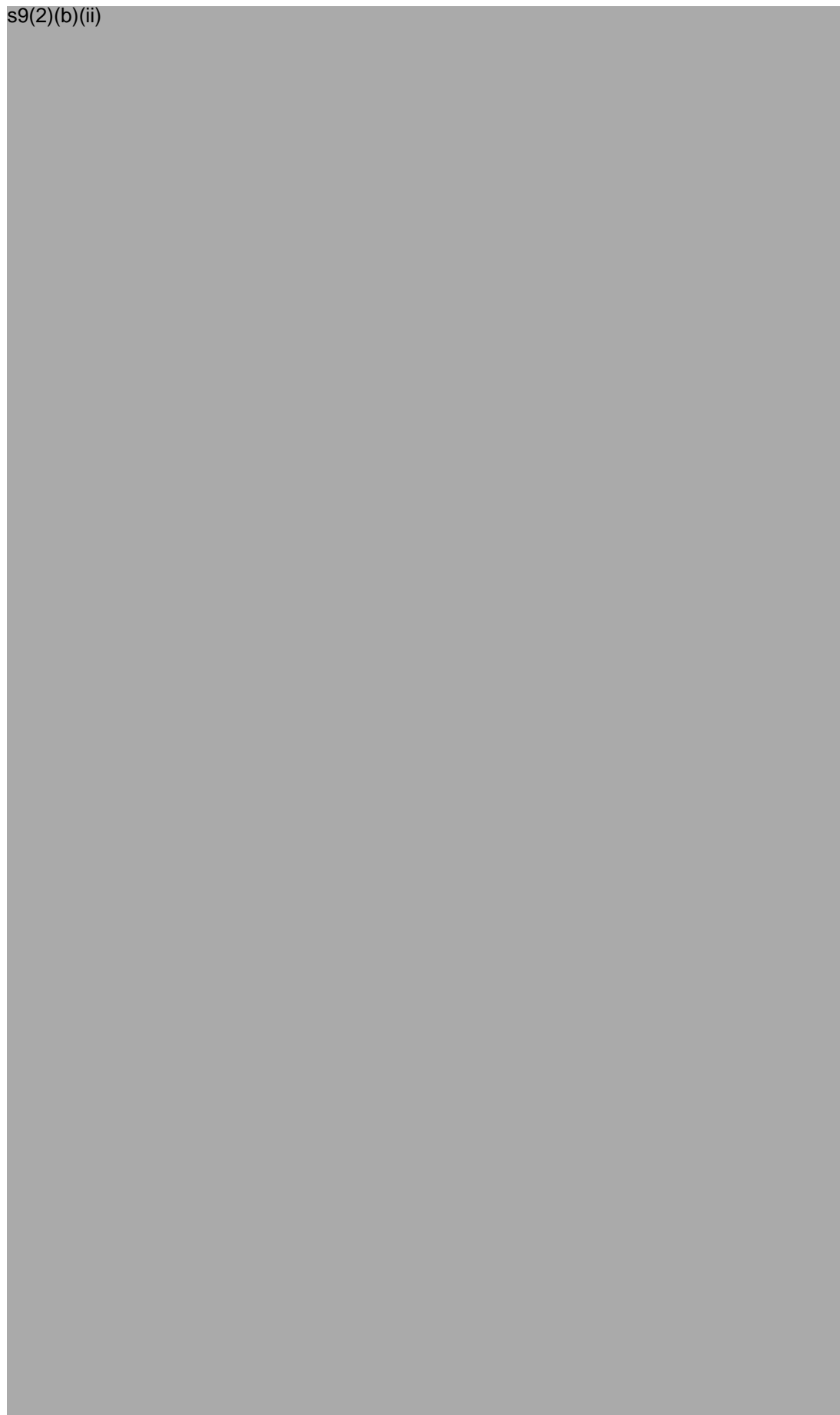
## Attached Documents:

Kelp beds maps South East Otago main  
map  
Kelp beds maps South East Otago – South  
Kelp beds maps South East Otago –  
Middle  
Kelp beds maps South East Otago - North

Kelp bed maps Wainui

GIANT KELP BEDS SOUTH OF s9(2)(b)(ii), BANKS PENINSULA

s9(2)(b)(ii)



s9(2)

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)

s9(2)(b)

s9(2)(b)(ii) of coastline



s9(2)(b)

Kelp beds South of Wainui Akaroa Harbour Banks Peninsula. Pirker et al's (2000) research showed that s9( ) Tonnes could be harvested per year from 3 sites s9(2)(b)(ii)

The other areas South of Wainui would conservatively be equal to that same tonnage making a total s9( ) Tonnes from Wainui to Red Rocks.

Kelp beds in Akaroa Harbour extend to a maximum of 130m from shore.


s9(2)(b)(ii)

s9(2) Tonnes sustainable harvest per year  
Fyfe et al. (1999)  
Based on biomass of s9(2)(b)(ii)

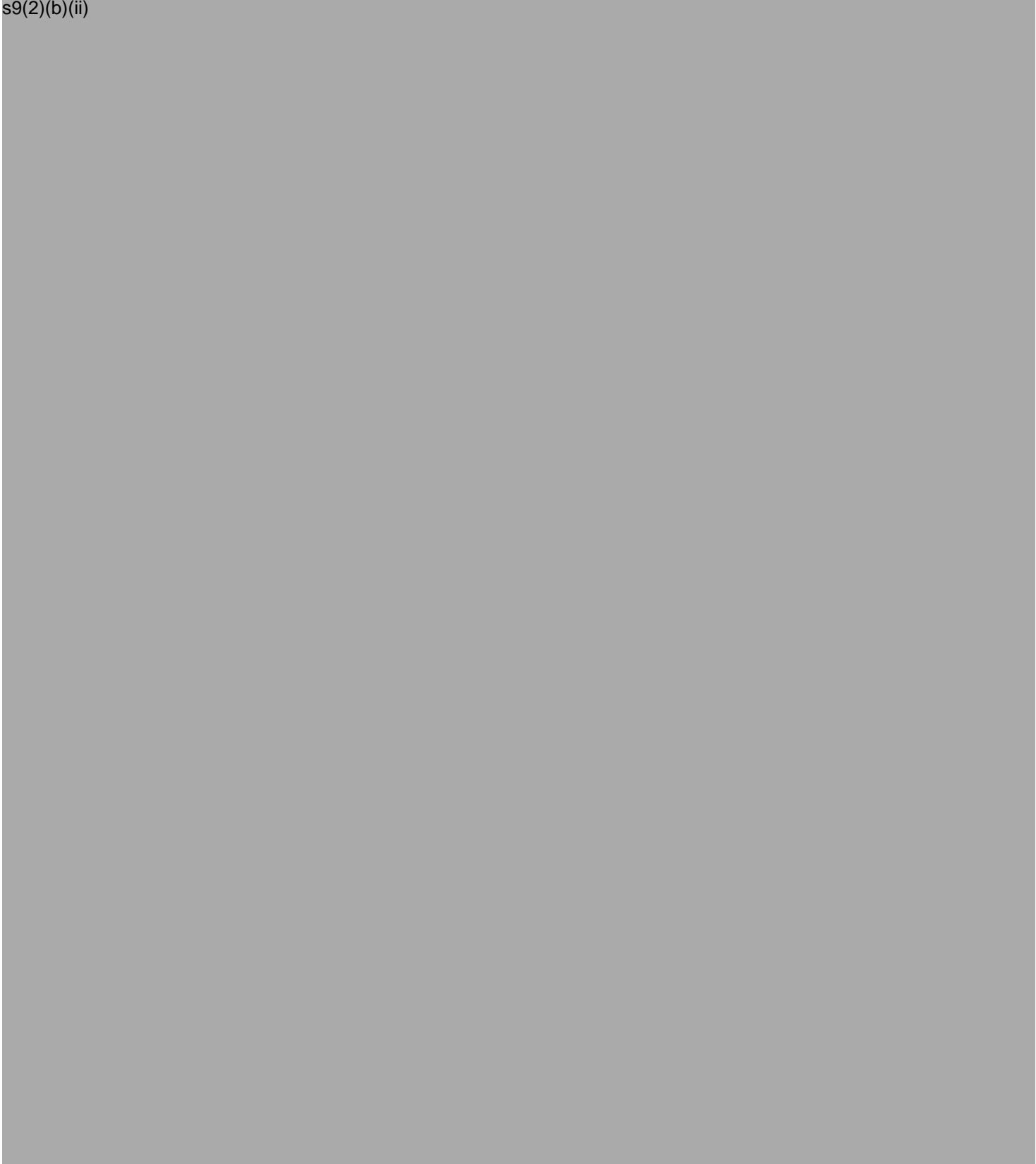
Fyfe et al (1999) overall bed biomass of s9(2)(b)(ii) , standard error 16.5%. for a 300 ha area of *Macrocystis* South of Pleasant River in North Otago. If we apply a 20% standard error this gives us a conservative biomass of s9(2) Assuming 75% of the biomass is in the canopy. Based on Pirker et al's work in indicates a sustainable harvest of s9(2) tonnes from s9(2)(b)(ii) .



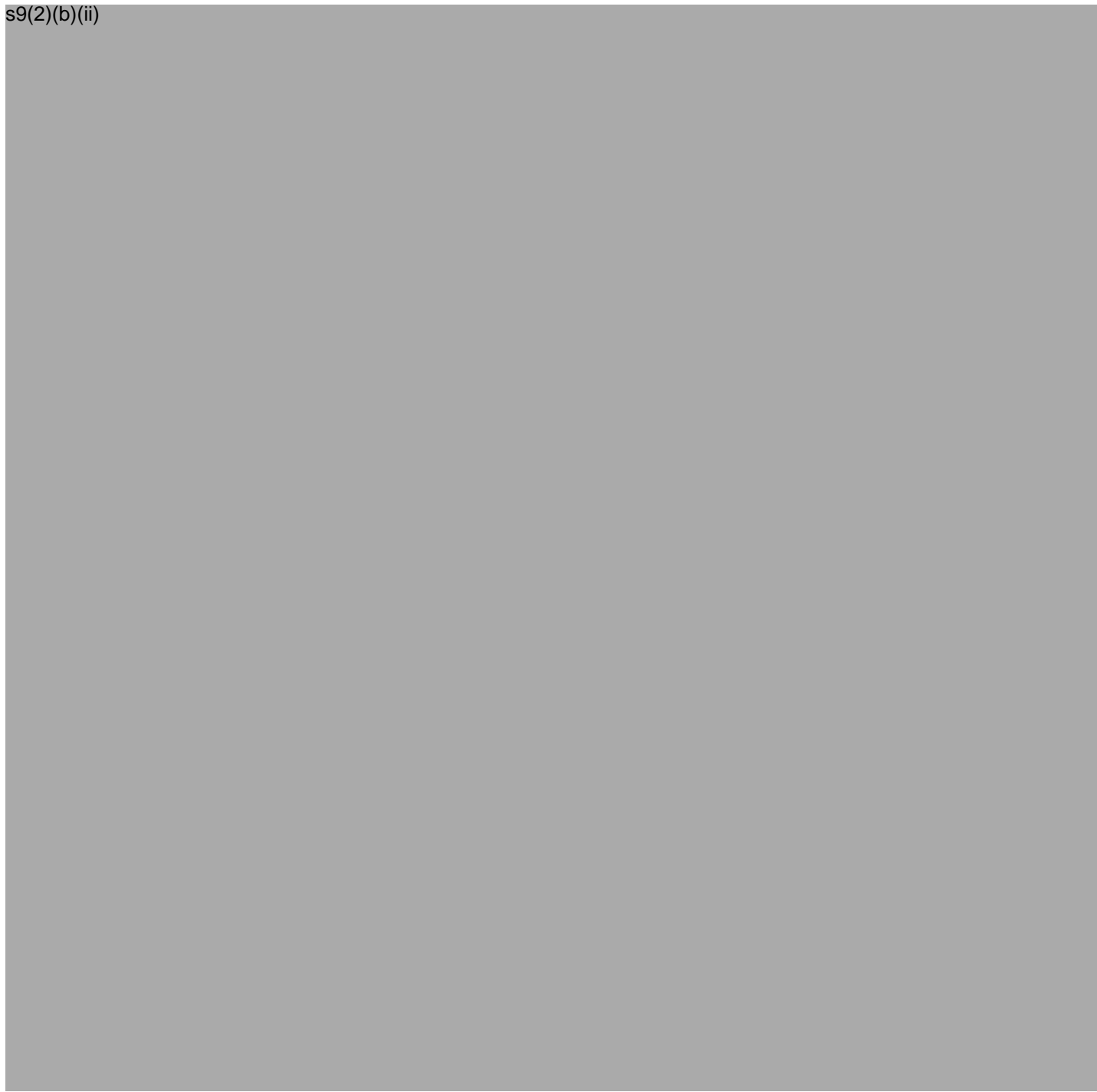
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s9(2)(b)(ii)



s9(2)(b)(ii)

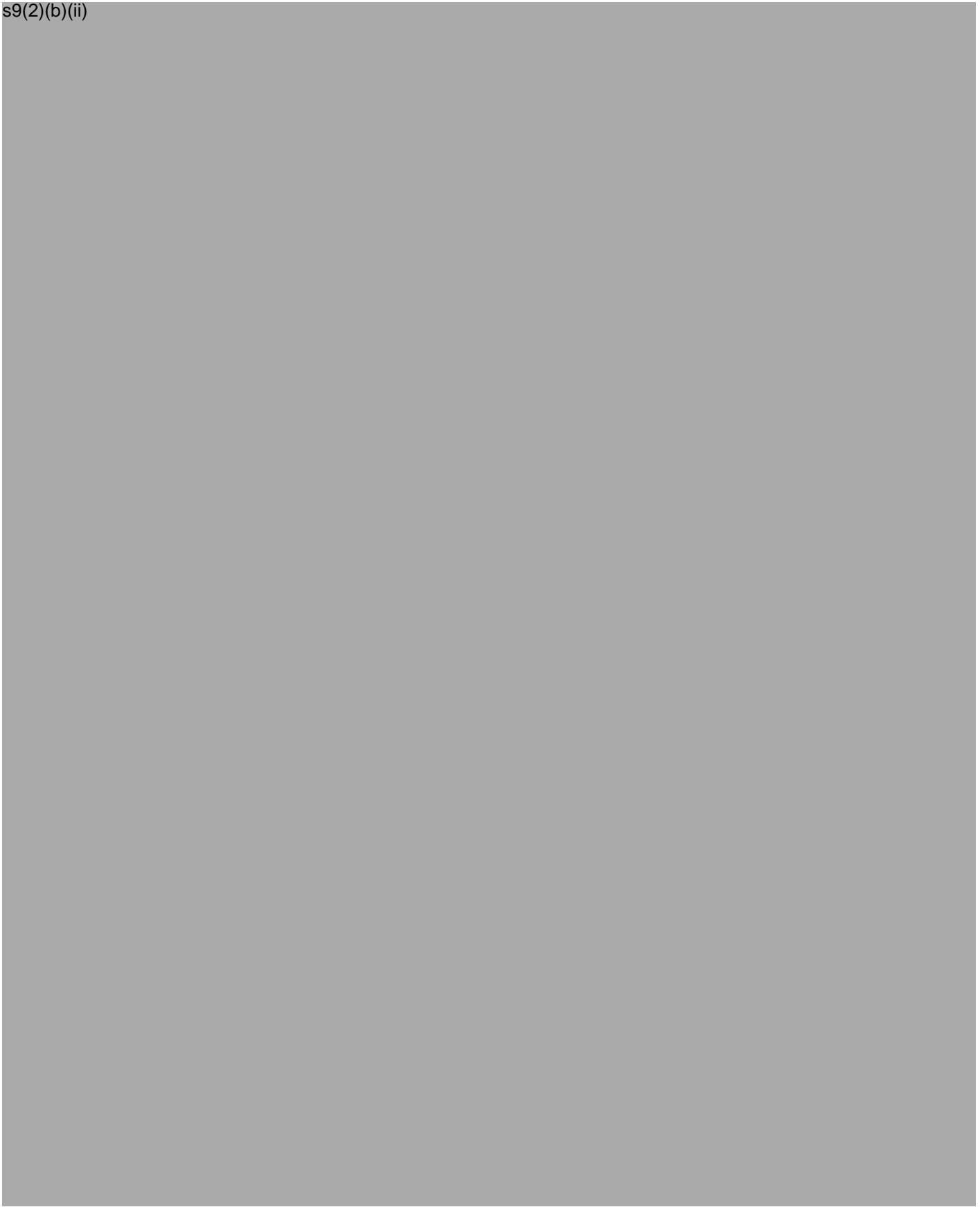


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Google Map s9(2)(b)(ii)

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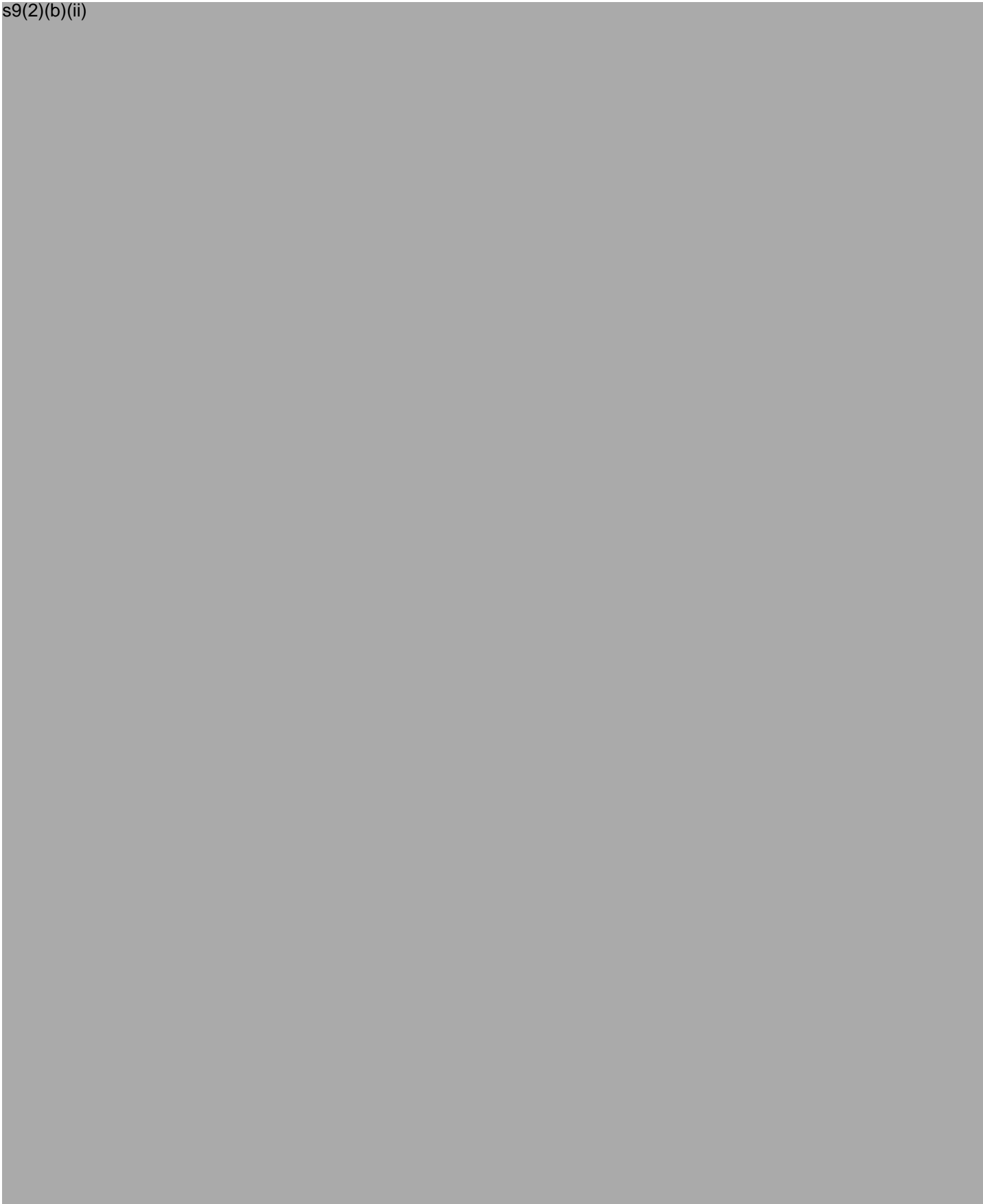
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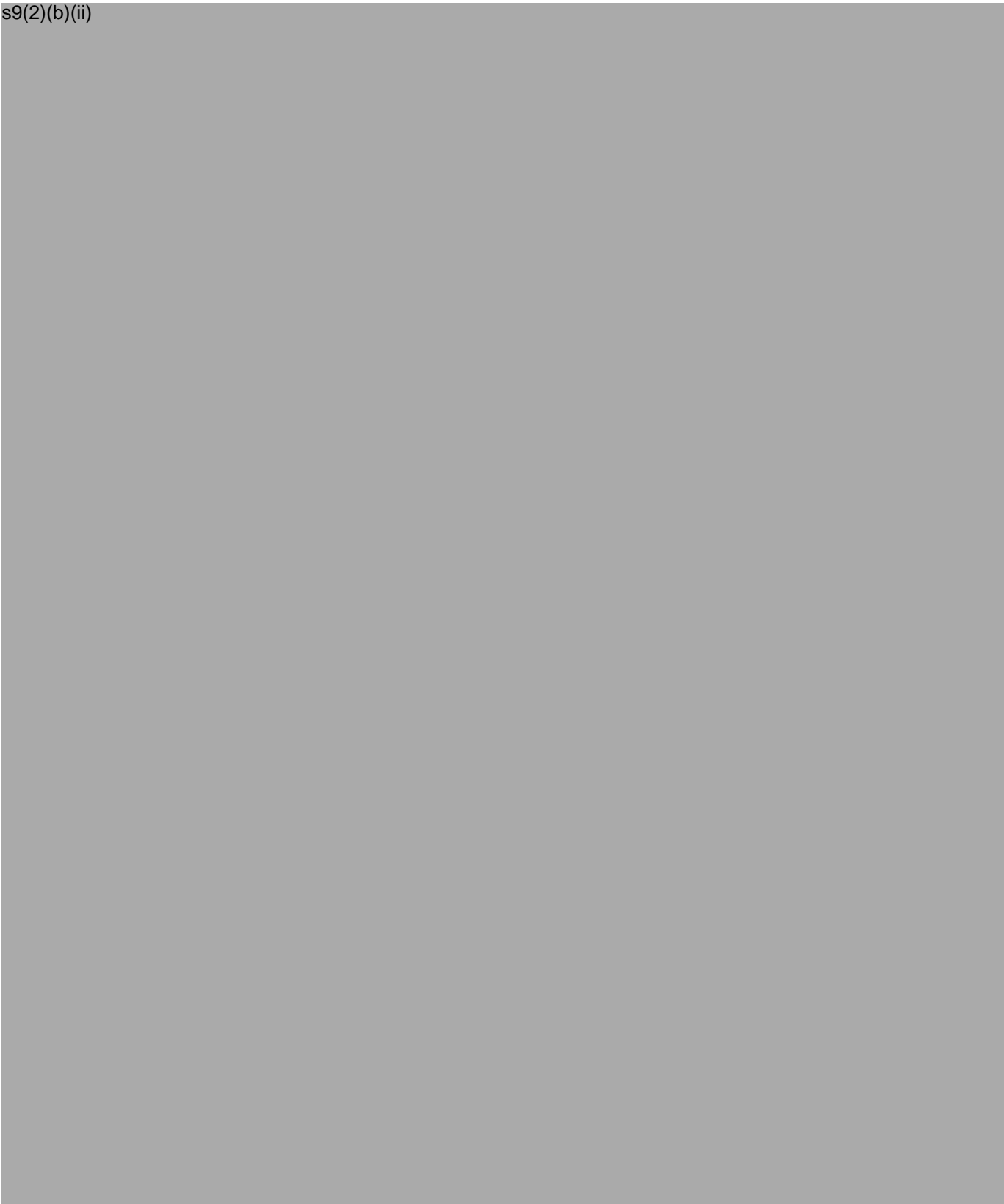
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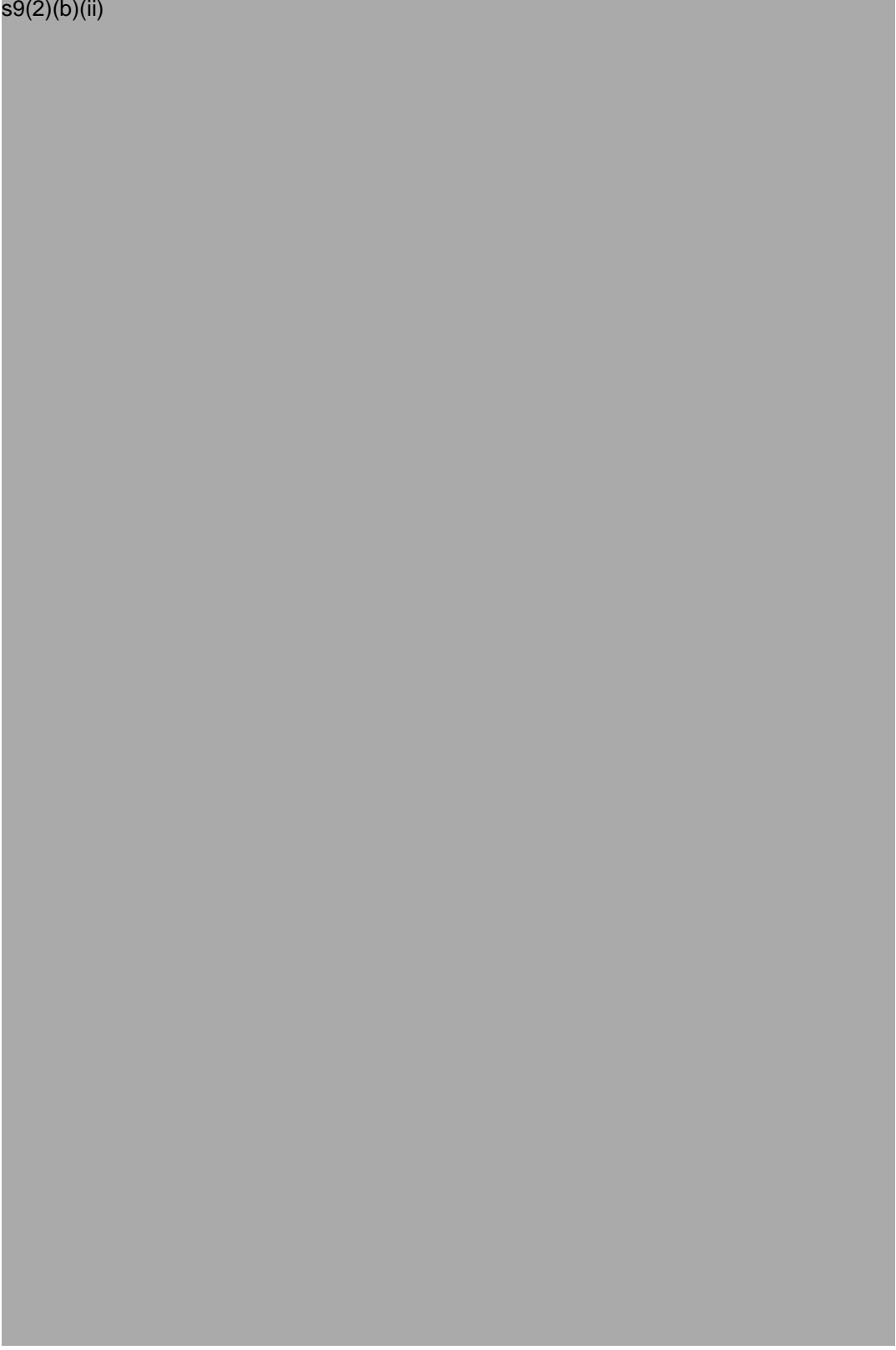
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s9(2)(b)(ii)

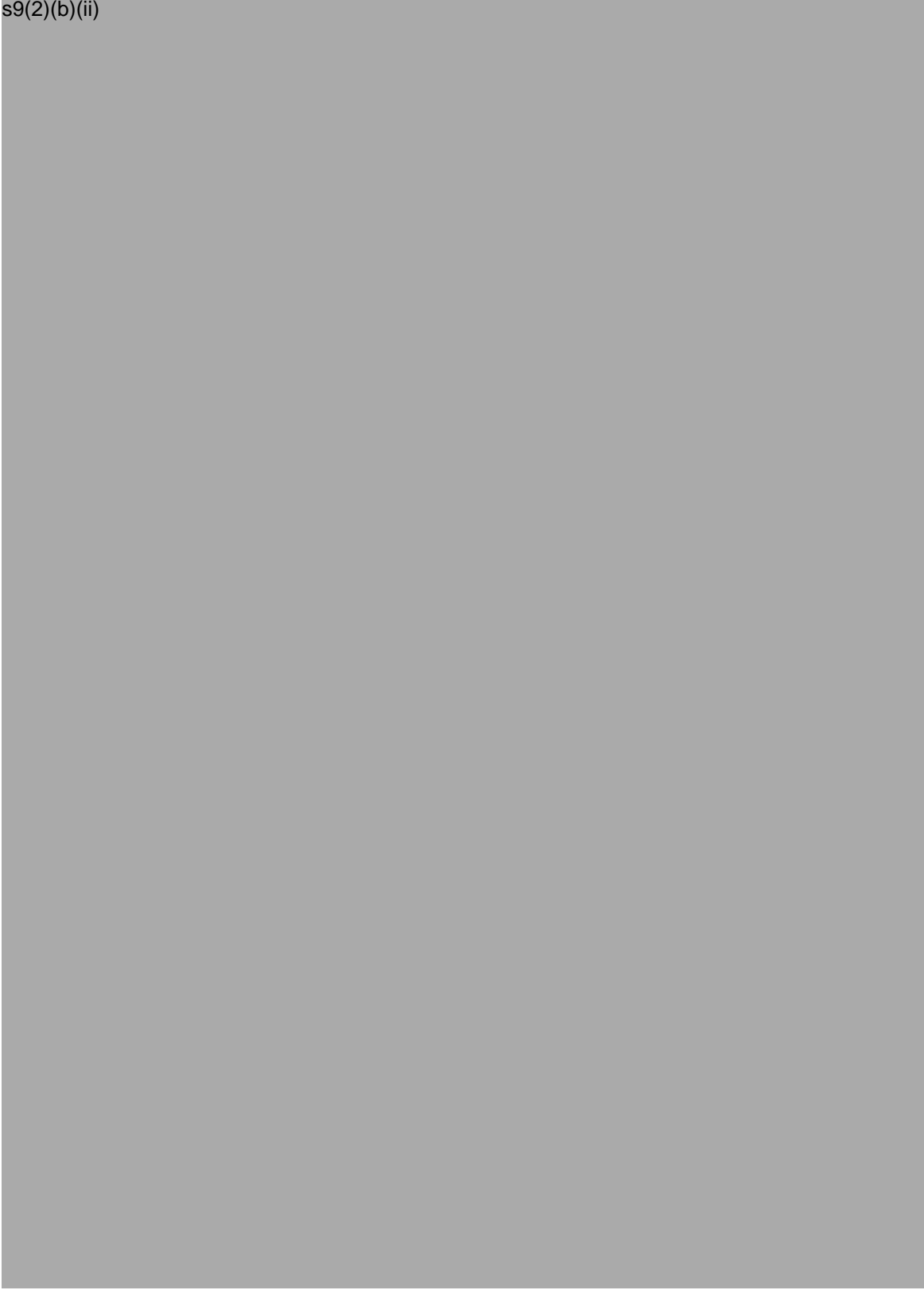


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[Google Map](#) s9(2)(b)(ii)

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s9(2)(b)(ii)



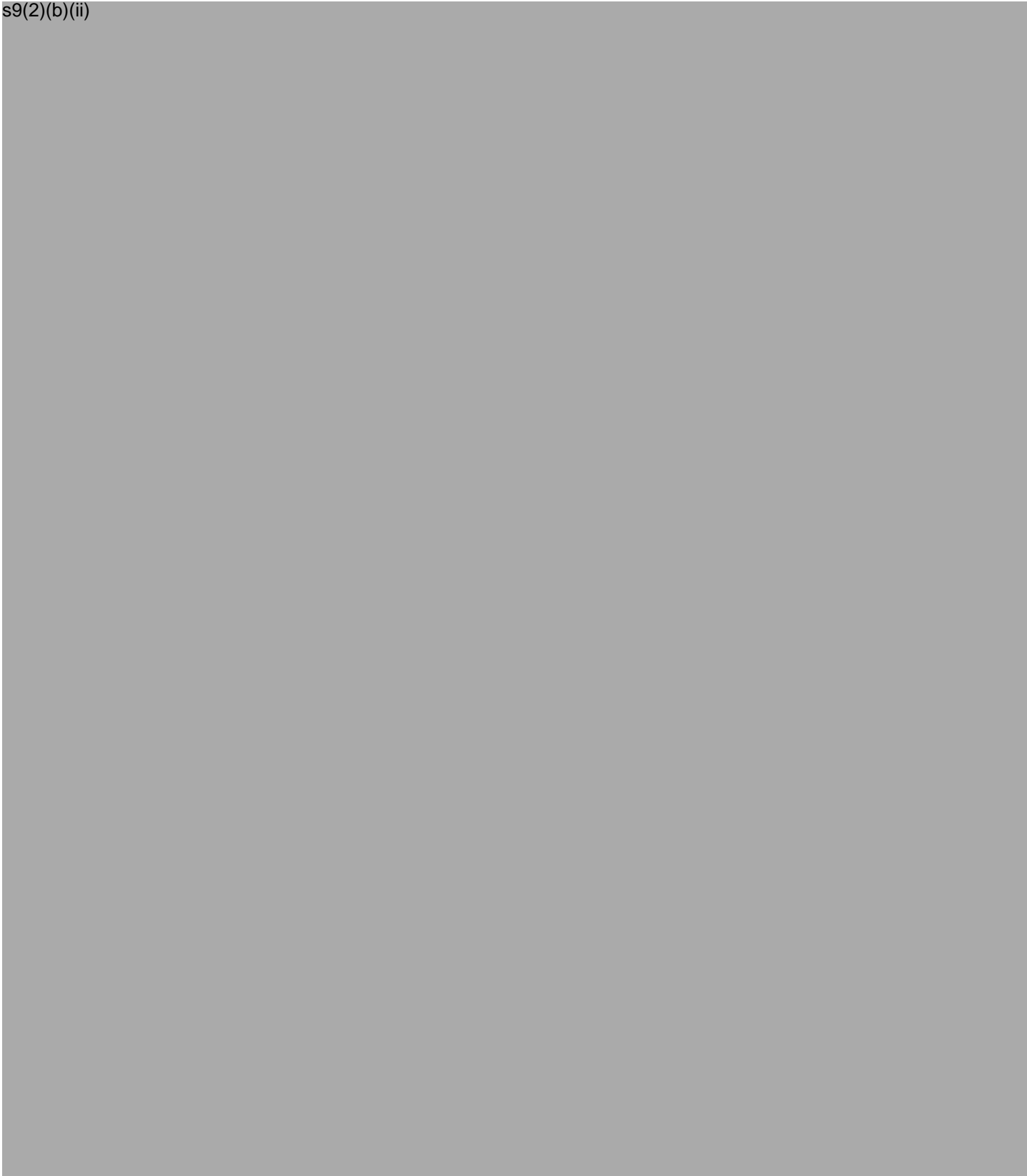
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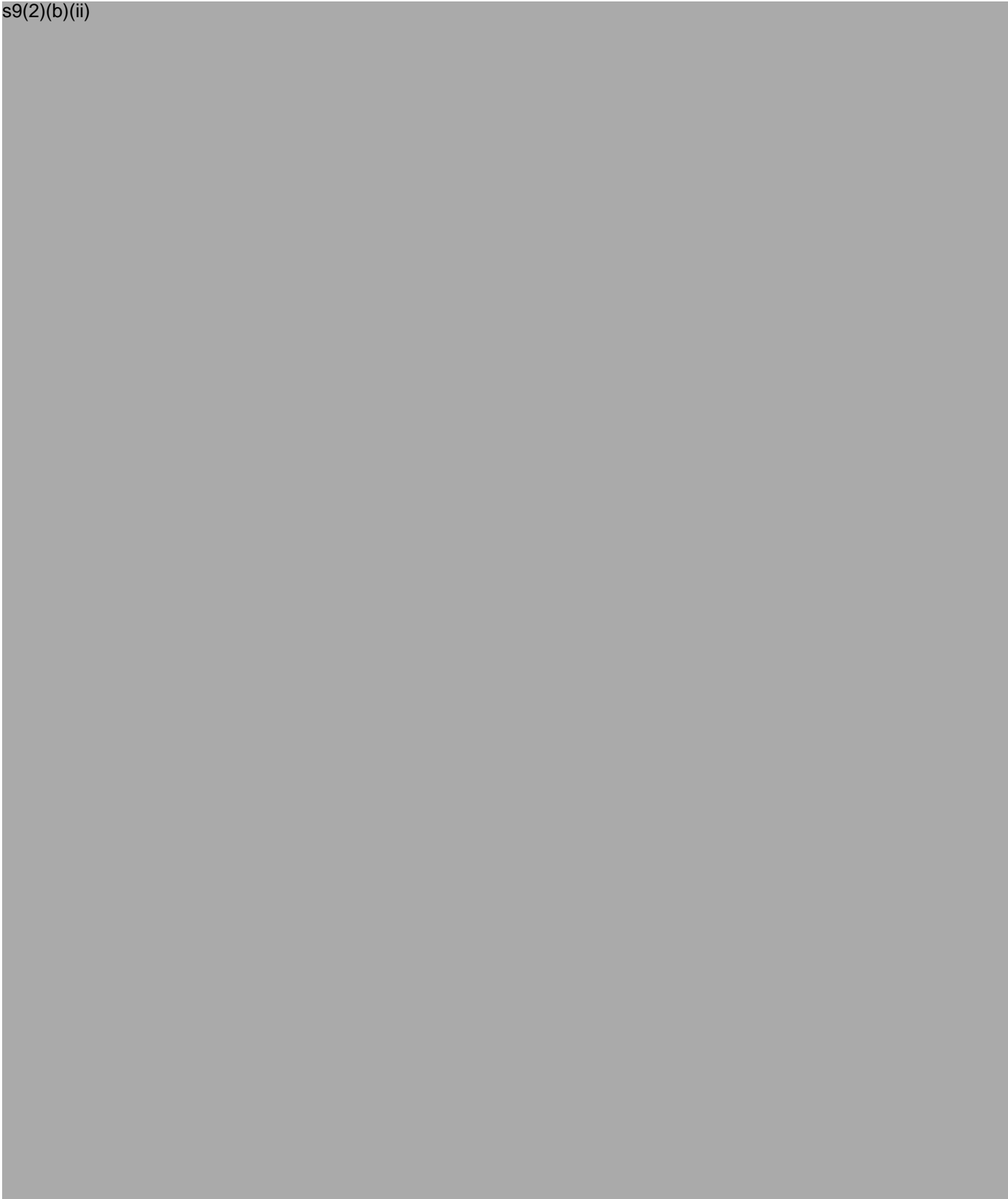
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(ii)




s9(2)(b)(ii)



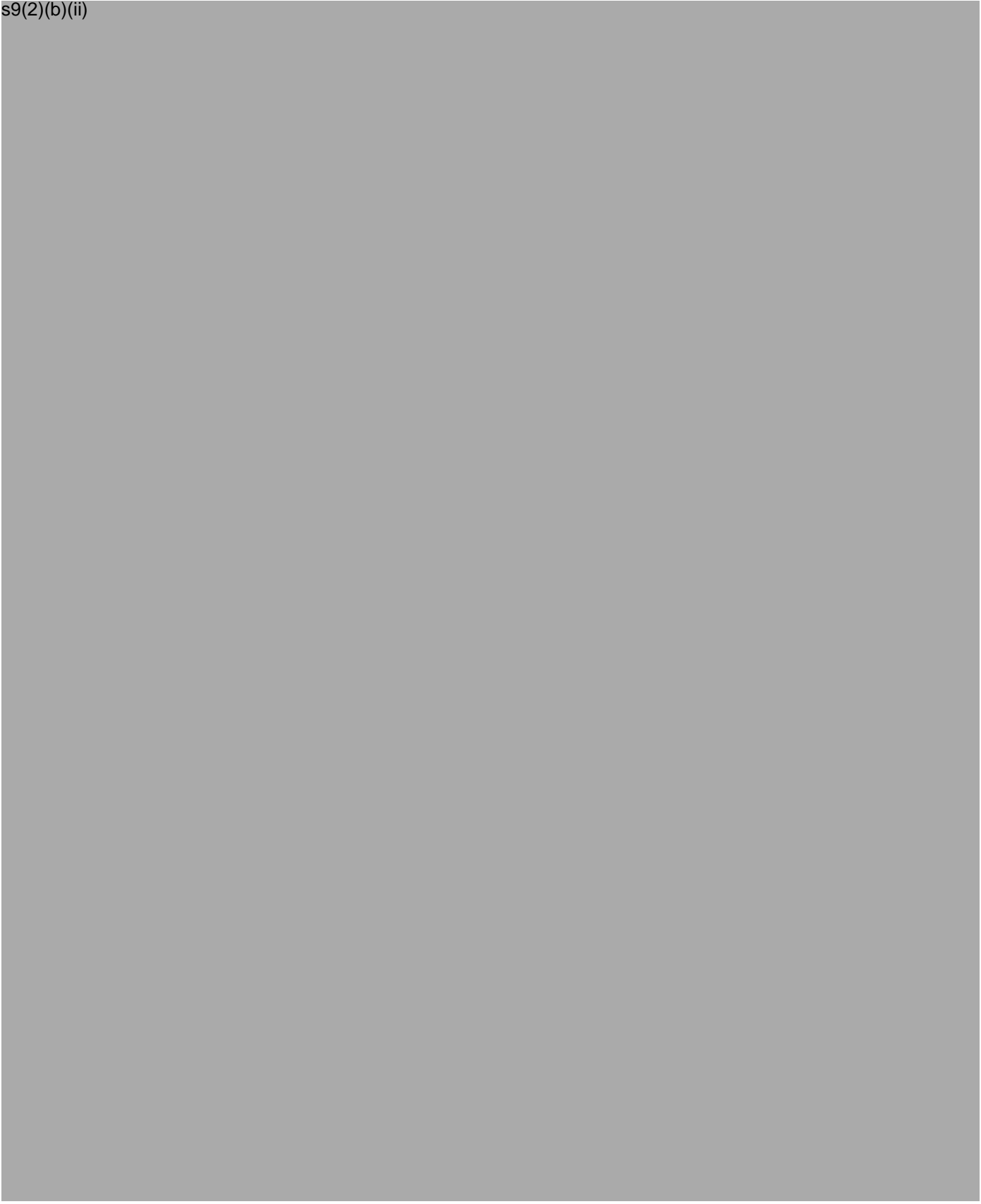
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s9(2)(b)(ii)



s9(2)(b)(ii)



s9(2)(b)(ii)





GIANT KELP BEDS s9(2)(b)(ii)

s9(2)(b)(ii)



A conservative estimate would be s9(2) Tonnes of sustainably harvestable Giant Kelp from Warrington to Timaru.

Kelp beds in s9(2)(b)(ii) extend to a maximum of s9(2) from shore and we calculate are able to sustain a harvest of s9(2) tonnes.

The kelp beds from s9(2)(b)(ii) extend out to s9(2) from shore and are much larger than the kelp beds in s9(2)(b)(ii). As an example, the kelp bed North of s9(2)(b)(ii) is 8km long and is typically 3-4 times deeper than the s9(2) kelp beds.

**From:** [Roger Beattie](#)  
**To:** [SEMP](#)  
**Cc:** s9(2)(a)

**Subject:** SEMPA Submission Roger Beattie  
**Date:** Thursday, 30 July 2020 6:21:55 PM

**Attachments:** [SEMPA Submission Roger Beattie.pdf](#)  
[1. Key points SEMPA – Threats to property rights of Macrocystis.pdf](#)  
[2. Roger Beattie South East Marine protected area forum submission.pdf](#)  
[3. South East MPA Forum information.pdf](#)  
[4. Geange Paper cited in Forum Doc.pdf](#)  
[4a. Geange misleading highlights.PNG](#)  
[5. Pirker PhD Effects on harvesting Macrocystis \(selected pages\).pdf](#)  
[5a. Pirker PhD Effects on harvesting Macrocystis pg 6.pdf](#)  
[6. Giant Kelp Forests Schiel & Foster \(selected pages\).pdf](#)  
[7. Dr Michael Fosters email to Roger 30 Nov 2016.pdf](#)  
[8. The irrelevant Geange Kelp report summary.pdf](#)  
[9. The Grass harvesting Analogy.pdf](#)  
[Giant Kelp - Giant Opportunity by Roger Beattie.pdf](#)  
[Kelp beds Wainui map.pdf](#)  
[Kelp beds South East Otago main map.pdf](#)  
[Kelp beds South East Otago maps - South.pdf](#)  
[Kelp beds South East Otago maps - Middle.pdf](#)  
[Kelp beds South East Otago maps - North.pdf](#)

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Good evening

Please find attached SEMPA submission for Proposed Southeast Marine Protected Areas Consultation Document February 2020.

Cheers

Roger Beattie

s9(2)(a)

Roger Beattie

s9(2)(a)

30<sup>th</sup> July 2020

Proposed Southeast Marine Protection Network  
Department of Conservation and Fisheries New Zealand  
Conversation House  
PO Box 10420  
Wellington 6143  
New Zealand

Email: southeast.marine@publicvoice.co.nz

Dear SEMPA and Department of Conservation and Fisheries New Zealand

Re: Kelp & SEMPA in regards to the Proposed Southeast Marine protected areas consultation document February 2020

**I totally oppose the banning of commercial harvest of Giant Kelp (*Macrocystis pyrifera*) from the proposed T1 area (Timaru to North of Dunedin).**

I own quota to harvest Giant Kelp (*Macrocystis pyrifera*) in areas KBB3G and KBB4G.

I have earned my quota under the fisheries rules which is a property right to ensure sustainable use of fishery resources while providing the security and incentives needed to invest, harvest and conserve the fishery resource.

I have been harvesting Giant Kelp now for 28 years and have funded studies into the resource and the effects of harvesting. My desire in harvesting Kelp is to ensure a sustainable resource while improving people's health and making farming practice in New Zealand more sustainable and profitable.

The biggest barrier to sustainable fishing in New Zealand is Fisheries which is driven by politics and bureaucracy and looking good rather than the science and doing good. The result is a great deal of arbitrary decision making and uncertainty that undermines sustainable use.

The latest example is the recommendation to prohibit Giant Kelp from commercial harvest as recommended by the SEMPA.

Fisheries NZ has not followed correct process, have not followed the statute, have not consulted quota owners and have not relied on science.

No Consultation happened between SEMPA, Fisheries NZ and myself nor any other Giant kelp quota owner.

No face to face meetings were held with key commercial groups.

No face to face meetings by the SEMPA committee or MPI were held with any Giant Kelp Quota Owners.

The advice the Ministers are relying upon is false.

Prohibiting the commercial harvest of Giant kelp in the SEMPA does not provide for the utilisation of fisheries while ensuring sustainability. It by definition precludes utilisation.

Prohibiting commercial harvesting of Giant kelp is contrary to **sustainable use**.

### **Kelp**

Why would you want to ban the use of plants from planet Earth's most prolific producers? Giant kelp ecosystems sequester more carbon than any other ecosystem – more than rain forests.

There is more known in the scientific literature about sustainable use of Giant kelp than any other kelp.

*The SEMPA considers these habitat-forming native kelps are **long-lived, recover slowly (if at all depending on the harvesting method)**, and are habitats of particular significance for fisheries management.*

It's wrong to state Giant Kelp is "long lived, recovers slowly (if at all depending on the harvesting method)".

"Whole plants live for only 2-6 years. Fronds live for 4-9 months." (Foster)

"Individual plants recover rapidly from reasonable harvest" (Foster).

*Macrocystis pyrifera* is the world's fastest growing plant.

There has been a three-and-a-half-year study by two PHD students (the Pirker study) looking at the sustainability of commercial harvesting of giant kelp in NZ which found that, "Overall there were no negative flow on effects resulting from harvesting the kelp forests. In some cases, harvesting proved to be beneficial by increasing sub-canopy *Macrocystis* growth rates which quickly replace the harvested canopy."

The advice supplied the Minister about the biology of kelp is false.

*Under these circumstances, the SEMPA considers **harvesting seaweed to be problematic**.*

Harvesting Giant kelp is not problematic – it is as problematic as mowing your lawn.

The scientific research, scientific evidence, our 28 years of commercial harvesting, and over 100 years of commercial harvest in California, prove it is not problematic to commercially harvest Giant kelp.

### **Consultation**

We were not consulted. The SEMPA committee said we were going to be consulted and had been consulted. Again, false information.

The Giant kelp fishery is a developing and growing fishery.

I spent 28 years battling with MAF, MAFFish and MFish over long term access to Giant kelp which resulted in me winning a High Court battle against MFish & then Giant kelp coming into the QMS in 2010. s9(2)(b)(ii)

I also funded NZ's largest kelp research project into sustainable harvesting of Giant kelp s9(2)(b)(ii)

I have spent a considerable amount since defending our Giant Kelp Property Rights.

I know of no other new industry that has had so many roadblocks put in its way, yet we are expanding and growing the Giant kelp industry.

If we hadn't needed to fund the High Court battle and fund the Giant kelp research, New Zealand would have a much bigger Giant kelp industry than we currently have and New Zealanders would be a lot better off through better health from a higher iodine intake, less chemical fertiliser use, less chemical spray and more nutrient dense food.

We have bought a bigger and better boat for harvesting Giant kelp. We are in the process of manufacturing a mechanical kelp cutter along the lines of what they use in California. We are negotiating to buy a new state of the art kelp dryer.

We launched a new product called Kelp flour (ultrafine powder) that is being used by organic, biological and regenerative farmers and horticulturists as a potent foliar spray – it is double the price of our powder, yet we cannot keep up with supply. We are negotiating with commercial fisherman to contract harvest kelp. The Giant Kelp industry is in a rapid growth phase and we will need to expand outside Akaroa Harbour in the near future.

The fisheries Act is about Utilisation and Sustainability.

I have a good working knowledge of the Fisheries Act 1996 and its Purpose. In 1990 I commissioned Rodney Hide and Peter Ackroyd, Centre for Resource Management, Lincoln University, to write a report on fisheries management. They produced a report titled, "Depoliticising Fisheries Management: Chatham Islands' Paua (Abalone) as a case study".

As a consequence of that report Rodney, Peter and Basil Sharp (Department of Economics Auckland University) wrote a report to MAFFish titled, "New Zealand's ITQ System: Prospects for the Evolution of Sole Ownership Corporations".

This led to the 1996 fisheries Act with a new Purpose and a shift from guaranteed quota to proportional quota. The risk and reward shifted from the crown to quota owners.

The SEMPA prohibits the harvest of attached Giant kelp which is not consistent with the purpose of the Fisheries Act. It does not provide for utilisation. There are no sustainability issues.

The largest seaweed, giant kelp (*Macrocystis*) is the fastest growing and most prolific of all plants found on earth" Schiel & Foster, 2015

"Overall there were no negative flow on effects resulting from harvesting the kelp forests" Pirker, Schiel & Lees, 2000

“The growth and reproductive characteristics of *Macrocystis* make it the most suitable of all kelps for harvesting” Schiel & Foster, 2015

Not only does Giant kelp’s growth form and reproduction make it the most suitable of all kelps for harvesting but being a farmer and a forester, Giant kelp leaves all land-based plant harvesting for dead regarding growth, regrowth, reproduction and sustainability.

When we were negotiating with MFish to bring Giant kelp into the QMS the MFish people said, “this is not a Sustainability Issue”

Our 28 years of commercially harvesting Giant kelp show that there are no sustainability issues.

*Information Principles*

*11. Section 10 of the Act says that all persons exercising or performing functions, duties, or powers under the Act in relation to the utilisation of fisheries resources or ensuring sustainability shall take into account the following information principles:*

*a) **decisions should be based on the best available information:***

*b) decision makers should consider any uncertainty in the information available in any case:*

*c) decision makers should be cautious when information is uncertain, unreliable, or inadequate:*

*d) the absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act.*

This decision is not based on the best available information.

The Giant kelp research that the SEMPA, Department of Conservation and Fisheries NZ relies on (The Geange report) is demonstrably not the best available information.

The regulation on harvesting Giant kelp in NZ is that harvesting is to occur no deeper than 1.2m. For practical and quality reasons, we harvest just below the canopy at about 0.5m. We only harvest in areas that have large amounts of biomass. Such as areas that have recovered after winter storms and areas that have recovered after summer dieback (when the temperature of the sea where Giant Kelp occurs gets over 18°C for an extended period of time the canopy dies back but recovers when temperatures cool).

Nature has at least ten times more effect on the biomass of Giant kelp than commercial harvesting does.

These recommendations to the Minister are not based on logic nor the law and they are not based on science nor real-world experience.

“Assuming it is reasonable (harvest a portion of the canopy in an area and don’t re-harvest until the canopy recovers) then the literature indicates you are having no detectable impact on the sustainability of the beds you harvest, and Geange’s paper is irrelevant”.

Michael Foster 30<sup>th</sup> November 2016.

A proper cost-benefit analysis has not been done on the destruction of KBB3G Kelp quota rights, the potential economic activity, regional development and employment through the imposition of T1.


Current TACC	Current Quota Value	Economic Loss
s9(2)(b)(ii) KBB3G	s9(2)(b)(ii)	s9(2)(b)(ii) of the available harvestable kelp from Area 3 (KBB3G) is in the SEMPA area
Sustainable harvest from Banks Peninsula estimated to be s9(2)(b)(ii) p.a.		
Future conservative TACC 10,000 tonnes for KBB3G		
SEMPA area potential harvest s9(2)(b)(ii) p.a. *see attached maps of Kelp beds in Akaroa Harbour and South East Otago.	s9(2)(b)(ii)	Loss of potential Quota value s9(2)(b)(ii)

NZ Kelp harvesting and financial figures

Current harvesting of s9(2)(b)(ii) p.a. and growing s9(2)(b)(ii)	Number of employed 2 FTE employed at present doing harvesting, drying, processing, sales & marketing & dispatch	s9(2)(b)(ii) sales grew from s9(2)(b)(ii) (2019) to s9(2)(b)(ii) (2020) s9(2)(b)(ii) growth. This will translate into harvesting more. Approx. s9(2)(b)(ii) wet weight.  (Our markets are growing especially in the Regenerative Farming area.)
At s9(2)(b)(ii) p.a. harvesting x s9(2)(b)(ii) = s9(2)(b)(ii) gross income p.a.	For the Kelp industry this would support 100 plus contractors and employees doing harvesting, drying, processing, sales & marketing, dispatch, R&D Science and management	The future economic income loss of not being able to harvest s9(2)(b)(ii) p.a. = s9(2)(b)(ii) = s9(2)(b)(ii)

Kind regards

s9(2)(a)



Roger Beattie

Attachments:

1. Key points SEMPA – Threats to property rights of Macrocyctis
2. Roger Beattie South East Marine Protected area forum submission (Giant Kelp)
3. South East MPA Forum Information
4. Geange Paper cited in Forum Doc
- 4a. Geange misleading highlights
5. Pirker PhD Effects on harvesting Macrocyctis (selected pages)
- 5a. Pirker PhD Effects on harvesting Macrocyctis pg6
6. Giant Kelp Forests Schiel & Foster (selected pages)
7. Dr Michael Foster's email to Roger 30 Nov 2016
8. The irrelevant Geange Kelp report summary
9. The Grass harvesting analogy

(the above was sent to SEMPA committee 20/12/2016 but no acknowledgment was made of receipt of this submission). It also appears that if you did receive this submission it was totally ignored.

Giant Kelp Giant Opportunity – sent to SEMPA committee 28/12/2018

Kelp beds maps South East Otago main map

Kelp beds maps South East Otago – South

Kelp beds maps South East Otago – Middle

Kelp beds maps South East Otago - North

Kelp bed maps Wainui



Map below from Page 178 of  
 FOR CONSULTATION:  
 PROPOSED MARINE PROTECTED AREAS FOR NEW ZEALAND'S SOUTH ISLAND SOUTH-EAST COAST  
 PUBLIC CONSULTATION DOCUMENT 2016 VOLUME I

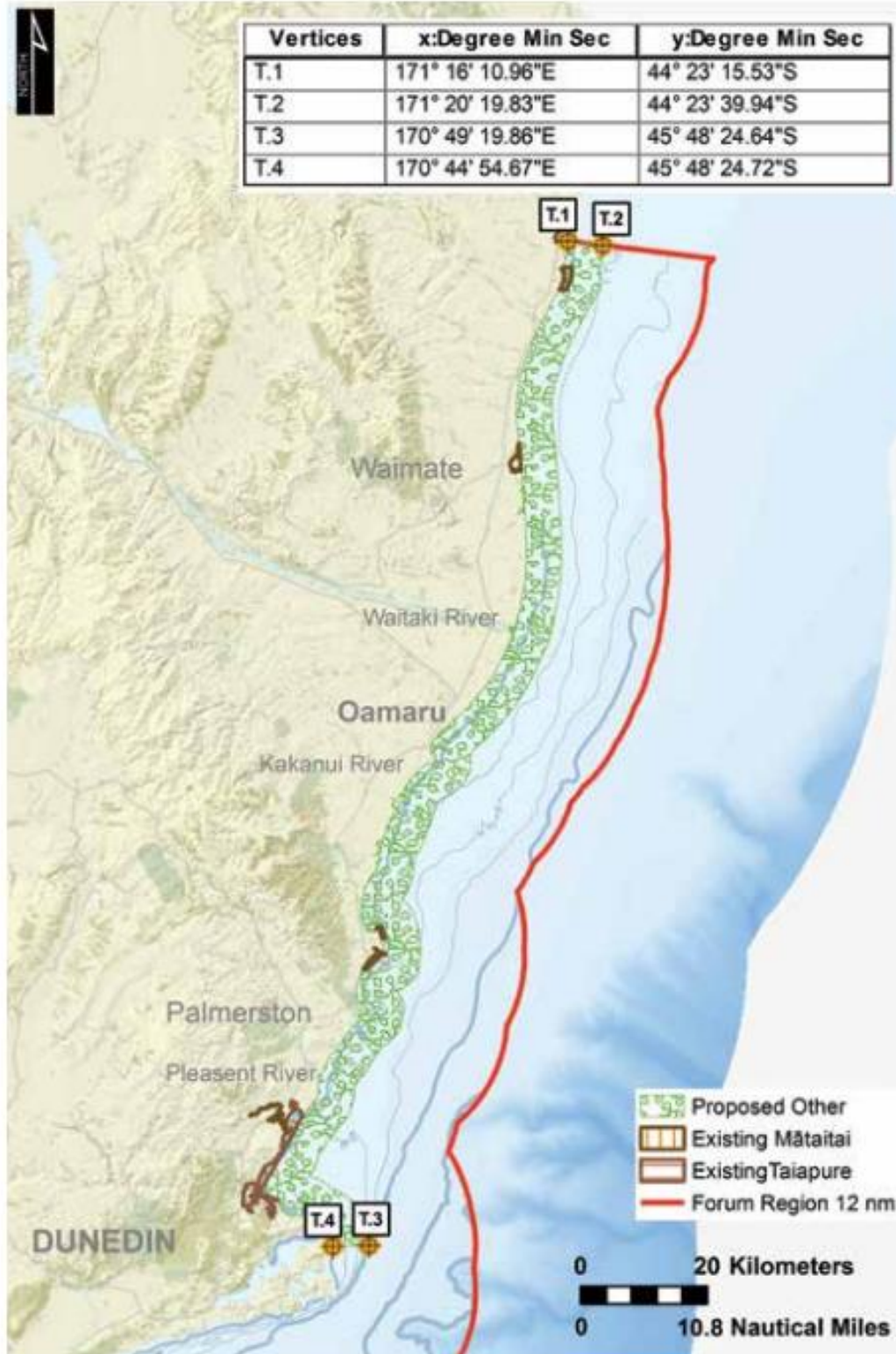


Figure 70: Proposed boundaries for the site put forward for consultation.

s9(2)(b)(ii)



s9(2)

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)

s9(2)(b)

s9(2)(b)(ii) of coastline



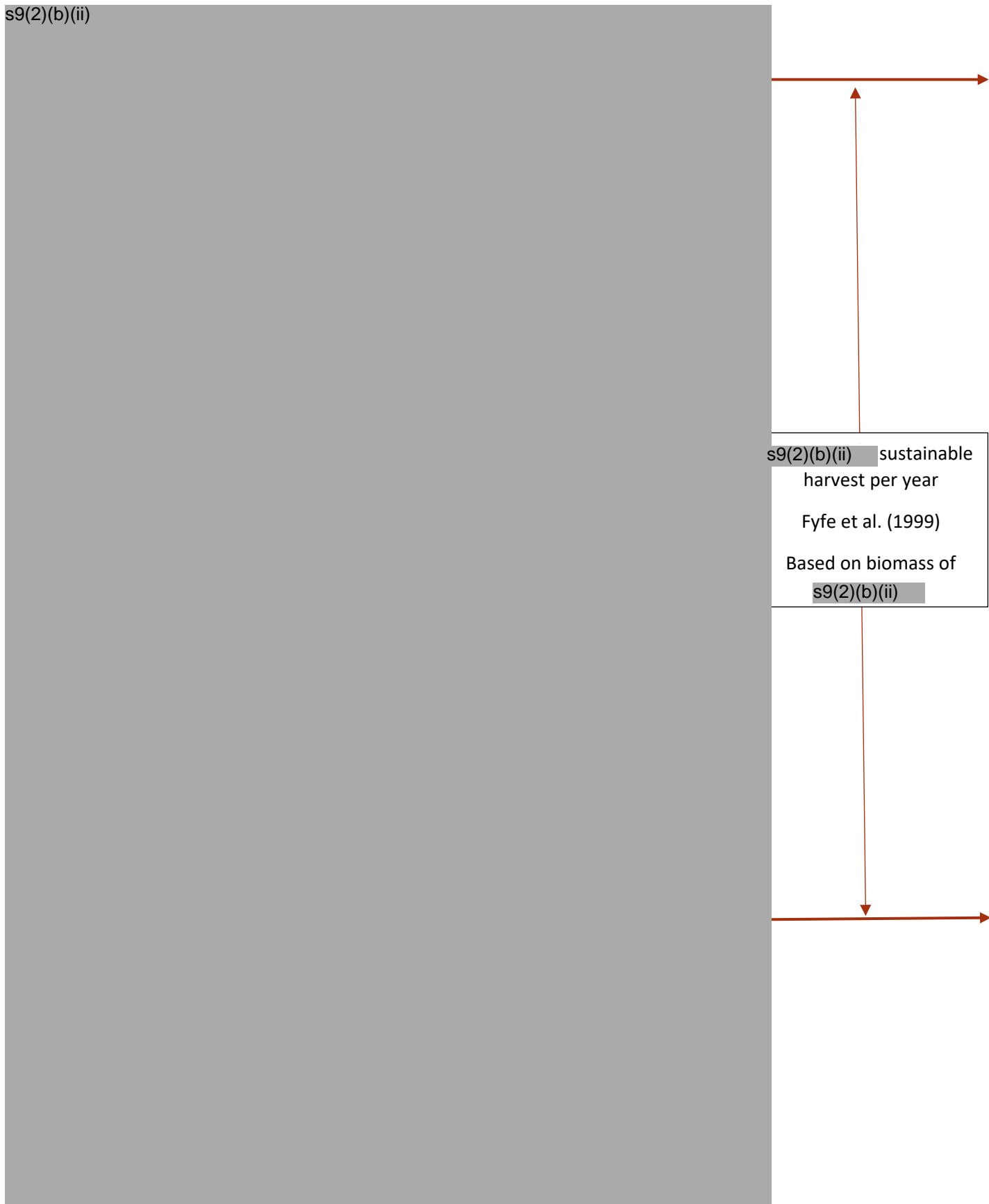
s9(2)(b)

Kelp beds South of Wainui Akaroa Harbour Banks Peninsula. Pirker et al's (2000) research showed that s9(2)(b)(ii) could be harvested per year from 3 sites - s9(2)(b)(ii)

The other areas South of Wainui would conservatively be equal to that same tonnage making a total s9(2)(b)(ii) from Wainui to Red Rocks.

Kelp beds in Akaroa Harbour extend to a maximum of 130m from shore.


s9(2)(b)(ii)




s9(2)(b)(ii) sustainable  
harvest per year  
Fyfe et al. (1999)  
Based on biomass of  
s9(2)(b)(ii)

Fyfe et al (1999) overall bed biomass of s9(2)(b)(ii) standard error 16.5%. for a 300 ha area of *Macrocystis* s9(2) . If we apply a 20% standard error this gives us a conservative biomass of s9(2)(b)(ii) Assuming 75% of the biomass is in the canopy. Based on Pirker et al's work in indicates a sustainable harvest of s9(2) tonnes from s9(2)(b)(ii)

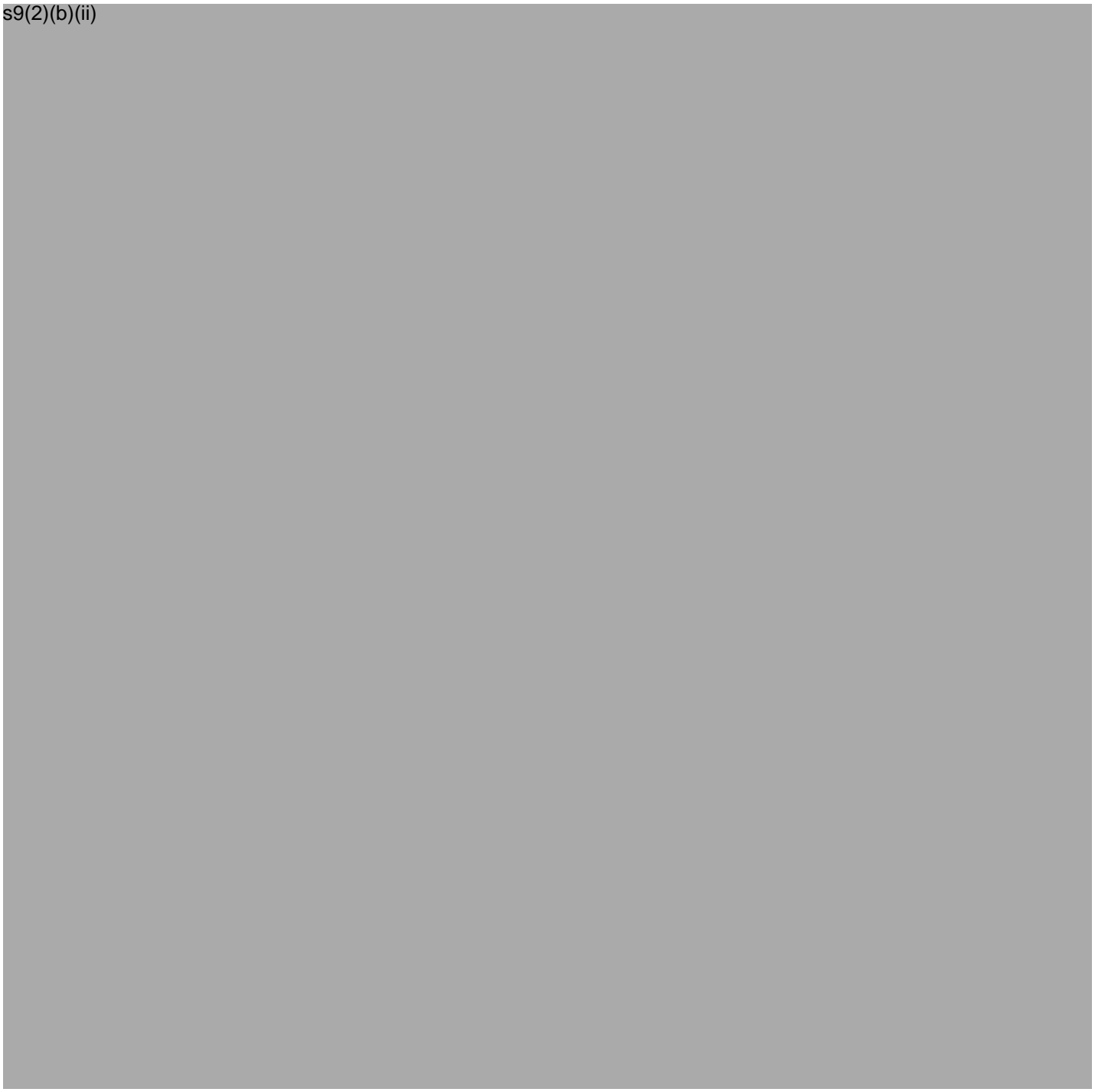
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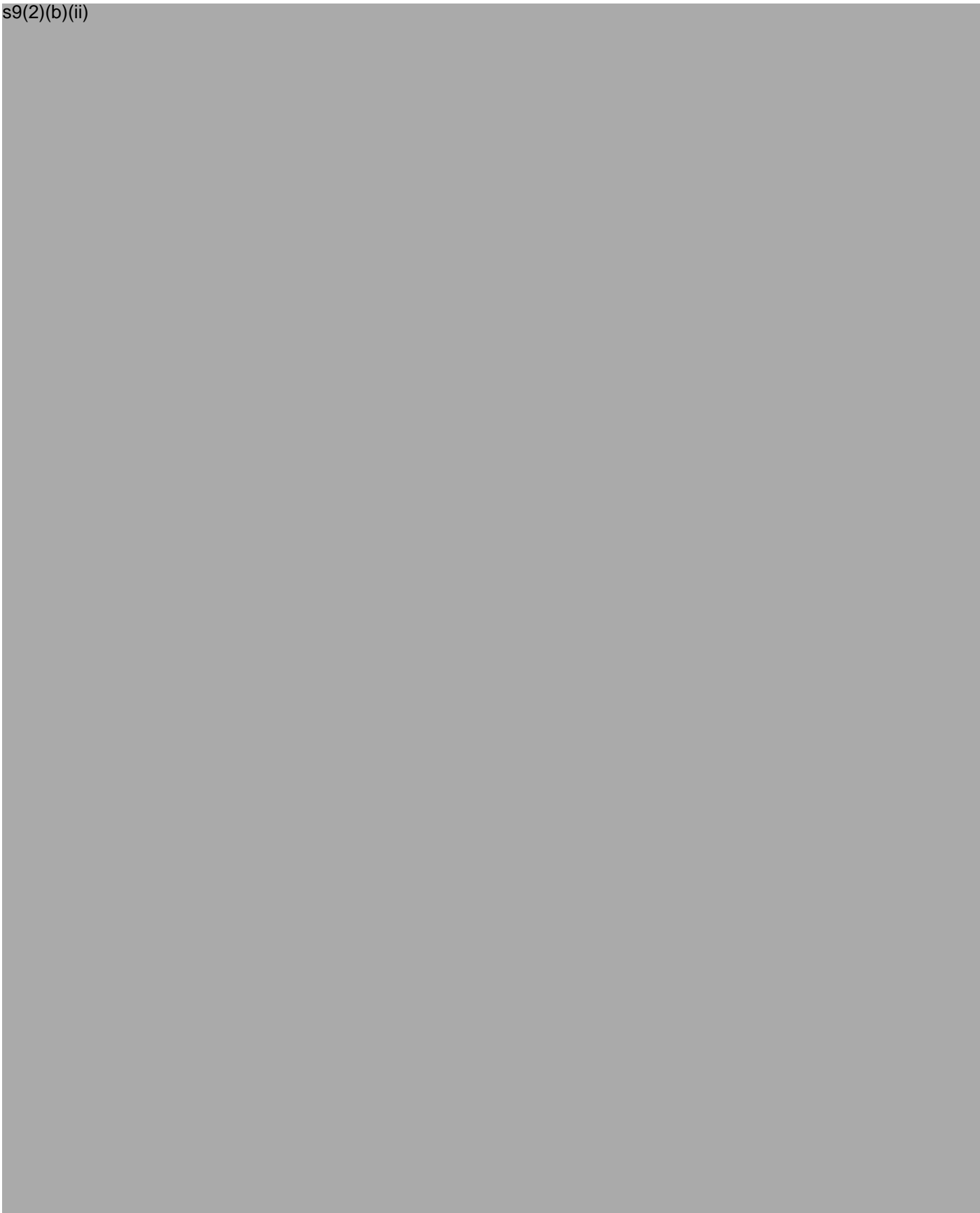
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s9(2)(b)(ii)

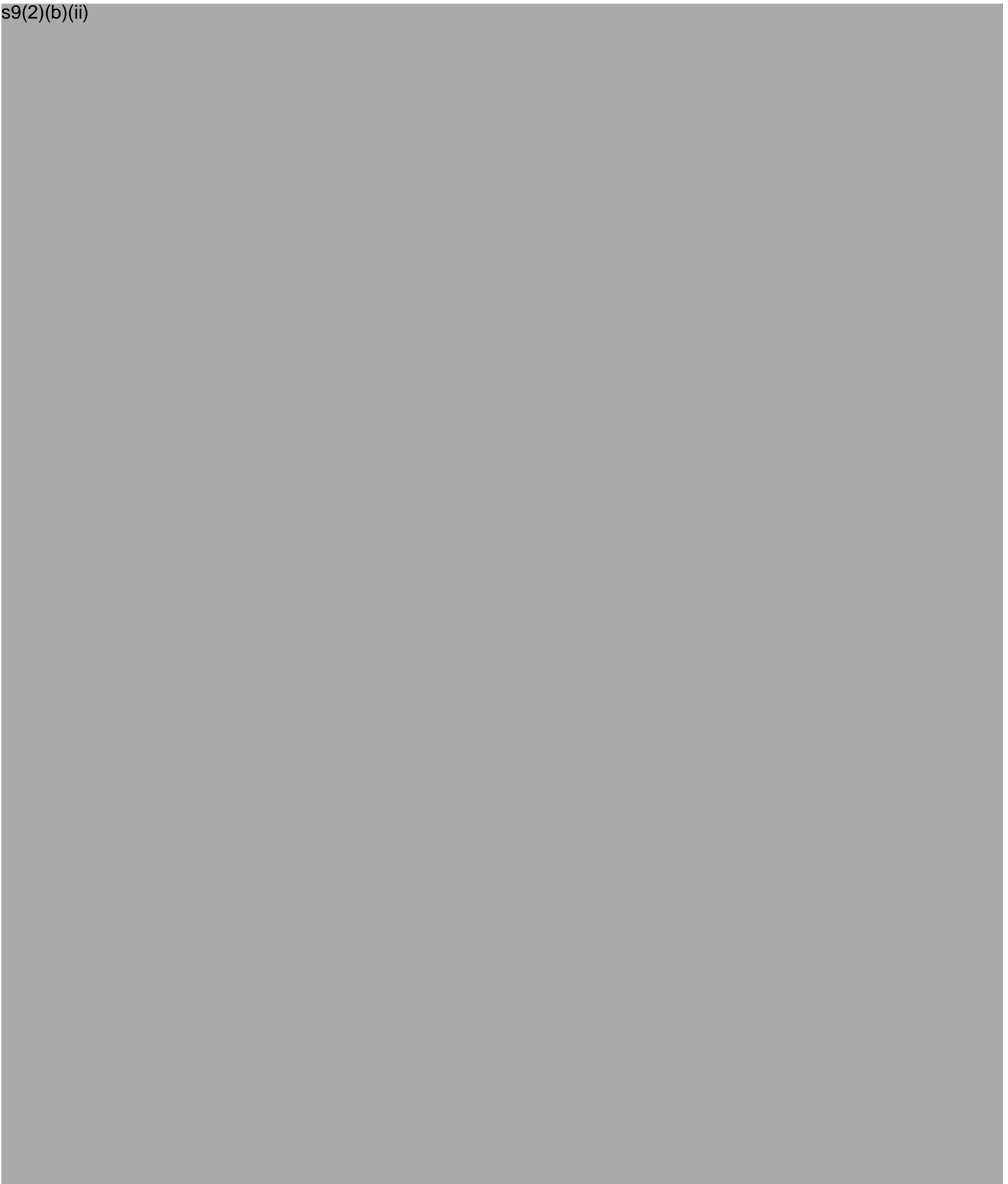


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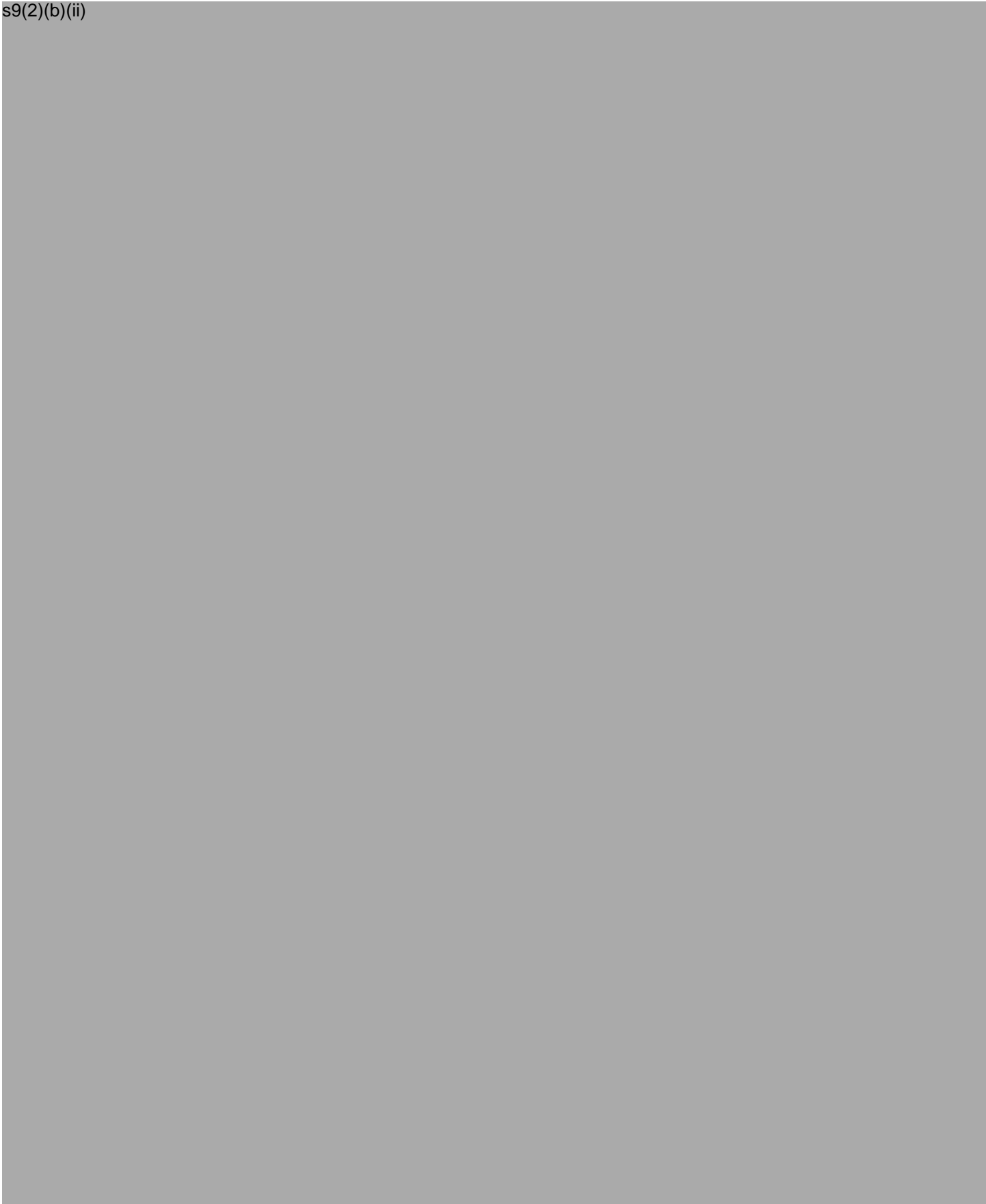





s9(2)(b)(ii)




s9(2)(b)(ii)



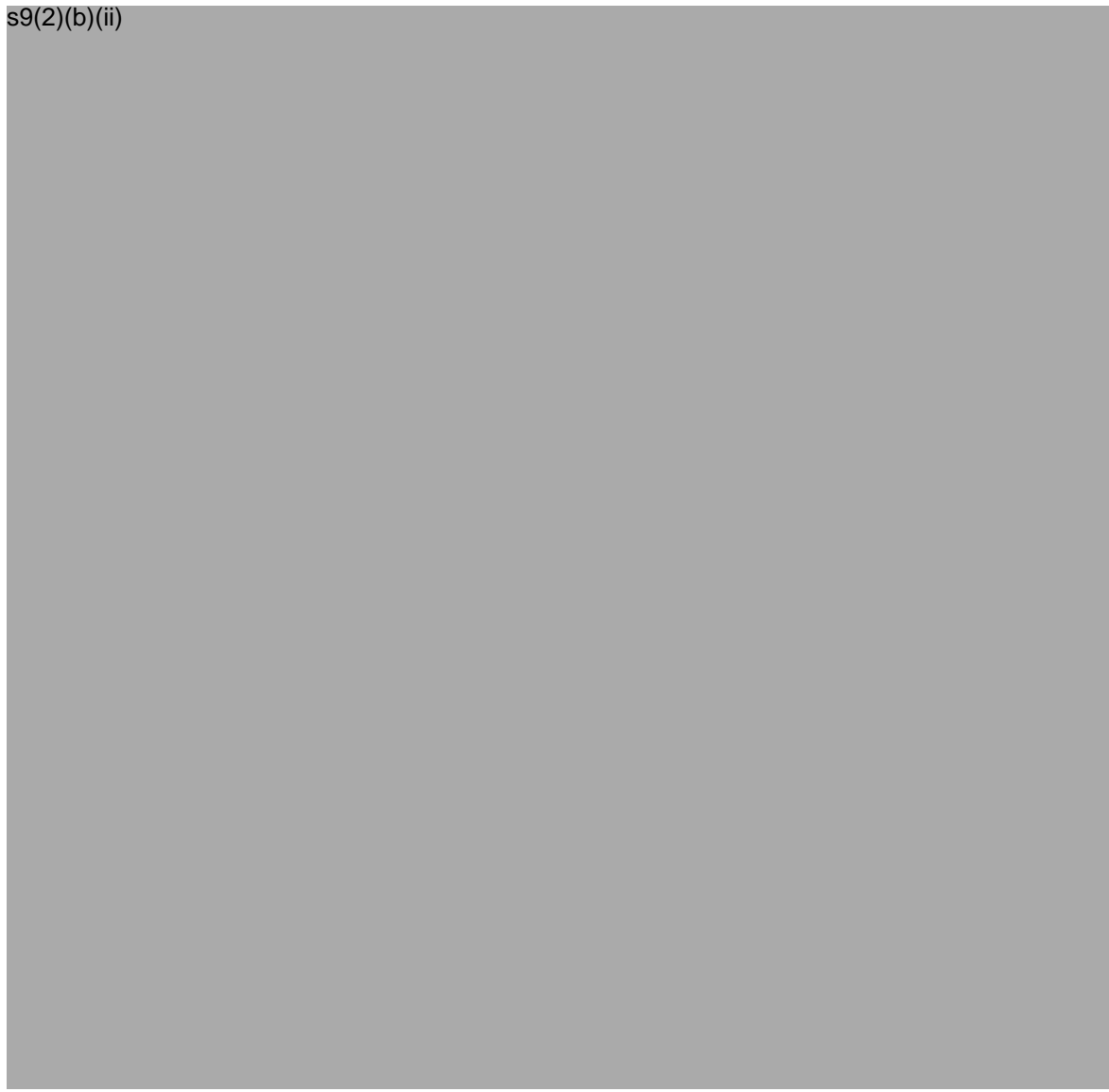
s9(2)(b)(ii)



s9(2)(b)(ii)



s9(2)(b)(ii)




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[Google Map](#) s9(2)(b)(ii)

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s9(2)(b)(ii)




s9(2)(b)(ii)

s9(2)(b)  
(ii)




s9(2)(b)(ii)

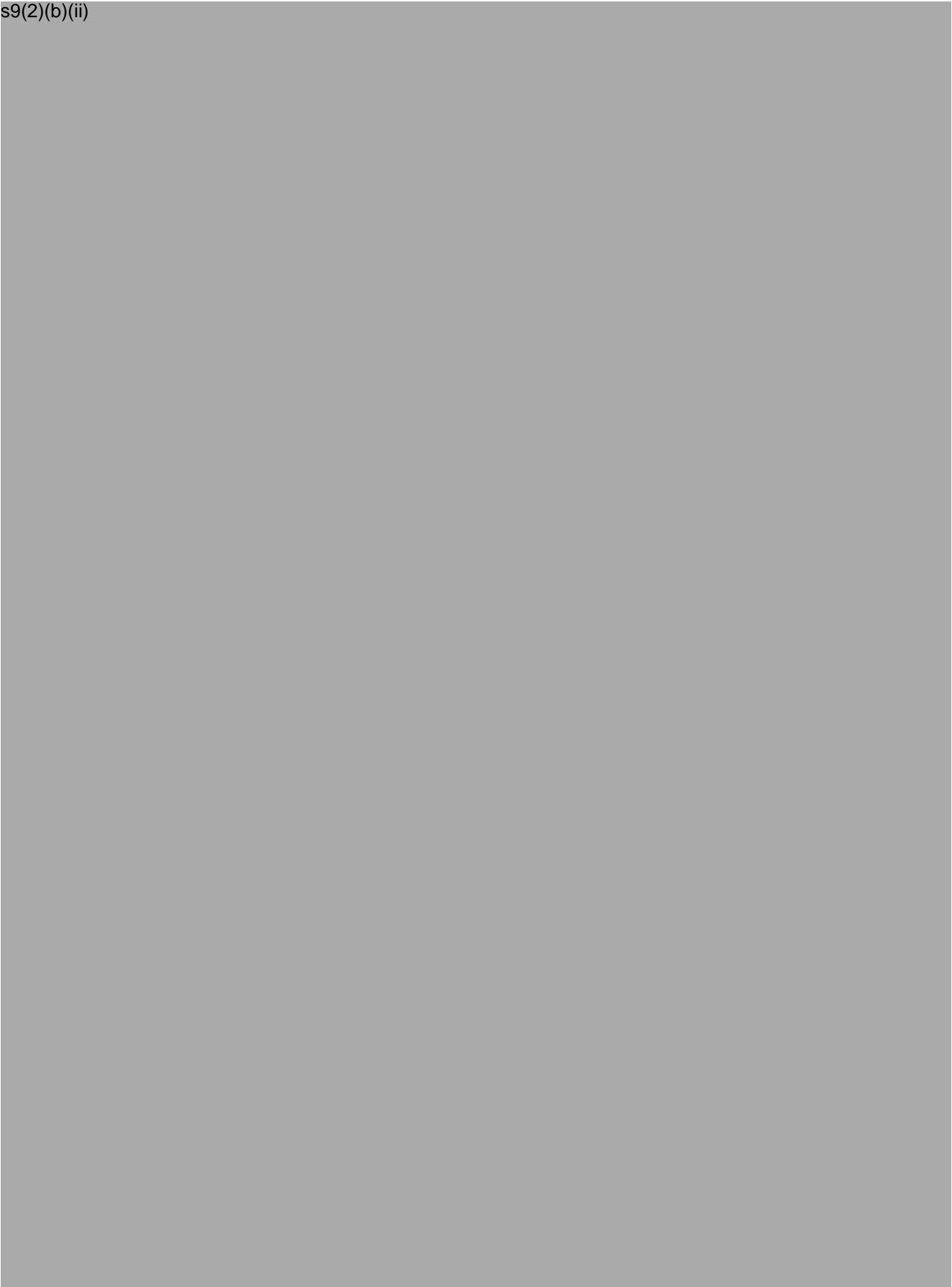




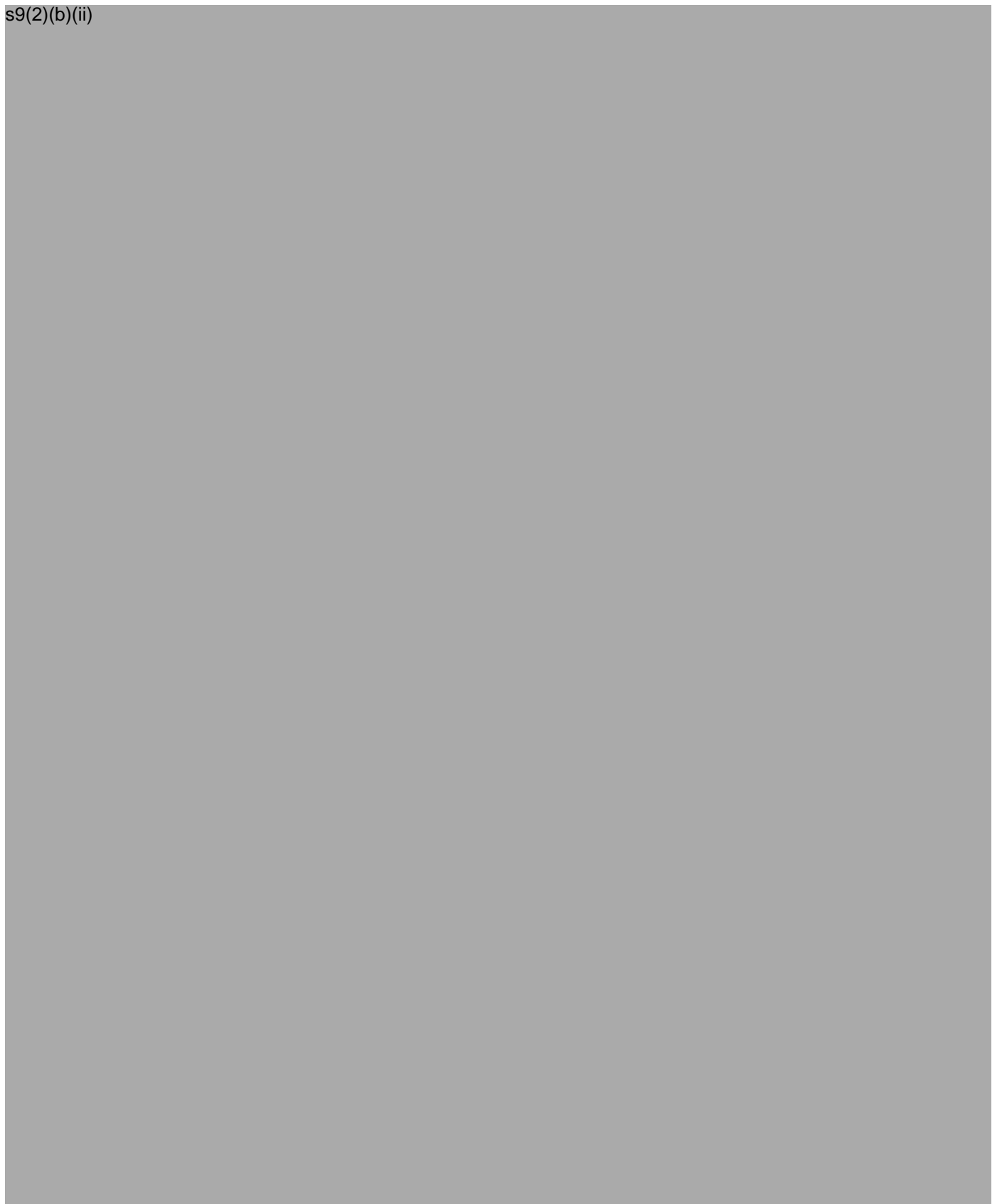
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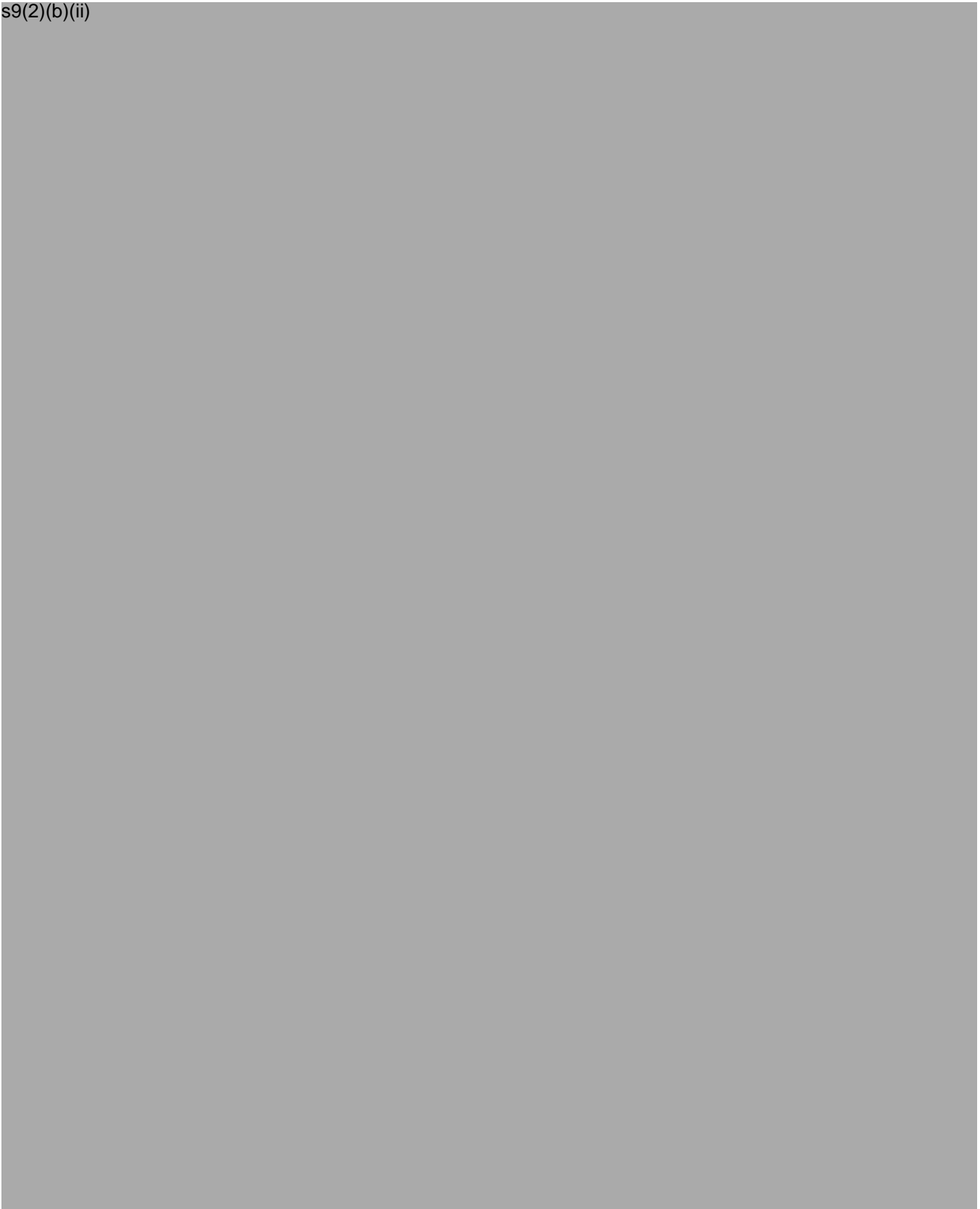
s9(2)(b)(ii)



s9(2)(b)(ii)



s9(2)(b)(ii)



s9(2)(b)(ii)



A conservative estimate would be s9(2)(b)(ii) of sustainably harvestable Giant Kelp from Warrington to Timaru.

Kelp beds in s9(2)(b)(ii) extend to a maximum of s9(2) from shore and we calculate are able to sustain a harvest of s9(2)(b)(ii)

The kelp beds from s9(2)(b)(ii) extend out to s9(2) from shore and are much larger than the kelp beds in s9(2)(b)(ii). As an example, the kelp bed s9(2)(b)(ii) is 8km long and is typically 3-4 times deeper than the s9(2) kelp beds.

# **Giant Kelp – Giant Opportunity**



**Report by Roger Beattie & NZ Kelp  
For the benefit of present & future generations.**

December 2018

## GIANT KELP: INTRODUCTION

*Macrocystis pyrifera*, (Giant kelp or Bladder kelp) is found in temperate regions of the Pacific Ocean, such as Chile, Australia, California and New Zealand. It is the fastest growing organism on the planet (Schiel & Foster, 2015), growing up to 50cm per day, and reaching adult sizes of up to 60m in length. To put that in perspective, if your lawn grew this quickly, you would have to mow it 7 times a day.



*Macrocystis pyrifera* floats and blades

In its dried form, it is the world's most concentrated natural source of Iodine. Iodine is an element essential for human and animal health. Giant Kelp is also very high in alginates, a group of compounds used as thickeners and gels, found in toothpastes, ice-cream, and pharmaceuticals. Due to its unique characteristics and commercial applications it has been extensively studied and its biology is well understood. Recent developments in the New Zealand seaweed industry are finding uses beyond traditional alginate products, and towards value added food & beverage products, nutraceuticals, pharmaceuticals, marine farming, pet foods, and biological stimulants for horticultural, arable & pastoral farming.

There are those who want to set up an extremely large marine protected area the South East Marine Protected Area (SEMPA) and completely ban the harvesting of Giant Kelp from Timaru to just north of Dunedin. This is theft of Giant Kelp Individual Transferable Quota Rights by the NZ government.

This is a Co-ordinated Deliberate Misrepresentation of the facts by DOC and MPI Officials and by the Lead Scientist Dr Chris Hepburn regarding Giant Kelp science, research, history and commercial harvesting.

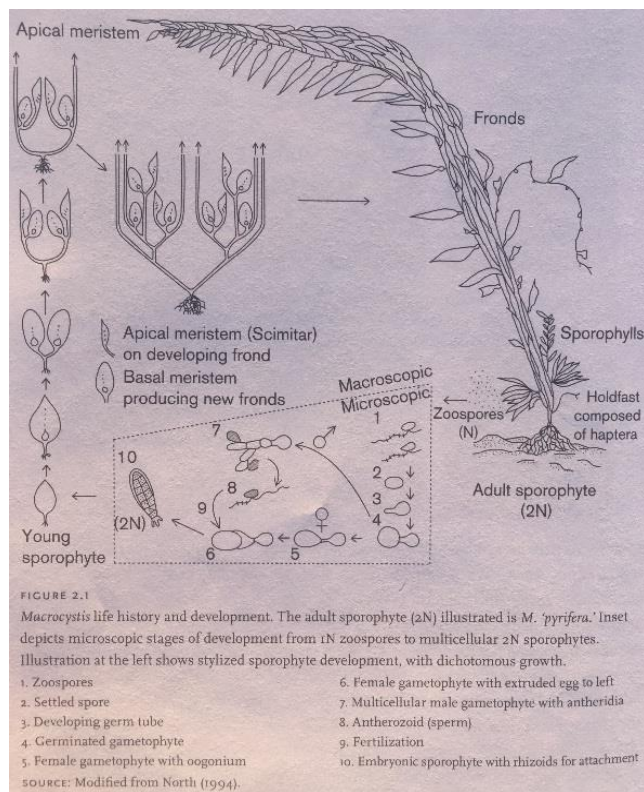
In the following pages we discuss how the banning of Giant Kelp Harvesting is bad for the environment, increases our carbon footprint, and decreases the health and wealth of New Zealanders.

### GIANT KELP: BIOLOGY

David Schiel and Michael Foster, two world leading experts in Giant Kelp biology write that it is the

***“fastest growing and most prolific of all plant species found on earth.”***

(Schiel & Foster, 2015)



Lifecycle of *Macrocyctis pyrifera* (Schiel & Foster, 2015)

In addition to a fast growth rate, it produces millions of spores that are capable of colonizing rocky substrate in a range of conditions, growing quickly, and becoming reproductive in less than a year.



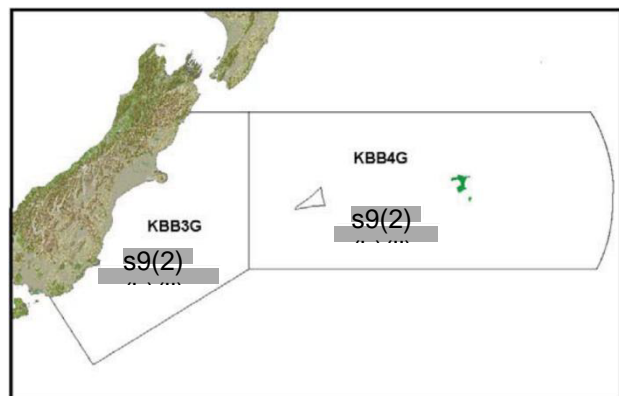
*Uprooted Giant Kelp entangled on mussel lines two days after a storm, approximately 0.5t of dead kelp is on this buoy alone.*



Whole plants live for 2-6 years, during this time they naturally die back in summer and re-grow in the autumn, with individual fronds living for 4-9 months. Dieback is caused by a seasonal reduction in nutrients – warmer summer water holds fewer nutrients than colder winter water. In addition, entire plants are uprooted by the large swells caused by storms. Storms and seasonal dieback are two of the major causes for reductions in biomass. The reproductive, spore-producing blades (called sporophylls) occur at the base of the plant. The high growth rate, short life cycle, in addition to having the sporophylls near the base, make Giant Kelp the most suitable of all kelps for harvesting (Schiel & Foster, 2015). It is like mowing the lawn of the ocean.

### GIANT KELP: SCIENTIFICALLY BACKED QUOTA

Roger and the Foundation for Research Science and Technology (FRST) co-funded NZ's largest ever kelp research project, which evaluated the sustainability of Giant Kelp harvesting. Undertaken by Pirker, Schiel, & Lees in 2000, this was a three-and-a-half-year project at a



total cost of s9(2)(b). The evidence from the kelp research supported the entry of Giant Kelp into the QMS and was used to set the initial Total Allowable Commercial Catch (TACC). Giant Kelp has been managed under the quota management system (QMS) in New Zealand since 2010. It was introduced into the QMS after Roger Beattie won a 17-year high court battle with the Ministry of Fisheries (fought over matters of law and sustainability).

**“Overall there were no negative flow on effects resulting from harvesting the kelp forests.”**

(Pirker, Schiel, & Lees, 2000).

Only the canopy section of the plants is taken (cut to a maximum depth of 1.2m), with **all** reproductive fronds left behind. We have never harvested reproductive fronds. Removal of canopy fronds increases light penetration in the water column for the rapid regrowth of juvenile fronds and the establishment of new plants.



*Harvesting Giant Kelp in Akaroa Harbour*



*Loading Giant kelp ready to be dried and crushed*

There has never been a fishery introduced into the QMS in New Zealand, where more was known about the effects of commercial harvesting before introduction.

### **GIANT KELP: FORESTS IN BETTER HEALTH**

Giant Kelp has lived up to its highly resilient reputation. NZ Kelp has harvested **s9(2)(b)(ii)** of kelp from Akaroa harbour and Shag Point from April 1<sup>st</sup>, 2010 up to December 2018, and the health of the Kelp forests is indistinguishable from before commercial harvesting begun. Like any fishing company, NZ Kelp reports all its annual catch to MPI through Catch Effort Landing Returns, who can use this as a proxy to evaluate the health of a fishery. One way this is done is calculating the amount of **effort** (time) required to obtain any given **catch** size (tonnes of kelp). I.e. if it takes 3 hours to obtain 1 tonne of fish, where in the past is only took 1 hour for the same amount, MPI can infer that the fishery is in decline. What does the Catch-Effort ratio look like for Giant Kelp 8 years after the Quota allocation? There has been no change. If anything, it takes less effort to obtain the same catch using the same method, this indicates a strengthening of stocks. This is because kelp quota owners actively *manage* kelp forests. They have a vested interest in conserving and enhancing the kelp fishery.

## GIANT KELP: QUOTA OWNERS ARE STEWARDS OF MARINE RESOURCES

*Quota owners protect their resource from pollution and harmful effects.*

*Areas that are less productive are harvested less.*

*Most harvesting occurs in spring before the big summer die back.*

*Harvesters can plan to harvest just before a big storm,  
when plants would have been ripped out and died anyway*

Someone's property is someone's care. No-one's property is no-one's care. Property owners prevent activities that would have a negative impact on their property. In the mid 1990's Roger Beattie fought a planning tribunal court case against a developer who wanted to dump treated human effluent into Akaroa harbour. As part of that, Roger funded an alternative land-based proposal *with his own money*, that has now been implemented by other communities in Akaroa. Roger took this action to protect his marine farm, to protect his PAU3 Paua quota property rights, and to protect his kelp harvesting rights in Akaroa harbour. This environmental gain was made by a commercial quota owner and fisher acting in his best interests. His property rights incentivised him to become a steward of that resource – caring for it, protecting it, and making use of it, like we all do with our most valued property. One wonders what the result would have been if it had been left up to general public or the government to fight the planning tribunal. Would they have even found out about it? How does their level of care to this resource compare with someone who's livelihood and income depends on it?

With the rising demand for seaweed foods and seaweed-based agricultural products, it will become increasingly important that we have our quota owners paying attention to the health of our kelp forests and protecting them from harmful land-based run off and pollution.

## CHEMICAL FARMING VS BIOLOGICAL FARMING

Industrialised agriculture has 'worshipped at the altar of productivity' for many decades now, with a myopic view on how best to feed society. Large applications of artificial soluble fertilizer have a negative effect on beneficial bacteria and fungi in the soil. Intense pesticide, fungicide and antibiotic regimes result in a higher yield in initial harvests but usually mask, create and intensify any underlying fertility problems in the soil. Continued stress on soil, plants and animals has led to increased health issues through chemical residues and lower nutrient density in food as a result of soil degradation.

Instead of fighting against biology we should be working with it. It is a well-known phenomenon in ecology that diversity

increases the biomass

potential and provides

resilience to environmental

stress (Cardinale, et al.,

2011) (Doak, et al., 1998).

We should be creating an

environment in our soils that

can harbour productivity

perpetually. Applying kelp to

soils improves its health, increases the production per hectare and improves the resilience. The

picture of barley above shows that Giant Kelp helps support the microbe relationships in the soil

between the plant roots and mycorrhizal fungi. Plant exudates are secretions of sugars, enzymes and carbon, and are a sign of a healthy plant-microbe relationship.

This is shown as a thick covering of soil on the roots. The plant on the left that received no kelp has

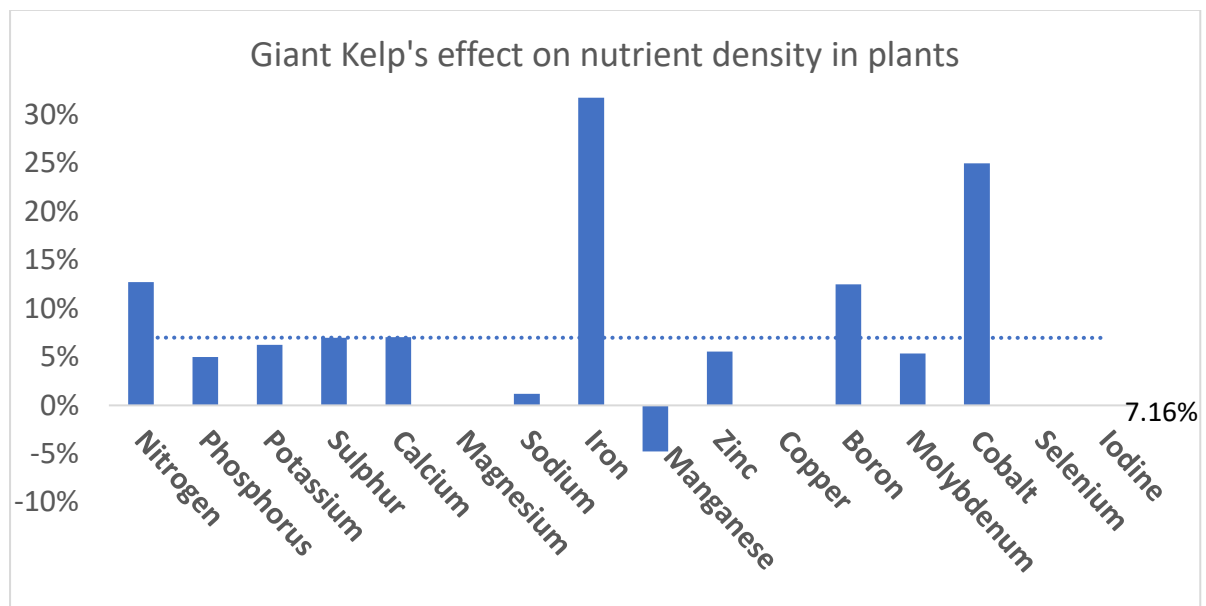
bare roots, while the plant on the right that received kelp has its roots extensively covered in



*Barley trial with control on the left and Giant Kelp on the right.*

exudate. This result was after an application of 10kg/ha of dried kelp. The Giant Kelp helped the soil biology and the plant.

Leaf tests at the late tiller stage showed an average increase of 7.16% in key plant nutrients when the Giant Kelp was applied. The Giant Kelp had a beneficial effect on 11 nutrients, neutral effect on 4, and negative effect on 1.



*A 10Kg/ha application of Giant Kelp improved the nutrient density of barley by an average of 7.16% when compared to the control. (Test performed by Hills Labs). This translated into a 14% increase in overall yield at harvest time.*

A high brix level in plants means that the sugar levels are high. If sugar levels are high, the plant can give away more sugar to mycorrhizal fungi in exchange for minerals, allowing both fungi and plant to flourish.

According to one of New Zealand's top consultants in biological farming, Rob Flynn, the number of biological farmers has grown from 1% ten years ago to 10% of farmers today. This is the equivalent of a 26% average compound growth rate over ten years. Rob predicts that in another ten years 30% of New Zealand farmers will be biological.

## **GIANT KELP IS CHANGING THE FACE OF FARMING**

Giant kelp is helping transform modern agriculture as a part of the biological farming movement. Farmers are now discovering the importance of farming the **biology** in the soil, rather than constantly supplementing the plants with chemicals. Agrichemicals such as urea are damaging to soil ecosystems and to New Zealand's waterways. The major decline in our rivers is due to a combination of factors, but most of the causes can be traced back to one problem – intensive chemical farming. Giant Kelp is part of a movement of shifting people away from this unsustainable style of farming. For example, Nigel Greenwood, a horticultural farmer in Leeston has reduced his urea input by over 90% by using Giant Kelp and other biological farming products. Giant Kelp is high in plant growth hormones and natural stimulants. Nigel now uses 10x less than the 'recommended' quantity of urea, while consistently getting yields in the upper quartile. Without Giant Kelp, farmers such as Nigel will be forced to use more urea.

Stealing Giant Kelp ITQ will increase the use of harmful agrichemicals.

## **GIANT KELP HARVESTING MITIGATES CLIMATE CHANGE**

Giant Kelp mitigates Climate Change in at least two ways.

### *Methane Reduction*

The first is that Kelp and seaweeds can reduce the amount of methane produced by ruminating animals (Foodtank, 2017). Methane traps 30 times heat more than CO<sub>2</sub> so reducing methane emissions is a highly effective way of mitigating climate change.

### *Biological farming stores more carbon*

The second is by accelerating the movement towards biological farming. The biological approach to farming builds more humus, thereby storing more carbon in the soil (Ghabbour, 2017). Chemical farming practices degrade the soil and damage the microbes involved in the carbon cycle, releasing carbon into the atmosphere rather than sequestering carbon.

Giant Kelp is increasingly used as an essential ingredient in biological and organic farming regimes.

Giant kelp is a catalyst in the soil/carbon building process.

***“The formation of humus is an anabolic process, that is, a building-up process. Rather than sugar being the end point, sugar is the start point. Soil microbes use sugars to create complex, stable forms of carbon, including humus.”***

(Dr Christine Jones, Acres USA, March 2015)

Giant Kelp is high in sugars and carbon, and when we harvest Giant Kelp and apply it to land with Biological farming methods, we store more carbon in the soil – removing it from the atmosphere and locking it in the land. In the areas that were sustainably harvested, the growth of Giant Kelp proliferates, further removing carbon from the ocean & atmosphere.

We are removing carbon from the atmosphere directly through harvesting and indirectly through feeding soil microbes that store more carbon than they consume.

### GIANT KELP: IODINE SUPERFOOD

#### Chemical Composition of Dried Giant kelp

Macronutrients			Micronutrients		
<b>N</b>	%	1.68	<b>Fe</b>	ppm	117.00
<b>P</b>	%	.25	<b>Mn</b>	ppm	6.00
<b>K</b>	%	10.45	<b>Cu</b>	ppm	.76
<b>S</b>	%	1.07	<b>Zn</b>	ppm	16.65
<b>Ca</b>	%	1.16	<b>B</b>	ppm	153.00
<b>Mg</b>	%	.67	<b>Co</b>	ppm	.22
<b>Na</b>	%	3.46	<b>Se</b>	ppm	.28
			<b>Mo</b>	ppm	.46
			<b>I</b>	ppm	2678.00
Dry matter (DM) %		90.00			
Ash (Minerals) %		35.71			
Protein %		13.35	Metabolizable Energy (ME)		11.43

*Averages of chemical composition analysis run by NZ kelp*

The ocean has a lot of iodine compared to the land. This means food from the ocean is the most iodine-rich. Giant kelp has the highest amount of iodine of any organism on the planet.

Based on chemical composition above, a level teaspoon (1g) of dried Giant kelp has approximately 2678µg (or 2.678mg) of iodine. An 85g serving of cod (also considered a high iodine food) has 99µg of iodine. The recommended daily intake (RDI) of iodine for adults is 150µg (NIH, 2018). To meet your RDI of Iodine you can either have 128g of cod (Atlantic Cod), or 0.05g (1/18<sup>th</sup> of a tsp) of Giant Kelp. *Giant kelp is 2500 x higher in Iodine than Cod.*

### **GIANT KELP: HUMAN HEALTH BENEFITS**

Giant kelp is the ideal plant to naturally supplement and prevent iodine deficiency in the diet. Iodine is needed in the thyroid gland to produce hormones that affect the function of virtually all our organs.

***“Iodine deficiency is the world’s most prevalent, yet easily preventable, cause of brain damage.”***

(UN World Health Organization).

Iodine deficiency is associated with a multitude of disorders, most notably goitre (enlargement of the thyroid gland) and cretinism which causes stunted physical and mental growth. Iodine deficiency has also been associated with lethargy, weight gain, suppressed immune system, depression and anxiety (Dr Edward Group DC, 2015). The most severe disease associated with iodine deficiency is cretinism and this has been successfully eradicated from affluent countries, primarily due to widespread iodisation of salt. It is however, still prevalent in some poorer regions of the globe and is still estimated to effect 2 million children globally each year (Zimmerman & Anderson, 2012). One study of iodine supplementation showed a 50% reduction in the number of infant deaths, and an average increase in IQ of 16 points.

Iodine deficiency is *still* prevalent in New Zealand.

***“91% of New Zealanders are deficient in iodine.”***

(Ben Warren - Nutritionist, April 2018).



This is because NZ soils are extremely low in Iodine, which causes the food we produce to also be low in Iodine. With growing demand for natural salts, the role of Giant Kelp in preventing Iodine deficiency with become increasingly important. Harvesting of Giant kelp for human consumption could help alleviate iodine deficiency diseases which are still an issue today. By supplementing grazing animals with Giant Kelp and applying Giant Kelp directly to pasture or crops we are increasing the amount of iodine in the overall population's diet.

### **GIANT KELP: ANIMAL HEALTH**

**“If an animal is deficient in iodine, no matter what vitamins or minerals are given, they will not be assimilated properly until the iodine requirements have been met.”**

(Pat Colby – Natural farming)



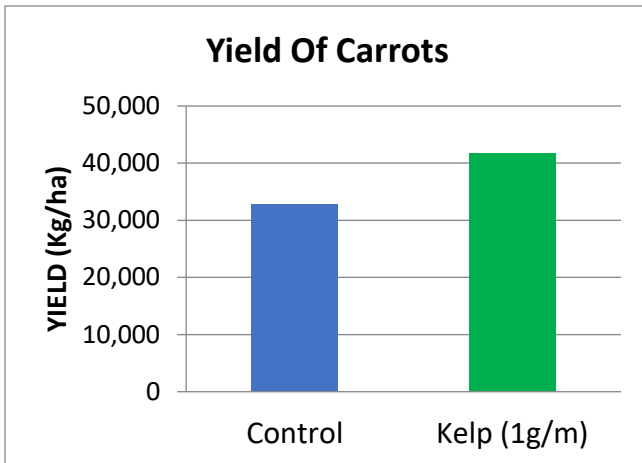
*Murray grey cow eating Giant Kelp*

Low levels of iodine in the soil affects the growth and health of plants, and health of the animals that eat those plants. Iodine deficiency affects animals as well as humans. Administering kelp to stock can greatly improve the vitality and virility of animals. Feeding kelp to stock has a range of benefits including; enhanced immune function, longer cycles of reproductive activity, better conception, healthier offspring, fatter animals, faster growth rates, improved feed conversion efficiency, greater resilience to stress, slicker more lustrous coats, lower somatic cell counts, reduced lice problems, less fly pressure, fewer internal parasites, less pink eye, less foot/h hoof problems and a better functioning endocrine system.

**“Iodine is the most important mineral for the human or cattle. The most important hormone in the body is the thyroid hormone and the thyroid needs iodine”**

(Dr Paul Dettloff - Acres USA, June 2011)

**GIANT KELP: CROPPING TRIALS**

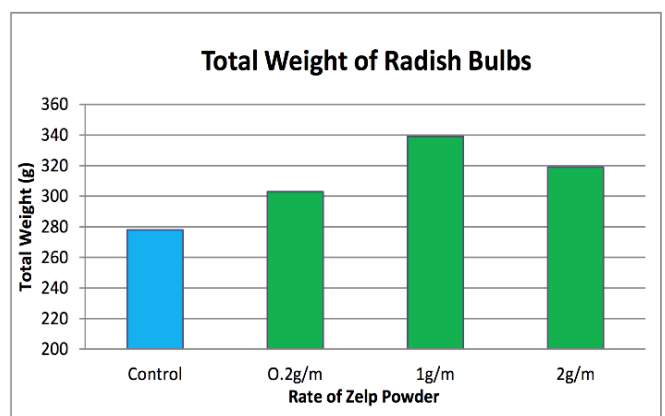
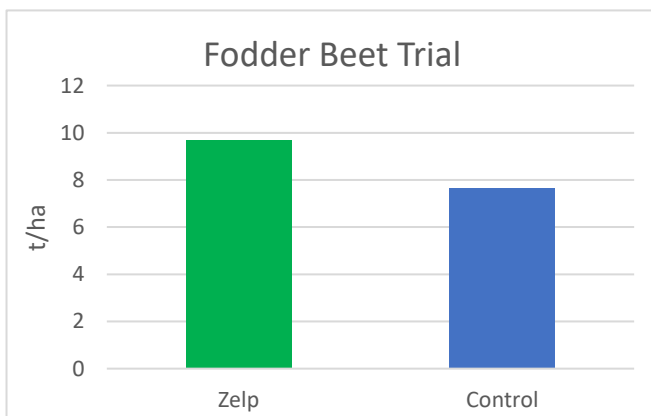


NZ Kelp have run and had products involved in numerous trials for a range of crops showing positive effects with different crops. This includes: increased yield, faster growth, improved germination, greater resistance to disease & pests, greater resilience to drought, improved quality, higher brix levels,

higher nutrient density, higher palatability, better colour, and more uniformity of size.

Results from the trial above show that adding Giant Kelp at 1g/m (23Kg/ha) was highly effective, with a 27% increase in yield of first grade carrots compared to the control. From an economic point of view, s9(2)(b) spent on Giant Kelp resulted in s9(2)(b)(ii) more revenue. This is a 16x return on investment in kelp for the farmer.

Several other experiments (shown below) on cropping products show the benefits Giant Kelp has for agriculture. Results shown are comparing crops sown with Giant Kelp against control crops (no Giant Kelp applied). All these results are for bare untreated seed.



<b>Crop type</b>	<b>Increased yield with Giant Kelp</b>	<b>General notes</b>
Radishes	<b>20%</b> increase with 10kg/ha of Giant Kelp.	Dramatically less insect attack.
Three Brassicas: Rape, Turnip, Mustard	<b>49%</b> increase with 2kg/ha of Giant Kelp.	Notably more germination of turnip and mustard with Giant Kelp.
Carrots	<b>27%</b> increase (trial 1) with 1g/m per row (23kg/ha). <b>33%</b> increase (trial 2) with 1g/m per row.	"More orange, more even in size and were denser"
Barley	<b>14%</b> increase in yield with 10kg/ha of Giant Kelp. <b>7.16%</b> increase in nutrient density with 10Kg/ha of Giant Kelp	"Plants in better condition." "Impressive exudate structure."
Onions	<b>15%</b> increase with 5kg/ha of Giant Kelp.	5% greater average onion diameter.
Swedes	<b>21%</b> increase (trial 1) with 2kg/ha of Giant Kelp. <b>34%</b> average (trial 2) increase in yield across 3 paddocks with 2kg/ha of Giant Kelp.	Sheep preferentially grazed the swedes on the Giant Kelp side of trial
Fodder Beet	<b>5.5%</b> increase (trial 1) with 2kg/ha of Giant Kelp. <b>27%</b> increase (trial 2) with 2kg/ha of Giant Kelp.	20% better germination  "More leaf and more bulb"

Giant Kelp has improved farmers productivity and profitability. For example, the 14% increase in barley yield only required 10kg/ha of Giant Kelp. From an economic point of view, s9(2)(b) spent on Giant Kelp resulted in s9(2)(b)(ii) more revenue, this is a 3x return on investment for the farmer.

**"I got higher yield, with larger grains, and the plants were in better condition. The tissue sample showed higher levels of nutrients in plants given Giant kelp."**

(Nigel Greenwood, Farmer)

**"I will definitely use Giant Kelp again, with Giant Kelp the fodder beet established more quickly and grew more leaf and more bulb."**

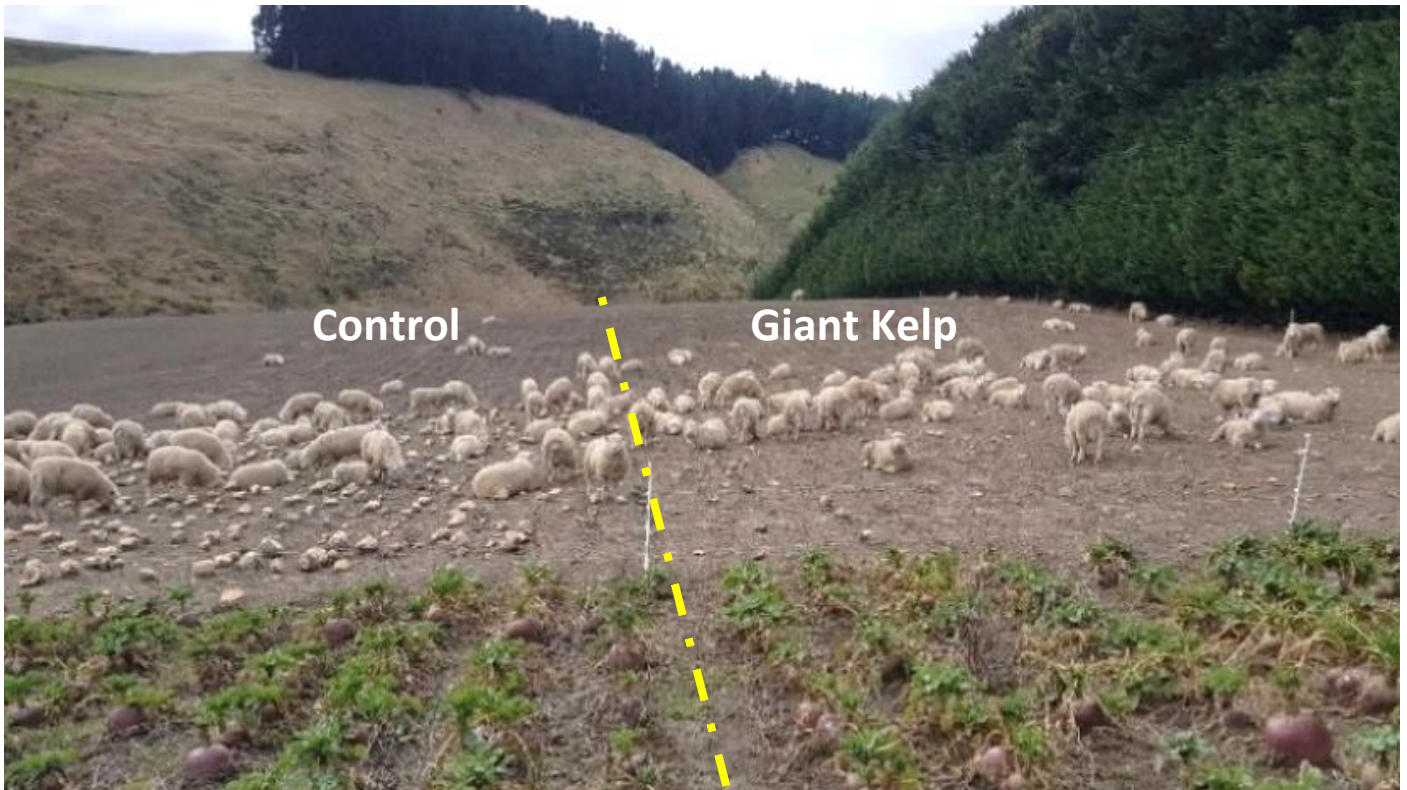
(Allan Richardson, Farmer)

Depending on the type of crop grown NZ Kelp recommends applying between 2-20kg of product per hectare. For bulb brassica's i.e. turnips, swedes, and fodder beet, 2kg/ha is recommended as evident above. For cereals (wheat, barley and oats) 10kg/ha. For carrots 20kg/ha.

These recommendations are to increase profitability, based on the cost of Giant Kelp, return on investment (from increased productivity) and prices of crops. Giant Kelp should not be thought of as a fertilizer, in farming and horticulture settings it is used to support the soil biology and plant life which enhances production. The exact mechanisms by which Giant Kelp increases yield is unknown but it is suspected to be a combination of the following:

- 1) It is high in natural growth hormones – Auxins, Cytokinins and Gibberellins which boost cell growth and mitosis.
- 2) It has very high antimicrobial properties that help protect plants from the harmful types of bacteria and fungi.
- 3) Giant Kelp has the highest Iodine content of any plant and has 29 micronutrients that are essential for healthy soils, plants and stock.
- 4) It is high in complex polysaccharides (sugars), which feed symbiotic beneficial fungi
- 5) Giant Kelp is hygroscopic – it sucks in moisture from the soil and atmosphere, keeping the kelp and the surrounding area moister than it otherwise would be. Moist environments help soil biology function better than dry environments.
- 6) As a catalyst helping the soil biology hunt for minerals for plants in exchange for sugar, and creating more humus and soil carbon
- 7) As a catalyst strengthening the plant root-soil microbe bridge. Where the soil biology (principally mycorrhizal fungi) hunts for and exchanges minerals to plant roots in exchange for sugars created by the plant from sunlight, CO<sub>2</sub> and water. By feeding the fungi with Giant Kelp, otherwise unavailable nutrients become available to plants and more humus is created. No one ever cursed the soil for having too much humus.

NZ Kelp also sells Giant Kelp as an Iodine supplement to lift the performance of healthy stock and remedy unhealthy stock. Many farmers have relayed stories back to NZ kelp of surprise at how their animals have responded favorably to being feed Giant kelp.

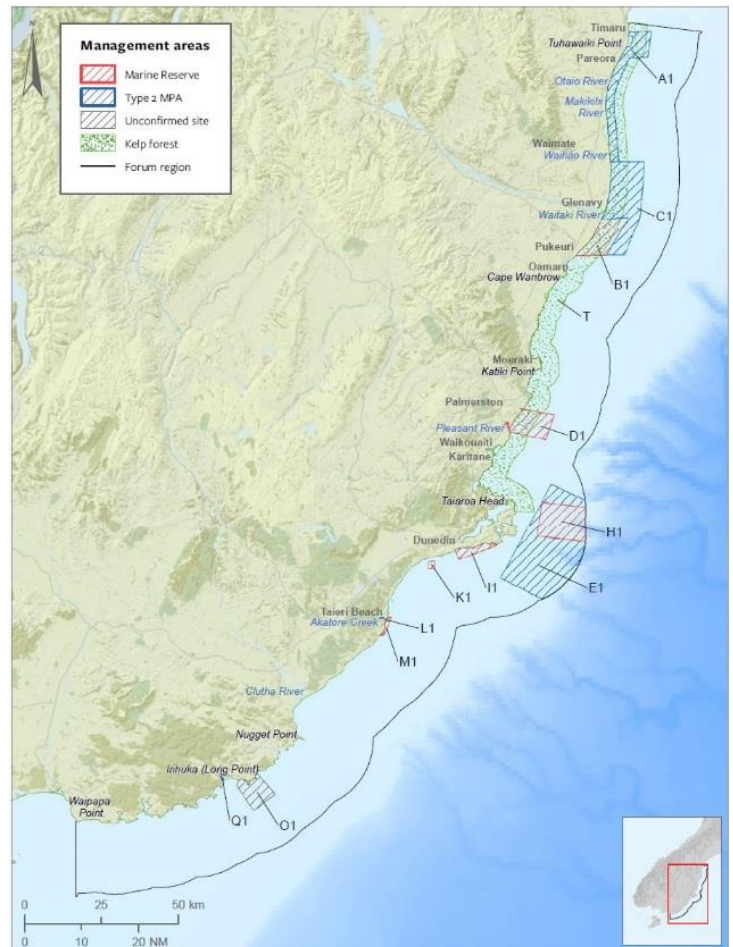


*Several days after grazing, the sheep had eaten all the swedes on the Giant Kelp side, and very little from the control*

## THE SOUTH EAST MARINE PROTECTION FORUM

Despite the current and future value of the Giant Kelp industry to New Zealanders and the environment, there are some people who want to stop the harvesting of Giant kelp along the south east coast of New Zealand. As well intentioned as this may be, the biggest restriction of all would be on the harvesting of Giant Kelp, which is the most sustainable of all the fisheries in New Zealand. Banning Giant Kelp harvesting will put the kelp forests at risk of the real threats here - which are changes in level and type of sedimentation, global change in ocean conditions (acidification & climate change), and chemical runoff (e.g. fertilization, zinc roofing, asphalt

and waste discharge). The implementation of a ban on commercial harvesting of Giant Kelp is nothing but a false consolation, giving the *illusion of protection*. The SEMPF argues that the kelp forests currently have no protection. This is false. Quota owners care more for these resources than anyone else. To most fisherman, Quota is their biggest asset. Their living depends upon kelp being there next year, 10 years and 50 years into the future. They monitor their health and viability on a regular basis – no one else does. Quota owners are the first to learn of *real* threats. They are the strongest advocate against these threats. This is evidenced by Roger Beattie's action to stop treated human effluent being



Recommended marine protected areas by the SEMPF (kelp forest protection in green encompasses 80% of Giant Kelp in KBB3G)

dumped into Akaroa harbour, and his personal funding of an alternative land-based proposal (*This is mentioned in the earlier section: Quota owners are stewards of marine resources*).

## GIANT KELP HARVESTING IS SUSTAINABLE

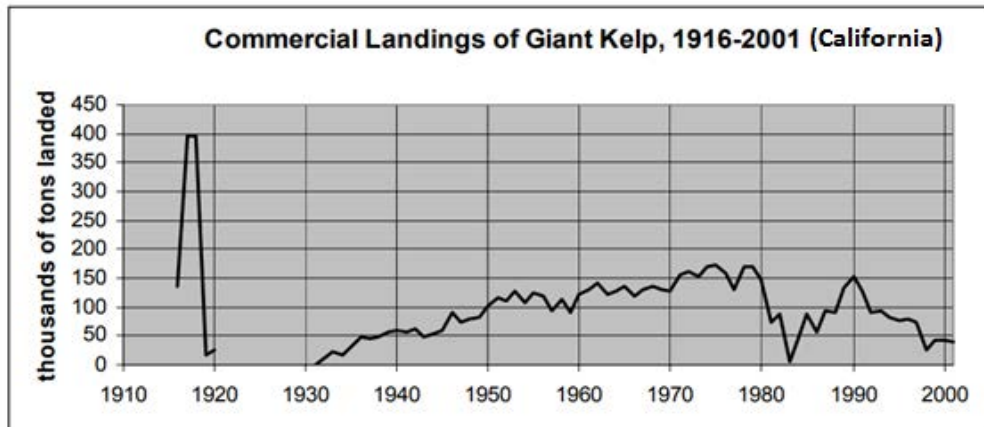


Figure 1.1. Annual commercial landings (tons) of giant kelp from 1916 to 2001. Data source is the Kelp Harvester's Monthly Report (logbook) and data is not available from 1921 to 1930. Kelp landings consist primarily of giant kelp (*Macrocystis pyrifera*).

Harvesting of Giant kelp in California has been sustainable since the early 1900s. Harvesting spiked up to **s9(2)(b)** tons during WW1 for the creation of potash for gunpowder. Scientists even found that removing the canopy increases light at the bottom which enhances growth and recruitment of new plants (Rosenthal, Clarke, & Dayton, 1974) (Kimura & Foster, 1984). Yet, the SEMPf insists on arguing that kelp is 'slow growing and vulnerable'. This is blatantly false and laughable. The two independent leading experts on Giant Kelp make their stance clear:

***“The growth and reproductive characteristics of *Macrocystis* make it the most suitable of all kelps for harvesting”***

**(Schiel & Foster, 2015).**

In the three-and-a-half-year study that evaluated the sustainability of commercial harvesting of Giant Kelp in NZ they found:

**“Overall there were no negative flow on effects resulting from harvesting the kelp forests.”**

**(Pirker, Schiel, & Lees, 2000).**

The SEMPf did not cite the Pirker study (NZ's largest and most comprehensive kelp research paper) and it only cited Schiel & Foster's definitive 2015 book on the biology and ecology of Giant Kelp forests once. The SEMPf gave no justification for not properly using these resources.

### **SEMPf RELIES ON ONE DELIBERATELY MISLEADING SCIENTIFIC PAPER**

The SEMPf arguments have relied almost entirely on one poorly conducted piece of science by Geange (Geange, 2014). SEMPf has used Geange's work to deliberately and maliciously spread misinformation about commercial harvesting of Giant Kelp - "The harvest method to remove the surface tissue down to a depth of 1.2m... has been found to reduce the generation of reproductive blades by an average of 86% within New Zealand populations.". The study was conducted with the intention of simulating commercial harvesting. However, the study differed from commercial harvesting in two vital ways. The first is that in the Geange trial they removed all the reproductive blades (sporophylls, see lifecycle diagram) at the base of the plant. **Commercial harvesting never does this**. The second is that Geange spot-harvested plants; the harvested plants were swamped in darkness from other plants – limiting their ability to photosynthesize. **Commercial harvesting does not do this**, it harvests the canopy in an area, giving the cut kelp plenty of access to light and enabling them to photosynthesize and regrow. SEMPf cited the least representative trial of commercial harvesting ever done. Why did the SEMPf exclusively use data from this one simulated trial, and not the decade of real commercial harvesting data held by MPI? Or the 100+ years of data from the Californian Giant Kelp fishery? SEMPf needs to retract and apologize for the damage to scientific and commercial reputation caused by the spreading of this deliberate and calculated misinformation.

### **NO CONSULTATION WITH QUOTA OWNERS**

The SEMPf claimed that, "we have taken on broad views expressed to us by each sector." As a matter of fact, none of the six Area 3 Giant Kelp (KBB3G) quota owners were contacted. Roger Beattie found out about the SEMPf through someone else, the day the forum was held in Christchurch. Giant Kelp Quota Owners were deliberately kept in the dark.



## **STEALING KELP QUOTA IS ILLEGAL**

If the SEMPF were to come into effect, it would directly conflict with the high court order to bring kelp into the QMS. The Government would be stealing property (Quota) and justifying this on political terms. Uncertainty like this makes commerce impossible. How can we build a business with the knowledge that the government can just take it all away from us on a whim? We can't. The Government should be forced to buy all quota at full price from all quota owners, before they could abolish the quota themselves. This would make the SEMPF a very expensive exercise, paid for by the taxpayer. If this theft of kelp quota goes through:

- 1) All property is at risk of political theft
- 2) All high court judgements become subject to the political process
- 3) All rights are eroded
- 4) Privileges replace rights
- 5) Privilege goes hand in glove with corruption.

The government sold Giant Kelp quota for the whole of Quota Management Area KBB3G. Those who bought Giant Kelp quota from the government have every right to sue the crown if the area is cut back.

## **SEMPF WILL INTENSIFY HARVESTING**

The South East Coast has the largest and most productive kelp forests in NZ. If the proposed prohibition on harvesting Giant kelp were to happen this would reduce the potential to harvest from the whole of KBB3G by about 80%. This puts a strong incentive to intensify kelp harvesting in other areas – something Quota owners are opposed to. The most sustainable way to harvest kelp is rotational harvesting of the most productive areas, just like farming. This requires access to the south east coast and this is what quota owners want.

## STOMPING THE SEEDLING

Global demand for seaweed is rising, and with NZ's isolated geography, relatively clean waters, and world-class QMS, we are in the prime position to capitalize on this opportunity. The NZ seaweed industry is in its nascent stages. For the last two decades NZ Kelp has worked hard to develop the market and distribution channels for this new industry. The number of products is expanding, and sales are increasing, providing sustainable eco-friendly products to a multitude of end users, whilst also providing valuable employment and income for New Zealanders. SEMPf wants to stop this industry in its tracks and limit the health and wealth of New Zealanders, by unthinkingly banning Giant Kelp harvesting.



## CONCLUSION

The forum claimed to have worked “in good faith”. This is false. There was no consultation with Quota owners.

The forum grossly underestimates the value of the fishery, by ignoring market trends and future potential, *and completely ignoring the social economic and environmental value of Giant Kelp products to New Zealanders.*

The forum claims Kelp forests are a sensitive habitat, yet they have proven to be highly resilient to commercial harvesting. The actual danger is in land-based pollution and sedimentation.

It is appalling that the SEMPf has not asked NZ’s Giant Kelp harvesting experts or NZ’s Scientific Expert (Distinguished Professor David Schiel) for their data or opinion. Indeed, it seems that have asked everyone what they think of Giant Kelp, except for the ones who care most about it and know most about it!

It is clear that SEMPf has decided on an outcome and then looked for evidence to support it. This is not how science is done! The science supports keeping this fishery open.

The implementation of an MPA simply encourages the public to further turn a blind eye to irresponsible land farming, which is the primary cause of sedimentation and the single greatest threat to kelp forests.

SEMPf says commercial harvesting is a risk. It is not a risk. Harvesting by ITQ owners is a better form of protection than an MPA. They police, monitor and steward the forests.

SEMPf is stereotyping commercial fisherman as exploiters of marine life and have actively excluded Giant Kelp quota owners from conversations about the protection area. SEMPf has not been inclusive.

This confiscation and redistribution are as bad as what is happening to land in South Africa at present.

It is as bad because the rights to harvest kelp were legally obtained through a combination of peer-reviewed scientific research, High Court decree, and negotiation with the Ministry of Fisheries (now Ministry for Primary Industries).


All rights must be protected, or no rights are safe.

Furthermore, the Ministry of Fisheries has sold kelp quota on the open market. (Roger Beattie's High Court win and agreement with the Ministry of Fisheries meant that Roger got s9(2) of the Giant Kelp quota, Maori got s9( ) and the crown got s9(2) ). The Crown sold its s9( ) share of the quota, and now threatens to steal s9( ) of it back. This will end up back in the High Court if quota rights are taken away. Roger Beattie will take the Ministry for Primary Industries the Department of Conservation and the University of Otago to court. Roger Beattie is also investigating misfeasance in public office. Roger Beattie will continue harvesting Giant Kelp in the SEMP zones.

If scientific research by the undisputed experts on Giant Kelp is to be ignored, if the High Court is to be ignored, and if the government sells something one day and confiscates it the next (without compensation), then we live in a barbaric country where the rule of law is ignored, where no rights are secure and where theft is sanctioned if it has political appeal.

History teaches us this is the road to the third world.

s9(2)(a)




Roger Beattie  
Director NZ Kelp  
December 2018

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s9(2)(b)(ii)



## The Grass Harvesting Analogy

Imagine we apply the Geange kelp study methodology to commercial grass harvesting.

1. We select three paddocks of grass for hay production.
2. We tag 48 individual grass plants (16 per paddock)
3. We leave 4 plants uncut in each paddock, we cut 4 plants to %30 of vegetative matter in each paddock, we cut 4 plants to %70 of vegetative matter in each paddock and we cut 4 plants to mower height in each paddock.
4. For all the cut plants we leave surrounding grass uncut.
5. We show that the cut grass is less productive and less reproductive than the uncut grass.
6. It is obvious in this type of study that the cut grass is less productive and less reproductive because light for photosynthesis is not getting to the cut grass because the uncut grass is shading the cut grass.
7. To argue that cutting hay is unsustainable is laughable.

## The irrelevant Geange Giant Kelp growth and reproductive report summary

### Geange

1. Selected three sites to measure growth and reproduction of Giant kelp in the South Coast of Wellington during winter.
2. He tagged 48 individual plants for experimentation (16 per site)
3. Tagged plants were subject to 4 different treatments at each site; control (no harvest) 30% reduction in canopy, 70% reduction in canopy, and 100% reduction in canopy (down to 1.2m).
4. All cut plants were surrounded by uncut plants
5. Every treatment had all the reproductive blades (sporophyll's) removed from the base of the plants.
6. The results showed when 100% harvest of individual plants (down to 1.2m) occurred growth was not effected but regeneration of reproductive blades was.
7. Growth was not effected even though shaded from adjacent plants.
8. This study does not represent commercial harvesting as commercial harvesting creates light wells allowing more light to penetrate the ocean surface reaching the juvenile fronds, increasing sub-canopy growth, reproductive blade (sporophyll) growth and recruitment. Also commercial harvesting does not remove the reproductive blades.

## Mike Fosters email

**From:** Michael Foster [mailto:s9(2)(a)]  
**Sent:** Wednesday, 30 November 2016 9:04 a.m.  
**To:** Roger Beattie s9(2)(a)  
**Cc:** s9(2)(a)  
**Subject:** Re: Marine protected Areas & its effect on kelp harvesting

### General:

You might want to look at and perhaps use parts of the section on "Giant Kelp Harvesting" in Dave's and my giant kelp book as it reviews the history of harvesting (mostly in California) and concludes (with references) that done properly, there are no apparent adverse effects.

### South-East Marine Protection Forum:

1. 563: Says giant kelp is long-lived and recovers slowly. This is wrong for California - sporophytes live only 2-6 years, individual plants recover rapidly from reasonable harvest, and entire forests, removed by storms, etc., generally recover in 1 - 2 yrs. Not sure how well this holds for NZ but there is probably some info. in Pirker's thesis.
2. 565: Losses in south Australia and Tasmania - while there have been losses in so, Australia (for example, around Melbourne) that appear to result from rising ocean temperatures, I understand that losses in Tasmania are mostly due to sea urchin grazing resulting from a change in currents that brought urchin larvae to eastern Tasmania.
3. 569: What is the "anecdotal evidence" of loss in the last 50 yrs.?? If the evidence is good, what seems to have caused it?
4. 570. "Harvesting significantly reduces kelp biomass." No sure what is meant by "significant" but depending on harvest methods and frequency, the reduction is usually (again in California) a very small portion of total biomass, and plants recover rapidly via new growth and new recruitment (more light on the bottom when canopy is removed).

### Geange paper:

A very similar study was done by Reed (1987; full citation in giant kelp book) who found the same thing. **Note that there were no significant effects on regrowth or sporophyll abundance when 30-70% of the canopy of individual plants was removed ("thinned").** There were effects on sporophylls but only when all the canopy was removed - similar to what Reed found. Also note that in the discussion, Geange says that "changes in reproductive condition (fewer sporophylls) may not have any discernible effect on long term stability of local populations," and that "the experiments differed from what happens in storms and commercial harvesting."

If Geange means commercial harvesting as you do it, then his experiments are irrelevant to determining harvest effects.

### Overall:

Hard for me to be more specific because I do not know how you harvest and what your harvest frequency is. Assuming it is reasonable (harvest a portion of the canopy in an area and don't re-harvest until the canopy recovers) then the literature indicates you are having no detectable impact on the sustainability of the beds you harvest, and Geange's paper is irrelevant. I would also ask for more information on the "anecdotal evidence." Also would be good if you had information on the sustainability of the beds you harvest. Have they declined as a result of your harvesting? Also might be worth determining if ocean temperatures have



increased in your area and if so, are they still within the range that is suitable for giant kelp?  
And how about the same thing for future temp. predictions?

Hope the above helps. Let me know if I can be of further help.

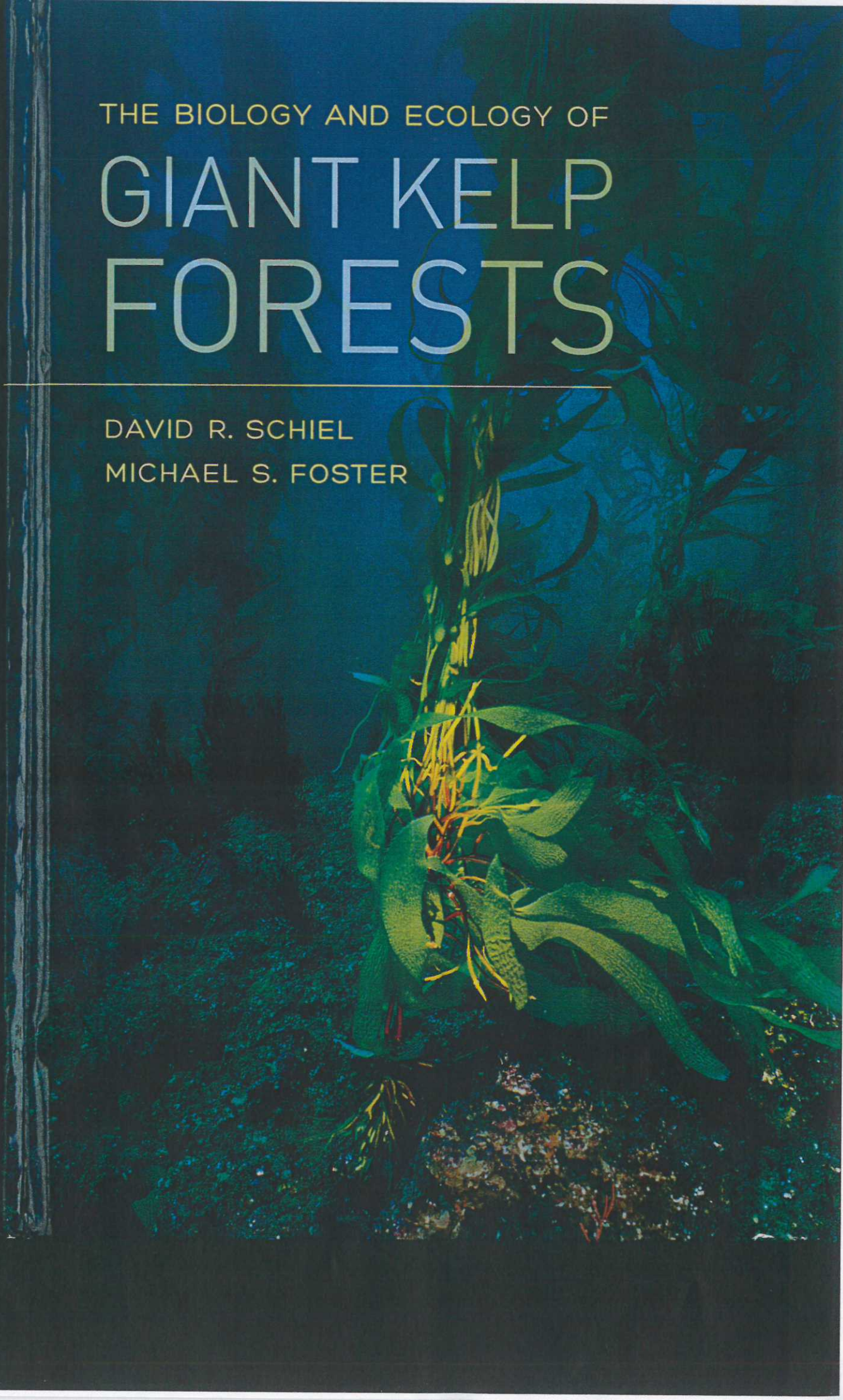
Saludos

Mike

THE BIOLOGY AND ECOLOGY OF  
GIANT KELP  
FORESTS

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DAVID R. SCHIEL  
MICHAEL S. FOSTER



## THE STRUCTURE, FUNCTION, AND ABIOTIC REQUIREMENTS OF GIANT KELP

The fact that frutification is produced only on the submerged young bladderless and small fronds, within a few inches of the very root, is highly remarkable. What then is the function of the floating mass of the plant?

—Hooker (1847)

*Macrocystis* may be unique among large, community-dominating plants because it is essentially a “weed.” Within a wide range of environmental conditions and if spores and suitable rocky substrata are available, *Macrocystis* can quickly colonize surfaces, grow rapidly, and become reproductive in less than a year. It does not require facilitation by other species and, with some local exceptions, its population dynamics are largely driven by changes in the oceanographic environment. Its biological attributes are therefore particularly relevant to its ecology. To understand how *Macrocystis* functions within the environment, it is necessary to consider not only its life history traits but also the structures and internal processes that allow plants to survive and thrive.

Giant kelp sporophytes are the largest among the kelps and, combined with its relatively complex internal and external morphology, beg comparison to large land plants. In growth rates, kelps are most like bamboos, which are large grasses, and in ecological importance they are analogous to forest trees. Unlike its terrestrial analogues, however, giant kelp has an alternation of generations with free-living, 1N, microscopic gametophytes and 2N sporophytes (figure 2.1). Understanding the biology of giant kelp and its ecological relationships requires consideration of both of these life stages, which act almost like two different organisms because of their differing structures, development, and requirements, and the linkage between them provided by spores and gametes. The following information unless otherwise noted comes primarily from studies on *Macrocystis pyrifera*, the ecomorph for which we have by far the most information.

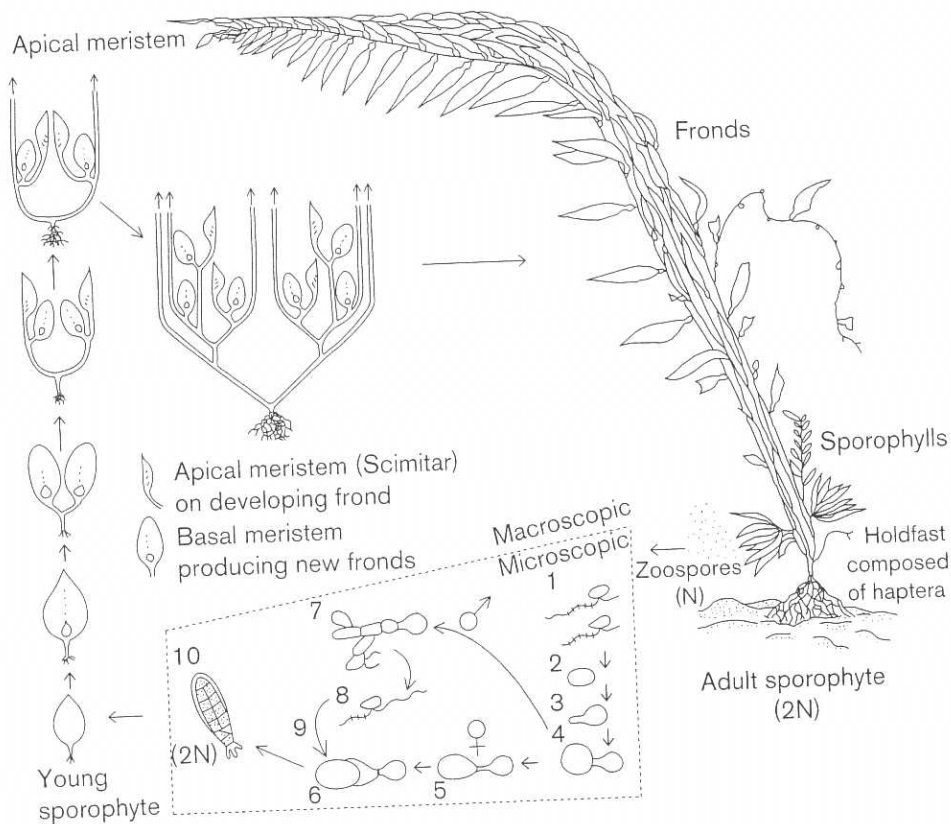


FIGURE 2.1  
*Macrocystis* life history and development. The adult sporophyte ( $2N$ ) illustrated is *M. 'pyrifera'*. Inset depicts microscopic stages of development from  $1N$  zoospores to multicellular  $2N$  sporophytes. Illustration at the left shows stylized sporophyte development, with dichotomous growth.

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Zoospores</li> <li>2. Settled spore</li> <li>3. Developing germ tube</li> <li>4. Germinated gametophyte</li> <li>5. Female gametophyte with oogonium</li> </ol> | <ol style="list-style-type: none"> <li>6. Female gametophyte with extruded egg to left</li> <li>7. Multicellular male gametophyte with antheridia</li> <li>8. Antherozoid (sperm)</li> <li>9. Fertilization</li> <li>10. Embryonic sporophyte with rhizoids for attachment</li> </ol> |
|---|---|
- SOURCE: Modified from North (1994).

## SPOROPHYTES

### GROWTH AND DEVELOPMENT

As a giant kelp sporophyte grows, it undergoes several developmental transitions (reviewed in North 1994; detailed descriptions of growth and development in the work of North [1971b], Parker [1971], and Lobban [1978]). Investigators have defined the results of these transitions in various ways for various reasons (e.g., Dean et al. 1989). We will distinguish between juveniles and adults, and define juveniles as plants that are visible to the naked eye but have not yet reached the sea surface. Fronds on adults may all be beneath the surface in deep water (Perissinotto and McQuaid 1992) or because of

removal of long fronds by storms. These are distinguished from juveniles either by their high number of fronds or by their large holdfasts.

Soon after fertilization the embryonic sporophyte develops into a parenchymatous blade with basal cells that elongate to produce rhizoids. Continued growth and differentiation produces a juvenile sporophyte around 5–10 cm tall with a holdfast composed of haptera, a stipe (the primary stipe), and a blade (lamina), which are characteristics of all juvenile Laminariales (figures 1.1 and 2.1). A meristem at the stipe-blade juncture contributes to further elongation, and a meristoderm (also called meristematic epidermis) near the outer cortex (i.e., the surface) of all parts of the plant contributes to frond enlargement. As growth continues, the meristem and blade split longitudinally and form the first dichotomy, also referred to as the primary or basal dichotomy. Continued dichotomous branching produces more fronds, some of which develop rapidly and can eventually spread over the sea surface.

Vegetative fronds consist of a branch made up of a central stipe with attached floats (called pneumatocysts) and blades (lamina). The floats and blades develop as the apical blade, sometimes referred to as the scimitar blade because of its shape, splits into numerous blades that subsequently develop basal floats and short pedicels arranged alternately along the frond. Fully developed blades commonly develop undulations and marginal spines (figure 1.2) that may enhance blade movement, thereby reducing self-shading and enhancing water flow (Hurd and Pilditch 2011) and potentially facilitating nutrient and carbon uptake (Wheeler 1980a). Skottsberg (1907) suggested the undulations may function to stiffen the blade and thus reduce tearing. Fronds can grow very rapidly while forming a surface canopy. For example, Clendenning (1971a) found their maximum elongation rate to be “the fastest autotrophic elongation on record for any marine or land plant.” He estimated a maximum growth rate of around 50 cm day<sup>-1</sup>, with the closest contenders being bamboo and the flower stalks of the century plant, *Agave americana*, which came in second and third at 30 and 16 cm day<sup>-1</sup>, respectively. However, there clearly is considerable variation in maximal frond elongation rates of *Macrocystis*. Zimmerman and Kremer (1984) measured average frond growth rates of 15 cm day<sup>-1</sup> at a site in southern California when nutrients were sufficient for growth. Stewart et al. (2009) examined frond growth for over a year inside and at the edge of a giant kelp forest near Santa Barbara. Growth rates ranged from 10 to 35 cm day<sup>-1</sup> with highest rates at the edge when the canopy was thick. Other fronds from the dichotomous divisions in the understory grow very slowly until larger fronds senesce or are otherwise lost, and still others produce the numerous reproductive blades that cluster near the base of a plant. These blades usually lack floats, divide longitudinally, and become sporophylls (Neushul 1963, North 1971b).

Haptera production, growth, and attachment to the substratum are critical to sporophyte survival in the often turbulent waters they occupy. As described by Chien (1972, 1973), haptera are first produced at the base of the developing primary stipe. As the plant grows, haptera continue to be produced up the primary stipe and from stipes of

the basal dichotomy, although the exact process depends on plant age and ecomorph (figures 1.2 and 2.1). Elongation is presumably a result of very active meristoderm at the tips. Haptera branch dichotomously and are negatively phototactic, growing downward and covering older haptera. The ability of new haptera to attach to older haptera undoubtedly reinforces the integrity of the entire holdfast. Haptera continue growth and form an adhesion disc that produces sticky rhizoids when they contact the substratum. Plant attachment is therefore accomplished both chemically by this rhizoidal "glue" composed of secreted polysaccharides and perhaps phenolics (Chien 1973, Tovey and Moss 1978), and mechanically by haptera growing around objects on the bottom. North (1994) reported that holdfasts of old *Macrocystis 'pyrifera'* plants grew up to 2 m tall and 3 m in diameter. Furthermore, plant anchoring shows adaptations to characteristics of sites. For example, holdfasts exceeding 5 m in diameter were found in stands of giant kelp growing on sand near Santa Barbara, California, prior to the 1983–1984 El Niño (Thompson 1959, North 1971a). These probably established initially on worm tubes (Neushul 1971a) or other hard substrata in the sand, and were maintained over the years by several plants growing together and several generations of plants using the original holdfast for recruitment and continued growth (e.g., Schiel and Foster 1992).

If not removed prematurely by storms or grazers, large vegetative fronds eventually produce a terminal blade, cease growing, and senesce; individual fronds of *M. 'pyrifera'* usually live no more than 4–9 months (Rodriguez et al. 2013). Although it is commonly thought that high water motion and low nutrients / high temperatures are a major contributor to frond loss (see Chapter 3), Rodriguez et al. found that senescence and loss of fronds on plants in the Santa Barbara region are "age-dependent," controlled by intrinsic biological processes that result in progressive senescence. Around 50% of the variation in frond initiation and loss rates could be explained by frond age structure. This phenomenon is similar to that controlling the growth and loss of leaves in many terrestrial plants, and needs to be considered in studies evaluating the causes of frond dynamics.

Individual plants can live up to 9 years or so (review in Schiel and Foster 2006), but there is considerable variation in longevity. In southern Chile, for example, Buschmann et al. (2004) reported that plants in protected populations were annual. Long-term survivorship studies have not been done for the *M. 'integrifolia'* ecomorph, but qualitative observations suggest it could live much longer than *M. 'pyrifera'* because storms or other disturbances may remove only part of the stipe-holdfast (rhizome) and the remainder continues to grow (Brandt 1923). Chien (1973) estimated that an individual hapteron lived less than 6 months and as the holdfast ages it becomes a core of old, dead haptera with an outer ring of younger, living haptera (Ghelardi 1971). Taken as a whole, the persistence of the sporophyte therefore depends on the continual production of new vegetative fronds as well as new haptera. The quick turnover in biomass of *Macrocystis* is therefore quite unlike that of terrestrial trees, where biomass continues to accumulate in trunks and branches over time. North (1994) estimated a turnover rate of once or twice

a year, whereas others have estimated rates in central and southern California of 6–7 times annually (Gerard 1976, Reed et al. 2008).

Giant kelp is a large, complex organism, and various metrics are used to describe its size. One metric is length which, like a fish caught with no witnesses or photographs, seems to have been exaggerated over time. North (1971a) found that despite rumors of plants with fronds over 150 m long, the most reliable records of fronds on attached plants indicate the longest are likely to be around 60 m. This is, of course, a labile characteristic of plants. For example, fronds of plants growing in shallow water are shorter than those on plants growing in deep water (e.g., North 1971a, Lobban 1978). The biomass of plants is important for estimates of productivity (Chapter 6) and, although labor intensive, can be estimated by combining measures of plant density, frond abundance and length, and frond length–weight relationships (Rassweiler et al. 2008). Acquiring these metrics is compounded by the sheer sizes of some plants. For example, the largest plant collected from the La Jolla kelp forest in southern California weighed over 400 kg (Neushul 1959). The most common metric used for a relative measure of plant size is the number of fronds per plant which, along with frond length and plant density (in numbers per area), can be used to estimate the amount of vegetation in the water column across a kelp forest. It is also indicative of the degree of shading below the canopy and carrying capacity (Tegner et al. 1997). North (1971a) estimated plant weights by taking the average wet weight of *M. pyrifera* fronds on plants, which was around 1.25 kg, and multiplying by the number of fronds. The largest plant he sampled had 400 fronds and therefore would weigh 0.5 metric tons. Given the many thousands of *Macrocystis* plants that normally inhabit coastal kelp forests, this represents a considerable biomass or standing stock. This is seen somewhat dramatically in the large amounts of *Macrocystis* that wash up on shores after storms, which contribute to onshore and nearshore food webs and seed colonization of coastal vegetation (figure 2.2).

It is also noteworthy that there is considerable biogeographic variation in kelp frond and plant sizes, although the degree to which this represents specific site characteristics or true large-scale differences in growth, survival, and size is unknown. For example, in a southern New Zealand kelp forest, the maximum elongation rate of fronds was less than 40 mm day<sup>-1</sup>, and the maximum life span of fronds was 7 months at one site and 15 months at another (Pirker 2002). These were sheltered sites, however, and affected by sediment and occasionally poor light quality. Nevertheless, even the largest plants in most southern New Zealand populations rarely have more than 10 fronds and those in perennial populations in southern Chile have only 3–4 fronds (Buschmann et al. 2004) compared to the hundreds of fronds occasionally seen in California populations.

#### INTERNAL ANATOMY

The internal morphology of giant kelp rivals the complexity of its exterior and is among the most highly developed of all the algae. This is perhaps not surprising given the

trate iodine as well as other radionuclides. Fronds take up radionuclides in the water column. These attributes make it a natural dosimeter that has been used to detect the spread of radioactive iodine,  $^{131}\text{I}$ , as seen most recently from the damaged Fukushima nuclear power plant (Manley and Lowe 2012). Sieve sap can also be used as an indicator of metals associated with coastal runoff (Fink and Manley 2011).

## SPORES

Sporophytes in good growing conditions can begin asexual reproduction via sporulation in less than a year (Neushul 1963, Foster 1975a, Buschmann et al. 2004). Plants can begin producing spores when they are quite small and, in good growing conditions, probably when they are only a few months old. The smallest spore-producing plant found by Neushul (1963) had four fronds that were 1.5–4 m tall. Plants with only 1–2 fronds may become reproductive in southern Chile (M. Graham, pers. comm.). As sporophytes become mature, their sporophylls become darkened with developing sori that can eventually cover nearly all of both sides of mature, reproductive blades (Neushul 1963; figure 2.4). Sori are dense aggregations of unilocular (i.e., single cell) sporangia that develop, along with elongate sterile hairs or paraphyses, from the meristoderm of the sporophylls (Henry and Cole 1982a; figure 2.3). There is one report of sori developing on what are normally vegetative blades (Leal et al. 2014). *Macrocystis* sori usually develop from the apex to the base of the sporophylls, and active spore release is indicated by the somewhat transparent whitish areas on sporophylls from which spores have been released. As in other Laminariales (review in Fritsch 1945, Neushul 1959, Henry and Cole 1982a), the nucleus in the developing sporangium produced by the meristoderm in *Macrocystis* divides meiotically. The resulting haploid nuclei divide mitotically 2–3 times and the sporangial contents develop into 16–32 biflagellate haploid spores. These are sometimes referred to as meiospores because, at least initially, they result from meiosis. Neushul (1959) saw that spores are not released individually from the sporangium, but are “ejected” as a group in a transparent packet. The packet ruptures and spores escape into the surrounding water. The haploid spores have 16 chromosomes (Walker 1952, Cole 1968) although Yabu and Sanbonsuga (1987) found haploid gametophytes with 32 chromosomes but suggested these were polyploids.

Although the biomass of fertile sporophylls is a relatively small and highly variable percentage of total plant biomass (from <1% to 10%, Neushul 1963), the small size of spores and the high density of sporangia on both sides of the sporophylls result in extremely high fecundity. For example, on a plant with 17 vegetative fronds, Neushul (1959) measured the area of fertile sori at  $2 \times 10^6 \text{ mm}^2$  and estimated a sporangium density of  $10^4 \text{ mm}^{-2}$  of sorus. Assuming that each sporangium contains 32 spores, this plant bore around  $10^{11}$  zoospores. This is comparable to the  $10^{12}$  spores produced by a single fruiting body of what is thought to be the most prolific fungus, the giant puff ball *Calvata gigantea* (Li 2011). It is also an underestimate relative to the life span of the



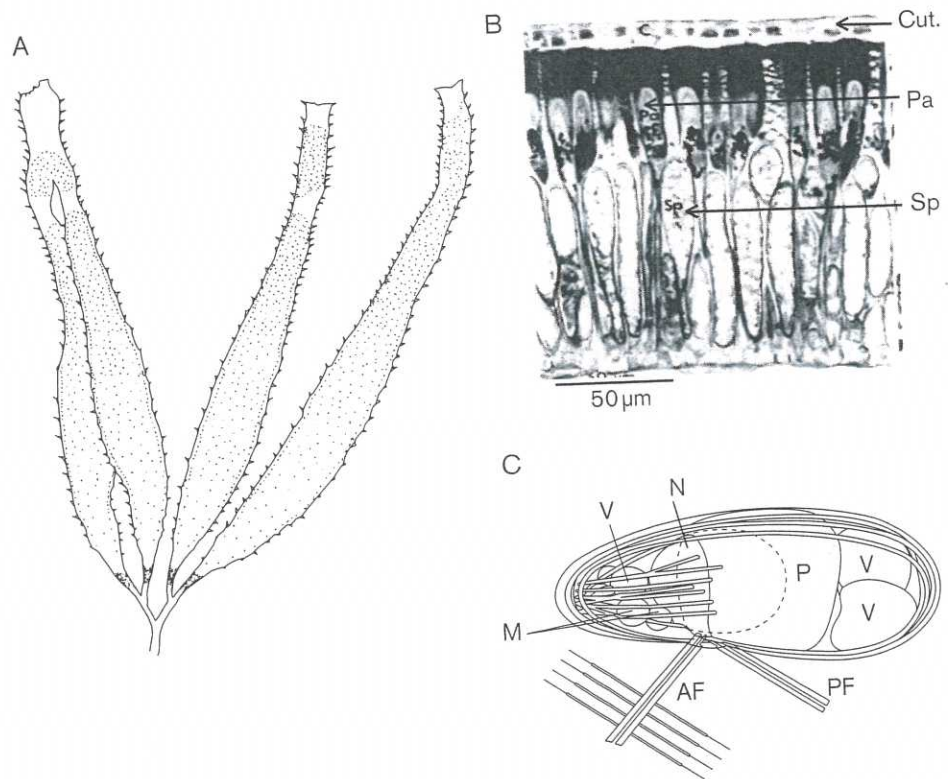


FIGURE 2.4  
Sporophyll, sporangia, and spores. (A) Fertile (darker, stippled areas) *Macrocyctis* sporophylls, about 35 cm long (from Neushul 1963). (B) Section through the surface of a typical, fertile Laminariales sporophyll (from Henry and Cole 1982a). (C) Typical Laminariales spore (stylized). Encircling bands are cytoskeletal microtubules. Adhesion vesicles around the periphery of the cell not shown, and flagella are not shown at full length. Spore is about 7 µm long (from Henry and Cole 1982a).  
Cut. = cuticle; Pa = sterile paraphysis; Sp = sporangium. AF = anterior flagellum with hairs; V = vesicles with stored fat; M = mitochondrion; N = nucleus; P = chloroplast; PF = posterior flagellum.  
SOURCE: (B) and (C) are reprinted with permission from the Psychological Society of America.

sporophyte because mature plants can produce spores year-round as old sporophylls continue to grow and produce new sori, and new sporophylls are produced (Neushul 1963). Sorus turnover can occur in less than 10 days (Graham 2002). Fecundity is, however, a function of vegetative biomass (Neushul 1963). It decreases as vegetative biomass is reduced by storms or grazers (Reed 1987, Graham 2002), or by artificially removing the canopy (Geange 2014), and its recovery can lag behind vegetative recovery (Graham 2002). This relationship, plus the effects of changes in temperature, nutrients, and water motion, can cause considerable temporal variation in sorus production and spore release (discussed in Chapter 4). This is particularly true in Chile where there are large geographic differences in spore production including annual sporophyte populations



FIGURE 10.3

Aerial photo of the coast and nearshore kelp forest, showing oil in a giant kelp canopy near Santa Barbara, California, during the 1969 Santa Barbara oil spill. The spill was caused by a blowout on an offshore oil platform.

A = oil streaming toward shore from the kelp canopy; B = black area of oil on the beach. Scale in meters.

SOURCE: Photo courtesy of Mark Hurd Aerial Surveys.

components of the oil had not had time to evaporate prior to reaching shore, or if more toxic, refined products were spilled and mixed into the water column as in the Tampico spill. Dispersants are often used during oil spills. They can be toxic but their effects are difficult to separate from those of the oil. Singer et al. (1995) tested the toxicity of Corexit 9554 on a suite of kelp forest organisms, including giant kelp zoospores, in laboratory bioassays. Fifty percent of zoospores were killed at concentrations as low as 100 ppm and abalone larvae were also very sensitive to the dispersant, suggesting impacts from dispersants magnify those from the oil itself.

#### GIANT KELP HARVESTING

Giant kelp has been harvested for food, fertilizer, and chemicals since the early 1900s (see Chapter 1) and the effects of harvesting continue to be investigated. In the early days of harvesting in California when there was little regard for environmental effects, groups of entire plants were removed by putting a cable around a stand and dragging it onto a ship (McPeak and Glantz 1984). This method was soon replaced by kelp harvesting ships with large cutting devices on the stern (see Chapter 11). The most modern ships backed through the surface canopy and the cutting device severed fronds in an 8 m wide swath, much like a hedge trimmer. A metal conveyor moved the severed fronds onto the boat where they were distributed by a grab that could move up and down the deck on an overhead cable. Regulations evolved to limit the cut to no more

than 1.2 m below the surface. Harvesters also had to specify how they would “avoid” cutting bull kelp, *Nereocystis luetkeana*, when it occurs with giant kelp. In contrast to giant kelp, bull kelp is an annual species that produces spores on surface fronds. Harvesting these fronds can reduce the abundance of future generations of sporophytes (review in Springer et al. 2010).

Questions over possible impacts of harvesting on the environment and a desire for sustainability led to various harvesting investigations in California, beginning in the 1950s. Concerns included possible loss of entire kelp forests, reduction of canopy-dwelling fishes and invertebrates, reduction of fish populations due to loss of food and/or habitat, increased beach erosion due to less dampening of water motion, and an increase in the abundance of drift kelp on beaches from cut fronds and dislodged plants not captured by the harvester. Early studies of these potential problems were summarized by North and Hubbs (1968) who concluded that “No adverse influence of harvesting could be found among the statistics or field observations for the periods studied.” A later review by Barilotti and Zertuche-González (1990) came to the same conclusion. Uncut, subsurface fronds grow to replace those cut, and it appeared that entire plants were only occasionally torn from the bottom during harvesting operations (Rosenthal et al. 1974). Harvesting the canopy increases light on the bottom, which can enhance recruitment of *Macrocystis* (Rosenthal et al. 1974, Kimura and Foster 1984), but Barilotti et al. (1985) found no adverse effects of harvesting on holdfast growth or plant survival if harvesting regulations and industry practices on frequency of harvest were followed. Numerous other organisms are removed along with the cut fronds (e.g., North and Hubbs 1968) but overall reductions within a forest have not been reported. Clendenning (1971b) estimated that 10% or less of giant kelp production was removed by harvesters in harvested forests. Possible changes in populations of consumers such as abalone and fishes in kelp forests, beaches, and offshore due to an indirect effect of removing the biomass and primary production of sea-surface kelp have not been investigated. At least for the present, harvesting impacts are of little concern in California because only small amounts of giant kelp are now harvested, primarily to feed abalone in aquaculture facilities (see Chapter 11).

Significant harvesting of *Macrocystis* (primarily *Macrocystis 'integrifolia'*) now occurs in Chile. Over 2500 metric tons are harvested in some areas of northern Chile, most of which is used in abalone aquaculture (review in Vásquez 2008). Some is harvested as drift on the beach, but most is removed by hand, either by cutting fronds or by removing entire plants. Kelp forests are not abundant in northern Chile, and there is concern that giant kelp is already being depleted. This could worsen as the demand of the aquaculture industry may eventually exceed supply, especially since supply also varies with oceanographic conditions. Harvesting regulations are being considered, including territorial user rights to encourage sustainability (Vásquez 2008). Cultivation of giant kelp is being explored as an alternative to harvesting natural stands (Buschmann, Varela, et al. 2008), and various methods of repopulating natural stands are being investigated

(e.g., Westermeier et al. 2012). To our knowledge the effects of harvesting on associated Chilean invertebrates and fishes have not been investigated.

*M. integrifolia* has also been harvested for the herring spawn-on-kelp fishery and other uses in Alaska and British Columbia, and various harvesting experiments have been done to determine effects, primarily on sustainability of the giant kelp resource (review in van Tamelen and Woodby 2001). Experimental harvesting results have been mixed, no doubt in part because different harvesting approaches and frequencies have been used. Druehl and Breen (1986) found increases in some understory algae and declines in herbivore abundance and reproduction in a plot harvested six times in 17 months. It seems clear from these studies and those done elsewhere that infrequent harvests of the canopy have little effect on giant kelp or its associates. However, more frequent canopy harvests and removal of entire plants can affect giant kelp and associated species. The growth and reproductive characteristics of *Macrocystis* make it the most suitable of all kelps for harvesting; plants are very productive, cutting the surface canopy is relatively easy, and uncut fronds grow to replace those that are removed. Best management practices will vary depending on ecomorph, location, and forest depth. There can be minimal impacts on the kelp forest community if harvesting techniques are based on knowledge derived from studies on the depth and frequency of cutting, as well as the proportion of the canopy harvested in particular stands that protects other species living in the canopy.

In New Zealand, kelp harvesting is limited to around 1500 metric tons annually. *Macrocystis* comes under the New Zealand Fisheries Quota Management System and can only be done with permits that allow particular harvests in set areas. As elsewhere, harvesting is limited to the surface canopy at no more than 1 m depth. This is not done by large harvesters but by cutters operated from a barge. No significant effects of harvesting on giant kelp communities have been found (Pirker 2002). The kelp is used to feed New Zealand abalone being raised for “blister pearl” production for jewelry (e.g., <http://www.bluepearls.com/>) and dried to be used as an additive in horticulture, agriculture, and as a stock food supplement. Its dried form is also marketed as “kelp pepper” and is used in cooking.

## INTRODUCED AND INVASIVE SPECIES

### MACROALGAE

We use the term “introduced species,” also referred to as nonindigenous or non-native species, to indicate those not native to a community but transported into it by humans. Long-distance transport is usually via commercial shipping, aquaculture, or the aquarium trade. After arrival, introduced species may spread by recreational boating or natural dispersal. Introduced species may become invasive by spreading prolifically, although metrics of abundance that constitute an “invasion” are subjective. Invasions are considered to have negative impacts if they cause reductions in the abundance of



**THE LARGEST SEAWEED**, giant kelp (*Macrocystis*) is the fastest growing and most prolific of all plants found on earth. Growing from the seafloor and extending along the ocean surface in lush canopies, giant kelp provides an extensive vertical habitat in a largely two-dimensional seascape. It is the foundation for one of the most species-rich, productive, and widely distributed ecological communities in the world.

*The Biology and Ecology of Giant Kelp Forests* takes the reader from Darwin's early observations to contemporary research, providing a historical perspective for the modern understanding of giant kelp evolution, biogeography, biology, and physiology. The authors furnish a comprehensive discussion of the species and kelp forest ecology worldwide, with considerations of human uses and abuses, management and conservation, and the current and likely future impacts of global change.

"*The Biology and Ecology of Giant Kelp Forests* will be the seminal work on kelp forest ecosystems. It greatly updates the authors' earlier synthesis on the topic, not only bringing their work up to date but also providing a fresh look at how kelp forests 'work' in different parts of the world."

**JOHN PEARSE**, Professor Emeritus, Department of Ecology and Evolutionary Biology, University of California, Santa Cruz

"The broad and deep treatment of the subject makes this book an important contribution to kelp forest ecology and marine ecology in general. This book will have a lasting impact as a desk reference and textbook for students, researchers, and coastal managers."

**MICHAEL GRAHAM**, Professor, Moss Landing Marine Laboratories, and coeditor of the *Journal of Phycology*

"The authors' scholarship is evident in their thorough review of over 800 publications, which provides the most up-to-date insights into the biology, ecology, and human use of these forests. There is simply nothing else like it."

**DAN REED**, Marine Science Institute, University of California, Santa Barbara

**DAVID R. SCHIEL** is Professor of Marine Science at the School of Biological Sciences, University of Canterbury, New Zealand, where he leads the Marine Ecology Research Group. His primary research interests are the interactions of species' life histories with the ecological and oceanographic processes responsible for nearshore marine community structure.

**MICHAEL S. FOSTER** is Professor Emeritus at Moss Landing Marine Laboratories and San Jose State University. He received his BS and MA degrees from Stanford University and PhD from the University of California, Santa Barbara. His research interests center on the ecology of subtidal and intertidal reefs.

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Front cover image: Giant kelp forest, San Clemente Island, southern California; photo courtesy Ron J. McPeak, UCSB Library Digital Collection. Back cover image: Portion of a giant kelp (*Macrocystis pyrifera*) frond; photo by John Heine.

5a

**SEAWEED PRODUCTS  
FOR BARREL CULTURE PAUA FARMING**

TBGF Project: Contract SRI401

by

J. Pirker, D. R. Schiel & H. Lees

Department of Zoology

University of Canterbury

canopy deterioration during the summer months has important ramifications for the commercial harvesting of *Macrocystis* by potentially limiting the supply of kelp.

The harvesting of *Macrocystis* canopy fronds has a negligible effect on *Macrocystis* plants. Although cut fronds die, other fronds continue to grow and plant survival is not significantly affected. The abundance of *Macrocystis* plants and of *Macrocystis* fronds within cut areas is not significantly affected by harvesting.

Forty percent of cut fronds survive for 2 months compared to 70% survival of uncut fronds over the same period. All mature fronds (whether cut or uncut) die within seven months. Senescent fronds may persist for up to seven months. The major effect of canopy harvesting appears to be the premature senescence of cut fronds.

Repeated cutting of canopy-length *Macrocystis* plants, on an approximately quarterly basis, had no significant effect on the survival of *M. pyrifera*. However, it does influence the growth rate of *M. pyrifera* plants, enhancing growth in late summer. Yield from repeatedly cut areas, declined over time, but not significantly so, in relation to uncut areas. This was due to large fluctuations in natural levels of surface canopy biomass.

Understorey species, including juvenile *Macrocystis*, are unaffected by the once-only or repeated removal of the surface canopy. When all overlying canopies are removed, *Ecklonia radiata* has enhanced recruitment. *Ecklonia* is a long-lived perennial species that survives well in harsh conditions. The presence or absence of a *Macrocystis* surface canopy is probably of no consequence to the survival of mature *Ecklonia*. In lower latitudes where *Macrocystis* is not present, *Ecklonia* occurs in dense mono-specific stands that persist for many years.

Overall, there appear to be no significant flow-on effects resulting from the harvesting of giant-kelp beds. What effects there are seem to be benign, such as increased sub-canopy *Macrocystis* growth rates. Harvesting may even prevent loss of whole plants during winter storms by reducing the tangling of long canopies. *Macrocystis* in Akaroa harbour seems to be constrained by physical factors, especially sedimentation, generally low sub-surface light and storms.

### 3.4 Introduction

*Macrocystis pyrifera* has a peculiar morphology compared to most marine algae. Adult plants are composed of many fronds, from one or two up to hundreds per plant that arise from the holdfast and grow to the sea surface. Each frond has numerous laminae, at the base of which is an air bladder (pneumatocyst) (Dawson & Foster 1982). The air bladders provide buoyancy that keep the plants vertical in the water and lift the fronds to the sea surface. Fronds at the sea surface produce many laminae, which then comprise the major photosynthetic area and bulk of the plant. Off the coast of California up to 90% of the plant's biomass may be floating on the sea surface. All of this is vegetative material. Sexual reproduction is achieved via special fronds called sporophylls that are located at the base of the plants just above the holdfast. Because of these morphological features there are distinct parts of the plants along with differing accessibility to harvest from the surface of the sea. Furthermore the different portions of *Macrocystis* plants are not equally useful for abalone feed because of their differing shape, toughness and food quality. Laminae are relatively soft, are high in food value and are the preferred portion of the plant for paua feeding.

The background of the cover is a photograph showing a dense array of vertical, yellowish-brown seaweed stalks growing in a barrel culture system. The lighting is somewhat dim, creating a blueish-green tint to the overall scene.

**SEAWEED PRODUCTS  
FOR BARREL CULTURE PAUA FARMING**

TBGF Project: Contract SRI401

by

J. Pirker, D. R. Schiel & H. Lees

Department of Zoology

University of Canterbury



Zoology Department  
University of Canterbury  
Christchurch

**SEAWEED PRODUCTS  
FOR BARREL CULTURE PAUA FARMING**

By

J. Pirker, D.R. Schiel & H. Lees

This report was prepared in collaboration with the Zoology Department, University of Canterbury, and Sea-Right Investments Ltd as part of the Foundation for Research Science and Technology's Technology for Business Growth Programme

The report describes and analysis's the research surrounding the major aims of the project: the estimation of usable biomass, maximal harvesting and regeneration of *Macrocystis pyrifera*; develop cropping methods and technology; and develop cultivation techniques and processes for farming *Macrocystis*.

2000

## 1 EXECUTIVE SUMMARY

Wainui, Ohinepaka, and Mat White Bays exhibit considerable variation in the canopy biomass through time. There is maximal production of canopy biomass from autumn through spring. As water temperature in the harbour rise during summer, there is stratification of the water mass, and nutrient depletion at the sea surface where up to 73 % of an individual plant's biomass is contained degrades to low levels. Surface canopy deterioration during the summer months has important ramifications for the commercial harvesting of *Macrocystis pyrifera* by potentially limiting the supply of kelp. However, whilst one forest's biomass is in a state of decline, for example Wainui Bay, another forest close by may be increasing or supporting higher amounts of canopy biomass, for example Mat White Bay. Therefore, although canopy biomass peaks in the winter months there is generally some canopy biomass all the year round. The study clearly showed urbanisation and its ramifications such as slipway breakwater extensions has had great effects on the kelp beds and its annual production cycles.

Akaroa Harbour would probably represent one of the extreme environments in which *Macrocystis* grows and as such, it would give a good indication of potential harvesting effects. Small scale harvesting experiments, monitored for approximately three years, showed that harvesting canopy biomass had no measurable effect on *Macrocystis* plants, or the dominant understorey species, including juvenile *Macrocystis*, *Ecklonia radiata* and macro-invertebrates. *Macrocystis* plant survival was unaffected by repeated removal of the canopy biomass, however growth of sub-canopy plants was enhanced during late summer. The major effect of canopy harvesting appears to be the premature senescence of cut fronds.

Larger scale harvesting, during the winter and summer months, using a prototype kelp cutter at Cape Three Points, Akaroa Harbour similarly showed no short term direct or indirect impacts on harvested plants or understorey species other than enhancing recruitment. Summer / winter harvest had no effects on growth rates of juvenile or sub-canopy plants. Harvests at the Whaling Station site, Tory Channel, showed a similar trend with no direct or indirect effects on dominant understorey algae abundances. However, in contrast to harvests at Cape Three Points harvests at the Whaling Station greatly enhanced juvenile *Macrocystis* growth rates.

Potential light effects from removing the canopy appear to have been overridden by physical factors including the temperature/nutrient relationship and sedimentation. These factors appear not to be as limiting in Tory Channel where there is a continual flow of cool nutrient rich oceanic water, little sedimentation and higher flow rates resulting from a 5 knot tidal stream through the forest. Overall, there were no negative flow on effects resulting from harvesting the kelp forests. In some cases harvesting proved to be beneficial by increasing sub-canopy *Macrocystis* growth rates, which quickly replace the harvested canopy. Harvesting will also reduce the loss of whole plants during winter storms by reducing tangling of the large canopy fronds. Akaroa Harbour kelp forest demographics appear to be sediment and nutrient mediated.

Results from this study show how *Macrocystis* could be sustainably harvested in New Zealand. It is suggested that similar regulations and management strategies used by the State of California be used to manage *Macrocystis* forests under the Quota Management System. In terms of stock assessment of canopy biomass, aerial photography and *in situ* measurements of canopy biomass provides a quick and easy method for estimating forest canopy biomass. High canopy biomass annual variation within and between forests necessitates the need for annual stock assessments, at least for the interim. An average of past assessments could be used thus reducing the need for annual estimates.

A continuous rotational harvesting management strategy would better serve the harvesting requirements of bulk fodder for aquaculture operations. Based on maximum biomass estimates from winter 1998 and suggested harvesting strategies approximately 377 t for the combined Wainui, Ohinepaka and Mat White Bays canopy biomass could be harvested in 1999.

The prototype commercial kelp cutter performed to expectations. With minor modifications, this device should prove adequate in the harvesting of canopy in the amounts required. Alternatively, hand harvesting might be more practical where only small amounts of canopy biomass are required. On average, the kelp cutter removed 21 to 47 % of the canopy biomass from harvested areas. In general, few plants were uprooted during the cutting process.

Culturing and transplantation cultivation techniques were examined as a means of supplementing algal supplies. *Macrocystis* was successfully cultured through its life cycle onto culture ropes, but generally failed to produce visible sporophytes when placed in a farming situation. Cultured plants did grow in Tory Channel. Transplantation of juvenile plants to ropes for on-farm cultivation showed very little growth during the summer months. Growth rates significantly increased towards winter. The addition of nutrients significantly enhanced growth rates of these plants during warmer months when natural nutrient levels were low. Increased growth rates at the onset of winter and with the addition of nutrients during summer confirmed that low nutrient levels during summer are growth limiting. Of the two cultivation techniques transplantation of juveniles proved to be the most successful cultivation technique. However, this technique would yield little in terms of supplementary biomass when it is potentially needed the most, which is during the summer months.

## 2 INTRODUCTION

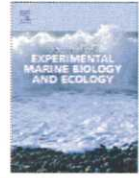
*Macrocystis pyrifera* forms extensive undersea forests in many areas of both the northern and southern hemispheres (Wormersley, 1954). The plants can grow from depths of 30m to reach the sea surface where they form a floating canopy. The canopies themselves can be extensive, reaching many meters in length along the sea surface. In older plants >50 % of plant biomass is within 1m of the sea surface (Schiel and Foster, 1992). Plants can have several hundred fronds arising from a large holdfast and each frond can elongate at 300 mm per day, making *Macrocystis* one of the fastest growing of any plants (North, 1971).

### 2.1 The California Fishery

There is extensive literature on *Macrocystis*, much of it from the West Coast of North America (reviewed by Foster and Schiel, 1985). Not only is this plant one of the main habitat formers in near shore regions along southern California, but it also important economically, supporting finfish, invertebrate, and kelp fisheries. Californian's kelp forests sustain an annual commercial harvest of around 155,000 tonnes, with some forests being harvested up to three times per year (McPeak and Glantz, 1984; Vasquez and McPeak, 1998). *Macrocystis* forests are one of California's most valuable marine resources, and during the mid 1980's, it supported an industry valued at more than \$40 million a year (Tarpley and Glantz, 1992). It forms the basis of a considerably sized alginates industry, which has sales exceeding US\$230 million annually (Jensen 1993). Large ships (owned by KELCO, a company based in San Diego) with cutters in the stern back through kelp forests and cut the floating canopies of *Macrocystis* about one meter below the sea surface. The different forests along the California coast are harvested on a rotational basis (McPeak and Glantz, 1984). Plants regenerate a canopy through the production of new fronds that are able to take advantage of light gaps provided by harvesting. Another increasing use of *Macrocystis* is as food for the abalone culture industry, which relies almost entirely on this species (Ebert, 1992).

*Macrocystis pyrifera* is the dominant species in terms of biomass and community impact in depths of around 5-25m along much of the California coast from Santa Cruz (central California) southwards (Foster and Schiel, 1985). Because individual plants can be so large, this species can form dense forests when adult plants are at densities of only around one per 10m<sup>2</sup>. *Macrocystis* canopies can cause considerable shading to areas below, reducing irradiance by >90% (Reed and Foster, 1984; Santelices and Ojeda, 1984). Dense surface canopies of *Macrocystis* are often associated with a relatively sparse understorey algal flora, presumably because of the reduced light (Foster, 1975b). Removal of extensive canopies of *Macrocystis* provides light gaps that allows smaller stipitate laminarian algae to recruit, provided there are propagules available. For example, (Pearse and Hines, 1979) showed that removing *Macrocystis* from a 20 x 10m<sup>2</sup> area resulted in significant recruitment of smaller kelps. Longer-term effects were not recorded, but *Macrocystis* eventually recruited back into the area. During large-scale natural events such as El Nino - Southern Oscillation and winter storms, *Macrocystis* may be removed from many sites. Smaller species of laminarian and fuclean algae may become more abundant in these sites at the depths formerly occupied by *Macrocystis*, particularly in extended El Nino conditions (Dayton and Tegner, 1984; Schiel, 1994).

*Macrocystis* has several features that enhance its ability to dominate habitats. Individual plants have an enormous reproductive output of millions of spores that may be released throughout much of the year (Reed, 1987). These are produced by the sporophylls,



## Growth and reproductive consequences of photosynthetic tissue loss in the surface canopies of *Macrocystis pyrifera* (L.) C. Agardh



Shane W. Geange<sup>1</sup>

School of Biological Sciences, Victoria University of Wellington, PO Box 600, Wellington, New Zealand

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### ABSTRACT

*Macrocystis pyrifera* (L.) C. Agardh provides biogenic habitat for species of significant commercial, cultural and recreational value; however, the floating surface canopies of *M. pyrifera* are particularly vulnerable to physical and biological disturbance (e.g., herbivory, storm events and harvesting). Given the key ecological roles of *M. pyrifera*, it is important to identify the impacts of photosynthetic tissue loss on growth and reproduction. I hypothesized that canopy removal would result in compensatory regeneration of the surface canopy. As life history theory posits a tradeoff between growth and reproduction, I also hypothesized that canopy removal would involve a reduction in reproductive investment, as either: (i) reduced production of reproductive structures; or (ii) changes in reproductive condition from fertile to sterile. To evaluate these hypotheses I conducted two field experiments. In the first experiment, there was no significant difference in the generation of vegetative fronds or reproductive blades between controls (no loss of photosynthetic tissue from surface canopies) and treatments where photosynthetic tissue in surface canopies was thinned by either 30% or 70%. Relative to controls, the removal of entire surface canopies to a depth of 1.2 m (i.e., simulated commercial harvesting) did not affect the generation of new vegetative fronds; however, the generation of reproductive blades was reduced by an average of 86%, suggesting that without the organic production supplied by the canopy, reproduction, but not growth, suffers. Further, the lack of evidence for compensatory growth despite reductions in reproduction suggests that *M. pyrifera* has little tolerance to canopy loss. The second experiment, which examined the effect of removing surface canopies on rate and longevity of changes in reproductive condition, found that although no control algae became sterile, 89% of algae with their surface canopies removed became sterile 50 d after canopy removal, with effects persisting for up to 83 d. As the supply of *M. pyrifera* propagules in the center of kelp forests can be tightly coupled to local reproductive output, induced sterility via the loss of photosynthetic tissue could affect the long-term stability of *M. pyrifera* beds. Further investigation into the scalability of these results and implications for long-term stability of *M. pyrifera* beds is warranted.

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### 1. Introduction

Higher terrestrial plants often experience tissue loss due to grazing by herbivores, physical damage from storms, or harvesting by humans. The loss of photosynthetic active tissue in many higher plant species can constrain the amount of photosynthate available for allocation to growth, reproduction and survival (Anten et al., 2003; Jameson, 1963; Karban, 1993; Kulman, 1971). The consequences of tissue loss in higher plants depend on the severity of loss and tolerance – the expression of traits that ameliorate the negative impact of tissue loss. Tolerance traits in higher plants may include increased photosynthesis, compensatory growth, the activation of dormant meristems, changes in patterns of resource allocation and changes in reproductive strategies (McNaughton, 1979; Strauss and Agrawal, 1999; Tiffin, 2000). Similar to higher plants,

tolerance may be an important mechanism maintaining growth and reproduction of macroalgae in the marine environment; however, the concept of tolerance to tissue loss has only recently been applied to macroalgae (e.g., Gao et al., 2013; Hay et al., 2011; Rhode et al., 2004; Wai and Williams, 2005). The few studies that have examined tolerance in kelp have found that tolerance to tissue loss varies with damage type (Taylor et al., 2002), damage severity (Honkanen and Jormalainen, 2002), season (Gao et al., in press) and growth traits measured (Cerdà et al., 2009; Hemmi et al., 2005). Consequently, the extent to which tolerance traits help maintain growth and reproduction in macroalgae following tissue loss remains unclear.

*Macrocystis pyrifera* (L.) C. Agardh is large perennial kelp that forms dense 'forests'. These forests are the base of many temperate coastal food webs, providing highly structured three-dimensional habitat for associated species, including fish, invertebrates and algae (Foster and Schiel, 1985; Graham, 2004; Graham et al., 2008). *M. pyrifera* is characterized by a floating surface canopy consisting of numerous vegetative fronds that arise from meristem tissue located above the holdfast. The floating surface canopy comprises 33–50% of total algal biomass and

Abbreviations: VUCEL, Victoria University Coastal Ecology Laboratory; LME, linear mixed effects.

E-mail address: [shane.geange@vuw.ac.nz](mailto:shane.geange@vuw.ac.nz).

<sup>1</sup> Tel.: +64 4 470 9258; fax: +64 4 383 4172.

produces approximately 95% of organic production (Towle and Pearse, 1973). Unlike other perennial kelp, *M. pyrifera* has limited nutrient and photosynthate storage capabilities (2 wk; Brown et al., 1997); consequently, growth by young fronds, reproductive material, holdfasts and other tissues near the base of the algae is supported by translocation of photosynthates from the canopy, which follows a source–sink relationship (North, 1986). Mature canopy tissue exports both upward to the apical meristem at the frond apex and downward to meristem tissue at the base of the frond (that give rise to new fronds), to reproductive sporophylls, and into apical regions of juvenile fronds (Lobban, 1978; Manley, 1984; Schmitz and Lobban, 1976). Consequently, rates of growth and reproduction may be significantly impacted by the loss of photosynthetic tissue in the canopy.

Fronds in the surface canopies of *M. pyrifera* are particularly vulnerable to physical and biological disturbance, including grazing by herbivores (e.g., Graham, 2002), catastrophic storm events (e.g., Dayton and Tegner, 1984; Fyfe et al., 1999; Seymour et al., 1989), or harvesting by humans (e.g., Barilotti and Zertuche-González, 1990; Sanderson, 1987; Santelices and Ojeda, 1984a). In *M. pyrifera*, the reliance on surface fronds for translocated photosynthate, combined with their vulnerability to disturbance, results in considerable spatial and temporal variability in growth rates and reproductive output. For example, Graham et al. (1997) observed that *Macrocystis* holdfast growth decreased significantly along a gradient of increasing wave exposure, possibly due to greater disturbance to the *Macrocystis* surface canopy. Similarly, Miller and Geibel (1973) and McClenaghan and Houk (1985) observed reduced holdfast growth in *M. pyrifera* following the experimental removal of surface canopies. Reed (1987) demonstrated that a 75% thinning of vegetative fronds led to an approximate 75% decrease in the generation of reproductive blades. Further, Graham (2002) identified shifts in the reproductive condition of *M. pyrifera* from fertile to completely sterile in response to episodic, sublethal frond grazing by amphipods. This change in reproductive condition occurred despite relatively constant sporophyll biomass. Results from the above studies suggest that the loss of photosynthetic tissue can significantly influence the growth and reproductive output of *M. pyrifera*; however, whether *M. pyrifera* is capable of ameliorating these effects is less well known (although see Cerda et al., 2009).

Because *M. pyrifera* has limited storage capacity for photosynthate and the loss of canopy tissue limits photosynthate production, I hypothesized that a key tolerance trait will be compensatory regeneration of the surface canopy to increase photosynthesis. This must necessarily come from the growth of juvenile fronds whose apical meristems lie beneath the canopy, or the generation of new fronds from the activation of meristem tissue above the holdfast. As life history theory suggests a tradeoff between growth and reproduction (Cohen, 1971; Gadgil and Bossert, 1970; Obeso, 2002; Williams, 1966), I also hypothesized that canopy loss will involve a reduction in reproductive investment, as either: (i) reduced production of reproductive structures; or (ii) changes in reproductive condition from fertile to sterile. To evaluate these hypotheses, I conducted two field experiments. In the first experiment, I manipulated the loss of photosynthetic tissue in the surface canopies of *M. pyrifera* to encompass loss ranging from that due to senescence and grazing to entire canopy removal resulting from catastrophic storm events or commercial harvesting and evaluated consequences for the generation of new vegetative fronds and reproductive blades and reproductive condition. In the second experiment, I simulated commercial harvesting and evaluated the consequences of photosynthetic tissue loss in surface canopies on the rate and longevity of changes in reproductive condition.

## 2. Methods

### 2.1. Effects of photosynthetic tissue loss on frond and sporophyll generation

Experiments presented here were conducted in New Zealand, where *M. pyrifera* stands occur between 40 and 47°S and are more light limited than in other locales (e.g., California); stand size is typically

<1 km<sup>2</sup>; and algal growth is variable due to seasonal fluctuations in light, nutrients and water motion, with maximal growth occurring in winter/spring and minimum growth in summer (Brown et al., 1997; Dayton et al., 1998; Fyfe et al., 1999; Hepburn et al., 2007; Pirker, 2002; Zimmerman and Kremer, 1985). During the austral winter of 2012, I experimentally manipulated the loss of photosynthetic tissue in the surface canopies of naturally occurring *M. pyrifera* at three sites on the exposed south coast of Wellington: Reef Bay (41° 20.381'S, 174° 49.549'E); Tarakena Bay (41° 20.631'S, 174° 48.764'E); and Moa Point (41° 20.371'S, 174° 48.578'E). Wellington is near the northern range limit of *M. pyrifera* in New Zealand (Hay, 1990). Wellington's south coast is generally nutrient poor (relative to the Wellington harbor: Gardner, 2000) and frequently experiences large swells from 3 m to 8 m in height. The three sites were located approximately 1.5–3.5 km from one another and 100–150 m from shore. Each site was approximately 7–9 m deep on flat cobble and boulder substrate with low vertical relief. All three sites generally contained a sub-canopy of *Carpophyllum maschalocarpum*, *Ecklonia radiata* and *Landsburgia quercifolia* to a height of approximately 1 m, which is typical of subcanopy associations with *M. pyrifera* in southern New Zealand (Schiel and Foster, 1995; Shears and Babcock, 2007). Mean *M. pyrifera* density was 0.31 indiv. m<sup>-2</sup> (SE = 0.1103) at Reef Bay; 0.49 indiv. m<sup>-2</sup> (SE = 0.06) at Tarakena Bay; and 0.47 indiv. m<sup>-2</sup> (SE = 0.08) at Moa Point (based on nine 40 m<sup>2</sup> belt transects at each site).

Treatments were designed to evaluate the effects of a range of photosynthetic tissue loss on the generation of vegetative fronds and sporophylls, and encompassed tissue loss ranging from that due to senescence and grazing, to entire canopy removal resulting from catastrophic storm events or commercial harvesting. To determine rates of loss due to senescence and grazing, I monitored frond loss in 12 *M. pyrifera* at Moa Point over 30 d in the winter of 2011. All algae had six or more fronds (range = 7–25; mean = 14; SE = 1.7) greater than 1 m in length. For each alga, I tagged all fronds with an overall length >1 m with cable ties positioned ~1 m above the holdfast. To quantify the rate of frond loss, I returned to the same alga 30 d later and recorded the number of the original fronds that remained (identified by the presence of cable ties). After 30 d, frond loss ranged from 13 to 84%. I used mean frond loss (30%) and the mean plus two standard deviations (70%) as treatment levels. For the loss of entire canopies, I simulated commercial harvesting, which in New Zealand is regulated by a maximum harvesting depth of 1.2 m, a harvest season between 1 Oct and 30 Sept, and a Total Allowable Commercial Catch of 1512 t per annum (Ministry for Primary Industries, 2013), which corresponds to ~33–50% of total algal biomass in water of 9–15 m deep (Geange, unpublished data).

I randomly assigned four treatments to 16 haphazardly selected *M. pyrifera* of similar size at each of the three sites, yielding 4 replicates per treatment at each site: (1) control (no tissue loss); (2) 30% frond thinning; (3) 70% frond thinning; and (4) complete removal of surface canopies. To facilitate estimates of sporophyll generation during the course of the study, I removed all sporophylls from each alga. During removal, sporophylls were retained and transported to the Victoria University Coastal Ecology Laboratory (VUCCEL) where they were dried at 60 °C for 48 h, and then weighed to the nearest 0.001 g. For treatments 2 and 3 (thinning), the corresponding proportion of fronds to be thinned (i.e., 0.3 or 0.7) was randomly selected, trimmed 1 m above the holdfast, and removed. For treatment 4 (complete removal of surface canopies), the canopy of each individual was trimmed to 1.2 m below sea surface at low tide (as per commercial harvesting regulations). To distinguish vegetative fronds that were present at the beginning of the experiment from new fronds at the end of the experiment, I tagged each vegetative frond longer than 1 m at the beginning of the experiment with a cable tie positioned 1 m above the holdfast.

Due to poor weather conditions, the study commenced at each site at different times. Tarakena Bay was set up on 15/5/2012; Moa Point was set up on 24/5/2012; and Reef Bay was set up on 22/6/2012. I

returned to each study site eight weeks after it was set up, and for each alga recorded: (i) the number of fronds from the beginning of the experiment that remained (distinguished from new fronds by having a cable tie); and (ii) the number of new vegetative fronds (distinguished from old fronds by lacking a cable tie). At 1 m above the holdfast, I cut away the fronds that were present at the beginning of the experiment, leaving only new fronds. I severed the primary stipe from the holdfast, bagged the alga, and transported it back to VUCEL. Once at VUCEL, I removed sporophylls and new fronds from each alga. The reproductive condition of sporophylls was scored based on the presence of sori (gamete producing structures) – sori were either completely absent on all sporophylls for a given alga (sterile) or present on some sporophylls for a given alga (fertile). I dried sporophylls and fronds at 60 °C for 48 h, weighed them to the nearest 0.001 g, and converted dry mass to dry mass  $d^{-1}$  by dividing dry mass by the number of days since the experiment ran.

All data analysis was performed in R 2.11.1 (R Development Core Team, 2010). To test for treatment differences in the dry mass of sporophylls at the end of the experiment, I used a linear mixed effects (LME) analysis (function “lme”, R package “nlme”) with maximum likelihood estimation of variance components (Crawley, 2007), which is appropriate for the analysis of unbalanced data (Pinheiro and Bates, 2000). I included treatment as a fixed effect, and site as a random effect (to control for the extent that site accounted for variance in the fixed effect of treatment). To evaluate the extent to which differences in the characteristics of algae randomly assigned to treatments at the beginning of the experiment explained results, I also included three covariates (measured at the start of the experiment) in the model: (i) sporophyll biomass; (ii) proportion of apical meristems below cutting depth; and (iii) the size of *M. pyrifera* individuals (as determined by frond number). The full model (which included the fixed effect of treatment, the three covariates, and all pairwise interactions between treatment and the covariates) was simplified using backward selection processes that sequentially removed nonsignificant interactions and covariates. Before analysis, I used a box–cox transformation ( $\lambda = 0.26$ ) to meet assumptions of normality (Shapiro–Wilk:  $W = 0.973$ ,  $P = 0.441$ ) and equal variance (Levene's:  $F_{3,37} = 1.102$ ,  $P = 0.360$ ). To test for treatment differences in the dry mass of new fronds, I used a LME analysis as above and box–cox transformed data ( $\lambda = 0.08$ ) to improve assumptions of normality (Shapiro–Wilk:  $W = 0.960$ ,  $P = 0.158$ ) and equal variance (Levene's:  $F_{3,37} = 0.674$ ,  $P = 0.573$ ). In both analyses, neither the covariates nor interactions between the covariates and the main effect of treatment significantly contributed to the model ( $P > 0.05$  in all cases); therefore, the results focus on the main effects of treatment.

To test for differences in reproductive condition between treatments, I used contingency tables and a Chi-square test with Yates correction to compare the fraction of algae that were fertile in 30% frond thinning, 70% frond thinning and canopy removal treatments, against the fraction of control algae that were fertile.

## 2.2. Effects of photosynthetic tissue loss on the rate and longevity of changes in reproductive condition

To evaluate temporal changes in reproductive condition of *M. pyrifera* following the loss of photosynthetic tissue, I experimentally manipulated photosynthetic tissue loss on naturally occurring *M. pyrifera* at Kau Bay (41° 17.127'S, 174° 49.642'E). This site, located within Wellington harbor, experiences more sheltered conditions and elevated nutrient levels than the exposed sites on the south coast, is characterized by fringing *M. pyrifera* that stretches from low tide to ~20 m offshore and has a mean density of 0.83 indiv.  $m^{-2}$  ( $SE = 0.09$ ; based on six 20 m<sup>2</sup> belt transects). The substrate is steeply sloping cobble of low vertical relief, dominated by a sub-canopy of *Carpophyllum* spp., *Cystophora* spp. and *Undaria pinnatifida* to a height of approximately 1 m.

I haphazardly selected 20 fertile (as determined by the presence of sloughing sporophylls) *M. pyrifera* individuals of similar size (9–23

fronds longer than 1 m) and tagged each individual as above. The mean depth at the top of the holdfast for these algae was 2.94 m ( $SE = 0.06$ ). I trimmed the canopy of 10 randomly chosen individuals to 1.2 m below sea surface, and censused the reproductive condition of each alga on 11 sampling dates between June and October 2012. The reproductive condition of algae was scored based on the presence of sori – sori were either completely absent on all sporophylls (sterile) or present on at least one sporophyll (fertile). For each sampling date, I used contingency tables and a Chi-square test with Yates correction to compare the fraction of algae with trimmed canopies that were fertile, against the fraction of control algae that were fertile.

## 2.3. Hydrographic conditions

Temperature, nitrate concentration and wave disturbance can all affect the rate of *M. pyrifera* growth, reproductive output, biomass and survival (Brown et al., 1997; Hepburn et al., 2007; North, 1994; Parnell et al., 2010) and were monitored throughout the experiments to facilitate comparisons between the results of this study and any future work. Bottom temperatures were monitored at Reef Bay, Tarakena Bay and Moa Point every 10 min using Hobo pendant temperature loggers ( $\pm 0.5$  °C; Onset Computer Corp., Bourne, Mass., USA). Bottom temperatures were monitored at Kau Bay every hour using a RBR XR420 CTD logger ( $\pm 0.01$  °C; RBR Ltd., Ontario, Canada). In situ nitrate [ $NO_3^-$ ] concentration was estimated from 100 ml bottom water samples collected at each site on 7 dates between June and Sept 2012. Water samples were transported to VUCEL in a cooler, passed through glass-fiber filters, frozen and later analyzed with a Skalar San<sup>++</sup> segmented-flow auto-analyzer (SKALAR, Breda, The Netherlands) via the cadmium reduction method (Morris and Riley, 1963). Significant wave height, defined as the average height of 1/3 largest waves (Denny, 1988) was estimated from sampling every 30 min between May and August 2012 at the wave rider buoy located off Baring Head, near the entrance to Wellington Harbor (National Institute of Water and Atmospheric Research).

## 3. Results

### 3.1. Effects of photosynthetic tissue loss on frond and sporophyll generation

Mean bottom water temperature was 12.8 °C ( $SE = 0.01$ ; range = 11.3–14.6) at Tarakena Bay, 12.6 °C ( $SE = 0.01$ ; range = 11.3–14.1) at Moa Point and 12.5 °C ( $SE = 0.01$ ; range = 10.8–13.5) at Reef Bay. Mean in situ nitrate concentration was 0.59  $\mu M$  ( $SE = 0.09$ ; range = 0.32–0.96) at Tarakena Bay, 0.53  $\mu M$  ( $SE = 0.06$ ; range = 0.33–0.78) at Moa Point and 0.48  $\mu M$  ( $SE = 0.07$ ; range = 0.22–0.73) at Reef Bay. Significant wave height was 4.5 m ( $SE = 0.05$ ) at Tarakena Bay, 4.1 m ( $SE = 0.05$ ) at Moa Point, and 3.3 m ( $SE = 0.04$ ) at Reef Bay.

Of the 48 *M. pyrifera* tagged at the beginning of the study, 41 remained at the end. The seven lost algae were disproportionately distributed amongst treatments: one control (Reef Bay); two 30% frond thinning (one each at Moa Point and Reef Bay); one 70% frond thinning (Reef Bay); and three with canopies completely removed (one at Moa Point and two at Reef Bay).

The average biomass of new vegetative fronds at the end of the experiment was 0.362 g dry weight  $d^{-1}$  ( $SE = 0.057$ ; range = 0.014–1.511). The biomass of vegetative fronds did not significantly differ between treatments ( $F_{3,35} = 1.298$ ,  $P = 0.291$ , Fig. 1a).

The mean biomass of sporophylls at the end of the experiment was 0.804 g dry weight  $d^{-1}$  ( $SE = 0.137$ ; range = 0.005–4.046). The mean ratio of sporophyll biomass at the end of the experiment to that at the beginning of the experiment was 0.655 ( $SE = 0.164$ ) for the control, 0.232 ( $SE = 0.068$ ) for 30% frond thinning, 0.654 ( $SE = 0.177$ ) for 70% frond thinning, and 0.097 ( $SE = 0.043$ ) for simulated canopy removal. Per day generation of sporophyll mass differed significantly between treatments ( $F_{3,35} = 5.222$ ,  $P = 0.004$ , Fig. 1b). There was no

significant difference in the per day generation of sporophyll mass between the control, 30% frond thinning and 70% frond thinning treatments ( $P > 0.1$  in all cases); however, relative to controls, simulated canopy harvesting reduced the per day generation of sporophyll mass by 86% ( $t_{35} = 3.914, P < 0.001, \text{Fig. 1b}$ ).

All of the control algae, 90% of algae in the 30% frond thinning treatment, 64% of algae in the 70% frond thinning treatment, and 44% of algae in the canopy removal treatment were fertile at the end of the experiment. Relative to algae in the control treatments, significantly fewer algae in the canopy removal treatment were fertile at the end of the experiment (Table 1).

3.2. Effects of photosynthetic tissue loss on the rate and longevity of changes in reproductive condition

Average bottom water temperature during the study was 11.5 °C ( $SE = 0.02$ ; range = 7.8–17.3). Average in situ nitrate concentration was 0.44  $\mu\text{M}$  ( $SE = 0.09$ ; range = 0.15–0.73).

Of the 20 *M. pyrifera* algae tagged at the beginning of the study, 18 remained at the end, with one alga lost from each treatment. None of the control algae became sterile during the course of the study (Fig. 2). A significant difference in the fertility of control algae and those with their canopies completely removed was observed 26 d after trimming, at which time 45% of canopy removal algae were sterile

Table 1

Cross-classification analysis to test the hypothesis that patterns of fertility differed between the control and treatments in which the surface canopies of *M. pyrifera* were manipulated (30% thinning, 70% thinning, removal). Presented are results (degrees of freedom (df),  $\chi^2$ ,  $P$ -values and pattern).

Treatment	df	$\chi^2$	$P$	Pattern
30% frond thinning	1	0.002	0.961	No difference
70% frond thinning	1	2.750	0.097	No difference
Canopy removal	1	5.455	0.019*	Greater proportion of control algae fertile

\* Statistical significance at  $\alpha = 0.05$ .

(Table 2; Fig. 2). Fertility of algae with canopies removed continued to decline up to 50 d after trimming (at which time 89% of algae were sterile) before fertility began to recover (Table 2, Fig. 2). After 83 d, the effects of trimming on the fertility of algae with canopies removed were statistically indistinguishable from control algae, with 56% of algae with canopies removed fertile (Table 2, Fig. 2).

4. Discussion

Up to 95% of organic production is generated in the floating surface canopies of *M. pyrifera* (Towle and Pearse, 1973). This suggests that processes that affect canopy biomass will elicit a change in the availability and allocation of resources for growth or reproduction. I hypothesized that a key tolerance trait ameliorating the loss of photosynthetic tissue in the surface canopies of *M. pyrifera* would be compensatory regeneration of the surface canopy; however, I did not identify significant treatment differences in the production and growth of new fronds. My second hypothesis, that reductions in canopy biomass would involve a loss in reproductive investment, was supported. Relative to controls and treatments in which canopies were thinned, the complete removal of surface canopies had a substantial negative effect on sporophyll generation. These results suggest that without the organic production supplied by the canopy, reproduction, but not growth, suffers. Further, the lack of evidence for compensatory growth despite reductions in reproduction suggests that *M. pyrifera* has little tolerance to canopy loss and demonstrates the reliance of *M. pyrifera* on the surface canopy.

I also identified effects on reproductive condition, with 89% of trimmed algae in the second experiment switching reproductive condition from fertile to completely sterile 50 d after the removal of surface canopies. The delay in the onset of sterility could reflect the time spores

It wasn't simulated canopy harvesting, as we don't harvest sporophyll mass & we don't harvest individual plants, we harvest so light get to the base of the plants just as farmer harvest hay or balage

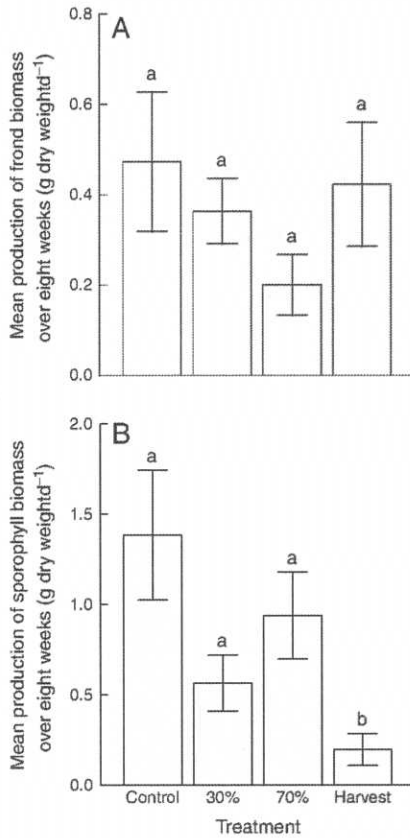


Fig. 1. Mean production of new sporophyll and new frond biomass in *M. pyrifera* over eight weeks following the experimental removal of photosynthetic tissue in canopies, expressed as g dry weight d<sup>-1</sup>. Four treatments were applied to algae: 1) algae left intact (control); 2) 30% thinning of surface canopies; 3) 70% thinning of surface canopies; and 4) complete removal of surface canopies to 1.2 m below sea level. Variables were box-cox transformed to meet assumptions of normality. Letters above bars indicate significant treatment differences as determined by linear mixed effect models that included site as a random effect.

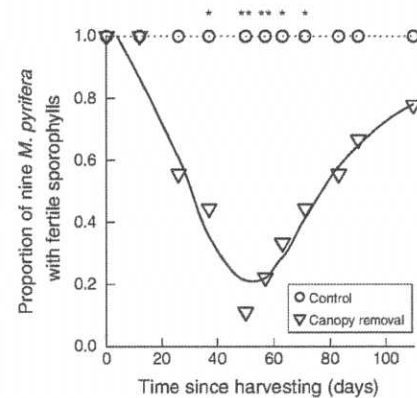


Fig. 2. Proportion of nine *M. pyrifera* with fertile sporophylls in control and canopy removal treatments on each of 11 sampling dates. For canopy removal treatments, canopies were trimmed to 1.2 m below sea level. For each sampling date, contingency tables and chi-squared tests were used to determine significant differences in fertility between control and canopy removal treatments. \* and \*\* signify significant differences at  $\alpha = 0.05$  and  $\alpha = 0.01$ , respectively. The dashed line and solid curve represent a loess smoothing function through the data for the control and canopy removal treatments, respectively.  $n = 9$  for each treatment.



**Table 2**

Cross-classification analysis to test the hypothesis that patterns of fertility differed between the control and the experimental removal of *M. pyrifera* canopies. Presented are results (degrees of freedom (df),  $\chi^2$ , *P*-values and pattern) for each of 11 sampling dates fertility was monitored following canopy manipulations.

Day	df	$\chi^2$	<i>P</i>	Pattern
0	1	0.000	1.000	No difference
12	1	0.000	1.000	No difference
26	1	2.893	0.089	No difference
37	1	4.431	0.035*	Greater proportion of control algae fertile
50	1	11.025	0.001**	Greater proportion of control algae fertile
57	1	8.416	0.004**	Greater proportion of control algae fertile
63	1	6.250	0.012*	Greater proportion of control algae fertile
71	1	4.431	0.035*	Greater proportion of control algae fertile
83	1	2.893	0.089	No difference
90	1	1.600	0.205	No difference
110	1	0.563	0.453	No difference

\* Statistical significance at  $\alpha = 0.05$ .

\*\* Statistical significance at  $\alpha = 0.01$ .

take to mature and be released. For example, Tugwell and Branch (1989) found that spores in *M. pyrifera* took 14.2 d ( $SD = 11.4$ ) to mature, with a residence of 31.5 d ( $SD = 11.7$ ) while mature. The effects of harvesting on reproductive condition, which were overcome in approximately 2.5 mo, are similar to those reported by Graham (2002), who identified that shifts in reproductive condition of *M. pyrifera* from fertile to sterile corresponded to episodic biomass loss, although effects were more prolonged than those in the current study, lasting >4 mo. Future physiological studies of productivity and reproduction that track the movement of photosynthate resources throughout the thallus are needed to estimate the level of biomass loss required to shift resources away from reproduction.

Although nitrate concentrations reported in this study ( $\sim 0.5 \mu\text{M}$ ) are comparable to published concentrations for Wellington's south coast ( $0.39 \mu\text{M}$  (spring) to  $1.81 \mu\text{M}$  (winter); Perea-Blazquez et al., 2012), they were substantially lower than published concentrations for elsewhere in New Zealand. Phillips and Hurd (2003) report nitrate concentrations in surface water from south eastern New Zealand in winter being 10-fold higher than those in summer, with a maximum of  $4.5 \mu\text{M}$  in June 1999. Brown et al. (1997) reported higher concentrations in winter and lower concentrations at Portobello Marine lab in Otago, with values ranging from 0.3 to  $7 \mu\text{M}$ . Nitrate levels reported in the present study were below those required for *M. pyrifera* to sustain high growth rates, with two weeks of seawater nitrate concentration <  $1 \mu\text{M}$  considered enough to limit growth (Gerard, 1982); consequently, nitrate limitation in this study has implications for the scalability of these results across spatio-temporal variability of ambient seawater nitrate in New Zealand. For example, in locales where growth is not nitrate limited, the negative consequences of surface canopy removal on reproduction may be ameliorated, or tolerance traits such as compensatory growth may become emergent; however, further studies are required to evaluate these possibilities.

When released into sustained currents, *M. pyrifera* zoospores may be dispersed over distances of hundreds of meters (Gaylord et al., 2002, 2006). However, as the significant drag properties of *M. pyrifera* dampen along- and cross-shore currents (Gaylord et al., 2004; Jackson, 1997; Jackson and Winant, 1983), the supply of *M. pyrifera* propagules in the center of kelp forests can be tightly coupled to local reproductive output (Gaylord et al., 2004; Graham, 2000, 2003; Reed et al., 1988). Consequently, processes that lead to small-scale temporal and spatial variability in local propagule production can have large effects on local recruitment variability. If the shock of photosynthetic tissue loss in the surface canopy reduces propagule supply, then the long-term stability of beds relying on local reproductive output could be affected. The degree to which such effects are manifested could depend on the timing and severity of tissue loss. Although *M. pyrifera* in Wellington reproduces year round, recruitment is greatest in spring (Geange, pers.

obs.). If harvesting surface canopies preempts the production and maturation of zoospores during spring recruitment events, shifts in reproductive condition from fertile to completely sterile could have potentially large impacts on long-term stability of local populations. However, strong density dependence during *M. pyrifera* recruitment (Carney and Edwards, 2010; Dayton et al., 1984; Santelices and Ojeda, 1984b) can result in a poor relationship between propagule production and recruitment. Consequently, changes in reproductive condition may not have any discernable effect on the long-term stability of local populations if strong density dependent mortality occurs during the early life history stages (i.e., gametophyte, microscopic sporophyte or sporeling) of *M. pyrifera*.

This study differed from the loss of surface canopies due to catastrophic storm events and commercial harvesting in an important manner – experimental algae were surrounded by the intact canopy of their neighbors, whose holdfasts were typically tens of centimeters to a few meters away. Catastrophic storm events and commercial harvesting remove virtually all canopies in a given area, facilitating light penetration, which may ameliorate the negative effects of canopy removal via: (i) an increase in the production of fixed carbon by stipe bundles below the surface canopy; or (ii) stimulating the growth of sporelings and young algae whose apical meristems fall below the cutting depth (Deysher and Dean, 1986; Kimura and Foster, 1984). Future work is required to determine how broad scale changes in light environment (and other abiotic conditions) resulting from the removal of all canopies within a patch affect growth and reproduction.

Overall, this study provides strong evidence that the consequences of tissue loss in *M. pyrifera* depend on the severity of tissue loss, with substantial tissue loss negatively affecting reproduction, but not growth. Further, there was no evidence for the expression of tolerance traits ameliorating the negative effects of tissue loss, demonstrating the reliance of *M. pyrifera* on the surface canopy. Further investigation into the scalability of these results and implications for long-term stability of *M. pyrifera* beds is warranted.

#### Acknowledgments

This study was approved by the Ministry of Fisheries under special permit 468; was conducted outside protected marine areas; and did not involve any protected species. C.A. Cardenas, P.J. Mensink, D. Nelson, J. Oliver, S. Journee, D. McNaughtan, I. Geeson, D.K. Lekan and S. Jenkins provided invaluable support for field and laboratory work. Waverider data was provided courtesy of C. Stevens and J. McGregor at the National Institute of Water and Atmospheric Research. J.S. Shima, R.B. Ford and two anonymous reviewers provided helpful comments on this manuscript. This project was possible with financial support from the Ministry of Science and Innovation (grant number E1667) and two Victoria University of Wellington Faculty of Science Small Research grants (grant numbers 103450 and 112084). [SS]

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FOR CONSULTATION:  
**PROPOSED  
MARINE PROTECTED  
AREAS  
FOR NEW ZEALAND'S  
SOUTH ISLAND  
SOUTH-EAST COAST**

PUBLIC CONSULTATION DOCUMENT 2016

**VOLUME I**




**SOUTH-EAST  
MARINE PROTECTION  
FORUM**  
ROOPU MANAAKI  
KI TE TOKA

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# OVERVIEW

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1. In 2014, the South-East Marine Protection Forum (Te Roopu Manaaki ki te Toka) was appointed by the Ministers of Conservation and Primary Industries to make recommendations for a network of marine protected areas for the south-east coast of the South Island, from Timaru to Waipapa Point (Figure 1). The Forum region is part of the Southern Coastal Biogeographic Region.
2. The Forum's work is part of New Zealand's international commitment to protecting biodiversity in order to help safeguard the long term viability of habitats and ecosystems. The Government objective that we have tried to meet is protection of each marine habitat type in the south-east region and our work has been informed by the Marine Protected Areas (MPA) Policy and Implementation Plan (Volume II, Appendix 1) and the Marine Protected Areas (MPA) Classification, Protection Standard and Implementation Guidelines (Volume II, Appendix 2).
3. Using a habitat classification system, 34 habitat types were mapped based on the habitat classification, and three biogenic habitats (kelp forest, bryozoan bed and seagrass).
4. The MPA Policy requires a network which will protect representative examples of the full range of marine habitats and ecosystems in the region and also outstanding, rare, distinctive or internationally or nationally important marine habitats and ecosystems. One example of each habitat type is to be fully protected in a marine reserve, as well as replicated in another MPA. The MPA Policy is underpinned by a commitment to minimise the adverse impacts of marine protection on existing users of the marine environment and on Treaty settlement obligations.
5. The Government appointed Forum is made up of 16 people who between them are representatives of manawhenua, commercial and recreational fishers, the environmental sector, science, tourism, and the wider community, as well as an independent chair. Most of us live in the south-east of the South Island, and we all have interests in and strong connections to the coastal marine environment.

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6. Since 2014, the Forum has worked hard on engaging with the community to find out peoples' aspirations for their coastline. We have held public meetings throughout the region, from Timaru down to Bluff. Forum members have each sought the views of their respective sectors to better understand sector views and ensure each sector has a voice at the table. At the same time, the Forum has developed a heightened awareness of the biodiversity values of the area.
  7. Using the information we have gathered from the community, from scientists, and from literature, along with our own knowledge and experience, Forum members have now developed 20 sites for potential protection from Timaru to Waipapa Point, in respect of which we must now formally consult, to get further information. Within some of the proposed sites we have also created options to be consulted on as alternatives.
  8. Each proposed site is either labelled Type 1 or Type 2. Type 1 sites are proposed as marine reserves or 'no take' areas. Type 2 sites are proposed as marine protected areas with restrictions specific to what is being targeted for protection; 'a fit-for-purpose' set of restrictions. Type 2 marine protected areas still allow some fishing and harvesting, but restrict specific fishing methods and other activities (e.g. mining) in the interests of biodiversity protection, particularly those that cause sea bed disturbance as outlined in Part 1 of this document.
  9. In our deliberations to date we have had to make some difficult choices about options for biodiversity protection. In particular, the Forum has had to carefully consider the impacts of potential marine protected areas on manawhenua and existing users.
  10.  We have taken on board the views expressed to us by each sector, and we are presenting sites and options that are intended to accommodate people's concerns and where possible minimise impacts on people where there is a choice of sites.
  11. We are now extending an invitation to you to tell us what you think about the sites and options we have come up with. Your views and any information you choose to share will be crucial to the Forum when we shape our final recommendations to the Ministers of Conservation and Primary Industries.
  12. A submission form is included in the back of this document or you can use our online submission form at <http://bit.ly/OurSeaYourSayConsultation>
  13. The online SeaSketch form is the easiest way for you to make your submission, it allows flexibility for you to make comments about the areas up for consultation. Or, download a submission form at <http://south-eastmarine.org.nz>

**Submissions must be received by 5.00pm on Tuesday 20 December 2016.**

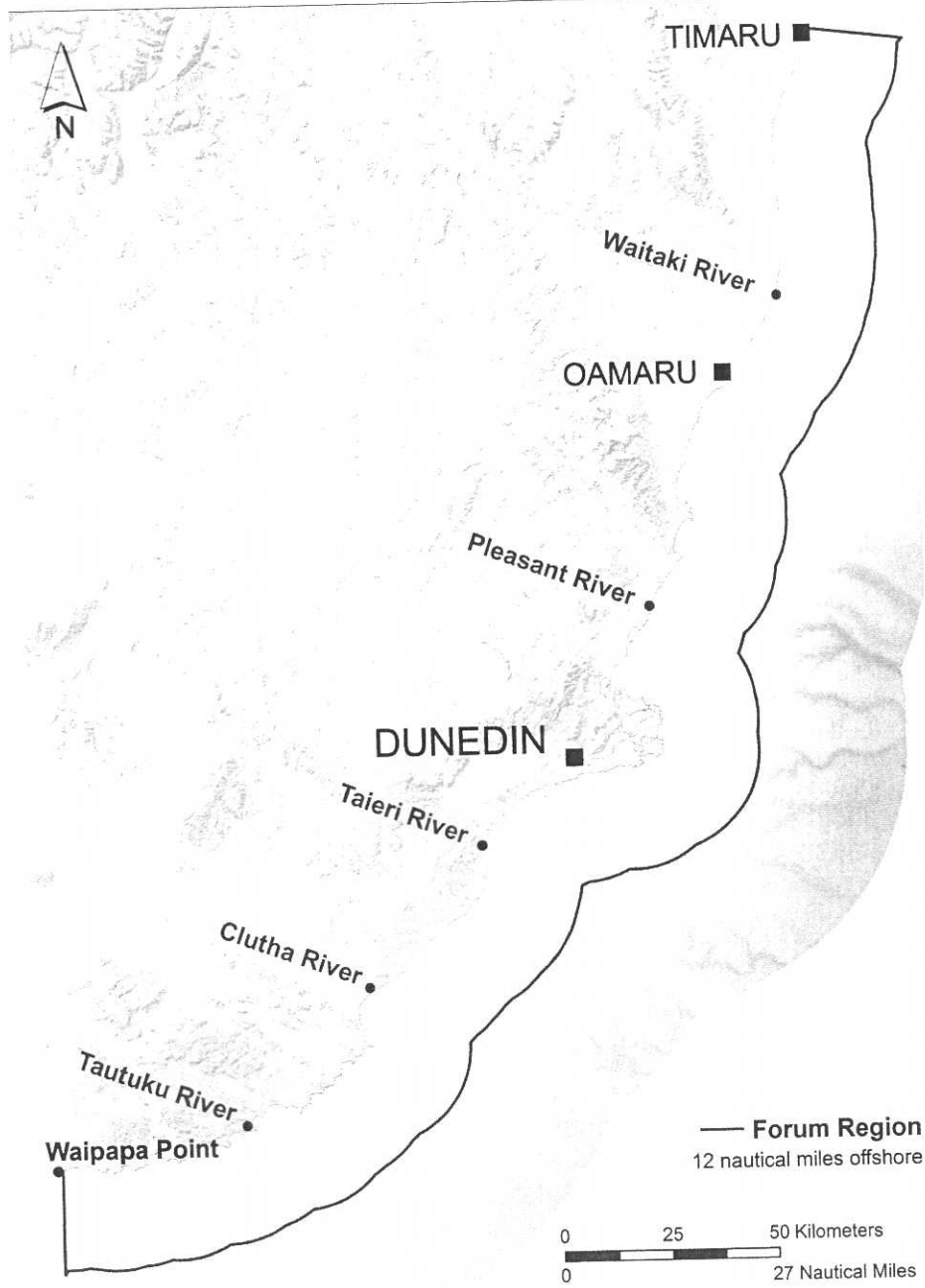


Figure 1: South-East Marine Protection Forum Region from Timaru to Waipapa Point

## SOUTH-EAST MARINE PROTECTION FORUM PROCESS

**SEMP Forum established**  
March 2014

**Purpose of the Forum:**

to consult iwi, stakeholders and the wider community, before making recommendations to the Ministers on a network of marine protected areas (MPAs) on the South-East Coast from Timaru to Waipapa Point.

**SEMPF fact finding, stakeholder consultation and deliberation**  
March 2014 to October 2016

- Public & Stakeholder Meetings
- Scientific Input
- Community Questionnaire
- Website & Facebook
- SeaSketch Mapping Tool
- Deliberation

**Volume 1 – Consultation Document**  
**Volume 2 – Supporting Information notified** 25 October 2016

**Objective:**

To provide a draft recommended network of MPAs for public consideration.

**OUR SEA YOUR SAY**

KEI A KOE TE TIKANGA

**Submissions Period (more fact finding)**  
**(Public Information Sessions from Christchurch to Bluff (and inland)**  
(see website for details)  
25 October 2016 – 20 December 2016

You can make a Submission –

- Online Submission Form available at:  
<http://bit.ly/OurSeaYourSayConsultation>
- Submission Form available on the website:  
<http://south-eastmarine.org.nz>
- Call 0800 687 729 for a hard copy to be sent
- Email or send your submission to:  
[sempf@doc.govt.nz](mailto:sempf@doc.govt.nz)  
Or:  
South-East Marine Protection Forum  
PO Box 5244, Moray Place, Dunedin 9058

**Submission Analysis and Consideration**

**Submissions Close 5pm 20 December 2016**

**Final Recommendations to the Ministers**  
28 April 2017

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## OVERVIEW

71. The Forum's task is to recommend a marine protected area network (MPA network) for the area from Timaru to Waipapa Point. In developing its recommendations, the Forum must determine what sites, taken together, could form part of an ecologically viable MPA network for the Forum region.

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### Using SeaSketch to make a network



The full list of proposed areas for consultation include options from which the Forum will recommend to Ministers after your feedback and input.

SeaSketch can help you to understand how different options and combinations of options may contribute (or not) to the MPA Policy objective of creating a representative New Zealand MPA network. All the areas being consulted on are available in SeaSketch, so you can create your own network, and test it against the MPA Policy requirements.

You can use this to inform your submission.

Instructions on where to find the areas, and how to use SeaSketch to form a network can be found at <http://bit.ly/SeaSketchConsultation>

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### The areas being consulted on

72. For the last two and a half years the Forum has been consulting with stakeholders on where marine protected areas could go. Out of this process the Forum has narrowed down areas for consultation.
73. It is not a given that all the areas identified are going to be put forward as part of the final network recommendations in the final report, or that boundaries and protection tools are 'fixed'. In some cases, options are provided where one or the other is expected to go forward, not both.
74. The Forum is open minded and is seeking public input in the form of submissions before making its final decisions on recommending the full network.
75. The proposed areas represent the different habitats from the MPA Guidelines habitat classification<sup>25</sup>, while also considering other habitat information and local knowledge about the marine environment.

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<sup>25</sup> Refer to Volume II, Appendix 2: Marine Protected Areas: Classification, Protection Standard and Implementation Guidelines, page 5.



## THE PROPOSED MARINE PROTECTED AREAS FOR CONSULTATION AND HOW THEY ARE PRESENTED

76. Each area has a unique identifier (e.g. 'A' or 'F') to make it clear which one is being discussed. Please ensure that when you are submitting on an area that this unique letter is included.
77. For each area the following information is provided:
- a description of the site, its boundaries and the type of protection proposed;
  - the features of the environment;
  - why the area was chosen for consultation by the Forum;
  - a description of the habitat types included within the area;
  - a description of the site in relation to existing users; and
  - specific questions that will help the Forum in its final decisions on what areas and tools to recommend to Ministers to form an MPA network.
78. The individual areas for consultation are labelled from A to T. Proposed marine protected areas E, F, G and H are discussed together as various combinations of these four areas are proposed as alternatives to each other. The other areas are discussed individually. Note that in some cases, there are options to consider for a particular area, usually about where the boundary should be. The areas are:

PROPOSED MARINE PROTECTED AREAS
A Tuhawaiki to Parerora (Type 2)
B Waitaki Coastal (Type 1)
C Waitaki (Type 2)
D Pleasant River to Stony Creek (Type 1)
E Bryozoan Bed (Type 2) – option 1
F Saunders Canyon (Type 1) – option 1
G Bryozoan Bed (Type 2) – option 2
H Papanui Canyon (Type 1) – option 2
I Harakeke Point to White Island (Type 1)
J White Island to Waldronville (Type 2)
K Green Island (Type 1)
L Akatore Estuary (Type 2)
M Akatore Coastal (Type 1)
N Akatore Offshore (Type 2)
O Long Point (Type 1)
P Long Point Offshore (Type 2)
Q Tahakopa Estuary (Type 1)
R Tautuku Estuary (Type 2)
S Haldane Estuary (Type 2)
T Kelp Forest (Type – other)

79. Figure 3 gives an overview of the Forum region showing the location of all the areas that are being consulted on.

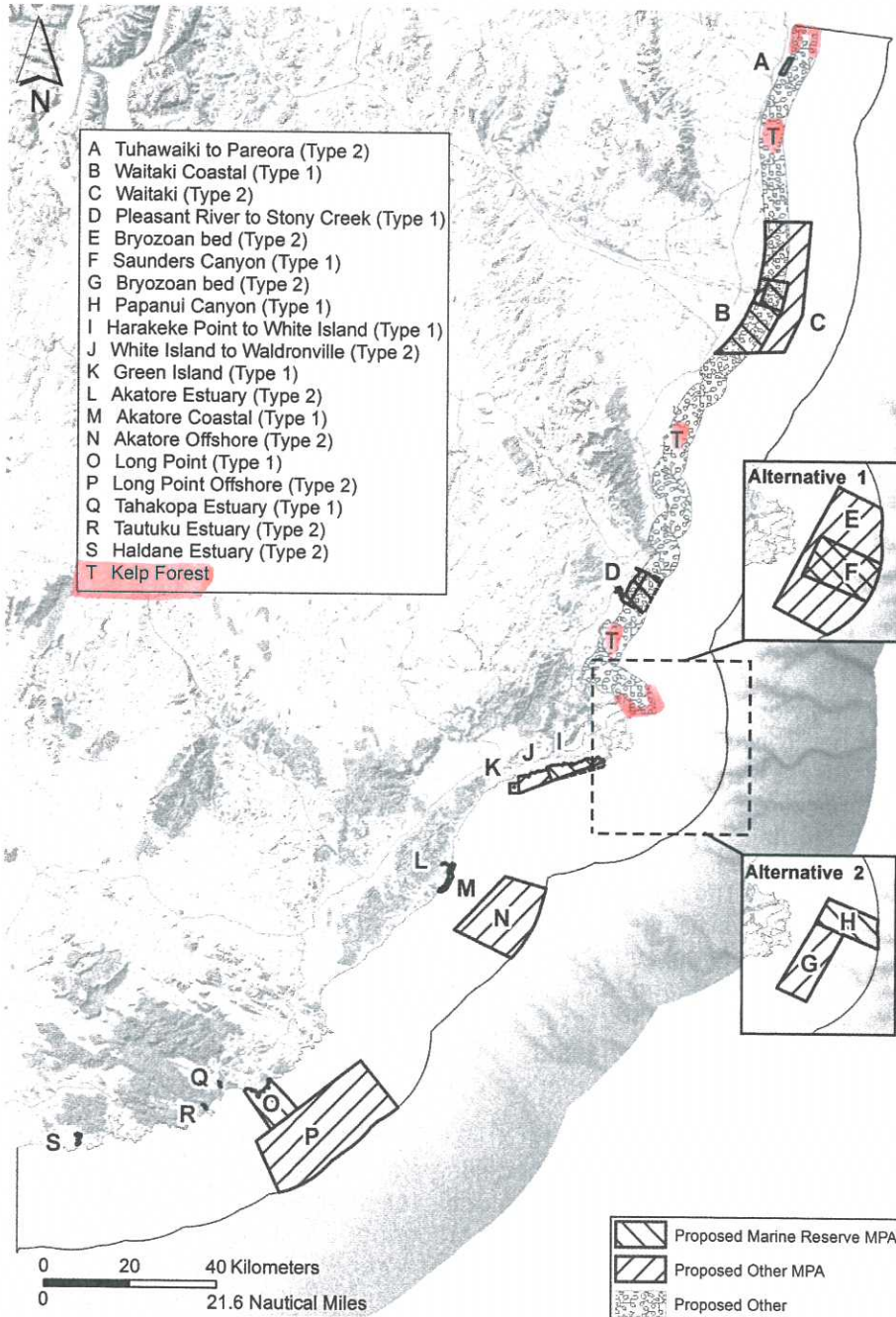


Figure 3: Sites that are being consulted on. Each site can be submitted on individually, as part of a network, or as part of general comments that you wish to make.

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## GENERAL STATEMENTS

### Customary/Cultural

80. Kāi Tahu participated in the site selection process and respect the principle of marine protection subject to customary fishing rights being recognised and respected in the selection process.
81. Marine reserves in particular alienate Kāi Tahu customary rights from their traditional fisheries and mahika kai, and displace fishing effort when adjacent to mātaítai / taiāpure. This effect is compounded across future generations.
82. Kāi Tahu participation in the Forum process does not constitute universal Kāi Tahu or rūnaka support for the individual sites chosen for public consultation.

### Commercial Fisheries

83. The commercial fishing displacement tables for each proposal show the estimated catch that might be taken from the area that is proposed as a marine protected area as a percentage of the total catch of that stock taken from the Forum region.
84. The industry has serious concerns, as existing users, on what the individual and cumulative impact on the commercial fishing industry will be. This information is not readily available or provided by SeaSketch. Please refer to Volume II, Appendix 4: *Fisheries Reporting* for more background information in this regard.
85. Reported fisheries catch information has been used in SeaSketch to estimate the potential impacts of proposed marine protected areas on commercial fishing. For fishing methods (other than for example potting, Danish seining, eel fyke net and pāua diving) catch is reported by fine-scale latitude and longitudes. For potting and Danish seining and the other methods, they essentially work within a small area and therefore, reporting by latitude and longitudes is commercially sensitive. Such methods report at a wider scale called a statistical area.<sup>26</sup>
86. Catch reporting by the statistical area reporting method are assessed by the use of computer modelling and utilises default environmental information to improve our models for some species and methods. For example, pāua are not caught throughout a statistical area, but rather are only taken from rocky areas like reefs. Similarly, we know that blue cod potting is limited to areas shallower than 150 m; Danish seining on smooth sandy bottom and eels taken in specific estuaries.

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<sup>26</sup> Vessels over six metres in length are required to report their trawl start positions for each fishing event by latitude and longitude to within one minute (equates to an accuracy of one nautical mile), and netting to within two nautical miles. The location of vessels less than six metres is only reported to the relevant statistical area. The Forum region encompasses part of statistical area 22 (SA022), all of SA024 and SA026 and part of SA025.

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- \* 87. For each area being consulted on, discussion of expected impacts on existing users is provided where possible. Reports on commercial fishing displacement, for some but not all fishing methods, were available to the Forum throughout the process via the use of SeaSketch, the Forum's online mapping tool. These same reports are available to the public during the consultation period by visiting the SeaSketch project at <http://southeastmarine.seasketch.org>. A brief tutorial on how to run the reports is provided on the Forum's website at <http://bit.ly/SeaSketchConsultation>.
88. For a more detailed explanation on what the commercial fisheries reports in this document mean, how they were derived and their limitations, please refer to Volume II, Appendix 4: *Fisheries Reporting*.
- \* 89. The Forum is seeking further information from commercial fishers and the Ministry for Primary Industries about the impacts they would expect for each of the proposed marine protected areas, that will assist us to build a more accurate picture of the actual effects the proposed marine protected areas may have on commercial fishing.
90. Access to information collected by individual fishers to assess adverse impacts is commercially sensitive and not accessible to the public or other commercial sector representatives to obtain. The Ministry for Primary Industries and commercial representative organisations need to assist the commercial sector with assessing impacts. This information can be aggregated up, but the ability to identify individual fishers as part of the consultation phase is very restricted. The main existing users to be impacted by any marine spatial closure will be the commercial, customary and recreational fishers. The commercial industry has been instrumental in recommending MPA closures to the Forum and are therefore not averse to providing some spatial closures.
91. There are multiple restrictions on fishing activity that are currently in place through regulations under the Fisheries Act. For information on where these restrictions occur within the Forum region, see Volume II, Appendix 6: *Existing Fisheries Restrictions*.
92. Subsequent to the Forum decisions on what proposals to put out for public consultation, the Ministry for Primary Industries has undertaken some additional analysis of the expected impacts on commercial fishing, including economic impacts. The Ministry is continuing to refine this analysis. The Ministry is also in the process of providing updated fisheries information, to include the two most recent complete fishing years in SeaSketch. SeaSketch currently includes data to the end of the 2012-2013 fishing year. Data for the 2013-14 and 2014-15 fishing years will be added shortly. The Forum has not had this additional information and so has not been able to discuss it at the time of writing, and it is not provided in this document or the tables for fishery displacement. But, the Forum will consider it in its final deliberations along with information from submissions.

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## Recreational Fishers

93. At present there is no reliable means of calculating recreational fishers catch in any given area. Marine reserves (Type 1 MPA) are mostly considered unpopular with recreational fishers, and comments made to the Forum indicate two major concerns are spatial displacement and safety.

## Costs and benefits

94. The Forum notes that there are also expected to be economic and social benefits from establishing marine protected areas, for example from increased tourism. However, we have limited information as to the value of those benefits. We welcome any information you may have about any economic or social benefits you think would be achieved from establishing any of the proposed marine protected areas.
- \* 95. Similarly, we are interested in knowing the costs and impacts of spatial closures associated with the marine protected areas.
96. The information on economic and social impact is important to the decision making process for the Forum to make recommendations to Ministers.
97. While this information is important context, biodiversity protection is the purpose of this process. The fact that there is an adverse economic or social impact is not a reason to exclude a habitat in the MPA network. But, differences in economic and social impacts may help us decide between options that would protect similar habitats or ecosystems. Economic benefits are also relevant under the MPA Guidelines, as they may help in deciding between options that have similar impacts on existing users.

## T. KELP FOREST (TYPE OTHER)

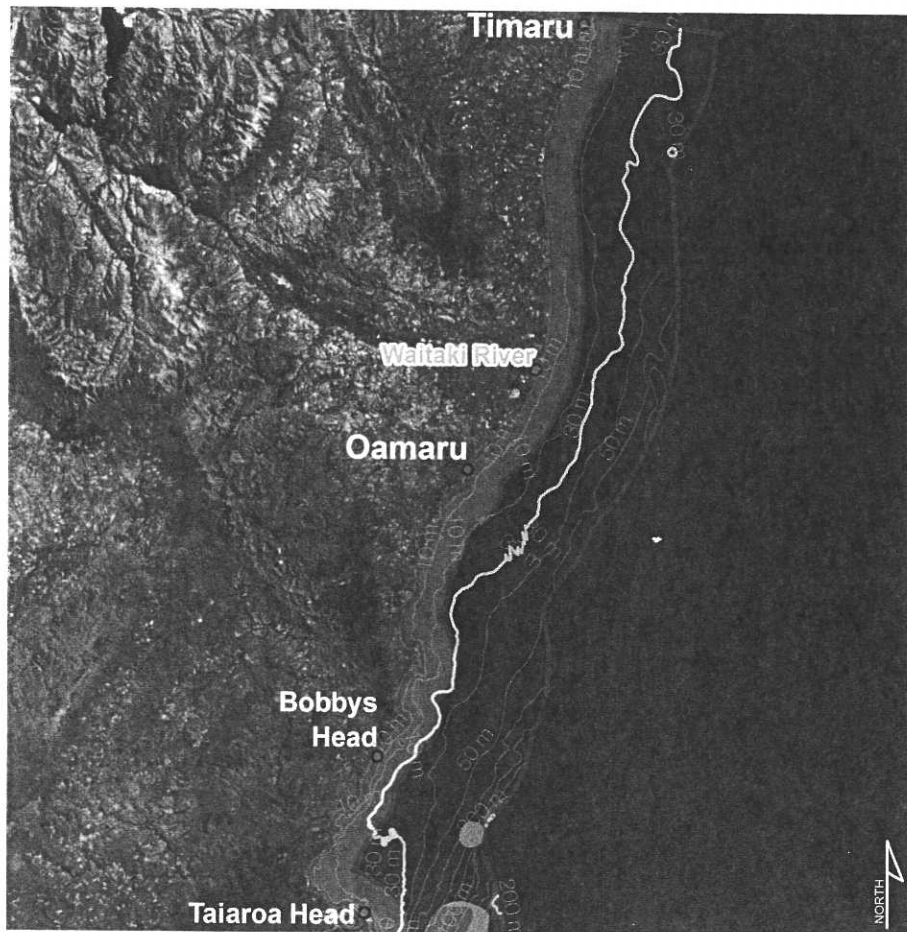


Figure 68: Proposed Other MPA.

### Description

558. This area extends from Timaru breakwater to Pipikaretu Point, and seaward 5.5 km (3 nm).
559. The mechanism for protection is a matter which the Forum would like further information on from the public. The most obvious method to protect the kelp habitat at this scale is specific restrictions on the ability to commercially harvest kelp. However, this may not be a mechanism that can be implemented through the current legislation, but it could be implemented through special legislation. But using special legislation could be difficult. At this stage the Forum wants to keep all options open, and to evaluate how to best advance protection of this habitat the Forum is seeking input from the public.
560. The proposal does not meet the protection standard as set out in the MPA Policy, and therefore is not considered a Type 2 MPA. As such, it does not contribute to an overall network, but is termed as "Other Protection Tool" within the MPA Policy as it does contribute to biodiversity and habitat protection.
561. The Forum welcomes submissions with additional suggestions about how kelp habitat can be protected. X

- 
562. There are wāhi tapu located on the coast and the recovery of koiwi and other cultural artifacts by Kāi Tahu shall not be impacted by this proposal.

### Environment

no evidence of this  
- this is a lie

563. *Macrocystis pyrifera*, is a habitat forming native kelp (biogenic habitat). It is long-lived, recovers slowly (if at all depending on the harvesting method), and is an important habitat for fisheries. Kelp-forests form the base of complex food webs which provide for both coastal and pelagic species and provide habitat for, numerous commercially harvested fish and invertebrate species. For example, kelp is well known to be an important habitat for rock lobster settlement.
564. It has been estimated that, in some nearshore ecosystems, macroalgae such as *Macrocystis* may be responsible for 90% or more of the total carbon fixation, and ninety percent of the photosynthetic biomass of *Macrocystis* is in the top metre. ?
565. They are in decline globally and similar kelp forests in south eastern Australia have been listed as an Endangered Habitat type under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Kelp forests have been lost from Tasmania's east coast due to increasing sea surface temperatures. Similar warming may be occurring in the Forum region.
566. Anecdotal evidence suggests loss of kelp forest in this region and further south (Nugget Point to Green Island) in the last 50 years. Offshore and fringing kelp forests in the area from Warrington to Kakanui are nationally and globally significant. 90% of the photosynthetic biomass is in the top metre, therefore harvesting the top section of the kelp affects its productivity. Kelp is well known to be an important habitat for rock lobster settlement.

### Why was this site chosen for consultation?

567. The proposed area includes the majority of the *Macrocystis* habitat within the Forum region. *Macrocystis* occurs to a depth of approximately 25 m, so the proposed boundary would ensure that all potential *Macrocystis* habitat would be protected.
568. The Forum is seeking stakeholder views about protection of kelp because of its importance as a habitat. Offshore and fringing kelp forests in the area from Warrington to Kakanui are nationally and globally significant.
569. Anecdotal evidence suggests loss of kelp forest in the area of interest and further south (Nugget Point to Green Island) in the last 50 years.
570. Harvest of kelp for fertilisers, fish food and human consumption has the ability to significantly reduce kelp biomass, altering food-web dynamics. The harvest method is to remove the surface tissue down to a depth of 1.2m; this process has been found to reduce the generation of reproductive blades by an average of 86% within New Zealand populations<sup>59</sup>.

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<sup>59</sup> Geange, S. W. 2014. Growth and reproductive consequences of photosynthetic tissue loss in the surface canopies of *Macrocystis pyrifera* (L.) C. Agardh. *Journal of Experimental Marine Biology and Ecology* 453:70-75.

571. The importance of this biogenic habitat for commercial, recreational; social and cultural reasons is why it has been proposed.
572. Because of the importance of the kelp habitat, the Forum considered it necessary to consult and get as much information from the public as possible on its potential protection. Effective, fit for purpose protection may require special legislation if it does not fit within the current laws. Special legislation may face hurdles, therefore the Forum wants any recommendations it makes in respect of protection of the kelp habitat to be well informed and robust.

## HABITAT TYPES

573. This protected area would include 98.8% of the mapped *Macrocystis* habitat within the Forum region.

<b>Habitat types included within the proposed site</b>		
<i>Area (km) is the area of that habitat type that is included within the site. Area (%) refers to how much of the habitat type within the entire Forum region is included within the site.</i>		
HABITAT	AREA (KM <sup>2</sup> )	AREA (%)
Macrocystis bed	15.8	98.8

Figure 69: Habitat type within the proposed Kelp Forest MPA.

## EXISTING USERS

574. If a protection mechanism restricted commercial harvest of kelp, this would affect six known quota holders, who do not currently harvest in the proposed area. There is currently little, if any, attached *Macrocystis* harvest in the Forum region; most harvest is of free floating or beach cast.
575. Impacts on other existing users would depend on what area was protected and the mechanism that was used. Provision would be made for incidental harvest (bycatch) as part of other fishing operations.



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## Summary

576. The Forum is considering appropriate protections for bladder kelp forest habitat in the area of interest because of its importance as a biogenic habitat for commercial, recreational, social and cultural reasons.
577. While it does not contribute to the MPA network as it does not meet the protection standard as a Type 2 MPA, it does contribute to overall biodiversity protection.
578. The MPA Policy explicitly states that in implementing the MPA Policy, protection can be given using a range of tools i.e. Marine Reserve MPAs, other Marine Protected Areas and other Marine Protection Tools. All forms of marine protection are relevant when measuring progress towards the NZ Biodiversity Strategy target. However, only Types 1 and 2 are considered to be MPAs for the purpose of the MPA Policy.
579. There is a requirement within the MPA Policy that tools are used in a manner consistent with the Fisheries Act, i.e. to address either actual or potential adverse effects of fishing on the environment, and are implemented in a manner consistent with the statutory requirements.

## Making your submission

580. You are welcome to submit on any aspect of the proposal, either for or against, or suggest alterations. In particular, the Forum would like your feedback on the following for this site:
- What sort of protection over kelp forest habitat do you think is appropriate?
  - How would this proposal affect your current or future use of the area? How would this proposal affect you?
  - Do you support this area going forward as a part of the south-east marine protected areas network? Why? Why not?
  - If you do not support it in its current form, are you able to suggest alternatives to the proposal that would make it more acceptable, such as changes to its location, size and boundaries?

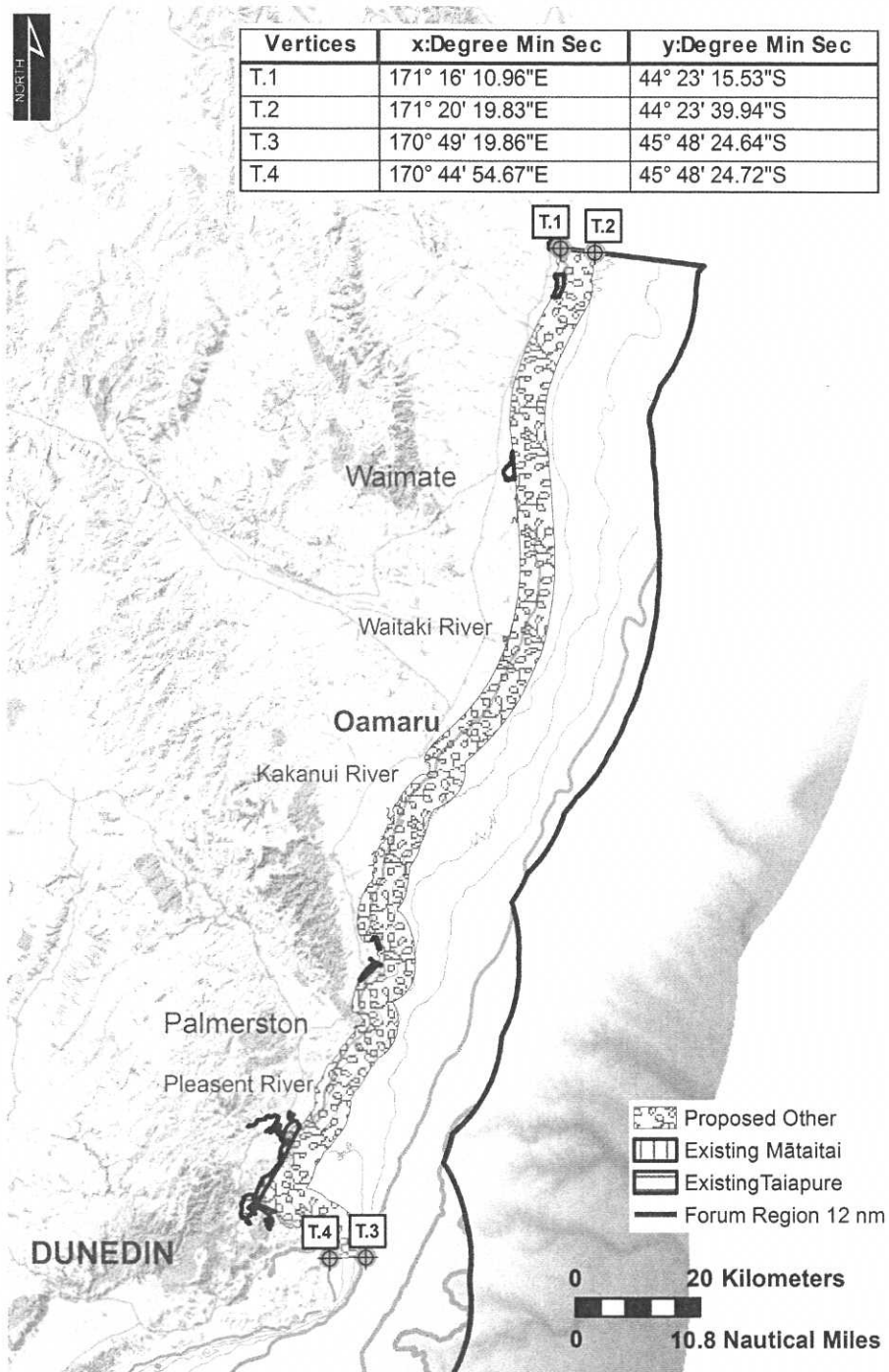


Figure 70: Proposed boundaries for the site put forward for consultation.

## South East Marine Protected area Forum (SEMPF) submission on *Macrocystis pyrifera* (Giant kelp) KBB3G

The SEMPf only referenced scientific paper on Giant kelp was by Geange.

The world's definitive scientific book on Giant kelp is by Schiel and Foster ('The Biology and Ecology of Giant Kelp Forests' published in 2015).

What the forum said	What the facts are
<p>"SEMPf fact finding, stakeholder consultation and deliberation March 2014 to October 2016."</p> <p>"We have taken on board the views expressed to us by each sector..."</p>	<p>There has been <b>no consultation</b> with any of the six KBB3G quota owners.</p> <p>No effort was made by the forum members to contact any Giant kelp quota owners.</p>
<p>"It (Giant kelp) is long lived, recovers slowly (if at all depending on harvesting method)."</p>	<p>Whole Giant kelp plants <b>live for only 2-6 years</b>. Fronds live for 4-9 months.</p> <p>"Individual <b>plants recover rapidly</b> from reasonable harvest" Foster</p> <p><i>Macrocystis pyrifera</i> is the world's fastest growing plant.</p> <p>There has been a three and half year study by two PHD students (the Pirker study) looking at the sustainability of commercial harvesting of giant kelp in NZ, this found that "Overall there were no negative flow on effects resulting from harvesting the kelp forests. In some cases harvesting proved to be beneficial by increasing sub-canopy <i>Macrocystis</i> growth rates which quickly replace the harvested canopy."</p>
<p>"Harvest of kelp for fertilisers, fish food and human consumption has the ability to significantly reduce kelp biomass, altering food-web dynamics."</p>	<p>This same Pirker study found harvesting "had no measurable effect on <i>Macrocystis</i> plants, or the dominant understorey species, including juvenile <i>Macrocystis</i>, <i>Ecklonia radiata</i> and macroinvertebrates"</p> <p>The definitive book on <i>Macrocystis</i> called 'Giant Kelp Forests' which references over 1000 scientific papers said, "The growth and reproductive characteristics of <i>Macrocystis</i> make it the most suitable of all kelps for harvesting"</p>

What the forum said	What the facts are
<p>“The harvest method is to remove the surface tissue down to a depth of 1.2m; this has been found to reduce the generation of reproductive blades by an average of 86% within New Zealand populations.”</p>	<p>Geange harvested <b>individual</b> plants to 1.2m depth, commercial harvesting harvests <b>groups</b> of plants to 1.2m depth.</p> <p>In Geange’s experiment little light got to juvenile fronds or reproductive blades.</p> <p>With commercial harvesting light wells are created allowing light to reach juvenile fronds and reproductive blades therefore stimulating their growth.</p> <p>Geange did another bizarre thing, he harvested the reproductive blades (which commercial harvesting does not do).</p>

### What the forum didn’t tell you

Geange admitted that, “This study differs from the loss of surface canopies due to catastrophic storm events or commercial harvesting in an important manner- experimental algae were surrounded by the intact canopy of their neighbours.”

“The largest seaweed, Giant kelp (*Macrocystis*) is the fastest growing and most prolific of all plants found on earth.” Schiel and Foster

“The fastest autotrophic elongation on record for any marine or land plant” Schiel and Foster

“Each plant puts out a billion spores per year” Schiel

“100 years of clinical trials and not one has showed there is any effect” Schiel

Most of the reduction in Giant kelp biomass is caused by winter storms uprooting whole plants and whole forests and by warm summer weather (over 16 degrees Celsius) causing dieback.

The proposed marine protected area T kelp forest (type other) covers 80% of the harvestable Giant kelp within the entire KBB3G area.

### Kelp Research

It is interesting that the forum only quoted one scientific experiment (the Geange article). It is also interesting that the definitive book ‘Giant Kelp Forests’ (Schiel, Foster) on Giant kelp does not reference the Geange article.

It is also interesting that over 99.9% of all scientific research shows that harvesting of Giant kelp has no measurable effect on the growth and reproduction of Giant kelp nor any associated plants or animals.

The forum dresses the Geange paper as credible research in relation to commercial harvesting of Giant kelp but it is in reality thinly veiled advocacy.

Geange may not be in cahoots with the forum and he may not have set out to produce irrelevant experiments regarding commercial harvesting of Giant kelp but this has not stopped the forum from misrepresenting Geange's work and deliberately ignoring all other Giant kelp research.

"If Geange means commercial harvesting as you do it, then his experiments are irrelevant to determining harvest effects." Foster

Roger Beattie co funded with FRST NZ's largest ever kelp research project into sustainable harvesting of Giant kelp. This research took three and a half years and cost \$380,000, half of the project was funded by Roger, half by the taxpayer.

This scientific report was undertaken as part of a PhD study (Pirker) that was overseen by professor David Schiel and peer reviewed by the world's leading Giant kelp expert Dr Michael Foster.

## **High Court Battle**

Roger Beattie fought and won a 17 year battle against the Ministry of Fisheries that went to the High Court and came out on Roger's side. The Ministry of Fisheries had to pay court costs and bring Giant kelp into the Quota Management System as part of the High Court settlement.

## **Settlement with the Ministry of Fisheries**

In 2010 Giant kelp entered the QMS with 1236.8 tonnes TACC for area KBB3G. This area extends from the Clarence river to Waipapa point.

## **Property Rights for Sustainability**

We would not contemplate going to the supermarket and helping ourselves without paying- that's theft.

Stealing peoples' property rights is also theft. Civilised people in civilised countries don't steal.

ITQ rights, like freehold rights to farmland are not just rights to do what you are currently doing but are rights that capture future unseen opportunities i.e. Manuka honey production on 'marginal land' or development of the back block of a farm.

ITQ rights are not just fishing rights they are development rights i.e. reseeding scallops and paua beds or active protection against threats to the future.

## Potential for Giant Kelp

Demand for Giant kelp is growing as a food condiment and as agricultural and horticultural products.

Harvesting, drying, packing and distribution is creating regional development and employment. As the Giant kelp business grows so will the economic, social and environmental benefits.

Roger Beattie fought a Planning Tribunal court case against a developer wanting to dump treated human effluent into Akaroa harbour in the mid 1990's. As part of that action Roger funded an alternative land based treatment proposal. Akaroa harbour is now moving towards treated human effluent being disposed of to land. Roger took this action to protect his marine farming of paua for blue pearls and to protect his kelp harvesting rights in Akaroa harbour.

Someone's property is someone's care.  
No one's property is no one's care

## Some things to Contemplate

Harvesting Giant kelp does temporarily reduce biomass as does mowing your lawn.

If we were to design the perfect sustainably harvested plant would it be possible to improve on Giant kelp?

From our 26 years of commercial harvesting Giant kelp on the Chatham's and in the KBB3G area we have not seen any negative effects from our harvesting.

Like cutting grass for hay production it is not physically nor economically worth harvesting until the canopy recovers.


Are we going to ignore credible peer reviewed research?  
Are we going to ignore High Court Judgements?

This MPA forum with regards to Giant kelp: is preservationist advocacy, driven by an alliance of envious pagan worshippers, actively supported by pseudoscience.

## Conclusion

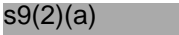
I totally oppose T Kelp Forest (Type other) becoming a Marine Protected Area.

s9(2)(a)

A large rectangular grey box redacting the content of the page.

Roger Beattie  
Enviropreneur

s9(2)(a)

A small rectangular grey box redacting the content of the page.

## South East Marine protection forum- Threats to property rights of *Macrocystis pyrifera* KBB3G quota owners

### Key points

1. The forum area extends from Timaru to Waipapa point (South East Coast of the South Island).
2. Proposed protected area would include 98.8% of *Macrocystis* (Giant kelp) habitat within the forum region.
3. Protection area has the intent to stop commercial harvest of all Giant kelp.
4. The forum recognised that there are six Giant kelp quota owners.
5. Giant kelp quota owners were not contacted at all during the 2 years that this forum has been in development.
6. The forum claimed it would consult with stakeholders between March 2014 and October 2016.
7. Roger Beattie only heard about the South East marine protection forum from another Giant kelp quota owner Dominic Preece who read about it in the Otago Daily Times.
8. By actively seeking information online Mr Beattie found out that there was a local public information session in Christchurch only one hour before it began.
9. The forum claims to have consulted with all stakeholders on where marine protected areas should go.
10. There are three commercial representatives on the Forum none of whom have contacted any Giant kelp quota owners.
11. The forum has used factually dubious and selective statements as well as misleading scientific evidence on the effects commercial harvesting has on Giant kelp beds.
12. The forum is now presenting this information in public consultation documents comprising of two volumes to the public who wish to attend one of the public information sessions.

### How I see it

The forum cites only one scientific article in the public consultation documents under the kelp section. What information they pull out of this journal is as follows, "Harvest of kelp for fertilisers, fish food and human consumption has the ability to significantly reduce biomass, altering food web dynamics. The harvest method is to remove the surface tissue down to a depth of 1.2 metres, this process has been found to reduce the generation of reproductive blades by an average of 86% within New Zealand populations."

Harvesting giant kelp does temporarily reduce biomass as does mowing your lawn, but it also regenerates extremely quickly being that it is the "fastest growing and most prolific of all plants found on earth." In the forum they claim it "recovers slowly (if at all depending on the harvesting method)."

Most of the reduction in Giant kelp biomass is caused by winter storms uprooting whole plants and whole forests and by warm summer weather (over 16 degrees Celsius) causing



dieback. From our 26 years of commercial harvesting Giant kelp on the Chathams and in the KBB3G area we have not seen any negative effects from our harvesting. Like cutting grass for hay production it is not physically nor economically worth harvesting until the canopy recovers.

Harvesting to regulation maximum 1.2 metres in the case of the experiment from the forum's cited paper did reduce the generation of reproductive blades but in the experiment they cut off the reproductive blades of each plant which are located near the base of the plant nowhere near the portion of the plant that gets commercially harvested.

*Macrocystis* is known to be extremely fertile and mature plants can produce spore's year round. What they fail to talk about in this section is whether or not the harvest of Giant kelp has any adverse effects on the kelp bed or other species in the long run. There has been research in New Zealand done on this which showed that continual quarterly harvesting of the same Giant kelp plants had no detrimental effect on the plants or associated species. It even found that harvesting Giant kelp increased recruitment and enhanced sub-canopy plant growth during late summer.

The seven attached documents include:

1. Relevant information from the Forum's consultation documents.
2. The Geange paper they cited in the kelp section of the consultation document.
3. Important information from the PhD thesis by John Pirker, 'Seaweed products for barrel culture paua farming' (2000) that looked at the effects of harvesting *Macrocystis*.
4. Supporting information from the book 'Giant Kelp Forests' by Dr David R. Schiel and Dr Michael S. Foster. This recently published book (2015) is written by the two leading experts in Giant kelp biology and ecology.
5. Michael Fosters email to Roger.
6. The irrelevant Geange Giant kelp growth and reproduction report summary.
7. The grass harvesting analogy.

s9(2)(a)

✓ Roger Beattie  
Quota owner *Macrocystis* KBB3G

**From:** [Chris Cooper](#)  
**To:** [SEMP](#)  
**Subject:** Morning Dance Fish Co Ltd  
**Date:** Thursday, 30 July 2020 8:06:57 PM

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Re: Submission Against Proposed South East Marine Protection Areas

To whom this may concern

Please find submissions against the proposed South East Marine Protection Areas.

**SUBMITTER DETAILS**

<b>Name of submitter:</b>	Morning Dance Fish Company Limited
<b>Postal address:</b>	s9(2)(a)
<b>Email:</b>	s9(2)(a)
<b>Telephone number:</b>	s9(2)(a)
<b>Connection to CRA7 Fishery:</b>	ACE Holder Client Number s9(2)

We **do not** wish the commercially sensitive information that we have provided to be released under the Official Information Act 1982

We **oppose the South-East Marine Protection Areas Proposal** for the reasons set out in our submissions contained in the video viewable at this address: s9(2)(b)(ii)

Yours faithfully,

Chris and Jackie Cooper  
Director of Morning Dance Fish Company Limited

**Video Text** – Morning Dance Fish Co Ltd was established by David Cooper in 1967, Home port of Karitane, Otago

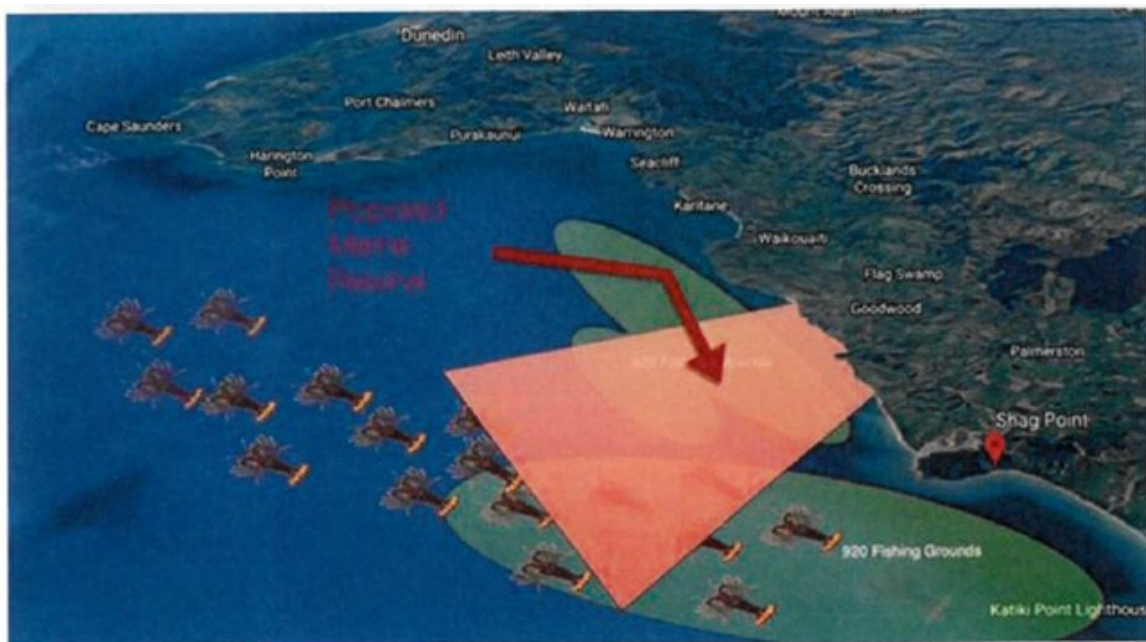
Having been fishing these grounds for 60years

**Video Text** – The Morning Dance Fish Co Ltd successfully passed down to Dave’s don and wife, Chris (Ruffy) and Jackie Cooper. Who still live in the small rural community of Karitane.

**Spoken** – “In the mid 70s, there was 80 to 100 boats in Otago, now there’s only 10. It’s like the late to mid 70s, with less tonnage coming off and less boats. She’s in pretty good health.”

**Video text** – Earlier this year, Chris and Jackie were informed of a proposed Marine reserve off the Shag Point coast.

**Spoken** – “But we need that ground. If we haven’t got that ground to catch those lobsters in that reserve, we can’t catch that fish. We can’t catch the fish on the sand, we can’t catch them all at the cape because there will be 700 pots at cape saunders, there just wouldn’t be enough room for us to catch. We need that area, we need that rocky bottom, we need our foul, we need our scope to catch all out quota, efficiently.”



**Video Text** – The following short film outlines the key points we would like to discuss in relation to the proposed Marine Reserve for East Otago, in particular the areas marked at Shag point and Bobbies Head.

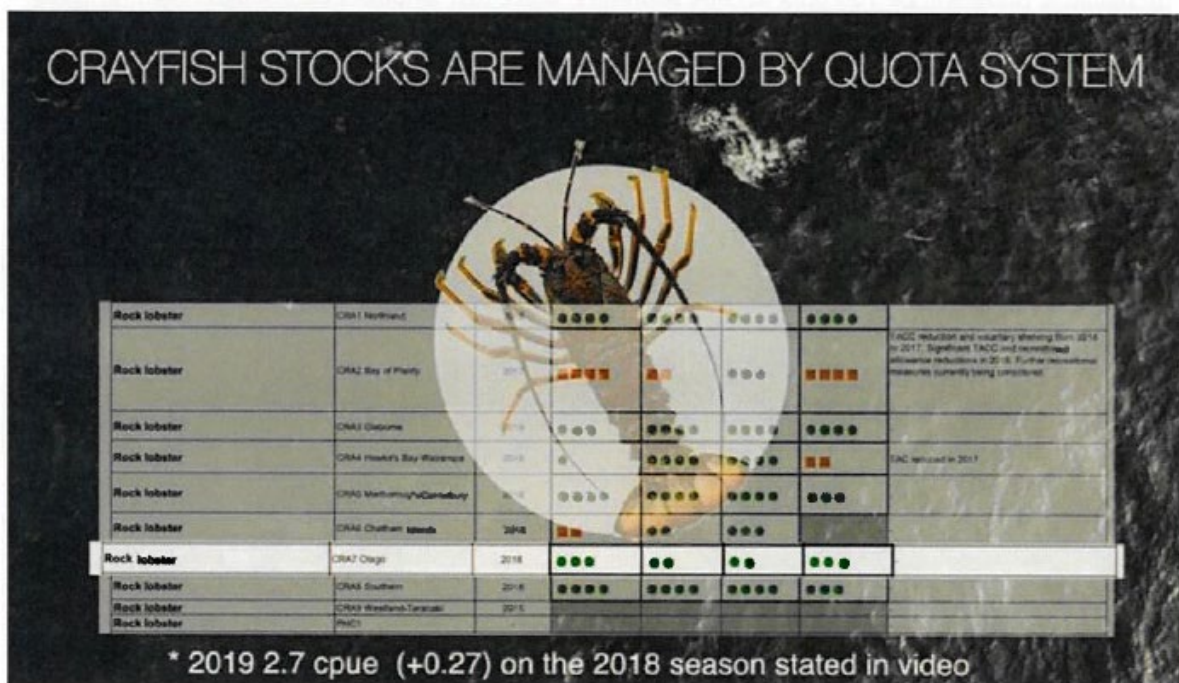
We would like the following points to be included in our submission to the Minister of Conservation and Minister of Fisheries to help them understand and have a complete picture about the implications of the location of the reserve in CRA7.

**Spoken-** “It’s a tough pill to swallow when they are pushing you off your own ground, they are trying to push you of your own edges which we are only in them for 3months. Let’s be honest, 3 months of the year and then we pick the pots up and move on somewhere else.”

**Spoken** – “It’s ok when the money goes into the account, ok that’s fine but when you’re out there doing it, feeling it touching the ocean touching the fish, it’s so much better. You’ve earned your money, you know. And it’s an interesting place”

**Video Text** – Marine Reserve location, the proposed location is covering the migration pathway for the rock lobster. The fish come from the North Otago area and march south through the areas of Foul / rocky bottom. We need to protect this area for the future fishers.

**Spoken** – “Nothing left after that and every year as soon as that smaller grey lobster became legal, we catch that and land it and there was no big lobster. And in the last 5 – 10 years, we’ve through a lot of that lobster that we could have legally taken over the side and that way the lobsters got bigger and bigger, we’ve just seen improvements every year. It’s a good quota system which goes under the TACC System and if the Catch Per Unit which is the kilo per pot lift which get recorded every year and our pot per lift is 2.1kilo per pot lift in Otago. Which give us second best CPUE data in the country.”



**Spoken** - “Well we are quite happy if they want to have a smaller Marine Reserve, we are not against it. You can’t take 40% of the fisheries and leave us with 60% and hope we are going to survive cause we won’t.”

**Video Text** – New Zealand Rock Lobster holds pride of place on international menus as a premium product. And is handled with compete care as a live Lobster to out international customers with revenue to this country’s Businesses to the tune of \$223m in 2012. This industry is well managed and we feel the custodian of our fishing grounds and industry that provides for our community. We don’t want to fight in the courts for our voice to be heard, so please consider our situation and lets work together for the future of our people ‘and’ our country.

- Ruffy and Jackie Cooper  
END

**From:** [Elaine](#)  
**To:** [SEMP](#)  
**Subject:** Submission from Penguin Resce  
**Date:** Friday, 31 July 2020 7:49:25 AM  
**Attachments:** [Submission Final plus graph.pdf](#)

---

Good morning, apologies for first submission, it needed to be in PDF format. Please find enclosed the submission for Penguin Rescue, Moeraki  
Regards Elaine Burgess

Sent from [Mail](#) for Windows 10

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**From:** [Elaine](#)  
**Sent:** Friday, 31 July 2020 7:45 AM  
**To:** [Gmail](#)  
**Subject:**

Sent from [Mail](#) for Windows 10



## Submission to Department of Conservation and Fisheries New Zealand on the proposed southeast Marine Protected Areas

Elaine Burgess on behalf of Penguin Rescue.

**Penguin Rescue** runs a rehabilitation facility and had a total of 120 yellow-eyed penguin admissions into that facility in the 2019/20 season. We also provide habitat safety for penguins by monitoring the 2 colonies at Moeraki that had 38 of 176 (21.6%) the breeding pairs (2018-19 season) in Otago and Southland. (Annual reports can be viewed at <https://www.penguins.org.nz/>).

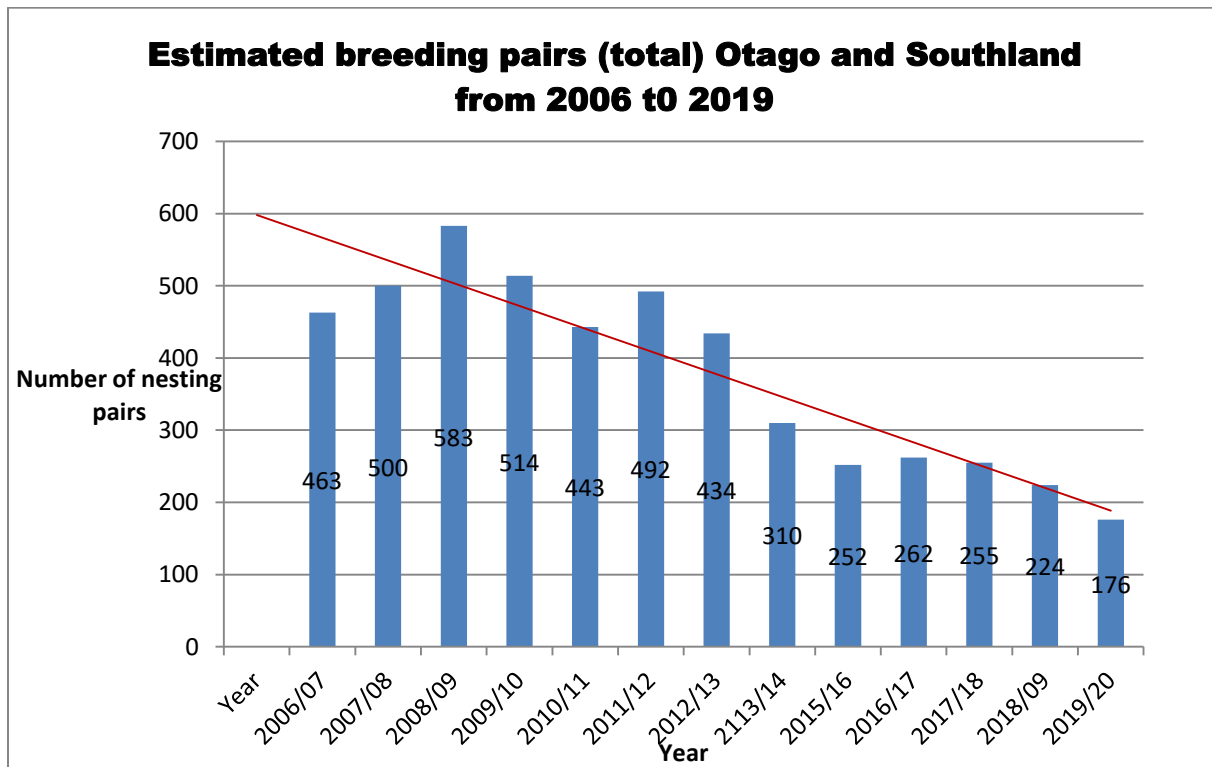
Thank you for the opportunity to present our views on the proposed southeast marine protected areas and their impact on the Yellow Eyed Penguin,(Hoiho), who are endemic to this area.

It is not the intention of this submission to diminish the urgent need for marine protected areas but rather to submit the following **three facts** in support of increasing their size and range.

### FACT 1 (Fig.1)

Yellow Eyed Penguin nesting pair numbers in Otago and Southland have decreased by 70% over the last 10 years to a very critical level of 176\*.

**Fig.1**



\*Department of Conservation figures

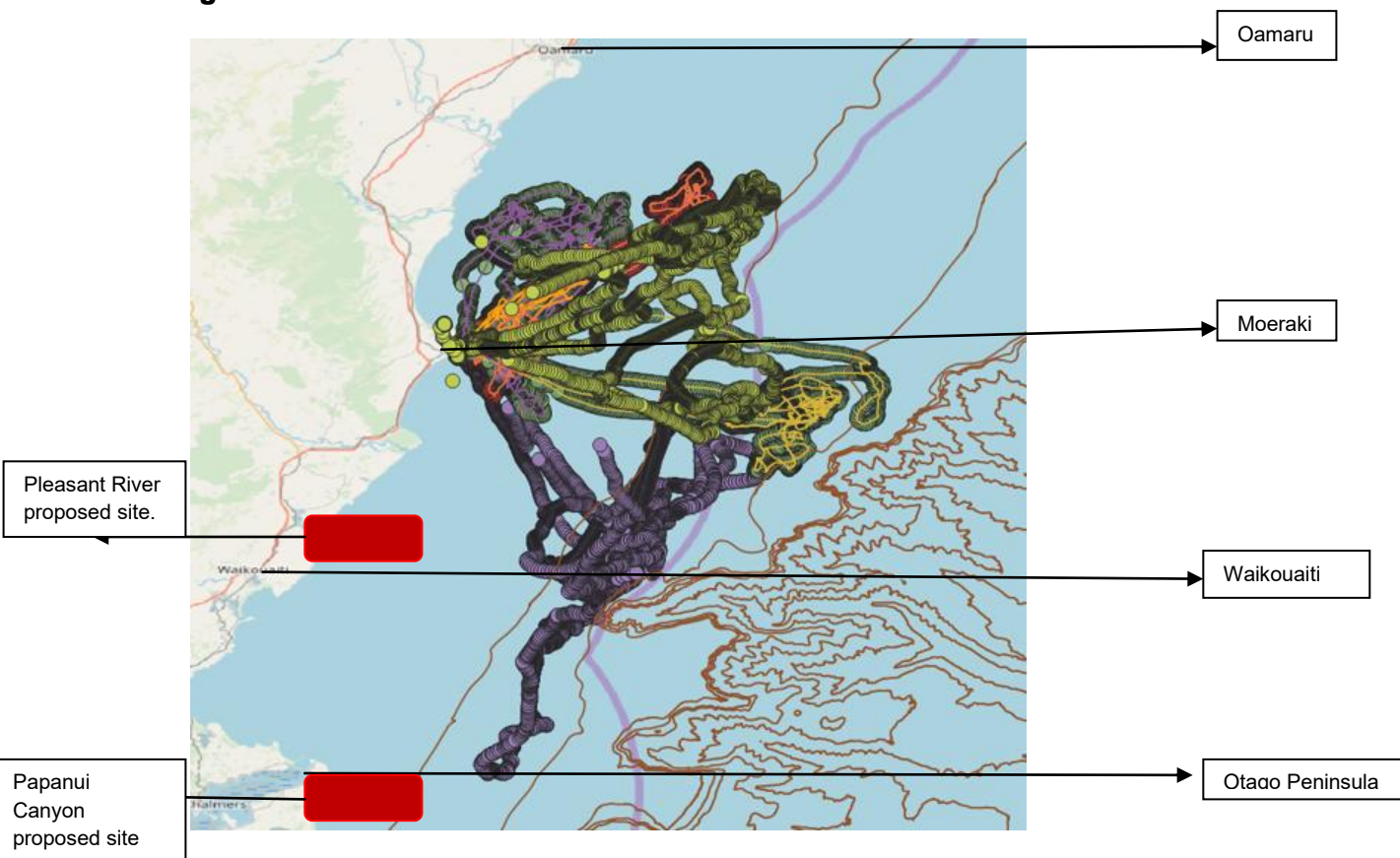
**Fact 2**

The proposed marine reserve areas fall woefully short of covering the Hoiho foraging range for food (Figures 2 and 3). Please note this is previously unknown data.

**Fig (2)** These six tracks of single males from Moeraki colony show their foraging range. These Axytrek devices (TechnoSmart, Italy) trackers were deployed between early October and early November. (unpublished data, J Cockrem).

These tracks clearly show the proposed marine reserves (indicated in red), offer no protection for the Moeraki colony, which now represents **21.5%** of the remaining breeding pairs.

**Fig 2**

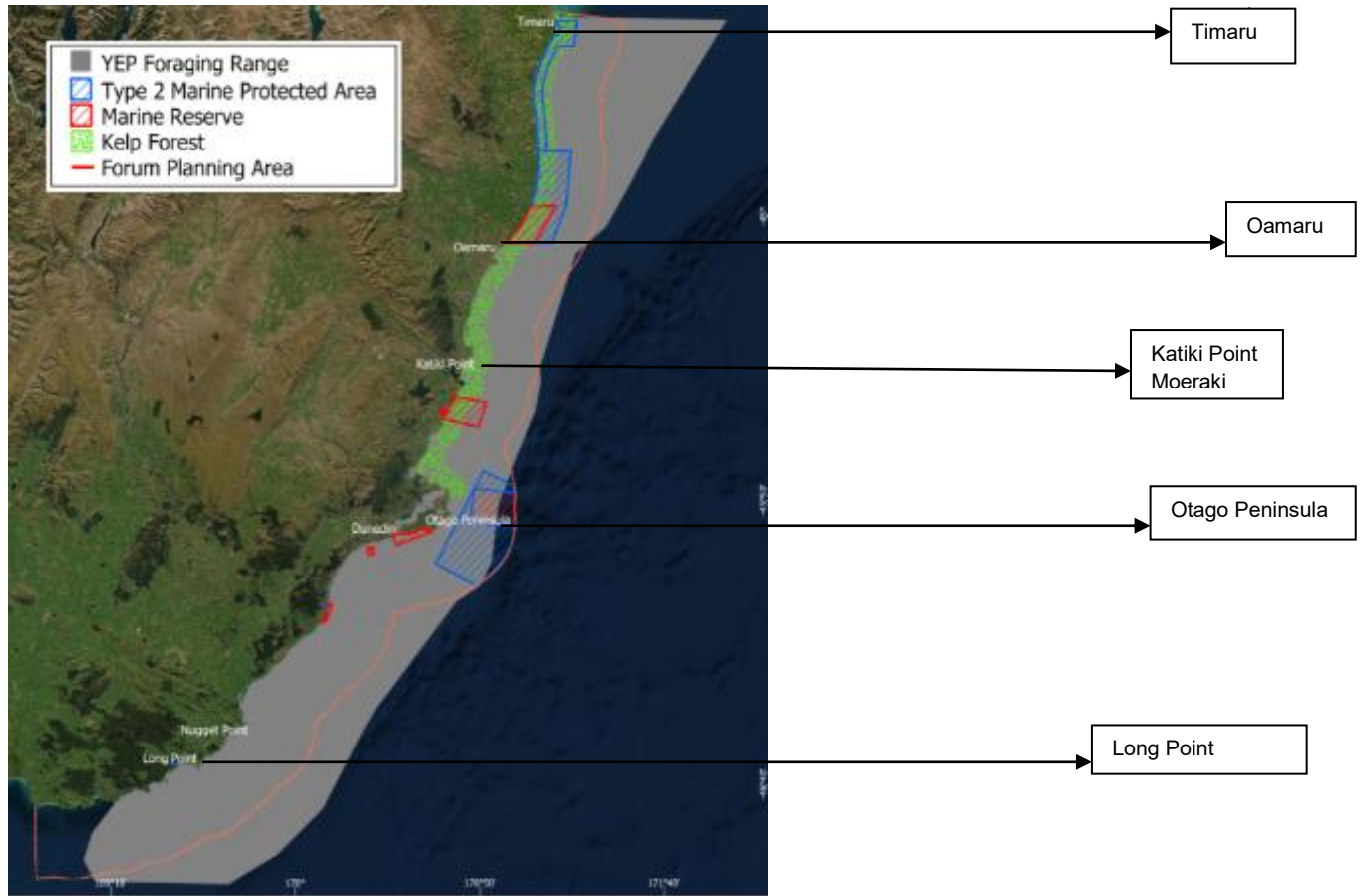


**Figure 3** shows the overlap between the South-East Protection Forum’s proposed marine reserves and type 2 protected areas and the breeding premoult winter foraging range of yellow eyed penguins/Hoiho. (Hickcox et al, data unpublished<sup>1,2</sup>).

In all, 75 adults were tracked, and all foraged outside of the proposed MPAs (Marine protection areas). Only 28 of the 75 individuals actually foraged within one of the MPAs. Hotspots of foraging activity off of the Catlins Coast (e.g., Nugget Point to Long Point) and Otago Peninsula/North Otago (e.g., Katiki Point,

Bobby's Head, Boulder Beach) all extend beyond the proposed MPAs, with no protection in the Catlins and only the kelp protected area off of Katiki.(Fig 3).

**Fig.3**



**Yellow-eyed penguin/hoiho (YEP) foraging range overlap with proposed Marine Protected Areas (MPAs)**

**Fact3**

In the past, our voiced and written concerns for the need for Yellow Eyed Penguins foraging areas to be protected have been met with the statement that these marine reserves are not species specific. This is now clearly untrue as areas have been set aside to protect bull kelp and the bryzone beds.

Stated in the agreement (link below), the New Zealand Government agreed to no more extinctions.

<https://www.doc.govt.nz/about-us/international-agreements/convention-on-biological-diversity/>

The situation for Yellow Eyed Penguins **IS** dire and if allowed to continue unabated they are certainly headed towards extinction in the next 5-10 years.



Although other factors do contribute to Yellow Eyed Penguin welfare the implementation of wider protection zones in the feeding grounds at sea is **VITAL** for this iconic taonga species.

We thank Rachel Hickcox and John Cockrem for sharing their research data.

<sup>1</sup>Hickcox, R.P., Mattern, T., Rodríguez Recio, M., van Heezik, Y., Young, M.J., & Philip J. Seddon. (2020). *Where and why? Marine mapping and modelling of yellow-eyed penguin presence and preference [Presentation]*. Yellow-Eyed Penguin Symposium, Dunedin, New Zealand.

<sup>2</sup>Hickcox, R.P. (data unpublished). Environmental, climatic, and biological interactions influencing the marine and terrestrial distribution of yellow-eyed penguins (Unpublished doctoral dissertation). University of Otago, Dunedin, New Zealand

**From:** [Reid Wilson](#)  
**To:** [SEMP](#)  
**Subject:** Submission on kelp and marine protected areas along the South Island east coast  
**Date:** Friday, 31 July 2020 10:52:50 AM

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To who it concerns,

I think we need to act now on protecting our Ocean, increasing kelp Forrest and Marine which are a huge part of the eco system and the sea creatures which are always under threat of over fishing. We also need to consider the areas that are used for public resources ..feed the family. Especially at this delicate time in history. Placing of any type of outlets into the sea is going to be disastrous & detrimental to its existence , and if we look at the scientific evidence in history ,the problems are enormous in our oceans from Outlets. We as Clean Green New Zealanders , should be defending our oceans and making sure that NO Pollutants enter the worlds Oceans. Has to be other ways, and we have to find them . This is the only way forward for the Ocean to survive and the worlds resources to be continually available to the coming generations. We do need kelp ,reef and marine protected areas, is my strong feeling for a better future , so we need to find a balance for public use and industry. We can do this together.

Thanks Kindly

Sue Camp

**From:** [Ursula Ellenberg](#)  
**To:** [SEMP](#)  
**Subject:** Submission on south-eastern MPAs  
**Date:** Friday, 31 July 2020 11:52:49 AM  
**Attachments:** [2020\\_SEMP\\_submission\\_UE.pdf](#)

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Kia ora Team SEMP,

Please find my submission attached.

Nga mihi,

Ursula

## 2020 Submission on proposed southeast Marine Protected Areas

27 July 2020, submission prepared by Dr Ursula Ellenberg

Email contact: s9(2)(a)

### General feedback

- (1) The proposed network of Marine Protected Areas (MPAs) are a great start to protect our unique marine biodiversity and to safeguard marine productivity and ecosystem services for the benefit of people and nature in the long term.
- (2) I appreciate the effort of the Forum to negotiate, identify and endorse many small MPAs along the South East Coast of the New Zealand South Island.
- (3) Please note that the proposed network is a bare minimum since it fails to meet the MPA policy and New Zealand's international obligations by adequately representing the full range of habitats found in the SEMPFA Area.
- (4) New Zealand once a leader in marine protection is falling behind. "In 2016, the IUCN called for 30% of each marine habitat to be set aside by 2030 in "highly protected MPAs and other effective area-based conservation measures", aiming to cover "at least 30% of the global ocean, with no extractive activities permitted."
- (5) It is particularly disappointing to note that there are no marine reserves proposed for the Catlins region, four habitats have no protection and the ten poorly represented habitats are those most heavily fished.
- (6) Efforts need to be made to adequately extend the MPA network. I strongly encourage all involved to continue negotiations to achieve an even better outcome in the near future.

### The current proposal is a first little step into the right direction.

New Zealand signed the United Nations Convention on Biological Diversity in 1993, agreeing to the goal of establishing an effectively and equitably managed, ecologically representative, and well-connected system of MPAs and other conservation-related measures covering at least 10% of its coastal and marine areas by 2020.

The current proposal considers only <5% of the SEMPFA area as Type I MPAs/ Marine Reserves. The proposed Type II MPAs may be managing or restricting some fisheries through regulations made under the Fisheries Act 1996. However, I am concerned that current discussions could lead to management decisions that may not provide sufficient protection for them to be considered a true MPA. Destructive and unselective fishing methods including setnetting must be banned in all the proposed Type II MPAs.

The current proposal does not consider important taonga species including penguins and Hector's Dolphins that require larger protected areas to safeguard their populations. Non-the-less, I am generally supportive of any meaningful MPA, and often a small MPA is better than none at all.

Along with many other submitters, I wish to see the proposals implemented as soon as possible, not only because the public are losing faith in the length of the process but to reduce the risk that the reserves may be targeted and over exploited prior to their legal establishment. This would severely retard their recovery and delay the expected benefits from the marine reserves.

In this submission, I will focus my feedback on those areas that would greatly benefit from expanding current boundaries and/or enhancing protection measures.

### *The six Marine Reserves*

#### **1. Waitaki Marine Reserve (B1)**

The Waitaki River mouth is an ecologically important marine habitat that deserves better protection than what would be achieved with the current proposal. The suggested seaward boundary of 10km (5.36nm) means that the proposed MPA barely extends beyond current fishing restrictions (such as the 4nm set net ban).

**The area off the Waitaki River mouth out to 12nm and north following the currents is a significant foraging site for seabirds and marine mammals and needs to be protected.**

Particularly, the important Oamaru Blue Penguins, Yellow-eyed Penguins and Hector's Dolphins rely on this area for food.

The endangered, endemic Yellow-eyed penguin regularly gets bycaught in commercial fisheries operating in the area north and east of the Waitaki River mouth and outside of the currently proposed MPA (compare CSP reports).

In addition, the commercially and ecologically important Oamaru Blue Penguin colony is situated south of the proposed MPAs. There is considerable overlap between commercial setnetters and Little Penguin foraging hotspots immediately East of Oamaru. Considering the risk of bycatch mortality for pursuit diving species **an ecological and commercially sensible MPA will include the main foraging areas of Little Penguins off Oamaru.**

Given the importance of the Waitaki coastal and offshore area for protected species any negative interactions with commercial fisheries need to be managed and mitigated. This is best achieved through the expansion of the current proposal.

Thus, **I strongly encourage expanding the currently proposed MPAs out 12nm and 16nm both north and south of the Waitaki River mouth** to safeguard protected species at this important feeding area. As a minimum, this area should be covered by a Type II MPA to reduce fisheries impact.

#### **2. Te Umo Koau Marine Reserve (D1)**

As far as I can see, this is the only site that would protect (half!) of a deep reef. I strongly recommend **including the entire reef into the proposed Te Umo Koau Marine Reserve** and expanding protected deep reef habitat. A second site including such habitat will be required.

The Fisheries New Zealand estimate that 20.7% of the catch in CRA7 (the quota management area within which this site falls) occurs in this area needs to be validated. Only

12.6% of the fishing habitat would be affected by the proposed marine reserve, thus, the stated impact appears to be an overestimate.

### 3. Papanui Marine Reserve (H1) – Otago Peninsula

The Otago Peninsula is an important stronghold for a number of protected species. Surrounding seas are hugely diverse ranging from shallow reefs to bryozoan beds and deep sea canyons. This productive marine environment offers essential foraging hot spots for both marine mammals and seabirds. No wonder, Dunedin prides itself as the “wildlife capital” of New Zealand.

**The seas surrounding the Otago Peninsula are the least important areas for the commercial fisheries across the entire South East Marine Planning Area.** Why not take a bold step and commit to a meaningful MPA that includes more than the proposed areas?

The Papanui Marine Reserve would have considerably more benefit if it were extended all the way to the shores of the Otago Peninsula. **Ideally, it will be part of one large comprehensive marine reserve around the entire Otago Peninsula connecting with the proposed Ōrau Marine Reserve (see below) and out to 12nm.** At a minimum, please implement a Type II MPA to ban destructive fisheries including setnetting and bottom trawling around the Otago Peninsula.

### 4. Ōrau Marine Reserve (I1) – Otago Peninsula

The MPA in its current coast hugging boundaries from Harakeke Point to White Island will be **famously protecting Dunedin City’s sewage plume where little fishing takes place anyway** – an international embarrassment.

**The Otago Peninsula is a population stronghold for the endangered and rapidly declining Yellow-eyed Penguin.** If this decline continues unabated, even the most conservative population models predict local extinction of this emblematic species within our lifetime<sup>1</sup>.

As previously discussed and evident from SeaSketch as well as more recently provided maps, **the MPAs currently proposed around the Otago Peninsula will not include any important Yellow-eyed Penguin foraging hotspots.**

A meaningful MPA requires **extending the proposed area out to 12nm** and ideally linking it to the MPA proposed at the tip of the Otago Peninsula to benefit the region as a whole. A comprehensive MPA protecting meaningful areas off the Otago Peninsula will put Dunedin truly on the map as the wildlife capital of New Zealand.

### 5. Okaihae Marine Reserve (K1)

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<sup>1</sup> Mattern, T., Mayer, S., Ellenberg, U., Houston, D.M., Darby, J.T., Young, M., van Heezik, Y., Seddon, P.J. in review. Quantifying climate change impacts emphasises the importance of managing regional threats in an endangered species. <http://biorxiv.org/content/early/2016/07/29/066696>

I fully support the proposed Marine Reserve around Green Island and encourage extending it further. Ideally, this will be connected to a more comprehensive marine reserves system around the Otago Peninsula.

**6. Hākinikini Marine Reserve (M1) - Full support!**

*The five Marine Protected Areas*

**1. Tuhawaiki (A1) - Full support!**

**2. Moko-tere-a-torehu (C1) - Full support!**

**3. Kaimata (E1) - Full support!**

**4. Whakatorea (L2) - Full support!**

**5. Tahakopa (Q1) - Full support!**

**6. What happened to Tautuku?**

The Tautuku estuary has experienced little human disturbance in the past and as a result is uniquely pristine, surrounded by native lowland podocarp forest and a protected wetland. The estuary is an important nursery area and stopover site for migratory shorebirds. I strongly support the protection this small treasure for future generations.

I support the use of the estuary for Kāi Tahu cultural purposes and environmental education. I do agree that set and fyke netting should be prohibited in the estuary. I encourage to also restrict spearfishing and recreational line fishing at Tautuku estuary. I applaud the Forum's suggestion to allow hand-gathering only in this previously proposed Type 2 reserve.

**Arai Te Uru (T1) Bladder Kelp Area**

I fully support the proposed kelp protection area. Kelp forests provide important nursery grounds for many species including crayfish, blue cod and butterfish. They are impacted by anthropogenic changes to the environment resulting in stronger and more frequent heat waves and increased river sediment load. Setting aside areas that cannot be harvested will help protect this important habitat.

Please don't hesitate to get back to me should you like to further discuss Marine Protected Areas in South East New Zealand. I would be happy to expand on my recommendations.

Kind regards,

**Ursula Ellenberg, PhD**

**From:** [Kane Fleury](#)  
**To:** [SEMP](#)  
**Subject:** Otago Museum SEMPA submission  
**Date:** Friday, 31 July 2020 12:35:20 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)  
[image006.png](#)  
[SEMPA submission\\_OM.pdf](#)

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Kia ora,  
Thanks for the opportunity to submit an application.  
Please see the attached submission on behalf of the Otago Museum.  
Thanks.

## KANE FLEURY

**Assistant Curator, Natural Science**  
**OTAGO MUSEUM**

s9(2)(a)

419 Great King Street, Dunedin 9016, New Zealand



This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system sender.



Proposed South eastern South Island marine protection network  
Department of Conservation and Fisheries New Zealand  
Conservation House  
PO Box 10420  
Wellington 6143  
New Zealand

Dear Minister of Conservation and the Minister of Fisheries

**Re: Proposed South eastern South Island marine protected areas consultation document August 2020**

The South eastern coast of the South Island has a high diversity of habitat types and bathymetry which provides resources for a wide variety of distinct species, among them are several critically endangered species iconic to Southern New Zealand. The Otago Museum appreciates the considerable effort that has gone into the planning and submission process in order to establish marine reserves around New Zealand in line with the Convention on Biological Diversity of which New Zealand is a signatory. We would like to acknowledge that this has not been an easy path to get to this stage in the process, but we are glad it is here. It is vitally important that future generations are able to experience and enjoy the marine environment and witness the diversity of the megafauna found off our coast, rather than a future where the only place people can see these animals is in our museum galleries.

The Otago Museum fully supports the establishment of all the type 1, type 2 and the kelp based marine reserves in the proposed network as outlined in the discussion document. The value of a properly implemented protection network in our region is both socioeconomic and ecological. They have the capacity to safeguard biodiversity, protect important spawning and juvenile habitat and help halt the decline of species populations. They can also help support public education about our unique marine environments and engage people in the challenges they face. A well-planned network can contribute to supporting and sustaining growth and development of ecotourism in the region.

There is a wealth of information on the benefits of marine reserves. Opportunities to support research to better understand direct and indirect environmental effects and reserves that are easily accessible can be used as teaching tools to demonstrate the diverse range of natural history off the coast.

We have one concern with the current proposed network however. It is unclear why some marine reserves that were consulted on previously and were in the recommendations to the Minister from the forum as network 1. This recommendation was supported by environment, tourism, community and science sectors have not been incorporated into the current document submitted for consultation. The reserves in questions are the Irihuka/Long Point reserve and the offshore region as well as the region offshore from the Taieri Mouth reserve. These areas are important for the

protection of species that are currently critically endangered like the yellow eyed penguins who forage up to 20km from shore. The Long Point reserve is in an area that would be used by the penguins of the Catlins. Such a reserve would significantly enhance efforts to conserve this taonga species. The Otago Museum strongly supports these marine reserves as critical components in forming an integrated network that links Timaru to Waipapa Point. The current proposal does not adequately address this issue. Furthermore, the establishment of this network should not close the door on any further protection along the South Islands south eastern coast.


In the following sections we provide some general evidence that supports the establishment of all the reserves as proposed. We do not critique individual reserves as we strongly support the implementation of all of them and support the benefits and impacts that were outlined in the consultation document.

We also look forward to future announcements concerning further developments of more marine reserves in the South that ensures an integrated network of protected areas for all new Zealanders.

Thank you for the opportunity to submit feedback on the proposed plans.

Yours sincerely,

s9(2)(a)



Dr Ian Griffin Ph.D. CRSNZ

International Fellow of the Explorers Club of New York

**Director, Otago Museum**

The Otago Museum supports marine reserves because:

- They can safeguard biodiversity
- They can protect important spawning and juvenile habitat
- They can support marine research for better understanding and future decision making.
- They can help halt the decline of species populations
- They can be used for education about the marine environment
- They can boost the ecotourism potential of Dunedin and the Otago region

#### **General submission points**

##### Safeguard Biodiversity

- We support the goal of habitat protection and preservation of biodiversity through a network of no take Marine reserves (Type 1 MPAs) over other customised Marine protection areas (Type 2 MPAs).
- To safeguard biodiversity and to halt the declines of rare and common species populations it is recommended that MPA areas cover greater than 30% of marine areas. This is greater than the UN's globally adopted Convention on Biological Diversity coverage target for marine protected areas. An area less than 30% will be insufficient to protect biodiversity, preserve ecosystem services, and achieve socioeconomic priorities (Bethan et.al. 2016).
- For MPA's to be effective once established, they need to be well resourced for rule enforcement, and community support needs to be established to report any people breaking the rules.
- All species are taonga species. Each species alive today represents millions of years of evolutionary successful lineages. All life on earth is related.
- Base the reserves not on the displacement of fisheries but reserves that will have the greatest benefit for the biodiversity and abundance of animals and algae.
- All indiscriminate fishing methods (e.g. set netting), marine farms and mining should be prohibited in all of the MPAs.

##### Halt the decline of species populations

- No take marine reserves offer the only protection for species from direct human impacts.

- Larger reserves are more beneficial for the protection of mobile open ocean species. (Edgar et. al, 2014). All reserves should be extended to 12 nautical miles. This would increase the protection and available space which will create some safe foraging areas for key coastal species.
- Partial take MPAs can be counterproductive and can increase the fishing pressures within reserves. Partial take MPAs can attract an increase in recreational fishing efforts and lead to a similar loss of biodiversity as unprotected areas (Lester and Halpern 2008, Williams et.al 2006).
- Coupled with the establishment of the Marine protection network, there should be a decrease in all recreational bag limits and commercial quotas along the south east coast to ease the intensification of fishing effort on a smaller area of available coastline.
- Support a total set net ban along the Southeast coast of the South Island.

#### Protection of important spawning and juvenile habitat.

- A network design would need to encompass a sufficient area to allow for source and sink population dynamics (Pulliam 1988).
- MPAs can have a generalised spill over effect for fishing with bigger migratory animals moving outside of the reserves and enhancing surrounding fisheries (e.g. Goni et al. 2010).
- Increases in adult populations within reserves can increase the larval replenishment of areas adjacent to the reserves (Harrison et al. 2012).

#### Support marine research for informed future decision making

- Within no take marine reserves fish populations can recover to more normal levels. This allows them to be utilised as reference sites to study natural variation and abundance and as a control site to better understand non-fishery effects, such as sedimentation, contamination, ocean warming and acidification. Along the South East coast, no control sites currently exist to help to build data to understand how our marine environment is being affected by direct human impacts.
- It is important to remember that beneficial effects take time. The most productive no take marine reserves are over 10 years old (Edgar et al 2014). There are great learning and research opportunities in tracking and understanding ecological recovery in our region.

#### Provide education about the marine environment

- People have a limited frame of reference for what is 'natural'. Marine reserves provide a more accurate reference for people to learn and appreciate.
- We encourage the establishment of reserves that are easily accessible and close to towns and cities where more people can visit and learn from them. Many of the currently proposed sites within in the network are hard to access and remote. Access not only affects education potential but the ability to police and conduct monitoring research.

#### Boost ecotourism

- Marine reserves attract tourists, both locally and internationally (Race 2011).
- Ecotourism is an important part of the tourism for the city and the marine environment is crucial to this. Estimates from a decade ago state that ecotourism on the Otago Peninsula was worth \$100 million annually to Dunedin (Tisdell 2007). This is likely to be far higher now. Despite the effects of COVID-19 on international tourism, investment in the promotion of the region's unique ecotourism identity continues.
- A diverse range of species including a number of rare species create an important point of difference from other coastal regions of New Zealand. Key to developing this industry is a functional and abundant marine ecosystem (Dickey 2005).
- There is some evidence that fish behaviour changes within marine reserves, losing their fear of people, they become more residential compared to fish outside reserves and some species reclaim shallower habitats (Ballantine 2014). These could increase the experience for ecotourists and public visitors.

### 3.2 Costs and benefits of the overall network

#### *Option 1: Maintaining the status quo, no protection provided*

##### *Question:*

*Do you agree with our initial analysis of the effects of maintaining the status quo? If not, why not?*

*Please provide evidence to support your answer.*

*Are there other benefits or impacts that have not been described here?*

The Otago Museum agrees with the initial analysis of maintaining the status quo but would like to add that maintaining the status quo would also fail to provide some protected areas for threatened species that live around the Otago Coast. Further, maintaining the status quo would fail to increase fish stocks that some of those species depend upon for survival. Examples of local vulnerable species are the Hoiho, Otago shag, Northern Royal albatross, Southern Royal Albatross, Titi, Fairy Prions, New Zealand sea lion, Hector's dolphins and the many rare whale species that occur off the South

East Coast of New Zealand, all of which are listed as data deficient, as well as all the other seabirds which occur off our coast.

*Option 2: Establishing the proposed network*

*Questions*

*Do you agree with this initial analysis of the effects of establishing the network? If not, why not?*

*Please provide evidence to support your answer.*

Yes, we agree with the initial analysis of the benefits and effects of establishing the network. We do however question the intent of the statement;

“Together, the proposed MPAs and kelp protection area represent marine habitats of the south-eastern South Island from Timaru to Waipapa Point with varying depths, exposures to weather, currents and tides, and physical characteristics.”

We believe there is a lack of nearshore or offshore MPAs south of Akatore Creek. We would suggest that the reserves that were removed from the earlier submission should be returned/added to the current proposal. We note in particular the reserves off Long Point and Taieri Mount. As it currently stands current proposal cannot be called a network that extends all the way to Waipapa Point as most of the Catlins is missing.

Consideration should also be given to the long-term benefit for fisheries from spill-over of fish and target species from with the reserves. As shown in some fisheries abroad, such spill-over can more than offset the decrease in allowable fishing area due to higher catch per unit effort from the surrounding areas (eg, Goni et. al. 2010).

*Are there other benefits or impacts that have not been described here?*

We believe that the initial benefits and impact list has been very accurately covered however the benefit of ecotourism in the area has been left off. We would like to see ecotourism included as this is a key motivation for people to come to this part of New Zealand and is a potential revenue stream that had the potential to offset the loss to communities through reduced fishing quotas.

Also missing are the long-term effects of establishing a connected MPA network along the coast which will have spill over benefits in areas that will continue to be fished. this will ensure a more resilient coastal wide ecosystem.

*Please consider the stated costs and benefits described above. What changes to the network would you like to see? Why? Please provide evidence to support your answer.*

Considering the costs and benefits to the area and the biodiversity goals of establishing marine reserves we are highly disappointed to see a lack of MPAs proposed South of Akatore Creek, other

than the two estuarine habitats. We would prefer that a proper network is established down the whole South East Coast so that the MPAs could be linked from Timaru to Waipapa Point.

*What is your preferred option, the status quo or the network? Why?*

The Otago Museum strongly supports the establishment of an MPA network along the South East Coast of the South Island. We believe the benefits strongly outweigh the risks and impacts as long as manawhenua are properly engaged in the process as per the Treaty of Waitangi and all parties have a focus on what is best for Aotearoa in the long term rather than focused on short-term losses.

Option 2 to establish MPAs along the South East Coast of New Zealand is our preferred option and we support the implementation of all of the whole network as it is planned. We also hope that in the future more MPAs, Mataitai and Taiapuri can be added to extend the network all to Waipapa Point.

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**From:** [Toni Smith](#)  
**To:** [SEMP](#)  
**Subject:** Submission on Proposed South East Marine Protection Area  
**Date:** Monday, 3 August 2020 9:16:57 AM  
**Attachments:** [image001.png](#)

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Toni Smith

s9(2)(a)

I have been part of the fishing community in the Otago area for 30 years.

Currently we are owner operators with CRA7 quota interests and employing three crew supporting 4 families and a major client of the related marine industries within the local community.

I am submitting as a family member of a Commercial Fisherman.

**I do NOT support the SEMPA Proposal.**

I fully support the concept of marine reserves to protect marine bio-diversity and enable the general public access to a pristine marine environment.

I believe the reserves can be set with less financial impact on the commercial fisheries and associated communities and industries.

Particularly marine reserve D1 Te Umu Koau. This reserve should be scaled back to D2 (inshore). The displaced fishing effort to the remaining CRA7 areas will negatively impact the whole CRA7 area.

It is too simplistic to assume the CRA7 TACC can be caught elsewhere as here is little reef area in the Otago Cray management area.



**Email:** s9(2)(a)

s9(2)(a)

**Ant's Mobile:** s9(2)(a)

**Toni's Mobile:** s9(2)(a)

**From:** [Toni Smith](#)  
**To:** [SEMP](#)  
**Subject:** Submission on Proposed South East Marine Protection Area  
**Date:** Monday, 3 August 2020 9:16:38 AM

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## **Port Chalmers Fishermen's Co-operative**

### **Submission**

The Port Chalmers Fisherman's Co-operative Society has been involved in supporting the local Otago Fisheries for 111 years.

#### **We are opposed to the SEMPA as proposed.**

Since March 2014 we have supported the MPA and approached the forum discussions in an open manner with the intention of arriving at a satisfactory compromise with the different views and needs of the Otago community. Clearly other members of the forum were not prepared to compromise at all.

We support the forum's network 2 proposal.

We are absolutely opposed to the Te Umu Koau reserve as a high percentage of the CRA7 catch comes from this area. Any displaced fishing effort will put the entire CRA7 fishery under pressure.

It will result in high costs to catch fish and loss of fishing jobs and revenue to downstream industries in the local committee.

**From:** [SEMP](#)  
**To:** [SEMP](#)  
**Subject:** FW: Submission - South East Coast South Island Marine Protection network  
**Date:** Monday, 3 August 2020 10:01:14 AM  
**Attachments:** [29.7.20 Submission Marine Protection Network.pdf](#)

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**From:** SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)>  
**Sent:** Monday, 3 August 2020 9:59 am  
**To:** [semp@doc.govt.nz](mailto:semp@doc.govt.nz)  
**Subject:** RE: Submission - South East Coast South Island Marine Protection network

OCR version

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**From:** Jared Bothwell [s9\(2\)\(a\)](#)  
**Sent:** Monday, 3 August 2020 9:07 am  
**To:** SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)>  
**Subject:** FW: Submission - South East Coast South Island Marine Protection network

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**From:** Lauren Bland [s9\(2\)\(a\)](#)  
**Sent:** Monday, 3 August 2020 8:28 am  
**To:** Jared Bothwell [s9\(2\)\(a\)](#)  
**Subject:** FW: Submission - South East Coast South Island Marine Protection network

Kia ora Jared,

Please find attached email submission for SEMP.

I have another hard copy submission coming your way as well

Lauren


---

**From:** Kirstie Knowles [s9\(2\)\(a\)](#)  
**Sent:** Monday, 3 August 2020 6:37 AM  
**To:** Rebecca Bird [s9\(2\)\(a\)](#); Lauren Bland [s9\(2\)\(a\)](#)  
**Cc:** Lynn Hansberry [s9\(2\)\(a\)](#)  
**Subject:** FW: Submission - South East Coast South Island Marine Protection network

Another SEMP submission randomly coming our way.....

**Kirstie Knowles**

Manager Marine Ecosystems – *Kaimātanga Mātai Ahu Moana*  
Aquatic Unit, Biodiversity Group – *Kāhui Kanorau Koiora*  
Department of Conservation – *Te Papa Atawhai*

 [s9\(2\)\(a\)](#)

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**From:** Marine <[marine@doc.govt.nz](mailto:marine@doc.govt.nz)>  
**Sent:** Friday, 31 July 2020 9:47 a.m.  
**To:** Kirstie Knowles s9(2)(a)  
**Subject:** FW: Submission - South East Coast South Island Marine Protection network

Hey Kirstie,

Not sure who is collecting these.

Cheers,

**Hannah Hendriks**  
Marine Technical Advisor  
Department of Conservation - *Te Papa Atawhai*  
Phone: s9(2)(a)

---

**From:** Enquiries <[enquiries@doc.govt.nz](mailto:enquiries@doc.govt.nz)>  
**Sent:** Thursday, 30 July 2020 10:35 a.m.  
**To:** Marine <[marine@doc.govt.nz](mailto:marine@doc.govt.nz)>  
**Subject:** FW: Submission - South East Coast South Island Marine Protection network

Good Morning,

May I leave this with you.

Regards,

Enquiries  
Department of Conservation - *Te Papa Atawhai*  
Ph +64 4 471 0726

**Conservation for prosperity *Tiakina te taiao, kia puawai***

---

**From:** Niall Watson s9(2)(a)  
**Sent:** Thursday, 30 July 2020 10:33 AM  
**To:** Enquiries <[enquiries@doc.govt.nz](mailto:enquiries@doc.govt.nz)>  
**Subject:** Submission - South East Coast South Island Marine Protection network

Please pass this submission on South Island South East coast marine reserves on to the appropriate person. There is a hard copy coming by courier.

Thanks

Niall Watson  
Otago Fish and Game Council

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29 July 2020

Director General of Conservation  
Department of Conservation  
Conservation House  
PO Box 10420  
WELLINGTON 6143

## **Submission on proposed southeast marine protection network**

### **1. Otago Fish and Game Council Responsibilities**

Otago Fish and Game Council (Fish and Game) is the statutory manager of sports fish and game birds within Otago Fish and Game Region the seaward boundary of which extends from Shag Point in the north to the Brother Point in the south.

Fish and Game has functions and responsibilities defined under the Conservation Act 1987 and the Wildlife Act 1953 and it operates in accordance with the 'Sports Fish and Game Management Plan for Otago Fish and Game Region' a statutory plan prepared under the provisions of the Conservation Act and approved by the Minister in 2015.

Sports fish (including trout, salmon and perch) are defined in Schedule 1 of the Freshwater Fisheries Regulations (1983) and game birds (including introduced mallard ducks and indigenous shoveler duck, pukeko, black swan and paradise shelduck) are defined in Schedule 1 of the Wildlife Act

Anglers and hunters require a licence to fish or hunt for these species and are required to abide by conditions of use including daily bag limits, season lengths, and method restriction. Conditions are monitored and enforced by Fish and Game Council staff and rangers and populations are monitored for sustainability.

### **2. Proposed Marine Protection Network**

The proposed southeast marine protection network, involving six marine reserves and five type 2 marine protected areas (MPAs), adjoins Otago Fish and Game Region except for the Waitaki Marine Reserve which is in Central South Island Fish and Game Region. Te Umu Koau Marine Reserve includes Pleasant River Estuary and Stony Creek Lagoon and so overlaps with Otago Fish and Game Region. These are the only two estuarine areas included in the six proposed marine reserves.

*Statutory managers of freshwater sports fish, game birds and their habitats*

**Otago Fish and Game Council**

Cnr Hanover & Harrow Sts, PO Box 76, Dunedin 9054, New Zealand. Telephone (03) 477 9076  
[www.fishandgame.org.nz](http://www.fishandgame.org.nz)

### 3. Existing Wildlife Reserves Protecting Estuaries

There are already a number of other Crown reserves on the southeast coast protecting estuarine areas and coastal lagoons either through wildlife management reserve (WMR) or wildlife refuge (WR) status namely:

- Little Hoopers Inlet WMR, Otago Peninsula – NZ Gazette 1976, page 208
- Allans Beach WMR, Otago Peninsula – NZ Gazette 1984, page 3386
- Tomahawk Lagoon WR, Dunedin– NZ Gazette 1970, page 2006
- Hawkesbury Lagoon WR, Waikouaiti – NZ Gazette 1976, p208
- Merton Tidal Arm WMR, Karitane – NZ Gazette 1980, p311

Estuaries and coastal lagoons are at risk mostly from land use impacts – land drainage, reclamation and catchment wide siltation and nutrient enrichment . Existing WMRs and WRs should be considered as part of a wider reserves or protected area network beyond that provided for under the Marine Reserves Act or the Fisheries Act

### 4. Impact on sports fishing and game hunting.

It appears there is an intention to prohibit trout fishing as part of any prohibition on recreational fishing in MPAs and the discharge of firearms is prohibited within Marine Reserves which would prevent game bird hunting by licenced hunters. Otago estuaries are used traditionally by game bird hunters during the game season (May to August each year).

Fish and Game considers that the establishment of the marine protection network should not impinge on management of those species or on the activities of licenced anglers and hunters unless it is absolutely necessary for the protection of marine species or marine environments. This issue primarily relates to estuarine areas including river mouths where Fish and Game already maintains a compliance monitoring and enforcement presence.

There is a real need for some flexibility in the establishment of the marine protection network in this respect

### 5. Te Umu Koau Marine Reserve

This reserve includes two estuarine areas:

**Stony Creek Lagoon** - the use of the lagoon for duck shooting has been a longstanding family tradition for one family group spanning at least three generations since 1946 (refer submissions from s9(2)(a) and s9(2)(a)). Protection of the area should accommodate continued hunting because game bird hunting poses no risk to the marine environment.

**Pleasant River Estuary** – Game bird hunting also has a long history in Pleasant River Estuary according to adjacent landholder s9(2)(a) who hunts there each year and fishes for trout as well and has done all his life

If existing recreational hunting and trout fishing can't be accommodated within Marine Reserve then Wildlife Management Reserve (WMR) status should be used for the lagoon and estuary area identified for protection. Clearly WMR management can be dovetailed with marine protection network aims and objectives.

## **6. Wildlife Causing Nuisance**

Fish and Game routinely receives complaints from landholders about control of game birds and unprotected wildlife (geese) causing nuisance with crops and pasture. This occurs intermittently north of Dunedin at Waikouaiti, Hawkesbury Lagoon, Pleasant River Estuary and Shag valley. Actions taken to address complaints can range from authorising bird scaring through to culling with the use of shotguns. It is important to ensure that control activities are not impeded by establishment of the marine protection network.

Again use of WMR status would be more accommodating than marine reserves in enabling such management activities in estuaries.

## **7. Summary and Recommendations**

7.1 There is an overlap in responsibilities between statutory agencies responsible for marine protection (DOC, FNZ) and Otago Fish and Game Council in the Southeast coastal area. Clarification of the potential impact of marine reserves and MPAs on sports fishing and game hunting is required. The marine protection network should not impinge on those activities unless there is a need to do so in protecting marine resources.

7.2 Marine Reserves and Marine Protected Areas appear to lack flexibility in accommodating existing sports fishing and game bird hunting activities some of which are longstanding

7.3 Wildlife Management Reserve status is already used to protect coastal lagoon and estuarine areas as outlined above. WMR status can accommodate continued hunting and trout fishing and should be considered as an alternative for Stony Creek Lagoon and Pleasant River Estuary currently included in Te Umu Koau Marine Reserve area.

7.4 Wildlife Management Reserve Status can also accommodate management of wildlife causing nuisance to adjacent farming interests.




7.5 There are longstanding traditions of game bird hunting at both Stony Creek Lagoon and Pleasant River Estuary which should not be displaced through marine protection initiatives when there are viable alternatives such as WMR status

## 8. Hearings

The Council wishes to heard heard in support of this submission if public hearings are held

Yours faithfully

s9(2)(a)



Ian Hadland  
Chief Executive

17-7-2020

Proposed Southeast Marine Protection Network,  
Department of Conservation,  
Conservation House,  
P. O. Box 10420,  
Wellington 6143.

If any of these M.P.I. areas do go ahead it will need a clause that if Maori want any part of it for a mataitai in the future then that will be available.

The reason for this is that our people gave up doing applications for mataitai, not because of legislation, but because of a paper that we call The Prevent test, and the Ministry are still using it.

This could have been dealt with long ago but we still hope that it can be dealt with around a table as partners rather than us taking other action.

For and on behalf of those who worked for the Crown and for Maori for the fisheries settlement.

Graham Metyger

Customary Fishing Regulations go back to the time when the Government decided to take control of fishing using a method where an amount of quota would be set by them for each species of fish, and in that way control fisheries in a sustainable way.

This upset Māori who had always believed that with the signing of the Treaty of Waitangi, they had retained the ownership of all fish for their food!

Government disputed this, and so it was taken to a Court of Law.

The ruling was that all fish were the property of Māori, they were all Customary Fish.

Government tried to turn this over with appeals and other Court hearings, but always lost.

Government then agreed that they would manage the fisheries in a way that would guarantee Māori all the fish they would ever need for food, and also recognized that the partnership had a Commercial Fishing component that was dealt with through the Sealord Deal.

Legislation was formulated, known as the South Island Customary Fishing Regulations, to ensure kaimoana, or seafood, would always be available for Māori. This legislation had precedence over all other fisheries legislation, and was never to be touched in any way except with agreement with the Māori people concerned, the Tangata Whenua, the people of the land, and it was agreed that this legislation belonged to Māori, and could not be changed with a change of Government, or for any other reason.

Fisheries Officers' who were here at the coal face when they and Māori worked together like partners and knew what had been agreed in the Ngāi Tahu Settlement were respected.

If there was a proposed change to be made to the fisheries that concerned a Marae they would meet with them and discuss it as had been agreed, but as staff retired and were replaced by younger ones who it seemed were never given a copy of the Settlement or given any training at all, instead of everyone being in tune things started to change.

Instead of both parties meeting, Wellington would send a letter to say what they were going to do. They called that consulting. Māori called it insulting.



Ministry of  
**Fisheries**

Te Tautiaki i nga tini a Tangaroa

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# Customary Fishing Information Manual

*PRINTED IN 2009 - WHAT HAVE WE NOW RETAINED  
FROM WHAT IS ON THE NEXT PAGE?*

## **Treaty Strategies**

### **Obligations to Māori**

Ensure the Crown delivers on its obligations to Māori with respect to fisheries by:

Implementing its partnership obligations

Establishing and maintaining effective relationships

Developing frameworks and process to implement the 1992 Fisheries Deed of Settlement

Ensuring contemporary grievances are not created

### **Working Together**

The support and active participation of all those with an interest in fisheries resources and the aquatic environment is vital to the successful pursuit of our vision. Everyone has a role to play and our success will depend on strong productive relationships. This includes the Ministry of Fisheries, other central and local government agencies, Tangata Whenua, Stakeholders and the public.

### **Tangata Whenua and Stakeholders**

The role of Tangata Whenua, fisheries stakeholders and the public is to:

- Provide input and participate in government decision-making processes on:
  - Policy and legal frameworks
  - The nature and extent of fisheries and marine bio security services
- Comply with the rules
  - Take greater collective responsibility for meeting the purposes and principles of the Fisheries Act 1996 through;
    - Developing and implementing fisheries plans that meet government standards delivering fisheries services to government standards and specifications

### **Meeting Treaty of Waitangi Obligations**

- Involve Māori in fisheries management decision making
- Deliver 30 per cent of new quota to Māori
- Provide for and protect customary fishing rights

### **Why Customary Regulations are Important**

- The goal of this work is compliance for sustainability
  - Ensuring the fisheries are available for future generations
  - Utilising the fishery to sustain cultural practices
  - Taking steps toward partnership with Tangata Whenua
  - Preventing abuse of natural resources
- Customary regulations offer taking and management regimes

- Treaty of Waitangi – These regulations have been developed as a result of TOW (Fisheries Claims) Settlement Act.

### **Existing Policies to be Continued**

We will:

- Maintain the integrity of the management frameworks, statutory processes, decisions and services that underpin the Fisheries Deed of Settlement with Māori
- Consult with Tangata Whenua on the management of marine bio security risks
- Allocate 20 per cent of new individual Transferable Quota to Māori
- Facilitate the input and participation of Tangata Whenua in fisheries management processes
- Work with Tangata Whenua and their representatives to enable all customary fishing to be conducted under customary fishing regulations
- Implement the Ministry of Fisheries strategy for meeting obligations to Tangata Whenua
- Recognise customary use, conservation and management practices.

### **Existing Policies to be Developed**

We will:

- Help identify mātaihai and taiapure areas
- Review and improve the framework and processes related to implementing the Fisheries Deed of Settlement with Māori
- Apply Treaty principles to the development of all new policy advice.

### **Compliance Support for Customary Regulations'**

- Important that the Tangata Kaitiaki/Tiaki receives compliance support
- Iwi and the Ministry must determine what the compliance issues are for each rohe moana
- Once the compliance issues are identified discussions will need to take place as to the best way to support the issues.

With the mātaihai areas that have been granted so far being a failure, I would like to point out some of the reasons why!

When an application is made it is usually because the present laws have made an area so stressed that we can see a complete failure coming up in the near future.

This is usually because of overfishing by commercial because of overstated quota.

The rules have been put in place (without consultation) in a way that we cannot have a species closure at the same time as the mātaihai is ratified.

By the time that is done the recreation fishers have been there and caught the last fish because once an area is declared a mātaihai, commercial cannot fish there so the recreation guys think that is the place to go.

When it was decided to make pāua a commercial fish the Ministry of Fisheries came to discuss it with the Māori people concerned and were told "there is only one way that they could see for that to be done in a sustainable way and that was to cut our coast in areas from beach to beach, with each area being tendered for by one fisher or Company". Then they would learn that groups of five or more adult pāua had to be left at least every 5 steps apart to breed just as our people had learnt over many years.

If another tribe or iwi took more than that it would probably start what the Pākehā called a Māori war between those with ahi kaa and the offenders that had broken tikanga.

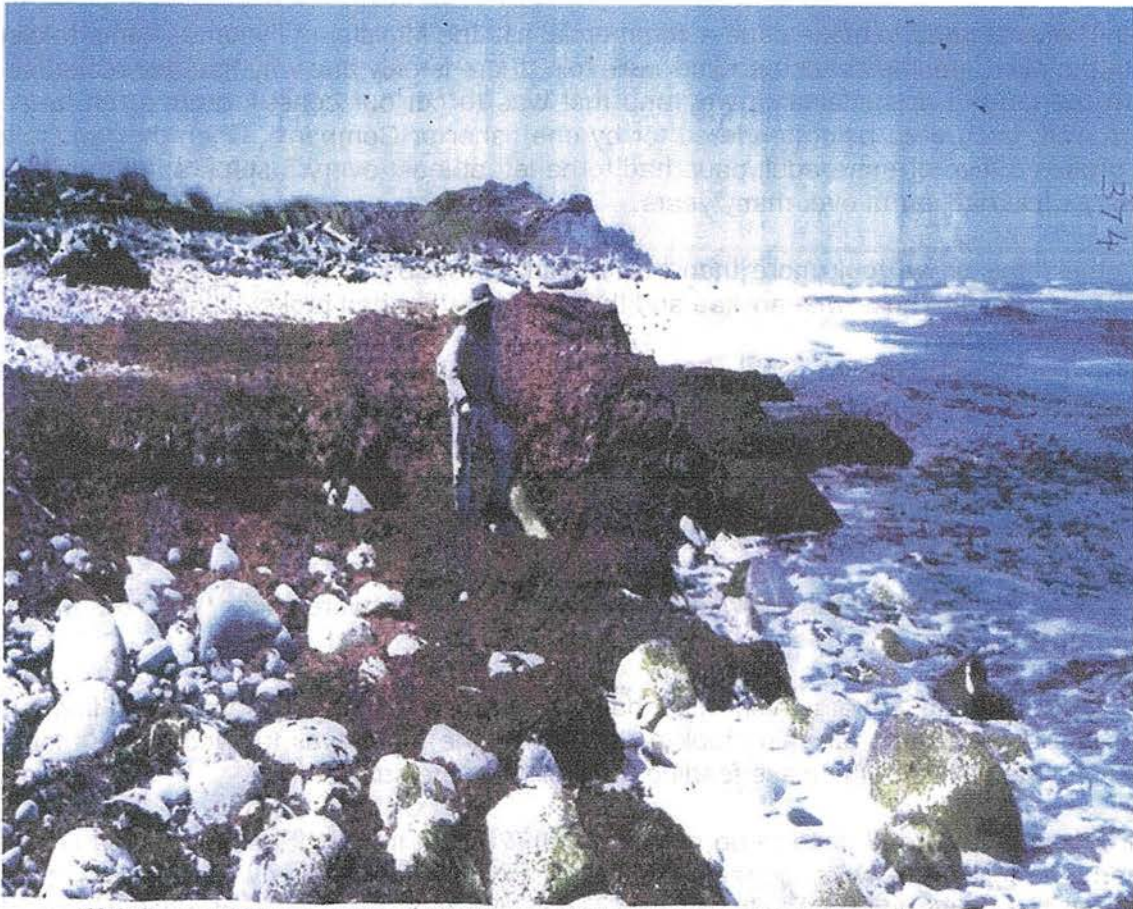
One of the Ministry people said, "We hear what you say" and away they went back to Wellington and put pāua out at so many tons for each of the huge areas that they used.

They set a minimum size for pāua which was five inches, just over the size when they start to breed, but if taken just as they reached that size and the water temperature was not right or food was not plentiful, they would be taken before they ever spawned!

As each of the young pāua grew and came of size, they were taken, so now Māori are supermarket hunters.

Many people think of pāua as a shellfish that stays stuck to a rock, but if you could find a place where there were some, and you took a torch when the moon was full and went to look you would find them all over the place feeding on their favourite seaweed.

Their favourite seaweed used to be no more than 200mm in height because pāua kept them pruned, but once there were too few pāua they grow to about 500mm which is so big they get torn from the rocks and cast ashore to rot. Tons and tons of pāua food wasted. The photo attached is about one third of that weed with the fast-growing red weed, mixed with it.



NOW THAT COMMERCIAL FISHERS HAVE TAKEN ALL THE PAUA THAT USED TO BE ALONG OUR SHORE THERE IS NOTHING THERE TO EAT THE SEAWEED PAUA USED TO KEEP PRUNED. IT NOW GROWS SO BIG IT GETS TORN FROM THE ROCKS AND GETS CAST ASHORE. ALL THOSE TONS OF PAUA FOOD WASTED, AND ALL THOSE PAUA NOT REPLACED BECAUSE THEY HAD NOT LEFT SMALL GROUPS OF MATURE PAUA TO BREED.

The huge areas that have been set are fine for most fish but when we look at shellfish they are not.

The Ministry made a law that replaced Māori lore and is never going to work.

Taking pāua by the ton from a huge area is something only people driving a desk in Wellington would think of doing.

If a pāua fisher doesn't take all the pāua from an area someone else will take it and have nothing to breed.

The next day or next week another boat will go all that way to the same place using fuel and time and there is nothing there, try and tell me that is good Management!

Also, if a pāua area does not go out beyond diving depth for some to breed out there, that area will never recover but will usually be taken over by kina.



If mātaimai and commercial fishing areas had been decided around our coast right from the start it would have worked along the lines of what Māori had learnt to do, and perhaps there could be recreation areas as well then it could have been possible to have a volunteer to issue authorisations the same as Māori have to.

Every commercial and customary fisher have to record and report their catch, but how do we know what recreation fishers catch in their ever-increasing number of fizza boats and those that pay to be taken out in a large boat?

Here at Bluff there are two of the boat ramps we see all around the country and on a good day it is not unusual to see fifty boat trailers there with an average of three fishers who can take twenty fish each but don't have to report it.

A few mātaimai areas were granted for a start but then a great number of traditional areas were not bothered with. Why was that?

On the 21<sup>st</sup> April 2005 the Ministry of Fisheries developed a paper they called the Process Standards for Assessing Mātaimai Reserve Applications, without even sending a letter to say so, let alone meeting with those concerned.

A commercial fisher gave us a copy on the 26<sup>th</sup> May 2006 and that was the first we knew of it. Our people would have been happy with a good portion of it, but there was enough others to prevent us from getting a mātaimai so that is what our people called it, The Prevent Test, with a lot calling it an up to date injustice to replace some of the old ones in the Treaty.

Māori have never wasted time trying to get any of the traditional fishing areas because of that, and the South Island East Coast got worse and worse until Government said it will have to be fixed. The clever desk drivers got to work and spent a lot of money doing surveys to fix it with Marine Protected Areas where no fish could be touched and the over abundant seals were so glad they would have it all to themselves and fishers have none.

Ngai Tahu have waited a long time to see if the Prevent Test would be dealt with without a lot of fuss, but I am sure it will not be left for over two hundred years.

Fisheries Officers must get-frustrated with trying to implement policy and laws that are never going to work and result in a lack of respect, and we do hope that it is dealt with like all other things. Put a policy in place to see that it never happens again.



MINISTRY OF FISHERIES  
Te Taitiaki i nga tini a Tangaroa

Received 26 May 2006. 18 MONTHS  
AFTER DATE BELOW - FROM A COMMERCIAL  
FISHER - NOT FROM M<sup>3</sup> FISH.

**Process standards for assessing  
mātai reserve applications  
NOW KNOWN AS THE PREVENT TEST.**

DEVELOPED WITHOUT KNOWLEDGE OR INPUT  
FROM KAI TIAKI, NGAI TAHU OR THOSE CONCERNED  
NO CONSULTATION AT ALL 24 13/017

21 April 2005

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**From:** [Lyndal Heineman](#)  
**To:** [SEMP](#)  
**Subject:** Southeast Marine Protection  
**Date:** Sunday, 2 August 2020 9:35:41 PM

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## Southeast Marine protection

I object to the proposed marine protection as I don't believe it is necessary.

My brother is a second generation fisherman and has better catch rates now for most species than my father had in the past.

Polution from the land is a far greater threat than fishing and should be addressed before shutting off fishing areas.

Those who's lives depend on the oceans, financially, emotionally, recreationally, care and put more effort into helping promote and create a healthy marine environment than anyone else I've met, it is theirs and our greatest asset, taking away access to it is not the way to protect it. The best protection comes with understanding and you'll not find many who understand our coastlines better than those who are out there day in and day out.

Yours Sincerley

Lyndal Heineman

s9(2)(a)

**From:** [Tama Samuels](#)  
**To:** [SEMP](#)  
**Subject:** South East Coast Marine Proposals  
**Date:** Sunday, 2 August 2020 11:58:25 PM  
**Attachments:** [MMSouthernLogo\\_trans-emailsig\\_192b32c3-c98b-4b8c-878a-74632b13430d.png](#)

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To whom it may concern,

My name is Tama Samuel. I am registered with Ngai Tahu, I have a Diploma in Professional Scuba Instruction and I volunteer for Marine Search and Rescue. I am born and raised in Dunedin and have gathered from these waters for many of years. I am writing this as an individual, as tangata whenua, and as the founder of a spearfishing group – Dive Nation. I would like to make a submission on the establishment of the network area Orau Marine Reserve and Okaihe Marine Reserve. My preferred option is neither marine reserve but a taiapure like the one Te Runaka O Puketeraki imposed in the East Otago Area. I believe that a taiapure is the best option for all involved. I would like the catch limit to change for some species and the commercial quota lowered. I would like scientific research done by an authorised outfit to establish what is really going on in the Ocean. I am in the water as often as the weather permits (which in Dunedin may only be once a month) and I am not working. Okaihe – Green Island is abundant in kina and butterflyfish so I believe that putting a totally ban on this is unnecessary. Orau is abundant in paua. I would suggest that the harbour becomes a Marine Reserve, Aramoana or Wellers rock as they are safe places to fish and dive where beginners are able to experience the Ocean in pool like conditions. The 2 areas that I am in opposition for are only accessible by boat so I believe they aren't fished that often because of tis where as the suggested alternative options are easily accessible. I believe it is a right of mine as tangata whenua and as a registered Ngai Tahu member to gather where my ancestors have gathered. I think there has not been sufficient data gathered to reinforce the want to set such places as marine reserves, I would like to see scientific research done and made readily accessible to the public and if possible invite those who are registered to participate in the process. I gather not only for myself but many other families and if these 2 places I am in opposition to become reserves then I will be unable to gather for underprivileged families, tangi, hui, schools and much much more. I think there should also be more Kaitiaki/Rangers in and around the water as I have never met a Kaitiaki in the Otakou area however every time I have dived in the Puketeraki area I have been stopped by Kaitiaki and reminded of the restrictions in that specific area. I would be happy to put my hand up to be a Kaitiaki/Ranger for the Otakou.

I am available to talk on s9(2)(a)

Look forward to hearing from you.

Ko tau rourou ko taku rourou, ka ora e te iwi e.

**Tama Samuels** | Driving Licences Facilitator  
P:  
P O Box 2391, South Dunedin, 9044  
[www.mmsouth.org.nz](http://www.mmsouth.org.nz)



*Change that Works: Enough Support & Challenge for You to Risk a Better Future*

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**From:** [Clare Rox](#)  
**To:** [SEMP](#)  
**Subject:** Southeast marine protection  
**Date:** Sunday, 2 August 2020 10:31:21 PM

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Hi there,

I support all the proposed marine protected areas. Please make this a reality!

Kind Regards,  
Clare Roxburgh

**From:** [Carolyn Barnes](#)  
**To:** [SEMP](#)  
**Cc:** [Roger Belton](#); s9(2)(a)  
**Subject:** Southern Clams Ltd/Southern Scallops Ltd  
**Date:** Monday, 3 August 2020 10:51:14 AM  
**Attachments:** [image001.png](#)

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Department of Conservation and Fisheries New Zealand  
Conservation House  
**WELLINGTON**

Further to the call for submissions on the proposed southeast marine protected areas, I make a submission on behalf of Southern Clams Ltd. Southern Clams Ltd generally recognises the role that marine protected areas can play in fisheries conservation. It agrees in principle to setting aside areas representative of local marine habitats to enhance and conserve diverse marine species. It supports the development of a plan to achieve this, and the goal of having these areas gazetted soon.

Southern clams holds quota for several fish species, (FLA3, GUR3, HPB3, TAR3) and a shellfish species (QSC3) which are all present, and have been fished in the proposed MPAs. The interests of the commercial fin-fishers in this area have been presented by the local Federation of Commercial Fishermen, I'm sure.

It should be noted however that Queen Scallops (QSC3) have been evidently overlooked in the analysis of impacts on commercial fishing, and omitted in the consultation document. While historically there has been some catch in these areas, especially the Papanui Canyon (H1) area in the 1990s, this area has not been fished for QSC for over 15 years. Catch-rates on the edge of the continental shelf in that area have been sub-economic for some time. We consider it is therefore unlikely to materially impact on this fishery at this stage, but one never knows where fishable stock densities are to be found! At the very least it would be appropriate to acknowledge that the proposed marine reserve may impact on that fishery.

I trust these points will be taken into consideration,

Best Regards,

**Roger Belton**  
Managing Director  
Southern Clams Ltd and Southern Scallops Ltd

**Ngā mihi**

**Carolyn Barnes**  
Southern Clams Ltd  
P O Box 483 Dunedin 9054  
16 Bombay Street Dunedin 9016

s9(2)(a)

[www.nzclams.com](http://www.nzclams.com)



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**From:** [Save The Otago Peninsula Incorporated-Society](#)  
**To:** [SEMP](#)  
**Subject:** Fwd: Submission on the SE Marine Protected areas  
**Date:** Sunday, 2 August 2020 9:09:47 PM  
**Attachments:** [SE Marine Protection Submission July 2020.doc](#)

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The submission below was sent to [semp@doc.govt.nz](mailto:semp@doc.govt.nz), as one of the submission documents suggested, but we have had no confirmation of it being received and it now appears that the above is the email address it should have been sent to. Please confirm that this submission has been received.

----- Forwarded message -----

**From:** **Save The Otago Peninsula Incorporated-Society** s9(2)(a)  
**Date:** Thu, 23 Jul 2020 at 14:27  
**Subject:** Submission on the SE Marine Protected areas  
**To:** <[semp@doc.govt.nz](mailto:semp@doc.govt.nz)>

Save The Otago Peninsula Inc Soc's constitution limits the society to action on the location of Otago Peninsula, the surrounding seas and the Otago Harbour except where national policies will impact on that locality.

By sending an online submission which only comments on two/three of the proposed Marine Protection Areas (MPAs) it may appear that the Society opposes the other MPA's, so we are sending a separate submission, (attached) that makes it clear why we are only submitting on a limited subset, although our members definitely support all the proposed MPA's north and south of this area.

--

Lala Frazer  
For Save The Otago Peninsula (STOP) Inc Soc  
C/- The Secretary, s9(2)(a) New Zealand  
Lala's Contact Phone: s9(2)(a) (text only)



**From:** [SEMP](#)  
**To:** [SEMP](#)  
**Subject:** RE:  
**Date:** Monday, 3 August 2020 11:00:13 AM  
**Attachments:** [s9\(2\)\(a\)](#) [pdf](#)

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Ocr version

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**From:** [s9\(2\)\(a\)](#)  
**Sent:** Sunday, 2 August 2020 9:12 pm  
**To:** SEMP <[southeast.marine@publicvoice.co.nz](mailto:southeast.marine@publicvoice.co.nz)>  
**Subject:**

Please find attached my submission  
Kind Regards [s9\(2\)](#)

Submission on the proposed South -East island Marine Protected area

my Details

Name. s9(2)(a)  
Address. s9(2)(a)  
Email. s9(2)(a)  
telephone number. s9(2)(a)

- \* I do not wish for my name and address to be released under the official information act 1982
- \* I do not wish the commercially sensitive information that I have provided to be released under the official information act

I am writing to strongly oppose the south east marine protection proposal

I have been married to s9(2)(a) for 35 years and have been involved in the cray fishing industry for most of these years mainly on the clerical side of the fishing business  
I am joint owner and director of Nugget Bay fishing in this time I have seen many changes in fishing practices and concern for the for the future of the fishing. to implement the proposed marine reserve would send us back in time and I would not wish that on anyone we a have a good and well managed fishery in cray 7 ,as evidenced by the recent TAC increase , this fishery rely on all the available ground and for all the market demands in this day and age to change this seems futile. In my time with cray 7 I have noticed a steady increase in crayfish and this is reflected in being able to balance our books better and project the future more accurately  
.to close ground needlessly when our fishery is good and healthy is not productive to a positive future for the economy of New Zealand  
In the modern era the fisherman is always striving to look after resources and can only do this effectively with all available habitat, as market demands control landings  
I hope you take into account my honest and professional opinion when deciding not to go ahead with this proposal

s9(2)(a)

**From:** [Storm](#)  
**To:** [SEMP; FMSubmissions@mpi.govt.nz](mailto:SEMP; FMSubmissions@mpi.govt.nz); s9(2)(a)  
**Subject:** submission - SEMPA  
**Date:** Monday, 3 August 2020 10:54:08 AM  
**Attachments:** [PAUAMAC5 SEMPA submission 2020.pdf](#)

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Hi

Please find attached copy of submission to the SEMPA proposals from the paua industry organisation PauaMAC5

Any questions or follow up should be directed to

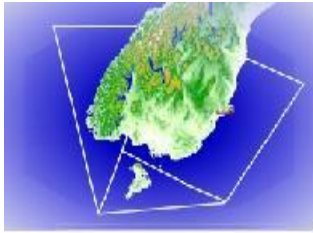
s9(2)(a)

or phone s9(2)(a)

cheers

storm stanley

chair PauaMAC5



# PauaMac5 Incorporated

**Secretary's Office**  
62 Deveron Street  
Private Bag 90106  
Invercargill 9840  
NEW ZEALAND  
Phone: 03 2113355

3 August 2020

## **Submission on proposed marine protected areas in the south-east of the South Island**

### Introduction

1. This submission on the proposed Marine Protected Areas in the south-east of the South Island (i.e., “the SEMPA proposals”) is made by PauaMAC 5 Incorporated. PauaMAC 5 represents the commercial pāua industry in PAU 5A (Fiordland), PAU 5B (Stewart Island) and PAU 5D (Southland/Otago). Our members include owners of pāua quota and ACE, as well as fishing vessel operators, processors, fish dealers and harvesters who operate in the PAU 5 fisheries.
2. PauaMAC 5 supports the sustainable use and protection of marine biodiversity in the south-east region, but we object to the SEMPA proposals in their entirety. We object to each of the proposed marine reserves, to each of the proposed Type 2 MPAs and to the kelp protection area. The proposals, if implemented, will displace recreational and commercial pāua catch which will threaten the sustainability of the PAU 5D fishery and set back its recovery by many years, if not decades. The MPAs will also exacerbate spatial conflict between customary, commercial and recreational divers in the region. These impacts are completely unacceptable given the lack of demonstrated benefits of the proposed MPAs.
3. The outcomes of the SEMPA planning process are not representative of the views of our members and we question the integrity of the process. In our view, the Department of Conservation (DOC) has pursued a prejudiced agenda of ‘maximum protection at all costs’. As a consequence of this and other procedural failings, we believe that Ministers cannot rely on the advice they have received to date on the SEMPA proposals.
4. We support in full the combined submission of the Pāua Industry Council (PIC), NZ Rock Lobster Industry Council (NZRLIC) and Fisheries Inshore New Zealand (FINZ). In this submission we focus particularly on the four proposed marine reserves which have a direct adverse effect on the sustainable management and commercial harvesting of pāua – i.e., site D1 Te Umu Koau, site I1 Ōrau, site K1 Okaihae, and site M1 Hākinikini.

## Why the PAU 5D fishery is extremely vulnerable to any spatial displacement

5. Pāua fisheries are characterised by a very strong spatial dependency because pāua are confined in distribution to a finite area of suitable reef habitat and have limited mobility in both adult and juvenile forms. Whenever an area is closed to pāua fishing, the catch that was previously taken in that area is displaced to other areas, immediately increasing the pressure on the remaining open areas of the fishery.
6. All available research indicates that the negative effects of displaced catch are not mitigated by spillover effects from the closed area. Spillover of adult pāua from MPAs is negligible as pāua move only tens of metres. Although larval pāua are more mobile, their dispersal is still primarily local in scale. Even if larvae successfully move beyond an MPA boundary, adjacent fisheries will not benefit unless the larvae successfully settle and recruit to the fishery – and that in turn depends on a range of factors such as environmental conditions and availability of habitat.<sup>1</sup>
7. The PAU 5D fishery has been rebuilding over a period of many years and is now fluctuating around its management target level of 40% Bo. The rate of rebuild has been extremely slow and has been enabled only by significant cuts to commercial catch, including a 40% TACC reduction in 2002/2003.<sup>2</sup> After this, the fishery began to rebuild gradually. However, the rebuild rate visibly declined when mātaimai reserves were established in 2008-2010. During that period, mātaimai were established at:
  - Waikawa Harbour/Tuma Toka (2008), displacing **s** tonnes of commercial pāua catch;
  - Kaka Point/Puna-Wai-Toriki (2008), displacing **s9(** tonnes of commercial pāua catch; and
  - Moeraki (2010), displacing **s** tonnes of commercial pāua catch.
8. The total commercial pāua catch displaced during this period was around **s9(** tonnes **s9(2)(b)** the PAU 5D TACC).<sup>3</sup> Fisheries New Zealand (FNZ) and its predecessor organisations did nothing to acknowledge or rectify the impact of this displacement on the sustainability of PAU 5D. The impact on stock abundance was obvious and is shown in the dramatic reversal in PAU 5D CPUE trends (an indicator of abundance) immediately after 2010 and in estimates of relative available biomass, as shown in the graphs overleaf.
9. In response to the observed decline, in 2014 PAU 5D quota owners sought to boost the rate of rebuild by shelving a further **s9(2)** of ACE and implementing additional management measures such as increasing the minimum harvest size to protect the brood stock. These measures are still in place, and the pāua industry has been forced to absorb the full cost of the displaced catch on an ongoing basis. PauaMAC 5 considers that the fishery is still in a vulnerable rebuilding phase and that it cannot sustain any further increase in harvesting pressure.

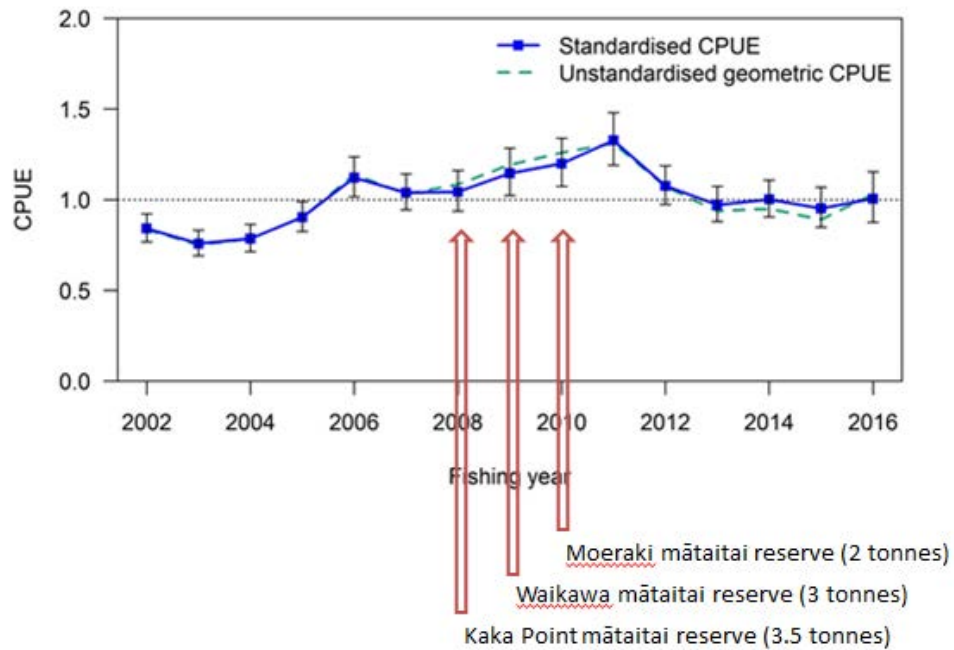
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<sup>1</sup> Wilson, O., and Middleton, D.A.J. (2015) A review of the potential for spillover / larval export of Pāua associated with MPAs. Final report prepared for the Pāua Industry Council by Trident Systems.

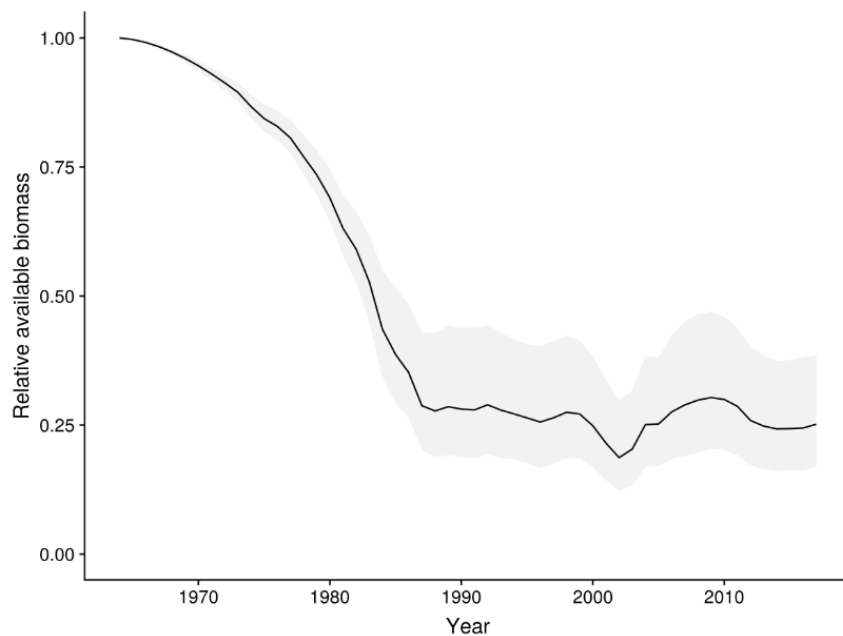
<sup>2</sup> The reduction was implemented over the two fishing years 2002/03 and 2003/04.

<sup>3</sup> Catch figures averaged over the period 2001-2007.

### PAU 5D Catch per unit effort (CPUE)



### PAU 5D estimates of relative available biomass



10. The post-2010 declines in biomass also illustrate that the PAU 5D fishery is fully utilised by customary, commercial and recreational fishers. There is simply no excess biomass in the system. This means that every tonne of pāua displaced from a marine reserve – whether commercial catch

or recreational catch – is equivalent to increasing the PAU 5D TAC and/or TACC by one tonne. No competent fisheries manager would contemplate increasing catch levels in a fishery that has such a slow rebuild rate, is fluctuating around the management target, and is demonstrated to be extremely vulnerable to spatial displacement of catch. Yet this is precisely what the SEMPA proposals entail.

## Displacement of pāua catch from the proposed marine reserves

### Commercial catch

11. Commercial pāua catch has been reported in two of the proposed marine reserve sites – i.e., D1 Te Umu Koau and M1 Hākinikini. The summary table on page 73 of the application also records pāua catch at site B1 Waitaki, but we consider this to be highly unlikely given the absence of suitable pāua habitat at site B1.
12. Site **D1 Te Umu Koau** is located in pāua statistical area P5DH41. In the fishing years 2010/11 to 2016/17, a total of s9(2)(b) of pāua was reported caught in P5DH41 – an average of s9(2) per year for this period, just less than s9( of total landings for PAU 5D.<sup>4</sup> PauaMAC 5 notes that, like much of PAU 5D, the productivity of the area varies considerably and in some years it produces significantly more than the average catch. For example in 2010 statistical area P5DH41 contributed s9(2)(b) of catch (with 12 divers operating in the area) and in 2014, s9(2)(b) (15 divers). Although the average catch from the area is not large, in some years it has provided over s9( of PAU 5D catch<sup>5</sup> – which is a reasonable contribution given that the area is just one of 47 statistical areas in PAU 5D.<sup>6</sup> Site D1 is therefore an integral and important part of the overall pattern of fishing in PAU 5D.
13. We consider that the summary of pāua catch provided in the application and consultation document – i.e., s9(2) of PAU 5D landings – significantly understates the importance of the area for PAU 5D by obscuring the significant inter-annual variation in the contribution the area makes to total PAU 5D landings.
14. Site **M1 Hākinikini** is in pāua statistical area P5DH30. s9(2) of pāua was reported caught in this statistical area during the 2008/09 fishing year. There was no reported pāua catch for P5DH30 for fishing years 2009/10 to 2018/19. Although the commercial pāua catch taken from this area is small and occasional, it is nonetheless an integral part of the PAU 5D fishery, as described in a submission from a commercial fisher in response to the Forum’s proposals in 2016:

*12 years ago we caught s ton of pāua quota from this area when we couldn't dive anywhere else in 5D because of bad weather. That particular year had we not caught that s ton from there we wouldn't of caught all of our quota. I went back last year but couldn't dive as*

<sup>4</sup> Figures supplied by Fisheries New Zealand. There was no reported pāua catch for P5DH41 for fishing years 2008/09, 2009/10, 2017/18, and 2018/19.

<sup>5</sup> This analysis is based on a total PAU 5D commercial harvest of s9 tonnes as s9(2) of ACE is currently shelved to assist the rebuild of the fishery.

<sup>6</sup> The boundaries of the 47 PAU 5D statistical areas are designed to reflect separate fishing grounds, for example particular reefs or sub-populations of pāua.

*conditions wouldn't allow. I do plan on going back as it's a healthy area. It is part of the whole fishery, take bits out the fishery could fall over!!*

15. The sites proposed for the SEMPA marine reserves, while not the most productive areas of PAU 5D, are nevertheless important contributing areas that help spread commercial catch across the entire fishery. This is critical in a fully utilised fishery such as PAU 5D because catch spreading helps avoid localised depletion and reduces spatial competition. It is also important to be able to continue to fish the entire spatial extent of the fishery because the harsh prevailing weather in the region frequently prevents fishing in certain areas on a seasonal or sometimes yearly basis. A patchy fishing pattern is very typical of PAU 5D – i.e., some areas fish well one year, but are then not fishable because of weather or sea conditions the next year. In summary, the proposed marine reserve sites – although relatively small in terms of overall contribution to commercial pāua catch – are an integral part of the pattern of harvesting in the PAU 5D fishery.
16. PauaMAC 5 notes that the SEMPA marine reserves consultation document and application prepared by DOC omit any mention of commercial harvest of pāua in the description and analysis of MPAs D1 and M1.<sup>7</sup> The application gives the impression that the individual marine reserve proposals have no impacts on commercial pāua harvest. We consider that the application therefore potentially misleads submitters by ignoring the costs of the proposed marine reserves for commercial pāua fishers and quota owners, including owners of Settlement Quota.

#### **Recreational and customary catch**

17. The recreational catch of pāua in PAU 5D is unknown. For the purpose of the stock assessment model, the FNZ Shellfish Working Group assumed the recreational catch to be 9 tonnes.<sup>8</sup> In 2013, MPI estimated that PAU 5D recreational catch was approximately 9.2 tonnes.<sup>9</sup> It is not known what proportion of this catch is taken from the proposed marine reserve sites. However, an independent analysis of recreational fishing submissions on the Forum's 2016 consultation document commissioned by PauaMAC5 shows that four of the proposed marine reserves are used for recreational pāua diving, as follows:
  - Site D1 Te Umu Koau is used for recreational pāua harvesting and is specifically mentioned by several submitters;
  - Site I1 Ōrau is highly valued by large numbers of recreational pāua divers because of its accessibility and healthy pāua population;

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<sup>7</sup> The only references to pāua are in summary tables, where the estimated affected catch and value is understated.

<sup>8</sup> <https://www.mpi.govt.nz/dmsdocument/40784-fisheries-assessment-plenary-may-2020-volume-2-hoki-to-redbait>

<sup>9</sup> <https://www.mpi.govt.nz/dmsdocument/7716-review-of-fisheries-regulatory-controls-for-1-october-2013-final-advice-papers>



- Site K1 Okaihae is also valued by recreational divers and the relative safety and accessibility of the site is mentioned in a number of submissions; and
  - Site M1 Hākinikini is used by a relatively small number of primarily local recreational pāua divers, but those that do fish this area value it highly.
18. Because site I1 Ōrau is so close to the major population centre of Dunedin and is readily accessible with an abundant pāua population, it can be assumed that a large proportion of the estimated recreational pāua catch in PAU 5D is taken from that location. In 2013 when MPI consulted on removing regulatory closures to commercial pāua diving at site I1 and other locations, 2,740 submissions were received (the vast majority supporting the *status quo*) indicating very strong public interest in the site for recreational pāua diving. Together, the four marine reserve sites are highly likely to provide a significant proportion of the estimated PAU 5D recreational catch.
  19. The customary catch of pāua in PAU5D is not known, but submitters in 2016 indicated that several of the proposed marine reserves were valued for customary harvesting, including the four areas mentioned above.
  20. PauMAC 5 notes that there is no information about recreational or customary pāua catch provided in DOC's application. Submitters are therefore denied the opportunity to comment on an informed basis on the implications of the marine reserve proposals for recreational and customary fishers. We consider that the failure of the applicant to collect data on recreational and customary fishing in the SEMPA area is relevant to the Minister of Fisheries' concurrence role under the Marine Reserves Act. The obligation under the Fisheries Act 1996 to base decisions on the best available information can be taken into account by the Minister when considering concurrence.
  21. We recommend that it is essential that the Minister of Fisheries obtains accurate and reliable information on actual recreational and customary pāua catch in the proposed marine reserve sites prior to exercising the concurrence role.

#### **Consequences of displaced pāua catch**

22. The displacement of pāua catch (from all sectors) from the proposed marine reserves at sites D1, I1, K1 and M1 will be significant, for the individual sites and cumulatively. The effects of displaced pāua catch will cause major fisheries management problems in PAU 5D.
23. Displaced catch from the marine reserves will increase the risk of localised depletion and threaten the rebuild of PAU 5D, as discussed above. If the sustainability of the PAU 5D fishery is threatened by displaced catch, the TACC may need to be reduced, with serious impacts on PAU 5D quota owners (including Settlement Quota) and harvesters.
24. Displaced catch will also exacerbate spatial conflict between fishing sectors. If proposed marine reserves I1 and K1 are established, only a very small area of coast near Dunedin will remain available for recreational fishers at Blackhead. In the pāua industry's experience, Blackhead will rapidly become depleted and the displaced fishing pressure will shift outwards – including into the

nearby mātaimai reserves at Moeraki and Kaka Point – resulting in an expanding cascade of serial depletion.

25. It is highly likely that, in response to displaced fishing pressure, tangata whenua will seek to protect areas of importance for customary fishing either by further restricting pāua harvest in the existing mātaimai reserves and in the East Otago Taiāpure, or by applying to establish further mātaimai reserves in PAU 5D.<sup>10</sup> If additional restrictions on recreational or commercial pāua harvesting are put in place in the existing mātaimai and taiāpure in an attempt to manage the displacement caused by marine reserves, this will further exacerbate the risk of localised depletion and further jeopardise the successful rebuilding of PAU 5D.
26. The fully utilised nature of the PAU 5D fishery will, unfortunately, make it extremely difficult for applications for new mātaimai reserves to comply with the ‘prevent test’ in the customary fishing regulations.<sup>11</sup> Existing historical displacement of commercial harvesting in PAU 5D is such that the ‘prevent test’ already creates a challenge for additional mātaimai reserves – but with new marine reserves in place, the opportunity to establish mātaimai reserves that include pāua will effectively be extinguished until abundance is rebuilt (and, as discussed in this submission, marine reserves will hinder rebuilding). The establishment of marine reserves which displace even a small amount of pāua catch will therefore prevent the Crown from giving effect its obligations to Ngāi Tahu under the Fisheries Settlement in relation to areas of importance for customary food gathering for pāua.
27. Five long-standing voluntary closures to commercial pāua harvesting in PAU 5D are in place at Shag Point, Catlins Coast, Mahaka Point, Long Point (west side), and Takakopa River bar. These voluntary closures were established by the pāua industry to reduce inter-sectoral conflict and provide for non-commercial fishing. However, the marine reserves will displace additional recreational catch into these areas, causing depletion that will negate any benefit to recreational fishers from the closed areas. It will also become increasingly challenging for PauaMAC 5 to continue to justify the voluntary closed areas as access to PAU 5D commercial fishing grounds is progressively reduced.



<sup>10</sup> These concerns were noted by Iwi submitters in 2018, but were not taken into account by the Forum in its final recommendations.

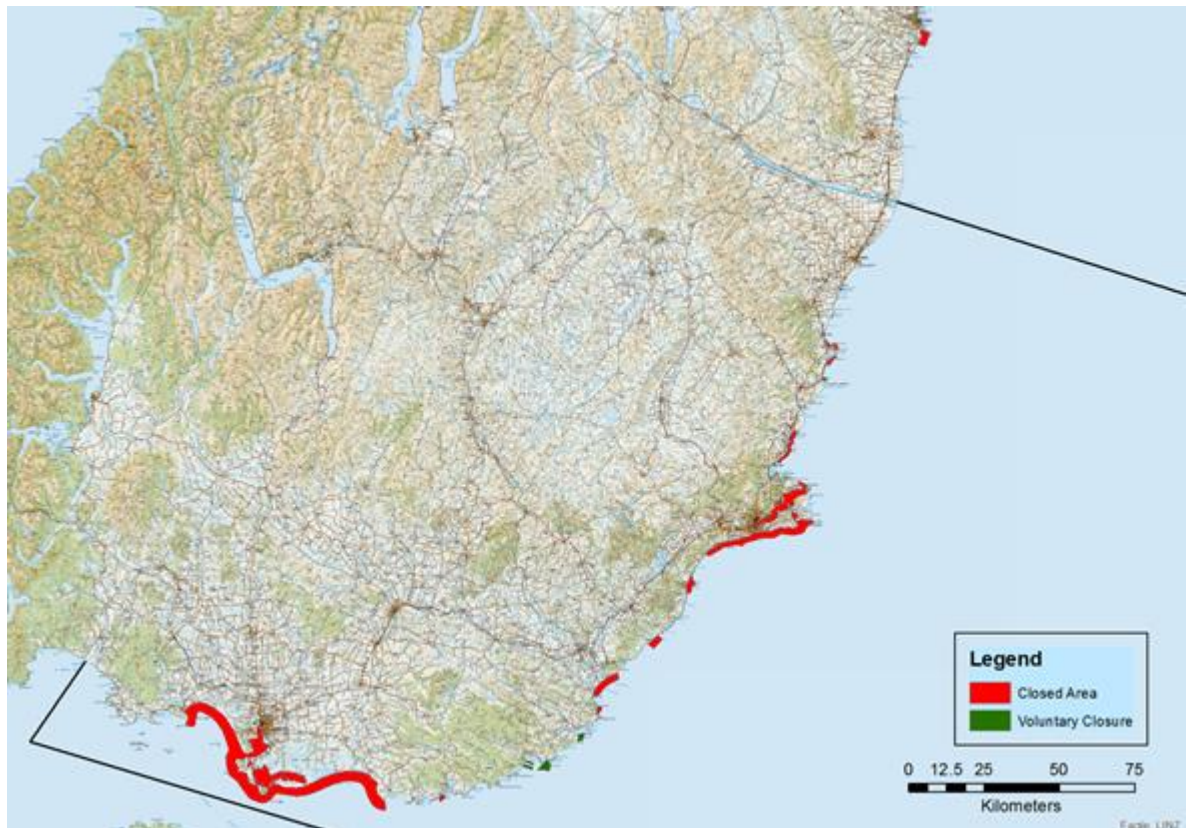
<sup>11</sup> Fisheries (South Island Customary Fishing) Regulations 1999, regulation 20(1)(e)(ii): The Minister must be satisfied that a proposed mātaimai reserve will not “prevent persons with a commercial interest in a species taking their quota entitlement or annual catch entitlement ... within the quota management area for that species”

### Cumulative impacts of displaced catch

28. PauaMAC 5 emphasises that PAU 5D has already been badly impacted by loss of fishing grounds and displaced commercial catch from mātaimai reserves. A significant portion of PAU 5D is already closed to commercial fishing (see map below), including:

- The mātaimai reserves at Moeraki, Waikouaiti, Punawaitoriki and Waikawa Harbour;
- Regulatory closures at Waikouaiti Bay, Seacliff, Otago Harbour, Otago Peninsula, Taieri River mouth, Tokomairiro River mouth, and Clutha River mouth;
- Regulatory closures in the East Otago Taiāpure; and
- The voluntary closures referred to above.

**Map of existing regulated and voluntary closed areas in PAU 5D**



29. The existing closures occupy 95km of coastline and close 23% of the area of PAU 5D that is within 1 nautical mile of the shore. Commercial harvesters are therefore already prevented from accessing significantly more than 23% of the fishable area of PAU 5D.
30. These existing closures are directly relevant to the ‘public interest’ assessment under the Marine Reserves Act in two ways. First, the number and extent of existing closures to commercial pāua fishing demonstrates that it is not credible to suggest that commercial pāua harvest has an adverse

effect on the marine biodiversity of representative habitats and ecosystems in the south-east region, or that it is necessary to close further areas to commercial pāua fishing for the purposes of ‘scientific study’.

31. Secondly, the adverse effects of new marine reserves on commercial pāua fishing in the region will be exacerbated by the catch that has already been displaced from the existing closures. As noted above, FNZ failed to address the negative impacts of the approximately 8.5 tonnes of catch displaced from the mātaimai reserves and forced the pāua industry to absorb the full cost itself.
32. By implementing measures such as ACE shelving and higher minimum harvest size, the PAU 5D industry has done more than enough to prop up the sustainability of the pāua fishery for the benefit of the public of New Zealand – we are not prepared to carry the costs of any further government fisheries management failures.

### **Interference with the implementation of the PAU 5 Fisheries Plan**

33. The pāua industry has a strategy of managing commercial pāua fishing in a responsive, fine-scale manner using fisheries plans prepared and approved under section 11A of the Fisheries Act. During 2020 PauaMAC 5 has been developing a fisheries plan for the PAU 5 fisheries including PAU 5D. The plan is currently in draft form as a result of consultation delays caused by the COVID-19 lockdown. However, we expect to complete consultation with key stakeholders and refer the plan to the Minister of Fisheries for approval under section 11A of the Fisheries Act before the end of the year.
34. The impacts from displaced recreational catch that are identified above are contrary to many of the objectives and strategies in the Fisheries Plan. The proposed management objective for PAU 5D is: *To support and enhance the sustainability of pāua stocks by... continuing to rebuild the fishery, taking account of the need to provide for utilisation, so that the biomass is maintained above 40%  $B_0$ .* Other objectives focus on protecting important pāua habitat and enhancing industry performance.
35. The Fisheries Plan includes strategies relating to the use of minimum harvest sizes to protect spawning stock, ACE shelving to boost rebuild rates, and catch spreading across the full extent of the stocks. The following strategy is particularly relevant:

***Protect spatial access to pāua fisheries:*** *Safeguard sustainability and prevent displacement of commercial fishing effort by:*

- *Promoting continued access to the full spatial extent of all areas where commercial pāua harvesting currently occurs.*
- *In the event that spatial access to a PAU5 fishery is reduced, recommending to the Minister of Fisheries that the affected fishery should be ‘rebalanced’ by:*
  - a) *Rebalancing the biological system by implementing an appropriate fisheries management response to remove the displaced catch from the fishery; and*

- b) Rebalancing economic incentives by compensating affected quota owners for the market value of quota shares equivalent to the foregone commercial catch; or*
- c) As an alternative to a) and b), providing equivalent spatial access to suitable pāua habitat elsewhere in the QMA.*

36. This strategy is included in the Fisheries Plan in response to the adverse effects on stock sustainability and utilisation caused by the considerable loss of spatial access to the PAU 5 fisheries over many years, including as a result of regulatory closures imposed for non-fisheries purposes, marine reserves, mātaimai reserves, and taiāpure regulations. As noted above, displaced catch from closed areas has slowed the rebuild rate of PAU 5D. For these reasons, the industry seeks to prevent any further erosion of spatial access to pāua fisheries.
37. The ‘rebalancing’ strategy, developed by the pāua and rock lobster industries and Ngāi Tahu, is intended to ensure that any future closures do not have adverse effects on the sustainability of pāua fisheries, the economic incentives for the effective operation of the QMS, or the obligations of the Crown in relation to customary commercial and non-commercial fishing rights protected under the Fisheries Settlement.
38. The PAU 5 Fisheries Plan also contains two strategies to identify and protect important pāua habitat. These strategies reflect the pāua industry’s desire to incorporate ecosystem considerations into fisheries management, and are consistent with the requirements in Fisheries Act section 9 to protect habitat of particular significance for fisheries management (HPSFM). The availability of suitable juvenile pāua habitat is critical for successful pāua populations, and juvenile pāua habitat is therefore considered by PauaMAC 5 to be HPSFM. Following a brief mobile larval stage, recently settled juvenile pāua (<20mm) inhabit boulder or cobble field habitats in 0-5m depth, before moving to the shallow sub-tidal zone, usually in 0-2m depth.<sup>12</sup> Juvenile pāua may therefore be found on beach stones on the foreshore. For this reason, PauaMAC 5 opposes the proposed condition for each of the proposed marine reserves that would allow non-commercial gathering of beach stones from the foreshore.
39. PauaMAC 5 considers that the Fisheries Plan, although currently a draft, is a relevant consideration for both the Minister of Conservation and the Minister of Fisheries under the Marine Reserves Act. Implementing marine reserves that undermine the objectives and strategies of a fisheries plan would:
- Be contrary to the public interest under section 5(6)(e) – particularly, but not only, if that plan is subsequently formally approved under section 11A of the Fisheries Act – as the plan is intended to achieve sustainable management of the PAU 5D fishery; and
  - Interfere unduly with commercial fishing under section 5(6)(c), as the plan provides the framework for the management of commercial harvesting activity in PAU 5D.

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<sup>12</sup> McGowan, T (2019) Ecosystem approaches to management of pāua fisheries: Review and considerations

## SEMPA process lacks integrity

40. PauaMAC 5 has serious concerns about the integrity of the SEMPA process. In our experience, the process has been, and continues to be, dishonest and deeply partisan. These are harsh words, but we provide evidence of our experience below. The matters that we raise here support our contention that each of the proposed marine reserves is contrary to the public interest.

### **Lack of mandate and representation**

41. The pāua industry was not represented on the Forum. The commercial fishing representatives on the Forum represented the rock lobster industry (one member) and the finfish industry (two members). As a result, no members of the Forum had any expertise in pāua fisheries and no members had a mandate to make tradeoffs or draw lines on a map on behalf of the pāua industry. Because much of the Forum's business was carried out in private, PauaMAC 5 had no way of contributing its expertise to the process. We therefore do not accept that the Forum or its recommendations are in any way mandated by the sector of the community that we represent.

### **Biased presentation of options**

42. In spite of not being represented on the Forum, the pāua industry sought to participate constructively in the Forum process and to that end helped to develop the Network 2 proposal. In the interests of putting forward a pragmatic lesser-cost alternative, we supported Network 2 even though one of the marine reserves (D2) had adverse effects on commercial pāua fishing. Our expectation was that Network 2 would be accurately and impartially presented by the Forum as an option alongside Network 1. Unfortunately our faith was misplaced and our modest expectation was not met.
43. The Forum's presentation of Network 1 and Network 2 was highly partial. The Forum never presented Network 2 accurately or in its entirety. In particular, the conclusion of the designers of Network 2 that *Network 2, in combination with existing management measures, protects the same number of habitats with around one third of the cost to commercial fishing and less impact on other existing users* was not included in the Forum's report. Also, the Forum did not recommend that 'rebalancing' must occur if any marine reserves are established – even though this was an integral part of the Network 2 package and a pre-condition for PauaMAC 5's support of any MPAs. We do not know if this inability to accurately describe Network 2 was a failing of the Forum membership or of the officials advising the Forum. Either way, it eroded our faith in the Forum and its recommendations.

### **Forum poorly served by officials**

44. Although the Forum was supposedly independent, it was supported by officials from DOC and FNZ and those agencies must therefore share responsibility for the procedural and policy failings that have beleaguered the Forum.<sup>13</sup> For instance, in place of the structured 'gap analysis' approach

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<sup>13</sup> These failings have been documented in two independent reviews, one commissioned by DOC and the other undertaken by the Office of the Auditor General.

demanding by the MPA Policy, the Forum started from the unjustifiable proposition that (a) MPAs are the *only* effective way of protecting marine biodiversity and (b) fishing is *always* a threat to marine biodiversity. This is apparent in the Forum's process which initially identified a "wish list" of more than 100 MPA sites which, when mapped, covered nearly the entire region – a laughable and unrealistic starting point. It is also simply not logical to pretend – as the Forum was seemingly advised to do – that marine biodiversity is currently unprotected throughout the south-east region when numerous area closures and non-spatial measures are already in place, including those discussed in this submission. We do not understand how officials – particularly officials from FNZ – allowed such erroneous views to prevail without correction.

45. The Forum was especially poorly served by officials in the presentation of their final recommendations. Rather than a dispassionate and neutral application of the MPA Policy, the Forum's report reads like an unbalanced piece of advocacy. For example, Network 1 is described using numerous unnecessary 'feel-good' statements, such as: *"Network 1 seeks to maximise the habitat, ecosystem, and biodiversity benefits that arise from an effective MPA network, while minimising effects on existing users and other impacts. Every effort has been made to be consistent with the MPA Policy while allowing for the views provided from the region's communities. Much thought, discussion and compromise have shaped this network, and each proposed site that makes up the network has been designed with a clear purpose."* Each of these sweeping assertions is equally true for Network 2, but the implication is that Network 1 alone has these qualities (because similar lofty claims are not repeated in the description of Network 2).
46. This is just one example of many. We do not understand why the Forum was not provided with a professional, neutral report writer – or did officials think that neutrality and professionalism were not desirable qualities for the Forum's report?
47. PauaMAC 5 was also perplexed to see that the Forum's Network 1 proposal contained site O1 (Long Point) which was included in the report, but not recommended as part of the network. We consider the inclusion of Long Point to be confusing, misleading, and a prime example of the dishonesty at the heart of the SEMPA process. The site had unacceptable impacts on existing users, was opposed by Ngāi Tahu, and – as it was not recommended to be part of the network – its inclusion in the Forum's report was unhelpful and deeply cynical. In addition, many of the Network 1 MPAs included large extensions that had never been consulted on with the public.
48. Why did officials consider it appropriate to include Long Point and un-consulted MPA extensions in the Forum's final Network 1 proposal, while at the same time insisting that all references to existing protections must be eliminated from the Network 2 proposal? We believe that this can only be explained by the dogged 'maximum protection at all costs' agenda that is being pursued by DOC officials. This is demonstrated in the clear implication in papers received under the OIA that DOC still intends to progress Long Point or additional marine reserves in the region.<sup>14</sup>

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<sup>14</sup> "We recommend continuing to work with Kāi Tahu to clarify their concerns regarding Site O1 and potential options for addressing those concerns, and explore options for the protection of other sites that could provide

### Ministers did not receive impartial advice

49. PauaMAC 5 would not be so concerned about the shortcomings of the Forum process if we knew that officials undertook an impartial new analysis of the Forum’s proposals prior to giving advice to Ministers. However, no papers that have been released under the OIA give us confidence that any comprehensive independent analysis of costs and benefits has been undertaken. In fact, the biases and omissions in the Forum’s report are simply accepted and perpetuated in officials’ advice. The only exception is in relation to FNZ’s advice to Ministers in the joint agency advice paper that:<sup>15</sup>
- The boundaries of marine reserves A1 and D1 need to be amended to reduce impact on existing fisheries users and if implemented in current form “*would heighten the risk of this decision being subject to judicial review*”;
  - The level of restriction on fishing activities within five Type 2 MPAs needs to be amended in order to make the MPAs compliant with Fisheries Act requirements; and
  - The ‘kelp protection area’ cannot be justified under the Fisheries Act.
50. Ministers decided to progress Network 1 without making the changes recommended by FNZ, once again demonstrating a single-minded, politically-driven ‘maximum protection at all costs’ agenda that bears little relationship to the purposes and scope of the statutes that are intended to implement the MPAs.
51. Papers released under the OIA display an appalling lack of professionalism by DOC staff. When informing DOC senior managers of the Ministers’ decision to proceed with Network 1, a DOC manager gleefully described Network 1 as “*the big one*” and commented on “*the great thing [that] the Ministers do not want to undermine the gifts and gains approach of the Forum*”.<sup>16</sup> We find the reference to ‘gifts and gains’ immensely offensive. The Forum did not adopt a gifts and gains approach – this is a total misrepresentation of a completely different community-derived concept developed by the Fiordland Marine Guardians. How can a process in which one sector of the community is consistently required to “gift” the source of their livelihood and the basis of their property rights to another sector of the community be referred to as gifts and gains? Gifts and gains implies an agreed multi-party exchange of costs and benefits, not a compulsory one-way flow.
52. The DOC manager signs off with “*Big day for the team and a fantastic outcome. Happy Minister. [redacted]*”. To us this illustrates perfectly the intractable, agenda-driven approach that DOC and their Minister have adopted throughout the Forum process and beyond, with absolutely no regard to the pain and harm their actions are causing to other sectors of the community. It is an approach more suited to an advocacy organisation like Forest and Bird than to a supposedly politically neutral government department. By focusing solely on maximising the areas within the SEMPA network

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*representation of habitats in the southern part of the Forum’s planning area”*

<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/semf/semf-joint-agency-advice.pdf>

<sup>15</sup> Ibid.

<sup>16</sup> OIA 20-E-0287 Hesson - Documents for release.



(and maximising the prohibitions on fishing within those areas) DOC has totally lost sight of the actual objective of ensuring that the marine biodiversity of the south east region is properly managed and protected from harm.

**Bias is rife in the government consultation material**

53. In light of the partiality described above, it is not surprising that the DOC/FNZ consultation material overstates the benefits of MPAs and understates the costs. The purported benefits of the proposed marine reserves described in the consultation document are simply speculative assertions more akin to propaganda than to reasoned analysis. This point is addressed extensively in the joint submission of PIC, NZRLIC and FINZ, but we wish to add a few points as follows (all found on a single page of the SEMPA consultation document):

- The problem statement that the *cumulative effects [of activities on land and in the sea and climate change] amplify the threat to biodiversity in our marine environment and make it less resilient* is equally true of marine reserves – by displacing fishing pressure outside the reserve boundaries, marine reserves make the surrounding environment less resilient;
- Marine reserves do not *contribute to protecting and restoring ecosystems and habitats by managing the activities that occur within them* because the only activity that is typically prohibited in a marine reserve is legal, regulated, sustainable fishing, and – as is the case with pāua diving – if the fishing causes no adverse effects, then prohibiting fishing cannot possibly “protect and restore” ecosystems and habitats;
- The claim that *MPAs provide a safeguard for the marine environment, allowing it to cope better with future pressures, such as climate change* is false for the reasons mentioned above – i.e., even if the environment is ‘safeguarded’ inside a marine reserve (which we dispute), the remaining accessible marine environment will be placed under more pressure and, by the same logic, will be less able to cope with future pressures such as climate change;
- The claim that *when developed with fishing interests in mind, MPAs can contribute to fisheries management objectives (eg they may protect spawning and nursery habitat)* – is also untrue. First, the SEMPA proposals were not developed “with fishing interests in mind” (other than with the aim of prohibiting fishing). Secondly, in the case of pāua, MPAs do not protect spawning and nursery habitat. The main risk to pāua juvenile habitat is sedimentation from terrestrial activities such as land clearance or coastal construction works. Marine reserves do not control any of these risks; and
- The claim that *MPAs are most effective at supporting marine health and resilience when they form a representative network of habitats and ecosystems* is simply an assertion. The only difference between an MPA network and a single MPA is that there are more MPAs in a network and, therefore, more displaced catch, more adverse effects on sustainable fisheries, and more pressure on the surrounding marine environment. Concepts such as

links between MPAs are nonsensical in the marine environment because they imply that the space between MPAs is a degraded desert that marine organisms are incapable of navigating – which is patently untrue.

54. As noted above, the consultation material significantly under-states the impacts of the proposed marine reserve on commercial pāua fishing, and contains no information on the impacts on customary or recreational pāua fishing. The absence of information or analysis of non-commercial fishing particularly disadvantages fisheries such as pāua which are highly valued and utilised by customary and recreational fishers, and severely underestimates the overall costs of the marine reserve proposals.


## Conclusion

55. For the reasons outlined in this submission, PauaMAC 5:

- **Objects** to MPA I1 Ōrau under Marine Reserves Act sections 5(6)(c) and 5(6)(d). The marine reserve will interfere with and adversely affect recreational pāua fishing in the area. The displacement of recreational harvest of pāua at the site is likely to be so significant that it will interfere with commercial pāua fishing for PAU 5D. Interference with recreational and commercial fishing will be undue because the marine reserve is contrary to the public interest;
- **Objects** to all the SEMPA marine reserves under Marine Reserves Act section 5(6)(e) because they will not achieve their intended purpose (whether to provide for scientific study or to protect marine biodiversity) and will impose significant unnecessary costs on existing users, particularly when there are other lesser-cost ways of achieving biodiversity protection in the south-east region. In particular, PauaMAC 5 **objects** to MPA D1 Te Umu Koau, MPA I1 Ōrau, MPA K1 Okaihae, and MPA M1 Hākinikini. It is not in the public interest to cause localised depletion of PAU 5D, potentially reverse the rebuilding of the stock, and exacerbate inter-sectoral conflict in order to establish marine reserves with purported benefits that are speculative at best;
- If any marine reserves are established, **opposes** the proposed condition to allow non-commercial gathering of beach stones from the foreshore because this will interfere with juvenile pāua habitat;
- **Objects** to all the SEMPA Type 2 MPAs because they are not consistent with the Fisheries Act. We consider that the Fisheries Act cannot be used to protect representative examples of marine biodiversity for the sake of protection alone. If the Minister closes areas to particular fishing methods in the absence of any evidence of adverse effects of fishing on the marine environment, it will set a dangerous precedent for all fisheries users, including the pāua industry; and
- **Objects** to the proposed kelp protection area as it cannot be justified on the basis of adverse effects of kelp harvesting and therefore seeks to confiscate commercial harvest rights without cause.

56. PauaMAC 5 entered the SEMPA planning process with a degree of trepidation, but with a constructive attitude and an expectation that we would work alongside other sectors of the community to help ensure that marine biodiversity is protected throughout the south-east region. We are now left disillusioned and dispirited at the single-mindedness with which unjustified and extensive prohibitions on fishing have been promoted and progressed at all costs, and the contempt shown to those who use and sustainably manage the marine environment in the south-east of the South Island.
57. Irrespective of its eventual outcomes, the SEMPA process has had an extremely damaging effect on the pāua industry. It has not only led us to oppose the SEMPA proposals, but has set a negative precedent for future MPA processes in other regions of New Zealand. As a result of our experience with SEMPA, PauaMAC 5 does not intend to participate in any way in other similar MPA planning exercises and we will actively discourage other fishing industry representative groups from engaging with these processes. We would be willing to participate only in processes that seek to protect marine biodiversity as one of a suite of objectives determined by local communities, and where a range of management tools and approaches can be used to achieve community objectives while respecting the rights and interests of all parties.

s9(2)(a)

A large rectangular area of the document is redacted with a solid grey fill, obscuring the text underneath.

Storm Stanley  
Chair, PauaMAC 5

**From:** s9(2)(a)  
**To:** [SEMP](#)  
**Subject:** Re: SUBMISSION ON THE PROPOSED SOUTH-EASTERN SOUTH ISLAND MARINE PROTECTED AREAS  
**Date:** Sunday, 2 August 2020 8:38:54 PM

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## SUBMISSION ON THE PROPOSED SOUTH-EASTERN SOUTH ISLAND MARINE PROTECTED AREAS

### SUBMITTER DETAILS

<b>Name of submitter:</b>	s9(2)(a)
<b>Postal address:</b>	s9(2)(a)
<b>Email:</b>	s9(2)(a)
<b>Telephone number:</b>	s9(2)(a)

I **do not** wish for my name and address to be released under the Official Information Act 1982.

I **do not** wish the commercially sensitive information that I have provided, to be released under the Official Information Act 1982

### My connection to the South East Coast:

I am a retired fisherman based at Port Chalmers, and was almost exclusively fishing the Southeast coast between Timaru and Waikawa for fifty years, most of this time I was the owner/skipper of boats of around 14 meters crayfishing

and trawling employing one or two crew. I also spent a considerable amount of my leisure time when the weather was suitable, scuba diving and snorkelling mostly but not exclusively in the area.

We have since sold our fishing boat to our son (s9(2)(a)) who fishes in CRA7. My wife (s9(2)(a)) and I still own quota shares in CRA7 and area3 wet fish.

I was a commercial fishing representative on the South East Marine Protection Forum. I have been on the Executive Committee of the Otago Rock Lobster Industry Association Incorporated and The Port Chalmers Fishermans Co-op. I also support the submissions made by ORLIA

**I oppose the south-east marine protection areas proposal because:**

Nothing in the proposed marine protection network addresses the land based effects of nutrient loading and sediment runoff which many consider to be the main problem on the South East coast leading to adverse habitat modification.

The SEMPA consultation document is misleading where it claims that boating and diving will not be affected by the proposed reserves because the reason most people go boating or diving along the South East Coast is to catch fish. A small minority go out to watch birds and mammals or are involved in some sort of educational activity.

The potential for marine based tourism is, in my opinion, vastly overrated on the South East Coast as, from my experience, most people do not want to spend much time in those open waters getting sea sick. It is not the Bay of Islands, nor the Hauraki Gulf (or somewhere similar) with predictable flat water. The tourism operators that have been successful in this area have kept their time at sea to a minimum, such as charter fishing close to Moeraki and the Monarch on the Otago Harbour. Marine tourism opportunities are limited and decrease significantly south of Taiaroa Head due to operators being regularly forced to cancel trips due to weather and sea conditions.

While seals and sea lions appear to be thriving along the South East Coast, yellow eyed penguins are not, and are being preyed upon by sea lions. (I have personally witnessed this natural predator behaviour and there appears to be some evidence that a local colony may have

been wiped out by a single sea lion). In the past fishers were mostly blamed for the penguins' struggle to survive but there is more and more evidence that land based threats play a larger part - including people simply being in the penguins' habitat, so extra tourists poking about there will be a threat to them.

If the proposal goes ahead, too much productive ground of the CRA7 fishery will be lost. That will push fishers to the other areas of reef and I am afraid the fishery will return to what it was like in the early days of when I fished. My personal recollections are of crayfishing at a time of too many boats, too much effort and not enough suitable habitat. This will happen because CRA7 does not have enough suitable habitat outside of the proposed marine reserves to sustainably cater for the current number of fishers.

Pressure on fishers to land the TACC will encourage bad practices. For example, In the past there were far more boats competing to land fish. There were instances of unscrupulous operators removing eggs from females so these illegal fish could top up landings undetected. Theft from other fishers pots was a relatively common occurrence but hard to prove and all in the past. Interaction between recreational fishers and commercial operators were at times very tense.

What suitable rock lobster habitat there is in CRA7 is fully subscribed. The CRA7 fishers currently have a good balance amongst themselves about when and where they fish. They also use sustainable practices. For example, in days gone by escape gaps on pots used to be set at the minimum legal size so that no legal fish would get out. Government staff would check them for compliance prior to the season opening. Today most fishers have escape gaps that far exceed the legal requirements so they don't handle so many unwanted, but in many cases, legal fish. Every legal fish was a prisoner regardless of its value and Government staff would check landings to ensure no illegal fish were being landed. Today nearly all fish landed are well above minimum legal size and less desirable crayfish are returned to the grounds to grow and fetch a better price and or breed.

Health and safety will be an issue if fishers working on fewer grounds, particularly off the South East coast given its weather patterns. In the past congestion of gear was an issue when there were too many boats working the same areas. It was often difficult to manoeuvre boats among concentrations of pots, particularly in bad weather, resulting in fouled propellers and the sometimes dangerous and time

consuming job of clearing them.

Often the ropes to pots were accidentally cut and the pots were lost on the sea floor. They also caused fouled propellers which in turn can cause quite serious damage to a vessel with bent propeller shafts, destroyed gearboxes and engines completely ripped off their mounts. When diving we have retrieved up to a 12 or 15 lost pots on a single 50 minute dive. A few of these had been deliberately chopped off and dumped by dishonest operators.

Another problem was tangled gear especially after bad weather. I've personally had to deal with tangles of up to 16 pots weighing in excess of 100 kg each. This is time consuming and often dangerous with the combined weight of the pots and the boat rolling adding up to stresses that are well in excess of safe working loads.

Another issue when there are too many boats working the same area is the risk of collision. This thankfully has been a rare occurrence in my time fishing CRA7 but I know that it has happened in CRA7 on more than one occasion.

When grounds are fished at intensive levels the flushes of crayfish generally last for a much shorter duration and everyone is under greater pressure to get their share of the TACC. In the past there were so many fishers rushing for their share, they would be lifting pots with very few or no fish in them. Whereas when fishers can spread out and quota levels are appropriate fish can be caught over longer period and everyone gets their turn without being on top of each other resulting in more fish being left after seasons end scattered across a greater area. Now the CRA7 fishery season is open all year round fishers can be more selective about when and what they catch. But the sustainable practices they currently use (such as high grading) are likely to be in danger because they will be under more pressure to get their share of the TACC from fewer productive grounds.

Probably the greatest impact of too much fishing pressure in my fishing time was the consecutive years of poor recruitment of juveniles into the CRA7 fishery. The fishers fished down an already low stock level taking every legal fish they could catch. It was both frustrating and demoralising to be pulling empty or near empty pots and just putting them back in the same area knowing tomorrow and the near future would be no better. Then on top of this is the extra time and fuel used just getting around all the gear to pull your own pots.

Today I believe the CRA7 fishery is a friendlier, more

sustainable and safer place to work. This is mainly due to fishers having a greater ability to spread out and avoid the gear congestion and conflict of the past. The only bonus that comes from boats working close proximity to others is when one is in trouble, help may be closer than it otherwise would be. However, with mobile phones and GPS available now, this positive impact is not so significant.

Generally, I have serious concerns about closing areas without addressing the effort displacement from these areas which will lead to serial depletion of other areas as fishers are forced to try and take similar amounts of fish from a smaller and sometimes less productive areas. In my view it is not reasonable that fishers carry the burden of future quota/legal take reductions if the remaining grounds becomes unsustainable because of the proposed reserves.

More particularly, I have concerns about the proposed Te Umu Koau marine reserve. I believe the impacts of this, especially for the CRA7 crayfish industry, will be far greater than estimated. Industry participants estimate that about twenty five or thirty percent of CRA7 fish come from this area. On top of this, the average price for crayfish from this area is higher than most other areas due to the size distribution of the catch. Therefore if fishers are displaced from here their expenses will increase due to greater travel times and on average harsher working conditions, CPUE (catch per unit effort) will be lower necessitating more pot lifts to catch the same tonnage, and they will receive less for their fish. Landing of the larger more valuable grades also has the environmental benefit of less commercially caught fish being landed as quota is measured by weight not numbers of fish. This area provides the greatest opportunity on the South East Coast for fishers to achieve these economic and environmental benefits. I strongly believe that less fishing effort over a greater area will give the best environmental results in all fisheries and that has been proved by the Quota management system particularly in the crayfish industry where quotas have been set low enough to create a great recovery.

The Te Umu Koau area was a last minute proposal that greatly extended the boundaries of the original D1 area. The extension was decided by a section of the Forum behind closed doors. The greatly increased area was not discussed at any meeting by the full Forum, and commercial fishing and one of the recreational representatives were not permitted to even comment on it. Therefore there was no balanced discussion of it at the Forum and no impact assessment properly considered. These circumstances, in my opinion, made a mockery of the whole Forum process. The consultation document mentions that marine reserves must minimise the impact on existing users etc, the proposal for the Te Umu Koau proposal in particular has the opposite effect.

If the proposals go ahead they will make it harder for fishing in our family to continue. The investment my wife and I have made in the quota shares will devalue. I am very worried about the future of the CRA7 fishery which has been a huge part of my life.

While I support the concept of marine reserves, I believe the network proposed for the South East Coast has too great an impact on the majority of existing users, both recreational and commercial. It does not address the displacement it creates nor the threats to biodiversity caused by land based activities. Therefore it will be relatively ineffective in addressing environmental issues.



For all the reasons outlined above, I object to the network as proposed, particularly in relation to the Te Umu Koau reserve.

Yours sincerely

s9(2)(a)

**From:** s9(2)(a)  
**To:** [southeast\\_marine@publicvoice.co.nz](mailto:southeast_marine@publicvoice.co.nz)  
**Cc:** s9(2)(a)  
**Subject:** Submission from Otago Conservation Board  
**Date:** Sunday, 2 August 2020 7:24:51 PM  
**Attachments:** [image001.png](#)  
[SEMPA Submission August 2020 - Final.pdf](#)

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Please find attached a submission from the Otago Conservation Board in response a request for public feedback.

Tara Druce

**Chair**

**Otago Conservation Board**

s9(2)(a)



**OTAGO CONSERVATION BOARD**

Poari Papa Atawhai - ā-rohe ki Ōtago



# OTAGO CONSERVATION BOARD

Poari Papa Atawhai - ā-rohe ki Ōtago

PO Box 811  
Queenstown 9300  
03 442 7933

[otagoconservationboard@doc.govt.nz](mailto:otagoconservationboard@doc.govt.nz)

2 August 2020

## **Consultation on south-eastern South Island marine protected areas: Submission from the Otago Conservation Board.**

The Otago Conservation Board (the Board) is appointed by the Minister of Conservation with its functions and powers mandated by the Conservation Act 1987. In relation to this submission, the Board's role is to represent the wider Otago community in advocating for the protection of marine and terrestrial biodiversity, recreational opportunities, and the conservation of natural, cultural, and historic resources throughout Otago.

The Board has continued to follow the South East Marine Protection Forum process, including subsequent consultation in 2016, and is disappointed with the resulting protected areas. The Board has previously expressed its concern at the limited number and size of sites proposed for protection and suggested the process was clearly the result of significant compromise.

Responding however to the current consultation document, the Board does not support the status quo of no protection measures for the South East region and wishes to see the proposed network implemented as it is presented in the consultation document. The Board supports the exploration of co-management between the Crown and Kāi Tahu.

As outlined in the Board's original submission in 2016, international standards for marine protection no longer prioritise protection for individual sites but rather seek to establish a network of sites. This ensures marine protected areas include an 'ecologically representative' network to allow for meaningful protection of marine biodiversity and ecosystems. This is reflected in the international obligations relating to the management of the marine environment that New Zealand has signed up to namely:

- The United Nations Convention on the Law of the Sea, ratified by New Zealand in 1996, which states that a country is obligated to 'protect and preserve the marine environment' under its jurisdiction, which includes the territorial sea and Exclusive Economic Zone (EEZ). This includes taking all necessary measures to "protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life".
- The Convention on Biological Diversity, ratified by New Zealand in 1993, which states that a country is required to establish a system of protected areas and to regulate where necessary for the protection of threatened species and populations.

- Under the outcome of the seventh meeting of the Conference of the Parties to the Convention on Biological Diversity (2004), New Zealand committed to the establishment of “comprehensive, effectively managed, and ecologically representative national and regional systems of protected areas”.
- The International Union for the Conservation of Nature (IUCN) World Conservation Congress, which New Zealand is a member, endorsed a resolution that “encourages IUCN State and Government Agency Members to designate and implement at least 30% of each marine habitat in a network of highly protected MPAs and other effective area-based conservation measures, with the aim of creating a fully sustainable ocean, at least 30% of which has no extractive activities, subject to the rights of indigenous peoples and local communities”.

The Board highlights that Ministers have a responsibility and indeed obligations, to account for New Zealand’s international commitments and established best practice standards when establishing the South East Marine Protected Areas.

**Specific comments:**

The Board supports the inclusion of a setnet prohibition within all Type 2 MPAs given that these areas were selected to protect important habitats for high-trophic level predators such as seabirds and marine mammals that are commonly caught in setnets. Protection of the higher trophic level predators in all Type 2 MPAs via a setnet ban is required in order to meet the protection standard: *To meet the protection standard, a management tool must enable the maintenance or recovery of the site’s biological diversity at the habitat and ecosystem level to a healthy functioning state. In particular, the management regime must provide for the maintenance and recovery at the site of: a) physical features and biogenic structures that support biodiversity; b) ecological systems, natural species composition (including all life-history stages), and trophic linkages; c) potential for the biodiversity to adapt and recover in response to perturbation.*

**D1 Te Umu Koau Marine reserve**

Connectivity across habitats is important. D1 is the only example of a marine reserve that protects estuarine habitats and extends out into deep water habitats. It is important to protect the deep-reef at this site, as is the only example of deep reef protected in the Network.

On the basis of these biodiversity values, the Board supports this marine reserve. However, the Board also acknowledges its commitments under Te Tiriti and commitments to its Treaty Partner, Kāi Tahu. The Board understands that Kāi Tahu have a specific interest in this reserve and therefore acknowledges that further exploring the size of D1 to achieve the best possible outcome for both biodiversity and our Treaty Partner may be required.

Tara Druce  
 Chair  
 Otago Conservation Board