

Proposed southeast marine protected areas

Consultation document

June 2020



Department of
Conservation
Te Papa Atawhai



Fisheries New Zealand

Tini a Tangaroa

Proposed southeast marine protected areas

Consultation document

June 2020

Crown copyright, June 2020

**Proposed southeast marine protected areas.
Consultation document. June 2020**

COVER: Long Point from Papatowai. *Photo: Fergus Sutherland*



The document is available at <https://survey.publicvoice.co.nz/s3/sempr-consultation>. This work is licensed under the Creative Commons Attribution 4.0 International license. In essence, you are free to copy, distribute and adapt the work, as long as you attribute the work to the Crown and abide by the other licence terms. To view a copy of this licence, www.creativecommons.org/licenses/by/4.0.

Please note that no departmental or governmental emblem, logo or Coat of Arms may be used in any way that infringes any provision of the Flags, Emblems, and Names Protection Act 1981. Use the wording 'Department of Conservation and Fisheries New Zealand' in your attribution, not the Department of Conservation or Fisheries New Zealand logo.

This publication is printed on paper pulp sourced from sustainably grown and managed forests, using Elemental Chlorine Free (ECF) bleaching and printed with 100 percent vegetable-based inks.

Contents

1	Introduction	4
1.1	Purpose of this document	4
1.2	How to make a submission.....	5
2	Background	6
2.1	The problem.....	6
2.2	Southeast region and the Forum	8
2.3	Relevant legislation.....	9
2.4	Special relationship between the Crown and Māori.....	10
2.5	Implications for whānau, hapū and iwi.....	12
2.6	Hector's and Maui Dolphin Threat Management Plan.....	13
3	Proposed marine protection network.....	14
3.1	Overview of the proposed network.....	14
3.2	Costs and benefits of the overall network	17
3.3	Costs and benefits of the proposed marine reserves (Type 1 MPAs).....	21
3.4	Costs and benefits of the proposed Type 2 MPAs.....	37
3.5	Costs and benefits of the bladder kelp protection area, Ārai Te Uru.....	48
4	Implementation and monitoring.....	50
5	Glossary of Māori terms.....	51
	Appendices.....	53

1 Introduction

1.1 Purpose of this document

The Department of Conservation (DOC) and Fisheries New Zealand are consulting on a proposed network of 12 marine protection measures in the southeast of the South Island of New Zealand. This network represents one of the two options that were put forward by the South-East Marine Protection Forum Roopu Manaaki ki te Toka (the Forum) in 2018¹ in response to a request by the Ministers of Conservation and Primary Industries at that time to recommend marine protection options for the area. Together, these measures aim to provide comprehensive and representative marine protection for the region and help to meet New Zealand's obligations under the United Nations Convention on Biological Diversity.²

For further information on this network and the Forum's recommendations report, visit www.doc.govt.nz/our-work/south-eastern-south-island-marine-protection.

The appendices that are referred to in this consultation document can be found at <https://survey.publicvoice.co.nz/s3/semp-consultation> and include:

- Appendix 1: Application for marine reserves
- Appendix 2: Crown and Māori relationship
- Appendix 3: Catch and export value estimation methods
- Appendix 4: Habitats in the region and at each site
- Appendix 5: Taonga species.

1.1.1 Decisions on the network

The Ministers of Conservation and Fisheries have agreed to consult with Treaty partners and the public on the proposed network, and we are now seeking feedback on this proposal.

Your submission will inform the decisions of:

- a) the Ministers of Conservation and Fisheries on the six proposed marine reserves under the Marine Reserves Act 1971.³
- b) the Minister of Fisheries on the five proposed Type 2 marine protected areas (MPAs) and the proposed kelp protection area as regulations under the Fisheries Act 1996.⁴

¹ South-East Marine Protection Forum 2018: Recommendations to the Minister of Conservation and the Minister of Fisheries: recommendations towards implementation of the Marine Protected Areas Policy on the South Island's south-east coast of New Zealand. Department of Conservation, Wellington. 314 p.
www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/semp/sempf-recommendations-report.pdf

² www.cbd.int/convention/

³ www.legislation.govt.nz/act/public/1971/0015/latest/DLM397838.html

⁴ www.legislation.govt.nz/act/public/1996/0088/latest/DLM394192.html

The proposed marine protection measures will be assessed against relevant legislative criteria, taking into account all available and relevant information, the submissions received, and the merits of the proposals. Once all of this information has been considered, one of the following decisions will be made.

- Retain the status quo – do not implement the proposed protection measures.
- Implement the proposed network as presented in this consultation document.
- Implement some or all of the proposed protection measures with amendments and/or conditions.

1.2 How to make a submission

DOC and Fisheries New Zealand welcome submissions on any or all of the proposed marine protection measures set out in this consultation document. A set of questions is provided at the end of the description of each marine protection measure. These questions are intended to stimulate discussion and help guide your submission, but answers are not mandatory. Your submission may support or oppose any aspect of the proposals. All submissions will be received by DOC and Fisheries New Zealand and will be taken into account by the Ministers of Conservation and Fisheries under their respective statutory frameworks.

The deadline for submissions is 3 August 2020.

Online submissions are preferred, as DOC and Fisheries New Zealand will be able to collate, analyse and summarise these responses more quickly and efficiently. To make an online submission, visit <https://survey.publicvoice.co.nz/s3/semp-consultation>.

Submissions can also be emailed to southeast.marine@publicvoice.co.nz.

If you are unable to make an electronic submission, you may make a written submission, which should include the following information.

- The title of this document.
- Your name and title.
- Your organisation's name (if you are submitting on behalf of an organisation).
- Your contact details (phone number, address and email).

Written submission should be mailed to:

Proposed southeast marine protection network
Department of Conservation and Fisheries New Zealand
Conservation House
PO Box 10420
Wellington 6143
New Zealand

Please note that any submission you make will become public information and that anyone can ask for copies of all submissions under the Official Information Act 1982.⁵ The Official Information Act states that we must make information available unless there is a good reason for withholding it and

⁵ <http://www.legislation.govt.nz/act/public/1982/0156/latest/DLM64785.html>

provides a list of such reasons in sections 6 and 9. If you think there are grounds to withhold specific information, please state this in your submission. Reasons may include the fact that it is commercially sensitive or personal information. Note that any decision that is made by DOC or Fisheries New Zealand to withhold information can be reviewed by the Ombudsman, who may require the information to be released.

2 Background

2.1 The problem

New Zealand has one of the largest marine areas in the world and most of its biodiversity remains unexplored and poorly understood. Based on our limited knowledge, approximately 31% of New Zealand's *known* species inhabit the marine environment and approximately 51% of all our marine species are only found in New Zealand.⁶ Furthermore, as much as 80% of our total biodiversity lives in the marine environment and new species are being discovered regularly.

Many pressures are affecting our marine environment, including our activities on land and in the sea and climate change. These pressures have led to a decline in biodiversity and in the condition of marine habitats,⁷ and their cumulative effects amplify the threat to biodiversity in our marine environment and make it less resilient.

2.1.1 The role of MPAs

MPAs are one of a number of tools that are available for conserving marine biodiversity and are an important component of sustainable marine management systems. They contribute to protecting and restoring ecosystems and habitats by managing the activities that occur within them.

MPAs provide a safeguard for the marine environment, allowing it to cope better with future pressures, such as climate change. The protection of pristine, relatively untouched environments that is afforded by MPAs also provides opportunities for monitoring and studying changes to the marine environment over time. Furthermore, when developed with fishing interests in mind, MPAs can contribute to fisheries management objectives (eg they may protect spawning and nursery habitat), and MPAs can also provide for nature-based recreational and tourism opportunities, such as diving.

MPAs are most effective at supporting marine health and resilience when they form a representative network of habitats and ecosystems. Such a network protects key sites and habitats while providing links between them that are important for maintaining ecosystem processes and also maintains resilience by spreading risk (eg the replication of habitats within a network reduces the risk of losing biodiversity due to a catastrophic event).

Although MPAs are effective at managing the impacts from activities that occur within their boundaries, they do not manage all marine pressures. This is because MPAs and the ecosystems within them are interconnected with the surrounding areas and consequently affect and are affected

⁶ Gordon, D.P.; Beaumont, J.; MacDiarmid, A.; Robertson, D.A.; Ahyong, S.T. 2010: Marine biodiversity of Aotearoa New Zealand. *PLOS ONE* 5(8): e10905. doi:10.1371/journal.pone.0010905

⁷ www.mfe.govt.nz/publications/marine/our-marine-environment-2019

by activities that occur outside their boundaries. Therefore, it is important that an MPA network complements other management regimes, such as fisheries, coastal and land management.

2.1.2 International obligations and New Zealand's MPA policy

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. New post-2020 international biodiversity targets are to be agreed in late 2020, and there is a push for more ambitious targets. These new targets will establish a yardstick by which New Zealand will be measured in the coming decade and beyond.

The *New Zealand Biodiversity Strategy*⁸ reflects the New Zealand Government's commitment (through its ratification of the Convention on Biological Diversity) to help stem the loss of biodiversity worldwide. DOC and the former Ministry of Fisheries⁹ developed the *Marine Protected Areas: policy and implementation plan* (MPA policy)¹⁰ in 2005 and the *Marine Protected Areas: classification, protection standard and implementation guidelines* (MPA guidelines)¹¹ in 2008 to provide a framework to help deliver on the *New Zealand Biodiversity Strategy* and New Zealand's commitment under the Convention on Biological Diversity.

The objective of the MPA policy is 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.

The MPA policy notes that this network of areas that protect marine biodiversity can include marine reserves and areas that are closed to certain fishing methods as long as these management tools enable a site's biodiversity to be maintained or recover to a healthy functioning state. Some levels of extractive use may be allowed (eg the use of less impactful fishing methods and extraction for research or scientific purposes) provided the biodiversity at the site is maintained and/or is able to recover.

The MPA policy provides for three types of management tools for its implementation: marine reserves (Type 1 MPAs), other MPAs (Type 2 MPAs) and other marine protection tools. Only Types 1 and 2 are considered MPAs for the purpose of the MPA policy. Type 1 MPAs are created via the Marine Reserves Act 1971, while Type 2 MPAs can be established by restricting or prohibiting particular fishing methods through regulations made under the Fisheries Act 1996 where this is

⁸ Department of Conservation; Ministry for the Environment 2000: The New Zealand biodiversity strategy. Department of Conservation and Ministry for the Environment, Wellington. 146 p. www.doc.govt.nz/nature/biodiversity/nz-biodiversity-strategy-and-action-plan/new-zealand-biodiversity-strategy-2000-2020/

⁹ Now Fisheries New Zealand.

¹⁰ Department of Conservation; Ministry of Fisheries 2005: Marine Protected Areas: policy and implementation plan. Department of Conservation and Ministry of Fisheries, Wellington. 25 p. www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/marine-protected-areas/marine-protected-areas-policy-and-implementation-plan/

¹¹ Ministry of Fisheries; Department of Conservation 2008: Marine Protected Areas: classification, protection standard and implementation guidelines. Ministry of Fisheries and Department of Conservation, Wellington. 53 p. 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/

considered to provide sufficient protection to be considered an MPA. Other marine protection tools may not protect sufficient biodiversity to meet the definition of an MPA but can still contribute to the overall protection objectives of the network.

2.1.3 The southeast region of the South Island

The southeast region of the South Island of New Zealand currently has no MPAs in place, heightening the risk that unique marine habitats and ecosystems that are already being affected by cumulative pressures, including climate change, will be lost. This lack of MPAs also removes the opportunity to maintain representative marine areas for study and fails to meet New Zealand's MPA policy or international obligations for biodiversity in this region.

2.2 Southeast region and the Forum

In 2014, the New Zealand Government appointed the Forum to consider and recommend marine protection options for the southeast region. The Forum's terms of reference included the objective to provide a report for the Ministers of Conservation and Fisheries recommending levels of marine protection for the southeast region that were consistent with the MPA policy and guidelines.

Forum members represented Kāi Tahu, commercial and recreational fishing interests, conservation advocates, tourism interests, and local communities. The Forum was assisted and advised by DOC and Fisheries New Zealand.

Encouraging input to the process from iwi and communities was an important focus for the Forum. Therefore, it released a [consultation document](#) in October 2016 that detailed the 20 proposed sites on which it was seeking feedback, which resulted in 2803 submissions being received.

The Forum was unable to reach consensus and as a result proposed two alternative networks to the Ministers of Conservation and Fisheries.

- Network 1, which would cover 14.2% (1267 km²) of the region and include six marine reserves, five Type 2 MPAs and one kelp protection area. Network 1 was supported by the environment, tourism, community and science representatives and one of two recreational fishing representatives.
- Network 2, which would cover 4.1% (366 km²) of the region and include three marine reserves and two Type 2 MPAs. Network 2 was supported by the commercial fishing representatives and one of two recreational fishing representatives.

2.2.1 Ministers have decided to consult on network 1

Once the recommendations report had been presented to the Ministers of Conservation and Fisheries, DOC and Fisheries New Zealand provided advice on the recommendations by assessing them against the MPA policy. These agencies considered that network 1 better met the objectives of the MPA policy.

In May 2019, the Ministers of Conservation and Fisheries announced their agreement to consult on a network that was consistent with network 1, using tools available in the Marine Reserves Act and the Fisheries Act.

The Forum's recommendations for network 1 also included restrictions on seismic surveying and bottom disturbance across the network, as well as fishing for whitebait in the Whakatorea (L1) and

Tahakopa (Q1) Type 2 MPAs. However, these recommendations cannot be implemented under the Marine Reserves Act or Fisheries Act but rather are managed by other legislation, such as the Whitebait Fishing Regulations 1994 under the Conservation Act 1987¹² (administered by DOC) and the Crown Minerals Act 1991¹³ (administered by the Ministry of Business, Innovation, and Employment). Therefore, they will be considered at a later stage once decisions have been made on the statutory processes currently being consulted on.

2.3 Relevant legislation

As noted above, we are currently consulting on the establishment of a proposed network of marine protection measures in the southeast region of the South Island in comparison to the status quo. This network is made up of marine reserves (Type 1 MPAs), Type 2 MPAs and a kelp protection area.

2.3.1 Marine reserves (Type 1 MPAs)

The six proposed marine reserves will be decided on under the Marine Reserves Act 1971. This Act has the purpose of:

... preserving, as marine reserves for the scientific study of marine life, areas of New Zealand that contain underwater scenery, natural features, or marine life of such distinctive quality, or so typical, or beautiful, or unique that their continued preservation is in the national interest.

Marine reserves are generally ‘no-take’ areas in which fishing, mining and the disturbance of all marine life and habitat are prohibited. However, some provision can be made to allow specific fishing activities and scientific research provided it is consistent with the purpose of the Act.

The statutory process for the establishment of a marine reserve requires an application that meets the requirements of the Marine Reserve Act to be made to the Director-General (DG) of Conservation. However, the DG may also make the application. In this case, the DG has made an application for the establishment of the six marine reserves that were proposed as part of network 1 by the Forum. The application is provided in Appendix 1. Any final decisions on the application will be subject to the submissions received as part of the consultation process. Therefore, aspects of the application may be changed and any or all parts of the application may not be pursued.

The proposed marine reserves will be decided on through the process set out in section 5 of the Marine Reserves Act. The Act provides for the application to be publicly notified and allows a 2-month period for the public to make any objections (or submissions). In making a decision, the Minister of Conservation must consider whether any objections made should be upheld by considering whether the proposed marine reserve would interfere unduly with a range of activities and interests, including any estate or interest in land in or adjoining the proposed reserve, any existing right of navigation, and commercial fishing. In addition, the Minister must consider whether the proposed marine reserve would interfere unduly with or adversely affect any existing use of the area for recreational purposes or would otherwise be contrary to public interest.

In accordance with the purpose of the Act, the Minister will also need to consider whether the proposed marine reserve will be in the best interests of scientific study, will be for the benefit of the

¹² www.legislation.govt.nz/regulation/public/1994/0065/latest/DLM189522.html

¹³ www.legislation.govt.nz/act/public/1991/0070/latest/DLM242536.html

public, and that it is expedient to declare the area as a marine reserve either unconditionally or subject to any conditions.

The establishment of a marine reserve requires concurrence (agreement) from the Ministers of Fisheries and Transport.

2.3.2 Type 2 MPAs

The Type 2 MPAs will be decided on under the Fisheries Act 1996. The purpose of this Act is:

... to provide for the utilisation of fisheries resources while ensuring sustainability, where 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. Utilisation means conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural wellbeing.

Type 2 MPAs prohibit or restrict particular activities to manage adverse effects on the marine environment. The minimum level of protection required for an area to be considered for designation as a Type 2 MPA is the prohibition of fishing methods that involve dragging gear across the seabed (ie bottom trawling, Danish seining, and both the commercial and recreational use of dredges). Prohibitions or restrictions on other fishing methods may be required in designating a Type 2 MPA and can be established under the Fisheries Act if doing this is consistent with the purpose and principles of the Act.

2.3.3 Kelp protection area

One kelp protection area is also proposed, which would prohibit the harvesting of kelp from a specific area. While this does not qualify as a Type 2 MPA under the MPA policy, it would provide protection for areas of kelp and contribute to the biodiversity goals of the network. This area would be established using Fisheries (Commercial Fishing) Regulations 2001 under the Fisheries Act.¹⁴

2.4 Special relationship between the Crown and Māori

2.4.1 Crown obligations and decision-making

The Crown has obligations to Māori through Te Tiriti o Waitangi,¹⁵ deeds of settlement, legislation, protocols and regulations.

When making a decision under the Marine Reserves Act, the Ministers of Conservation and Fisheries must give effect to the principles of Te Tiriti o Waitangi.

When making decisions under the Fisheries Act, the Minister of Fisheries must act in a manner that is consistent with the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.¹⁶

¹⁴ www.legislation.govt.nz/regulation/public/2001/0253/latest/whole.html

¹⁵ See the Glossary at the end of this report for a definition of all Māori terms.

¹⁶ www.legislation.govt.nz/act/public/1992/0121/latest/DLM281433.html

See Appendix 2 for details of the relevant Treaty principles.

2.4.2 Ngāi Tahu Claims Settlement Act 1998

As a wider context for these proposed MPAs, the Crown has acknowledged Kāi Tahu¹⁷ rights as mana whenua under Te Tiritiri o Waitangi through various pieces of legislation, including the Ngāi Tahu Claims Settlement Act 1998.¹⁸ Among other things, this acknowledges Kāi Tahu's connection with particular places and species.

Statutory acknowledgements are acknowledgements by the Crown of Kāi Tahu's particular cultural, spiritual, historical and traditional associations with specified areas. The statutory acknowledgements that are relevant to this region are set out in the schedules to the Ngāi Tahu Claims Settlement Act.

See Appendix 2 for more detail.

2.4.3 Marine and Coastal Area (Takutai Moana) Act 2011

The Marine and Coastal Area (Takutai Moana) Act 2011¹⁹ acknowledges the importance of the marine and coastal area to all New Zealanders and provides for the recognition of the customary rights of whānau, hapū and iwi in the common marine and coastal area.

Under this Act, any whānau, hapū or iwi who consider they exercise kaitiakitanga in a part of the common marine and coastal area that is affected by the proposed marine reserves have a right to participate in the process and provide their views on the proposals. The Minister of Conservation must have particular regard to the views of affected whānau, hapū and iwi in considering the proposals.

In addition, customary marine title (if granted) gives greater rights to those who hold title in an area. There are currently three pending applications for customary marine title under the Marine and Coastal Area (Takutai Moana) Act adjacent to or over the proposed marine reserves.

- Te Rūnanga o Ngāi Tahu on behalf of Ngāi Tahu Whānui: over all of the proposed marine reserves.
- Te Maiharoa Whānau: adjacent to and over the proposed Waitaki Marine Reserve.
- Paul and Natalie Karaitiana: adjacent to and over the proposed Papanui Marine Reserve.

Should customary marine title be granted prior to the marine reserves being established, among other rights the holders would have a permission right regarding new marine reserve proposals and concessions in that area (with some conditions). This permission right includes a power to decline the application to establish a marine reserve.

If marine reserves are established prior to the determination of customary marine title, those areas will remain part of the 'common marine and coastal area'; therefore, any applications for customary

¹⁷ Also referred to as Ngāi Tahu in relation to documents, Acts and the formal name of the tribe. In the Kāi Tahu dialect, the 'ng' becomes a 'k'.

¹⁸ www.legislation.govt.nz/act/public/1998/0097/latest/DLM429090.html

¹⁹ www.legislation.govt.nz/act/public/2011/0003/latest/DLM3213131.html

marine title could proceed. The existence of a marine reserve may be relevant to the assessment of whether customary marine title exists.

2.5 Implications for whānau, hapū and iwi

Engagement with Kāi Tahu during and after the forum process has indicated that the proposed network of MPAs will be opposed unless the following matters are satisfactorily addressed:

- rebalancing for any impacts the MPA network may have on Kāi Tahu rights and interests;
- co-management of the MPA network by Kāi Tahu and the Crown; and
- generational review of the MPA network.

2.5.1 Rebalancing for the impacts of the MPA network on Kāi Tahu rights and interests

The Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 settled Māori commercial fishing claims and recognised non-commercial customary fishing rights. It enables the Minister of Fisheries to develop policies to help recognise Māori practices in the exercise of their non-commercial fishing right, and to make regulations that recognise and provide for customary food gathering and the special relationship tangata whenua have with their important fishing grounds.

Kāi Tahu has indicated that a network of MPAs could displace fishing pressure into other areas which, in turn, may require catch limits for commercial fish stocks to be cut in order to ensure fishing does not jeopardise stock sustainability. Kāi Tahu are concerned that this would negatively impact their customary non-commercial fishing practices and their commercial fishing interests and the economic wellbeing of coastal fishing communities.

In addition, a new MPA network has the potential to negatively impact the opportunity for Kāi Tahu to establish customary fishing areas (taiāpure or mātaihai) as provided for following the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

Kāi Tahu has indicated that a ‘rebalancing’ process is needed to address these potential impacts. Kāi Tahu has indicated that ‘rebalancing’ should also include improvements to the functionality of customary fishing tools (in particular taiāpure rule-making).

2.5.2 Co-management by Kāi Tahu and the Crown

Co-management of MPAs acknowledges the partnership between the Crown and Kāi Tahu over the proposed MPAs and will provide for the retention and transfer of mātauraka between Kāi Tahu generations, to maintain connection to their rohe moana.

Kāi Tahu has also suggested that:

- co-management arrangements for each MPA could be modelled on the existing governance arrangement in place for the East Otago Taiāpure;
- Kāi Tahu rangers with appropriate powers to undertake day-to-day management, monitoring and compliance work should be provided for; and
- wānaka (which may include sampling and strategic take of marine life for the purpose of enhancing mātauraka and retaining the generational connection with the rohe moana) should be provided for in the MPA network and therefore not necessarily prohibited across the Type 1 (marine reserve) sites.

Further work is underway between Treaty Partners to define the scope and key elements of potential co-management arrangements. One tool that has been used previously for MPAs is statutory advisory committees, which could include tangata whenua and representatives from DOC and Fisheries New Zealand. Wider community forums to discuss management might also be an appropriate part of these management arrangements.

Once the final scope of possible co-management arrangements has been developed, DOC and Fisheries New Zealand will need to assess whether such arrangements can be achieved under the existing legislative framework. In the event of any elements that involve changes to government policy, or the making of new regulation, further public consultation may need to be undertaken.

2.5.3 Generational review of the MPA network

A 25-yearly generational review of the MPA network is required. This is to actively recognise the mana and engagement of Kāi Tahu in managing the network, as well as recognising their intergenerational connections to the past, present and future.

Kāi Tahu has indicated its aspirations for periodic reviews of the MPA network (5–10 years from the establishment of the MPAs) leading into the 25-yearly generational review.

2.5.4 Kāi Tahu concerns with the proposed Te Umu Koau Marine Reserve (D1)

Agencies are aware of significant concerns expressed by Kāi Tahu and the commercial fishing industry with regards to the proposal for a marine reserve at site D1. The proposed marine reserve extends over areas of offshore reef that are seasonally important rock lobster (*Jasus edwardsii*) fishing grounds. Kāi Tahu are concerned that prohibiting commercial fishing on these grounds would impact on their people, particularly those members of the Moeraki, Otakou and Puketeraki Rūnaka whose families are involved in rock lobster fishing, processing and export.

The Ministers of Conservation and Fisheries are interested in the views of submitters about how the marine reserves proposed for site D1 (Te Umu Koau Marine Reserve) could be progressed to balance these concerns against marine protection objectives.

2.6 Hector's and Māui Dolphin Threat Management Plan

Fishing method restrictions are being considered in an update of the *Hector's and Māui Dolphin Threat Management Plan*.²⁰ These restrictions could overlap with the proposed Tuhawaiki and Moko-tere-a-torehu Type 2 MPAs and Waitaki Marine Reserve. Therefore, depending on what is decided for the updated plan, the proposed Type 2 MPAs may be superseded or implemented in a modified form.

See the Hector's and Māui Dolphin Threat Management Plan review for more information.²¹

²⁰ www.mpi.govt.nz/dmsdocument/34971

²¹ www.doc.govt.nz/get-involved/have-your-say/all-consultations/2019/hectors-and-maui-dolphins-threat-management-plan-review/

3 Proposed marine protection network

3.1 Overview of the proposed network

The following marine protection measures are proposed for the southeast region of the South Island of New Zealand.

- Six marine reserves (Type 1 MPAs): Waitaki, Te Umu Koau, Papanui, Ōrau, Okaihae and Hākinikini.
- Five Type 2 MPAs: Tuhawaiki, Moko-tere-a-torehu, Kaimata, Whakatorea and Tahakopa.
- One kelp protection area: Arai Te Uru.

This network is almost identical to the network 1 that was proposed in the Forum's recommendations report.²² However, some small changes have been made to the boundaries of the proposed areas to make navigation easier. Also, an additional section of the Pleasant River estuary has been added to the proposed Te Umu Koau Marine Reserve. This area was not included in the Forum's initial recommendation due to an outdated coastal boundary but was re-established as part of the estuary in 2009/10 through the removal of a groyne. Therefore, since the intent of the recommendation was to protect the entire estuary, this section has now been included.

The names for the proposed MPAs and kelp protection area have been retained as those provided by the Forum until formal support for each is obtained from rūnaka with mana whenua. These names may also be subject to change following consultation with Te Rūnanga o Ngāi Tahu and interested parties before being approved by the New Zealand Geographic Board.

3.1.1 Design of the MPA network

A range of international best practice documents and agreements to which New Zealand is a party provide guidance for the establishment of MPA networks, all of which share some common elements. The Convention on Biological Diversity, United Nations Environment Programme and the International Union for Conservation of Nature (IUCN) all provide examples of established principles for designing MPA networks and provide advice on the network design process.

The following best practice principles guided the design of the proposed network.

- Representation: includes elements of biodiversity (from genes to ecosystems) and associated environments that are characteristic of the larger marine area.
- Replication: an example of a given feature is protected at more than one site within a given biogeographic area.
- Connectivity: allows for larvae, juveniles and species to move from one protected site to another and to benefit one another.
- Adequacy: each site is suitably placed and sufficiently large to protect the species, populations and ecology within it.
- Viability: each site can be self-sustaining even in the face of natural and human-induced variations.

²² www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/sempr/sempr-recommendations-report.pdf

The proposed network meets each of these best practice principles by:

- representing 17 of the 22 coastal habitats that have been identified in the southeast region in effective protection, as well as three biogenic (living) habitats in effective protection
- replicating 11 of the 17 coastal habitats and one biogenic habitat (bryozoan thickets)
- allowing for good connectivity across habitats for most of the region at the 50–100-km scale
- providing protection for nine habitats that are represented at > 10% of their total area, four additional habitats that are represented at > 5% of their total area and four further habitats that are represented at > 1% of their total area
- comprising areas that are considered to be of a suitable size based on the proposed restrictions at each site.

Figure 1 shows the locations of the proposed MPAs and kelp protection area.

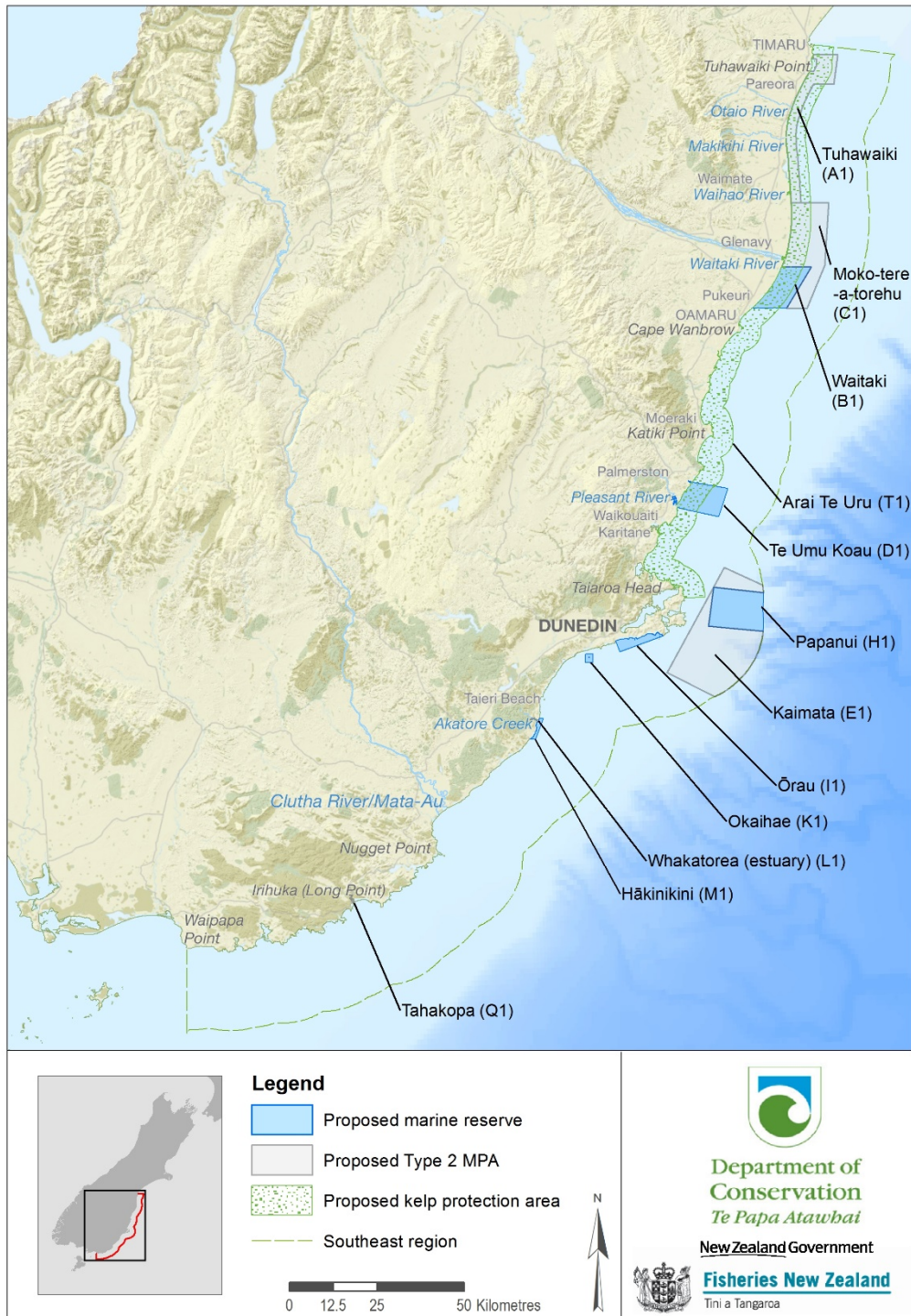


Figure 1. Locations of the proposed marine reserves (Type 1 marine protected areas (MPAs)), Type 2 MPAs and kelp protection area in the southeast region of the South Island of New Zealand.

3.1.2 Assessment criteria

The costs and benefits of establishing the proposed network were considered against the status quo (ie not implementing the network). The following criteria were used to compare options.

- Does the option have the potential to improve biodiversity conservation?
- Will the option provide reference areas for scientific study?
- Does the option minimise negative social, cultural and economic impacts?

In section 3.2, the costs and benefits of establishing the proposed network as a whole are considered in relation to these criteria. Sections 3.3–3.5 then provide a description of each individual site and identifies its costs and benefits. The methodology that was used to estimate the catch and export value is outlined in Appendix 3.

3.2 Costs and benefits of the overall network

Option 1: Maintaining the status quo, no protection provided

There are currently no marine reserves or Type 2 MPAs in the southeast region of the South Island of New Zealand.

Biodiversity conservation

Maintaining the status quo would mean:

- a lack of progress towards meeting New Zealand’s international biodiversity commitments
- a lack of progress towards meeting the objectives of the *New Zealand Biodiversity Strategy* and MPA policy
- that marine biodiversity in the southeast of the South Island is not explicitly protected and maintained or allowed to recover. The absence of MPAs in this region increases the risk of losing unique marine habitats and ecosystems that are already being affected by cumulative pressures, including climate change.

Reference areas for scientific study

Maintaining the status quo would:

- not provide reference areas for the benefit of research or scientific study and may hinder our understanding of cumulative pressures and the impacts of climate change on the southeast of the South Island.

Social, cultural and economic impacts

Maintaining the status quo would:

- have no economic impacts on existing fisheries and other affected activities
- have no impacts on customary fisheries and Kāi Tahu’s ability to exercise their non-commercial fishing rights
- have no impacts on recreational fishing
- have no added management and compliance costs
- not allow the potential benefits associated with wellbeing and public enjoyment from the proposed MPAs to be realised
- not allow the potential fisheries benefits associated with the proposed MPAs to be realised
- not meet the public’s desire to see greater marine protection and their raised expectations of this from the Forum’s process.

Questions

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?

Option 2: Establishing the proposed network

Together, the proposed MPAs and kelp protection area represent marine habitats of the southeastern South Island from Timaru to Waipapa Point with varying depths, exposures to weather, currents and tides, and physical characteristics.

Examples of these environments include shallow rocky reefs near Dunedin, deep canyons off the Otago Peninsula and soft-sediment (sand and mud) habitats in the northern part of the region. Important ecological areas and sensitive habitats including seagrass, thickets of bryozoans (tiny animals that form colonies) and giant kelp forests along the coast are also included in the proposed network.

Biodiversity conservation

Establishment of the proposed network would:

- contribute to New Zealand's international biodiversity commitments in the southeast of the South Island
- contribute to the objectives of the *New Zealand Biodiversity Strategy* and MPA policy for this area
- allow the marine biodiversity in the southeast of the South Island to be explicitly protected and maintained or allowed to recover
- protect an important biogenic habitat (kelp) from the future effects of harvesting
- provide greater benefits than establishing individual MPAs in an ad hoc fashion as it would provide the important spatial links that are needed to maintain ecosystem processes and connectivity and avoid any risks to individual sites from localised disasters, climate change impacts, etc.

Reference areas for scientific study

Establishment of the proposed network would:

- provide reference areas for the benefit of research or scientific study. It could, for example, enable an increased understanding of cumulative pressures and the impacts of climate change on the southeast of the South Island.

Social, cultural and economic impacts

Establishment of the proposed network would:

- provide potential benefits associated with wellbeing and public enjoyment from MPAs, such as tourism and educational opportunities
- allow the potential fisheries benefits associated with the creation of MPAs to be realised
- increase the risk of local depletion if fishers move to other areas to fish and fishing activity in those other areas increases as a result
- potentially be associated with negative cultural, social and economic impacts on the fishers who are affected by area and fishing method restrictions (see Table 1 for estimates of the potential economic impacts on commercial fishers)
- have potential impacts on Māori interests (see section 2.5).

Establishment of the proposed network would displace the catch from fisheries, some but not all of which could be taken from elsewhere. An estimate of the likely commercial fishery displacements caused by the network is provided in Table 1, while estimates of the displacement for individual sites are provided in sections 3.3–3.5.

Table 1. Estimated average annual catch by fish stock that would be affected by the establishment of the proposed network based on annual catches from the 2007/08 to 2016/17 fishing years and export value estimates. QMA: quota management area.

Fish stock (QMA)	Estimated catch affected (kg)	Estimated % of total QMA	Estimated export value (NZ\$)
Elephant fish (<i>Callorhinchus milii</i>) (ELE3)	31,007	2.8	162,478
Flatfish (FLA3)	27,838	2.0	177,332
Red cod (<i>Pseudophycis bachus</i>) (RCO3)	26,001	0.7	40,823
Red gurnard (<i>Chelidonichthys kumu</i>) (GUR3)	24,422	2.3	171,691
Rough skate (<i>Zearaja nasuta</i>) (RSK3)	24,268	1.7	28,152
Koura/rock lobster (<i>Jasus edwardsii</i>) (CRA7)	19,949	23.3	2,068,428
School shark (<i>Galeorhinus galeus</i>) (SCH3)	13,276	3.6	67,838
Rig (<i>Mustelus lenticulatus</i>) (SPO3)	10,195	2.2	68,717
Barracouta (<i>Thyrsites atun</i>) (BAR1)	9,854	0.1	15,863
Blue cod (<i>Parapercis colias</i>) (BCO3)	7,130	4.2	106,946
Arrow squid (<i>Nototodarus sloanii</i> , <i>N. gouldi</i>) (SQU1T&J)	7,084	0.0	30,321
Spiny dogfish (<i>Squalus griffin</i> , <i>S. acanthias</i>) (SPD3)	6,933	0.4	5,061
Tarakihi (<i>Nemadactylus macropterus</i> , <i>Nemadactylus</i> sp.) (TAR3)	4,836	0.5	17,362
Hāpuku/bass (<i>Polyprion oxygeneios</i> / <i>P. americanus</i>) (HPB3)	3,909	.2	43,893

Fish stock (QMA)	Estimated catch affected (kg)	Estimated % of total QMA	Estimated export value (NZ\$)
Ling (<i>Genypterus blacodes</i>) (LIN3)	3,553	0.2	13,425
Stargazer (<i>Kathetostoma</i> spp.) (STA3)	2,457	0.5	5,918
Ghost shark (<i>Hydrolagus novaezealandiae</i>) (GSH3)	2,449	0.5	2,646
Blue moki (<i>Latridopsis ciliaris</i>) (MOK3)	2,416	1.7	13,361
Sea perch (<i>Helicolenus</i> spp.) (SPE3)	2,051	0.4	5,474
Octopus (<i>Pinnoctopus cordiformis</i>) (OCT3)	1,574	4.7	17,124
Leatherjacket (<i>Meuschenia scaber</i>) (LEA3)	1,483	1.2	4,656
Common warehou (<i>Seriolella brama</i>) (WAR3)	1,242	0.1	5,679
Smooth skate (<i>Dipturus innominatus</i>) (SSK3)	1,068	0.3	1,240
Paddle crab (<i>Ovalipes catharus</i>) (PAD3)	448	1.1	2,961
Large trough shell (<i>Macra murchisoni</i>) (MMI3)	309	0.9	2,082
Pāua (<i>Haliotis iris</i> , <i>H. australis</i>) (PAU5D)	306	0.4	16,739
Kina (<i>Evechinus chloroticus</i>) (SUR3)	211	5.4	10,473
Silver warehou (<i>Seriolella punctata</i>) (SWA3)	132	0.0	326
Triangle shell (<i>Spisula aequilatera</i>) (SAE3)	122	0.5	826
Jack mackerel (<i>Trachurus declivis</i> , <i>T. murphyi</i> , <i>T. novaezealandiae</i>) (JMA3)	121	0.0	173
Bluenose (<i>Hyperoglyphe Antarctica</i>) (BNS3)	103	0.0	1,137

Fish stock (QMA)	Estimated catch affected (kg)	Estimated % of total QMA	Estimated export value (NZ\$)
Kahawai (<i>Arripis trutta</i> , <i>A. xylabion</i>) (KAH3)	82	0.1	20
Trumpeter (<i>Latris lineata</i>) (TRU3)	71	0.4	211
Seal shark (<i>Dalatias licha</i>) (BSH3)	45	0.1	49
Pale ghost shark (<i>Hydrolagus bemisi</i>) (GSP1)	22	0.0	24
Snapper (<i>Pagrus auratus</i>) (SNA3)	18	25.4	179
Ringed dosinia (<i>Dosinia anus</i>) (DAN3)	13	0.5	87
Southern tuatua (<i>Paphies donacina</i>) (PDO3)	12	0.1	114
Queen scallop (<i>Zygochlamys delicatula</i>) (QSC3)	12	0.1	39
Kingfish (<i>Seriola lalandi</i>) (KIN3)	11	0.9	132
Other	1,484	53.3	N/A
Total	238,517		3,110,000

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.

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 network would you like to see? Why? Please provide evidence to support your answer.

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

3.3 Costs and benefits of the proposed marine reserves (Type 1 MPAs)

This section provides background information and outlines the costs and benefits of each proposed marine reserve. Additional information about each site can be found in Appendix 1, while a list of the habitats in the region and at each site is provided in Appendix 4 and a list of the taonga species that are present at each site is provided in Appendix 5.

3.3.1 Waitaki Marine Reserve

Figure 2 shows the proposed Waitaki Marine Reserve, which was identified as site B1 by the Forum.

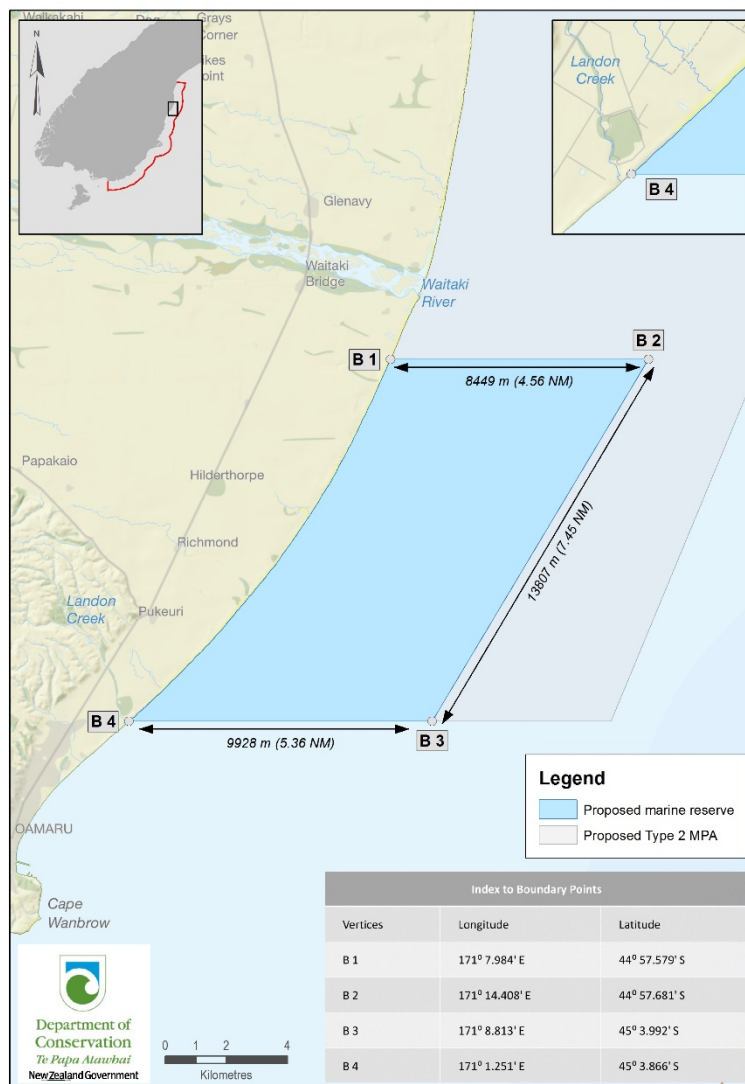


Figure 2. Locations of the proposed Waitaki Marine Reserve and the adjacent Type 2 marine protected area (MPA).

This site contains moderate gravel beach, moderate shallow gravel and moderate shallow mud habitats that are typical of this section of coast. It is approximately 15 × 8 km, which is considered a suitable size for allowing the maintenance and/or recovery of the biodiversity associated with these habitat types.

Why protecting this site is important (benefits)

The waters around the mouth of the Waitaki River hold some regionally unique, natural features due to the influence of fresh water and river sediments on the marine environment. Anecdotal evidence indicates that the cobble and gravel substrate that is found in this area supports several biogenic habitats of high biodiversity value, such as kelp and rhodolith (hard, calcified red algae) beds.

Large shoals of the juvenile form of squat lobster (*Munida gregaria*) can accumulate in the frontal systems of the river plume in late spring and summer. Squat lobsters represent an important food source for fishes, marine mammals and birds.

The area is a known foraging area for wildlife, including penguins and Otago shags (*Phalacrocorax chalconotus*) at Cape Wanbrow. The importance of this area for these species indicates its wider ecological value, which would be enhanced by establishment of the proposed marine reserve.

This is the only proposed marine reserve that would protect the biodiversity associated with gravel habitats. However, the proposed Type 2 MPAs at Tuhawaiki and Moko-tere-a-torehu would also contain these habitats. This site increases the connectivity across the network, linking with other proposed MPAs at Moko-tere-a-torehu and Tuhawaiki to the north and Te Umu Koau Marine Reserve to the south.

By protecting a range of representative habitats and unique features, this site would contribute to New Zealand's international biodiversity commitments, protect significant biodiversity, and provide an important representative area for research and scientific study.

Activities that would be affected by the proposed marine reserve (costs)

The 'no-take' status of marine reserves generally prohibits fishing and disturbance of any kind unless specific exceptions (that are consistent with the purpose of the Marine Reserves Act) are provided for. Swimming, snorkelling, boating and diving are not affected. Details of the activities that would be prohibited in the proposed Waitaki Marine Reserve are outlined in Table 2.

Table 2. Activities that would be prohibited in the proposed Waitaki Marine Reserve.

Activity	Details
Commercial fishing	All commercial fishing would be prohibited. Based on 2017 values, Fisheries New Zealand estimates the export value of potentially displaced commercial catches from the site to be NZ\$21,491 (4.8 tonnes) per year. The biggest displacement (in terms of export value) would be experienced by the red gurnard (<i>Chelidonichthys kumu</i>), elephant fish (<i>Callorhinchus milii</i>) and rig (<i>Mustelus lenticulatus</i>) commercial fisheries, for each of which < 1 tonne per year would be expected to be displaced.
Recreational fishing	All recreational fishing would be prohibited. This would be unlikely to have a major impact as most recreational fishing in the area occurs at the mouth of the Waitaki River, which is excluded from the proposed reserve.
Customary fishing	Customary fishing would generally be prohibited but exceptions may be made to allow Kāi Tahu to take or disturb marine life for wānaka. Any such exceptions would need to be expressly provided for and be consistent with the purpose of the Marine Reserves Act 1971.
Mining and petroleum exploration	All mining and petroleum exploration would be prohibited with the possible exception of the activities listed in section 61(1A) of the Crown Minerals Act 1991. No mining currently occurs at this site and no active petroleum permit or open block offers are present. Foregone benefits from future potential mining or petroleum extraction in the area would not be significant as the area is not believed to hold any significant deposits of Crown minerals.
Extraction of any material for commercial use	All commercial extractive activities would be prohibited. No current extraction of material is known to occur.
Vehicle access over the foreshore	Driving over the intertidal area (foreshore) would be prohibited.

Questions

Do you agree with the costs and benefits identified for this site? 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 activity restrictions would you like to see? Why? Please provide evidence to support your answer.

3.3.2 Te Umu Koau Marine Reserve

Figure 3 shows the proposed Te Umu Koau Marine Reserve, which was identified as site D1 by the Forum.

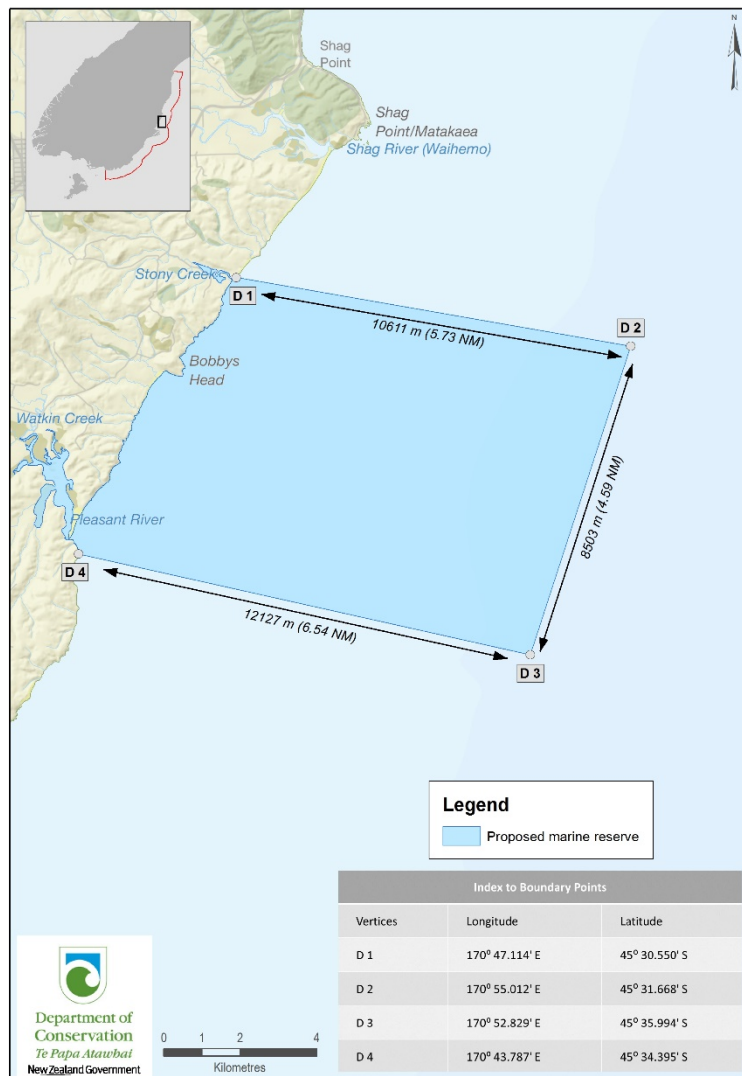


Figure 3. Location of the proposed Te Umu Koau Marine Reserve.

The proposed Te Umu Koau Marine Reserve contains habitats that are representative of those found from north of the Otago Peninsula to Oamaru. The combination of deep and shallow reef and sand, estuarine, and biogenic (kelp and seagrass) habitats make this site unique along the coast.

This site is approximately 8 × 10 km, which is considered a suitable size for allowing the maintenance and/or recovery of the biodiversity associated with these habitat types.

Of the seven coastal habitats that are represented by this site, two (deep sand and moderate shallow mud) are adequately replicated in other MPAs.

Why protecting this site is important (benefits)

This site includes a moderately exposed section of coastline that supports extensive kelp beds. Kelp forests have been likened to terrestrial forests in their structure and ability to support many other species, including koura/rock lobster (particularly the settling puerulus larvae), blue cod (*Parapercis colias*) and greenbone (butterfish; *Odax pullus*), and are one of the most productive habitat types in the world. This particular kelp forest is of outstanding value and contributes significantly to the biodiversity of the region. As with most of Otago's rocky, wave-exposed coasts, the area that is exposed at low tide is dominated by bull kelp (*Durvillaea* spp.).

Pleasant River is a tidal lagoon salt marsh habitat that is typical of tidal lagoons along this part of the coast. The edge of the Pleasant River estuary is listed as an Area of Significant Conservation Value in the *Dunedin City District Plan*²³ and as a regionally significant wetland in Schedule 9 of Otago Regional Council's *Regional Plan: Water for Otago*.²⁴

An important bird area has been identified at Bobbys Head (the English name for Te Umu Koau).²⁵ Colonies of spotted shags (*Stictocarbo punctatus*) and tītī/sooty shearwaters (*Puffinus griseus*) have been reported at this site and hoiho/yellow-eyed penguins (*Megadyptes antipodes*) breed there.

Te Umu Koau Marine Reserve would encompass many different habitats in close proximity to each other, providing an opportunity to protect several habitats in one reserve. These include rare examples of volcanic rock reefs, estuaries, kelp forests, exposed reef shelves, sea caves and seaweed gardens. The proposed marine reserve area is considered to have exceptionally high value relating to the protection of ecosystem processes across habitats.

This is the only proposed marine reserve to represent deep reef and estuarine habitats in the Otago region. The deep reef at this site is considered to be typical of the deep reefs that are associated with this section of the coast. The inclusion of a diverse range of habitats within a single reserve would enhance the connectivity between shallow and deep reef habitats and sand and reef habitats.

By protecting a range of representative habitats and unique features, this site would contribute to New Zealand's international biodiversity commitments, protect significant biodiversity, and provide an important representative area for research and scientific study.

Activities that would be affected by the proposed marine reserve (costs)

The 'no-take' status of marine reserves generally prohibits fishing and disturbance of any kind unless specific exceptions (that are consistent with the purpose of the Marine Reserves Act) are provided for. Swimming, snorkelling, boating and diving are not affected. Details of the activities that would be prohibited in the proposed Te Umu Koau Marine Reserve are provided in Table 3.

²³ www.dunedin.govt.nz/_data/assets/pdf_file/0018/147330/Schedule-25.4-Areas-of-Significant-Conservation-Value.pdf

²⁴ www.orc.govt.nz/media/5795/regional-plan_water-for-otago-updated-to-1-july-2018-schedules.pdf

²⁵ Department of Conservation; Ministry of Fisheries 2005; Marine Protected Areas: policy and implementation plan. Department of Conservation and Ministry of Fisheries, Wellington. 25 p. <http://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/marine-protected-areas/marine-protected-areas-policy-and-implementation-plan/>

Table 3. Activities that would be prohibited in the proposed Te Umu Koau Marine Reserve.

Activity	Details
Commercial fishing	All commercial fishing would be prohibited. Based on 2017 values, Fisheries New Zealand estimates the export value of potentially displaced commercial catches from the site to be approximately NZ\$2 million (40.6 tonnes) per year. Of this, \$1.84 million is attributed to the displacement of koura/rock lobster (<i>Jasus edwardsii</i> ; 17.7 tonnes), with Fisheries New Zealand estimating that 20.7% of the catch in CRA7 (the quota management area within which this site falls) occurs in this area. Commercial eeling also occurs in the Stony Creek and Pleasant River estuaries, which would be prohibited under the proposal.
Recreational fishing	All recreational fishing would be prohibited. Limited information is available on the use of this site for recreational fishing but it is likely that the area is used for floundering, whitebaiting, trout fishing, collecting pāua (<i>Haliotis</i> spp.), and targeting reef fishes and koura/rock lobster. However, the adverse effects on overall recreational opportunities would likely be low as alternative locations are available nearby.
Customary fishing	Customary fishing would generally be prohibited but exceptions may be made to allow Kāi Tahu to take or disturb marine life for wānaka. Any such exceptions would need to be expressly provided for and be consistent with the purpose of the Marine Reserves Act 1971.
Discharge of firearm	The discharging of any firearm (as defined in the Marine Reserves Act) would be prohibited. This would prohibit game shooting in the Stony Creek and Pleasant River estuaries.
Mining and petroleum exploration	All mining and petroleum exploration would be prohibited with the possible exception of the activities listed in section 61(1A) of the Crown Minerals Act 1991. No mining currently occurs at this site and no active petroleum permit or open block offers are present. Foregone benefits from future potential mining or petroleum extraction in the area would not be significant as the area is not believed to hold any significant deposits of Crown minerals.
Extraction of any material for commercial use	All commercial extractive activities would be prohibited. No current extraction of material is known to occur within the site.
Vehicle access over the foreshore	Driving over the intertidal area (foreshore) would be prohibited.

Questions

Do you agree with the costs and benefits identified for this site? 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 activity restrictions would you like to see? Why? Please provide evidence to support your answer.

3.3.3 Papanui Marine Reserve

Figure 4 shows the proposed Papanui Marine Reserve, which was identified as site H1 by the Forum.

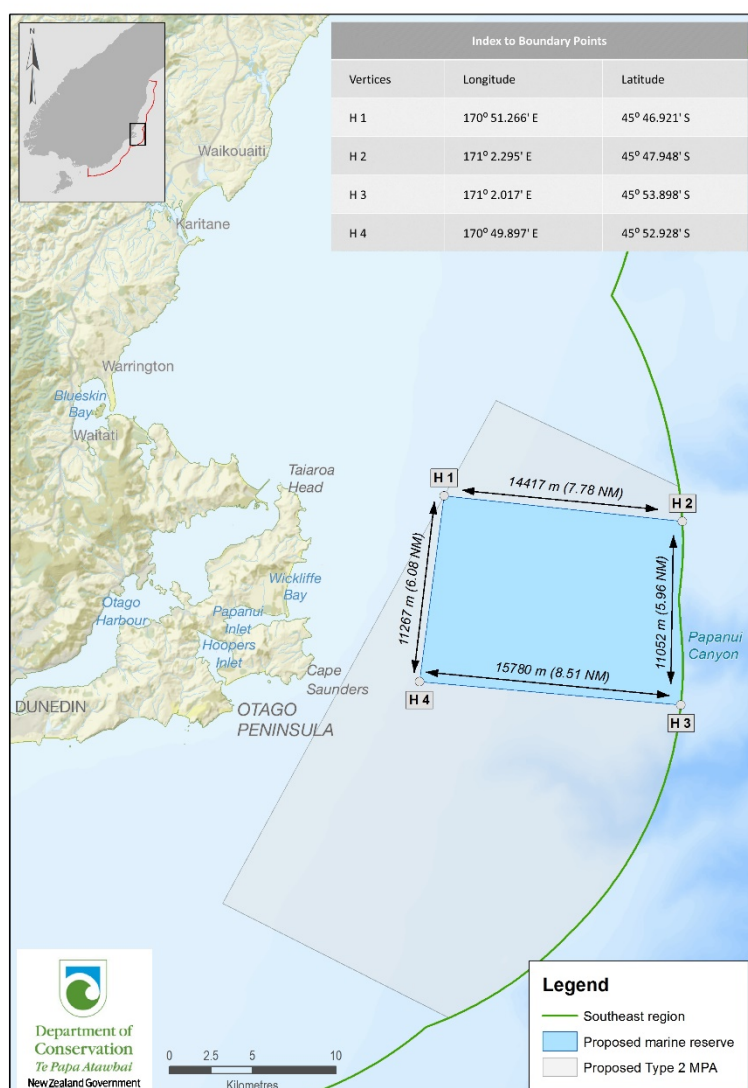


Figure 4. Locations of the proposed Papanui Marine Reserve and the adjacent Type 2 marine protected area (MPA).

This site contains three deep, soft-sediment habitat types and one biogenic habitat (bryozoan thickets). It is approximately 15 × 11 km, which is considered a suitable size for allowing the maintenance and/or recovery of the biodiversity associated with these habitat types.

All three of the soft-sediment habitat types at this site are replicated at least twice in the network (see Te Umu Koau, Hākinikini and Okaihae marine reserves and Kaimata Type 2 MPA). This site links with other deep gravel habitats in Moko-tere-a-torehu to the north and the adjacent Kaimata (both Type 2 MPAs), as well as with deep sand habitats from Te Umu Koau Marine Reserve in the north to Okaihae Marine Reserve in the south.

This area is one of only a few on the east coast of the South Island and one of only two in the southeast region where canyons extend substantially within the territorial sea. The habitats associated with these canyons are likely to be typical of the canyon habitats of the east coast of the South Island.

Why protecting this site is important (benefits)

The canyons in this area are biologically diverse, providing habitats for brittle stars, sea stars, gastropods, bivalves, shrimps, hermit crabs, bryozoans, sponges and quill worms, among others. The canyons are also hotspots for seabirds and whales, including upokohue/long-finned pilot whales (*Globicephala melas*) and parāoa/sperm whales (*Physeter macrocephalus*), making this site unique along the region's coastline, and provide a foraging area for predators such as whakahao/New Zealand sea lions (*Phocarcos hookerii*), kekeno/New Zealand fur seals (*Arctocephalus forsteri*) and hoiho/yellow-eyed penguins.

The bryozoan thicket habitat that occurs at depths of 70 m or more is a major natural feature that has been identified off the Otago Peninsula, and this is the only location where these thickets are known to occur. Thickets are distinct biogenic habitat-forming structures on the seafloor that provide habitat for a diverse community of invertebrates (eg sponges, anemones, worms, crabs, snails, sea stars and sea squirts) and many species of fishes. Bryozoans are also referred to as 'lace corals' due to their intricate structure and formations and arguably create some of the most beautiful seafloor structures and underwater scenery.

The bryozoan thickets off the Otago Peninsula are considered to be 'outstanding, rare, distinctive or internationally or nationally important marine habitat and ecosystems', meeting the criteria outlined in the MPA policy²⁶. This marine reserve would afford full protection to 30% of the known distribution of habitat-forming bryozoans off the Otago Peninsula.

By protecting a range of representative habitats and unique features, this site would contribute to New Zealand's international biodiversity commitments, protect significant biodiversity, and provide an important representative area for research and scientific study.

Activities that would be affected by the proposed marine reserve (costs)

The 'no-take' status of marine reserves generally prohibits fishing and disturbance of any kind unless specific exceptions (that are consistent with the purpose of the Marine Reserves Act) are provided for. Swimming, snorkelling, boating and diving are not affected. Details of the activities that would be prohibited in the proposed Papanui Marine Reserve are provided in Table 4.

Table 4. Activities that would be prohibited in the proposed Papanui Marine Reserve.

Activity	Details
Commercial fishing	All commercial fishing would be prohibited. Based on 2017 values, Fisheries New Zealand estimates the export value of potentially displaced commercial catches from the site to be NZ\$122,000 (21 tonnes) per year. The biggest displacement of fishing (in terms of export value) would be experienced by the blue cod (<i>Parapercis colias</i> ; 3.2 tonnes), arrow squid (<i>Notodarus</i> spp.; 6.4 tonnes) and rig (<i>Mustelus lenticulatus</i> ; 1.7 tonnes) commercial fisheries, which are estimated to represent 1.9%, 0.7% and 0.4%, respectively, of the quota management area landings.
Recreational fishing	All recreational fishing would be prohibited. While the establishment of this marine reserve would be likely to have some impact on recreational fishing, the adverse effects on overall recreational opportunities would likely be minimal as the generally preferred recreational destination at Saunders Canyon would still be available.
Customary fishing	Customary fishing would generally be prohibited but exceptions may be made to allow Kāi Tahu to take or disturb marine life for wānaka. Any such exceptions would need to

²⁶ Department of Conservation; Ministry of Fisheries 2005; Marine Protected Areas: policy and implementation plan. Department of Conservation and Ministry of Fisheries, Wellington. 25 p. <http://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/marine-protected-areas/marine-protected-areas-policy-and-implementation-plan/>

Activity	Details
	be expressly provided for and be consistent with the purpose of the Marine Reserves Act 1971.
Mining and petroleum exploration	All mining and petroleum exploration would be prohibited with the possible exception of the activities listed in section 61(1A) of the Crown Minerals Act 1991. No mining currently occurs at this site. A small proportion of a current petroleum exploration permit overlaps the reserve (approximately 18 km ² or 0.1% of the full exploration block), which has an expiry date of 2021. Foregone benefits from future potential mining or petroleum extraction in the area would not be significant as the area is not believed to hold any significant deposits of Crown minerals.
Extraction of any material for commercial use	All commercial extractive activities would be prohibited.

Questions

Do you agree with the costs and benefits identified for this site? 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 activity restrictions would you like to see? Why? Please provide evidence to support your answer.

3.3.4 Ōrau Marine Reserve

Figure 5 shows the proposed Ōrau Marine Reserve, which was identified as site I1 by the Forum.

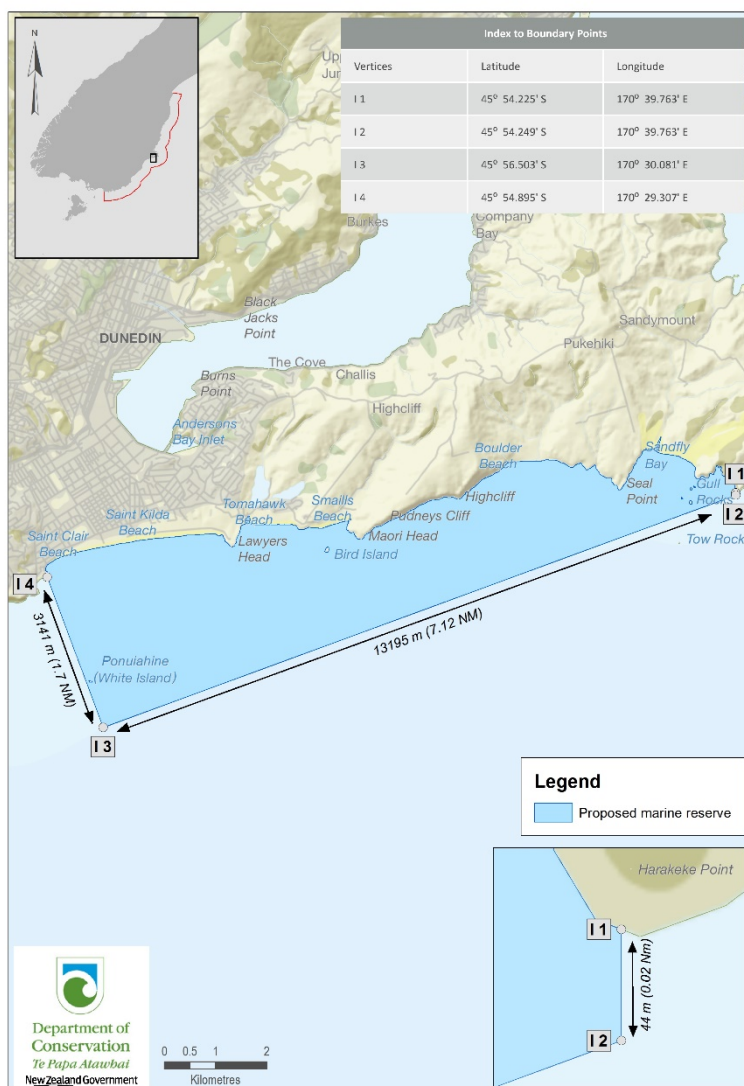


Figure 5. Location of the proposed Ōrau Marine Reserve.

This site is representative of the habitats that occur from south of Taiaroa Head to The Catlins. The proposed marine reserve would incorporate several beaches and rocky headlands, as well as a number of rock stacks and islands. It would protect six broad-scale habitat types (including intertidal and subtidal rocky reef and soft-sediment habitats) and one of only two boulder beaches in the region, making it particularly important for adequately representing exposed shallow sand and rocky reef habitats in the network.

With a length of approximately 13 km (incorporating more than 19 km of coastline) and extending 3 km offshore at its widest point, it is considered that this proposed marine reserve would likely be a suitable size for allowing the maintenance and/or recovery of the biodiversity associated with these habitat types.

This marine reserve along with those at Te Umu Koau, Hākinikini and Okaihae would provide at least two replicates of exposed reef and sand habitats. However, boulder beach habitat is not replicated anywhere else within the network.

This site links to other exposed habitats extending from Te Umu Koau to Hākinikini, as well as deep habitats from Moko-tere-a-torehu in the north to Okaihae in the south.

Why protecting this site is important (benefits)

The natural features at this site include exposed volcanic rock shorelines along which cliffs and wave-washed platforms are interspersed with sandy or boulder beaches. Small rocky islets and offshore rock stacks create unique habitats beyond the surf zone, and Lion Rock off Sandfly Bay has a dive-through cave.

Rocky reefs are dominated by forests of bull kelp (*Durvillaea* spp.) in the shallows that have a diverse understorey of other seaweeds beneath them. Koura/rock lobster and a range of reef fishes, including blue moki (*Latridopsis ciliaris*), trumpeter (*Latris lineata*) and greenbone (butterfish), are found on the reefs in this area.

At the northern end of the proposed reserve, shallow algae-dominated reefs extend to deep reef habitats where strong currents enable the formation of impressive encrusting communities of filter-feeding invertebrates (eg sponges and ascidians). Tow Rock, which is a pinnacle on the most extensive of these deep reef habitats, is not included in the reserve due to the significant cultural, commercial and recreational values associated with it.

A special feature of this area is the significant population of hoiho/yellow-eyed penguins. Some individuals forage inshore but many feed 20 km or more out to sea. Other seabirds, including tītī/sooty shearwaters, fairy prions (*Pachyptila turtur*) and kororā/little blue penguins (*Eudyptula minor*), burrow or find crevices to shelter in along this coast.

Kekenō/New Zealand fur seals haul out along this coast, but their main breeding rookeries are north of the proposed area. Whakahao/New Zealand sea lions frequent Sandfly Bay from August to November before the larger males head south to breed in the subantarctic islands, and the more secluded spots are becoming increasingly important for the small number of females that give birth here in late December. Sandfly Bay Conservation Area, Sandfly Bay Wildlife Refuge and Boulder Beach Conservation Area are important areas that are protected for the benefit of marine wildlife on shore, so extending this protection out to sea would be a valuable addition.

By protecting a range of representative habitats and unique features, this site would contribute to New Zealand's international biodiversity commitments, protect significant biodiversity, and provide an important representative area for research and scientific study.

Activities that would be affected by the proposed marine reserve (costs)

The 'no-take' status of marine reserves generally prohibits fishing and disturbance of any kind unless specific exceptions (that are consistent with the purpose of the Marine Reserves Act) are provided for. Swimming, snorkelling, boating and diving are not affected. Details of the activities that would be prohibited in the proposed Ōrau Marine Reserve are provided in Table 5.

Table 5. Activities that would be prohibited in the proposed Ōrau Marine Reserve.

Activity	Details
Commercial fishing	All commercial fishing would be prohibited. Based on 2017 values, Fisheries New Zealand estimates the export value of potentially displaced commercial catches from the site to be NZ\$27,300 (2.6 tonnes) per year, which represents 0.1% of the export value of the southeast region. However, Fisheries New Zealand also notes that the estimated average commercial catch for each fishing method by fishery is less than 1 tonne per year, so the impact on the commercial fishing sector would likely be relatively low.
Recreational fishing	All recreational fishing would be prohibited. This area is valued by recreational fishers, particularly for pāua (<i>Haliotis</i> spp.) and blue cod (<i>Paraperis colias</i>). However, while there would be an effect on some types of fishing (particularly shore-based fishing), the adverse effects on overall recreational opportunities would likely be moderated by the availability of other suitable locations nearby.
Customary fishing	Customary fishing would generally be prohibited but exceptions may be made to allow Kāi Tahu to take or disturb marine life for wānaka. Any such exceptions would need to be expressly provided for and be consistent with the purpose of the Marine Reserves Act 1971.
Mining and petroleum exploration	All mining and petroleum exploration would be prohibited with the possible exception of the activities listed in section 61(1A) of the Crown Minerals Act 1991. No mining currently occurs at this site and no active petroleum permit or open block offers are present. Foregone benefits from future potential mining or petroleum extraction in the area would not be significant as the area is not believed to hold any significant deposits of Crown minerals.
Extraction of any material for commercial use	All commercial extractive activities would be prohibited.
Vehicle access over the foreshore	The use of vehicles over the intertidal area of the marine reserve would be an offence, with some exceptions for vessel launching, emergency services or management. Consistency with the Dunedin City Council Reserves and Beaches Bylaw 2017* is intended.

* www.dunedin.govt.nz/community-facilities/parks-and-reserves/reserves-and-beaches-bylaw-2017

Questions

Do you agree with the costs and benefits identified for this site? 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 activity restrictions would you like to see? Why? Please provide evidence to support your answer.

3.3.5 Okaihae Marine Reserve

Figure 6 shows the proposed Okaihae Marine Reserve, which was identified as site K1 by the Forum.

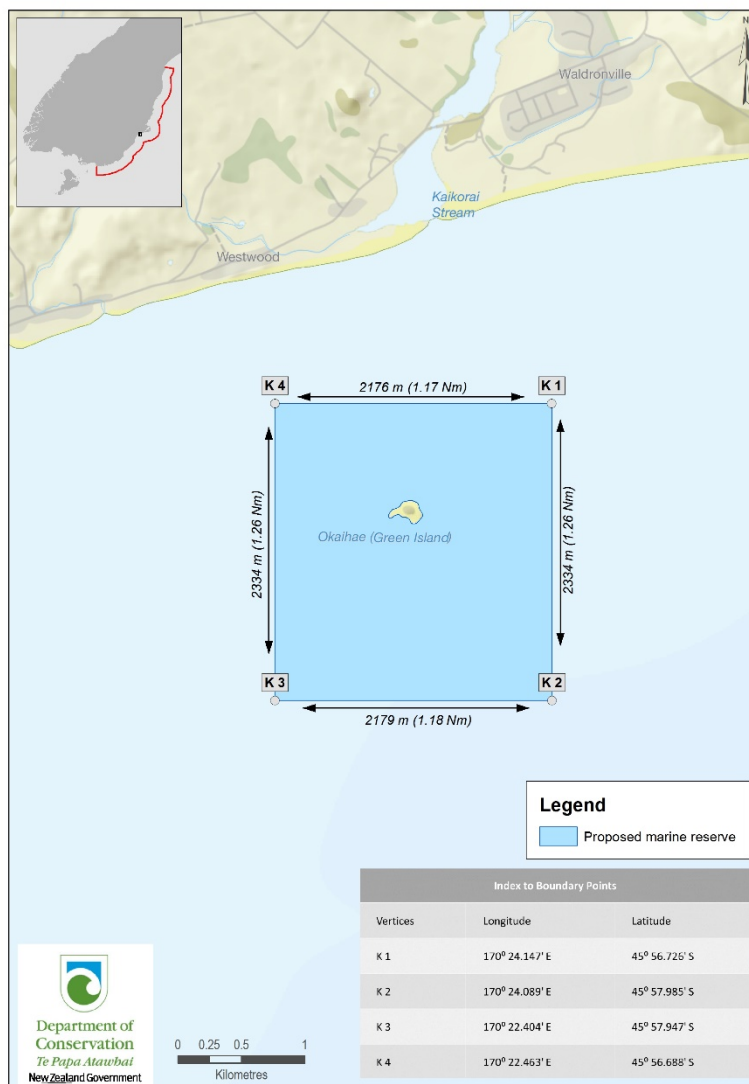


Figure 6. Location of the proposed Okaihae Marine Reserve.

This site would protect four habitat types (intertidal and subtidal reefs, and subtidal deep and shallow sand habitats). At 2 × 2.4 km, this marine reserve is much smaller than the other proposed MPAs but would encompass the entire reef around Green Island (Okaihae) and allow for the maintenance and/or recovery of the biodiversity associated with the reef habitats.

This marine reserve along with those at Ōrau and Hākinikini would provide at least two replicates of each of the reef and shallow sand habitats within the network. This site also links to deep habitats in

the marine reserves extending from Te Umu Koau to Ōrau and exposed habitats from Ōrau in the north to Hākinikini in the south.

Why protecting this site is important (benefits)

As an offshore island that is already a nature reserve, Green Island (Okaihae) is unique and has the potential to be an iconic place with the existing nature reserve extending through to the marine reserve.

The rocky reefs include forests of bull kelp (*Durvillaea* spp.) in the shallows with an understorey of other seaweed species beneath. This provides habitat for koura/rock lobster and many reef fish species, such as moki, trumpeter and greenbone (butterfish). Anecdotal evidence also suggests that hāpuku/grouper (*Polyprion oxygeneios*) were once commonly found on the Green Island reefs.

A number of seabird species live on the island, including tītī/sooty shearwaters, kororā/little blue penguins, tarāpunga/red-billed gulls (*Larus novaehollandiae*), fairy prions, hoiho/yellow-eyed penguins, little pied shags (*Phalacrocorax melanoleucos brevirostris*) and Otago shags. It is also frequently visited by kekeno/New Zealand fur seals and whakahao/New Zealand sea lions.

Anecdotally, the marine environment around Green Island has undergone a considerable decline in species diversity and abundance in the last few decades. The island is surrounded by a reasonable extent of offshore reef at diveable depths. Although the proposed marine reserve is small, protecting habitats here would likely lead to measurable changes in biodiversity, and the area could also act as a source of replenishment for invertebrates and fishes on the low-relief reefs.

By protecting a range of representative habitats and unique features, this site would contribute to New Zealand's international biodiversity commitments, protect significant biodiversity, and provide an important representative area for research and scientific study.

Activities that would be affected by the proposed marine reserve (costs)

The 'no-take' status of marine reserves generally prohibits fishing and disturbance of any kind unless specific exceptions (that are consistent with the purpose of the Marine Reserves Act) are provided for. Swimming, snorkelling, boating and diving are not affected. Details of the activities that would be prohibited in the proposed Okaihae Marine Reserve are provided in Table 6.

Table 6. Activities that would be prohibited in the proposed Okaihae Marine Reserve.

Activity	Details
Commercial fishing	All commercial fishing would be prohibited. Based on 2017 values, Fisheries New Zealand estimates the export value of potentially displaced commercial catches from the proposed marine reserve to be NZ\$19,000 (0.7 tonnes) per year, which represents 0.06% of the export value of the southeast region. The koura/rock lobster (<i>Jasus edwardsii</i>) fishery makes up an estimated \$15,500 of this displacement. The impact of this site on the commercial fishing sector would likely be relatively low.
Recreational fishing	All recreational fishing would be prohibited.
Customary fishing	Customary fishing would generally be prohibited but exceptions may be made to allow Kāi Tahu to take or disturb marine life for wānaka. Any such exceptions would need to be expressly provided for and be consistent with the purpose of the Marine Reserves Act 1971.
Mining and petroleum exploration	All mining and petroleum exploration would be prohibited with the possible exception of the activities listed in section 61(1A) of the Crown Minerals Act 1991. No mining currently occurs at this site and no active petroleum permit or open block offers are present. Foregone benefits from future potential mining or petroleum extraction in the area would not be significant as the area is not believed to hold any significant deposits of Crown minerals.

Activity	Details
Extraction of any material for commercial use	All commercial extractive activities would be prohibited. No current extraction of material is known to occur within the site.

Questions

Do you agree with the costs and benefits identified for this site? 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 activity restrictions would you like to see? Why? Please provide evidence to support your answer.

3.3.6 Hākinikini Marine Reserve

Figure 7 shows the proposed Hākinikini Marine Reserve, which corresponds to site M1 as identified by the Forum with minor adjustments to the boundaries.

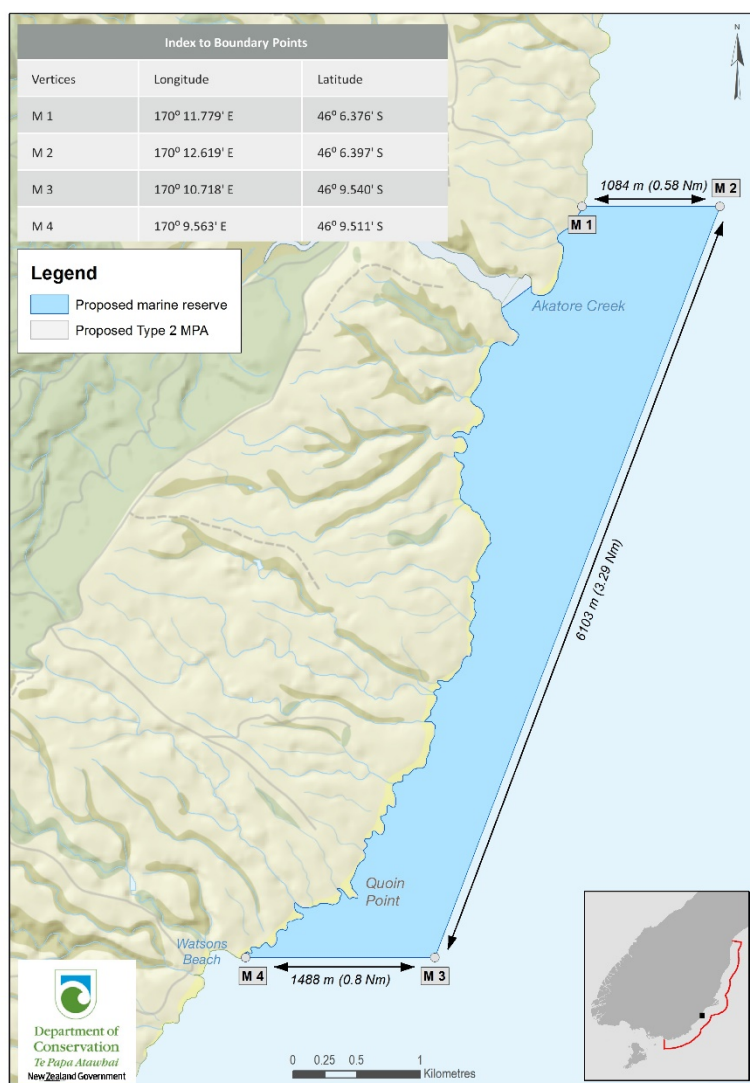


Figure 7. Locations of the proposed Hākinikini Marine Reserve and the adjacent Type 2 marine protected area (MPA).

This site would be representative of the rocky reef habitats and sandy beaches that are found from south of Taiaroa Head to The Catlins.

At approximately 6 km long (incorporating more than 9 km of coastline) and extending 1.5 km offshore at its widest point, this proposed marine reserve is expected to be a suitable size for allowing the maintenance and/or recovery of the biodiversity associated with the habitats it contains.

This marine reserve along with those at Ōrau and Okaihae would provide at least two replicates of reef and sandy beach habitats. This site also links to exposed habitats at Ōrau and Okaihae marine reserves and provides connectivity with estuarine habitats in the adjacent Type 2 MPA in the Akatore estuary (Whakatorea).

Why protecting this site is important (benefits)

This site includes a unique exposed section of Otago Schist wave-cut platforms interspersed with sand beaches, which are a combination of modern fine- to medium-grained quartz sands and much coarser quartz sand that is believed to have originated from the erosion of the geological 'Taratu Formation'. The platforms include rock pools, crevices and gutters, which provide many micro-habitats along the intertidal zone and form a beautiful and rugged coastline. Mussel beds of *Perna canaliculis* and *Mytilus galloprovincialis* extend subtidally, finding space between the bull kelp.

At Quoin Point, there is a breeding rookery of kekeno/New Zealand fur seals, and whakahao/New Zealand sea lions are increasingly observed hauling out on some beaches here.

There has been speculation that the water along this coastline was once clear enough to allow *Macrocystis* kelp beds to form offshore, which is supported by the presence of small, stunted *Macrocystis* in rock pools along the coast.

By protecting a range of representative habitats and unique features, this site would contribute to New Zealand's international biodiversity commitments, protect significant biodiversity, and provide an important representative area for research and scientific study.

Activities that would be affected by the proposed marine reserve (costs)

The 'no-take' status of marine reserves generally prohibits fishing and disturbance of any kind unless specific exceptions (that are consistent with the purpose of the Marine Reserves Act) are provided for. Swimming, snorkelling, boating and diving are not affected. Details of the activities that would be prohibited in the proposed Hākinikini Marine Reserve are provided in Table 7.

Table 7. Activities that would be prohibited in the proposed Hākinikini Marine Reserve.

Activity	Details
Commercial fishing	All commercial fishing would be prohibited. Based on 2017 values, Fisheries New Zealand estimates the export value of potentially displaced commercial catches from the site to be NZ\$239,300 (7 tonnes) per year, which represents 0.7% of the export value of the southeast region. The fisheries that would most likely be affected are the koura/rock lobster (<i>Jasus edwardsii</i>) and flatfish trawl fisheries, for which approximately 2.37% and 0.10%, respectively, of their quota management area catches occur at this site.
Recreational fishing	All recreational fishing would be prohibited. This area is used by recreational fishers, particularly for pāua (<i>Haliotis</i> spp.) fishing. While there would be an effect on some types of fishing, particularly shore-based fishing, the adverse effects on overall recreational opportunities would likely be moderated by the availability of other suitable locations nearby.
Customary fishing	Customary fishing would generally be prohibited but exceptions may be made to allow Kāi Tahu to take or disturb marine life for wānaka. Any such exceptions would need to

Activity	Details
	be expressly provided for and be consistent with the purpose of the Marine Reserves Act 1971.
Mining and petroleum exploration	All mining and petroleum exploration would be prohibited with the possible exception of the activities listed in section 61(1A) of the Crown Minerals Act 1991. No mining currently occurs at this site and no active petroleum permit or open block offers are present. Foregone benefits from future potential mining or petroleum extraction in the area would not be significant as the area is not believed to hold any significant deposits of Crown minerals.
Extraction of any material for commercial use	All commercial extractive activities would be prohibited. No current extraction of material is known to occur within the site.

Questions

Do you agree with the costs and benefits identified for this site? 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 activity restrictions would you like to see? Why? Please provide evidence to support your answer.

3.4 Costs and benefits of the proposed Type 2 MPAs

This section provides background information and outlines the costs and benefits of each proposed Type 2 MPA. A list of the habitats in the region and at each site is provided in Appendix 4 and a list of the taonga species that are present at each site is provided in Appendix 5.

3.4.1 Tuhawaiki

Figure 8 shows the proposed Tuhawaiki Type 2 MPA, which was identified as site A1 by the Forum.

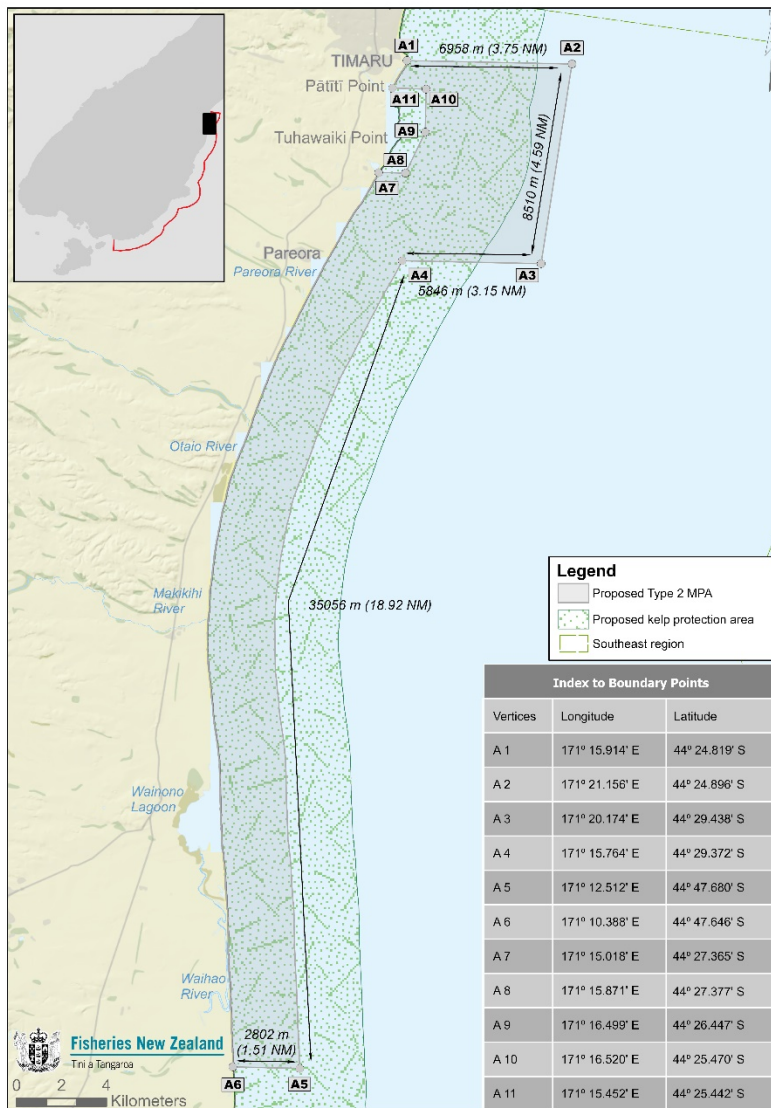


Figure 8. Locations of the proposed Tuhawaiki Type 2 Marine Protected Area (MPA) and the adjacent kelp protection area.

This site includes four coastal habitat types: moderate gravel beach, moderate shallow mud, moderate shallow sand, and moderate shallow gravel. With a width of approximately 7 km in the northern section, this proposed Type 2 MPA is expected to be a sufficient size for allowing the maintenance and/or recovery of the biodiversity associated with these habitat types.

This Type 2 MPA together with that at Moko-tere-a-torehu and the marine reserves at Waitaki and Te Umu Koau would provide replication of all four habitat types. This site also provides connectivity with the soft-sediment habitats in the MPAs further south.

Why protecting this site is important (benefits)

The waters south of Timaru are an important nursery area for school sharks (*Galeorhinus galeus*) and a spawning area for elephant fish (*Callorhynchus milii*). In addition, this area is particularly significant for pahu/Hector's dolphins (*Cephalorhynchus hectori*), kororā/little blue penguins, hoiho/yellow-eyed penguins (particularly juveniles in their pelagic phase) and a range of sessile invertebrates, indicating its wider ecological value, which would be enhanced by establishment of the proposed MPA.

Protecting this site by prohibiting a range of fishing methods within it would contribute to New Zealand's international biodiversity commitments and enable biodiversity to be maintained, including important habitats for school sharks and elephant fish.

Activities that would be affected by establishment of the proposed Type 2 MPA (costs)

Bottom trawling, dredging, Danish seining, set netting, mid-water trawling and commercial long lining would be prohibited. In addition, a five-hook limit for line fishing would apply for recreational fishing to reduce the level of extraction but allow some recreational take. Details of the activities that would be affected by establishment of the proposed Tuhawaiki Type 2 MPA are provided in Table 8.

Table 8. Activities that would be affected by establishment of the proposed Tuhawaiki Type 2 Marine Protected Area (MPA).

Activity	Details
Commercial fishing	Fisheries New Zealand estimates that establishment of this Type 2 MPA would displace an average of approximately 110 tonnes of catch per year. It is used by an average of 25 commercial fishers each year, at least 19 of whom use fishing methods that would be prohibited. Based on Statistics New Zealand data from 2017, Fisheries New Zealand estimates the export value of the potentially displaced commercial catch to be approximately NZ\$463,000 per year. The commercial catch data indicate that the most significant impact would be on commercial bottom trawling for flatfish, elephant fish (<i>Callorhinchus milii</i>) and red gurnard (<i>Chelidonichthys kumu</i>).
Recreational fishing	A five-hook limit for line fishing would apply for recreational fishing. This would likely have a low impact on recreational fishers. Recreational dredging would be prohibited.
Customary fishing	This site has customary significance, with two historical pā sites in the vicinity, as well as adjacent customary fishing areas. Te Rūnaka o Arowhenua exercises kaitiakitanga for the northern part of the site and administers a mātaihai reserve at Tuhawaiki Point, which is excluded from the proposed Type 2 MPA. (Mātaihai reserves are established over traditional fishing grounds to recognise and provide for customary management practices and food gathering.) Te Rūnaka o Waihao exercises kaitiakitanga for the southern part of the site.

Questions

Do you agree with the costs and benefits identified for this site? 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.

3.4.2 Moko-tere-a-torehu

Figure 9 shows the proposed Moko-tere-a-torehu Type 2 MPA, which was identified as site C1 by the Forum.

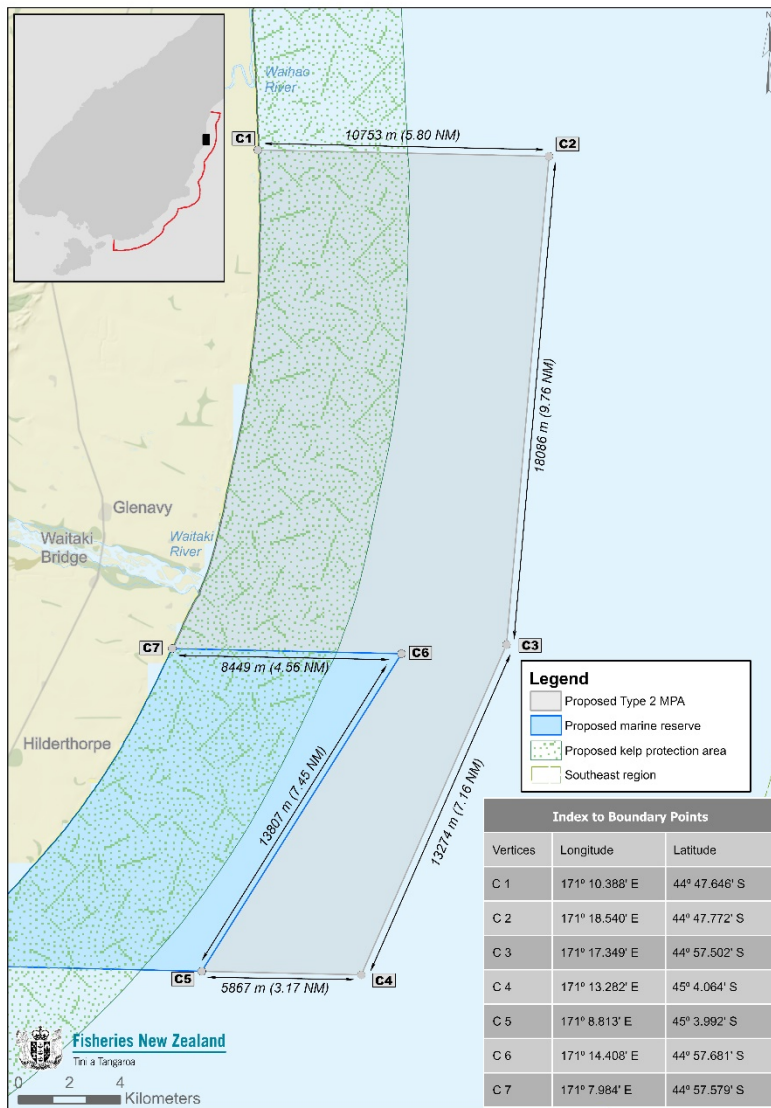


Figure 9. Locations of the proposed Moko-tere-a-torehu Type 2 Marine Protected Area (MPA) and the adjacent marine reserve and kelp protection area.

This site includes five habitat types: deep gravel, moderate gravel beach, moderate shallow gravel, moderate shallow mud and moderate shallow sand.

The proposed Type 2 MPA spans approximately 19 km of coastline from south of the Waihao River to south of the Waitaki River and covers an area of approximately 254 km². It adjoins the offshore and northern boundaries of the proposed Waitaki Marine Reserve and establishes a link along the southeast region's coastline, as well as providing replication of some of the habitat types that are present at Tuhawaiki Type 2 MPA.

Why protecting this site is important (benefits)

The Waitaki River has a strong influence on the North Otago and South Canterbury coasts in terms of freshwater inputs to the marine environment and the transportation of sediment from the land to the sea.

The cobble and gravel substrate that is found in this area supports several biogenic habitats of high biodiversity value, such as kelp and rhodolith beds, which are likely to provide habitat for juvenile fishes.

Some of the densest concentrations of squat lobster have been found around the mouth of the Waitaki River, representing an important food source for fishes, marine mammals and birds. Seabirds (including kororā/little blue penguins) and pahu/Hector's dolphins are known to forage in this area, indicating its high biodiversity values and associated habitats.

Protecting this site by prohibiting a range of fishing methods within it would contribute to New Zealand's international biodiversity commitments and enable biodiversity to be maintained and recover.

Activities that would be affected by establishment of the proposed Type 2 MPA (costs)

Bottom trawling, dredging, Danish seining, set netting, and mid-water trawling would be prohibited. Details of the activities that would be affected by establishment of the proposed Moko-tere-a-torehu Type 2 MPA are provided in Table 9.

Table 9. Activities that would be affected by establishment of the proposed Moko-tere-a-torehu Type 2 Marine Protected Area (MPA).

Activity	Details
Commercial fishing	This site is used by an average of 17 commercial fishers each year, at least 10 of whom use gears that would be prohibited. Establishment of the proposed Type 2 MPA would displace an average of approximately 34.5 tonnes of catch per year, around 25% of which would be attributed to the set net prohibition. A further 20 tonnes of this catch is taken by Danish seining, 6 tonnes by trawling and 0.3 tonnes by dredging. The most significant potential impact of establishing this proposed Type 2 MPA would be on the red gurnard (<i>Chelidonichthys kumu</i>), rig (<i>Mustelus lenticulatus</i>) and school shark (<i>Galeorhinus galeus</i>) commercial fisheries.
Recreational fishing	The proposal to establish a Type 2 MPA rather than a marine reserve around the mouth of the Waitaki River is to ensure that there is no impact on customary and recreational fishing associated with the river mouth, particularly salmon fishing and kohikohi inaka. Recreational dredging would be prohibited. There is little evidence that the proposed fishing restrictions at Moko-tere-a-torehu would have a significant impact on recreational fishing interests.
Customary fishing	This area and its waterways are of high cultural importance to Kāi Tahu hapū associated with this area (represented by traditional settlements and rich mahika kai resources). There are high customary fisheries interests immediately in and around the mouth of the Waitaki River, and the Waihao Marae and Māori reserve lands are located just to the north of this proposed site.

Questions

Do you agree with the costs and benefits identified for this site? 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.

3.4.3 Kaimata

Figure 10 shows the proposed Kaimata Type 2 MPA, which was identified as site E1 by the Forum.

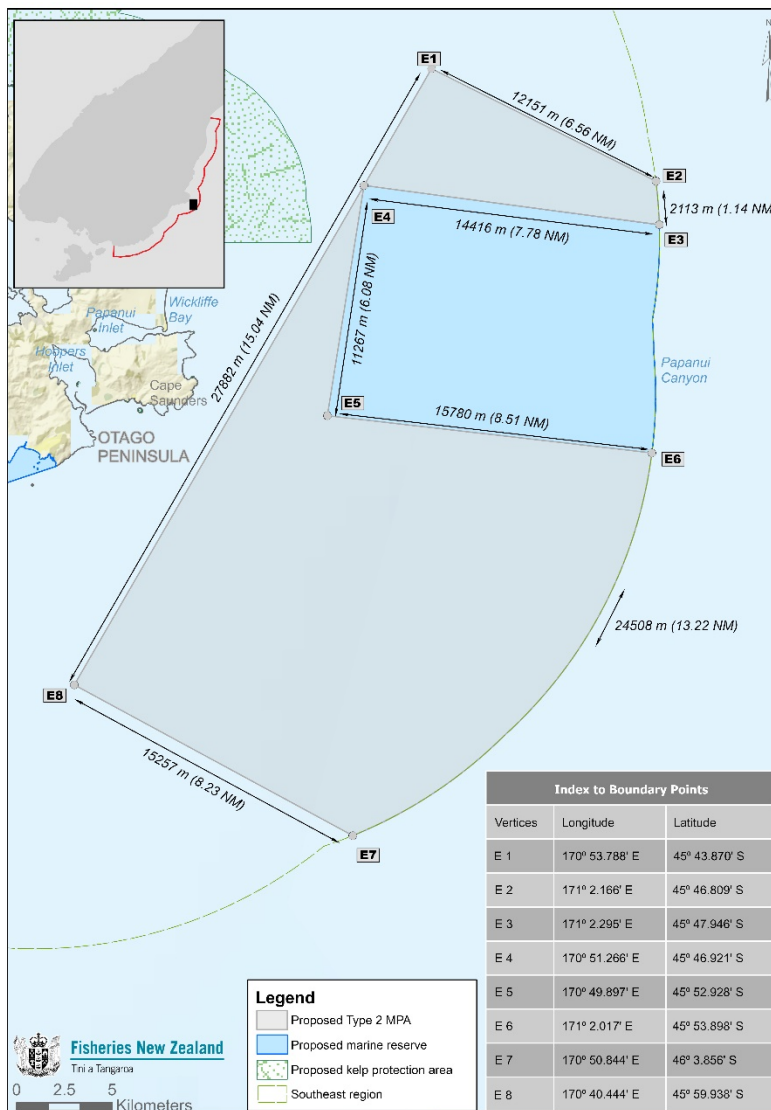


Figure 10. Locations of the proposed Kaimata Type 2 Marine Protection Area (MPA) and the adjacent marine reserve and kelp protection area.

This site is approximately 450 km² and was designed to complement the proposed Papanui Marine Reserve. It includes regionally important bryozoan thickets and would protect approximately 65% of the known and potential extent of habitat-forming bryozoans off the Otago Peninsula. Deep water sand and deep sand habitats are also included at the proposed site.

Why protecting this site is important (benefits)

The waters to the east of the Otago Peninsula are defined by a unique set of oceanographic conditions. Coastal, subtropical and subantarctic waters mix here, and an upwelling of deep, nutrient-rich water supports a rich diversity of habitats and associated ecosystems.

Bryozoan beds represent an important biogenic habitat in this area, supporting diverse invertebrate communities (eg sponges and anemones) and juvenile fishes. The proximity of deeper waters due to the narrow shelf and the abundance of organisms using bryozoans as habitat create feeding grounds for some larger vertebrates, such as whakahao/New Zealand sea lions and hoiho/yellow-eyed penguins. Numerous other species are known to frequent these waters, including various protected sharks, and seabirds also forage here, among which eight species are threatened and three species are classified as Nationally Critical.

Protecting this site by prohibiting a range of fishing methods would contribute to New Zealand's international biodiversity commitments and enable biodiversity within this site to be maintained or enhanced.

Activities that would be affected by establishment of the proposed Type 2 MPA (costs)

Bottom trawling, dredging, Danish seining, set netting, mid-water trawling and purse seining would be prohibited. Details of the activities that would be affected by establishment of the proposed Kaimata Type 2 MPA are provided in Table 10.

Table 10. Activities that would be affected by establishment of the proposed Kaimata Type 2 Marine Protected Area (MPA).

Activity	Details
Commercial fishing	This site is used by approximately 27 commercial fishers each year, at least seven of whom use gears that would be prohibited by establishment of this MPA. However, 19 of these are pot fishers who would be unaffected. Establishment of the proposed Type 2 MPA would displace approximately 18 tonnes of catch, approximately 80% of which would result from the set net prohibition. Approximately 4 tonnes of catch is taken from this site by trawling. No Danish seining or dredging has been reported at this site. The export value of potentially displaced commercial catch from the area is NZ\$77,500. The commercial catch data indicate that the most significant potential impact of the proposed prohibitions at this site would be on the school shark (<i>Galeorhinus galeus</i>), rig (<i>Mustelus lenticulatus</i>) and flatfish fisheries.
Recreational fishing	Establishment of this Type 2 MPA would have a low impact on recreational fishers.
Customary fishing	Traditional settlements in the Cape Saunders area used sheltered anchorages to access the rich fisheries in this area. Maintaining and enhancing marine ecosystems that contribute to the biodiversity of the Otago coast is an important issue for Kāi Tahu. The shelf and canyons are similarly considered to be important in terms of customary fisheries. Ōtākou whānau and hapū have maintained a continuous and active role in all facets of fishery activities, be it customary, commercial or recreational.

Questions

Do you agree with the costs and benefits identified for this site? 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.

3.4.4 Whakatorea

Figure 11 shows the proposed Whakatorea Type 2 MPA, which was identified as site L1 by the Forum.



Figure 11. Locations of the proposed Whakatorea Type 2 Marine Protected Area (MPA) and the adjacent marine reserve.

Whakatorea includes the entire Akatore estuary and incorporates 0.28 km² of estuarine habitat. It includes mud flats, sand flats and estuarine sandy beach habitat types. This Type 2 MPA would provide a replicate of an estuarine system, examples of which are also found in the proposed Te Umu Koau Marine Reserve and Tahakopa Type 2 MPA. The boundary of this site at the mouth of the Akatore Creek adjoins the proposed Hākinikini Marine Reserve.

Why protecting this site is important (benefits)

The Akatore estuary is a known nursery area for flatfish and hosts two species of galaxiids (the adults of whitebait species), whitebait and fauna of higher trophic levels, particularly eels. It also includes one of the best examples of a salt marsh outside The Catlins.

The commercial harvesting of eels can alter the size and sex distribution of their populations, so harvesting methods that have the potential to extract significant numbers of eels would be restricted to maintain the food web.

This area can be easily accessed and is close to Dunedin. Therefore, the potential benefits associated with protection include providing access to a near-natural estuary and related educational opportunities (eg birdwatching).

Activities that would be affected by establishment of the proposed Type 2 MPA (costs)

Dredging, set netting, commercial line fishing, mechanical harvesting (including spades for collecting shellfish) and fyke net fishing would be prohibited. Details of the activities that would be affected by establishment of the proposed Whakatorea Type 2 MPA are provided in Table 11.

Table 11. Activities that would be affected by establishment of the proposed Whakatorea Type 2 Marine Protected Area (MPA).

Activity	Details
Commercial fishing	<p>Fisheries New Zealand has limited information on commercial fishing activity in the Akatore estuary due to the scale at which commercial catches are reported. Therefore, it is not possible to estimate the catch that would be displaced or the potential economic loss that would be associated with establishment of this Type 2 MPA.</p> <p>Some commercial fishing for shortfin eels (<i>Anguilla australis</i>) takes place in the estuary, which would be affected by the prohibition on fyke netting. The submissions received by the South-East Marine Protection Forum indicated that the mean shortfin eel catch is approximately 1.75 tonnes per year. Establishment of this MPA could displace shortfin eel fishing effort into surrounding estuaries. However, this may be limited as other estuaries in the relevant quota management area are already closed or restricted to commercial fishing activity.</p>
Recreational fishing	<p>Fisheries New Zealand considers that the potential impacts on recreational fishers would likely be low. The forum report noted that those who were opposed to this MPA considered that local recreational fishers would be adversely affected.</p>
Customary fishing	<p>The Akatore estuary is a customary mahika kai resource for whānau and hapū associated with this area. It is of particular interest to the Taieri-based Ōtakou whānau, who use the estuary for the customary gathering of shellfish. The whānau and hapū who remain in the area around the mouth of the Taieri River have maintained a continuous and active role in all facets of fishery activities, be it customary, commercial or recreational.</p>

Questions

Do you agree with the costs and benefits identified for this site? 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.

3.4.5 Tahakopa

Figure 12 shows the proposed Tahakopa Type 2 MPA, which was identified as site Q1 by the Forum.

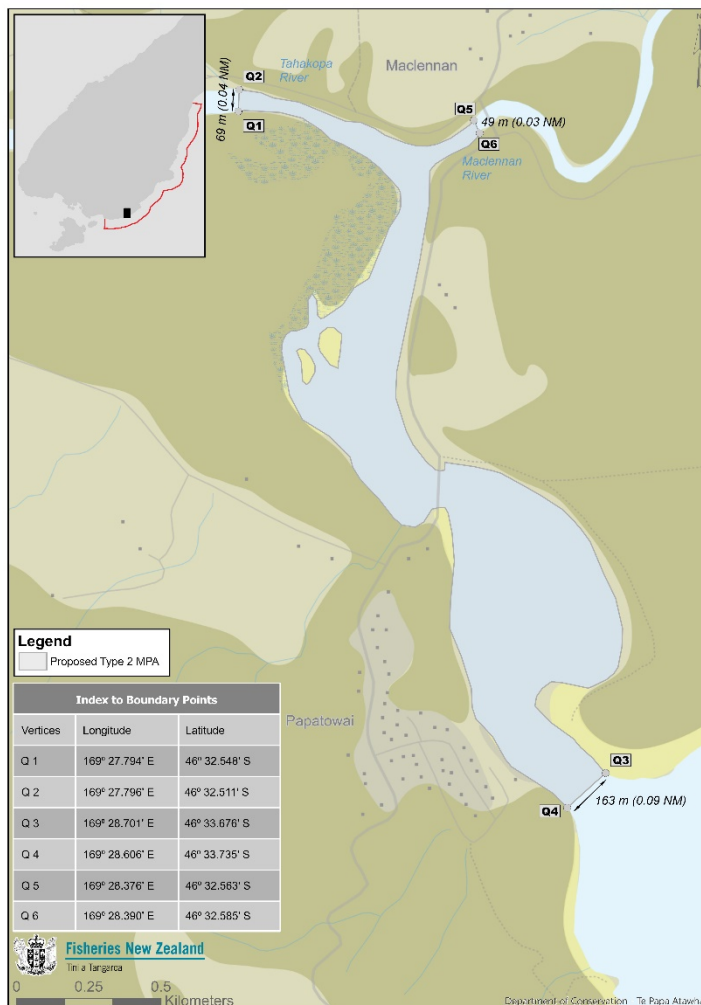


Figure 12. Location of the proposed Tahakopa Type 2 Marine Protected Area (MPA).

The Tahakopa estuary is a tidal lagoon and comprises 0.68 km² of estuarine habitat that includes mud flats and sandy beach habitat. This Type 2 MPA would provide a replicate example of an estuarine system in association with the proposed Te Umu Koau Marine Reserve.

Why protecting this site is important (benefits)

The western side of the Tahakopa estuary has unmodified mud flats with a small area of salt marsh turf and an extensive area of tall jointed rush (*Juncus articulatus*). This area is of special significance for wading birds and whitebait spawning, and flatfish are also a feature of the estuary's biodiversity. Salt marsh has been removed from elsewhere in the estuary by human activities.

The commercial harvesting of eels can alter the size and sex distribution of their populations, so harvesting methods that have the potential to extract significant numbers of eels would be restricted to maintain the food web.

The Tahakopa estuary can be accessed by the public via various walks and access points, although parts are only accessible by water. Including this area in a Type 2 MPA would enable families and visitors to learn about and experience estuarine habitats in a natural condition.

Activities that would be affected by establishment of the proposed Type 2 MPA (costs)

Dredging, set netting, commercial line fishing, mechanical harvesting (including spades for collecting shellfish) and fyke net fishing would be prohibited. Details of the activities that would be affected by establishment of the proposed Tahakopa Type 2 MPA are provided in Table 12.

Table 12. Activities that would be affected by establishment of the proposed Tahakopa Type 2 Marine Protected Area (MPA).

Activity	Details
Commercial fishing	<p>Fisheries New Zealand has limited information on commercial fishing activity in the Tahakopa estuary due to the scale at which these catches are reported. Therefore, it is not possible to estimate the catch that would be displaced or the potential economic loss resulting from establishment of this Type 2 MPA.</p> <p>Fisheries New Zealand is aware of some commercial fishing activity for shortfin eels (<i>Anguilla australis</i>) in this estuary and considers that a prohibition on fyke netting would have an impact on this. The submissions received by the South-East Marine Protection Forum estimated that the mean shortfin eel catch is approximately 2.75 tonnes per year.</p>
Recreational fishing	The recreational set netting that currently occurs in the Tahakopa estuary would be prohibited.
Customary fishing	The Tahakopa estuary has extensive wāhi tapu and wāhi taōka sites, with carbon dating providing evidence of some of the oldest archaeological sites known in New Zealand. The estuary is regularly used by whānau to gather mahika kai and launch waka ama. Customary practices are used to educate and transfer intergenerational mātauraka in traditional gathering practices. Set net and fyke net prohibitions would affect the ability of tangata whenua to gather kai moana using these methods.

Questions

Do you agree with the costs and benefits identified for this site? 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.

3.5 Costs and benefits of the bladder kelp protection area, Arai Te Uru

Figure 13 shows the proposed Arai Te Uru kelp protection area, which was identified as site T1 by the Forum.

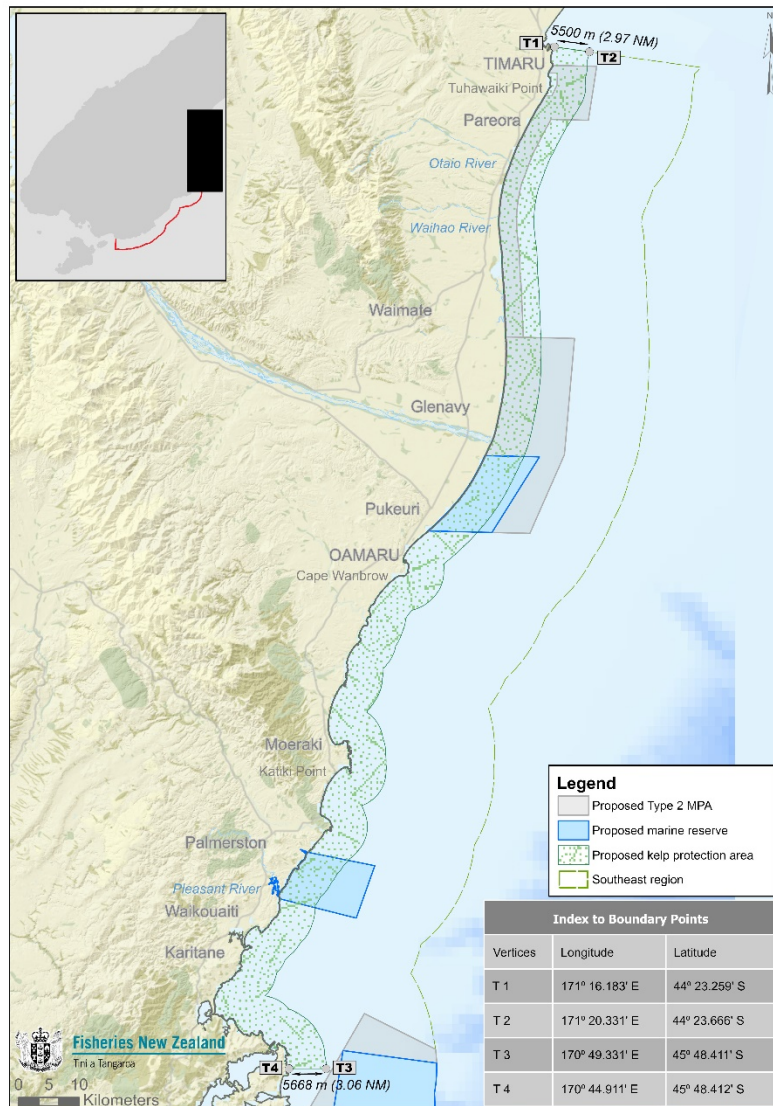


Figure 13. Locations of the Arai Te Uru kelp protection area and the adjacent marine reserves and Type 2 marine protection areas (MPAs).

Why protecting this site is important (benefits)

Bladder kelp (*Macrocystis pyrifera*) forests are important biogenic habitats that support biodiversity and provide ecosystem services in the southeast region.

Kelp forests have been likened to terrestrial forests in their structure and ability to support many other species, including koura/rock lobster (particularly the settling puerulus larvae), blue cod and greenbone (butterfish), and are one of the most productive habitat types in the world.

The decline in kelp forests can be linked to increased sedimentation from land and other stressors, and 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.

The protection of the kelp forests would have potential benefits to fisheries (eg through the provision of habitat for juvenile koura/rock lobsters), maintain the role of this habitat type in coastal erosion mitigation and reduce the effects of climate change on coastal habitats.

Activities that would be affected by the establishment of the Arai Te Uru kelp protection area (costs)

The commercial harvest of bladder kelp would be prohibited. Details of the activities that would be affected by establishment of the proposed Arai Te Uru kelp protection area are provided in Table 13.

Table 13. Activities that would be affected by establishment of the proposed Arai Te Uru kelp protection area.

Activity	Details
Commercial fishing	<p>Bladder kelp (<i>Macrocystis pyrifera</i>) harvesting is managed under the quota management system. This area is within quota management area KBB3G, which extends from Slope Point northwards to the mouth of the Waiau Toa / Clarence River. There are currently six KBB3G quota holders.</p> <p>Fisheries New Zealand estimates that only a small amount of attached bladder kelp is currently harvested from this area (the main harvest occurs around Banks Peninsula). Fisheries New Zealand notes that the establishment of this site may impact on the ability of quota holders to fully develop the kelp fishery (harvesting of kelp) and reduce the value of the bladder kelp quota they hold, which could put pressure on kelp beds in other parts of KBB3G if exploitation of the stock increases.</p>
Recreational fishing	Not affected.
Customary fishing	Not affected.

Questions

Do you agree with the costs and benefits identified for this site? 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.

4 Implementation and monitoring

The proposed marine reserves would be established under the Marine Reserves Act 1971, while the proposed Type 2 MPAs would be established using regulations under the Fisheries Act 1996.

Marine reserves are administered by DOC, whose management responsibilities include marking the boundaries (where necessary), informing the public of permitted and prohibited activities, undertaking biological monitoring, issuing scientific permits, and overseeing the enforcement provisions of the Marine Reserves Act in relation to offences. Compliance and enforcement costs would be funded within DOC baseline funding and/or via DOC's Biodiversity 2018 Programme, which has provided additional funding for marine reserve compliance.

The Ministry for Primary Industries (MPI) is responsible for enforcing any new fisheries regulations. Enforcement of the new regulations would be incorporated into normal MPI compliance operations in the area, and MPI would consider the appropriate level of compliance activity as part of implementing the new regulations. It is expected that compliance and enforcement activity would be funded from within existing baseline funding.

5 Glossary of Māori terms

Note: This glossary includes Māori terms that are presented in both this report and the accompanying appendices. Many of these definitions have been taken from the Forum's recommendations report.²⁷

hapū	Extended family.
iwi	Tribe, people.
kai moana	Seafood.
kaitiakitanga	The exercise of guardianship; in relation to fisheries resources, this includes the ethic of stewardship based on the nature of the resources, as exercised by the appropriate mana whenua in accordance with tikaka Māori (Fisheries Act 1996).
kohikohi inaka	Whitebaiting.
kōiwi tākata	Unidentified (Māori) human remains / skeletons.
mahika kai	Places where food and resources are procured and the practices of gathering such resources.
manaakitaka	Hospitality; this is a key cultural value as the ability to share kāi and appropriately host visitors at home or the marae is highly valued.
mana whenua	Customary authority or rakatirataka exercised by an iwi or hapū in an identified area.
mātauraka	The traditional knowledge accumulated by generations of Kāi Tahu whānau and hapū through co-existence with and the use and protection of their natural resources.
pou	Someone or something that strongly supports a cause or is a territorial symbol.
rūnaka	The governing council or administrative group of a Māori hapū or iwi.
takiwā	Traditional area of occupation of a hapū or iwi.
taoka/taonga	Highly prized.
Te Tiriti o Waitangi	The Treaty of Waitangi.
tino rangatiratanga	Sovereignty, autonomy, self-government.

²⁷ www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/semf/semf-recommendations-report.pdf

wāhi taōka	Places of special value.
wāhi tapu	Sacred place or site.
waka ama	Outrigger canoe.
wānaka	Intergenerational sharing of knowledge.
whanau	Family group; to be born, give birth.

