



WWF - New Zealand Submission on the proposed Southeast Marine Protected Areas

Wednesday 5th August 2020

Submitted via email to southeast.marine@publicvoice.co.nz

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WWF - NZ New Zealand Submission on the proposed Southeast Marine Protected Areas

The Worldwide Fund For Nature - New Zealand (“WWF - NZ”) welcomes the opportunity to submit on the proposed southeast marine protected areas network in the South Island of Aotearoa New Zealand.

1 Executive summary of recommendations

The Government is consulting on a network of Marine Protected Areas (“MPAs”) for the south eastern region of the South Island that were put forward by the South East Marine Protected Forum, a complex collaborative stakeholder led process initiated in 2014.

One of the most effective ways to protect and restore biodiversity, build resilience in our ocean and for the health of our economy and wellbeing of our people is to establish a meaningful, well-connected, and representative network of marine protected areas. If this is done in the right way, that respects the rights of tangata whenua, and the principles of Te Tiriti o Waitangi are upheld, then all of Aotearoa New Zealand can benefit.

WWF – NZ advocates for the creation of a meaningful network of representative MPAs throughout Aotearoa subject to the rights of indigenous people and local communities. WWF – NZ’s goal is that our ocean is thriving and resilient, with at least 30% of each marine habitat within a network of highly protected areas and other effective area-based conservation measures (including Māori cultural practice).

The proposed network includes five marine reserves (the highest protection level), six type-2 MPAs (partial protection) and one kelp protection area. The network has not fully met the MPA Policy requirements and best practice design principles as it does not adequately protect or replicate all habitat types. Despite these limitations, if the entire proposed network is implemented, it will significantly progress marine protection in Aotearoa New Zealand. WWF-NZ acknowledges the incredible efforts that has gone in to get to this point.

1.1 WWF-NZ position on Proposed Network 1

WWF – NZ supports implementing the proposed network 1 in full.

1.2 Recommendations on Specific MPA Proposals

- MPI and DOC consider an extension of the western boundary of Kaimata Type 2 MPA to match up with existing fisheries regulations.
- WWF – NZ’s recommendation to improve the MPA network is that the Department of Conservation and Fisheries New Zealand continue to work with Kāi Tahu, local communities and others to;
 - a. progress the existing applications for mātaītai at Tautuku and Otara as these could provide benefits of protection in areas that are not currently well protected and uphold the rights and aspirations of tangata whenua.

- b. Support discussions to establish at least one customary fisheries management area(s), such as a mātaihai or rāhui, or other measures. For example, in the Catlins region as this important area has no protection, and the Waitaki river mouth, which could complement the existing marine reserve proposal.
- WWF-NZ recommends careful monitoring and engagement with tangata whenua, and local communities, including fishers to consider creating a buffer around Hākinikini Marine Reserve.

1.3 General Recommendations for the Network

- Work with Kāi Tahu and other Iwi in the area to develop effective mechanisms for co-governance and co-management of all proposed marine protected areas by tangata whenua and the Crown.
- Establish a robust monitoring framework for each MPA that includes parties working
 - a. in a co-management framework with tangata whenua, alongside local communities, and fishers potentially affected by the establishment of each MPA.
 - b. prioritise assessing the displacement of fishing effort, monitoring the edge effects and effectiveness of reserve boundaries, and fisheries benefits of marine protection, such as ‘spill over’. This will be useful for determining future management of the MPAs, and will also be useful for the future design of MPAs in Aotearoa.
- Support a 25-year generational review for all the MPAs in the network. This recommendation is an acknowledgement to Kāi Tahu and the importance of each generation being engaged in a review of the effectiveness, performance, and future direction of MPAs, and to enable adaptive management responses to monitor changes.
- Support exceptions for no-take marine reserves that are defined by mana whenua to allow Kāi Tahu to take or disturb life for special occasions such as wānaka, provided this will not significantly impact the ecological integrity of the marine reserve.
- In general WWF-NZ recognises that set-nets are a significant threat to threatened marine species including whakahao / rāpoka (New Zealand sea lions), hoiho (yellow-eyed penguin) and pahu (Hector’s dolphins) in the region and supports the removal of set nets from coastal waters where ever possible.
- Incorporate endangered species foraging habitats within SEMPA and the benefits of protecting these areas against the costs of not protecting them in the final advice to the Ministers.
- WWF-NZ supports the forfeiture of all petroleum exploration permits within the SEMP region, due to the potential negative impacts that this activity can have on endangered and vulnerable species in this area, and the quality and health of the ecosystems they rely on.

2 Context

2.1 The importance of marine protection in Aotearoa New Zealand

Aotearoa New Zealand has one of the largest marine areas (Exclusive Economic Zones) in the world, with diverse coastlines and ecosystems and an extraordinarily rich and unique array of animals, plants, and habitats. Our ocean is central to our identity. For Māori, te moana is a source of whakapapa, the sea and its bounty is a Taonga Tuku iho, a treasure that has been passed down from previous generations and for that reason it must be looked after to pass to future generations. Our ocean supports both people and our economy¹.

Thirty percent of Aotearoa New Zealand's biodiversity is in the sea, but the health of our marine environment is in serious trouble as species and habitats decline². It is estimated that 22% of marine mammals, 90% of seabirds and 80% of shorebirds are threatened with, or at risk of, extinction². Our ocean is facing increasing and cumulative threats² from anthropogenic impacts such as oil and gas exploration, overfishing, destructive fishing, increasing population pressures, land-based impacts, alongside the impacts from climate change, such as ocean acidification, coastal erosion and sea temperature rise.

The best way to build a healthy ocean that is resilient against the multiple and cumulative stressors, is to restore and maintain biodiversity. Each unique species has a role in an ecosystem and species richness helps to build resilience. When species disappear, ecosystems become vulnerable to stresses, and at risk of change and regime shifts. The most effective way to build and protect biodiversity is to establish an effective, well connected, and representative network of marine protected areas (MPAs)³. Scientists around the world are calling for marine protection on a greater scale, such as 30% by 2030^{4,5}, to match the scale of the threats affecting the health of our marine environments^{6, 7}. MPA networks that are ecologically coherent and protect 30% of each habitat type are expected to contribute significantly to the recovery of marine biodiversity⁴, whilst also building resilience to climate change and supporting sustainable fisheries⁸

Beyond benefiting the integrity of marine life within the ocean, marine protection protects the wellbeing of people, and the history of marine protection in Aotearoa stretches back to the indigenous people that first inhabited Aotearoa. In Te Ao Māori, we are not just part of the ecosystem, we are intricately related in kinship to all other living things. We are part of a network of life and death, imbued with spirit that extends in the past and into the future. In

¹It is estimated that the marine economy added \$7 billion to our economy in 2017 and employed more than 30,000 people (Ministry for the Environment, 2019).

²Ministry for the Environment & Stats New Zealand (2019)

³ Callum et al. (2017)

⁴ O'Leary et al. (2019)

⁵ Reuchlin-Hugenholtz, and McKenzie (2015)

⁶ Edgar et al. (2014)

⁷ Global Ocean Legacy (2010)

⁸ Green et al. (2014)

this world view, the mauri (life force essence) of a healthy moana enhances the mauri of those who interact with it.

Māori believe that being good kaitiaki (guardians) and adopting certain practices means the ocean will continue to provide for many generations to come. Sustainable use of the marine environment must not harm the mauri of the area or species. Mauri of an area or ecosystem is in part made up of the different mix of living things there. If there is evidence mauri has been harmed, for example, a fish stock is overfished or a habitat is degraded, this must be restored, in order to, protect the mana of those charged with kaitiaki responsibilities. A rāhui (protected area / closure), or mātaihai (customary fisheries management tool) may be put in place or some other actions to enable the integrity of the fish stock, habitat, or wider ecosystem to be restored. In this way, traditionally in Aotearoa New Zealand, active and effective fisheries management included elements of marine protection.

To summarise, the task of establishing a network of effective marine protection is of the utmost importance for the health and resilience of our ocean, and the economic, spiritual, and cultural wellbeing of people. If it is done in the right way, that respects the rights of Māori, the principles of Te Tiriti o Waitangi can be upheld and all of Aotearoa can benefit.

2.2 WWF - NZ's goals for Marine Protection

WWF – NZ advocates for the creation of a meaningful network of representative MPAs throughout Aotearoa New Zealand subject to the rights of indigenous and local communities. WWF – NZ's goal is that our ocean is thriving and resilient, with at least 30% of each marine habitat protected within a network of highly protected areas and other effective area-based conservation measures (including Māori cultural practice).

Decisions about marine protection should be based on the best available science and best practice design principles while recognising and promoting indigenous practice, knowledge, and leadership. Alongside advocating for meaningful marine protection throughout Aotearoa, WWF - NZ is advocating for fisheries reform, which would result in more integrated and holistic management from 'reef to ridge'⁹. This means Treaty based co-governance, cross-sectoral collaboration, and strong science and monitoring that includes mātauranga Māori – allowing Te Ao Māori to enrich the cultural values at the core of fisheries management. What we would see is a movement towards Ecosystem Based Management (EBM) of fisheries and the marine environment.

3 General comments about SEMPA process

3.1 Best practice MPA principles

The Department of Conservation's MPA Policy and Implementation Plan¹⁰ sets out principles based on Aotearoa New Zealand's international agreements and science. WWF – NZ supports

⁹Leathers (2020)

¹⁰ Department of Conservation (2005)

these principles¹¹ that the South East Marine Protected Forum was required to use as they align with internationally recognised best practice MPA design principles.

In addition to these principles WWF - NZ recommends¹² the Crown works alongside tangata whenua to identify appropriate management that supports kaitiakitanga and Mātauranga Māori, in accordance with tikanga Māori to restore our ocean and ecosystem health.

WWF - NZ also recommends that it is essential to have effective management and monitoring of all marine protected areas. This management should address all impacts to the areas, not only those caused by fishing, and will therefore require effective collaboration between authorities, communities, and policies. We urge a management regime that is adaptive, inclusive and can respond to information that comes from monitoring or other sources. This is particularly important in the face of climate change impacts and implications.

3.2 The collaborative process of the South East Marine Protected Areas Forum

WWF – NZ acknowledges the significant work it has taken to reach this point in the SEMPA process. The South East Marine Protected Forum (“SEMPF”) has worked on this for six years in a complex stakeholder-led collaborative processes¹³. This process shows establishing MPAs takes time, that strong leadership and commitment is required and that it is not always possible to reach a consensus between all parties.

The Forum went through a robust science and knowledge gathering process and identified over 100 important areas. In 2016 after further investigation and negotiation the Forum recommended 20 MPAs (sites) for public consultation. The Forum reviewed submissions, science, values, policy and after significant negotiations and concessions agreed on a network design. The Forum was not able to reach consensus so put forward two options (Network 1 and Network 2), in the 2018 recommendations report¹⁴ to the Minister of Fisheries and Minister of Conservation. After a robust assessment by the Department of Conservation (“DOC”) and Fisheries New Zealand (“FNZ”) against policies, legislation, and socio-economic values and impacts, both Ministers agreed to progress Network 1 as it best met the objectives of the MPA Policy and are seeking feedback on this.

¹¹ Department of Conservation & Fisheries New Zealand (2020)

¹² WWF - NZ (2016)

¹³ In 2014 the South East Marine Protected Forum was established to collaborate and put forward a consensus network of MPAs that were consistent with the MPA policy and guidelines and the purpose of the Marine Reserves Act, using the best available information and incorporating Kāi Tahu’s rights as mana whenua under Te Tiritiri o Waitangai. Forum members represented Kāi Tahu, commercial and recreational fishing interests, conservation advocates, tourism interest and local communities. The Forum was supported by both the Department of Conservation and Fisheries New Zealand.

¹⁴ South East Marine Protected Forum (2018)

3.3 The importance of an authentic Treaty Partnership approach

WWF- NZ wants to acknowledge the special relationship the Crown has with Māori and Kāi Tahu. WWF – NZ supports the aspirations of tāngata whenua and recommends New Zealand’s Marine Reserves Act is reformed to effectively enable authentic Treaty partnership¹³.

In all of its policy and legislation to protect and restore the marine environment and control the sustainable use and development of it, the Crown must, to the greatest extent practicable, protect the authority of iwi and hapū in relation to tāonga, to enable the practice of tino rangatiratanga and kaitiakitanga¹⁵.

Current marine reserves and fisheries legislation does not achieve “authentic partnership” with equal “political authority”¹⁵. A Rāhui or customary fisheries regulations enable (to some extent) tikanga and Mātauranga Māori in defined marine areas, but this falls short of genuine co-governance due to the requirement for most decision-making to be approved by the Crown¹⁵.

WWF - NZ supports:

- The Forum’s proposed co-management of MPAs by Kāi Tahu and the Crown¹³.
- The Forum's recommendation for a 25-year generational review for all the MPAs in the network. This recommendation is an acknowledgement of the importance of each generation being engaged in a review of the effectiveness, performance, and future direction of MPAs, and to enable adaptive management responses¹³.
- Exceptions for no-take areas that are defined by mana whenua to allow Kāi Tahu to take or disturb life for special occasions, such as wānaka, provided that this does not adversely impact the ecological integrity of the reserve.

¹⁵ Waitangi Tribunal (2011)

4 Comments and recommendations on specific SEMPA proposals

This section first comments on the proposed network, then answers the consultation questions (in the online submission template) sought for each of the proposed marine reserves and marine protected areas.

4.1 Proposed South East Marine Protected Forum (SEMPF) Network

The SEMPF area is located along the southeast coast of the South Island from Timaru in the North to Waipapa Point in the South and is 8968km². The Government is proposing to establish a network of MPAs with six marine reserves (4.5%¹⁶ of the area), five type-2 MPAs and one kelp protection area (Figure 1)

WWF – NZ supports implementing the proposed network in full, with several recommendations for consideration of future monitoring and management outlined below.

WWF-NZ has several overall comments on the proposed Network of protection:

- The network did not fully meet the MPA Policy¹⁷ requirements and best practice design principles by not adequately protecting or replicating all habitat types.
- WWF – NZ acknowledges the complex process, challenges, concessions, and importance of recognising and upholding the rights of Kāi Tahu, as mana whenua and other tangata whenua in this area.
- WWF-NZ supports the Government working alongside Iwi to progress future applications for mātaihai or other indigenous management tools, in areas such as the Catlins where there is currently no proposal for protection or at Waitaki river mouth, which could complement the existing marine reserve proposal.
- WWF-NZ supports tangata whenua and the Government in progressing the establishment of mātaihai at Tautuku and Otara, as these could provide additional benefits from their protection and could further add value to the proposed network of marine protection.
- In general WWF-NZ recognises that set nets are a significant threat to threatened marine species including whakahao / rāpoka (New Zealand sea lions), hoiho (yellow-eyed penguins), and pahu (Hector's dolphin) in the SEMPA area and supports the removal of set nets from coastal waters where ever possible.

¹⁶ Calculation based on the values used in the appendices to the consultation document. Total SEMPF area = 8968 km², Total proposed marine reserves = 404 km² (Waitaki = 101.3 km², Te Umu Koau = 96 km², Papanui = 167 km², Orau = 28.8 km², Okaihae = 5 km² and Hakinikini = 5.9 km²)

¹⁷ Department of Conservation (2005)

- WWF – NZ acknowledges there are some significant gaps in the cost and benefits analysis, including detail about how MPAs will benefit threatened marine species and surrounding fisheries. While the MPA Policy directs a habitat focus, the use of the area by seabirds and mammals is an indicator of its high biodiversity values. Understanding the benefits to fisheries from MPAs is important when decision makers are weighing up short term adverse economic effects over long term benefits.

WWF – NZ acknowledges there are some significant gaps in protection and these are highlighted in more detail below.

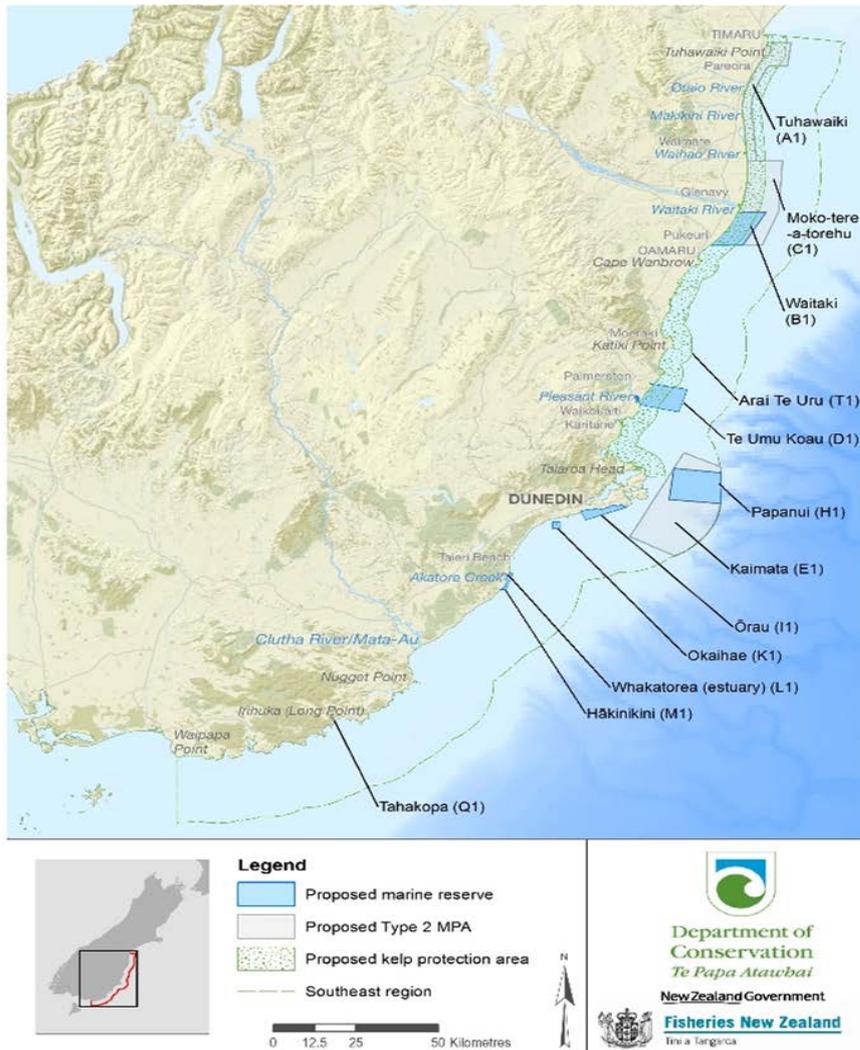


Figure 1: Proposed MPA Network¹⁰

4.2 Option 1: Maintaining the status quo, no protection provided

WWF – NZ does not support Option 1.

WWF – NZ agrees partly with the analysis and effects of maintaining status quo (no protection). What has not been highlighted in the analysis is;

- Failing to uphold the principles of Te Tiriti o Waitangi to enable kaitiakitanga and restore the mauri within the southeast region.
- The loss to biodiversity (beyond habitats) should the southeast region not have any form of protection including endangered, threatened, and protected species.
- The potential financial impact to commercial fishers if coastal fish stocks decline due to overfishing and or destruction of important juvenile biogenic habitat (which could have been protected).
- The potential financial impact to Aotearoa New Zealand’s ‘clean, green sustainable’ brand for failing to meet international marine protection obligations, which could also impact commercial fisheries export markets.
- The potential benefit to recreational fishers (through protection spill-over and larval dispersal effects)
- The delayed protection effect - given Aotearoa New Zealand’s MPA history, should protection not be established it will likely be decades or more before any adequate protection is put in place.
- Given the climate crisis Aotearoa New Zealand (and the world) is facing, the resilience benefit from this network of protection.

4.3 Option 2: Establish the proposed network (and Costs and Benefits)

WWF – NZ supports the establishment of the network in full, provided it upholds the rights of indigenous people and local communities.

If the primary objective was to maximise biodiversity protection, the network would have significant portions of all habitat types and ecosystems represented and replicated, including important foraging grounds of protected, endangered, and threatened species. However, WWF – NZ acknowledges that MPA processes are complex, with multiple objectives at play, and require gifts and gains and significant negotiations. The Forum worked hard to reduce the adverse effects on existing users, such as customary, recreational, and commercial fishers¹³ while seeking to meet the MPA Policy. As a result of the complex negotiations, considerations and concessions made, there are several limitations we would like to highlight include:

- The network does not meet the MPA policy, best practice design principles^{11,10,18} and Aotearoa New Zealand's domestic and international obligations.

The network does not adequately represent or replicate the full range of habitats (or ecosystems) found in the SEMPf area.

- There are no marine reserves proposed for the Catlins region. WWF-NZ recommends that the Government support tangata whenua and local communities with progressing protection for this area.
- Four habitats have no protection (sheltered shallow sand, sheltered shallow reef, sheltered sandy beach and sheltered intertidal reef) and eight habitats are poorly represented, including deep reef, moderate intertidal reef, moderate sandy beach, deep sand, deep gravel, exposed shallow sand, deep mud, estuarine.
- Type-2 MPAs do not complement existing fisheries management boundaries and could cause confusion and non-compliance.
- The protection of 'outstanding, rare, distinctive or internationally important marine communities or ecosystems', including tube worm mats, bivalve beds, sponge gardens, and sea tulips, is unknown due to insufficient data on their occurrence¹⁴.
- Despite these limitations, if the entire proposed network is implemented it will significantly progress marine protection in Aotearoa New Zealand, and the region will have some of the largest marine reserves and type-2 MPAs around the mainland. The MPA network will not only improve biodiversity and ecosystem services through habitat protection, it will provide important scientific reference areas, enable public enjoyment, support fisheries, add value to the economy, and importantly help provide opportunities for partnership between the Crown and Kāi Tahu (and tangata whenua) to enable kaitiakitanga to manage and restore the mauri within the southeast region.

Costs & Benefits analysis

WWF – NZ agrees in general with the costs and benefits analysis in the consultation documents with the exception that it does not detail:

- How some costs (such as the estimated financial impact on commercial fishing) could be mitigated and reduced.
- The potential fisheries benefits of MPAs (e.g. spill over/larval dispersal effect, or potential increases in future quotas, or possible increases in recreational bag limits, as abundance is restored).
- Analysis of wider ecosystem service benefits resulting from the protection, including social and cultural values.

For each of the individual MPAs reviewed below, supporting material can be found in Appendix 1 – Cost and Benefits of Marine Protection and Appendix 2 - Threatened Marine Species for supporting material.

¹⁸ Ballantine (2014)

4.3.1 Type-1 MPAs

Waitaki Marine Reserve (B1) – Figure 2

WWF – NZ supports the establishment of Waitaki marine reserve in full.

WWF – NZ further proposes additional protection for the habitat and/or critical and vulnerable species around the Waitaki river mouth. This could be in the form of traditional management such as Mātaitai or other management tool.

Design:

The proposed marine reserve is a good design and size. It has clear boundaries and follows the coastline. It extends offshore 4.5– 5.4 nautical miles and does not cut through any known biological systems (e.g. reefs). From a compliance view, the straight-line design will aid enforcement and reduce boundary confusion (Figure 2)



Figure 2: Proposed Waitaki Marine Reserve¹⁰

WWF – NZ supports the size and location of the reserve. Further concessions, such as a reduction in size could compromise the biodiversity gains.

Costs & Benefits

WWF – NZ acknowledges the importance of the Waitaki river mouth and surrounding waters to Kāi Tahu and others, such as recreational fishers particularly salmon fishers

WWF – NZ supports the benefits and costs listed, however there are several limitations. The benefits of protecting species foraging grounds and juvenile fish habitat (including potential spill over and economic value) should be adequately conveyed in the final advice to Ministers alongside the habitats this reserve will protect to ensure the best available information is used by the Ministers when balancing the costs and benefits, particularly the adverse economic effects on fishing.

Limitations of costs and benefits analysis:

- The importance of these waters as coastal foraging grounds, particularly the river mouth for species such as pahu (Hector's dolphins) and seabirds such as kororā (little penguins) and hoiho (yellowed-eyed penguins) and the value of protecting these areas. The area was historically known to have some of the highest densities of squat lobsters, which represent an important food source for fish, marine mammals and birds¹³.
- The potential fisheries benefits of this reserve. The reserve includes important high value biogenic habitat and kelp beds likely to be important for juvenile fish¹³. There is no recognition of the potential economic benefits of protecting the nursery and or breeding grounds for fish. If the research does not exist, agencies should prioritise getting it as the potential fisheries benefits from MPAs should be adequately included in the final advice to Ministers.
- The natural value of the area around the river mouth. Environment Canterbury designated it an area of significant natural value¹⁹.
- Recognition that the location of the reserve which starts several kilometres south of the Waitaki river mouth means it does not adequately protect the biodiversity of gravel beaches and subtidal cobble fields as it does not protect the river mouth where the majority of the freshwater influence (mixing) occurs¹³.
- The predominately north flowing current could reduce the potential benefit of the rich river mouth waters, as these waters would flow north away from the proposed marine reserve.

As discussed in the SEMP analysis¹³, WWF – NZ understands that there is little commercial fishing likely to be affected by the proposed marine reserve, given Danish seining is already prohibited out to the 3nm boundary and no commercial dredging, potting or pāua diving occurs in this area. Therefore, the cost (fishing displacement) of this reserve is likely to be minimal.

WWF - NZ recognises the analysis that the proposed marine reserve is unlikely to adversely affect recreational fishers, given most of their fishing occurs at or within the Waitaki river mouth¹³.

¹⁹ Environment Canterbury Regional Council EPlan

Te Umu Koau Marine Reserve (D1) – Figure 3

WWF – NZ supports the establishment of the Te Umu Koau marine reserve in full.

Habitats within this reserve are of national ecological importance and should be protected.

Based on the Forum’s assessment, WWF – NZ recognises that this site represents the best balance between reducing the impact on existing users and protecting important representative habitats that provide critical ecosystem services. Without this site (which partially includes a deep-water reef system) the network would not meet the MPA Policy (planning principle 5)^{17, 13}. We acknowledge this was a difficult proposal to work through due to potential impacts on fishers²⁰. The Forum investigated alternative locations along the coast but were unable to find an alternative with such a diverse range of interconnected habitats, without similarly affecting commercial fishers¹³.

Design:

The proposed marine reserve is a good design and size. It has clear boundaries and follows the coastline and includes both estuaries (Figure 3). It extends offshore just over 5.7 – 6.5 nm. Our key concern with the design of this reserve is that the offshore boundary crosses through a deep-water reef¹³. Studies have found that such designs can increase edge effects and impact on how quickly some species can recover and/or increase in abundance, such as rock lobster^{21, 22, 23}.

The proposed partial protection of the deep-water reef allows fishing to continue within the greater reef system. However, we do not support any further concessions, such as a reduction in size, as this could significantly compromise the biodiversity gains, especially if the deep-water reefs are excluded.

The straight-line design of this MPA will aid compliance and enforcement and reduce boundary confusion.

WWF – NZ supports the inclusion of both estuaries and the benefits listed.

²⁰ There are a number of commercial fisheries including kōura papatea (rock lobster), rawaru (blue cod), pātiki (flatfish), kumukumu (red gurnard), moko repe (elephant fish) and blue moki that could be potentially affected at varying levels by the proposed marine reserve. Given the value of kōura papatea quota, it is the most significant species to potentially be affected¹³. It is estimated (based on 2017 values) that up to \$1.84 million of koura papatea/ rock lobster could be affected¹⁰.

²¹ Shears et al., (2006)

²² Goni, Quetglas & Renones (2006)

²³ Edgar et al. (2014)



Figure 3: Proposed Te Umu Koau Marine Reserve¹⁰

Costs & Benefits:

WWF – NZ supports the many benefits listed and agrees that this site is consistent with the Marine Reserves Act in that the natural features and habitats within the reserve are “*typical, or beautiful, unique and that their continued preservation is in the national interest*”^{10, 24}.

Te Umu Koau is one of the most unique sites in the whole network given the diverse range of natural features and habitats it covers from deep and shallow reef, sand, estuarine and a range of biogenic habitats, including giant kelp forests¹³. This reserve is likely to have exceptionally high biodiversity values.

²⁴ Marine Reserves Act 1971 <http://www.legislation.govt.nz/act/public/1971/0015/latest/DLM397838.html> Section 3(1)

Te Umu Koau is the only marine reserve in the SEMP network to protect an example of deep-water reefs. It is estimated that there is 163km² of deep-water reef within the region¹³. Te Umu Koau as proposed will protect 2.7% (4.5km²) of these deep-water reefs.

While analysis of many benefits has been provided, there are some important limitations in the analysis, and we recommend Ministers are provided the important information listed below.

Limitations of costs and benefits analysis:

- The benefits and importance of these waters as coastal and pelagic foraging grounds, and the coastline as breeding and haul out grounds for protected, endangered or threatened seabirds and marine mammals. For example, these waters support a range of threatened species such as hoiho (yellow-eyed penguin), red-billed gulls, white and black fronted terns, Otago shags, fur seals, whakahao / rāpoka (New Zealand sea lions), and pahu (Hector's dolphin). Hoiho have significant foraging ranges. Tagging studies confirm this proposed marine reserve will cover some, but not all the important foraging habitat²⁵.
- The potential fisheries benefits of this reserve. The reserve includes deep-water reefs and giant bladder (Macrocystis) kelp forest which provide critical ecosystem services¹³. These kelp forests are important settlement and nursery grounds for numerous fish and kōura papatea (rock lobster)¹³. There is no recognition of the potential economic benefits of protecting nursery grounds, yet fisheries benefits from marine reserves have been well documented^{26,27,28} on coastal rocky reef species like snapper and kōura papatea²⁹. If more research is needed to assess the potential fisheries benefits from MPAs, then agencies should prioritise this as a next step.
- The potential benefits to the recreational (non-fishing) and tourism sector.
- The significant benefits and scientific research opportunities this reserve offers, such as studying the behavioural response of Otago kōura papatea and other fish to partial reef protection
- Te Umu Koau will provide excellent opportunities for promoting Aotearoa New Zealand internationally
- The marine reserve does not follow best practice design principles due to the fact the offshore boundary cuts through a reef system to avoid closing the whole reef to commercial fishing. This should allow fishing of kōura papatea to continue within the greater reef system, thus reducing the impact on fishers¹³. Kōura papatea are migratory and are also likely to be available at some other stage of their life when they move outside the reserve. This potential benefit for fishers should be conveyed in advice to Ministers.
- Adverse economic effects (primarily on commercial fishers) have been described, but there is no supporting information on the likelihood of displacement (to other areas) or the ability to reduce the economic and livelihood effects.

²⁵ Eudyptes Eco Consulting (2020)

²⁶ Halpern, Lester & Kellner (2009)

²⁷ Goni et al., (2010)

²⁸ Abesamis et al., (2006)

²⁹ Barrett, Buxton & Gardner (2008)

- There is no fine-scale fisheries data available to assess the overall estimated cost to the fishing industry. It is estimated that between 9 – 11 fishers could be affected and up to 20.7% of the current annual catch taken within the CRA 7 fisheries management area could be displaced by this marine reserve¹³. WWF – NZ acknowledges this is a stressful time for some commercial fishers, including Kāi Tahu fishers due to this potential financial impact.
- There is a lack of information about the state of the kōura papatea (rock lobster) fishery known as CRA 7. CRA 7 is a productive fishery with no reported sustainability concerns. The quota was increased in April 2020 by 31% and will be reviewed again in 2022³⁰. It is highly likely that those fishers affected will be able to catch their quota in full outside of the marine reserve. There is no evidence presented that this quota will not be able to be fully caught. It is vital that adequate monitoring is established and that FNZ works with affected fishers.

Recommendations:

WWF - NZ recommends FNZ monitors kōura papatea (rock lobster) catch at a finer scale (within the whole of CRA 7) to determine what proportion of the displaced catch is sustainably landed outside the reserve boundary and if CPUE overall is affected. The recent move towards digital and geospatial reporting should aid FNZ with implementing this.

WWF – NZ recommends in the future that this reserve could benefit from an increase in size offshore to include more deep-water habitat, or that an alternative deep-water reef is considered for protection. This would require careful monitoring of the benefits and impacts on key fisheries like kōura papatea (rock lobster).

Papanui Marine Reserve (H1) – Figure 4

WWF - NZ supports the establishment of the Papanui marine reserve in full.

WWF – NZ recommend seismic surveying be prohibited from the marine reserve with a buffer to ensure the level of sound entering the area does not adversely impact marine life³¹. Species and ecosystem service benefits should be adequately conveyed in the final advice to Ministers along with the unique habitats represented in this reserve to ensure the best available information is used by the Ministers when weighing up any adverse economic effects.

Design:

The proposed marine reserve is a good design and adequate size and is located completely offshore (Figure 4). It is a good example of deeper waters, covering 60-80 m depth and most importantly it includes the head of the Papanui canyon. It is nested within a type2-MPA which will act as a buffer and potentially increase the biodiversity benefits.

³⁰ CRA 7 2020 Sustainability measures <https://www.fisheries.govt.nz/dmsdocument/38996/direct>

³¹ See WWF-NZ submission on the Proposed Marine Mammal Protected Areas for detailed recommendations about the required limits on sound entering protected areas.

The outermost (offshore) boundary follows the 12nm (territorial sea) contour which will help reduce non-compliance. The inner western boundary may potentially cause non-compliance as it does not align with existing fisheries measures out from the peninsula.

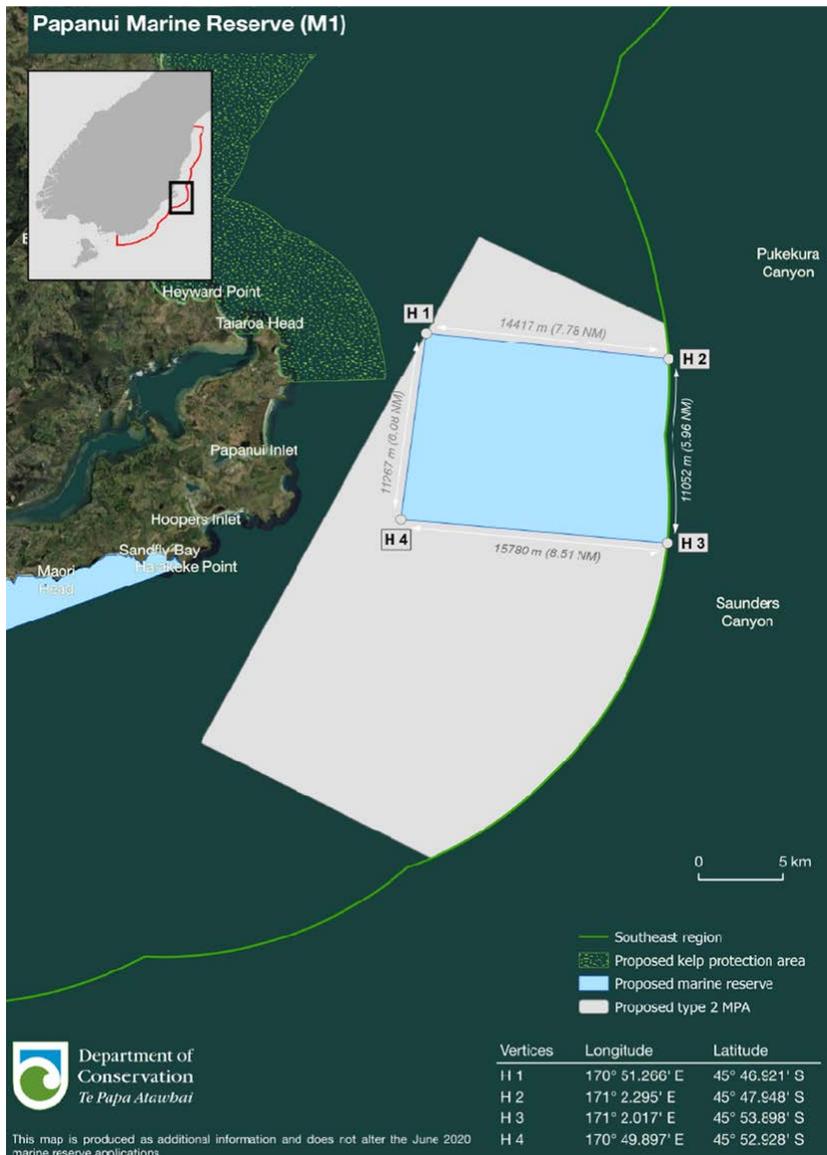


Figure 4: Proposed Papanui Marine Reserve¹⁰

Costs & Benefits:

WWF - NZ supports the costs and benefits listed and recommends explaining in full the justification of this site and its global significance.

Saunders Canyon to the South would have been WWF – NZ’s preferable canyon to include in the southeast MPA network given it extends further within the territorial sea, and has the deepest waters and habitats within the region and higher biodiversity gains¹³, including for threatened species such as hoiho (yellow-eyed penguins), (refer to Appendix 2, Figure 17). However, given the potential adverse effects on commercial fishers including Kāi Tahu fishing

interests and the MPA Policy principle five³², WWF - NZ supports the partial inclusion of Papanui canyon.

WWF – NZ agrees the bryozoan thickets off the Otago Peninsula are ‘outstanding, rare, distinctive or internationally or nationally important marine habitat and ecosystems’¹³ and supports the proposed protection which will protect 30% of their known distribution.

Limitations of costs and benefits analysis:

- More detail around the benefits of Papanui canyon should be provided to Ministers. The Forum¹³ describes the unique and rare features of Papanui canyon and the influence of the Southland current and upwellings.
- The value and benefit of protecting important coastal and pelagic foraging habitats for marine mammals such as paraoa (sperm whales), whakahao / rāpoka (New Zealand sea lions); and seabirds like seabirds³³, including hoiho (yellow-eyed penguins), toroa (albatross) and koau (Otago shags) and the cost (to the species) of not protecting their full ranges. WWF – NZ discusses this further under Kaimata type-2 MPA.
- The potential biological benefits of the plateau being included in the marine reserve boundary. This area includes a small examples of queen scallop beds, which is the only example in the whole network¹³.
- The importance of the bryozoan beds as feeding grounds to larger vertebrates, given the abundance of organisms that use the bryozoan habitat such as whakahao / rāpoka (New Zealand sea lions) and hoiho (yellow-eyed penguins)¹³.
- The significant benefits and scientific research opportunities this reserve offers.
- The significant tourism benefits and opportunities to promote Aotearoa New Zealand’s international reputation.

Recommendations:

WWF – NZ would recommend, as for all the MPAs, that any displacement of fishing effort is adequately monitored to assess the impacts on affected fishers. The blue cod fishery could potentially experience the biggest displacement, based on the estimations by the Forum¹³, this represents less than 2% (3.2 tonnes) of the total commercial blue cod quota available for the quota management area.

There is an existing petroleum exploration permit that slightly overlaps with the reserve boundary. A rapidly increasing body of science shows significant negative impacts of exploration activities such as seismic surveys on marine mammals,³⁴ and marine food webs³⁵. Considering the marine reserve proposed is of high ecological value and inhabited by a range of vulnerable marine mammals, which should be protected from damage and impacts of

³² The MPA policy Planning Principle 5 provides: “Where there is a choice of several sites, which if protected would add a similar ecosystem or habitat to the MPA network, the site(s) chosen should minimise adverse impacts on existing users and Treaty settlement obligations.”

³³ SEMPF 2018 report¹³ describes over 53 species of seabirds known to forage here, including eight threatened species, three of which are classified as Nationally Critical (page 151).

³⁴ Lucke et al (2019).

³⁵ New studies show seismic surveys damage shellfish, crustaceans and kill zooplankton (such as larval fish and krill) for kilometres around (McCauley et al, 2017). Impacts on these low trophic levels have knock-on effects for the whole marine ecosystem (McCauley et al, 2017).

seismic surveying. WWF - NZ recommends existing petroleum exploration permits within the region should be forfeited to the Crown.

Orau Marine Reserve (I1) – Figure 5

WWF - NZ supports the establishment of the Orau marine reserve in full.

For the reserve to have successful biodiversity outcomes WWF - NZ further proposes that post implementation DOC and FNZ supports Kāi Tahu and the local community to consider the creation of a buffer of additional protection around the existing reserve. This could be done by establishing a type-2 MPA or establishing a customary fisheries management tool, such as a mātaítai, or another form of management tool.

The proposed ‘buffer’ could surround Orau marine reserve and potentially include Hoopers Inlet. This could provide some partial protection of Tow Rock and White Island and associated habitats, whilst not impacting unduly on recreational and customary fishers.

Design:

The proposed marine reserve boundary does not meet best practice design principles¹⁷ by excluding Tow rock in the north and Lions Head and White Island in the South. The design of the reserve means the maximum offshore distance is 1.7nm (Figure 5). The shape of the reserve and lack of adequate offshore distance will likely increase the ‘edge effect’ from fishing and reduce the biological potential of the reserve.

The benefit is that it follows the coastline and uses straight line boundaries and significant landmarks which will aid compliance and enforcement.



Figure 5: Proposed Orau Marine Reserve¹⁰

Costs & Benefits:

WWF - NZ supports the costs and benefits listed in the appendices, but recommends further information is provided to Ministers to address the limitations in the analysis.

Limitations of costs and benefits analysis:

- The importance of these coastal waters and habitats given the proximity to Dunedin and public accessibility. Orau marine reserve has the potential of being an iconic Dunedin reserve which could add economic value, attract tourists and educational experiences, such as the school programme Experiencing Marine Reserves³⁶.
- The concessions made³⁷, which have potentially compromised the biological effectiveness of the reserve, have not been adequately included.
- That there was overwhelming support from submitters³⁸, including the science sector to extend the boundary offshore. This would have ensured the reef systems were not partially protected (for example around White Island and Tow rock) and would have created a buffer zone between the reefs and the offshore boundary.
- The high biodiversity values of Tow Rock and White Island. The Forum's report¹³ highlights that these two areas have some of the best water clarity in the region, combined with strong currents which results in increased biodiversity values.
- The consequence (habitat representation loss) of adjusting the offshore boundary to reduce adverse effects on fishers. To reduce conflicts, Tow Rock and White Island were excluded as they are extremely popular fishing areas near Dunedin. As a result of this a reef system has been split and important deep reef habitat, poorly represented elsewhere in the Network, is excluded.
- The potential increase in 'edge effects' from fishing³⁹ due to the reduction in the offshore boundary and design of the reserve¹³ and the potential effect this has on the ability of biodiversity (species and habitats) to recover.
- The important foraging grounds within and around the proposed reserve and the costs of not protecting these. For example, Tow rock is important for seabirds and marine mammals, such as whakahao / rāpoka (New Zealand sea lions)¹³.
- That White Island has unique underwater scenery that is not replicated elsewhere in the Network.
- There is no explanation why the important Hoopers Inlet is excluded (the proposed boundaries stop just south of the inlet) or was not considered as a type-2 MPA to complement Orau. This is an important nursery habitat for many species including whakahao / rāpoka (New Zealand sea lions).

Okaihae Marine Reserve (K1) – Figure 6

WWF - NZ supports the establishment of the Okaihae marine reserve in full.

The benefits of 'land to sea' protection will likely increase public enjoyment and potential education opportunities. Analysis of the costs and benefits shows that biodiversity gains outweigh potential adverse impacts.

Design:

³⁶ Refer to www.emr.org.nz for more information

³⁷ Refer to SEMPA recommendation report¹⁴ alternative offshore boundaries consulted - Figure 2-43: Site II

³⁸ Refer to SEMPA recommendation report¹⁴ section 2.4.8.3

³⁹ Refer to Appendix 1 – Costs and Benefits of Marine Protection

The proposed marine reserve is a good design for its purpose of protecting Okaihae (Green Island) rocky reefs and kelp forests. It is located offshore but has close proximity to the coast. The boundaries extend approximately 1 km around the island (Figure 6).

The straight-line boundaries should aid compliance.

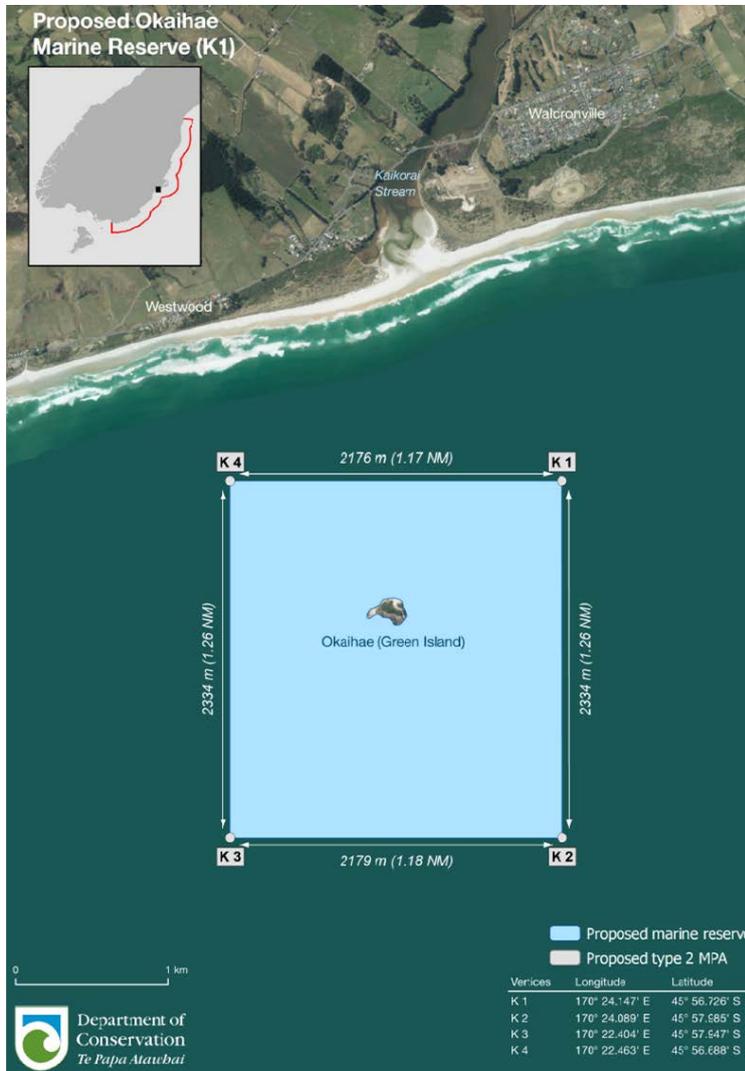


Figure 6: Proposed Okaihae Marine Reserve¹⁰

Costs & Benefits:

WWF - NZ supports the costs and benefits listed about Okaihae (Green Island) nature reserve and the associated species found on the island and in the waters around it.

WWF - NZ supports that while the marine reserve size is relatively small and would not meet the sufficient size principle of best practice²², we consider it sufficient for its purpose of protecting the surrounding reefs and associated habitats.

As stated in the SEMPA analysis¹³ WWF - NZ agrees that the potential adverse effects on recreational users are minimal given there are other reefs available nearby and that the reserve is unlikely to have any significant impact on commercial fishers.

Limitations of costs and benefits analysis:

- Despite being an offshore island, Okaihae is easily accessible by small boat and kayak and this benefit should be included.
- The significant benefits and scientific research opportunities this reserve offers should be highlighted.

Hākinikini Marine Reserve (M1) – Figure 7

WWF - NZ supports the establishment of the Hākinikini marine reserve in full.

Hākinikini is a valuable representative example of exposed intertidal and shallow rocky reef.

We consider that based on the limited information in the Forums report¹³, the potential adverse impacts of extending the offshore boundary in the future could be outweighed by the biodiversity benefits.

WWF – NZ is concerned about the offshore boundary potentially cutting through reef and that there is no buffer around the reef. This could impact on the integrity and benefits of the marine reserve. We therefore recommend a monitoring programme to assess the edge effects and effectiveness of the reserve boundary, including working with those fishers affected and considering future management action accordingly.

Design:

The proposed marine reserve would have been a good design and size if the offshore boundary extended further to buffer the reef habitat²². It currently extends less than 1nm offshore. The reserve follows the coastline and uses straight lines and will enable the use of clear land markings which should aid with compliance and enforcement (Figure 7).

WWF - NZ disagrees that the 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.*” Research from similar habitats in northern Aotearoa New Zealand highlights the importance of size and design on key species such as snapper and kōura papatea (rock lobster)^{18,21,40,41}.

The offshore boundary at the Northern and Southern ends extend offshore less than 1nm. Figure 8¹³ shows how the offshore boundaries are estimated to meet the reef (blue) in some places. There is no buffer around the reef and this means that fishing the reserve boundary (which is nearly 6km long) could increase the edge effects^{18, 21, 22} and negatively impact fish, kōura papatea (rock lobster) and other species that live on the reef and associated habitats

⁴⁰ Shear, Russell & Babcock (2003)

⁴¹ Kelly & MacDiarmid (2002)

(refer to Appendix – Costs and Benefits of Marine Protection). The Forum made concessions and reduced the offshore boundary because of the trawl fishery that operates close to shore¹³.

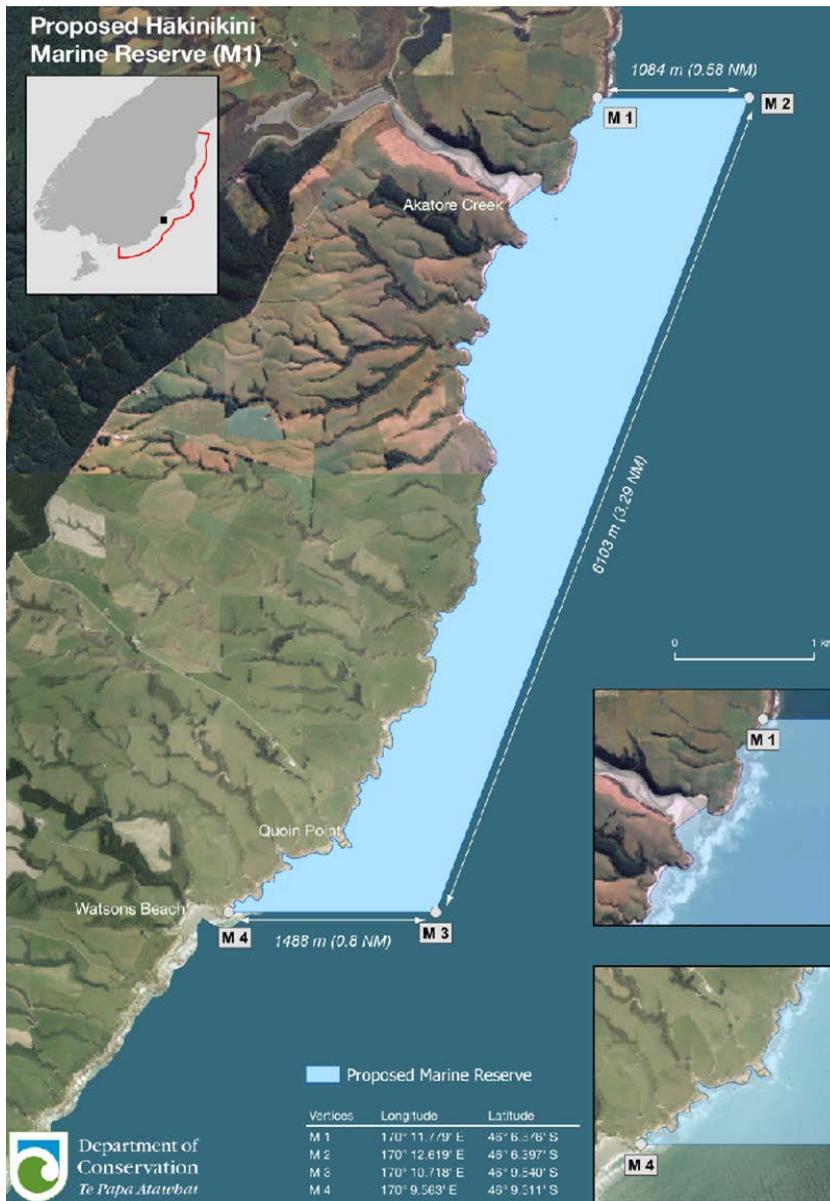


Figure 7: Proposed Hākinikini Marine Reserve¹⁰

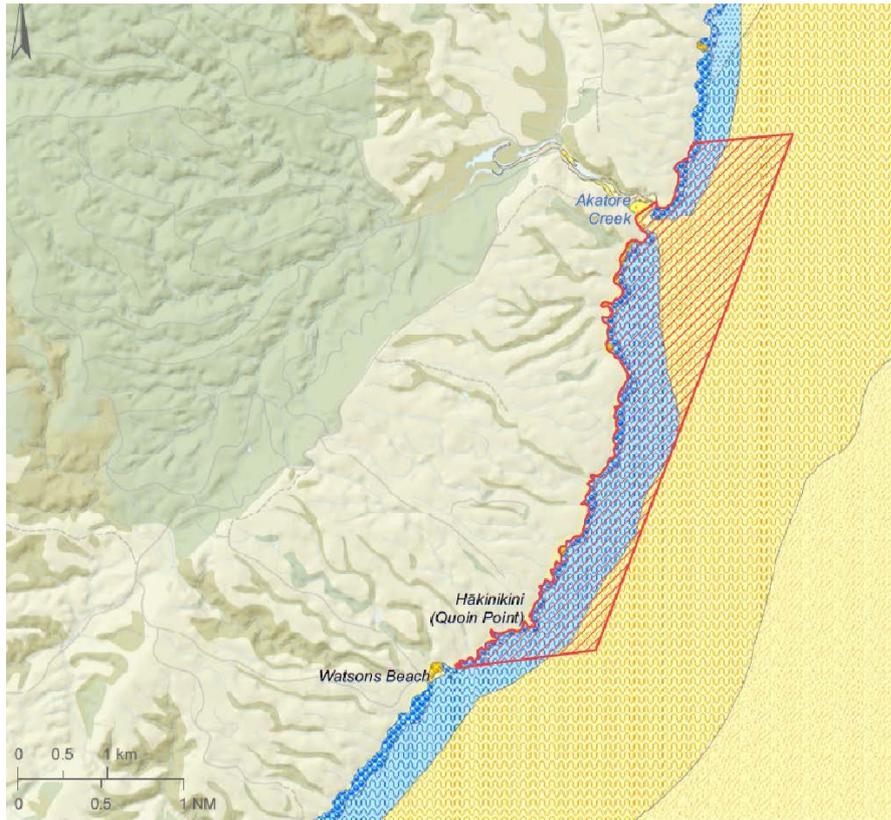


Figure 8: Broad-scale habitat map for Hākinikini marine reserve from SEMPf report¹³

Costs & Benefits:

The Forum estimated that the proposed reserve will likely have minimum impact. The Forum reported using seasketch (which has significant limitations) that the most impacted fisheries were likely to be pot caught kōura papatea (rock lobster) estimated at about 1%, bottom long line or dahn 0.6% and trawl 0.3%¹³.

Limitations of costs and benefits analysis:

- Adequate information about the potential negative boundary effect.
- Limited information on adverse economic commercial effects due to a lack of fine scale fisheries catch data.
- The importance of these waters as coastal foraging grounds seabirds such as hoiho (yellowed-eyed penguins) and marine mammals such as pahu (Hector's dolphins), kekeno (NZ fur seal) and whakahao / rāpoka (New Zealand sea lions), refer to Appendix 2: Threatened Marine Species.

4.3.2 Type-2 MPAs

Type-2 MPAs can assist with not only the purpose of the MPA policy, which focuses on habitat and ecosystems, but can have specific species benefits including for endangered, threatened or protected species but also other fish species that all play an important role in maintaining the food chain and trophic linkages and support healthy functioning ecosystems.

Tuhawaiki type-2 MPA – Figure 9

WWF - NZ supports the establishment of the Tuhawaiki type-2 MPA and recommend FNZ and DOC produce a more detailed map which shows the existing fisheries restrictions alongside the proposed MPA.

WWF - NZ supports prohibiting the following fishing methods within the Tuhawaiki type-2 MPA; bottom trawling, dredging, Danish seining, set-netting and mid-water trawl.

Design:

The proposed type-2 MPA (Figure 9) is designed to follow the coast south of Timaru extending offshore approximately 1.5 nm to south of the Waihao River. There is a small increase offshore south of Timaru between 3.1 – 3.7 nm. The boundaries will need to be well marked to reduce non-compliance.

Costs & Benefits:

WWF - NZ agrees with the benefits listed, particularly those for seabirds, including hoiho (yellow-eyed penguin) and pahu (hector's dolphins), however if the focus was on protecting foraging grounds for seabirds or marine mammals alongside the benthic habitat then the offshore boundaries would need to be extended, refer to Appendix 2 – Threatened Marine Species.

Limitations of costs and benefits analysis:

An adequate description and map of the existing fisheries restrictions in the area would be helpful. WWF - NZ supports the theoretical benefits but notes that this type-2 MPA may add little protection when existing measures are taken into account. There is already an existing 4nm set net ban and the prohibition of Danish seining and some restrictions on trawling. In addition to these the updated Hector's and Maui Dolphin Threat Management Plan, released after the Forum had concluded, includes some set net protection which overlaps with this proposed type-2 MPA (refer to Appendix 2 – Threatened Marine Species Figure 22). The final advice should reflect how additional protection will enhance benefits for endangered Hector's dolphins.

Recommendation:

DOC and FNZ create an updated map to reflect existing fisheries measures alongside the proposed Type 2 MPA.



Figure 9: Proposed Tuhawaiki type-2 MPA¹⁰

Moko-tere-a-torehu type-2 MPA – Figure 10

WWF - NZ supports the establishment of the Moko-tere-a-torehu type-2 MPA.

WWF - NZ supports prohibiting the following fishing methods within the Moko-tere-a-torehu type-2 MPA; bottom trawling, dredging, Danish seining, set-netting, mid-water trawl and commercial long lining.

Design:

The proposed type-2 MPA (Figure 10) is designed to follow the coast south of the Waihao River extending offshore approximately 5.8 nm. The MPA buffers around the northern boundaries of the Waitaki marine reserve.

The straight-line design will help with compliance and enforcement.



Figure 10: Proposed Moko-tere-a-torehu type-2 MPA¹⁰

Costs & Benefits:

WWF - NZ agrees with the benefits listed in the Forum's report¹³, particularly those for seabirds including hoiho (yellow-eyed penguin) and pahu (hector's dolphins).

Limitations of costs and benefits analysis:

An adequate description and map of the existing fisheries restrictions with proposed measures to show what additional protection is added, particularly on endangered, protected and threatened species and the habitats they forage and rely on (refer to Appendix 2 – Threatened Marine Species). The final advice should reflect how additional protection will enhance benefits for endangered Hector's dolphins.

The Forum noted the importance of these waters to a variety of fish and consequently that 34.5 tonnes of catch would be displaced, and that the largest adverse effect would be to red gurnard, rig, and school shark commercial fisheries¹³. DOC and FNZ have not adequately described if this quota could be caught sustainability outside of the proposed type-2 MPA, potentially reducing these adverse effects.

Recommendation:

DOC and FNZ create an updated map to reflect existing fisheries measures alongside the proposed Moko-tere-a-torehu type-2 MPA.

Kaimata Type-2 MPA – Figure 11

WWF - NZ supports the establishment of the Kaimata type-2 MPA and recommends consideration of a modification to the western boundary to reduce compliance concerns by linking up to existing fisheries measures and to protect important foraging habitats for endangered, protected, and threatened species.

WWF - NZ supports prohibiting the following fishing methods within the Kaimata type-2 MPA; bottom trawling, dredging, Danish seining, set-netting, mid-water trawl and purse seining.

Design:

The proposed type-2 MPA (Figure 11) is designed to follow the offshore 12 nm territorial sea boundary, which will aid compliance and enforcement by commercial fishers. The MPA provides a buffer zone around the Papanui marine reserve. The western boundary does not extend towards the shore to meet up with existing fisheries restrictions. The boundary creates a channel of unprotected waters between Harakeke Point and Taiaroa Head which could increase the risk of non-compliance within Kaimata.

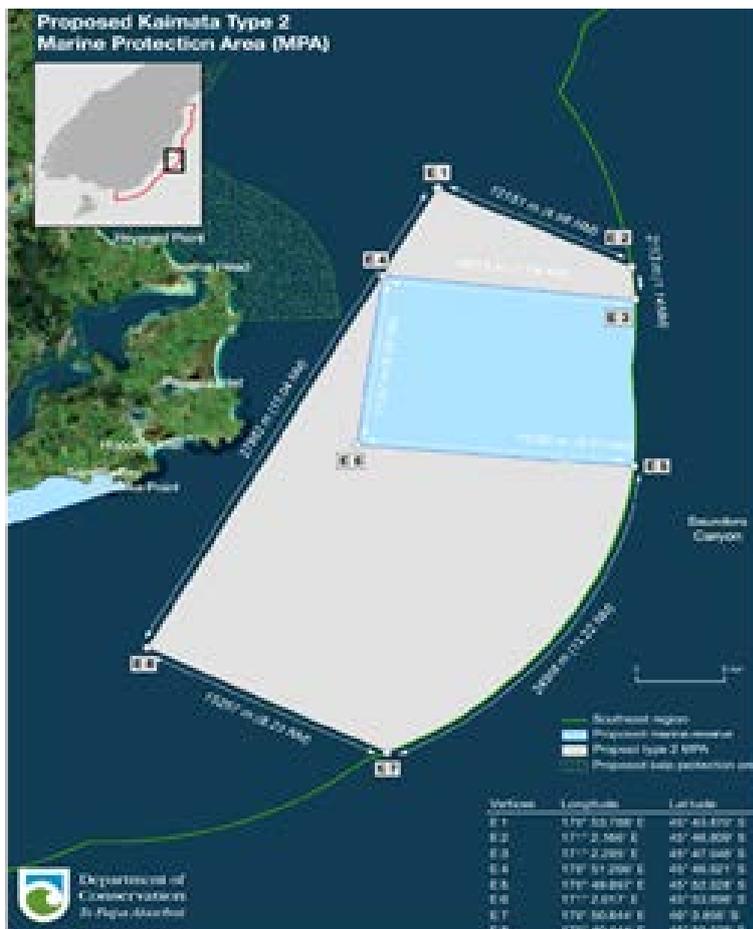


Figure 11: Proposed Kaimata type-2

Costs & Benefits:

WWF - NZ supports the benefits listed but they do not adequately reflect the biodiversity gains.

WWF - NZ supports the large size of the Kaimata type-2 MPA as it will not only protect important biogenic habitat, such as the bryozoan beds (important nursery grounds for many fish and invertebrates including juvenile blue cod¹³), but will offer some protection for the foraging grounds of marine mammals and seabirds many of which are endangered, threatened or protected species (refer to Appendix 2 – Threatened Marine Species).

Rayment et al. (2019)⁴² highlights that the Otago submarine canyons and associated areas, part of which is protected within the type-2 MPA, provide year-round habitat for a significant number of deep-diving marine mammals. Rayment et al. (2019)⁴² observed nine cetaceans and 217 sightings of NZ fur seals during their surveys (Figure 12). Their research also confirmed Otago is a global hotspot for Shepherd's beaked whales⁴².

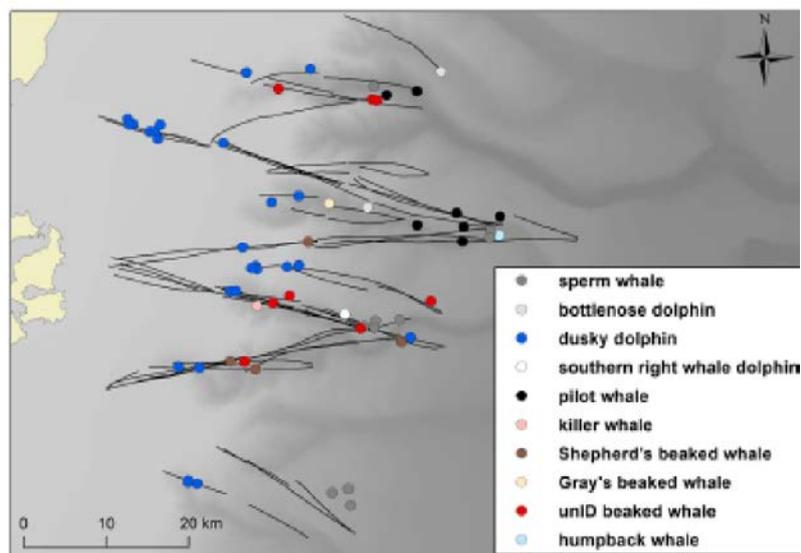


Figure 12: Marine mammal visual survey results from Rayment et al.⁴¹

Limitations of costs and benefits analysis:

The costs and benefits for threatened marine species, of protecting or leaving unprotected, the important foraging habitats between the coast and the western boundary of Kaimata has not been adequately explained:

- Augé et al research highlights some of the important foraging grounds of tagged female sea lions around the Otago region, refer to Figure 19a⁴³ and 19b⁴⁴, Appendix 2.
- WWF – NZ have provided evidence that was not available to the Forum of some important hoiho (yellow-eyed penguins) foraging habitats⁴⁵ around Otago, refer to Appendix 2 –Figure 17⁴⁶.

⁴² Rayment et al., (2019)

⁴³ Augé (2011)

⁴⁴ Augé, Moore & Chilvers (2012)

⁴⁵ Tracking data from 2018 and 2020 confirms that Kaimata is the only MPA within the network that includes large pelagic foraging habitat for Hoiho, Figure 17 Appendix 2.

⁴⁶ Mattern (2020)

- FNZ and DOC have not described where existing fisheries restriction measures start and finish around the coast in comparison to the proposed type2 MPA and marine reserve in this area.
- There was no fine scale fisheries information available for this ‘unprotected channel’ of water. WWF – NZ cannot determine the scale of any potential adverse effects. However, given the proposed type-2 MPA does not restrict recreational or customary fishing and allows some methods of commercial fishing to occur¹⁰, meaning fewer fishers are likely to be affected, we consider FNZ should produce an assessment of the potential adverse effects.

Recommendation:

WWF - NZ is proposing that the western boundary is partially extended towards the coast to connect with the existing fisheries management measures, such as the existing set net ban. Figure 13 is a ‘best estimate’ of the potential boundary adjustment, FNZ and DOC would need to work with Kāi Tahu, local communities and any potential fishers that could be affected. This adjustment could have significant biodiversity gains for some of our most endangered and at-risk seabirds and marine mammals as well as protecting a full range of coastal to offshore benthic habitats. It could also reduce the risk of non-compliance for those fishing methods that can occur between Harakeke Point and Taiaroa Head and the western Kaimata boundary.

DOC and FNZ need to create an updated map to reflect existing fisheries measures around the Otago coast alongside the proposed Kaimata type-2 MPA.

DOC and FNZ need to describe and assess the potential boundary adjustment and closure of this unprotected channel between Harakeke Point and Taiaroa Head and the western boundary of Kaimata.

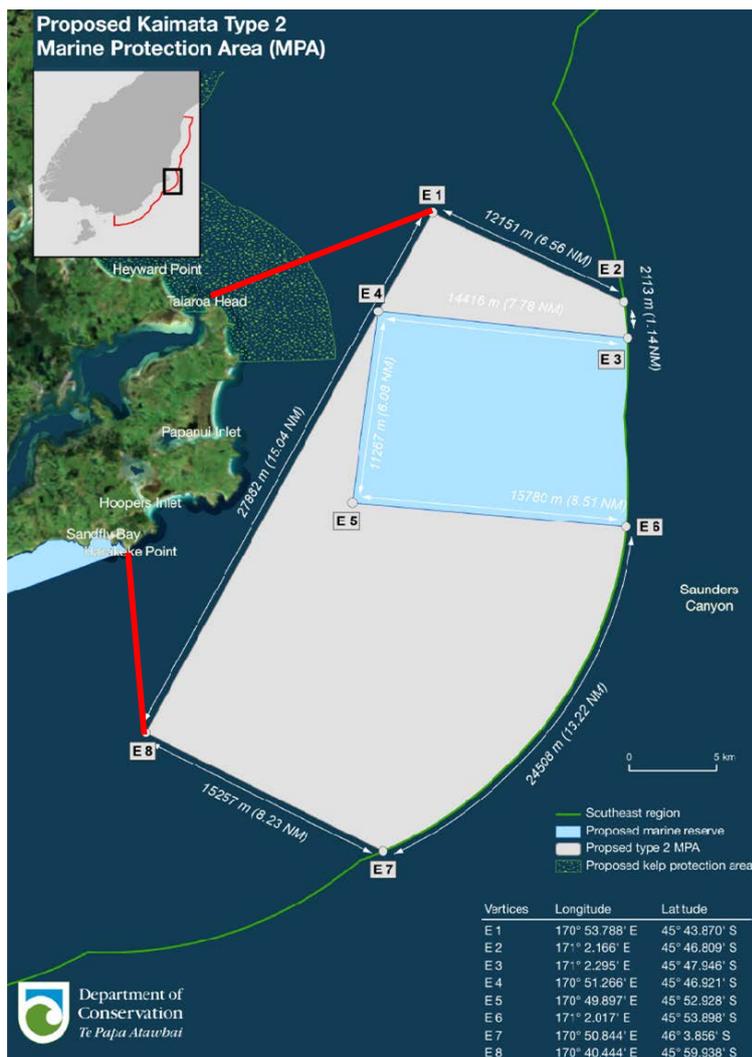


Figure 13: Alternative boundary adjustment to Kaimata type-2 MPA western boundary

Whakatorea Type-2 MPA – Figure 14

WWF - NZ supports the establishment of the Whakatorea type-2 MPA

WWF - NZ supports prohibiting the following fishing methods within the Whakatorea type-2 MPA; dredging, set-netting, commercial line fishing, mechanical harvesting (including spades for collecting shellfish) and syke net fishing.

Design:

The proposed type-2 MPA is a good design that includes the entire estuary (Figure 14).



Figure 14: Proposed Whakatorea type-2 MPA¹⁰

Costs & Benefits:

WWF - NZ agrees with the benefits listed in the Forums report¹³ and that the Akatore estuary should be protected within a type-2 MPA. This complements the adjacent marine reserve.

WWF – NZ supports that the type-2 status allows for customary kaitiakitanga as Akatore estuary is an important mahika kai resource for whānau and hapū.

WWF – NZ supports the Forum’s report¹⁴ that the potential adverse effects of displacing commercial fyke netting for shortfin tuna (eel) to the surrounding estuaries are likely to be minimal, and that this MPA will have minimum impact on recreational fishing.

Tahakopa Type-2 MPA – Figure 15

WWF - NZ supports the establishment of the Tahakopa type-2 MPA.

WWF - NZ supports prohibiting the following fishing methods within the Tahakopa type-2 MPA; dredging, set-netting, commercial line fishing, mechanical harvesting (including spades for collecting shellfish) and syke net fishing.

Design:

The proposed type-2 MPA is a good design that includes the entire estuary (Figure 15).

Costs & Benefits:

WWF - NZ supports the benefits listed^{12, 14} and supports that Tahakopa is a relatively pristine estuary with significant ecological and cultural values and warrants protection.



Figure 15: Proposed Whakatorea type-2 MPA¹²¹⁰

Bladder kelp protection area, Arai Te Uru – Figure 16

WWF - NZ supports the establishment of a bladder kelp (*Macrocystis pyrifera*) protection area (Figure 16) and supports the prohibition of harvesting bladder kelp within this area.

WWF - NZ supports the costs and benefits listed. The value of bladder kelps has been well described in the Forum report¹³. Kelp forests are highly productive and are considered an ecosystem engineer¹⁴ as well as an important biogenic habitat, because they are critical for many species from fish and crustaceans like rock lobster. Kelp enhances the settlement of pelagic larvae and the survivorship of settled juveniles and individuals. Recent research also shows that the *Macrocystis* are an important food for paua¹³.

The benefit of designating a bladder kelp protection area is to ensure these kelp forests are monitored to maintain the overall health, especially with increasing land-based impacts, such as sedimentation and climate change.

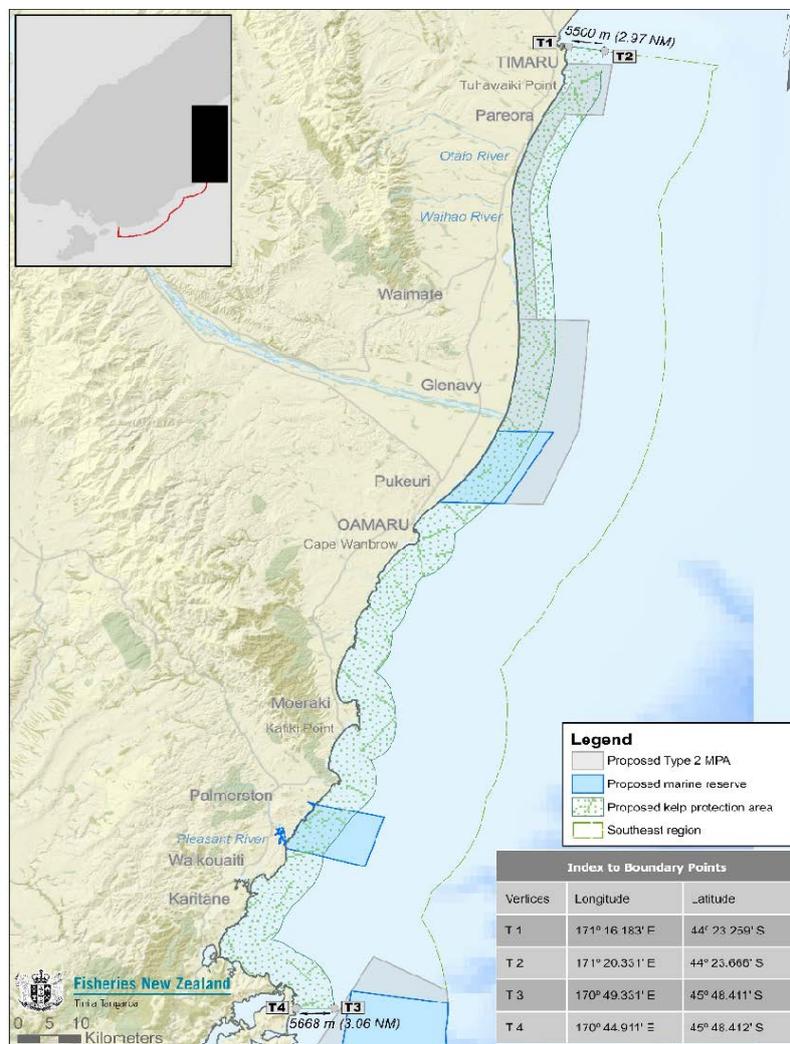


Figure 16: Proposed Bladder kelp protection area, Arai Te Uru¹⁰

5 South East Marine Protection Forum Gaps and next steps

The SEMPF area has proposed six marine reserves, five type-2 MPAs and one kelp protection area. Overall, there are some outstanding examples of habitats and ecosystem services proposed to be protected, however the network does not protect and replicate all habitat types as required by the MPA Policy. The lower third of the SEMPF area has virtually no protection proposed (Figure 1).

The Forum considered and consulted on a range of southern sites, such as Long Point and the Catlins¹⁴.

Whilst WWF - NZ advocates for meaningful representative MPA networks, these must be done in a way that upholds the rights and aspirations of indigenous and local communities and in collaboration with other stakeholders.

The Forum report highlighted the benefits and challenges of establishing protection at the Catlins¹³. Protection in the Catlins would benefit not only habitat representativeness, but endangered, threatened, and protected species such as hoiho (yellow-eyed penguins), and whakahao / rāpoka (New Zealand sea lions). Mattern's tracking work³⁰ and Reed's PhD research^{33,34} highlights the waters around the Catlins as important foraging habitats (Figures 2 and Figures 4 & 5).

WWF – NZ further proposes that DOC and FNZ continue to work with tangata whenua and the local community to consider alternative forms of protection for this significant area. This could include traditional/customary management or other forms of protection.

In addition to implementing the network in full, WWF – NZ recommends implementing recommendation contained within section 1.2 and 1.3, on pages 3 and 4.

6 Future recommendation

WWF – NZ acknowledges that MPA processes are complex, with multiple objectives at play. A limitation of the MPA process is that the focus is on habitats and not the entire ecosystem from mountains to reefs, incorporating all users and activities. Marine Spatial Planning potentially offers an improved more holistic framework. However, it is important that any future processes uphold the rights of our indigenous and local communities and set strong ecological targets, that are based on robust science and Mātauranga Maori. This will enable Te Ao Māori to enrich the cultural values at the core of fisheries management and marine protection.

As part of the process to reform our Marine Reserve legislation in Aotearoa, WWF-NZ recommends that an open and collaborative discussion around how to achieve an effective home-grown approach to management and protection of our diverse marine ecosystems. Such a process can help to determine the most effective way for us to rapidly step up our efforts to achieve a thriving and resilient ocean, thereby mitigating the impacts of climate change on our marine environment, and sustaining our communities for generations to come.

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8 Appendix 1: Costs and benefits of marine protection

WWF – NZ supports the benefits of marine protection described in the consultation document¹⁰ and the Forum's 2018 recommendation report¹³. The forum has recommended type-1 (no take, the highest protection) and type-2 (partial protection) MPAs.

No-take marine reserves are by far the most effective type of MPA for the purpose of biodiversity protection^{47,48}. They can restore the biomass and structure of fish assemblages

⁴⁷ Willis (2013)

⁴⁸ Sala and Giakoumi (2017)

and restore ecosystems to a more complex and resilient state^{27,47,49}. Partially protected MPAs can have some value by restricting specific activities (e.g. banning trawling to prevent habitat destruction), but in general they are not as effective^{21,50,51}.

Research over the last 30 years in shows that following best practice design principles is essential for the success of marine reserves^{18,52}. If reserves are too small or narrow in size, fishing pressure on the edges can have a significant effect and reduce biomass of target species inside the reserve boundaries^{18,23,53}. This is often referred to as the 'edge effect' of fishing. This can be mitigated by designing larger marine reserves¹⁸ or creating buffers by nesting type-1 no take marine reserves within type-2 MPAs or other fisheries management tools including customary tools such as mātaihai, taiāpure and rāhui.

The benefits of protection are not always seen immediately. Restoring some ecosystem services and food web dynamics can take significant time, 20 or more years^{18,51,52}. Predicting, and then measuring direct benefits of protection, such as habitat recovery and biomass increase is often easier than providing evidence of the societal benefits from restricting use in areas⁵⁴, whether that be from type-1 or type-2 MPAs. Decision makers often balance short-term impacts or 'costs' (including economic) against long-term 'benefits' (such as healthy ecosystems).

The impact on existing fishers (customary, recreational, and commercial) such as displacement of effort is often the biggest challenge when determining MPA sites.

Marine reserves, MPAs and networks can support fisheries in several ways, including by protecting or restoring critical fish habitat, through fisheries spill over and through larval dispersal^{23,26,27,28,29,55}. Research from the Leigh marine reserve in Northern Aotearoa New Zealand shows that the reserve acts as a snapper nursery and contributes ten times more fish than expected to the surrounding areas⁵⁶.

There are always costs associated with establishing MPAs. Balancing, offsetting, and reducing these adverse effects can be challenging for decision makers but given the long-term benefits for ecosystems and for society overall⁸, it should not deter the establishment of a representative network of MPAs.

Building resilience and climate change

Our ocean plays an important role in regulating Earth's climate and helps mitigate the consequences of global emissions. Climate change is arguably the greatest threat facing our ocean and is causing ocean acidification, rising sea levels, and warming of the ocean². It is also expected to significantly alter the distribution of many marine species and habitats, such as changing the distribution of sources of food and impacting reproduction (Grose et al., 2020).

⁴⁹ Pryor et al. (2020)

⁵⁰ Pryor et al. (2020)

⁵¹ Shears, Russell & Babcock (2003)

⁵² Babcock et al. (2010)

⁵³ Young, et. al. (2006)

⁵⁴ Schratzberger, et. al. (2019)

⁵⁵ Kelly, Scott & MacDiarmid (2002)

⁵⁶ Port et al. (2017)

Creating a network of marine reserves is a powerful way to build resilience against the cumulative impacts of climate change and direct anthropogenic threats such as intensive fishing⁵⁷. Marine reserves can provide refuges for species as they adapt and find new ways to survive the changing climate, or act as 'genetic banks' and /or biodiversity hotspots, safeguarded against genetic degradation and being a source of species and genetic diversity into areas and ecosystems where it has been lost.

⁵⁷ Roberts et al., (2017)

9 Appendix 2: Threatened marine species

The protection of threatened seabirds or marine mammals was not considered as an objective of the SEMPf process. The Forum was unable to select sites or adjust boundaries⁵⁸ of sites based on the conservation benefits for protected species, such as hoiho (yellow-eyed penguins), and whakahao as the MPA Policy directs a habitat focus. We consider this scope limitation to be a flaw of the policy and process and strongly recommend that information about how the various MPAs will support and benefit threatened and endangered protected species is provided to decision-makers. Therefore we have collated some useful information here.

Marine mammals and seabirds are good indicator species of areas of high biodiversity value. Much of the southeast coast out to over the continental shelf are important foraging grounds for a range of marine mammals and seabirds¹³, including many protected⁵⁹ and or threatened species⁶⁰.

SEMPf report that over 50 seabirds knowingly forage within the southeast region¹³. For example, the nationally endangered hoiho (yellow-eyed penguins), which have declined by an estimated 65% in the last 20 years⁶¹ nest along the coast at the Catlins, Otago Peninsula, and on the north Otago coast¹³. Hoiho spend considerable amounts of time foraging for benthic prey over the sea floor and adjacent shelf¹³, where they are at risk of interacting with fishers⁶².

⁵⁸ Note that foraging habitat of some protected species like hoiho and whakahao was included when justifying protection in some areas by SEMPf, but MPAs were not designed to protect key foraging grounds of endangered, threatened, or protected species.

⁵⁹ Protected under the Wildlife Act 1953 and Marine Mammals Protection Act 1978.

⁶⁰ The latest threatened bird list can be found at <https://www.doc.govt.nz/nature/conservation-status/threatened-birds/> and the latest threatened marine mammals can be found in Baker et al., (2019). All marine mammals are protected species in New Zealand.

⁶¹ Department of Conservation (2019)

⁶² Mattern and Wilson. (2018)

Satellite tags on yellow-eyed penguins confirm how important the SEMP area waters are, refer to Figure 17 and Figure 18⁴⁶.

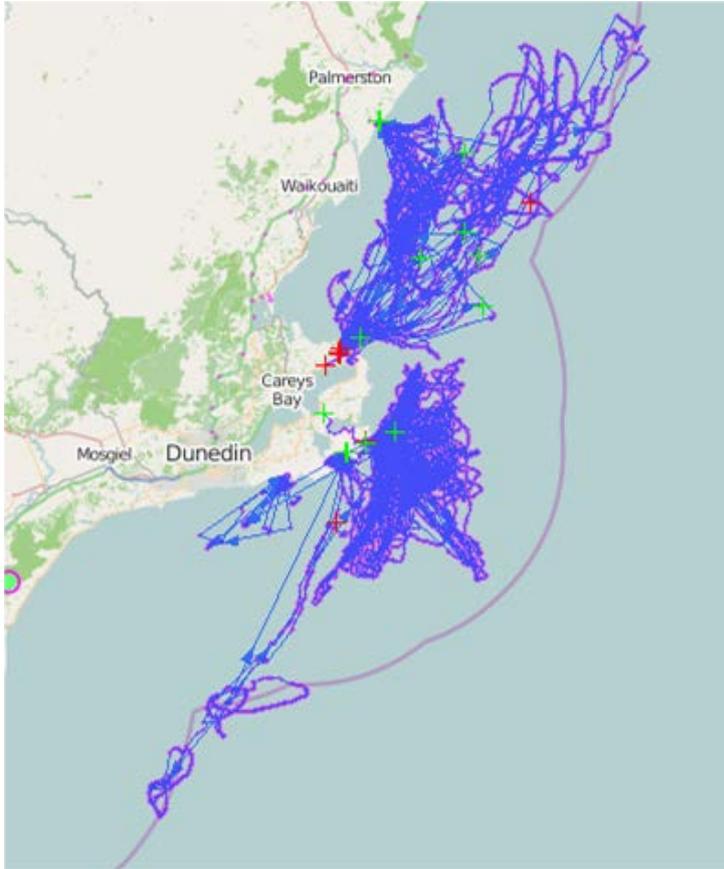


Figure 17: All tagged yellow-eyed penguin at sea distribution for 2018 – 2020 around the Otago region⁴⁶

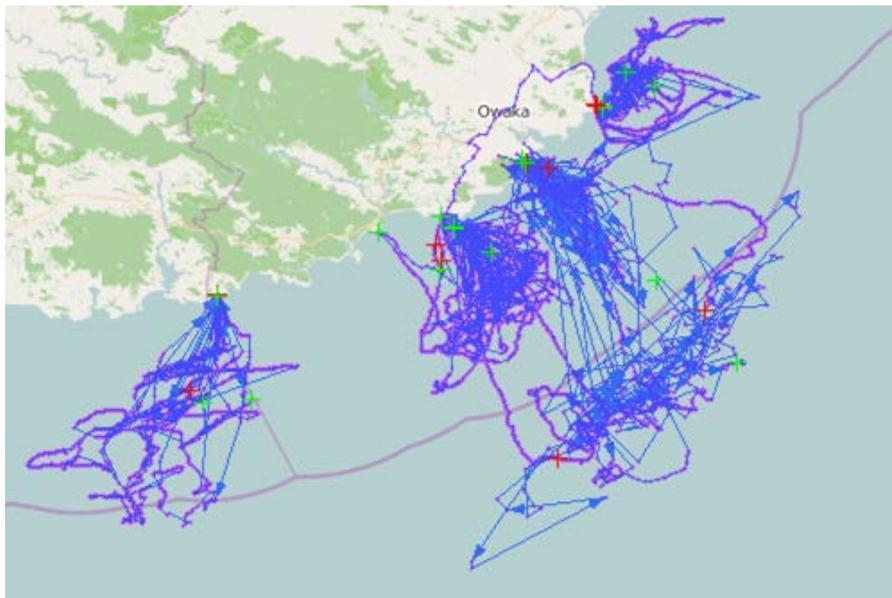


Figure 18: All tagged yellow-eyed penguin at sea distribution for 2018 – 2020 around the Catlins⁴⁶

Kekeno (New Zealand fur seals) and a small population of the nationally vulnerable whakahao/rāpoka (New Zealand sea lion) also haul out, breed and forage in the region.

Whakahao/rāpoka (New Zealand sea lion) were once widespread around the mainland but are now the rarest sea lion species in the world and have declined by about ~ 50% since 1998⁶³. Whakahao/rāpoka (New Zealand sea lion) are under severe threat from disease, accidental death (by-catch) in commercial fisheries, habitat change caused by fishing, and resource competition caused by fishing and likely climate change⁶².

The reduced Whakahao/rāpoka population is relatively stable but almost entirely found offshore around Auckland (~64% of the population) and Campbell (~30% of the population) sub-Antarctic Islands. Recolonisation of the mainland has started at Rakiura / Stewart Island, Otago and Southland, and the population is slowly increasing⁶². The increasing mainland population is essential for the long-term survival of the species. However, as the population and distribution expands over larger foraging grounds there will be an increased risk from fishing and other threats. Augé et al research highlights some of the important foraging grounds of tagged female sea lions around the Otago region, refer to Figure 19a⁴³ and 19b⁴⁴. More recently Reed's PhD research also confirms the unprotected waters around the Catlins are important foraging grounds for whakahao/rāpoka (New Zealand sea lion), refer to Figures 20⁶⁴ and 21⁶⁵.

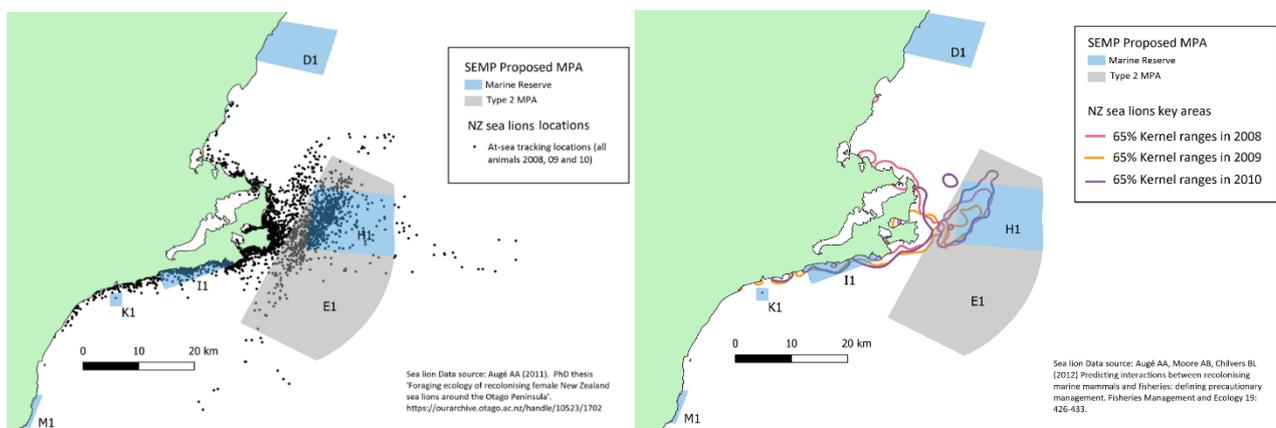


Figure 19: a) Female NZ sea lion at sea tracking locations for 2008, 2009 and 2010⁴³, b) Female NZ sea lion key areas based on 65% kernel ranges for 2008, 2009 and 2010⁴⁴

Figure 19: a) Female NZ sea lion at sea tracking locations for 2008, 2009 and 2010⁴³, b) Female NZ sea lion key areas based on 65% kernel ranges for 2008, 2009 and 2010⁴⁴

⁶³ Department of Conservation & Ministry for Primary Industries (2017).

⁶⁴ Reed (2019a)

⁶⁵ Reed (2019b)

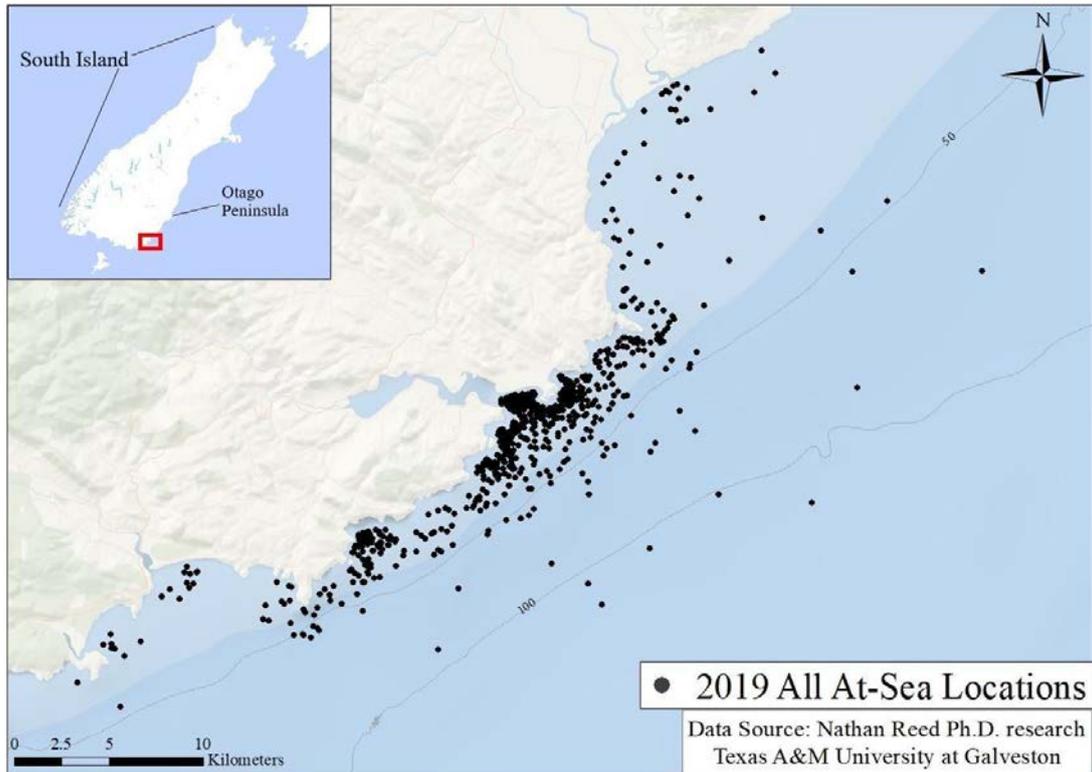


Figure 20: PhD research map showing the 2019 at sea locations of tagged whakahao / rāpoka (New Zealand sea lions) around the Catlins region⁶³.

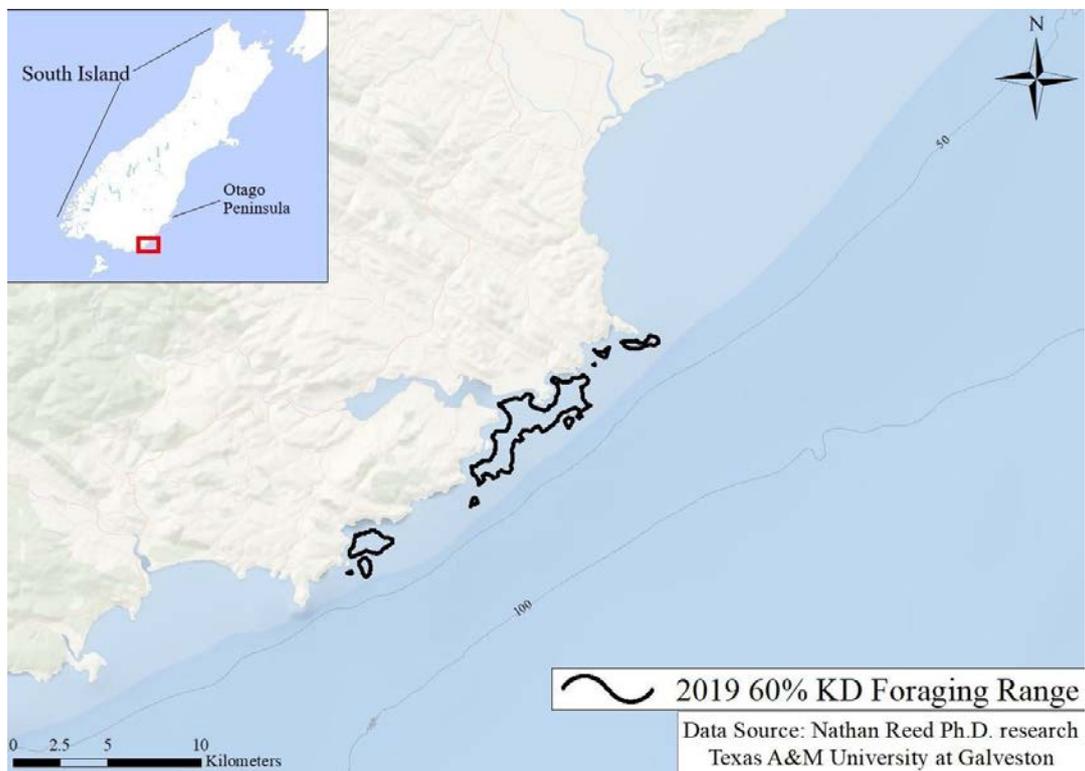


Figure 21: PhD research map showing the 2019 60% kernel foraging range of tagged whakahao / rāpoka (New Zealand sea lions) around the Catlins region⁶⁴.

Other marine mammals, including paikea (whales) are well known to the southeast coastal and pelagic waters¹³ (refer to Figure 12⁴¹).

While MPAs can maintain and enhance biodiversity and ecosystem functioning which would likely benefit large megafauna like paikea (whales), their effectiveness is reduced if important foraging habitat and or breeding grounds of large megafauna are not protected.

Another species of high priority to WWF – NZ are pahu (Hector’s dolphin). SEMPf were instructed⁶⁶ the Maui and Hector’s dolphin Threat Management Plan (“TMP”), which was being updated at the time, would address fishing threats to pahu (Hector’s dolphins) throughout the SEMPf region. However, the TMP provided very little new protection, and no protection for Otago pahu (Hector's dolphins).

Figure 22, from the updated Maui and Hector’s TMP shows in orange the new set net closures for 2020⁶⁷. From the Waitaki river north to Timaru (and above), a set net closure extends offshore. This shows the Tuhawaiki type-2 MPA could be superseded. The final maps used by FNZ and DOC in their advice to the Ministers needs to include all existing protection measures against those proposed in the SEMPf network. Figure 22 also highlights that there is no protection for pahu (Hector’s dolphin) south of the Waitaki river within the SEMPf region.



⁶⁶The Consultation document states “Fishing method restrictions are being considered in an update of the *Hector’s and Māui Dolphin Threat Management Plan*. These restrictions could overlap with the proposed Tuhawaiki and Mokotere-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”.

Figure 22: Map showing updated pahu (Hector’s dolphin) set net restrictions alongside existing measures for the southeast South Island region⁶⁸

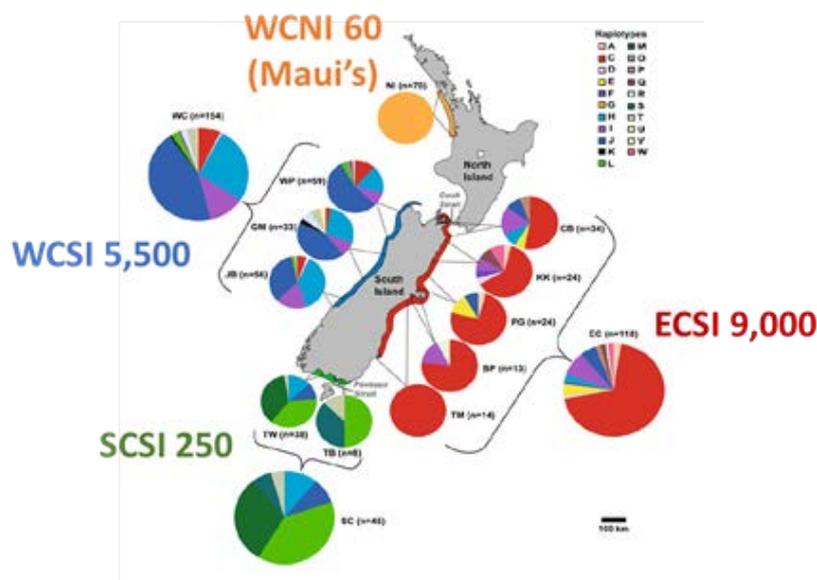
WWF – NZ considers threats to pahu (Hector’s dolphin) should be managed at a local scale to ensure there is no further local depletion, fragmentation, and disappearance of Hector’s populations. Local-level population management:

- Aligns with Kiwi values that every population of dolphins in our coastal environment is important – no matter how big or small. They are like hapū, and just because Hector’s are doing well in one area, does not mean we should allow other smaller populations to decline or disappear.
- Will help to achieve the Government’s Threat Management Plan vision of “resilient” and “thriving” populations by maintaining genetic richness and linkages between the larger populations and the smaller “stepping-stone” populations.
- Is important for the ecological integrity of coastal waters. Pahu (Hector’s dolphin) belong to their local marine ecosystems, playing an important role as top predators in keeping coastal ecosystems healthy.⁶⁹

Scientific understanding about the Otago pahu (Hector’s dolphin) population size and genetics is limited. There is known to be a small population there, which may be an important stepping-stone population for the pahu (Hector’s dolphin) populations in Timaru to the North and the populations at the bottom of the South Island (Porpoise Bay). However, here has been no specific genetic sampling of pahu (Hector’s dolphin) dolphins in Otago (note the gap between ECNI sampling and SCSI sampling in Figure 23).

Four genetic sub-populations

Hamner et al. 2012



⁶⁸ Source of map: Fisheries New Zealand 2020 – website <https://www.mpi.govt.nz/dmsdocument/40886-mpi-dolphin-tmp-factsheet-south-island-june-2020>

⁶⁹ Rosenblatt and Heithaus (2011)

Figure 23. Genetic groups of Māui and Hector's dolphins⁷⁰

The limited protection of the coastal waters from South of Waitaki represents a gap in threat management to pahu (Hector's dolphin). We recognise that the lack of scientific knowledge about the Otago pahu (Hector's dolphin) meant the Government was not confident to propose protections, with socio-economic costs for fishing communities in this area. Therefore, we strongly recommend the Government build scientific understanding about the Otago pahu (Hector's dolphin) population to enable more robust risk assessment and risk management, and in particular – ensure this important steppingstone population does not decline and disappear.

⁷⁰ Hamner et al. (2012)