



3rd August 2020

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Submission: Proposed southeast marine protected areas consultation

The New Zealand Marine Sciences Society (NZMSS) is a professional society affiliated to the Royal Society of New Zealand. NZMSS has approximately 200 members. We are a non-profit organisation that provides access to, and within, the marine science community, and we identify emerging issues through annual conferences, annual reviews, a list serve and a website www.nzmss.org.nz. NZMSS membership covers all aspects of scientific interest in the marine environment and extends to the uptake of science in marine policy, resource management, the environment and the marine business sector. We speak for members of the society and we engage with other scientific societies as appropriate.

In general, NZMSS supports the proposed marine reserves, Type 2 marine protected areas and kelp protection zone identified in this consultation document. However, NZMSS believes that, collectively, the MPAs fall far short of what is required to enable a functioning MPA network for the southeast region. We also note that some of the proposed MPAs do not meet basic MPA design guidelines that are outlined in New Zealand's MPA Policy. We provide a number of suggestions in our submission below that would help to improve the effectiveness of individual MPAs for biodiversity protection and strengthen the proposed network as whole. In addition, we provide comment on the individual MPAs and kelp zone and we address a number of questions posed in the consultation document.

Please contact me at the email address provided below for any further information regarding this submission.

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Submission: Proposed southeast marine protected areas

NZMSS congratulates the New Zealand government on proposing marine protected areas (MPAs) for the southeast region, recognising that there are currently no MPAs between Banks Peninsula and Stewart Island. We also note that of the two options presented by the Southeast Marine Protection Forum, the government has decided to consult on Network 1. NZMSS agrees that Network 1 is the better option for helping to meet goals for marine protection in New Zealand.

NZMSS generally supports the designation of all six marine reserves, five Type 2 MPAs, and the kelp protection zone, for the reasons we outlined below. **Therefore, NZMSS generally supports Option 2 in the consultation document: *Establishing the proposed network.***

However, we also note, and detail below, that the proposed network falls short of meeting IUCN goals of protecting 30% of each marine habitat from extractive activities by 2030¹, and doesn't meet established design principles for an effective network of MPAs. We consider that the current proposal is the absolute minimum requirement for marine protection in the southeast region, and that the number of MPAs (including no take marine reserves) and their size should be increased, if possible.

1. General comments

The proposed southeast MPA network

- New Zealand's MPA policy objective is to "protect marine biodiversity by establishing a network of MPAs that is comprehensive and representative of New Zealand's marine habitats and ecosystems" (Marine Protected Areas Policy & Implementation Plan, paragraph 13). There are currently no MPAs between Banks Peninsula and Stewart Island. To meet the policy objective, the outcome of the southeast MPA process must comprise multiple MPAs in the southeast region.
- New Zealand's Biodiversity Strategy includes an action (3.6b) to achieve a target of protecting 10% of New Zealand's marine environment by 2020. These targets have yet to be achieved². In 2016, the IUCN's World Conservation Congress encouraged IUCN State and Government Agency Members to designate and implement at least 30% of each marine habitat in a network of highly protected MPAs, with the ultimate aim of creating a fully sustainable ocean at least 30% of which has no extractive activities (res. 050). The proposed MPAs for the southeast region include, at most, only 4.6% of the area in non-extractive marine reserves, with an additional 11.7% of the area in Type 2 MPAs which allow some form of extractive activity. Therefore, even if all the proposals were accepted, the IUCN recommendation would not be met. To meet the IUCN target, the southeast MPA network should include additional marine reserves that add to the proposed network, or, enlarge the existing proposed marine reserves.
- New Zealand's MPA policy states that "a marine reserve will be established to protect at least one sample of each habitat or ecosystem type in the network" (Marine Protected Areas Policy & Implementation Plan, paragraph 93). The network of marine reserves that has resulted from the southeast MPA process must meet this goal. Decision makers should bear this in mind when considering opposition to the proposed marine reserves.

¹ https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2016_RES_050_EN.pdf

² <https://www.doc.govt.nz/nature/biodiversity/nz-biodiversity-strategy-and-action-plan/new-zealand-biodiversity-action-plan/cbd-strategic-goals-and-aichi-biodiversity-targets/>

If there is no replication of a particular habitat within the proposed network, then each proposed reserve must be accepted.

- The conservation benefits of marine reserves generally increase with size (Halpern 2003; Edgar et al. 2014). Marine reserves that are several to tens of kilometres in alongshore length and extend offshore to encompass the depth-related movements of the adults of key species should be sufficient to protect much of the diversity of nearshore species (Gaines et al. 2010). A recent review of literature concluded that conservation benefits were greatest for marine reserves larger than 100 km² (Edgar et al. 2014). Only the proposed Waitaki and Papanui reserves exceed this threshold in the southeast MPA network. The network design guidelines should be used to consider the merits of modifying the current proposals for MPAs that do not meet the area threshold proposed by Edgar et al (2014).
- For very wide-ranging species, such as many top predators, MPAs need to be much larger to be effective. Nonetheless, large coastal MPAs can still be beneficial for seabirds and cetaceans, either through enhancing prey availability (e.g. Pichegru et al. 2010), or reducing fisheries related mortality (e.g. Gormley et al. 2012).
- The spacing of reserves in a network is also an important consideration. Inter-reserve distances from tens to about 100 km can enhance both conservation and fishery benefits, because they approach without exceeding the mean larval dispersal distances estimated for many fished coastal marine species (Gaines et al. 2010). The proposed southeast MPA network potentially meets these guidelines, provided that all the coastal marine reserves are designated.
- There are no proposals for marine reserves south of Hākinikini, meaning that approximately 130km of the southeast region's coastline would have no Type 1 (marine reserve) protection. Consideration should be given to including additional marine reserves in the south of the region, such as the reserve originally proposed at Long Point. This additional marine reserve would enhance the representativeness and connectedness of the network.
- The southeast region is home to some of New Zealand's most endangered endemic marine species, including yellow-eyed penguins (Darby & Dawson 2000), Hector's dolphin (MacKenzie & Clement, 2014; Turek et al., 2013) and New Zealand sea lion (Auge et al. 2012). Yellow-eyed penguins have declined on the mainland from an estimated 580 nesting pairs in 2008 to 168 pairs in 2019. It is likely that marine impacts, including depletion of food resources and bycatch in setnets and trawl fisheries, are factors in their decline. Hector's dolphins have declined to an estimated 27% of their abundance in 1970, due to fisheries mortality (Slooten & Dawson, 2010). Nationally, New Zealand sea lions have declined by approximately 50% since 1998 and are vulnerable to bycatch in trawl and setnet fisheries (Robertson & Chilvers 2011). Exclusion of the least selective forms of fishing, i.e. set netting and trawling, from large areas of the region should therefore be a priority, in addition to the establishment of large MPAs.
- The proposed southeast MPA network should be resilient to the likely future impacts of climate change in the region, in particular, increased water temperatures and rising sea levels. NZMSS considers that the proposed kelp protection zone may provide some protection against future shocks to southern kelp-dominated ecosystems caused by warming seas. For example, Tasmania is experiencing alarming rates of kelp die-off,

likely the result of increasing sea temperatures³. Given high rates of warming in southern New Zealand (Shears and Bowen, 2017), consideration should be given to extending the kelp protection zone even further south to help protect against losses of kelp forest due to increasing sea temperatures in future years.

Co-management and wider community management forums

- We support co-management between Kai Tahu and the Crown and agree with the establishment of statutory advisory committees to enable management oversight of the individual MPAs and the network. From a science perspective, we believe this will provide opportunities for matauranga Maori. We endorse the concept of community management forums which include scientists to help raise awareness and understanding of the marine reserves and involve community-based science activities.

Twenty-five yearly generational review

- NZMSS generally agrees with the 25-yearly generational review of the MPA network to recognise the mana and engagement of Kai Tahu. However, we request that the review include consideration of meeting global biodiversity targets to help Aotearoa – New Zealand contribute towards protecting the marine realm, globally. This would likely include increasing the area and number of MPAs in the southeast regional network.
- We also consider it important that the MPA network be reviewed on a 5 – 10-year time frame and in line with international biodiversity protection and sustainability commitments.

Research and monitoring

- NZMSS would like to see research and monitoring highlighted as critical activities in the MPA network. We see Matauranga maori as an important part of understanding the network's marine biodiversity. The MPA network will provide new research opportunities and it is likely that many of our members will be interested and seek funds from a range of sources, accordingly.
- We consider that monitoring the individual MPAs and the effectiveness of the MPA network should be undertaken as a priority. Monitoring of the MPAs should focus on biodiversity, recovery of harvested species, physical parameters such as sea temperature changes and social and cultural changes as a result of the MPAs. The MPA network should be monitored for effectiveness.

2. Comments on the proposed marine reserves

Waitaki Marine Reserve

Support, with the recommendation that the reserve be significantly larger.

- The marine reserve would protect the biodiversity associated with shallow gravel habitats, the only reserve in the proposal to do so.
- The area is likely an important region for primary productivity, due to the riverine input and habitat type.
- The area is known foraging habitat for protected species including Hector's dolphins, yellow-eyed penguins, little blue penguins and Otago shags. Bycatch of yellow-eyed

³ <https://e360.yale.edu/features/as-oceans-warm-the-worlds-giant-kelp-forests-begin-to-disappear>

penguins in setnets is known to have occurred in this area. A much larger marine reserve than is proposed would protect these species from fisheries impacts.

- The estimated value of displaced commercial fisheries catch is relatively low, therefore protecting the maximum area possible is sensible.

Te Umu Koau Marine Reserve

Support, with the recommendation that the take of rock lobster is not permitted.

- The reserve would protect multiple habitat types, including the only deep reef site within the proposed network, and a nationally significant area of *Macrocystis* kelp forest.
- The area includes an important bird area at Bobby's Head, a known breeding site for yellow-eyed penguins.
- It is an important area for scientific research, particularly by staff and students from Otago University. Protection would facilitate valuable comparisons with similar but unprotected areas.
- Concerns have been raised by Kai Tahu that the proposed marine reserve will impact on current commercial rock lobster fishing and community livelihoods. We urge that solutions be found to ensure that the biodiversity of this proposed marine reserve is not compromised by allowing the take of rock lobster from this reserve. Rock lobster are one of the dominant predators inhabiting subtidal reef ecosystems in New Zealand. They play an important role in controlling kina populations and thereby help to maintain healthy kelp forests (Shears and Babcock, 2002). This species has been shown to respond positively to protection throughout New Zealand (Freeman et al., 2011), and rock lobster from within reserves have been shown to support surrounding fisheries (Kelly et al 2002).

Papanui Marine Reserve

Support.

- Submarine canyon habitats are hotspots of marine biodiversity. The Otago Canyons are known to be important habitats for benthic invertebrates and demersal fish. The region is one of only two places in the southeast region where canyon habitats are present within the territorial sea.
- Recent research by University of Otago scientists has revealed that the Otago Canyons are year-round habitat for sperm whales, and home to a diverse array of other cetacean species.
- The proposal would also protect bryozoan thicket habitat, the only reserve in the network to do so. Bryozoan thickets are important biogenic habitats that support a diverse community of invertebrates and fish.

Ōrau Marine Reserve

Support, with the recommendation that the reserve's eastern boundary is extended offshore.

- The proposed area includes excellent examples of exposed rocky reef and beach habitats, home to a range of macroalgae, reef fish and invertebrates. It would protect the nearshore habitat of endangered, endemic species such as New Zealand sea lions.
- The proposal includes Boulder Beach, which has the largest yellow-eyed penguin colony on the Otago Peninsula.
- The proximity to Dunedin city means that the marine reserve would be accessible to a large number of people, and therefore has the potential to play an important educational and advocacy role.
- Although some recreational and commercial fishing will be displaced, similar coastal sites will still be accessible to the east and west of the proposed reserve.
- The eastern boundary is not in accordance with MPA Policy guidelines and international best-practice. It is overly complicated and due to its close proximity to shore it will have

no protection value for Gull Rocks and Sandfly Bay, due to edge effects. We recommend the eastern boundary be extended offshore ~3km, similar to the western boundary. In general, the rationale for the proposed boundaries of this MPA is unclear based on MPA guidelines or science.

Okaihae Marine Reserve

Support, with the recommendation that the reserve is enlarged.

- The proposed area contains valuable rocky reef habitats and the island itself is an important nesting site for seabirds, including yellow-eyed penguins.
- Together with the Ōrau reserve, the site will allow for valuable scientific research into the effects of protection on a stretch of urban coastline.
- At 5km², the proposed area is very small. We recommend that the proposed reserve area be increased to account for edge effects and improve the likelihood that benefits will accrue. To avoid impinging on the wahi tapu of Kai Tahu, the reserve should be extended westwards and offshore.

Hākinikini Marine Reserve

Support, with the recommendation that the reserve is extended offshore.

- The coastline within the proposed reserve is a rare example of schist rock, which provides excellent habitat for rock lobster.
- A reserve at this location would provide an important connection with vulnerable reef habitats further to the south.
- Although the proposed reserve contains a reasonable length of coastline, the fact that it only extends 1km offshore means its area is very small (5.9km²), and its effectiveness will potentially be compromised by significant edge effects. We recommend the reserve should be extended offshore, at least to the 50m isobath. Decades of research and DOC funded monitoring in existing marine reserves in New Zealand have clearly demonstrated that boundaries need to extend further offshore to encompass offshore movements of important species such as rock lobster (Kelly et al 2002, Freeman et al 2009). In northern New Zealand there are proposals in place to extend existing reserve boundaries (currently only 800 m offshore) further offshore to encompass such movements. Any reserve proposal in 2020 would clearly be expected to take this into consideration and the MPA Policy has clear guidelines around this.

3. Comments on proposed type 2 MPAs

Tuhawaiki

Support.

- The proposed area contains a range of sediment types and is a known nurse area for coastal elasmobranchs.
- It is an important foraging area for protected species including Hector's dolphins and yellow-eyed penguins.
- We are pleased to note that the proposed MPA is significantly larger than the original proposal in the 2016 consultation document. The larger area of this proposal means that benefits of protection are more likely to accrue.

Moko-tere-a-torehu

Support.

- Along with the Waitaki marine reserve, the proposal would provide additional protection for the biodiversity associated with shallow gravel habitats.

- The area is likely an important region for primary productivity, due to the riverine input and habitat type.
- The area is known foraging habitat for protected species including Hector's dolphins, yellow-eyed penguins, little blue penguins and Otago shags. Bycatch of yellow-eyed penguins in setnets is known to have occurred in this area. This large MPA would help protect these species from fisheries impacts.

Kaimata

Support.

- Along with the Papanui marine reserve, this proposal would confer protection for important bryozoan thickets. The thickets are an important feature themselves, as well as being a biogenic habitat potentially important as a nursery area for several fish species.
- The area also provides foraging opportunities for yellow-eyed penguins and New Zealand sea lions.
- The importance of this habitat, and the rarity within NZ's territorial limits warrants the large protected area offered by the Papanui and Kaimata proposals. This Kaimata MPA also confers some protection for the head of Saunder's Canyon, which would complement the marine reserve proposal for Papanui Canyon.

Whakatorea

Support.

- The proposed area incorporates important estuarine habitat including a significant area of saltmarsh.
- The protection of habitat surrounding the estuary means it is less likely to be impacted than other estuaries, and offers a good opportunity to link terrestrial and marine management.
- The proposal to also protect coastal and offshore habitat adjacent to the estuary means that benefits will be more likely to accrue.

Tahakopa

Support.

- The proposed area contains valuable saltmarsh habitat and is important for wading birds and estuarine fish.
- We are pleased to note that the proposed MPA is larger than the area originally proposed in the 2016 document. Incorporating the whole estuary will make compliance and enforcement easier, and mean that benefits will be more likely to accrue.

Arai Te Uru

Support.

- Kelp forests are very important primary producers in the coastal zone and provide habitat for a diverse range of species.
- Kelp forests are threatened by sedimentation, rising sea temperatures, the indirect effects of fishing and commercial harvesting. Globally and nationally they are declining.
- We are pleased to note that the proposal states that all commercial kelp harvesting of the bladder kelp, *Macrocystis pyrifera*, will be prohibited. We consider that other species of kelp and seaweeds should also be prohibited from harvesting, with the exception of the invasive kelp, *Undaria pinnatifida* (Asian kelp/wakame), where this species is found.

NZMSS thanks the Department of Conservation and Fisheries New Zealand for this opportunity to provide comments on the proposed southeast MPA network. We would be very willing to contribute further to discussions on the proposed MPAs and the network design.

References cited

Auge AA, et al. (2012). Autumn diet of recolonising female New Zealand sea lions based at Otago Peninsula, New Zealand. *New Zealand Journal of Marine & Freshwater Research* 46: 97-110.

Darby JT & Dawson SM. (2000). Bycatch of yellow-eyed penguins in gillnets in New Zealand waters 1979-1997. *Biological Conservation* 93: 327-332.

Edgar GJ, et al. (2014). Global conservation outcomes depend on marine protected areas with five key features. *Nature* 506: 216-220.

Freeman, D.J., MacDiarmid, A.B. & Taylor, R.B. (2009). Habitat patches that cross marine reserve boundaries: consequences for the lobster *Jasus edwardsii*. *Marine Ecology Progress Series*, 388, 159-167.

Freeman, D. T., A. B. Macdiarmid, R. B. Taylor, R. J. Davidson, R. V. Grace, T. R. Haggitt, S. Kelly, and Shears NT. (2012) Trajectories of spiny lobster *Jasus edwardsii* recovery in New Zealand marine reserves: is settlement a driver? *Environmental Conservation* 39:295-304

Gaines SD, et al. (2010). Designing marine reserve networks for both conservation and fisheries management. *PNAS* 107: 18286-18293

Gormley AM, et al. (2012). First evidence that marine protected areas can work for marine mammals. *Journal of Applied Ecology* 49: 474-480.

Halpern BS. (2003). The impact of marine reserves: do reserves work and does reserve size matter? *Ecological Applications* 13: S117-S137.

Kelly, S., Scott, D. & MacDiarmid, A. (2002). The value of a spillover fishery for spiny lobsters around a marine reserve in northern New Zealand. *Coastal Management*, 30, 153-166.

MacKenzie DL & Clement DM. (2014). Abundance and distribution of ECSI Hector's dolphin. *New Zealand Aquatic Environment and Biodiversity Report No. 123*. 79p.

Pichegru L, et al. (2010). Marine no-take zone rapidly benefits endangered penguin. *Biology Letters* 64: 498-501.

Robertson BC & Chilvers BL. (2011). The population decline of the New Zealand sea lion: a review of possible causes. *Mammal Review* 41: 253-275.

Shears NT, Babcock RC (2002) Marine reserves demonstrate top-down control of community structure on temperate reefs. *Oecologia* 132: 131-142.

Shears NT and Bowen (2017) Half a century of temperature records reveal complex warming trends in coastal waters adjacent to western boundary currents. *Scientific Reports* 7: 14527

Slooten E & Dawson SM. (2013). Assessing the effectiveness of conservation management decisions: likely effects of new protection measures for Hector's dolphin. *Aquatic Conservation: Marine & Freshwater Ecosystems* 20: 334-347.

Turek, J., E. Slooten, S. Dawson, W. Rayment, and D. Turek. (2013). Distribution and abundance of Hector's dolphins off Otago, New Zealand. *New Zealand Journal of Marine and Freshwater Research* 47: 181-191.

Willis T. (2013). Scientific and biodiversity values of marine reserves: a review. *DOC Research and Development Series* 340.