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South East Marine Protection Forum
Roopu Manaaki Ki Te Toka
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Submission to South East Marine Protection Forum Consultation Document: Proposed MPAs for New Zealand's South Island South-East Coast

This submission is made on behalf of the membership of the New Zealand Marine Sciences Society (NZMSS). It is made in good faith in my role as President of the NZMSS and in accordance with the Code of Ethics and Rules of the Royal Society of New Zealand.

NZMSS generally supports the proposed marine protected areas and other protection initiatives in the Consultation Document '*Proposed MPAs for New Zealand's South Island South East Coast*'. Our detailed submission is attached. The Society wishes to be heard in respect of this submission.

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

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Proposed MPAs for New Zealand's South Island South East Coast

The New Zealand Marine Sciences Society

The New Zealand Marine Sciences Society, known as "NZMSS", was formed in 1960 as a constituent of the Royal Society of New Zealand, to encourage and assist marine science and related research across a wide range of disciplines in New Zealand and to foster communication among those with an interest in marine science.

NZMSS is a professional science body and a non-profit organization that provides access to and within the marine science community. We identify emerging issues through annual conferences, annual reviews, a listserve and our website http://nzmss.org/. NZMSS membership covers all aspects of scientific interest in the marine environment and extends to the uptake of science in marine policy, resource management, conservation and the marine business sector. We speak for members of the Society on matters of interest on marine research in New Zealand and we engage with other scientific societies as appropriate. Our current membership comprises almost 300 members.

Our submission is consistent with the Royal Society of New Zealand Code of Ethics and Rules, in particular principles 2.1 Integrity and professionalism, 4.1 Compliance with the law and relevant standards, and 10.1 Protection of the environment (www.royalsociety.org.nz/organisation/about/code).

Submission

General position

NZMSS congratulates the South East Marine Protection Forum for the thorough and detailed assessment undertaken of the natural marine resources of the South Island South Eastern Region.

NZMSS generally supports all the proposals for MPAs in the consultation document. However, we have concerns at the small size of some of the proposals and have made recommendations to enlarge these, accordingly. We have also included a general overview of the criteria for and benefits of MPA networks, which we hope the Forum will take into account when arriving at the final recommendations for the Ministers.

Specific comments on the proposed sites

A. Tuhawaiki to Pareora (Type 2)

Support in principle, with the recommendation the MPA is enlarged.

- The proposal states that the designation is likely to have little impact on commercial fishers, as there are legal and voluntary restrictions currently in place. It makes sense to strengthen the current voluntary restrictions, so that everyone is required to adhere to them.

- The proposed area is very small (4.4 km^2). We recommend enlarging the MPA both offshore and alongshore so that protection benefits are more likely to accrue.
- We consider the MPA should be extended to both the north and south, totalling 10 km alongshore and offshore to the territorial 12 nautical mile limit.
- We support extending the restrictions to include all net fishing, commercial longlining and mid-water trawling.

B. Waitaki coastal (Type 1)

Support in principle, with the recommendation that the site is extended to the north.

- The area is likely an important region for primary productivity, due to the riverine input and habitat type.
- The area is a known foraging habitat for Hector's dolphins, yellow-eyed penguins and little blue penguins. Bycatch of yellow-eyed penguins in set nets is known to have occurred in this area. A large marine reserve would help protect these species from fisheries impacts.
- The proposal states that the designation is likely to have little effect on commercial and recreational fishers, therefore protecting the maximum area possible seems sensible.

C. Waitaki offshore (Type 2)

Support in principle, with a recommendation that the offshore boundary be extended to 12 nm from the coast.

- The area is important for the reasons outlined for site B.
- In the South East region, this area contains the most important habitat for Hector's dolphin.
- Designation would prevent damage to sensitive benthic habitats and protect vulnerable species from fisheries impacts. Given the endangered status of Hector's dolphin and yellow-eyed penguin in particular, the suggestion to extend the offshore boundary to 12nmi from the coast is supported.

D. Pleasant River to Stony Creek (Type 1)

Support the larger option.

- The site contains diverse habitat and therefore designation would protect multiple habitat types, including a nationally significant area of *Macrocystis* kelp forest.
- 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.
- The larger option is supported as it is more likely to confer protection for yellow-eyed penguins nesting on the coast, as well as, finfish and mobile invertebrates such as rock lobster.

E. and G. Bryozoan Bed (Type 2)

Support option E.

- The bryozoan beds 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, together with its rarity within New Zealand's territorial limits, warrants the large protected area offered by site E. This option also confers some protection for the head of Papanui Canyon, which would complement the marine reserve proposal for Saunder's Canyon (F).

F. Saunders Canyon and H. Papanui Canyon

Support option F.

- Canyon habitats are hotspots of marine biodiversity. The Otago Canyons are known to be important habitats for benthic invertebrates and demersal fish.
- Recent research by University of Otago scientists has revealed that the Otago Canyons comprise year round habitat for sperm whales, as well providing habitat for a diverse array of other cetacean species.
- The region is one of only two places in New Zealand where canyon habitats are present within the Territorial Sea. Saunders Canyon is closer to the coast than Papanui Canyon, and therefore represents a better option for protection. The larger size of the Saunder's Canyon reserve means that the benefits of protection are more likely to accrue.

I. Harakeke Point to White Island (Type 1)

Support option 2 in principle, with a recommendation to extend the area to either the 12 nm limit or based on the range of yellow-eyed penguins.

- The proposed area includes excellent examples of exposed rocky reef and beach habitats, and is 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. However, as the proposal only extends up to 1.7 nm offshore, it would not protect much foraging habitat for penguins. A more effective design would comprise an extension further offshore to either the 12 nm limit or based on movements of the vulnerable yellow-eyed penguin and incorporating greater habitat diversity, including the deep gravels.
- 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.

- Tow Rock is one of the few examples of deep reef habitat proposed for protection. Therefore, option 2, including Tow Rock is preferred.
- 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.

J. White Island to Waldronville (Type 2)

Support in principle, with a recommendation that the fisheries regulations include a limit of five finfish per person per day.

- The proposed area includes a range of important nearshore habitat types.
- Together with proposed marine reserve sites I and K, it will effectively allow a significant stretch of urban coastline to be managed.
- The proposed marine reserve sites I and K may potentially displace fishing effort and place greater pressure on this piece of coastline. The proposed exclusion of commercial fishing and regulation of recreational catch will prevent the deterioration of this area.
- We support the proposal to allow recreational take of two paua and two rock lobster per person per day. We suggest that the regulations also include a limit of five finfish per person per day.

K. Green Island (Type 1)

Support in principle, with a recommendation that the reserve be 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 sites I and J, the network of MPAs will allow for valuable scientific research into the effects of varied levels of protection on a stretch of urban coastline.
- At 5km^2, the proposed area is very small. We recommend that the proposed reserve area be increased to improve the likelihood that the benefits of protection will accrue. To avoid impinging on the wahi tapu of Kai Tahu, the reserve should be extended westwards and offshore.

L. Akatore Estuary (Type 2)

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.

M. Akatore Coastal (Type 1)

Support in principle, with a recommendation that the proposal be extended offshore to the 50m isobath/12 nm territorial limit.

- 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 between sites I and O which also protect coastal reef habitat. A network of MPAs is likely to provide greater benefits than the sum of the constituent parts.
- Although the proposed reserve contains a reasonable length of coastline, the fact that it only extends 1km offshore means its area is very small (6.3km^2), and its effectiveness will be compromised by significant edge effects. We recommend the reserve should be extended offshore to the 50m isobath so it abuts site N, thus providing protection from the coast to the 12 nm territorial limit.

N. Akatore Offshore (Type 2)

Support.

- The proposed MPA contains a large area of broken reef and deep gravel habitat, which likely has high biodiversity value. It has been identified as an important foraging area for endangered yellow-eyed penguins.
- The restriction of commercial fishing methods in this area would protect sensitive seafloor habitat such as bryozoan beds, and remove the risk of bycatch of seabirds.
- As noted above, connection with the proposed marine reserve site M, would create a large MPA spanning the coast to the 12 nm territorial limit, thus increasing the probability that benefits from protection would accrue.

O. Long Point (Type 1)

Support in principle, with a recommendation the site is extended south west along the coast to include the Tahakopa Estuary.

- The proposed reserve contains a variety of habitats from coastal reef and beach through to deep reef. As such it is home to a broad range of biodiversity, including diverse macroalgae, reef fishes, seabirds, as well as paua, New Zealand fur seals and sea lions, and Hector's dolphins. The coastal area contains the largest breeding colony of yellow-eyed penguins in the Catlins, and the proposed reserve and the area offshore is known to be important foraging habitat for penguins.
- The proposed reserve is large enough to have significant positive effects on biodiversity, particularly in conjunction with the proposed offshore MPA (site P). It is one of only two proposals that would protect deep reef habitat. It is the only significant marine reserve proposed for the Catlins region, and therefore represents an important component of a marine reserve network for the region. All these factors make it a valuable site for scientific research.
- The accessibility of the area and current biodiversity values combined, suggests the site has potential to become a significant tourist attraction.

- Fishing effort in the area is currently relatively high, therefore designation of a marine reserve is likely to have significant positive effects on biodiversity.
- The likely benefits of the proposal to the network would be enhanced by extending the reserve south west along the coast to include the Tahakopa Estuary (site Q).

P. Long Point (Type 2)

Support.

- The proposed site contains important foraging habitat for seabirds, including yellow-eyed penguins.
- Together with site O, it provides protection from the coast to the territorial limit. This will enhance foraging opportunities for yellow-eyed penguins and protect them from bycatch.
- Fishing effort in the area is currently relatively high, therefore designation of a marine reserve is likely to have significant positive effects on biodiversity.
- The biggest impacts on fishing are likely to be on the set net fisheries for rig and school shark. These are relatively low value fisheries which have relatively high rates of bycatch, including of protected species.

Q. Tahakopa Estuary (Type 1)

Support in principle, with a recommendation that the reserve be enlarged to cover the whole estuary.

- The proposed site contains valuable saltmarsh habitat and is important for wading birds and estuarine fish.
- The proposed reserve is very small and the design means that compliance with and enforcement of the regulations will be challenging. Enlarging the reserve to encompass the whole estuary will mean that benefits from protecting this larger area are more likely to accrue.

R. Tautuku Estuary (Type 2)

Support in principle, with a recommendation that the protected area be extended to the estuary mouth.

- The proposed site is an area of relatively unmodified estuarine habitat, including rushes and salt marsh, and is important for wading birds and estuarine fish.
- The proposed MPA is very small. Enlarging it to encompass the whole estuary will mean that the benefits from protection are more likely to accrue.

S. Haldane (Type 2)

Support.

- The proposed site is an area of valuable estuarine habitat, which is very important for birds and estuarine fish.
- The area surrounding the MPA is heavily modified so would benefit from a broader management plan.

T. Kelp forest

Support in principle, with a recommendation that all commercial kelp harvesting be banned within the proposed MPA.

- 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 suggest that all commercial kelp harvesting be banned within the proposed site.

Additional matters

Creating a network of MPAs

- 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 SEMPF process must comprise multiple new MPAs in the south east 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 2010 and establish a fully comprehensive network of marine protected areas based on core no-take marine reserves (Department of Conservation and Ministry of Fisheries 2005; Ministry of Fisheries and Department of Conservation 2008). 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 (motion 53). The proposed network of MPAs for the south east region includes, at most, a little over 5.0% of the area in non-extractive marine reserves, with approximately 15% 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. The SEMPF process should therefore add further MPAs to the proposed network and enlarge many of the existing proposed sites.

- 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 is designated as a result of the SEMPF process must meet this goal. Decision makers should bear this in mind when considering opposition to the proposed marine reserves. If there is no

replication of a particular habitat within the proposed network, then each proposed reserve must be accepted.

- It is now accepted that marine reserves can result in recovery of previously exploited species (see reviews by Halpern 2003; Willis 2013). However, the effect of marine reserves is largely site-specific, species-specific and dependent on appropriate design.

- The conservation benefits of marine reserves generally increase with size (Halpern 2003; Edgar et al. 2014). Moderately sized reserves that are several to tens of kilometres in alongshore length and extend offshore to encompass depth related movements should be suitable to contain adult movement for 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 km^2 (Edgar et al. 2014). Only the proposed sites F (and the alternative site H), and B (with the extension), exceed this threshold. NZMSS recommends that each of the existing proposals be extended to at least 100 km^2 by extending each of the proposed protected areas north, south and offshore.

- For wide-ranging species, such as marine mammals, seabirds, sharks and other top predators, MPAs need to be much larger to be effective. Sufficiently large coastal MPAs can 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). However, the MPAs proposed for south-east Otago would need to be enlarged to adequately provide these benefits.

- 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 are within the mean larval dispersal distances estimated for many fished coastal marine species (Gaines et al. 2010). The proposed network meets these guidelines, provided that all the coastal marine reserves are designated, and in particular if the size of all or most of the protected areas is increased.

- The South East region is home to some of New Zealand's most endangered endemic marine species, including yellow-eyed penguins (Darby & Dawson 2000), Hector's dolphin, New Zealand sea lion and a newly identified species of endemic shag, *Leucocarbo chalconotus* (Rawlence et al. 2016). Yellow-eyed penguins have declined on the mainland from an estimated 580 nesting pairs in 2008 to 216 pairs in 2015. It is likely that marine impacts, including depletion of food resources and bycatch in set nets and trawl fisheries, are factors in their decline. Hector's dolphins have declined to an estimated 27% of their abundance in 1970, principally 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 set

net 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. It should be noted that we are not proposing the whole Otago coastline be closed to commercial fishing, just the highly damaging fishing methods.

- Submarine canyons are among the most productive deep sea habitats yet described, supporting exceptional biomass of benthic invertebrates, demersal fish and top predators, including marine birds, pinnipeds and cetaceans (De Leo et al. 2010; Santora & Reiss 2011). The South East region is one of only two places in New Zealand where submarine canyons extend inside territorial waters and can therefore be protected within a marine reserve network. Although the mechanisms by which canyons enhance productivity are not fully understood, it is likely a combination of complex bathymetry and interaction with the local hydrology (De Leo et al. 2010; Santora & Reiss 2011). Therefore, for conservation of marine biodiversity, the best option proposed by the SEMPF is site F, because the Saunders Canyon has the steepest and most complex bathymetry inside the territorial limits. The current policy only allows MPAs to be designated within territorial waters, while fishing effort can occur anywhere. In this case therefore, it would be sensible to rank the biodiversity value of the Saunders canyon above the value to fisheries.

Summary

- NZMSS generally supports the proposed MPAs in the consultation document, however, we would like to see a number of the sites enlarged (identified above) to provide better protection for the biodiversity at those sites.

- Further MPAs should be added to the proposed network to meet New Zealand MPA policy guidance on MPA networks and recent international recommendations.

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