

# NEW ZEALAND MARINE SCIENCES SOCIETY

TE HUNGA MĀTAI MOANA O AOTEAROA



17 April 2014.

Local Government and Environment Committee  
Parliament Buildings  
Wellington.

## **Submission on the Kaikoura (Te Tai-o-Marokura) Marine Management Bill**

This submission is from the New Zealand Marine Sciences Society (NZMSS). NZMSS wishes to appear before the committee to speak to our submission.

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

Please contact me for any further information regarding this submission.

Handwritten signature of Mary Livingston.

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# **NZMSS Submission on the Kaikoura (Te Tai-o-Marokura) Marine Management Bill**

## **1. The New Zealand Marine Sciences Society**

The New Zealand Marine Sciences Society, known as “NZMSS”, was formed in 1960 as a constituent 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 non-profit organization that provides access to and within the marine science community and identifies emerging issues through annual conferences, annual reviews, a listserv and this website. 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 submission is consistent with the Royal Society of New Zealand Code of Ethics and Rules, in particular principals 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](http://www.royalsociety.org.nz/organisation/about/code) ). Further details about NZMSS, including the Society’s objectives, can be found our website: [www.nzmss.org](http://www.nzmss.org)

## **2. NZMSS comments on the Bill and our recommendations**

NZMSS welcomes the introduction of the Kaikoura (Te Tai-o-Marokura) Marine Management Bill and its goal of addressing the current lack of adequate formal protection of marine species and habitats in the Kaikoura area.

NZMSS lodged a submission to the proposed Kaikoura Marine Strategy in December 2011. A copy of our submission is attached for the information of the Committee.

Our submission on the Kaikoura (Te Tai-o-Marokura) Marine Management Bill focuses on the following topics:

- The proposed marine reserve (Part 2, Subpart 1)
- The proposed advisory committee (Part 2, Subpart 4).

### **Proposed Hikurangi Marine Reserve (Part 2 Te Tai-o-Marokura management measures, Subpart 1)**

#### **• *General support for marine reserves***

NZMSS generally supports the establishment of marine reserves because they provide excellent opportunities for science and education, as well as the intended values for conservation.

Historically, NZMSS has supported the establishment of marine reserves and has presented scientific advice on reserve proposals and made submissions on a range of policy and marine protection initiatives. For example, the Society supported the first marine reserve

proposed by the University of Auckland, at Leigh and the Kermadec Islands Marine Reserve. More recently, the NZMSS has been active in writing submissions supporting specific marine reserve proposals (e.g. Akaroa and the West Coast); coastal plans (e.g. for the Kermadec and Subantarctic island groups); and regional MPA initiatives such as the Subantarctic Marine Reserves Act, passed earlier this year.

For marine reserves to have scientific, educational and conservation value it is important that they are designed according to the best available scientific information. Accordingly, NZMSS supports the guidelines and principles set out in the MPA Policy which are based on the best available scientific information and are aimed at implementing effective networks of MPAs around the New Zealand coast (DOC & MFish 2005).

- ***Hikurangi Marine Reserve boundaries***

NZMSS agrees in principle with the approach taken with this proposed reserve to protect a range of habitats extending from the nearshore through to deepwater habitats, including a portion of the Kaikoura Canyon. However, ***we do not support the boundaries of the proposed marine reserve***. The proposed marine reserve boundaries are extremely complex and not consistent with global recommendations on marine reserve network design (Fernandes *et al.* 2009; Saarman *et al.* 2012) and the New Zealand MPA Policy. In particular, the complex shape of the reserve and the small narrow inshore section drastically limits the potential effectiveness of the reserve in terms of protecting exploited species and therefore undermines the potential scientific, educational and conservation values of the marine reserve.

Due to the mobility of many exploited species (e.g. rock lobster, blue cod), the effective area of a marine reserve is considerably smaller than the actual size of the reserve. This is due to “edge-effects” associated with removal of fish through fishing at and near the boundaries. These edge-effects have been shown to extend from 200m to 2km inside marine reserve boundaries, depending on the mobility of the exploited species in question (Guidetti 2007, Kellner *et al.* 2009, Willis *et al.* 2003). Consequently, simple, straight-line boundaries minimise edge-effects, whereas complicated boundaries maximise edge effects and therefore reduce the effective size and conservation value of marine reserves. This is supported by global scientific literature on marine reserves and has been demonstrated in New Zealand reserves (refer to the publications in the references section at the end of our submission under the topic “*Small and complicated reserve boundaries cause high edge effects*”).

For example, research by Willis *et al.* (2003) in the Cape Rodney – Okakari Point Marine Reserve showed that edge effects on snapper extend approximately 1 km into the reserve due to high fishing pressure on the reserve boundaries. Based on this research and subsequent tagging work, Babcock *et al.* (2012) have recommended that reserves span at least 5 km<sup>2</sup> of coastline in order to protect resident reserve snapper populations. Similarly Freeman *et al.* (2009) studied rock lobsters in the Te Tapuwae O Rongokako Marine Reserve and concluded that, if reserves are intended to conserve 'natural' biological communities, then decisions on reserve boundaries should take into consideration the movement of the species intended for protection. In California, a minimum size for marine reserves of 5 km of coastline was also recommended during the Marine Life Protection Act process in order to protect a wide variety of exploited species (CDFG, 2008).

In the Kaikoura Marine Management Bill, only about 2km of the approximate 70 km of coastline (i.e. less than 3%) making up the marine management area is proposed to be protected by just one marine reserve. Given the edge-effects described above, this length of coastline is insufficient to provide meaningful protection for species that move more than a few hundred meters. It is our view that this small inshore area will provide little protection on the coastal reefs for most fish species and rocklobster that live there. Further, this

proportionately small area of the coastline and inshore reefs falls well short of the target level of 10% of representative habitats, as identified in the MPA Policy.

Further, the minimal likely effectiveness of protecting a small section of coast will limit opportunities for the public to experience, learn and enjoy the marine reserve's biodiversity, an important consideration under the Marine Reserves Act 1971.

NZMSS considers that the boundaries will be difficult to enforce and will result in unnecessary effort and expense by the Department of Conservation, who manages marine reserves. Simple straight line boundaries are more readily enforced and easier for fishers (commercial or recreational) to locate and identify. The importance of this is recognised in the MPA Policy's Planning Principle 9 "The MPA management regime must be enforceable".

The rationale and justification for the proposed marine reserve is unclear and not consistent with international recommendations or the New Zealand MPA Policy. NZMSS is concerned that the proposed marine reserve, and the limited total area protected in no-take marine reserves within the Kaikoura region, sets a precedent nationally whereby local marine protection initiatives disregard existing policy and internationally-accepted best practices around MPA design. It is our view that the proposed reserve should be extended both alongshore and out to sea, to include sufficient viable area incorporating the full range of marine species and habitats and providing access to a reasonable length of coastline for the public to enjoy and appreciate the marine life of the marine reserve.

#### Recommendations:

- (i) NZMSS recommends that the proposed reserve should have a coastline of at least 5 km (vis a vis the Cape Rodney – Okakari Point Marine Reserve at Leigh).
- (ii) NZMSS further recommends that the proposed reserve's boundaries be simplified to incorporate straight cross-shelf boundaries and a single straight offshore boundary (see Figure 1 below for an example).

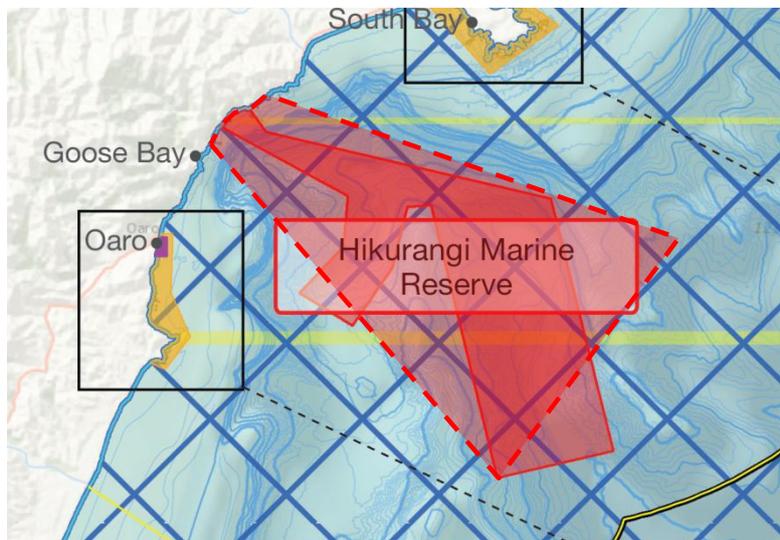


Figure 1. Example of a simple, more effective (~5km of coast) and scientifically justifiable marine reserve boundary at Hikurangi (dashed red line), overlaid on proposed boundary (solid red line).

#### • **Review period**

The Bill provides for a review of the proposed marine reserve 25 years after the Bill's commencement. It is silent on any review of the marine mammal sanctuaries, mataitai and taiapure. NZMSS views the review of the proposed marine reserve as inconsistent with the

other components of the Bill, which occupy considerable areas of coastline and marine habitats. Any review should be of the entire Kaikoura Marine Management Area to allow the public and stakeholders the opportunity to reflect on the success or otherwise of the management measures put in place at the time of the enactment of the legislation.

Recommendation:

NZMSS recommends that there be a review of the Kaikoura (Te Tai-o-Marokura) Marine Management Act 25 years after enactment.

- ***Lack of a marine reserve network***

NZMSS is concerned that there is only one marine reserve proposed for the Kaikoura Marine Management Area where biodiversity is protected from all forms of fishing. The nearest marine reserves are considerable distances away, being the Long Island-Kokomohua Marine Reserve in Queen Charlotte Sound in the north (in a different biogeographic region) and to the south, the Pohatu Marine Reserve on Banks Peninsula. The Kaikoura Marine Management Area is located in the East Coast South Island Biogeographic Region (DOC & MFish 2008), which covers approximately 500 km of coastline. Currently only 0.02% of this area (or 2.2 km of coastline) is protected by a single reserve on Banks Peninsula (DOC & MFish 2011). The Kaikoura Marine Management Area includes approximately 70 km of coast and less than 3% of the coastline is proposed as a single fully protected marine reserve.

The exchange of larvae (or connectivity) among marine reserves is the fundamental biological rationale for reserve networks. The MPA Policy has as a key consideration that the MPA network should be viable (Network Design Principle 3). Connectivity between MPAs is mentioned as a component of this which the network is dependent on for its functioning. The recommended spacing of marine reserves to promote connectivity is between 50-100 km (this guideline has been adopted and implemented by the Marine Life Protection Act in California and is based on the best available scientific information [CDFG, 2008]). Based on genetic data from worldwide studies, the distance of 50-100km is considered to be within the typical dispersal distance of most commercially and recreationally caught marine species. It is therefore necessary that reserves are spaced within this range in order to facilitate connections between reserves and to allow them to function as a network. With less than 3 km of coastline fully protected in the marine management area, the proposed Hikurangi reserve will do little by way of contribution to a network along the eastern section of the South Island coast.

NZMSS's view is that there should be at least three marine reserves within the Kaikoura Marine Managed area, each comprising a minimum of 5 km of coastline and representing the variety of habitats found in the southern, central and northern sections of the area. Consideration could be given to locating the marine reserves adjacent to the proposed mataitai reserves and taiapure local fisheries areas, providing benefits through spillover of some species from the marine reserves.

While NZMSS recognises the proposed marine reserve is an improvement in terms of providing some protection for marine habitats in the East Coast South Island Biogeographic Region, we believe the proposed reserve falls short on meeting both the goals of the MPA Policy and international guidelines on protecting marine biodiversity (e.g. Secretariat of the CBD, 2004).

In our view, a unique opportunity has been missed to include several marine reserves comprising a representative network within the Kaikoura (Te Tai-o-Marokura) Marine Management Area. The inclusion of a marine reserve network, in combination with the marine mammal sanctuaries, customary fisheries areas and recreational fisheries regulations, would have presented a unique package by world standards.

NZMSS strongly encourages the Committee to consider establishing a network of marine reserves within the Kaikoura Marine Management Area.

Recommendation:

NZMSS recommends that there be a network of marine reserves established within the Kaikoura Marine Management Area. This should comprise at least three marine reserves, each spanning at least 5 km of coastline and representing the variety of habitats found in the southern, central and northern sections of the area.

### **The proposed advisory committee (Part 2, Subpart 4)**

The Bill provides for an advisory committee which will have the interests of iwi, the Kaikoura community, environment, tourism and fishing represented. There is no mention of either marine education or marine science being interests in the marine managed area.

We have stated above that marine reserves provide excellent opportunities to study marine species and habitats in the absence of extractive activities, such as harvesting. NZMSS anticipates there will be interest amongst its members and potentially, internationally, to carry out research within newly established marine reserves, particularly as the University of Canterbury's marine laboratory is located nearby on the Kaikoura Peninsula.

We also draw the Select Committee's attention to the purpose of marine reserves under the Marine Reserves Act 1971, being to establish areas for the scientific study of marine life in its natural and undisturbed habitat and for the benefit and enjoyment of the public.

NZMSS also considers that there will be substantial research interest in the marine mammal sanctuaries.

Recommendation:

NZMSS recommends that marine education and science interests be represented on the advisory committee.

### **3. References**

#### ***Small and complicated reserve boundaries cause high edge effects***

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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, 2009.

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Willis, T. J., Millar, R. B. & Babcock, R. C. (2003) Protection of exploited fishes in temperate regions: high density and biomass of snapper *Pagrus auratus* (Sparidae) in northern New Zealand marine reserves. *Journal of Applied Ecology* 40: 214-227.

#### ***Networks of marine reserves***

California Department of Fish & Game (2008) CALIFORNIA MARINE LIFE PROTECTION ACT MASTER PLAN for Marine Protected Areas <http://www.dfg.ca.gov/mlpa/masterplan.asp>

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PISCO (2007). The science of marine reserves – international version. PISCO – partnership for interdisciplinary studies of coastal oceans. [www.piscoweb.org](http://www.piscoweb.org)

Saarman E., Gleason M., Ugoretz J., Airamé S., Carr M., Fox E., Frimodig A., Mason T. & Vasques J. (2012). The role of science in supporting marine protected area network planning and design in California. *Ocean & Coastal Management*.

Secretariat of the Convention on Biological Diversity. (2004). Technical advice on the establishment and management of a national system of marine and coastal protected areas. CBD Technical Series no. 13.