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Submission: Te Koiroa O Te Koiora – proposed biodiversity strategy for Aotearoa New Zealand

The New Zealand Marine Sciences Society (NZMSS) is a professional society affiliated to the Royal Society of New Zealand with a membership of approximately 200 New Zealand's marine scientists. 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, conservation 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 biodiversity strategy. However, NZMSS believes that a stronger and more pro-active approach is needed to protect and restore marine biodiversity. In some cases (e.g. marine protected areas and protecting endangered species) the proposed strategy falls short of the previous strategy, despite the downward trends in marine biodiversity and increased uncertainty around climate change. We provide a number of suggestions in the submission below that would help to strengthen the strategy from the perspective of managing marine biodiversity in the future. We have addressed the questions in the proposed biodiversity strategy in the following pages.

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

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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

Q1:How well does Part 1 of the discussion document set out the problem and consider the challenges and opportunities facing nature now and in the future?

Part 1 is high level and we note that marine is referenced in many of the general statements.

Specific comments

The role of valued non-indigenous species in Aotearoa New Zealand

Page 11. We consider that this section is very terrestrial-centric. A marine example of a NIS that has become important commercially is the Pacific oyster, which is a significant income earner for the shellfish farming industry. However, other more recent arrivals, such as the Mediterranean fanworm, are known to compete with marine biodiversity, including changing habitat structure and function.

Key pressures on biodiversity

Page 14. We agree with the key pressures on the marine environment that have been identified. However, a major omission is lack of mention of oil and mineral exploration and extraction, as well as marine dumping of sediments (pollution) and wastewater runoff (sewage contamination – nutrient enrichment, potential for spread of diseases & pathogens in shellfish). Regarding the impact of fishing, impacts on ecosystem structure and function also need to be included.

Addressing the drivers of biodiversity loss

Page 16 Failure to account for the value of nature.

Mention should be made of Non Market Valuation and other non-market tools, which are being used increasingly to understand the value of biodiversity. There have also been attempts to identify the value of ecosystem services. For example, Van der Belt and Cole (2014) estimated the value of the ecosystem services that New Zealand's EEZ provided equated to $92,245 per New Zealander per year (as at 2010)[1].

The journey since 2000
Page 19.
NZMSS does not agree that it has been hard to track progress in the current biodiversity strategy in respect of the marine environment. Instead, a lack of progress is likely a resuly of many factors including under-resourcing and lack of adequate investment in both marine research and awareness-raising about the significance of the marine environment to the public. For example, in our submission on the draft CBD national report (2018)[2] we submitted:

- There was a lack of/insufficient progress made on national targets 5, 12 and 13 in particular; and, Aichi targets 6, 11 (information relates to Aichi target 6) and 12 (little if any progress)
- CBD's national and Aichi targets incorporating marine biodiversity were few and relatively narrow in scope.
- Where some targets could have included marine targets, these were not reported against by New Zealand (for example, Aichi targets 8 and 19).

In our view, the small number of marine targets set were measurable and generally suffered from either a lack of or insufficient progress being made. However, the Society does agree with the statement that investment in knowledge and science has been insufficient to help address knowledge gaps in the marine realm.

Developing a new biodiversity strategy
Page 20. We will all need to work together to succeed.
There is no mention of the role of scientists/educators and their respective institutions in this section. Yet these groups/agencies are an important component of working collaboratively to develop a new strategy and assist with understanding/enhancing biodiversity. For example, the citizen science website "iNaturalist" is a good example of scientists and the public working collaboratively to understand biodiversity.

Page 21. The Biodiversity System.
Biosecurity New Zealand is also one of the key business units of the Ministry for Primary Industries (MPI).

Q2: What do you think of the proposed strategy framework? Does it provide a useful way of linking the elements of the strategy together?

P26 & 27. 2.1 The proposed strategy framework.
NZMSS suggests that the concept of sustainable use of resources should be incorporated into the diagram of the vision/outcomes/values to give this goal more visibility. We agree with the prominence given to Mātauranga and science as it clearly shows these elements underpin achieving the vision.

[1] Van der Belt & Cole (2014). Ecosystem goods and services in marine protected areas (MPAs). Science for Conservation 326. June 2014, New Zealand Department of Conservation.
[2] http://nzmss.org/assets/NZMSSSubmissionCBD-report-2018.pdf

Q3: What do you think of the proposed vision for Aotearoa New Zealand and its timeframe?

NZMSS agrees with the proposed vision, as it generally aligns with our proposed vision (albeit with a marine focus) as stated in our submission on the proposal for a new biodiversity strategy:
"*Healthy oceans and ecosystems, where species are thriving in what is approaching a near-natural state, where the human footprint is substantially reduced and New Zealanders embrace understanding what the marine environment means to them*."[3]

We commend that the proposed vision includes restoration. However, we would like to see "protection" incorporated in this long-term vision as this is an essential and pro-active approach to achieving biodiversity goals, and can prevent the need for restoration. Protection could be incorporated in the following ways:

"Nature in Aotearoa is healthy, abundant, and thriving. Current and future generations connect with nature, protect and restore it, and are restored by it."
(or)
"Nature in Aotearoa is healthy, abundant, and thriving. Current and future generations will protect, restore and connect with nature."

We accept that the proposed vision for Aotearoa should take on a fifty-year timeframe, but caution that there needs to be clear and meaningful short and medium-term actions in order that this vision is kept alive by New Zealanders over the decades and is seen as achievable by all parts of our society.

NZMSS would like to see more specific reference to marine ecosystems, species assemblages and connectivity between marine species in the bullet points detailing the proposed vision. For example, bullet point #1 generally mentions the marine environment ("the sea"), while #4 is land-centric. It would help people to understand that intact native marine biodiversity is core to sustaining our wild fisheries, marine taonga and enjoyment of healthy functioning marine ecosystems by including a specifically marine-focused bullet point. We note that the marine environment is expected to play an increasing role as a source of food (protein) in future decades as the world's population increases and puts pressure on the supply of terrestrial food productivity.[4] This demand will, in turn, place increased pressure on the marine environment's natural resources, including wild fisheries and space for aquaculture.

Q4: What do you think about the proposed values and principles? Is there anything you would add or change? Which of the values and principles do you think are most important?

Under the Principle of "Connections" we suggest including ecological connections. These are different from spatial connections and impacts over time. For example, changes in the population densities of one species or group of fishes can have consequences for the organisms that rely on them (either as predators or prey).

We strongly suggest that ***"A precautionary approach"*** be included in the Principles for Biodiversity Management. Given the uncertain future with growing populations and changing climate, a precautionary approach is essential in achieving the Vision of the

[3] http://nzmss.org/assets/Biodiveristy-strategysubmitted-28-Feb-2019.pdf
[4] For example, Henchion et. al. (2017). Future protein supply and demand : strategies and factors influencing a sustainable equilibrium. *Foods* 6(7) 53.

strategy. A good example is the decision to respond to an incursion of a marine pest for which there is no evidence of its impact in New Zealand's waters. In that situation, a risk-based, rather than an evidence-based approach may be taken in order to mitigate the risk of impacts on native marine biodiversity.

NZMSS considers that all the proposed values and principles are important. As many, if not all are connected in some way, we would not consider any being placed above the other in importance.

Q5: What do you think about the proposed long-term outcomes? Is there anything you would add or change?

Tiaki - Protect and restore.
NZMSS considers it important to make a distinction between freshwater and marine environments in this proposed outcome. It is acknowledged there is connectivity between these environments. However, both environments are very different including the biodiversity that inhabits them. Both environments face unique pressures that are impacting on their mauri.

Wananga – systems and behaviour.
The stated outcomes are more descriptions of a desired future state, rather than addressing systems change. For example, in order to address loss of marine habitats, assemblages and depletion of marine species, there will need to be significant changes made to some fishing practices. Perhaps reliance on the capture of wild fisheries will require a significant system change in order to prevent widespread biodiversity loss and ensure provision of ecosystem services is maintained or enhanced?

Q6: What do you think about the proposed set of goals? What are the most important things to track to measure our progress? What else should be included?

2025 goals:
Despite the growing need for marine protection, the proposed goals for marine protection are considerably weaker than those in the previous biodiversity strategy that have not been achieved.

While NZMSS agrees that work should continue to map marine ecosystems and set priorities for protection and management, this goal is simply an information gathering and planning exercise, which is at odds with the other goals that have more direct biodiversity outcomes. There is sufficient information already for initiating a network of no-take marine protected areas (MPAs) and a strong evidence-based understanding for the need and value of marine protection. While further mapping work will help enable a fully functioning network to be established as a longer term goal, a perceived lack of information should not be used as a mechanism to prevent more immediate action. Accordingly, we would like to see the additional marine goal:

"*Continue to develop a network of no-take marine protected areas with a view to adding to this network over time as more information about marine ecosystems comes to light.*"

This goal recognizes that protection of areas of the marine environment lags far behind progress made on land.

A goal that addresses halting the decline of marine mammals and sea birds should be included, to the effect that by 2025, there are no further declines, or significant steps are made to prevent further declines, of marine mammal and seabird species.

The 2030 goals for marine protected areas should be brought forward to 2025. No-take MPAs are likely to be critical to safeguarding marine biodiversity in the face of warming seas due to climate change effects. By 2030, efforts should be focused on adding to the MPA network to ensure it meets the criteria of representativeness, adequacy and comprehensiveness.

We are concerned at the potential for the outcome of the marine goals to compartmentalize marine biodiversity into MPAs and protected marine species. A goal should be included that involves assessing those marine habitats, species and assemblages not protected in some form of MPA or threat management plan for their vulnerability to human activities and their contribution to ecosystem services. A new and different approach is required to include marine biodiversity not currently safeguarded by existing legislative mechanisms.

We endorse the 2050 goal for reduction of bycatch of corals, seabirds and marine mammals to zero but point out that this will require effective intermediary goals in 2025 and 2030 and these are currently absent in the proposed strategy.

Measures to track progress with better protection for marine biodiversity include:

- Increase in area of marine biomes protected over time and change in abundances of key marine species within the MPAs
- Increase in population numbers of endangered and vulnerable marine mammals, seabirds and fishes
- Number and type of habitats previously impacted by human activities and not protected as MPAs recover and show signs of contributing to overall ecosystem function
- Recreationally and culturally important species steadily increase in numbers.

Q7: What do you think about the proposed plan for implementation planning? What do think are the requirements for a governance structure to oversee implementation planning and delivery?

-We agree that a collaborative process is important to achieving the vision and goals. However, it will be crucial to ensure each environmental domain is given equal attention to ensure bias towards a particular domain is eliminated. It follows that governance structures should be established that can effectively focus on each domain. Having a governance structure for each domain will enable more inclusiveness of contributors with the relevant experience and background to be effective.

Q8: What do you think about the proposal for progress reporting and review of the strategy? How do you think this reporting should take place to ensure it is useful, transparent, inclusive and drives accountability?

NZMSS agrees that the timeframe for progress reporting and review is appropriate. We suggest that public consultation forms a key part of the progress reporting and review to assist with understanding the public's views and to incorporate new goals or amend goals, if required.

Q9: What do you think about the five system shifts? Are they the right areas to focus on in the near term? Are there other areas that should be included?

We agree with the proposed five system shifts. However, we think an important component that is missing is the role that extractive industries play in depletion of natural resources and their impacts on biodiversity. With regards to the marine environment, both fishing, and oil and mineral extraction, are key industries with strong economic incentives to continue, if not upscale. None of the system shifts adequately address the conflict between large-scale resource use and biodiversity conservation in the marine environment.

Q10: Shift 1 - What do you think of this system shift? Do you agree with the proposed first steps? What other actions should be included?
We agree with the suggested actions.

Q11: Shift 2 - What do you think of this system shift? Do you agree with the proposed first steps? What other actions should be included?
We suggest one or more actions are included to enable Matauranga Maori to be embedded in and complement marine science.

Q12: Shift 3 - What do you think of this system shift? Do you agree with the proposed first steps? What other actions should be included?
We suggest one or more actions are included that enable communities to be more engaged in marine science including supporting citizen science approaches.

Q13: Shift 4 - What do you think of this system shift? Do you agree with the proposed first steps? What other actions should be included?

We agree with the proposed first steps for marine actions but consider these do not go far enough to address the significant gaps in marine biodiversity protection. For example, the following MPA actions are currently outstanding:

- Adequate representation of marine habitats in networks of fully protected marine reserves in the following biogeographic regions/subregions:
  Three Kings Islands; all North Island bioregions, South Island east coast, Fiordland coast, Chatham Islands and Snares Islands.
- Increasing the area of New Zealand's first marine reserve, the Cape Rodney – Okakari Pt Marine Reserve (Goat Island, Leigh) to provide improved protection for species such as rock lobster and snapper.
- Establishing a network of fully protected MPAs in the EEZ and Extended Continental Shelf that represents all deepwater habitats including the ocean above the seabed. This would include full protection of the existing Benthic Protected Areas.
- Pass Marine Protected Areas legislation that enables networks of MPAs to be established in both the Territorial Sea, the EEZ and the Extended Continental Shelf (ECS).

We also believe "Complete key marine protection initiatives in the Hauraki Gulf, Kermadec Islands and Southern South Island" should have an Immediate, or at least Short term, time frame given these processes are already underway.

Q14: Shift 5 - What do you think of this system shift? Do you agree with the proposed first steps? What other actions should be included?

Much of New Zealand's marine environment is still undiscovered while many species collections remain undescribed through lack of resources. The marine environment is vast

compared with our land area and yet there has been a long history of insufficient funding provided to effectively understand its biodiversity. Special recognition should be given to understanding the marine domain and significant resources allocated accordingly.

Q15: Overall, are these components of an effective strategy? What do you think of the proposals as a package? Is there anything we have missed?
Refer to our previous suggestions for better recognizing the marine environment in this proposed strategy.

Question 16: What do you think a global vision and targets for biodiversity should look like?
Are they the same as what is proposed in our national strategy, or should they be different?
Are there other things that should be included in the global framework?
How do we make sure our national strategy aligns with global goals?

In our earlier submissions on the 2000 biodiversity strategy, we noted that the national and Aichi reporting targets incorporating marine biodiversity were few and relatively narrow in scope. We are of the view that there should be more marine biodiversity targets that better reflect the vast range of marine species, habitats, ecosystems and biogeographic regions that make up the world's seas, together with the ecosystem services that they provide people. The new targets should include provision for advancing knowledge and understanding of the oceans' marine biodiversity, as well as recognising the role of traditional/cultural knowledge of the marine environment and its resources.

New Zealand's contribution to global MPA targets should also be incorporated into the national strategy (for example, IUCN's global MPA target). This will help assess the impacts of climate change and other pressures on the marine environment from a global perspective.