



7 September 2016

Conservation and Environment Science Roadmap  
C/- Ministry for the Environment  
PO Box 10362  
Wellington 6143  
cesroadmap@mfe.govt.nz

## **Submission on the Conservation and Environment Science Roadmap Discussion Paper**

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 Roadmap. Our detailed submission is attached.

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

Dr Hilke Giles  
President  
New Zealand Marine Sciences Society

Address for service:

Email [hilke.giles@gmail.com](mailto:hilke.giles@gmail.com)  
Postal address 74 Galloway Street  
Hamilton 3216

## NZMSS submission on the Conservation and Environment Science Roadmap Discussion Paper

### 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 listserv 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](http://www.royalsociety.org.nz/organisation/about/code)).

### Submission

#### *General comments*

The NZMSS thanks the Ministry of Environment and the Department of Conservation for the opportunity to comment on the Conservation and Environment Science Roadmap Discussion Paper (the “Roadmap”).

The NZMSS welcomes the initiative to take a 20-year perspective on research needs and the focus on better prioritisation and coordination between the agencies and authorities involved in funding environmental research in New Zealand.

The Roadmap provides a good overview of key coastal and marine issues. The NZMSS particularly welcomes the emphasis on understanding multiple and cumulative pressures and the consideration of integrated ecosystems and processes as a theme.

The NZMSS agrees that solid scientific evidence and advice underpins good decision making. We are only beginning to understand the extent of marine habitat and biodiversity loss but available information suggests that losses have been very substantial.

In many instances the main impediment to good decision making is the absence of robust information. While development of novel tools and methodologies is important to solving many of the current problems, it is often the lack of robust data that creates conflict and poor decision making. The problem is exacerbated by the intellectual property data represent for research agencies, precluding many from sharing them freely among each

other or with decision makers. It is currently very difficult to obtain funding for projects that include large data gathering components due to the key focus on novel approaches.

The NZMSS appeals to the Ministry of Environment and the Department of Conservation to consider stressing the need for collection of genuinely open data that can be readily shared to the Roadmap and subsequently creating funding mechanisms for realising this initiative. A key focus of data collection should be to better quantify biodiversity and habitat loss with the ultimate goal being to identify, protect and facilitate the recovery of threatened marine species and habitats.

### *Specific comments on Theme 5 – Coastal and marine ecosystems and processes*

#### **Question 27**

NZMSS does not agree with the enduring question as currently proposed. The enduring question focuses on a status quo scenario that only considers intensification of existing pressures and does not consider alternative options for a 'better' future. The text should be open to the consideration of alternative futures. For example, could intensification of ocean use lead to a reduction in land use pressures?

Furthermore, the enduring question is internally inconsistent and thus unachievable. Specifically, it will not be possible to maintain marine ecosystems and allow them to recover, while at the same time “unlocking the economic potential of these areas”. Some ecosystems must be protected and should not be allowed to be used for economic gain.

We propose replacing the existing enduring question with “How can we ensure that coastal and marine ecosystems and essential processes recover to or are maintained at a level sufficient to provide for the intrinsic values of the sea and its contribution to the social and economic wellbeing of our communities, in a context of land-use intensification, increasing biosecurity risk, climate change, ocean acidification, and other cumulative environmental stressors?”

#### **Question 28**

The proposed vision and goals need further work. More emphasis is needed on avoiding and reversing impacts. The NZMSS recommends amending the vision to read “New Zealanders will understand the complex coastal-marine ecosystems that surround the country and the drivers of change to these ecosystems. Ways of avoiding, reducing and reversing human impacts, will be developed to enhance the resilience of marine ecosystems to change in the short to medium term.”

#### **Question 29**

The NZMSS agrees with the proposed emerging ideas presented but suggests re-wording some to improve consistency and better describe the goal aimed for. For example, the idea “Existing monitoring and species identification levels may be insufficient to underpin research on marine ecosystems processes and spatial management” does not imply a vision or desired future state. For this reason the NZMSS suggests replacing this idea with “Create an integrated network of marine and species monitoring.” This would also provide better guidance for researchers and funding providers.

In terms of additional emerging ideas it would be very useful to make progress towards a central repository of coastal data and for these data to be available to scientists, resource

managers and the public. In addition, ideas around new monitoring tools, such as monitoring buoys and use of satellites, and understanding of past and potential future losses of critical marine habitats should be added. To achieve this, the NZMSS proposes addition of the following emerging ideas:

- Develop a central repository of coastal data and for these data to be available to scientists, resource managers and the public
- Develop new monitoring tools, such as monitoring buoys and use of satellites
- Improve understanding of past and potential future losses of critical marine habitats

### **Question 30**

A re-occurring problem in marine research is the poor understanding of the marine domain. This includes, for example, not having good information on baseline conditions (for example on water quality or ecosystem condition) or not being able to adequately quantify biodiversity and habitat loss. To address these issues the NZMSS proposes to add the following research questions:

- How can we determine the baseline conditions (for example water quality, ecosystem condition) against which future changes can be compared?
- How can we better quantify biodiversity and habitat loss?

Furthermore, our current ability to assess the effectiveness of initiatives aimed at protecting and facilitating the recovery of threatened marine species and habitats is limited. As a result the efficacy of offsetting of environmental effects (for example in a resource consent context) is often unknown, creating a risk of greater environmental degradation than anticipated. The NZMSS proposes addition of the following research question:

- How can we better assess the effectiveness of initiatives aimed at protecting and facilitating the recovery of threatened marine species and habitats?

### **Question 31**

The NZMSS proposes to extend the list of new or expanding capability needs to include:

- Expertise in smarter monitoring technologies
- Collection of genuinely open data that can be readily shared
- Creation of funding mechanisms for collection of open data

### **Question 32**

The context section of theme 5 (p.28) states that “Demonstrating progress towards agreed international targets relating to marine biodiversity conservation is required, but will be constrained by increasing recreational and commercial use of the marine environment and its resources” (emphasis added). This implies that progress towards international environmental targets is likely to only happen if it does not lead to a reduced use of the marine environment. This needs to be reversed. It is the responsibility of government to ensure that use of the marine environment is constrained where necessary to ensure international environmental targets are achieved.

Section ‘Providing solutions through technology’ calls for informed debate about biotechnology and warns that these discussions may be philosophically challenging. The NZMSS considers that another philosophical challenge will be to acknowledge that continued economic growth is often contradictory to responsible environmental management. The NZMSS appeals to central and local government to acknowledge and

manage this rather than accepting continued economic growth that continues to degrade our environment.

In addition to the Regional Council Research, Science and Technology Strategy 2016 listed as a related strategy to theme 5, the NZMSS proposes adding the Coastal Special Interest Group's research strategy (Berkett et al., 2015). This strategy is aligned to the overarching Regional Council strategy but focusses specifically on coastal and marine aspects. It is the official research strategy of the Coastal Special Interest Group, the group of coastal scientists and planners within the Regional Sector Special Interest Group Network under the Regional CEO Group. The strategy identifies key research priorities that support and complement the research questions identified in the Roadmap.

Reference:

Berkett N, Wade O, Cornelisen C, Newton M, Bell K (2015) Guiding coastal and marine resource management. The Coastal Special Interest Group Research Strategy. Prepared for the Coastal Special Interest Group (C-SIG) on behalf of regional councils and unitary authorities of New Zealand. Source:

<http://www.envirolink.govt.nz/PageFiles/29/Reg%20SIG%20Network%20Structure%20Chart%20Aug%202016.pdf>.

## Summary

1. The Roadmap provides a good overview of key coastal and marine issues. The NZMSS particularly welcomes the emphasis on understanding multiple and cumulative pressures and the consideration of integrated ecosystems and processes as a theme.
2. The NZMSS appeals to the Ministry of Environment and the Department of Conservation to consider stressing the need for collection of genuinely open data that can be readily shared to the Roadmap and subsequently creating funding mechanisms for realising this initiative.
3. The NZMSS proposes **amending the existing enduring question of theme 5** to:  
“How can we ensure that coastal and marine ecosystems and essential processes recover to or are maintained at a level sufficient to provide for the intrinsic values of the sea and its contribution to the social and economic wellbeing of our communities, in a context of land-use intensification, increasing biosecurity risk, climate change, ocean acidification, and other cumulative environmental stressors?”
4. The NZMSS proposes **amending the vision/goals of theme 5** to:  
“New Zealanders will understand the complex coastal-marine ecosystems that surround the country and the drivers of change to these ecosystems. Ways of avoiding, reducing and reversing human impacts, will be developed to enhance the resilience of marine ecosystems to change in the short to medium term.”
5. The NZMSS suggests **amending the emerging idea of theme 5 "Existing monitoring and species identification levels may be insufficient to underpin research on marine ecosystems processes and spatial management"** to:  
“Create an integrated network of marine and species monitoring”

6. The NZMSS proposes **addition of the following emerging ideas in theme 5:**
  - “Develop a central repository of coastal data and for these data to be available to scientists, resource managers and the public”
  - “Develop new monitoring tools, such as monitoring buoys and use of satellites”
  - “Improve understanding of past and potential future losses of critical marine habitats”
  
7. The NZMSS proposes **adding the following research questions to theme 5:**
  - How can we determine the baseline conditions (for example water quality, ecosystem condition) against which future changes can be compared?
  - How can we better quantify biodiversity and habitat loss?
  - How can we better assess the effectiveness of initiatives aimed at protecting and facilitating the recovery of threatened marine species and habitats?
  
8. The NZMSS proposes to **extend the list of new or expanding capability needs in theme 5** to include:
  - Expertise in smarter monitoring technologies
  - Collection of genuinely open data that can be readily shared
  - Creation of funding mechanisms for collection of open data
  
9. The NZMSS proposes **adding the Coastal Special Interest Group’s research strategy (Berkett et al., 2015) to the list of related roadmaps and strategies in theme 5.**  
Reference:  
Berkett N, Wade O, Cornelisen C, Newton M, Bell K (2015) Guiding coastal and marine resource management. The Coastal Special Interest Group Research Strategy. Prepared for the Coastal Special Interest Group (C-SIG) on behalf of regional councils and unitary authorities of New Zealand. Source:  
<http://www.envirolink.govt.nz/PageFiles/29/Reg%20SIG%20Network%20Structure%20Chart%20Aug%202016.pdf>.