



A New Marine Protected Areas Act

Introduction

This paper provides feedback for the Ministry for the Environment on behalf of the Royal Society of New Zealand (RSNZ) on the recently released consultation on A New Marine Protected Areas Act¹. The submission is provided on behalf of the Society by the Expert Panel established to look at the national taxonomic collections in New Zealand (see Appendix 1).

Preamble

In 2015 the Royal Society of New Zealand established an Expert Panel to consider the state of national taxonomic research and collections in New Zealand, including marine taxonomy. The report of its findings can be found on the Royal Society website (www.royalsociety.org.nz/national-taxonomic-collections-in-new-zealand).

The data and analyses in the Panel's report are relevant to the new Marine Protected Areas Act, particularly pertaining to the need for evidence based decision making, and the information required by this legislation, in terms of the establishment of Marine Protected Areas (MPAs) and monitoring of the ongoing effectiveness of the MPAs within the context of the legislation.

Submission:

- **We strongly support the need for legislation and policy to be evidence-based and supported by scientific research.**
- **Taxonomy and a scientifically credible reference base are essential for policy decisions related to marine protected areas: taxonomy underpins all of our knowledge about species found in New Zealand.**

Authoritative taxonomic expertise, reference collections and databases provide the scientific foundation for evidence based management of New Zealand's unique biodiversity and living economic resources, including both native and introduced species. They also ensure that biological and ecological science are reproducible and enable New Zealand to meet its legislative and international obligations.

In spite of taxonomy underpinning all of our knowledge about species found in New Zealand, the consultation document is silent on the critical dependency of the proposed legislation and its implementation on the fundamental scientific platform of taxonomic science. This includes the reference collections and databases central to the identification, management and monitoring of the state of

¹ <http://www.mfe.govt.nz/publications/marine/new-marine-protected-areas-act-consultation-document>

marine protected areas.

New Zealand has national and international responsibilities to identify, classify and protect its species, and meet international treaty obligations (e.g. Convention on Biological Diversity, Intergovernmental Platform on Biodiversity and Ecosystem Services, and environmental reporting in the OECD). This includes the obligation to implement the agreed-upon New Zealand Biodiversity Strategy, which calls for the protection of natural ecosystems, flora, and fauna, including marine. The establishment of a marine protected area network will make an important contribution towards meeting New Zealand's responsibilities.

- **The entire concept of Marine Protected Areas rests on knowing what is in the New Zealand region that needs to be protected.**

Comprehensive information about the species present in the New Zealand region, whether they are unique to New Zealand or parts of the region, which species are present in each habitat, their biological traits, their relative abundance and their overall distribution within New Zealand, will be required for the establishment of the MPA network. This requires systematic collection, preservation and analysis of marine species; the application of the science of taxonomy to naming and establishing the relationships between species; determination of native versus non-native status; and relevant expertise to do this. This knowledge is essential to evaluating what constitutes the "natural state" (page 9) (currently not well understood), and determining what constitutes "representative ecosystems", as well as being vital for understanding the optimal size and shape for the MPAs.

There is no natural boundary for species movement in, out and through New Zealand's marine area. Although this proposed legislation is being limited to the territorial seas, many marine species have distributions that do not recognise the territorial sea boundary. It will be important to understand the extent of species distributions across the New Zealand zone and to base decisions on biologically relevant data.

The information needs associated with the new MPA Act include the requirement that "*Proposals to establish an MPA will only be advanced if they adequately describe the environment and benefits of protection*", and that the "*MPA Act will include criteria for determining what information is needed and whether the information provided in a proposal is sufficient*".

The question of sufficiency of information and how this will be ascertained is critically important, not only in relation to the proposal phase of an MPA (page 22), but also in the implementation and monitoring phases. Determining what to measure and how to evaluate change/effectiveness of any marine protection mechanisms will require sound scientific baselines that can only be underpinned by taxonomic science; this is particularly problematic when so many marine species remain undiscovered or undescribed. The consultation document is silent on how criteria will be developed to determine what information is needed.

- **There are large gaps in our current knowledge - filling these knowledge gaps, to establish a credible scientific reference for protection, is fundamental in determining what is to be protected, for what reasons, how and by whom.**

It is estimated that about 3/4 of marine species in New Zealand are either still to be discovered, are as yet unnamed, or remain poorly known. Only a fraction of the New Zealand coastal zone and our exclusive economic zone (EEZ)/ extended continental shelf (ECS) has been systematically sampled. The marine environment is particularly challenging because it is vast compared to New Zealand's land mass while being much less well documented.

The proposed legislation and its effective implementation will need the scientific platform of taxonomic science and the associated collections and databases. Although the consultation document notes that there is much to learn about our marine environment, it does not address how these information gaps will be identified and addressed.

In addition to the need for baseline discovery and documentation of the marine biota, biosecurity will be an issue in the management of marine protected areas. Biosecurity depends on accurate, authoritative and rapid identifications of invasive organisms. Taxonomic science and accessible reference collections are essential for ongoing risk assessment and mitigation. Without knowledgeable research taxonomists and reference collections there will be no capacity to alert managers to biological characteristics of non-indigenous species that may cause harm to the native marine flora and fauna in MPAs, and response to biosecurity threats will be based on little more than speculation.

- **The resourcing, governance and access to the requisite expertise for the establishment and maintenance of the credible scientific reference need to be explicitly included in the MPA legislation and associated policy.**

The government's 2015 National Statement of Science Investment (NSSI) states that “*effective environmental management can underpin economic goals, and that a significant opportunity for improving New Zealand’s environmental management is to improve our information and evidence base, and our understanding of environmental opportunities and limits*”. This ideal is not apparent in the current funding structures for taxonomy.

The MPA consultation document also notes “*The Government will continue gathering information about the marine environment in a systematic way, including through scientific research ... Initiatives are already under way that will support this process. For example, the Government has committed \$31.3 million over five years to the Sustainable Seas National Science Challenge, which includes conducting research to develop a better understanding of the dynamics and sensitivities of our oceans and coastal systems.*” However, the Sustainable Seas National Science Challenge (NSC) does not include research that addresses the discovery and documentation of marine biodiversity, and it does not support taxonomic databases or collections. The NSC is unlikely to advance the characterisation of the species and assemblages that are characteristic of specific MPAs.

At present there are no investment mechanisms, except through direct purchase, that will support targeted research on marine protected areas. The newly reconfigured Ministry of Business, Innovation and Employment science funding structures do not provide for government departments or agencies to identify nationally important information gaps/research requirements.

The MPA consultation document reflects the current disconnect between legislation and policy development and the funding and delivery of services in the area of taxonomy and collections. This disconnect was also reported by the Royal Society of New Zealand Expert Panel across a broad sweep of legislation that demands accurate and timely information about species, their distributions, and their interrelationships (e.g. Resource Management Act, Hazardous Substances and New Organisms Act, Environmental Impact Assessments as part of regulations such as the Extended Economic Zone and Continental Shelf Environmental Effects Act).

The stated intention of the new Act is “*to improve the way we protect and provide for the best use of New Zealand’s marine environment*” with “*a broad new approach that provides protection of all elements of biodiversity*”. In order for this vision to be realised and for an effective MPA network to be implemented, accurate and timely information will be needed at all stages. The information and evidence base will need to be resourced, governed and made publically accessible. The priorities and requirements of departments and agencies providing the MPA services and benefits will need to be coordinated, for

example, with the funding of organisations delivering taxonomic science and the maintenance of reference collections. It is not clear from the consultation document how this will be achieved.

Engagement with Māori in management of the marine environment will be critical to the success of future MPAs. Such engagement will be enhanced with greater involvement in all aspects of scholarship. The involvement of iwi Māori and scholars of Mātauranga Māori, in the care, development, and use of taxonomic collections is minimal at present, and there is considerable potential for the collections to be used to further the integration of Māori cultural concepts in New Zealand society, and to allow for iwi development. In addition, there is an opportunity to build Māori and Pasifika capability and contributions to the contemporary science of taxonomy including the importance of traditional knowledge systems to complement that which has been collected in currently established collections. Such developments would also be beneficial for the long-term success and management of MPAs.

- **We urge that policy developed in association with the Marine Protected Areas legislation identifies:**
 - 1) the science and associated infrastructure that are essential to underpin:**
 - a) the identification of marine protected areas and species**
 - b) the establishment of MPAs of appropriate size and shape**
 - c) the implementation of systems for the on-going management and monitoring of MPAs**
 - 2) mechanisms by which the necessary resources and coordination will be provided to meet these national requirements.**

Appendix 1:

Members of the National Taxonomic Collections in New Zealand panel

Dr Wendy Nelson MNZM FRSNZ (Chair), Principal Scientist, Marine Biology, NIWA and Professor, School of Biological Sciences, University of Auckland

Dr Ilse Breitwieser, Portfolio Leader/Capability Leader for the Systematics Team, Landcare Research

Professor Ewan Fordyce FRSNZ, Department of Geology, University of Otago

Dr Janet Bradford-Grieve ONZM FRSNZ, Emeritus Researcher, Marine Biology, NIWA

Dr David Penman, Executive Secretary, New Zealand Organisms' Register

Dr Nick Roskruge, Senior Lecturer/Kaiarahi Maori, Institute of Agriculture and Environment, Massey University

Dr Tom Trnski, Head of Natural Sciences, Auckland War Memorial Museum

Dr Susan Waugh, Senior Curator Sciences, Te Papa

Dr Colin Webb FRSNZ, environmental scientist

Further information on New Zealand's current taxonomic collections and related activities is available at (www.royalsociety.org.nz/national-taxonomic-collections-in-new-zealand/). The report outlines how taxonomic capacity in marine science in New Zealand is currently in a critical state. The Panel's investigation identified that there is inadequate and generally declining support for the nationally important resources of taxonomic collections, databases and taxonomic training. Erosion of investment, particularly evident in the CRI sector, has seen loss of national capability in specialised expertise in taxonomy and curation.

Except for figures & the RSNZ logo, Emerging Issues papers are licensed under a Creative Commons 3.0 New Zealand Licence.

