**Final Report for the Robin Rigby Trust**

**Research Project:**

Science-community partnerships supporting management of customary fisheries, and co-management planning for marine protected areas

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## Introduction

There is growing focus around the world by countries to increase the area of their marine territories within Marine Protected Areas (MPAs), in response to international commitments, knowledge of the threats posed to marine life, and how to manage impacts from human activities. Coverage of the global ocean in MPAs has grown rapidly over the last decades, and there has been increasing focus on designation of multiple MPAs together within a region as MPA networks, to support conservation of biological and oceanographic processes.

Two pioneers in oceans protection legislation, Canada and New Zealand, are developing plans for marine protected area (MPA) networks at regional scales within their ocean jurisdictions: in British Columbia, MPA network planning is occurring within the Northern Shelf Bioregion, and in New Zealand a network is in development for the Southern South Island Bioregion. Both governments committed to establishing a representative network of marine protected areas as a Party to the United Nations' Convention on Biological Diversity in 1992 which called upon contracting parties to "*establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity"*[1]*,* and made subsequent commitments to completing these networks within national-level policies and legislation.

Many comparisons have been drawn between various aspects of the legal frameworks for resource management, including marine resources, in Canada (particularly focused on the province of British Columbia) and New Zealand. Both countries have among of the largest extents of ocean jurisdiction, and are pioneers in modern oceans management law. New Zealand was one of the first countries in the world to develop marine protection legislation with the introduction of the *Marine Reserves Act* in 1971, and was one of the first to designate a fully no-take MPA (marine reserve) in 1975 [2]. In Canada, the primary legislative tool for establishing MPAs, the *Oceans Act*, was ground-breaking in its inclusion of integrated and ecosystem-based management concepts when it came into force in 1997 [3].

Both Canada and New Zealand have similarly complex sovereignty arrangements between a Crown government and a diversity of Indigenous governments [4,5]. Colonization and associated repression of Indigenous rights resulted in the loss or diminishment of Indigenous management in both countries, and across many ecosystems globally. In many cases, the establishment of protected areas and other forms of resource management (such as fisheries management) have been part of this process of dispossession of indigenous peoples territories, reduction of access to important marine species [6], and diminishment of management and cultural practices [7,8]. Growing resurgence and assertion of Indigenous governance is changing modern conservation and resource management paradigms, as well as within the context of the management and governance of protected areas, both on land and in the sea [8–11].

Shared governance arrangements are increasingly common in protected areas; variously described by terms including cooperative-, devolved-, shared-, or joint–governance or management, these "new paradigms"[7] of protected areas recognizes Indigenous peoples as equal partners, or leaders in conservation, and a shift in power and authority from a central government as a sole decision-maker. The the International Union for Conservation of Nature (IUCN) defines shared governance decisions as ones where "*partners share the authority by making decisions collectively, whether through the establishment of a governance body or other cooperative and co- management mechanisms*"[12]. These types of arrangements in MPAs are one way of working toward government-to-government relationships between Indigenous and Crown governments [8], and have great potential to support biodiversity conservation using a mix of conventional protected areas and customary practices [9].

The planning and development processes for the marine protected area networks on the Southern South Island Bioregion of New Zealand (Appendix, Map 1), and within the Northern Shelf Bioregion of British Columbia (Appendix, Map 2) are both at the stages of considering the models of co-governance and management for multiple marine protected areas within large geographical spaces. For both Canada and New Zealand, the Indigenous governments involved in the planning processes are seeking cooperative-governance or management of proposed MPAs in the network.

MPA Network planning is a recent initiative in both Canada and New Zealand; this is the first bioregional network planning process undertaken in Canada, and the first process of its kind in New Zealand. Both jurisdictions and planning regions have examples of shared governance between Crown and Indigenous government bodies within protected areas to draw upon, but these models have not yet been extended to apply to MPA networks. Both jurisdictions have commitments and plans to continue building MPA networks on regional scales throughout their marine territories.

In both network planning regions there are existing area-based management measures in place that provide for some degree of cooperative management between Indigenous and Crown governments, and providing some groundwork for how protected areas established through the network planning processes could be approached and implemented. In New Zealand for example, customary protection areas (CPAs), such as taiāpure and mātaitai, are designations under Crown fisheries legislation to mitigate breaches of the Treaty of Waitangi (New Zealand's founding document) by the Crown [13], CPAs are meant to provide for more locally-focused management and opportunity for Māori iwi and hapu to exercise rangatiratanga (chieftainship) over fisheries management [14,15].

There are seven mātaitai and one taiāpure within New Zealand's Southern South Island planning bioregion. The East Otago Taiāpure was designated in 1999, seven years after a proposal from the Kāti Huirapa Rūnaka ki Puketeraki, a hapū of Ngāi Tahu, to the New Zealand Minister of Fisheries for the establishment of the taiāpure. The East Otago Taiāpure Management Committee (EOTMC) is a body established under the *Fisheries Act* (1996), with half its members from Kāti Huirapa Rūnaka ki Puketeraki and half from the local community (including recreational fisheries, scientists, and community members). The committee can recommend regulations to the Minister of Fisheries regarding fishing and fishing activities. Discussions at East Otago CPA Management Committee hui (meetings) are focused through the East Otago Taiāpure Management Plan [16], and the regulatory changes that have been implemented are driven by mātauranga (local knowledge) and local observation of the status and sustainability of local fisheries.

**Research Project Goals**

The goals of my project were to examine the management process for the East Otago Taiāpure including monitoring programs and the regulation process, to elucidate lessons for other area-based marine management initiatives. During my time based in Dunedin, New Zealand, I learned about the MPA network planning occurring on the coast there. From my previous work and experience in British Columbia, I was involved in discussions regarding the Northern Shelf Bioregion MPA network planning and management discussions, and there seemed to be many similarities and interesting comparisons to make between the processes occurring simultaneously in British Columbia and New Zealand. Therefore, I decided to make this comparison the focus of my research project.

I am now working on finalizing a manuscript to submit to a peer-reviewed journal for publication which summarizes the comparison of these two regional MPA network processes, and the plans for cooperative governance of the MPA networks. My co-authors will be my colleagues from the University of Otago in Dunedin, and from West Coast Environmental Law in Vancouver, British Columbia.

**Project Outcomes**

**Time**
*Was the time in the field sufficient to accomplish your project objectives? Was the time spend on site optimum for the work or would another season been more appropriate?*

My original research objective was to interview members of East Otago Taiāpure Management Committee, the South-East Marine Protection Forum, other community members within the Kāti Huirapa Rūnaka ki Puketeraki with relevant experience and knowledge, and supporting New Zealand government officials from the Department of Conservation and Ministry of Primary Industries (jurisdiction over fisheries management), to ascertain the experiences, perspectives, and outlook of those involved in the marine protected area planning process on what models of co-management arrangements could be applied to these areas, including aspects such as decision-making processes, enabling agreements, scope of decision-making, funding and support, and enforcement and monitoring. However, due to a longer than anticipated timeline on Human Research Ethics application I had to modify my approach to a more desk-based review of the process to coincide with my time in New Zealand. For future projects, more support for such applications would be helpful at the institutions to support the projects when researchers are at field locations.

However, my time at the field location was very valuable in gaining connections and knowledge through my active involvement in the ongoing monitoring programs that have facilitated the East Otago Taiāpure's management recommendations. I joined the research team to assist with fieldwork activities, including removal of an invasive species of kelp, surveys and experimental translocations for pāua (black foot abalone), monitoring of marine reserves, and the annual East Otago Taiāpure survey. Being involved with the team was an invaluable opportunity both to learn about the methods used to monitor and assess the marine environment here, to get firsthand experience with the local species and ecosystems that are the subject of discussions, and to learn from people who have been working in this area and management scheme.

Conducting the annual survey of the East Otago Taiāpure.

**Replication**
*Would you consider it reasonable to repeat/replicate this project? If so what changes would you recommend in the planning or implementation? If not, why?*

In both of the case study regions, British Columbia and New Zealand, the planning and development processes for the MPA networks are ongoing, including planning what co-management or co-governance models for these networks will be. Future studies to compare the processes, and ongoing management of these networks would be very useful.

**Cooperation**
*Cooperation may well have been integral to the project implementation. Are you aware of any cooperative skills you or any of those working with you acquired while in the Field? If so, please discuss and note how this skill will enhance your future working relations.*

Cooperation and teamwork was a big part of my learning while in the field, particularly while assisting with monitoring programs and projects. Working in new settings and with different teams continually builds upon my skills as a researcher, and broadens my understanding of different systems, scientific techniques and protocols, and management perspectives.


Conducting a pāua (abalone) translocation experiment in the East Otago Taiāpure.

**Linkages:**
*The prime rationale of the Trust is to assist early-career researchers to have overseas coastal research experiences, and to improve existing or develop additional or new linkages with organizations and individuals focused on coastal resource assessment, development, and sustainable management. In Trust projects, people from different geographical areas and cultural backgrounds have on site opportunities to observe and assess both the natural and human resources. Did you forge linkages which will provide opportunities for further identification or resource development in the same or another coastal area?*

My time as a visiting researcher in the Department of Marine Science at the University of Otago enabled me to forge linkages with the ongoing research and that which I had been involved with in British Columbia.

An unanticipated linkage was learning about the Southern South Island marine reserve network planning process. I was not aware of this regional planning prior to my arrival in New Zealand. The parallels between this process and the ongoing process in British Columbia were immediately evident and intriguing.

**Sustainability:**
*Did your study/work in itself provide insight into sustainable resource management? If yes, please note how you or others you worked with might use this awareness to further develop and/or maintain sustainable human (particularly at the personnel level) and natural resources in the focus area.*

The study has provided some insight into planning of management and governance arrangements for MPA networks. MPA networks are a growing area of marine conservation planning, and management models for multiple interacting MPAs will be an ongoing challenge. Similarly, growing resurgence and assertion of Indigenous governance is changing modern conservation and resource management paradigms, as well as within the context of the management and governance of protected areas, both on land and in the sea. Therefore, co-governance and co-management models for marine protected areas is an area of increasing focus.

Shared governance arrangements are increasingly common in protected areas, and are a way to recognize Indigenous peoples as equal partners, or leaders in conservation, and a shift in power and authority from a central government as a sole decision-maker. These types of governance arrangements have shown to have great potential to support biodiversity conservation using a mix of conventional protected areas and customary practices [9].

British Columbia and New Zealand are two jurisdictions with similar processes, challenges and governance tools for marine protected areas. MPA network planning and development in these two regions provide lessons for discussions of shared governance arrangements, including explicitly drawing out the scope of authority on activities, and creating mechanisms for governance bodies to achieve regulation and management change on meaningful timescales. These processes will set precedents for network planning and governance within other bioregions of Canada and New Zealand, and in other regions of the world's oceans.

Conducting the annual survey of the East Otago Taiāpure.

**Conclusion**

My ultimate goal through this research project was to gain knowledge of marine management and conservation in a different jurisdiction and system, particularly how Māori fisheries and marine resource management operates in practice at community levels. I am very grateful to the Robin Rigby Trust for the support that has enabled this research. My time in New Zealand as a visiting researcher has been an incredibly valuable opportunity in my career. Being able to base myself within the research group and become part of their work for six months has been a great learning experience, particularly as a comparison to my work and research in British Columbia as the systems of management and even the temperate marine ecosystems, have many comparable values. I look forward to continuing to work on putting the findings from my research together for a publication, and the opportunity to connect colleagues both from New Zealand and British Columbia through this work. I would also like to thank and acknowledge my hosts and partners both at the Department of Marine Science at Otago University, and the Te Ao Tūroa, the cultural and environmental policy and planning unit within the Office of Te Rūnanga o Ngāi Tahu for welcoming me onto their teams and allowing me such a valuable learning opportunity.

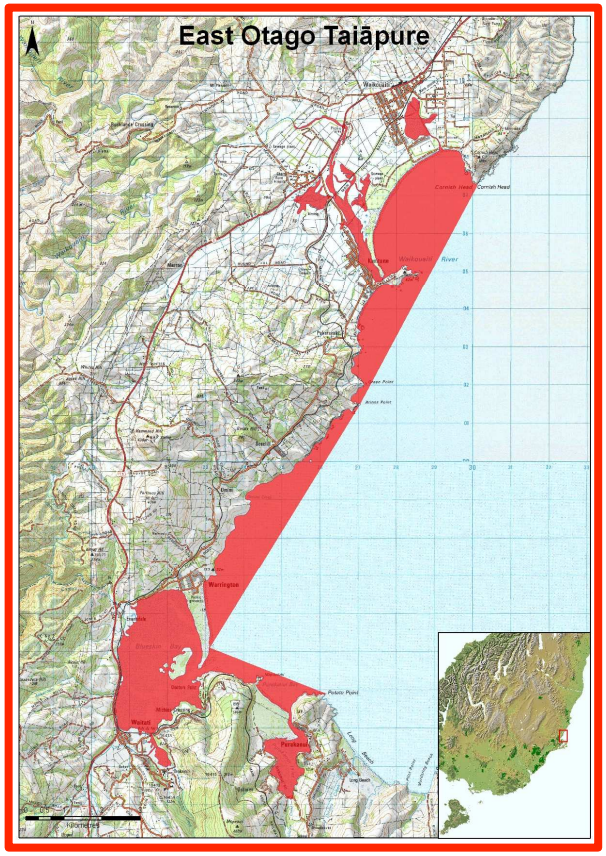
The photos in this report were taken by Louise Bennett-Jones, a current Masters student in the Marine Science Department.

**BUDGET SUMMARY**

| Category | Item | Description | Estimated Cost (CAD) | | Actual Cost (CAD) | Notes on actual costs |
|---|---|---|---|---|---|---|
| | | | Minimum Budget | Desirable Budget | | |
| Travel | Flights | Round-trip Victoria (British Columbia) to Dunedin (NZ) | 1800 | 1800 | 2420.22 | |
| | Work Visa | | 200 | 200 | 463.97 | Included round trip by ferry to Vancouver for visa medical and medical fee. |
| Researchers Living Expenses | Accommodation | Anticipated 6 month renting ($250/wk minimum, $350/wk desirable) | 6000 | 8400 | 5408.46 | $260/wk for 5.5 months |
| | Food | 6 months ($75/wk minimum, $100/wk desirable) | 1800 | 2400 | 1845.86 | |
| | Sundry (health insurance, commuting, communication) | 6 months at $50/wk. | 1200 | 1200 | 859.62 | Included health insurance, professional development (Maori language development), dive expenses, communication costs. |
| Research Expenses | Local Transport | Local travel to meetings, field visits. (5X minimum, 10X desirable rental car $100/day) | 500 | 1000 | 0 | Local transport was provided by project partners and colleagues. |
| **TOTAL** | | | 11500* | 15000 | 10998.13 | |

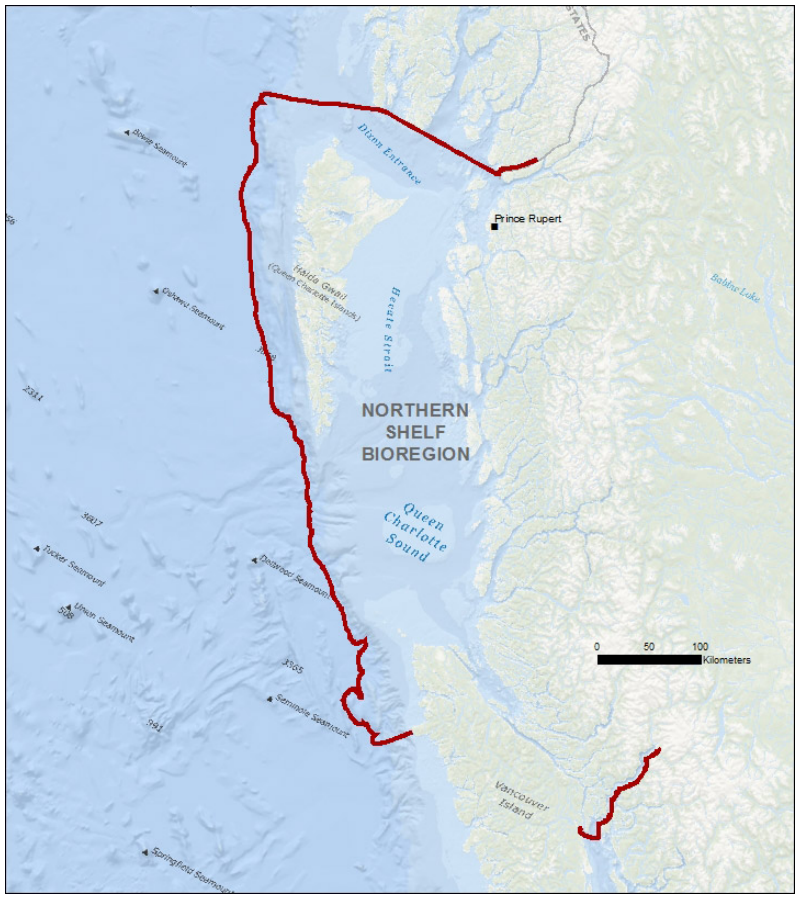
*Total grant awarded by RRT was $11 000.

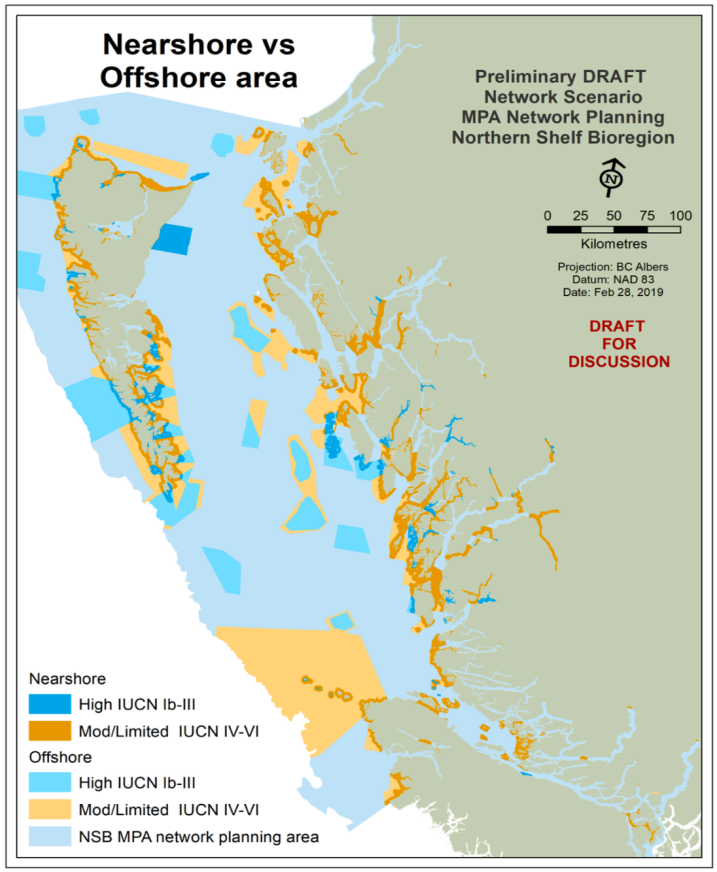
## Appendix 1. Regional Maps and MPA Network proposals.


**Left:** Map of proposed marine reserve network recommended by the South East Marine Protection Forum and which the government is currently reviewing and will consult on. The area of the East Otago Taiāpure has been indicated by the red box.
**Right:** Map of the East Otago Taiāpure.

Maps retrieved from the South-East Marine Protection Forum Recommendations to the Minister of Conservation and Minister of Fisheries (https://south-eastmarine.org.nz/), and from Kati Huirapa Runaka ki Puketeraki (http://www.puketeraki.nz/Environment/East+Otago+Taiapure+Management+Committee.html).




**Left:** The Northern Shelf Bioregion of British Columbia.
**Right:** A draft MPA network proposal for stakeholder consultation from February 2019. Proposed MPAs are coloured by potential IUCN protection level category.

Maps retrieved from the BC Northern Shelf MPA Network (https://mpanetwork.ca/bcnorthernshelf/), and from the Pacific Urchin Harvesters Association (https://puha.org/industry-info/).

**CITATIONS**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