Project Proposal Template

A. TITLE OF PROJECT

2.1.1 Development of valuation frameworks and principles

B. IDENTIFICATION

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C. ABSTRACT

There is growing recognition of the need to consider values in environmental decision-making, but little consensus as to how different values should be handled or how decision makers should compare activities that affecting different types of values. We will examine how statutory processes shape the way that values are expressed, documented and used in decision-making in order to identify opportunities for broadening the ways that values are considered. Existing methods for comparing values will be analysed to reveal their underlying assumptions and utility in the NZ marine context. From these, and with input from project 2.1.2 and other Challenge projects, we will develop a framework and principles that recognise multiple understandings of value and values and enable diverse perspectives to be heard and considered in decision-making for ecosystem based management. The framework and principles will be tested and refined in a cross-challenge case study in Tasman and Golden Bays.

D. INTRODUCTION

While our marine estate provides enormous quantities of natural resources, and supports a range of related economic sectors, marine environments also have significant social and spiritual value, being an integral part of the lifestyle, culture and identity of generations of New Zealanders.

Understanding the value of, and the values of New Zealanders about, our marine estate is important if we are to realise its full benefits and demonstrate wise stewardship[1,2]. Currently, we have no stocktake of our natural capital, nor a defined suite of values or indicators that fully capture the marine economy, let alone the more intangible values of the marine environment[3,4]. These are an essential component of *Valuable Seas*, and require

concepts of worth that extend beyond a narrow definition of economic benefits to a much deeper and richer economic, spiritual and cultural sense[5,6]. There is a perception that present governance and management systems fail to appropriately acknowledge and accommodate Māori and community concerns, views and values[7-9]. A framework that better accommodates a broad range of values (e.g. those to be documented in Project 2.1.2) will enhance our ability to prioritise management actions and to make decisions and choices[10,11].

In recent years, the concept of ecosystem services has been developed to assist with understanding some of the significant ways in which ecological systems and processes contribute to human wellbeing[12-14]. These concepts, while appealing, have yet to be operationalised for management purposes, and are the subject of on-going debate. Categories of value used in analysis of ecosystem services are simplifications of how people value things, and such categories are often not discrete. Cultural values are not distinct from social values; social values can overlap with environmental and economic values, etc. For example, depending on one's perspective, swimming can be seen as an environmental, social and/or cultural value, and swimming by tourists as an economic value[15]. Moreover, the concept of ecosystem services has increasingly been extended to providing an assessment of worth so that different values can be added and/or compared.

The categories used to define and analyse values are themselves value-laden and thus should be used with an awareness of their implications[16,17]. The simple act of defining categories and documenting values can privilege some uses and values over others and thus provoke conflict[18].

Economics provides several methods for assessing the monetary value of certain ecological processes, e.g. through the creation of hypothetical markets for ecological services or functions[19,20]. However, there have been numerous critiques of the economic approach to value[21,22]. Quite apart from the fundamental debate about the human utilitarian orientation of economics vs notions of intrinsic value[23], other issues have arisen from insights from human psychology. Value as perceived by someone is not always well-defined, stable and hence measurable, as most methods based in economics tend to assume. Rather, people construct value in context. That is, a person's expressed preferences for an ecosystem or aspects of a place depend not only on that person's past experiences but also on other current context-specific matters, such as how a question is asked and by whom[24,25]. Narrow conceptions of trade-offs are therefore often misguided – not only do they imply that values are fixed, they also overlook the fact that the act of measurement or even the likelihood of measurement can cause values to change. Furthermore, people often refuse to put a monetary value on things that are fundamental to their identity[26,27], e.g. salmon fishing for First Nations in North America's Pacific Northwest[28]. This suggests that care must be taken when using monetary value as a proxy for peoples' preferences, since people often would rather deliberate about 'what is right' in their case than assume that what is right equates with 'what is preferred' in economic terms.

Furthermore, values do not stand alone but can be strongly interrelated. For example, the value of healthy and abundant local fisheries to Maori can include the ability to exercise kaitiakitanga, the ability to share food and express manaakitangi, the ability to pass on mātauranga (knowledge and practices) to younger generations, the mana in being able to give local specialty foods to visitors, as well as the enjoyment of the food itself[9]. Methods that focus on comparisons or tradeoffs using economic value or ecosystem services would usually fail to recognise the interrelatedness of these cultural values.

The use of values in decisions about environmental management inevitably involves some consideration of the relative significance (or 'value') given to different aspects of the environment. Furthermore, it is generally the *change* in value arising from an intervention or change in use that is of interest, rather than the total value generated by an ecosystem or parcel of land. This is a fundamental consideration when documenting or using values for decision-making, whether one is measuring values quantitatively using techniques from economics, using a multi-criteria methodology, or describing values qualitatively[15]. Assessing changes in values can require different methods than assessing the value of the whole because, e.g., people often care about what is causing the change and whether due process has been followed[29]. This also means that decision makers cannot simply rely on using values previously measured and stored in a database in their decision making process. Furthermore, only some kinds of values involve change in response to human activities in ways that can be assessed for relative significance; normative values must be considered in a different way than quantifiable values. This more nuanced understanding of values and the interrelationships between people, institutions and the environment means that ecosystem based management requires a perspective on the entire socio-ecological system as an entity that is continually emerging.

E. AIM OF THE RESEARCH AND RELEVANCE TO OBJECTIVE

A framework is a process of organising information for a given purpose, in this case to inform decision-making about EBM in New Zealand's marine environment. This project will develop a framework to allow a range of values to be considered in making decisions about the marine environment, based on principles that reflect the complexity of values and valuation in New Zealand's unique context. It will allow for explicit consideration of how different values will be affected by different decisions and will foster connections between diverse and sometimes competing societal values, investment, management tools and the marine environment. The framework will offer a holistic and integrating approach that is applicable to species, ecosystems and to specific locations in the marine environment.

The framework and principles will be trialled in the Challenge case study area, in conjunction with other projects, and the lessons from this will be documented with clear recommendations for future practice. Success will be evident if the framework and principles are accepted as relevant and useful by both values-holders and decision-makers, as demonstrated in the case study.

F. PROPOSED RESEARCH

There has been recent recognition of the need to consider values in decision-making about the environment [30], yet practices to document and assess values and valuation remain strongly contested, in particular how values should be compared or "balanced" in decision-making.

Our research will develop a valuation framework and principles that consider the needs of three distinct groups: people whose values may be affected by decisions about marine resource use (i.e., industries, communities and society), researchers who are analysing how values are held, shared and changed by management decisions, and people who are using the values information for decision-making. Researchers, even those who concentrate on measuring biophysical aspects of ecosystems, may use such a framework and are thus stakeholders in valuation methodologies. They bring a diverse range of disciplinary paradigms to the problem of values and valuation. A central element of this project is

therefore to reveal these different paradigms and their underlying assumptions – to de-construct the old frameworks in order to re-construct a new one that is appropriate for use in New Zealand's marine environment.

The framework and principles must also be attentive to the perspectives of value-holders, giving voice to those with an interest in marine management, and be designed to assist decision-makers to choose management options that advance socially inclusive EBM. The framework and principles will therefore be the result of a dialogue between researchers, values-holders and decision-makers. This will be an important contribution to the international literature, especially given New Zealand's unique context – a sovereign partnership with an indigenous people recognised in a Treaty that is the nation's founding document.

Note this project is to develop a framework and principles, it is *not* documenting or estimating economic, social or other values. There are recognised methods for estimating the economic value of NZ's marine environment[15,31,32]. Social and cultural values will be documented by project 2.1.2 and ecosystem services will be measured and assessed in 2.1.3.

Workstream 1. Building upon work we have done in other contexts[15,16], we begin by recognising that values related to the marine environment are produced through human engagements with the environment over time. The first piece of work will therefore be a study of how values are defined and considered under the primary environmental statutes in New Zealand: the Conservation Act 1987, RMA 1991, Biosecurity Act 1993, Hazardous Substances and New Organisms Act 1996, Fisheries Act 1996, and Exclusive Economic Zone and Continental Shelf Act 2012. The study will be conducted in conjunction with project CP 1.1, which will do the document discovery and help to identify emerging themes. It will be based primarily on document analysis (e.g. the legislation itself, policy statements and plans, and decisions from council hearings or courts) but will also utilise a limited number (<10) of targeted interviews (e.g. with decision-makers, iwi and other values-holders, Environment Court judges).

To approach this task, we will analyse New Zealand legislation as 'value-articulating institutions', i.e. asking how statutory processes influence the ways that values are expressed, documented and used in decision-making[33]. For example, RMA and HSNO requirements for councils to consider costs and benefits of alternatives lead to framing of values in economic terms. The submission and hearings processes under these statutes provide an opportunity for alternative expressions of values but bounded by what is legally relevant. The review will then examine how these expressed values are used in decision-making, revealing in essence a valuation framework in a policy and political context. A peer-reviewed paper based on this study will be a new contribution to the international literature; the special attention that New Zealand legislation gives to the Treaty partnership with Māori will heighten interest in our work.

Workstream 2. With the findings from this study by late 2016, we will hold two workshops with researchers to develop a valuation framework and principles. These workshops will consider what frameworks and methods are available to define and compare tangible and intangible values, including those that are priced in economic markets and those that are not. Participants will include Challenge programme leaders as well as researchers from 2.1.2 (led by Shaun Awatere), 2.1.3 (Drew Lohrer), 2.2.1 (Nick Lewis), 3.1.1 (yet to be named) and CP1.1 (Alison Greenaway).

With the help of a professional facilitator and expert collaborators from overseas, the first workshop will consider early findings from project 2.1.2 and identify the paradigms and assumptions that underpin different frameworks and methodologies – deconstructing existing approaches in order to identify how each frames and influences how values (including non-negotiables, priorities and linked values) are communicated to decision-makers and others. Frameworks to be considered include ecosystem services, total economic value[20], multi-criteria approaches[34], tikanga Māori e.g. an Atua Kaitikai model[35], a cultural values model[36], collaborative planning and negotiation[37], as well as other frameworks that could emerge from early work in projects 2.1.2 and 2.1.3.

The second workshop will reconstruct a new approach, using results from project 2.1.2 analyses of gender, cultural and locational similarities and differences in held values and their role in decisions. E.g. a set of principles would provide normative and analytical guidance for practitioners to choose and apply methods in particular contexts. We will also work with 2.1.2 and 2.1.3 to consider whether network analysis can provide insights into how values and values-holders are related to each other[38], and which values may be linked in the view of the value-holders.

Workshop design will incorporate relevant insights from literature on working with difference[39], social innovation labs[40] and facilitation methods[41].

The result will be a tentative framework, principles and methods to test and refine with the other key users of the framework: values-holders and decision-makers.

Workstream 3. Finally, from 2017 to early 2019, we will participate with other Sustainable Seas projects in Cross-Challenge Programme 2.1 Trialling Ecosystem Based Management, which will trial the use of our valuation framework and principles. We envisage informing stakeholders of assumptions behind the framework and demonstrating its use in a management scenario proposed by stakeholders. At present we suggest this will be done in two workshops, in hui held in conjunction with 2.1.2, and through a presentation and discussion at the Challenge's annual meeting with end users. However, as this section of work will be closely linked to other projects, the exact nature of the workshops and stakeholder discussions will be developed in conjunction with the other Challenge projects.

The intended result by 2019 is refinement of the valuation framework and principles and an improved understanding of the process of valuation to support the implementation of EBM.

For Phase 2 of the Challenge, we propose a deeper case study using action research methods and involving more substantial original data collection. Conducting the case study as part of consideration of realistic development scenarios for the marine environment is a necessary step in making the valuation framework and principles more robust, as it needs to be tested "under fire" to reveal where it requires further refinement.

G. ROLES, RESOURCES

Jim Sinner (Cawthron Institute) will provide overall leadership for the project, overseeing the review in the first year, the workshops in the second year and the case study in the third year, as well as analysis and preparation of papers and other outputs.

Annabelle Giorgetti (Enveco) also has an economics background, and will contribute her practitioner's experience with economic valuation techniques, multi-criteria analysis and related methods and the situations in which it is appropriate to use these.

Charlotte Šunde (University of Auckland) has expertise in the relationships between cultural values, knowledge systems and environmental management. She will assist the project leader with the study of statutory and institutional framing of values in environmental decision-making and with planning and implementation of the workshops and case study.

Janet Stephenson (University of Otago) brings expertise in alternative frameworks for understanding cultural values, and in how landscape and other cultural values are affected by major developments.

Bruce Glavovic (Massey University) will contribute a governance perspective, helping us to understand the needs of decision-makers, and provide a link to project CP 1.1. His primary contribution will be in the workshops, helping to deconstruct existing frameworks and reconstruct a new one.

Marc Tadaki (Univ of British Columbia) is a New Zealand PhD student working with Jim Sinner in a freshwater research programme Values Monitoring and Outcomes. Marc brings a critical theoretic perspective to the topic of values and valuation and will help us to deconstruct existing paradigms and frameworks and consider how to reconstruct a new one.

Shaun Awatere (Landcare Research), leader of project 2.1.2, will link the two projects so that Māori perspectives on values and valuation can be appropriately recognised in a new framework and principles. This will include helping to organise one or more hui to contribute to both projects.

H. LINKAGES AND DEPENDENCIES

This project will maintain close linkages with other related Challenge projects, especially 2.1.2 (Mauri Moana, Mauri Tangāta, Mauri Ora – Documenting social values) and 2.1.3 (Measuring ecosystem services and assessing impacts). To facilitate this linkage, the project leader of 2.1.2 will participate in all 2.1.1 project meetings, and the project leader will also maintain close contact with the leaders of projects 2.1.3, 2.2.1 (Creating value from a blue economy), CP 1.1 (EBM within NZ's existing legislative framework) and CP 2.1 (Trialling EBM in the Challenge's case study area).

L. VISION MĀTAURANGA (VM)

The framework and principles developed in this project will need to provide an appropriate way to represent Māori cultural values and aspirations related to marine environments. This is central to achieving the Challenge mission of enabling EBM and, with other steps, to recognise the partnership principles of the Treaty of Waitangi.

To achieve this, the project leader of 2.1.2 (Mauri Moana, Mauri Ora, Mauri Tangata – Documenting social values) will participate in research team meetings for this project. With 2.1.2, we will identify principles for how Māori knowledge will be represented, utilised, and protected in valuation frameworks, and implications for Māori involvement in decision-making processes.

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