

## Innovation Fund Research Proposal Template

### A. PROJECT TITLE

**Navigating the implementation impasse: enabling interagency collaboration on cumulative effects**

### B. PROJECT TEAM

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### C. ABSTRACT

This research proposes that current institutional arrangements in New Zealand do not facilitate the collaborative efforts needed to address cumulative effects in coastal and marine environments. We contend that this sets up New Zealand to fail at both long term protection and long term investment in our valuable seas, and inhibits the development of a satisfactory approach to ecosystem-based management. This proposal has been developed based on findings arising from collaborative, co-produced research undertaken by Our Seas Project 1.2.2 (Navigating marine social-ecological systems). Project 1.2.2 identified a clear need for collective thought and action across institutional boundaries on the topic of cumulative effects. There are many difficulties and challenges to overcome in order to account for the effects of multiple stressors acting over time and space (cumulative effects) on coastal and marine areas. For example, cumulative effects are understood in different ways under a range of different regulatory regimes, and there is no common vision across institutions that can focus collective actions to address cumulative effects. This research aims to develop a supported, structured pathway for interagency collaboration and co-design of approaches that will address cumulative effects in New Zealand's coastal and marine environments. These steps will help protect the long term health of our seas; provide industries with the confidence to invest in sustainable resource use; establish a framework through which interest groups can have input in decision making; and facilitate the role of Treaty partners as kaitiaki.

## D. RELEVANCE TO CHALLENGE OBJECTIVE

Coastal and marine management in New Zealand is covered by 25 statutes governing 14 agencies across seven spatial jurisdictions. The environmental concerns highlighted in the recent MfE marine domain report [1] demonstrate that this fragmented approach does not provide a framework that ensures long term protection and investment in our valuable seas. Current approaches are limited in their ability to account for the effects of multiple stressors acting over time and space. This allows slippage in baselines that could lead to a loss of resources, and creates uncertainty for investors which may cause them to forgo investment in sustainable development. This research will contribute to the Challenge objective by supporting the development of a framework that will enhance New Zealand's ability to manage for cumulative effects, while also contributing to the creation and application of knowledge about cumulative effects that supports sustainability, long term investment, Indigenous Innovation, Taiao and Mātauranga.

## E. INTRODUCTION

Cumulative effects in coastal and marine environments increase the risk of environmental, economic or social collapse because combined and emerging effects of new and existing marine industries, climate change and other stressors are not accounted for in the determination of environmental capacity and resilience [2-7]. Ecosystem-based management (EBM) and the development of tools that translate complex social-ecological processes into dynamic, adaptable management strategies, are needed to avoid these pitfalls [8]. Previous work on cumulative effects (CE) has highlighted disconnects between how CE are interpreted and assessed by science, funding, and management agencies [9, 10], but largely missed how investors interpret CE. Diverse social values [11], competing interests and power struggles [12], and capacity issues [13] also contribute to a daunting implementation puzzle. These pivotal challenges of institutional and behavioural change must be addressed if we are to tackle CE in coastal and marine environments.

This proposal has been developed based on findings arising from collaborative research, co-produced with multiple management institutions and conducted in Our Seas Project 1.2.2 (Navigating marine social-ecological systems). Project 1.2.2 identified a need for collective thought and action across institutional boundaries on the topic of CE. Participants at two workshops held in August and October 2016 indicated that management and governance responses to CE require:

- 1) Ongoing collaborative efforts across agencies, institutions, interests and industries;
- 2) The development of a long-term shared vision for how to address CE in New Zealand's coasts and oceans; and
- 3) The creation of a suite of national-scale standards or regulations [14-16].

These actions were supported by participants from a wide range of backgrounds that included central and regional government, Treaty partners, environmental advocates and industry representatives.

This research will support the development of an interagency policy and action framework that will enhance New Zealand's ability to manage for CE, while also contributing to the creation and application of knowledge about CE that supports sustainability, long term investment, Indigenous Innovation, Taiao and Mātauranga. The work will be underpinned by the principles of the Treaty of Waitangi, particularly with regard to partnership and rangatiratanga. As such, Māori interests, values, and mātauranga will be acknowledged and respected. The role of co-governance and co-management arrangements between Treaty partners and the Crown is still emerging; but these arrangements have the potential to make a lasting impact on how CE are understood and managed in Aotearoa New Zealand and around the world. Opportunities to address CE will arise because of Treaty settlements and the increasing utilisation of undeveloped Māori resources to grow the economy for the benefit of all New Zealanders.

The Sustainable Seas National Science Challenge is uniquely positioned to provide leadership and a platform from which collaborative actions may be taken to address CE [17]. In particular, the development of a structured pathway for interagency collaboration on CE, the creation and application of collective knowledge about CE, and the co-design of clearly defined and bounded advice on how to address CE in coastal and marine environments will underpin successful implementation of EBM [18, 19].

## F. AIMS

This research aims to:

- 1) Develop a supported, structured pathway for interagency collaboration and co-design of approaches that will address cumulative effects in coastal and marine environments at the national scale (territorial sea, exclusive economic zone and continental shelf);
- 2) Develop an understanding of alignments and potential conflicts that result from past and present handling of cumulative effects under a range of regulatory regimes (e.g. problem definition, processes, tools, case studies, case law);
- 3) Develop a shared interagency, iwi and stakeholder vision for how cumulative effects could be addressed under best management scenarios; and
- 4) Develop a collaborative interagency supported draft of best practice guidelines on the topic of management and governance of cumulative effects in coastal and marine environments.

These aims represent logical next steps in the development of long-term, cross-domain, collaborative approaches to addressing CE at the National level in New Zealand. The achievement of these aims could inform further work that central and regional government representatives, Treaty partners, environmental advocates and industry representatives have indicated an interest in pursuing; for example, the development of a National Policy Statement, or the establishment of an official working group on coasts and oceans [14-16].

## G. PROPOSED RESEARCH

The proposed research will address complex problems associated with the management of CE in coastal and marine environments. To achieve this, research partners and participants will work across disciplines, regulatory regimes, cultures and comfort zones to grapple with a range of problem perceptions and possible solutions associated with CE management [20]. We will seek to establish relationships between different actors, values, and ways of knowing that will provide novel insights into CE management options that could not have been developed by any one of the research partner agencies acting alone [21]. This work has already begun with the collaborative definition of the research problem during Project 1.2.2 and the co-design of this research proposal; it will continue through to the analysis and dissemination of research findings at the conclusion of this research [22]. The proposed research takes a pragmatic approach to problem definition and resolution [23], and will therefore draw from both quantitative and qualitative methodologies as needed to achieve research milestones and outputs [24].

Over the course of this project, we will develop mutually respectful and beneficial research relationships among research partners and additional research participants through the process of sharing views, expectations, and experiences of co-designing and co-producing research [25-28]. Research partners include representatives from MfE, DOC, MPI, EPA, MFAT, Te Ohu Kai Moana and the C-SIG. An additional partner at Te Puni Kōkiri (TPK), or another partner with a strong Māori worldview in regards to ki uta ki ta (mountains to the sea) and policy development experience is currently being sought. Partners have expressed an interest in being involved in further work around CE following workshops undertaken during Project 1.2.2. Additional research participants are likely to

include industry representatives from both land and sea based industries including agriculture, forestry, mining, oil and gas, aquaculture, and fisheries; environmental interest groups such as WWF, EDS, and Forest and Bird; and other local interest groups such as recreational organisations are also likely to be invited to participate in the research.

The inclusion of representatives from this diverse range of organisations in this research will expand the project horizons beyond coastal and marine areas to include and align with more holistic perspectives such as “mountains to the sea” approaches [29]. This is a critical addition to any research that is considering CE, as it will enable the inclusion of land-based drivers in planning approaches, not just monitoring the impacts after they have already occurred. Particular care will be taken to include the perspectives of Treaty partners, whose role as co-managers of natural resources is still emerging, but who will clearly play a crucial role in the long term success of any CE arrangements [30]. Transdisciplinary research methods, such as those described above, engage a diverse range of stakeholders and knowledge cultures and are therefore likely to foster the adaptive governance and EBM approaches that are at the heart of the work promoted by the Sustainable Seas National Science Challenge [31]. Where possible and appropriate, cross-programme project 2.1 will be utilised as a proof of concept case study to help us understand processes related to CE in a specific location and within which we can refine the procedures and best practice guidelines (see also section I Linkages and Dependencies).

This research will proceed in the following key phases:

1) Scoping and liaison with research partners

We will convene the research partners for an initial meeting, clarify the focal research question(s), how the work will proceed (including the possibility of adding research partners and/or participants), and outline a series of information requests for partners to respond to as capacity allows. Likely focus question(s) could include:

- How can we develop institutional arrangements in Aotearoa New Zealand that can address cumulative effects in coastal and marine environments?
- How can we address cumulative effects in such a way that we enable both long term protection and long term investment in our valuable seas?
- How can we enable collective thought and action across institutional boundaries, industry impact assessments, Taiao, and Mātauranga on the topic of cumulative effects?
- How can SSNSC best support the development of an interagency policy and action framework that will enhance NZ’s ability to manage for CE?
- A sub-question is likely to be around the role of traditional and scientific knowledge in assessing CE and defining the stages at which this information is required.

Information requested will include an outline of all relevant interests, legislation that they utilise in their work, and suggestions of relevant case law or case studies to review. Initially, this information will be used to briefly record past and present handling of CE under a range of regulatory regimes (e.g. problem definition, processes, tools, case studies, case law), with a focus on understanding alignments and potential conflicts.

2) Preliminary report on cumulative effects

Scientific information (and theory) on risks and responses related to both multiple stressors and CE needs to underlie CE assessments. Understanding the type of scientific information and the degree of certainty that can be provided by science is necessary to ensure that we do not end up either:

considering factors that cannot generate CE; or developing procedures and guidelines that do not allow scientific input at appropriate stages. To help establish this context, at the first meeting of the research partners we will agree upon a scientific definition of CE. Guided by input from project ecologists, who have expertise in CE across a range of organisms and activities, this definition will include effects from both single and multiple stressors acting in multiple times and places. Then, in the first phase of the research, we will conduct a review of CE that will include input from ecologists and fisheries scientists, who will be asked to contribute research that they think is relevant to the topic, and to contribute to writing and reviewing the resulting summary document. These researchers will subsequently be asked to attend focus group and workshop discussions that aim to develop our collective understanding of CE in NZ and identify barriers to addressing CE in a cohesive manner.

We will also conduct a desktop exercise to collate and compile international information and case studies, which will be developed into a preliminary report on CE management and governance in New Zealand and other jurisdictions. This report will serve as a prompt for focus group discussions and as a supporting document for the development of a set of best practice guidelines for management and governance of CE in coastal and marine environments. Catherine Iorns Magallanes (Victoria University), who has been leading research on the legal treatment of risk and caution, and thus also touching on cumulative effects in Cross Programme Project 1.1, will advise on this element of the project to ensure that this work builds on, rather than repeats, her seminal work. This phase of the research will also leverage off of the review conducted in Tangaroa Project 3.1.1.

### 3) Focus groups with partners and participants

This phase of the research will expand the work beyond the initial research partners to include a wider range of participants. Using the preliminary CE report as a prompt, we will hold a series of focus group interviews with key agencies and additional iwi and stakeholder groups (e.g. marine and land-based industries, environmental interest groups, iwi representatives) to identify how different agencies and organisations believe CE should and could be addressed. The focus groups will be conducted in a manner that will support the development of long-term mutually beneficial relationships among research partners and participants [32]. In the analysis of the focus group data (point 5 below) we will aim to identify areas of agreement and areas of potential conflict across different participant groups that will need to be negotiated in more depth as the research progresses. We will also adapt the CE report based on partner and participant feedback. To ensure that this work incorporates the biophysical realities of CE, Drs Lundquist and Hewitt will be involved.

### 4) Development of shared vision and best practice guidelines

We will organise a collaborative workshop with all research partners and participants to develop a shared vision for how CE could be addressed under best management scenarios. Workshop input will be analysed (point 5 below) and used in combination with the initial CE report to develop a draft suite of best practice guidelines to address CE in coastal and marine environments. This draft will be workshopped with research partners at a face-to-face meeting, adapted, tested with previous focus group and workshop participants, and adapted again. This inclusive and iterative process will ensure that all research partners and participants are comfortable that their interests have been represented and their concerns heard prior to a final draft being released by the SSNSC.

### 5) Analysis

Analysis of data will be ongoing throughout this project, with intensive periods after focus groups and workshops. Analysis will primarily involve coding and whole-text analysis [33] in the constructivist grounded theory tradition [34], which emphasizes that research is an iterative process

through which the researcher becomes increasingly knowledgeable about the data as the research progresses [35]. Grounded theorists identify categories and concepts which emerge from data and which can be linked to existing theories using coding [36]. Constructivist grounded theory encourages researchers to develop themes for use in the analysis and evaluation of data, but also allows for the emergence of new and unexpected themes as the data analysis and evaluation unfolds [34]. This approach will be applied to data such as existing legislation, reports, guidance notes, published papers, and researcher notes and other data collected from interviews, focus groups, and workshops, to develop common themes across these diverse data sources. This analysis will enable the researchers to develop a theoretical framework, grounded in the literature and data, which will foster an improved understanding of the alignments and potential conflicts that result from past and present handling of CE under a range of regulatory regimes. This process will also help to identify shared elements of an interagency, iwi and stakeholder vision for how CE could be addressed. These elements are key to the development of a collaborative interagency supported draft of best practice guidelines for addressing CE in coastal and marine environments. QSR International NVivo 11 computer software will be utilized to facilitate the coding and analysis of the data.

#### 6) Dissemination

The dissemination of research documents and findings will occur as the project progresses. Partners will provide feedback on the best avenues for output reporting to generate impact within their institutions. We will also work closely with the SSNSC communication leader to disseminate findings to more public venues. A public launch of the best practice guidelines will be planned to coincide with a large conference or event such as the NZ Marine Sciences Conference or the SSNSC Annual Meeting.

#### 7) Implementation

We have developed a programme logic framework for this research to illustrate the impacts and outcomes that we aim to achieve in both the short and long term. This framework also highlights the activities that we aim to undertake and relationships that we aim to foster along the way. This tool provides a simple structure to link what we plan to do with what we plan to change.

**Table 1: Programme Logic Framework**

<b>Aims, Activities and Outputs</b> (Linked to milestones - see section N. OUTPUTS AND TIMETABLE)	<b>Outcomes</b> (What will success look like?)	
	<b>Short term (1-3 years post project)</b>	<b>Medium to long term (4-10 years post project)</b>
Develop procedures that support interagency collaboration and co-design on approaches to address CE (e.g. establish a collectively agreed upon focus question for the inquiry, discuss partner responses to collective learning questions 1-4, identify additional partners and/or participants for involvement in research).	Establishment of a formal, interagency supported working group on CE.	Establishment of an Ocean Management Agency.
Develop a collective understanding of alignments and potential conflicts that result from past and present handling of cumulative effects under a	Report on CE management and governance is cited	Updated report on CE management and governance is

range of regulatory regimes (e.g. work with research partners and other relevant agencies to collate and compile information and case studies related to cumulative effects, produce a report).	by a diverse range of stakeholders in their strategies and plans related to coastal and marine areas.	compiled by interagency working group/Ocean Management Agency, indicating continued commitment to and relevance of document.
Develop a shared interagency, iwi and stakeholder vision for how cumulative effects could be addressed under best management scenarios (e.g. focus groups and workshops to review, comment on, and adapt CE report).	The shared vision for addressing CE is cited by decision makers and practitioners involved in coastal and marine planning processes.	The shared vision for addressing CE is unchanged by passing political cycles and underpins coastal and marine decision making.
Develop a collaborative interagency supported suite of best practice guidelines on the topic of management and governance of cumulative effects in coastal and marine environments (e.g. focus groups and workshops to review, comment on, adapt, and produce best practice guidelines).	Best practice guidelines are formally adopted by a diverse range of stakeholders in their strategies and plans related to coastal and marine areas.	A National Policy Statement on CE is implemented to provide cohesive guidance on the management and governance of CE.

There are two other important points to implementation. One is the number of partners from policy related agencies that we have in this project, who have agreed to be involved because they are committed to the collaborative development of guidelines and methods, rather than this project, or any single organisation or entity, trying to impose something from the outside. Secondly, we consider that SSNSC also provides a pathway for implementation, within its case studies (such as CP 2.1) and by providing analytical tools that will support the best practice guidelines.

The work undertaken in this research will lead to a collective interagency understanding [e.g. 37] of how cumulative effects in coastal and marine environments are currently addressed under a range of different regulatory regimes, and how they could be addressed under best management scenarios. This information can be used to support the implementation of EBM.

#### H. RESEARCH ROLES

Researcher	Organisation	Contribution
Kate Davies	NIWA	Dr Davies is a Social Scientist at NIWA with expertise and experience conducting interdisciplinary and transdisciplinary research. She will provide overall leadership on this research project and takes primary responsibility for the written components. Kate has worked closely with Dr Fisher on Project 1.2.2, leading the work on cumulative effects that has catalysed this project, including the preparation of the workshop summary documents and the conference

		proceedings manuscript relating to cumulative effects.
Karen Fisher	University of Auckland	Dr Fisher is a Human Geographer with extensive experience in qualitative and transdisciplinary environmental research. She is the Project Leader for 1.2.2, which led the work that catalysed this project. She will work closely with Dr Davies in all aspects of this research.
Gemma Couzens	Ministry for the Environment	Gemma Couzens is a Senior Analyst in the Mana Moana team in the Ministry for the Environment. She is leading the Ministry's response to the marine domain report which highlights some of the issues around protection and management of the marine environment. Gemma has experience developing and assessing environmental impacts where consideration of cumulative effects is a statutory requirement. She has contributed to the development of this research (e.g. co-design of October 2016 workshop in 1.2.2) and will continue to work closely with Drs Davies and Fisher to conduct research activities and bring in other relevant personnel from MfE and central agencies as required.
<b>Advisor</b>	<b>Organisation</b>	<b>Contribution</b>
Harry Mikaere	HHR Mikaere Ltd	Harry Mikaere (Ngati Pukenga, Ngati Maru, Ngati Kahungungu) brings his 40 years of experience working in the practical, technical and policy aspects of the fishing industry to the project. He has worked on commercial best practice and governance, as well as strategic, structural and financial planning. He has served as a skillful negotiator, mediator, and collaborator on many boards, businesses, and programmes related to aquaculture and fisheries.
Carolyn Lundquist	NIWA/UoA	Dr Lundquist is a Principal Scientist in Marine Ecology with extensive experience in transdisciplinary research. As the leader of the Our Seas Programme, she provides important linkages with the three projects in this programme. She also leads a decision making tools project in Managed Seas and is an ecological researcher on the Tipping Points project in Dynamic Seas.
Judi Hewitt	NIWA	Dr Hewitt is the leader of the Valuable Seas team and a researcher on the Tipping Points project. She is a statistical marine ecologist who has worked extensively in estuarine and coastal systems and has worked on projects assessing cumulative effects on ecosystem health.
Catherine Iorns Magallanes	Victoria University	Catherine Iorns Magallanes is a Reader in the School of Law at Victoria University. Some of her

		relevant areas of research interest include environmental, human rights, Treaty of Waitangi, comparative indigenous legal issues, and international law. She provides important linkages to Cross Programme Project 1.1, where she has been working on how law handles risk and caution and thus also cumulative effects.
Research Assistant	UoA/NIWA	A research assistant will be needed to assist with the operational elements of this project.
<b>Partner</b>	<b>Organisation</b>	<b>Contribution</b>
Kath Blakemore	DOC	Kath Blakemore is the acting Marine Ecosystems Team Manager at DOC. She will provide strategic guidance on the direction, development, and deployment of this research programme from a DOC perspective, and serve as the key linkage to DOC for this project.
June Cahill	EPA	June Cahill works in the EEZ consenting team at the EPA. She will provide strategic guidance on the direction, development, and deployment of this research programme from an EPA perspective, and serve as the key linkage to EPA for this project.
Craig Lawson	Te Ohu Kaimoana	Craig Lawson is the General Manager - Policy & Operations at Te Ohu Kaimoana. He will provide strategic guidance on the direction, development, and deployment of this research programme from the perspective of Māori interests in the marine environment, and serve as the key linkage to Te Ohu Kaimoana for this project.
Mary Livingston	MPI	Mary Livingston works in the Fisheries Science team at MPI. She will provide strategic guidance on the direction, development, and deployment of this research programme from an MPI fisheries science perspective, and serve as a key linkage to MPI for this project.
Luke Roughton	MFAT	Luke Roughton is a Foreign Policy Officer in the Environment Division working on international oceans issues (MFAT). He will provide strategic guidance on the direction, development, and deployment of this research programme from a MFAT perspective, and serve as the key linkage to MFAT for this project.
Megan Oliver	WRC	Megan Oliver has recently been appointed the C-SIG Convenor and is a Senior Environmental Scientist at Wellington Regional Council. Once confirmed as the appropriate partner to work on this project, she or someone that she appoints within the C-SIG, will provide strategic guidance on the direction, development, and deployment of this research programme from a Regional Council

		perspective, and serve as the key linkage to Regional Councils around NZ for this project.
Anne Wietheger	MPI	Anne Wietheger works in Fisheries and Aquaculture Sector Policy at MPI. She will provide strategic guidance on the direction, development, and deployment of this research programme from an MPI marine policy perspective, and serve as a key linkage to MPI for this project.

## I. LINKAGES AND DEPENDENCIES

This project provides an opportunity to progress a research and action agenda outlined by representatives from central and regional government, Treaty partners, environmental advocates and industry at workshops held by Our Seas Project 1.2.2 (Navigating marine social-ecological systems). Participants indicated a clear need for the development of supported, structured pathways that enable interagency collaboration and co-design of ways to address cumulative effects. This project will also benefit from and extend work in Project 1.2.2 on trust in collaborative science. The lessons learned from that research regarding how best to conduct a collaborative, co-designed, co-produced research project will be applied to this project whenever possible.

In addition to building on existing linkages within Our Seas, this project will also extend Project 1.2.2 linkages with current and future Sustainable Seas research projects that are relevant to cumulative effects. We anticipate minor roles for SLT members, relevant project leads, and other Challenge project team members as needed to maintain linkages across projects and maximise impact across the Challenge.

### *Valuable Seas Project 2.2.1 (Blue economy)*

This research will connect with Project 2.2.1 to provide insights into how to engage seriously with Māori economies within a structure that acknowledges the complexities associated with investment, governance, ecology, and social values. Any analytical tools that are developed in Project 2.2.1 to assess these complexities could potentially be tested in this research with a wide range of stakeholder and iwi users.

### *Tangaroa Project 3.1.1 (Kaitiakitanga in the marine environment)*

The findings of Project 3.1.1 will be extremely applicable for the early stages of this research, in which we will seek to understand how CE in coastal and marine environments have previously been and are currently addressed under a range of regulatory regimes. The inclusion of mātauranga Māori in CE assessments is likely to provide insights into how historical changes in the natural environment and the relationships between humans and their environment may have implications for our management of CE, and also how the physical effects of different activities impact on more than just the biophysical environment.

### *Dynamic Seas Project 4.2.1 (Tipping points)*

This research provides an avenue for the work in Project 4.2.1 to link directly to the development of best practice guidelines on CE in coastal and marine areas. Judi Hewitt and Carolyn Lundquist are both team members of Project 4.2.1, ensuring that the thinking and learnings derived from Project 4.2.1 are connected to the guidelines developed by this research.

### *Cross-Challenge Projects 1.1, 1.2 and 2.1 (EBM)*

The first cross-Challenge project on how our current legislation might support EBM will provide a crucial starting place for the early stages of this research, in which we will delve into more specifically

how CE in coastal and marine environments have previously been and are currently addressed under a range of regulatory regimes, including overseas examples. To ensure that this research is extending the previous work but not repeating it, Catherine Iorns Magallanes will advise this project on the gaps related to the precautionary principle and cumulative effects.

Members of this project team (Judi Hewitt and Carolyn Lundquist) are also either leading, or team members of, the CP 2.1 and 1.2 projects and will advise on potential alignments, overlaps, or gaps in research agendas and plans as needed. We feel that this project will be integral to CP 1.2, providing information on policy barriers and requirements specifically related to CE implementation. We also believe that CP 2.1 will be integral to our project, offering a specific case study from which we can understand processes related to CE in a specific location and within which we can refine the procedures and best practice guidelines that we develop (see section N Outputs and Timetable).

## J. RISK AND MITIGATION

The focus of this project is on collaboration, including the co-design and co-production of research related to cumulative effects in coastal and marine environments. The fundamental risk to the project is therefore failure to secure collaboration from all key research partners. We have mitigated this risk through the application of a pragmatic and transdisciplinary research methodology, which emphasises that the research is a partnership that will enable mutual benefits for all partners and create multiple ways for partners to participate in the research depending on their capacity. In particular, this project has arisen out of needs identified by the partners themselves, and their desire to engage further with the Challenge on the topic of cumulative effects. Partners have all expressed support for the project, and have agreed to provide in-kind contributions of staff time, expertise, and access to networks.

In keeping with an adaptive and partner-focused approach, we have had preliminary discussions, meetings, and provided opportunities for feedback on draft documents to all named research partners. To ensure transparency and enable multiple pathways of input on research strategy, we will provide meeting minutes and research document drafts for comment to all partners, as well as for wider dissemination as they see fit, throughout the programme of research. Through the process of identifying partners we have also identified a wider network of supportive and interested parties who will be kept informed of the research progress and may be able to assist with redistributing the work load if any of the current partners become over-burdened.

Finally, due to the collaborative nature of research and the potentially challenging or controversial nature of some of the topics discussed, it is possible that tensions among partners and other research participants may arise. This potential problem will be addressed through the use of carefully structured processes that stage interactions, and facilitation methods that give all parties equal opportunity to be heard and do not privilege any single contributor.

## K. ALIGNED FUNDING AND CO-FUNDING

This research will leverage existing, previously completed and in-stream work from Our Seas Project 1.2.2 to maximize resources. In addition to this work, the following partners have provided input into the development of this research proposal and agreed to provide in-kind contributions of staff time as an indication of their intention to be involved in the research as capacity allows:

Kath Blakemore, DOC  
June Cahill, EPA  
Craig Lawson, Te Ohu Kai Moana  
Mary Livingston, MPI  
Luke Roughton, MFAT

Megan Oliver, WRC (C-SIG) - *To Be Confirmed*  
Anne Wietheger, MPI

Wherever possible and appropriate, partners will provide strategic guidance on the direction, development, and deployment of this research programme. They will also serve as the key linkages to their institutions, creating a two-way information sharing network, bringing in other relevant personnel as needed, and garnering support for the research as appropriate. It is expected that partners will commit between 20-40 hours of work annually for attendance at meetings, focus groups and workshops, as well as occasional email or phone correspondence and document review. Partner travel and accommodation will be covered by this project, as needed, to ensure that all partners can participate in occasional face-to-face meetings, focus groups and workshops.

In particular, Gemma Couzens, a Senior Analyst in the Mana Moana team in the Ministry for the Environment, previously on secondment from the Environmental Protection Authority, has provided critical input into the development of this proposal and will be a key contributor to this research. Her time on the project (up to 100 hours annually) will be co-funded by MfE.

#### L. VISION MĀTAURANGA (VM)

This research will consider the role of tangata whenua as Treaty partners who are co-managers, quota holders, and kaitiaki of coastal and marine areas. Harry Mikaere is a key advisor on Project 1.2.2 and on this project; ensuring that linkages to industries such as aquaculture, Māori cultural values, and mātauranga are maintained. The research team has also initiated discussions and gained support from a representative of Te Ohu Kai Moana; this partner will bring invaluable experience in business, innovation and policy development relevant to iwi and the wider Māori community. An additional partner at TPK, or another partner with a strong Māori worldview in regards to ki uta ki ta (mountains to the sea) and policy development experience is currently being sought. Participation from iwi boards will be invited as the research progresses. Particular care will be taken to ensure that iwi partners are included in ways that are meaningful, appropriate and mutually beneficial.

This research will contribute to the creation and application of knowledge about CE that supports the Vision Mātauranga themes of Indigenous Innovation, Taiao and Mātauranga. The research will support Indigenous Innovation by creating pathways for resource management that consider increasing utilisation of largely undeveloped Māori resources within a framework that addresses CE. The Taiao theme will interact with these efforts, as the research will be driven by a ki uta ki ta approach to CE. Finally, the work will contribute to our understanding and appreciation of matauranga Māori, and how place-based and intergenerational conceptions of environmental change are needed to address CE. The inclusion of mātauranga Māori in CE assessments can provide insights into how the physical effects of different activities impact on more than just the biophysical environment.

#### M. CONSENTS AND APPROVAL

This project will require ethical approval prior to conducting any interviews, focus groups or workshops with key partners or participants. We will apply for approval through NIWA's Human Research Ethics Process as soon as the project commences; the timeframe for application approval is typically 2-4 weeks. The research team has experience obtaining ethical approval and will ensure that all ethical issues are considered and accommodated for in the application to avoid unnecessary delays wherever possible. No marine consents are required for this research.

#### N. REFERENCES

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