

Sustainable Seas Synthesis Plan

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1. Introduction

This document lays out the plan for the final synthesis phase of the Sustainable Seas National Science Challenge. Its purpose is to describe the aims and nature of synthesis research, and outline the approach to its implementation, including a proposed portfolio of work and synthesis activities for the first stage. The plan serves as a mechanism for implementing synthesis in an efficient and impactful manner, and as a communication tool for those participating in synthesis activities. As a result, it assumes the reader has a good understanding of Challenge research.

Synthesis builds on the research undertaken in Phases I and II, and its approach to identifying and undertaking the work recognises the Challenge vision – ***New Zealand has healthy marine ecosystems providing value for every New Zealander***. This is set in a uniquely Aotearoa New Zealand context and places the moana, and relationship of people with the moana, at the heart of our work and aspiration.

The synthesis work programme involves drawing together research results to ensure the overall result of the Challenge is greater than the sum of the parts. The way in which synthesis activities are carried out and the types of outputs produced will differ from traditional research projects. Synthesis activities, just like this plan, will rely on a high degree of co-development and involve active participation of stakeholders, Māori partners and end users with connections and interests in the marine estate. Activities are intended to be action-oriented and encompass a wide range of initiatives and engagements. For example, activities may involve workshops or think-tanks focused on applying our knowledge from across the Challenge on a particular issue, and lead to targeted outputs that enable action, create momentum, empower communities, or influence legislative or policy change.

Synthesis activities will contribute directly toward the following longer-term outcomes that were identified in the Theory of Change developed for Sustainable Seas (Figure 1). All three are critical to achieving the overarching outcome of **Improved health of our seas**:

- Improved decision-making using an EBM approach.
- Enhanced marine blue economy.
- Empowering Mana Moana.

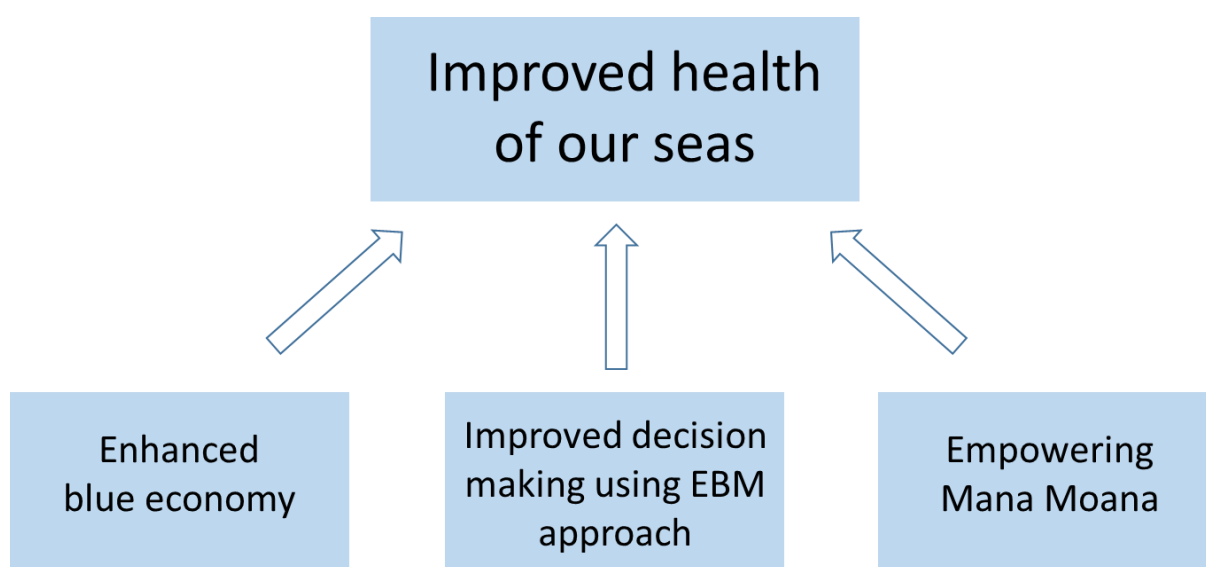


Figure 1: High-level outcomes from Theory of Change

To contribute toward these outcomes and meet the Sustainable Seas Objective *‘to enhance utilisation of our marine resources within environmental and biological constraints’*, synthesis activities must:

- Integrate and communicate research findings through fit-for-purpose outputs that lead to impact.
- Produce new knowledge based on the research to achieve outcomes greater than the “sum of the individual projects”.
- Refine tools to facilitate their wider use and future applications.
- Provide pathways (the ‘how to’) to implementing EBM, transitioning to a blue economy, and empowering Te Ao Māori approaches.
- Document what has been learned in implementing the Challenge to support future research activities.

Synthesis activities will lead to the following outcomes:

- The value of blue economy business models being recognised and adopted by Aotearoa New Zealand businesses.
- The adoption of decision-making practices that are more inclusive, multi-sectoral.
- Decision-making processes account for the effects from cumulative and multiple activities.
- Knowledge from the Challenge (science and mātauranga) being used in decision-making to improve ecological health and influence Aotearoa New Zealand’s marine management practice and policy.
- The complementarity of Te Ao Māori approaches and EBM being well understood and enabled.
- Decision-making processes explicitly identifying and addressing both risk and knowledge uncertainty in a way that reduces risks to ecological, social, cultural, and economic wellbeing.
- EBM practices being understood and accepted as a viable approach by decision-makers, stakeholders, and Māori.
- Māori rights, interests, approaches, and values being recognised and supported through the application of EBM as well as through the application of Te Ao Māori approaches by Māori.
- Researchers and iwi and stakeholders involved during the life of the Challenge continuing to actively promote, research in, and use knowledge from the Challenge.

1.1 Plan development and review

This plan has been drafted collaboratively by the Challenge Leadership Team (CLT) and draws on a significant amount of co-development. Input into this plan was gathered from a workshop with the Challenge Stakeholder Panel and Kāhui Māori, discussions with key co-development partners including businesses and policy actors involved in the Blue Economy projects, different sector groups (eg. Regional Government, aquaculture industry), the Independent Science Panel (ISP), and a workshop with Te Hononga (a forum of Māori researchers within the Challenge). The plan was also informed by Phase I synthesis activities to date.

This input included design principles for synthesis activities and outputs, and identification of priority synthesis topics. The process of developing the plan has highlighted the great importance of an end-user focus to the synthesis work. This plan and the activities completed and underway will be reviewed annually to ensure efforts are best aligned with knowledge and outputs being generated across the Challenge, and the needs and requirements of Māori partners, stakeholders and end-users.

2. How we will undertake synthesis

2.1 Design principles for synthesis activities and outputs

The co-development and co-implementation of our synthesis activities and outputs with Māori partners and stakeholders, and very importantly with those that will be end-users of the knowledge and tools developed, is critical to the success of the Challenge. Outputs from synthesis activities will be designed and developed with co-development partners and end-users, and must be high impact which include being:

- Valued by end users.
- Fit-for-purpose, with clearly identified end-users and pathways to implementation.
- Tailored for specific and sometimes multiple end-users and involve user-testing.
- Easily accessible and user-friendly.
- Applicable and useable at different scales.
- Rolled out beyond the end-users directly involved.

The outputs of the synthesis activities will be supported by communication and engagement tailored for specific audiences. It is likely there will be multiple specific end-users for a synthesis activity thus potentially requiring multiple specifically targeted outputs from one synthesis activity. This will mean that there will need to be a high level of co-development and co-implementation with specific end-users during the development of the activity proposal and its implementation, with the likelihood that co-development partners and end-users will be embedded in the activity teams. In addition, communication support will be necessary to ensure appropriate methods, channels and voices are applied in a way that facilitates ease of dissemination and access.

Synthesis activities will support the provision for the legacy of the Challenge in terms of:

- Creating momentum and pathways for long-term change.
- Ongoing accessibility to data, information, tools, and knowledge.
- Capability development of our research community, partners, and end-users.
- Profiling exemplars of practice in EBM, Blue Economy and Te Ao Māori approaches.

2.2 Structure of synthesis activities

Synthesis activities will draw on research conducted in both Phases of the Challenge and will be organised in a portfolio of activities in four interwoven strands. These strands (Figure 2) are:

- Ecosystem-based management.
- Blue economy.
- Te Ao Māori.
- Research process.

We are mindful of the risk of forming silos by working within strands however this will be mitigated through strong communication between the strand leaders along with common cross-cutting synthesis activities such as end-user needs analyses, co-development with partners involved across strand activities, and influencing policy and legislation activities. It is also likely that the Te Ao Māori strand will cross over regularly with other strand activities and in some cases inform approaches. In addition, the CLT will have oversight of all synthesis activities and will facilitate interactions between them.

Each of the strands will have audience and end-user specific needs. For example, within each strand there will likely be a need for a policy focus (eg. agencies), an industry focus (eg. Māori commercial

and other businesses), a regulatory focus (eg. Councils), and a practitioner focus (eg. hapū, iwi, community) which will also draw the strand activities together.

Collectively, the synthesis activities will:

- Influence policy and decision-makers to improve marine management and governance to support healthy ecosystems, support the application of Māori approaches, and incentivise a transition to a blue economy.
- Show businesses, government agencies and investors how businesses can operate in a manner that leads to a strong blue economy, including how businesses can transition to a blue economy.
- Provide knowledge, pathways, and tools to support Māori to move from participation to partnership and marine governance.
- Share the Challenge's experiences, insights, and learnings on developing transdisciplinary research involving co-development with Māori partners and stakeholders.
- Share knowledge and understanding of Māori approaches to marine management and support the creation of spaces that provide for Māori ways of being, knowing and doing.
- Educate and inform people about ocean issues and what is needed to ensure a healthy ocean into the future.

Within each strand the activities will be initiated and managed in three stages as described below. The types of activities and nature of research will vary among the stages, with priorities and detailed project proposals for subsequent stages being informed by the prior activity. The types of activities carried out during the three stages will vary across the strands depending on what is required to deliver the co-developed outputs.

Stage 1 (2021-2022): The first stage will start as soon as possible and involve investigative and targeted activities that lead to impact and shape the later stages of the synthesis activities. Activities in this stage will include problem-focused workshops, investigations into end-user needs, and identification of Challenge research results/insights available to contribute. (Concepts for stage 1 activities are in Appendices 1-4.)

Stage 2 (2022-2023): The areas of focus and project proposals for stage 2 will be informed from stage 1 activities and will draw on, assess, and analyse research from both Phases of the Challenge, with efforts forming the basis for stage 3.

Stage 3 (2023-2024): This stage will include co-development of products including 'how to' guides or pathways for implementing EBM, transitioning to a blue economy, and empowering Te Ao Māori approaches. It will also include activities that will underpin and shape the *synthesis of the synthesis* which will be the final research activities of the Challenge.

Synthesis of the synthesis (bringing it all together) (2023-2024): In the final year of the Challenge, synthesis activities aimed at 'bringing it all together' will be undertaken to deliver outputs that communicate knowledge generated from the whole of the Challenge. These will set the course for achieving the objective of Sustainable Seas and ensuring a healthy ocean for future generations.

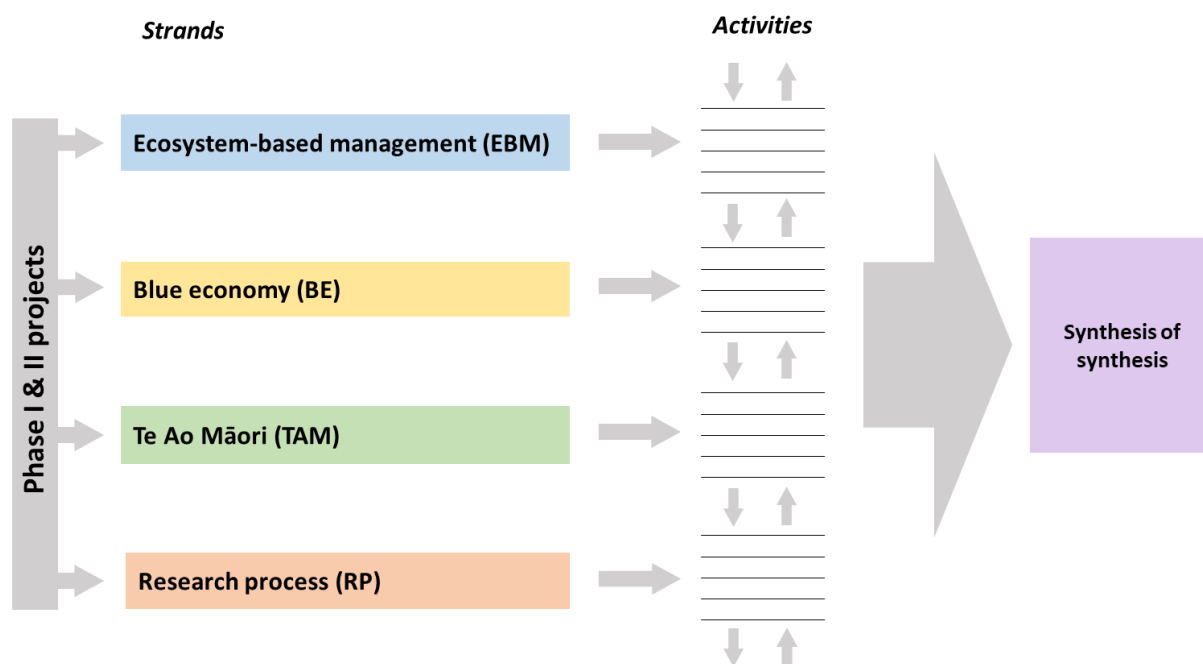


Figure 2: Structure of Challenge Synthesis

2.3 Approval of synthesis activities

To ensure the synthesis of Challenge research is undertaken in a timely and effective manner and produces fit-for-purpose outputs, we need a proposal co-development and approval process for synthesis activities that is streamlined, responsive and focused on the end-user of the outputs.

For stage 1 activities an activity concept has been prepared (Appendices of this document) which outlines the intended impact of the activity, specific end-users, the approach to the activity and the expertise required. Once these activity concepts are approved by the Governance Group, an activity leader will be appointed and a workplan for stage 1 will be prepared. This will include the co-development of a proposal for further stages of the activities. These workplans will be reviewed by the CLT and a regular report on progress will be included in the quarterly reporting of the Challenge. This is consistent with the approach that has been taken with the regional case study projects where project concepts were prepared, reviewed, approved and a project leader appointed. A proposal was then co-developed based on the project concept.

For stages 2 and 3 and the synthesis of the synthesis:

- Activity proposals for each stage will be reviewed by relevant experts identified from the SHP, Kāhui Māori, and ISP, as well as 1-2 relevant external end-users, where appropriate.
- Recommendations for funding made to the Governance Group based on the feedback received (on some occasions this will need to be done at specially convened meetings to keep the process moving).
- Any revisions are undertaken very promptly, and the activity contracted.

Through the synthesis phase of the Challenge, we will need to be responsive and agile to enable synthesis activities to contribute effectively to the implementation of EBM, the transition to a strong blue economy, the application of Te Ao Māori approaches, and to respond to the outcomes of previous synthesis activities. To support this and ensure the synthesis activities are focused,

prioritised, and achievable, the plan will be reviewed and updated on an annual basis aligned with the start of the new financial year.

2.4 Data management

The ongoing availability of data and outputs generated by Sustainable Seas research is critical to its long-term success. All projects are required to provide meta data which is housed in the NIWA meta database. This database can be harvested by data.govt.nz making the data available nationwide. The meta data from each project will be reviewed to ensure the data is well described and accessible. A plan for the ongoing support of the Challenge website post 2024 will be developed to ensure the tools and knowledge developed in Sustainable Seas projects will remain accessible to Māori partners and stakeholders and the wider research community.

2.5 Role of Challenge Leadership Team

The CLT will have oversight of all synthesis activities and proactively facilitate collaborations between strands, as well as linkages with Phase I and II projects. Each strand will have two CLT members who will have close oversight of all the strand synthesis activities and will work closely with the Strand Leaders. They will also proactively identify opportunities for synthesis activities and facilitate interactions with co-development partners and end-users in collaboration with the Challenge engagement specialists. A very important role for the CLT will be to lead the *Synthesis of the Synthesis* which will draw all the strands together and deliver outputs that communicate knowledge generated from the whole of the Challenge.

2.6 Role of Communications Team

A critical final step in the pathway to implementation to support the Challenge meeting its Objective is effective communication of the new knowledge developed in synthesis and the rollout of the outputs to extend uptake beyond those co-developers and end-users associated with the activities.

The Communications Team will support the synthesis activities to develop outputs that:

- Are accessible, concise and in plain language.
- Are in the format most appropriate for the target end user, such as guidance documents, graphics, videos, podcasts, online tools, or other mediums as appropriate.
- Use consistent branding, key messages, and phrasing, to aid users to easily identify and understand Sustainable Seas research outputs.

Rather than each strand/activity being responsible for rollout of their individual outputs, the Communications Team will support a coordinated, Challenge-level rollout to ensure that:

- Synthesis outputs are cross-linked/integrated and cohesive.
- End-user fatigue is minimised.
- There are cross-strand/whole-of-Challenge narratives that leave a meaningful legacy.
- Synthesis rollout activity is coordinated and linked in with other Challenge-level communications and engagement priorities to support long term impact.

This combination of factors increases the likelihood we will achieve the critical mass of activity and awareness-raising needed to meet the Objective of the Challenge. Some collaboration in rollout across Challenges (particularly environmentally focussed Challenges) may also be relevant.

2.7 Role of Strand Leaders

The EBM, Blue Economy, and Te Ao Māori strands of the synthesis will each be allocated funds to support 0.5 FTE Strand Leaders who will facilitate the implementation of each strand, primarily by

supporting the strand activities, identifying and facilitating interactions between activities both within and across strands, and in some cases leading specific strand activities. They will also support the CLT in undertaking the synthesis of the synthesis activities.

The Strand Leaders will have:

- Excellent oral and written communication skills.
- Ability to bring together and distil complex information into useful/novel ideas or concepts, then develop and deliver (or manage development of) practical tools, actions, etc, for end users to take up.
- Excellent organisational skills with the ability to organise workshops, including preparation of documents and writing up of outputs of the workshops.
- Excellent project management skills.
- Excellent interpersonal skills to support working effectively across multiple disciplines and with a wide range of co-development partners and end-users.

2.8 Activity leaders

The Activity Leaders will have excellent skills in co-development of proposals, relationship management and the ability to work with a team with very wide-ranging skills. The Activity Leaders will also need to be innovative and flexible in their approaches, able to work collaboratively with other activity teams and be prepared to move outside their comfort zone. We will appoint co-leaders for each activity who have complementary skills and backgrounds. This will include appointment of co-development partners and end-users to ensure outputs are fit-for-purpose and lead to impact.

3. Portfolio of work

3.1 Ecosystem-based management (EBM)

EBM is a holistic approach to managing human activities that ensures ecosystem health. This strand focusses on enabling and testing with end-users the seven principles of EBM identified by the Challenge in Phase I. Laying the foundation for this strand was the Stakeholder Panel and Kāhui Māori workshop, which identified topics for synthesis. This included several topics focused on enabling EBM and achieving impact by influencing legislative and policy reviews and changes.

The overall aim of this strand is to synthesise Challenge research that will facilitate EBM being embedded within marine management and governance. At the end of synthesis, the EBM principles (including those related to blue economy, co-governance and mātauranga Māori) will have been scenario tested at multiple management scales with end-users to identify their contribution to decisions that support the improved health of our seas. Combined with refined guidelines and tools, this strand will deliver practical EBM road maps for Aotearoa New Zealand. We will also work in real-time, putting EBM into practice by synthesising Challenge research to provide input into policy and legislative reviews. The EBM strand is highly focused on end-user needs to ensure maximum opportunity for uptake and will work synergistically with the other strands to realise this vision.

3.1.1 Activities

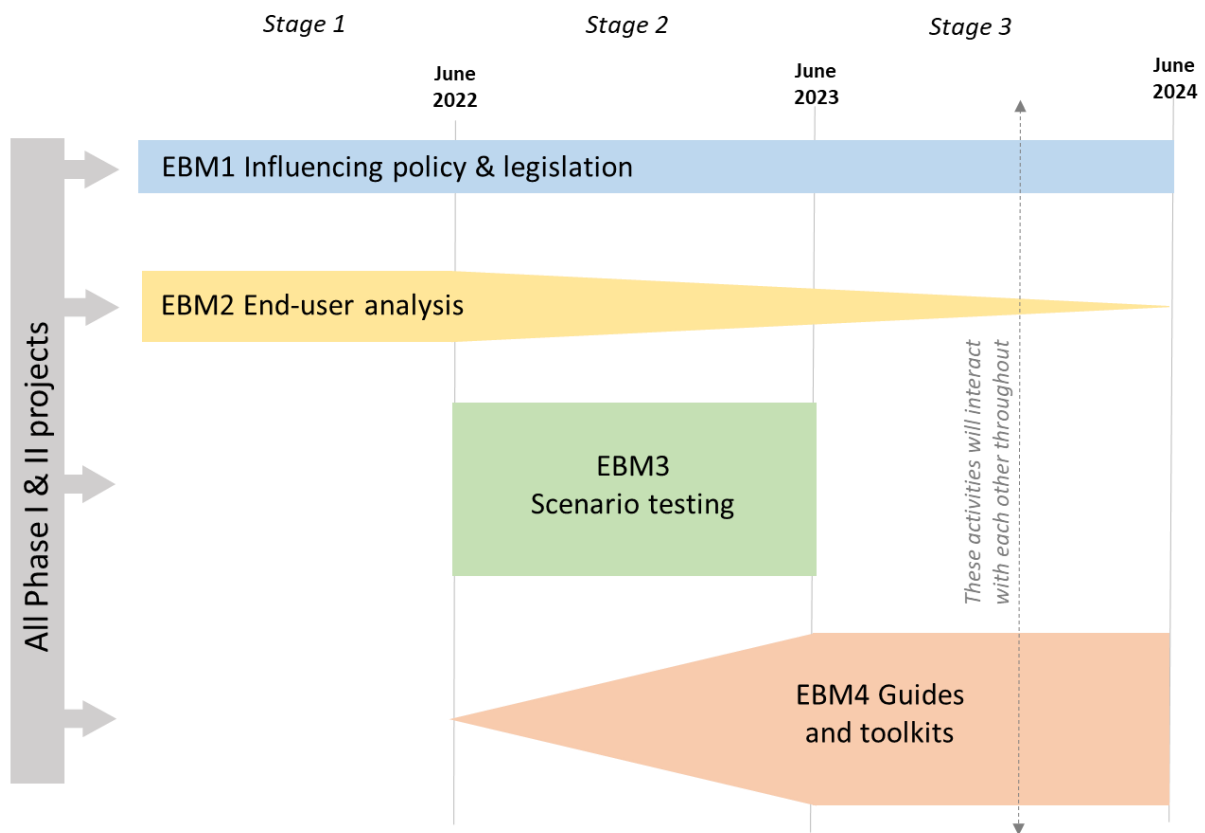


Figure 3: Ecosystem-based management strand showing the staging of activities. The relative investment in each activity is indicated by the bar width.

The EBM strand has four activities (Figure 3). The staging of the four activities will allow for end-user needs to be embedded within EBM synthesis and allow for interdependencies between activities with other synthesis strands. The activities, staging and linkages are depicted in Figure 4. The concepts for each of the activities starting in stage 1 are provided in Appendix 1.

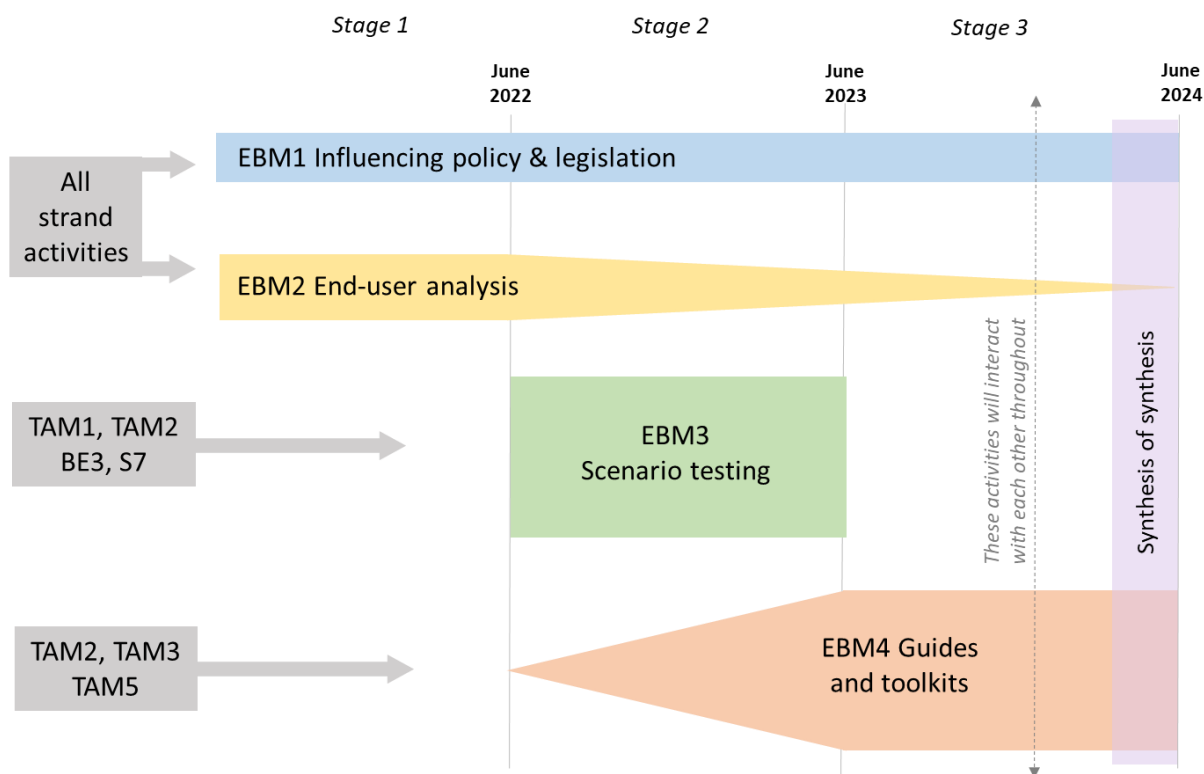


Figure 4: EBM strand interactions with other synthesis activities.

Activity 1 – Influencing policy and legislation (EBM 1)

This activity will provide a mechanism for Challenge research to influence current and upcoming policy initiatives and legislative reviews. The aim is to aid the development of policy and legislation that will support EBM, co-governance, Te Ao Māori, blue economy activities, and ensure ecosystem health. This is a whole of synthesis (ie. cross-strand) activity, capturing Challenge knowledge that contributes directly to the Challenge Objective. Our approach will be to bring relevant Challenge experts together from a range of projects and produce appropriate outputs such as focused workshop discussions and presentations, submissions, policy briefs, and opinion pieces. We will also undertake ongoing horizon-scanning throughout the three stages of synthesis to ensure our work is maximising impact potential. The CLT and Engagement Specialist – Policy will lead this activity, prioritising opportunities and who is involved in actively contributing to the outputs. At the end of each stage, key insights and recommendations resulting from this activity will be summarised on the Challenge website.

Stage 1 will continue to identify opportunities for engagement in addition to reforms to the Resource Management Act, inclusion of estuaries in the National Policy Statement on Freshwater, and Treasury wellbeing measures.

Stages 2 and 3 Throughout the remainder of synthesis we expect further opportunities to be identified by our co-development end-users (EBM 2), and our Stakeholder Panel, Kāhui Māori, and Governance Group.

Activity 2 –End-user analysis (EBM 2)

This is a new and critical piece of work for enabling EBM that will facilitate a switch in emphasis on stakeholders as co-development partners to detailed engagement with the end-users of Challenge research. For example, we have co-developed research on the impacts of cumulative effects on ecosystem health with Regional Council coastal scientists (Phase I Tipping points, Phase II Ecological responses to cumulative effects) but these findings need connecting to end-users in the consenting or development divisions of regional councils. This activity will also provide a mechanism for co-development of EBM 3 (EBM Scenarios) and EBM 4 (EBM guides and toolkits) as well as provide continuing input/horizon scanning into EBM 1. At the end of each stage, categories of end-users and needs identified and collated and will be placed on the Challenge website.

Stage 1 will work with existing projects that are surveying Challenge projects and co-development partners for specific end-users and their needs (eg. 3.2 *Communicating risk and uncertainty*, 1.3 *Modelling the social-ecological outcomes of community-based interventions* and the proposed new project 4.4 *Understanding and communicating the various implications of scale*) and extend these surveys to cover all current Challenge projects. This data will be analysed to identify the types of end-users not embedded in Challenge research and uncaptured needs. A high level of cross-project coordination will be needed to avoid end-user fatigue.

Stage 2 will identify synthesis co-development partners and end-users willing to engage in EBM 3 and 4 and new end-users to contact. We will also assess the needs of identified end-users (to inform outputs and outcomes in the EBM strand as well as other strands), including the levers we should be engaging with (EBM 1) from an end-user perspective to achieve the Challenge Objective.

Stage 3 will continue to engage with end-users (EBM 3 and 4) and survey for both their needs and for future EBM 1 opportunities. This stage will summarise work to date and feed into the **Synthesis of Synthesis** activity 2 (Ocean knowledge).

Activity 3 –EBM Scenario testing with end-users (EBM 3)

This activity will actively engage with end-users identified in EBM 2, to holistically test and refine EBM principles and tools/guidelines developed in Challenge projects. This activity is tightly coupled with EBM 4 which is where the end-user tested EBM tools and guidelines will reside. It also connects strongly with activities in the **Blue Economy** and **Te Ao Māori** strands (Figure 4) and with a current synthesis project *Ki uta ki tai: estuaries thresholds and values*. The scenarios tested will be informed by our co-development partners and end-users (EBM 3) and may represent real or hypothetical cases at different management scales (eg. hapū/community, regional, and EEZ). A key feature of this activity is the amalgamation of the Challenge research generated in individual projects (eg. ecological recovery frameworks, marine spatial planning tools, ACE framework for managing cumulative effects, participatory process guidelines) and the ability to test them together in a holistic EBM decision-making process for the first time. By considering scenarios at multiple management scales, it will help answer the question ‘what does EBM look like’ in different contexts. This activity will also identify gaps, inconsistencies, and implicit assumptions in the decision-making process.

A key question that will be explored in these scenarios is whether the decision-making process (based on the EBM principles and BE) can deliver enhanced utilisation of the marine space and improved ecosystem health. Other elements that will be explored in this activity include:

- Testing the management of cumulative effects (and associated risks and uncertainties) in an EBM framework.

- Determining how to reconcile environmental management with a regional blue economy (linked to **Blue economy** strand BE 3 *Building a blue economy in place*).
- Exploring the application of EBM alongside **Te Ao Māori** by linking to the *Taura Here* (TAM 1) and *Waka Taurua* (TAM 2) activities to assess the complementarities and tensions.

Activity 4 –EBM guidelines & toolboxes (EBM 4)

This activity will deliver the ‘how to’ and ‘roadmap’ for EBM. It will synthesise the Challenge tools and guidelines that have been refined by scenario testing (EBM 3) to provide a practical guide to EBM at multiple management scales for decision-making.

Stage 2 By the time this stage starts, most of the tools/guidelines generated from individual Phase I and II projects will have been collated/synthesised with a practical end-user focus. This activity will check these for consistency and assemble them into bundles relevant to the EBM scenarios identified in EBM 3. This is a critical activity as it recognises that not all tools/guidelines may be relevant at all management scales and that tools/guidelines may need refining for a specific context. The assembled bundle will be published on the Challenge webpage for comment.

Stage 3 will be based on learnings from EBM 3 and the project *Understanding and communicating the various implications of scale* and link strongly to TAM 2, 3 and 5 from the **Te Ao Māori** strand. Bundles of tools/guidelines will be further refined to ensure they are fit for purpose at the multiple scales for EBM decision-making (from hapū/community, to regional, and EEZ). Similar to EBM 3, fit-for-purpose will include an assessment of how each tool/guideline would support improvements to ecosystem health and an identification of any implicit assumptions. This refinement will occur in collaboration with our co-development partners and end-users. We recognise that the EBM tools/guidelines and their application may look different at different management scales and not every context could possibly be covered (or anticipated into the future) in scenario testing. However, by illustrating the practical application of the EBM principles and providing fit for purpose tools that enable the principles to be applied, we will have generated a roadmap to inform new situations. At the end of EBM 4 a repository of knowledge will have been synthesised to guide practical EBM decision-making at multiple scales of management.

3.2 Blue economy (BE)

A blue economy is made up of *marine activities that generate economic value and contribute positively to social, cultural and ecological well-being*. This strand will synthesise Challenge research to embed BE principles within commercial investment decisions, marine management and governance, and resource use at whanau, hapū and community scales. It will develop tools to support government, Māori, business, and other decision-makers to enable transitions to a blue economy.

Interactions with Māori partners and stakeholders have identified the need to:

- Champion the blue economy concept more widely among influential business and policy actors, Māori, and the general public.
- Demonstrate the value of transitioning to a blue economy at individual business, regional, and sectoral scales.
- Bring Challenge blue economy research into decision-making arenas to support businesses to recognise the value of a blue economy approach and initiate change.
- Synthesise the blue economy research with research in other themes.

The BE strand is focused on multiple end-user decision frameworks to ensure maximum opportunity for uptake. It will identify BE opportunities for existing businesses, new businesses / investment initiatives, policy and legislative rule-making initiatives, social enterprises, and whanau/hapū and community economy initiatives.

This strand will be supported by a Blue Economy Advisory Group, which will help the Challenge to build culturally appropriate and ethical business cases for transitions to a BE. It will also ensure that the work of the strand is influential and will support successful transitions at a practical decision-making level.

We will also identify and engage a set of BE champions to promote the value of a BE approach. BE champions will ensure that Challenge-wide research results are communicated to business, communities and policymakers and they will work with businesses and potential investors to highlight the value of adopting BE business models. Their narratives will also build support for BE policy initiatives with economic development and other policy agencies. Māori business champions will be crucial to this process.

At the end of synthesis, BE principles will have been refined and developed into fit for purpose guidelines and communicated to key decision-makers. Scenarios will have been tested at multiple management scales from business, Māori enterprises to regional and central government. We will also work to put BE into practice by supporting the incorporation of BE principles into planning and policy efforts currently underway, including regional development strategies, regional planning, and nature disclosures initiatives.

3.2.1 Activities

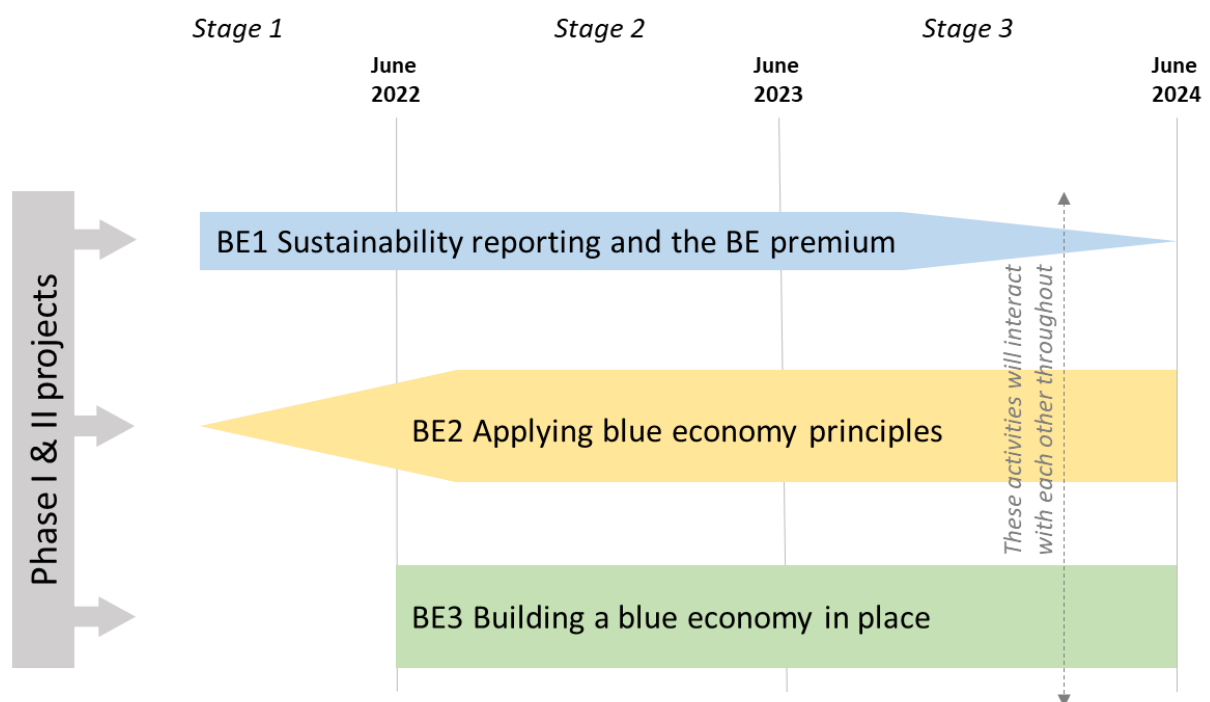


Figure 5: Blue economy strand showing the staging of activities. The relative investment in each activity is indicated by the bar width.

The BE Strand has three activities (Figure 5). Each activity is staged to progress incrementally from identifying to embedding BE opportunities in end-user adoption. All three activities will run from stage 1 to stage 3 of the synthesis and will involve the co-leadership with active business / policy experts. Timelines are designed to position Challenge research to dovetail with emerging opportunities in regulatory and economic development initiatives.

Activity 1 –Sustainability reporting and the BE Premium (BE 1)

This activity will synthesise Challenge research to support engagement in policy development and development of business models (linked to EBM 1 Figure 6). Legislative and non-legislative initiatives to introduce nature-related disclosures (NRD) and other forms of sustainability reporting into business reporting are on-going. Initiatives such as the Value Reporting Foundation are building a framework for aligning sustainability reporting with value creation. They will affect private and public corporate accounting standards and reporting, and support policy levers such as the Living Standards Framework and Te Ara Waiora, the Māori Living Standards Framework. While commonly linked to climate change considerations and Aotearoa New Zealand’s response to global obligations, sustainability reporting has an impetus that will extend into concerns with broader ecological / environmental effects and potentially socio-cultural effects. There is an opportunity to ensure that marine ecosystems are incorporated into these measures, to support the creation of business value, embed EBM, and drive a transition to a blue economy.

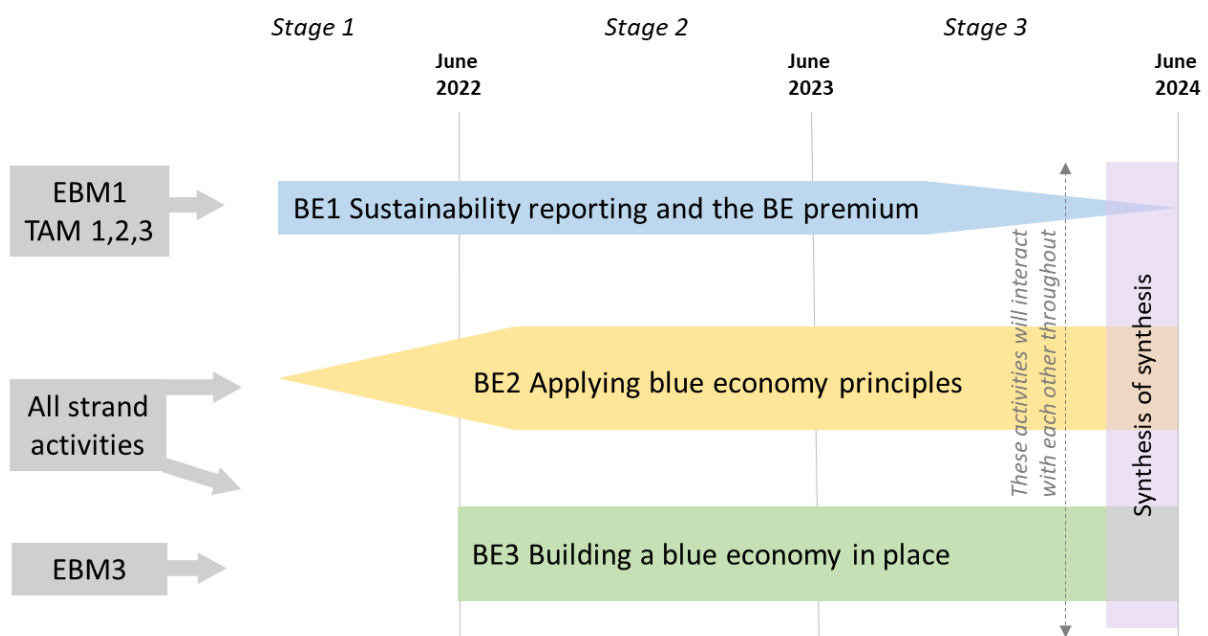


Figure 6: Blue economy strand interactions with other synthesis activities.

This activity will connect Challenge research on EBM, ecosystem services, restorative economies, Māori economy and co-governance to NRD and related measurement and reporting initiatives. The activity will engage with policy and business actors to introduce measures of marine ecosystems into new measurement and reporting initiatives, most notably NRD but also greenhouse gas inventories and Nationally Determined Contributions. It will identify the opportunities that these initiatives offer

for creating business value and supporting transitions to EBM and a BE and encourage both industry and government agencies to grasp the opportunities.

The activity dovetails closely with EBM 1 *Influencing policy and legislation* and the *BE principles* BE 2. This activity will synthesise and add value to research in the restorative economy, indigenising a blue economy, and risk and uncertainty projects, and ensure that it translates into end-user value in policy, business, and Māori enterprise. It will support the development of EBM-based reporting requirements, translate them into widespread BE reporting against ecological impacts, sustainability transitions, and community funding initiatives, and into new investment initiatives that recognise the opportunities to build in restorative and community-focused dimensions to business practices (win-win scenarios).

Stage 1 will assemble a knowledge base for NRD in marine economy, including oceans accounting, ecosystem dynamics, ecosystem services, natural positive investment returns, nature-based solutions, blue carbon (and accounting for it), mātauranga Māori, Te Ao Māori reporting practices and frameworks. It will also establish a BE-EBM expert panel to enable NRD and Living Standards Framework processes to move beyond climate disclosure to nature, biodiversity, and Te Ao Māori in accounting for/reporting on marine environments – assembling Challenge resources around questions being asked by NRD authorities and development bodies.

Stage 2 will work with committed businesses, Māori businesses and sustainable business organisations to build a value proposition for NRD in marine economy and develop nature-based solutions to economic development challenges. It will also explore potential connections to EBM tools – financing MPAs, marine spatial planning implementation and monitoring.

Stage 3 will work with businesses to build holistic reporting frameworks incorporating BE principles (BE 2).

Activity 2 –Applying blue economy principles (BE 2)

To achieve transitions to a blue economy in New Zealand, investment will need to be channelled into marine economic activities that perform economy differently. Blue economy approaches will need to be adopted in business and investment models as well as in policy settings at local and national levels. Decision-makers from existing businesses, new investors, science funders, hapū/iwi and resource management agencies will require tools and guidance to support this.

This activity will distil research in the BE theme into a set of core principles that guide decision-making and help to bring about change in business and investment behaviour. These principles will guide decisions from investing in new technologies to ensuring that activities are ethical and culturally-aligned. It will also provide guidelines for setting funding criteria for government agencies and regulatory rules and conditions for marine economy activities.

This activity will work with Māori partners and stakeholders to:

- Define and articulate BE principles that are appropriate for Aotearoa New Zealand, align with the EBM principles identified by the Challenge, and are responsive to Te Ao Māori.
- Convert these principles into investment and practical guidelines.
- Use champions to promote, socialise and translate principles into key decision-making arenas and create support for BE principles in with the wider public, Māori, business, and policymakers.

Stage 1 will develop a draft set of principles by: synthesising Challenge research findings; assembling and collating examples of principles and standards used elsewhere in Aotearoa New Zealand and beyond; and interviewing key Challenge partners and blue economy and Māori business champions identified across different sectors. It will assess the purpose and potential value of principles alongside other certification, standards, and promises frameworks.

Stage 2 will focus on ground-truthing, testing, and formalising principles as a basis for actions such as adopting sustainable technologies, building in community dividends, investing in appropriate sites/activities, attracting ethical investment and so on. It will identify priorities, establish sector-specific principles where appropriate, and test levels of commitment using workshops, champions, and interviews with key people. It will mobilise BE champions to socialise what is possible and how to do it. It will also develop value propositions for end-user businesses (small and corporate), Māori businesses, hapū/iwi institutions, communities, policy audiences and environmental managers. This will demonstrate why and how they could adopt these principles.

Stage 3 will roll out principles to end-users / key decision-makers using decision-support tools such as vignettes of successful initiatives, scorecards, and value propositions.

Activity 3 –Building a blue economy in place (BE 3)

This activity will synthesise, build on and add value to BE Theme research and research across the synthesis strands. It will apply BE principles to place-based private, public, hapū/iwi, local and regional development initiatives and demonstrate the value of connected economic development across sectors and business types – in place and at different scales.

The activity will identify and highlight value creation opportunities, improve investor confidence, and channel public science and economic development investment. It will focus particular attention on opportunities from connections among different BE activities across sectors, different types of business and economic activity (from corporate to community scales). End-users will include hapū/iwi, and community economy actors, social enterprises, Māori business, potential new investors, and local regional development and environmental management agencies, as well as central government economic development agencies.

Place-based economic development brings together principles of EBM, BE and Te Ao Māori approaches to economic development. This activity will test the BE principles by developing BE value propositions at different scales, including multiple uses, emerging sectors, and potential connections among them, and the adoption of new technologies. The aim will be to enable business, Māori business, hapū/iwi institutions and economic development agencies to grow connectivity across 'sectors' and build a blue economy that is bigger than the sum of the parts. It will demonstrate the value of holistic approaches to environmental-economic management.

Stage 1 will identify examples of successful regional or place-based cross-sectoral BE initiatives (eg. Te Tau Ihu Intergenerational Strategy, Te Korowai o Te Tai o Marokura), and identify what has worked and what hasn't. This will include scoping levels of interest in incorporating blue economy initiatives into Aotearoa New Zealand regional development programmes. It will also assemble case-specific teams to co-develop and apply BE principles to a BE-based regional development strategies.

Stage 2 will work with BE champions, businesses, Māori businesses, Economic Development Agencies, hapū/iwi, and community actors to collate ideas and aspirations, identify and assess opportunities and align them with BE principles (BE 2), and co-develop a blue economy strategy with regional partners that is aligned with EBM, Te Ao Māori and regional environmental policy.

Stage 3 will road test place-based strategy with hapū/iwi and Māori business, sector representative organisations, economic development funding agencies, potential investors, lead businesses, and community groups, where place-based strategies are being developed.

3.3 Te Ao Māori (TAM)

Workshops relevant to this area of synthesis (including a workshop of Te Hononga, a forum of Māori researchers within the Challenge) identified the need to draw together the insights and findings from across the Challenge’s diverse research and approaches with iwi, hapū and Māori. A key aim of this synthesis will be to contribute to enhancing the relationship of Māori with Te Ao Turoa – the wisdom and guidance of our atua and tūpuna to inform our relationship with the moana. Much of the Challenge’s research in this space has supported the reclamation, restoration, and application of mātauranga and tikanga-a-iwi to management and governance of the moana. The outputs of this strand will be tailored to inform our key partners and audiences – iwi, hapū and Māori entities; Māori business; local and central government; and marine customary and commercial sectors.

3.3.1 Activities

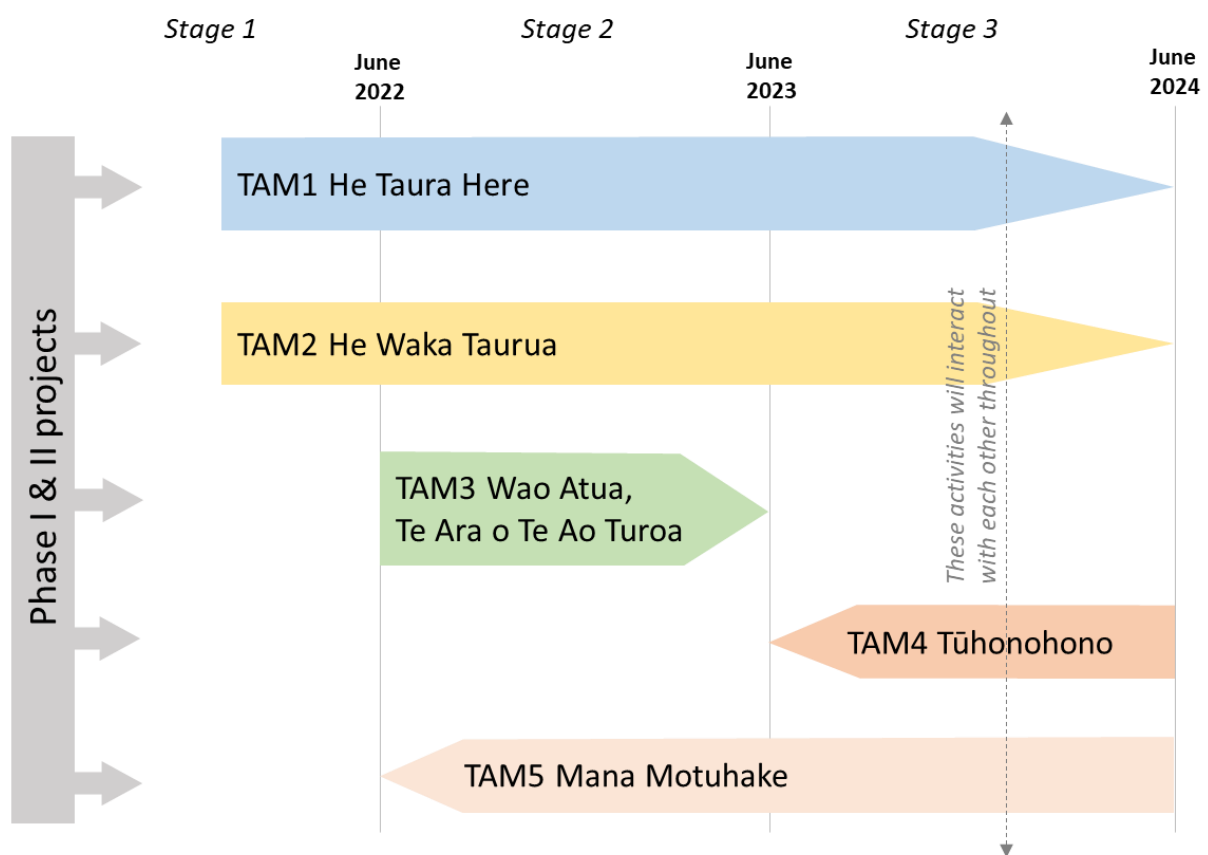


Figure 7: Te Ao Maori strand showing the staging of activities. The relative investment in each activity is indicated by the bar width.

This strand includes five activities (Figure 7):

Activity 1 – He Taura Here – Developing a framework to weave, connect and underpin Challenge outputs and outcomes with clarity and understanding about Māori ways of knowing, thinking, and doing relevant to the Challenge vision (TAM 1).

This activity aims to develop a framework that draws on the findings from across the Challenge to support greater understanding of Māori ways of knowing, thinking, and doing. We anticipate this work will be fundamental to informing overall synthesis, not just for Māori centred research but for Challenge synthesis generally to ensure our outputs reflect the uniquely Aotearoa context within which our association with the moana sits.

Stage 1 This stage of the activity is largely exploratory – involving wānanga with key researchers, data collection and review of Phase I and Phase II findings, and the establishment of an Advisory Group of mātauranga holders to provide oversight and guidance to the work.

Stage 2 will primarily focus on the development of the framework bringing together the insights and ideas identified in stage 1. It will include:

- Interviews with project partners to kaupapa Māori researchers across the Challenge.
- Development of guidance material signposting Māori epistemologies used within the Challenge.
- Production of podcast/webinar discussion of those epistemologies.

Stage 3 will focus on linking across strands to draw on insights relevant to refining the framework, and to inform the foundation of the synthesis of the synthesis activities in the final year. It will include:

- Framework and guidance refinement through wānanga.
- Weaving together the activities of Te Ao Māori strand.
- Weaving across the other synthesis strands to conceptually and pragmatically bring Māori ways of knowing, thinking, and doing together with EBM and blue economy approaches.

Activity 2 – He Waka Taurua - Māori approaches and principles for mātauranga Māori based marine management (TAM 2).

This activity aims to learn from our research with iwi, hapū and Māori entity partners to articulate principles for guiding our relationship with the moana through a Te Ao Māori lens, recognising that EBM has been developed through a science lens. The outputs will support iwi, hapū and Māori entities in their ongoing development and application of Te Ao Māori-centred practice relevant to the moana, whilst improving the understanding and provision for those practices through policy, legislation, and planning settings.

Stage 1 will be conducted in collaboration with the work for He Taura Here and will be largely exploratory. Many of those involved will be involved in stage 1 of both TAM 1 and 2 maximising already stretched kaupapa Māori, iwi, hapū and mātauranga holder capacity.

Stage 2 will extend stage 1 to further wānanga an initial set of Te Ao Māori principles for marine management with key researchers and partners to develop a final draft set of principles for dissemination and feedback. It will include:

- Wānanga with key Māori project leaders/researchers.
- Wānanga with iwi, hapū and Māori entity partners.

- Finalising a set of Te Ao Māori principles for dissemination and feedback, and analysis against existing mātauranga Māori based case studies in the Challenge.

Stage 3 will draw together the findings and analysis from stages 1 and 2 to wānanga with a broader set of likely end-users and produce outputs that empower and enable the application of Te Ao Māori principles for marine management. It will include:

- Bringing together findings from all 3 stages.
- Final wānanga with key partners and others with relevant interests.
- Production of outputs that support weaving the principles across the other synthesis strands and that empower application at different scales by Māori.
- Production of necessary guidance, policy briefs etc.

Activity 3 –Wao Atua, Te Ara o Te Ao Turoa –Supporting an indigenous economy (TAM 3)

This activity will be undertaken in stage 2 of synthesis and aims to increase our collective understanding of alternative views of indigenous economy. It will build on Challenge research from Phases I and II to draw together and deliver knowledge relevant to the opportunities posed by the application of Te Ao Māori approaches and values to economy, to support the ongoing aspirations of iwi and hapū to operate in a way that upholds Te Ao Turoa. The innovation fund projects from Phase II will be particularly insightful to this work, and these insights will support the Blue Economy synthesis activities particularly BE 2 and 3 (Figure 8).

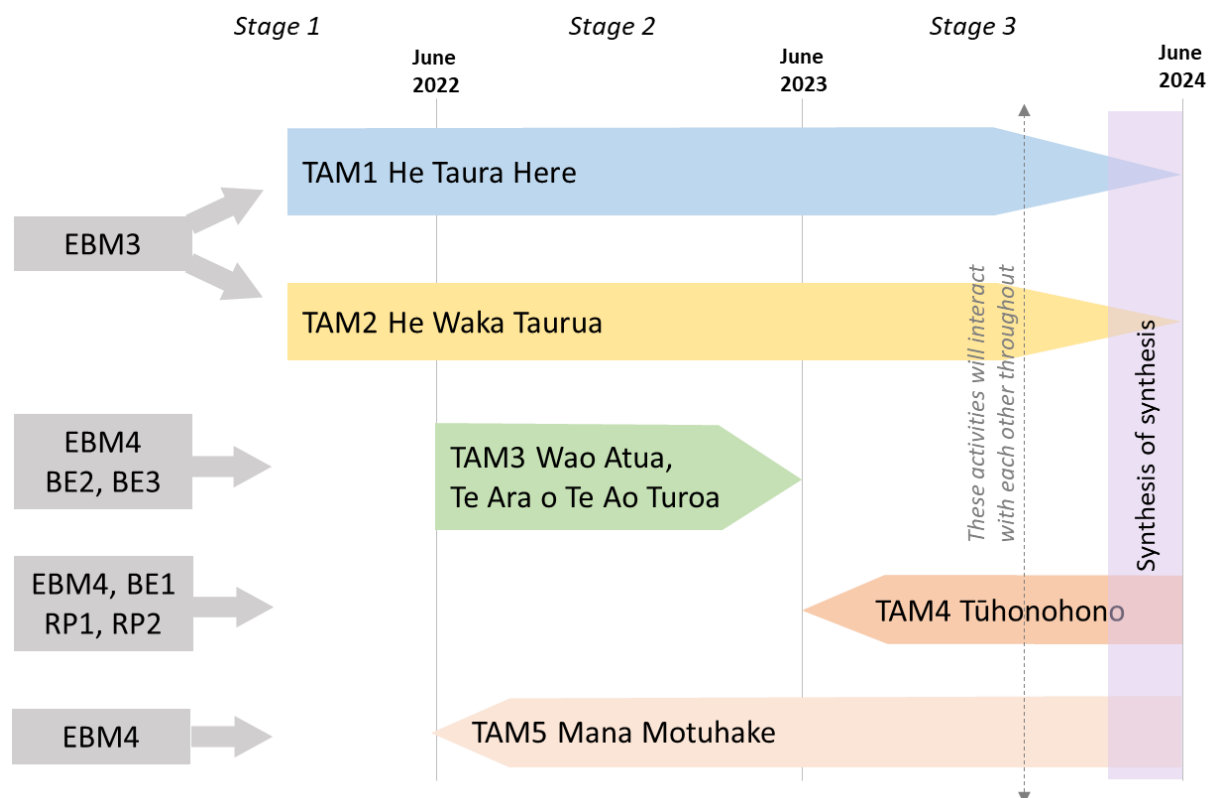


Figure 8: Te Ao Maori strand interactions with other synthesis activities.

Activity 4 – Tūhonohono - Effective Partnership (TMA 4)

This activity will commence in Stage 3 and link closely to activities in the Research Process strand. It aims to deliver guidance on how to establish and apply Māori values in research, policy, legislation, and planning that guides marine management by exploring a range of perspectives on what 'partnership' is, and what true co-design approaches would look like. The work aims to produce models and guidance founded on Challenge partnership case studies to inform local and central government agencies for the RS&T, policy and practice sectors.

Activity 5 – Mana Motuhake - A Roadmap for Indigenous Marine Governance (TMA 5)

An area of key interest for both Māori and Crown partners to the Challenge's work is the developing dialogue and exploration of the transition from Crown governance, to Co-governance, to Indigenous marine governance. This activity will begin in stage 2 and build upon work undertaken in Phases I and II looking at governance, Tiriti/Treaty, jurisdiction, tikanga and mātauranga Māori to deliver a roadmap that empowers and supports the ongoing dialogue in this space.

3.4 Research Process (RP)

This strand will synthesise and document what we have learned about the transition from multi-disciplinary research focused primarily on academic outputs, to transdisciplinary research focused on 'real world' impacts, as well as the various strategies adopted to co-develop research with a diverse set of co-development partners. The Challenge presented a unique opportunity to undertake research and knowledge-production differently by assembling researchers and co-development partners from a wide range of backgrounds to produce knowledge to enable transformative change and enhance the implementation of EBM and BE practices. Our approach emphasised high levels of engagement with those operating in the marine space to accommodate the diverse values, knowledges, and interests that exist. As a result, our approach has evolved from being primarily researcher driven to one of co-development to reflect the needs of our end-users. The Challenge has built research capacity amongst its researchers to enable and support transdisciplinary research, to work more effectively with Māori partners and kaupapa Māori research and mātauranga experts, and to work with stakeholders. In researching EBM, BE and Te Ao Māori approaches, the Challenge itself can also be seen as an experiment in an Aotearoa based EBM.

The outputs of this strand will include academic outputs focused on transdisciplinary research practice and co-development, as well as guidance targeting end-users including Māori partners and stakeholders about co-development processes and practices. The guidance will support them in pursuing co-developed research activities in the future, as well as national and international researchers pursuing EBM and BE research, or research that emphasises co-development and transdisciplinary research.

3.4.1 Activities

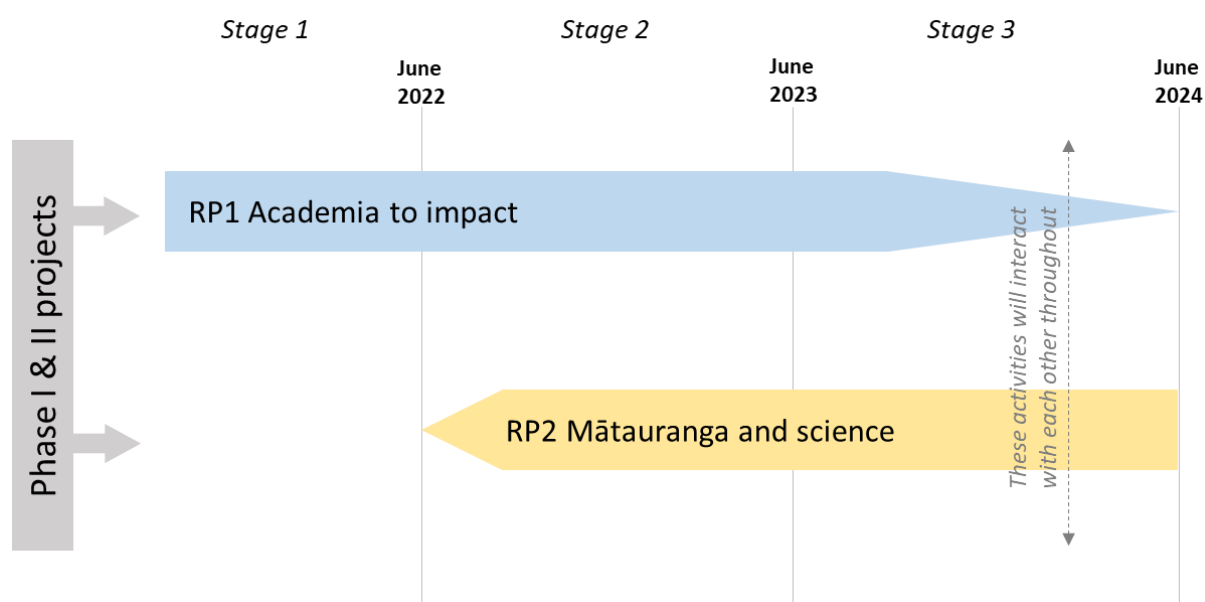


Figure 9: Research Process strand showing the staging of activities. The relative investment in each activity is indicated by the bar width.

The strand will include 2 activities (Figure 9):

Activity 1 –Academia to impact (RP 1)

This activity will document the transition from academic-oriented research to end-user-oriented research, the shift from multi- to transdisciplinary research practice, and co-development practices. This concept will be conducted over all three stages of synthesis and will iteratively build on previous work to culminate in the production of a suite of ‘guidance’ outputs and academic outputs to target international and national researchers.

Stage 1 will focus on documenting changes in the type of research, the composition of research teams and evaluating the forms of communication as the Challenge transitioned to transdisciplinary end-user focused research. Summaries and datasets will be derived through desktop-based analysis of Challenge information and outputs along with interviews and/or focus groups. It will include:

- Interviews/focus groups with researchers, stakeholders, Māori partners and co-development partners from both Phase I and Phase II.
- Desktop analyses of research team composition and the kinds of outputs produced across both phases of research.

Stage 2 will use the data and summaries from stage 1 and will focus on analysing what, if any, changes in thinking were required by Challenge researchers to focus on end-user impacts as a priority, obstacles they may have encountered, and how these were overcome. We will further explore the transition through follow-up interviews in stage 2 to document Challenge researchers’ experiences of implementing Phase II and the start of the synthesis phase. These analyses will form the basis for the preparation and development of end-user targeted outputs. It will include:

- Analysis of primary data collected in Stage 1 and follow-up interviews with researchers and co-development partners to explore experiences of Phase II and Synthesis.
- Designing audience focused summaries and end-user outputs, eg. videos or experiences, infographics ‘snapshot’.

Stage 3 will draw this activity together through:

- Preparation of an academic paper focused on transitioning from ‘academia to impact’ (including co-development and transdisciplinary research practice).
- Production of guidance on co-development (dos and don’ts) tailored for specific end-user audiences including Māori, stakeholders, national and international researchers.

Activity 2 Mātauranga and science (RP 2)

This activity will document the Challenge’s attempts to seek out the many voices of science and mātauranga Māori to enable new knowledge to be produced, and to amplify mātauranga experts and expertise in marine management. The activity will explore the different ways in which the moana is centred by science/scientists and mātauranga/mātauranga experts and how this enables an approach to EBM that is unique to Aotearoa New Zealand. By actively seeking the many voices of science and mātauranga, the voice of the moana itself can be centred. The activity will consider efforts to bring mātauranga to science (eg. Phase I - *He Pou Tokomanawa*; Phase II - *Understanding ecological responses to cumulative effects, Enabling kaitiakitanga and EBM, Awhi Mai Awhi Atu: Enacting a kaitiakitanga-based approach to EBM, Huatuakina o hapu e!*, *He Kāinga Taurikura ō Tangitū: Treasured Coastal Environment, Tasman Bay - Golden Bay (TBGB) Synthesis*) and science to mātauranga (Phase I – *Tāhuhu Matatau Te Ao Tangaroa*; Phase II - *Ngā Tohu o te Ao: Maramataka and marine management, Te Tāhuhu Matatau: Empowering kaitiaki of Tangaroa, Understanding and communicating the various implications of scale for EBM, and Ki uta ki tai: estuaries thresholds and values*).

This activity will be undertaken in stages 2 and 3.

Stage 2 will be a desktop-based analysis of Challenge information and outputs, primary data collection with Project Leaders and other researchers to gain insights into the multiple ways in which Challenge researchers have sought to bring mātauranga and science together, the difficulties they may have encountered, and how these were overcome. These experiences will provide us with insights and knowledge into the practical dimensions of working across different knowledge systems. It will involve collaborating with activities in the Te Ao Māori strand (Figure 10) and will include:

- Desktop analysis of Challenge research project data.
- Review and discussions with key researchers involved in the two stage 1 activities from Te Ao Māori Strand (Figure 10).
- Analysis of outputs from Phase I and Phase II projects and discussions with Te Ao Māori activity leaders to characterise and document different ways of working together.
- Primary data collection involving Project Leaders (eg. interviews, focus groups, wānanga).

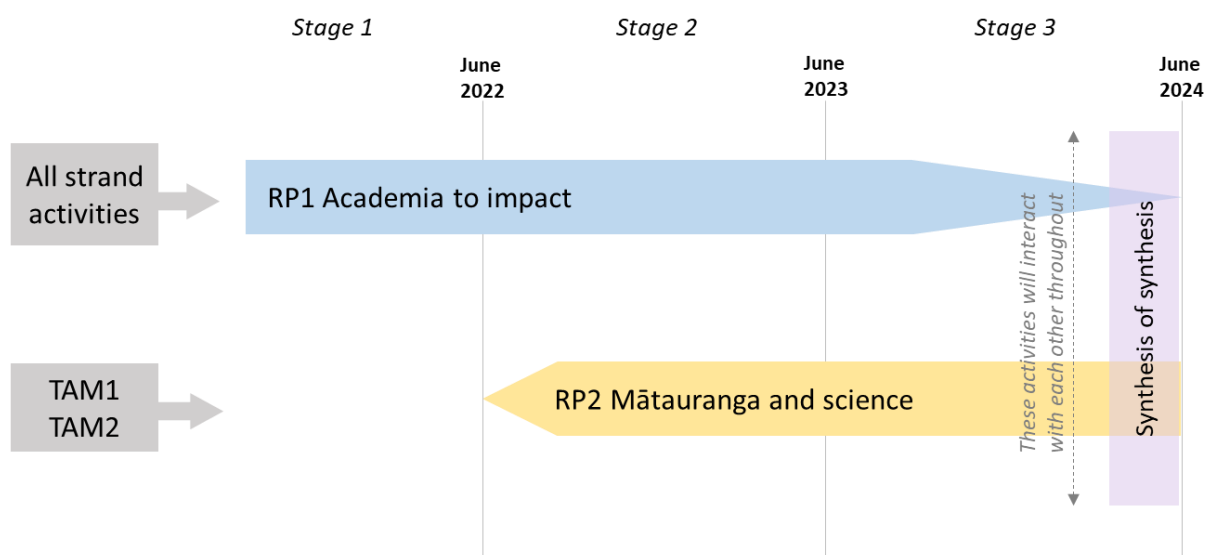


Figure 10: Research process strand interactions with other synthesis activities.

Stage 3 will build on activities completed in stage 2 and the Te Ao Māori strand and relevant projects. It will involve the design and delivery of outputs to target specific end-users based on the multiple experiences of Challenge researchers. Targeted outputs could include the following end-user specific outputs:

- Māori: videos, infographics, guidance outlining processes for working across different knowledge systems, the benefits, the challenges and how these could be overcome.
- Regional councils: guidance specific to council needs, eg. based on the Regional Council Roadshow, there was interest in guidance on how to engage with Māori, and how to incorporate mātauranga into decision-making and plan/policy.
- Government agencies such as EPA: guidance to suit specific needs of agency, eg. how to incorporate mātauranga into decision-making.
- Kaitiaki/kaimahi: guidance around working with science and mātauranga.
- National and international researchers working with indigenous peoples and knowledges: academic outputs, video outputs.

3.5 Synthesis of the synthesis (SS)

This final synthesis will bring the synthesis work from the four strands and knowledge produced over the course of the Challenge together into highly accessible outputs that tell our story. The activity will directly engage the CLT in capturing the learnings, highlights, key messages, and vision for the future that has been developed over the life of the Challenge. This high-level synthesis will include experiences and reflections from the CLT. It will also provide an opportunity to present the Challenge story within the global context of EBM and showcase Aotearoa's progress toward ensuring a healthy ocean through EBM, Te Ao Māori approaches, and a prosperous blue economy. At present there are two activities identified but this is likely to increase as we move through the synthesis phase of the Challenge.

Activity 1 –Practicing EBM research (SS 1)

This activity will be undertaken at the end of the synthesis and will document successes, challenges and lessons learned from doing research in the Challenge. This activity results from suggestions made by the Independent Science Panel, the Kāhui Māori, and Stakeholder Panel to document the CLT experiences as part of the legacy of the Challenge and to inform future research/researchers in Aotearoa New Zealand and internationally. This concept presents a ‘synthesis of synthesis’ from the perspective of the CLT. The primary end-users are researchers (national and international) with an interest in practicing transdisciplinary research involving co-development partners. The output will be academic output focused on successes, challenges, learnings associated with research undertaken by the Challenge.

Activity 2 – Te Au o Te Moana - Ocean knowledge (SS 2)

This is a cross-strand project communicating ocean knowledge generated by Challenge researchers from multiple perspectives (eg. biophysical, social, economic, Mātauranga Māori). This could provide an outward facing entry to the Challenge research/legacy for Māori partners, stakeholders, educators, and the general public. The form and outputs of this activity will be identified from the “End-user analysis” and “EBM Scenarios” activities in the EBM strand and will ensure that all assumptions and scale-dependencies are made explicit.

4. Budget

The funds allocated to synthesis and those currently unallocated in the current budget are \$5,152k. The following is the proposed budget allocation for synthesis activities:

Strand leaders 0.5 FTE for 2.5 years for 3 strands	\$840,000
Communications 1.0 FTE for additional communications personnel for 2.5 years	\$530,000
Strands	
EBM	\$810,000
Blue economy	\$810,000
Te Ao Māori	\$810,000
Research Process	\$400,000
Synthesis of synthesis	\$952,000
Total	\$5,152,000

The synthesis activities of the Challenge need to be agile and responsive and to assist with this, the plan and associated budget will be reviewed on an annual basis aligned with the financial year.

Appendix 1 - EBM strand activity stage 1 concepts

EBM 1 – Influencing policy and legislation

Strand	EBM
Activity 1 Title	Influencing policy and legislation
Aim	Use Challenge research(ers) to positively influence marine management and governance.
Theory of Change Outcomes	<ul style="list-style-type: none"> • The value of blue economy business models is recognised and adopted by Aotearoa New Zealand businesses. • Decision-making practices that are more inclusive, multi-sectoral and account for the effects from cumulative and multiple activities are adopted. • Knowledge from the Challenge (science and mātauranga) is used in decision-making to improve ecological health and influences Aotearoa New Zealand’s marine management practice and policy. • The complementarity of local expressions of Kaitiakitanga and EBM are well understood and enabled. • Decision-making processes explicitly identify and address both risk and knowledge uncertainty in a way that reduces risks to ecological, social, cultural and economic wellbeing. • EBM practices are understood and accepted as a viable approach by decision-makers, stakeholders and iwi. • Māori rights, interests and values are supported through the application of EBM. • Researchers and iwi and stakeholders involved during the life of the Challenge continue to actively promote, research in, and use knowledge from the Challenge.
Impact – how is it contributing to outcome and partner/end-user need	Changing the policies and legislation under which marine management presently operates to those that support ecosystem health, transition to a blue economy, and co-governance for our marine environment.
Partners, co-developers	Use synthesis co-development partners and end-users (EBM 2), Kāhui Māori, Stakeholder Panel and Governance Group to assist in identifying opportunities for input.
Specific end-users	Ministers, Policy makers, Legislators, Reporting (Treasury), Regional council planners and decision-makers.
Approach to activity	<ul style="list-style-type: none"> • Set up structure in Stage 1 but ongoing through Stages 2 and 3. • Start now, with opportunities already identified (eg. limit setting) and then onto other identified opportunities (end-user analysis Activity 1, Stakeholder Panel, Kāhui Māori, Governance Group, etc). • CLT prioritises specific topics and brings Challenge experts together to produce appropriate outputs (eg. policy briefs, opinion pieces, submissions). • To ensure the Challenge is agile and responsive to opportunities that may arise (eg. ocean policy reform), we propose the CLT prioritises and approves sections of work in this activity up to a value of \$20k with any approvals of work being reported to the Governance Group on a quarterly basis.

Expertise required	<ul style="list-style-type: none"> • Coordination and communication skills (bringing people together from across the Challenge for workshops, etc) and engaging with CLT on prioritising issues and input. • Connector – ability to identify what is happening across government at different scales. • Writing/communicating skills to prepare outputs from workshops, etc, targeted for an end-user or lever opportunity (eg. change to legislation).
Contributing projects	Whole of Challenge approach, expertise and research results will be drawn from across the Challenge as is needed. Note this is a cross-strand activity.
Timeline	Stage 1-3, with outputs occurring in all stages.
Potential forms of outputs	Policy briefs, opinion pieces, submissions, A3s. At the end of each stage key insights and recommendations will be summarised on the Challenge web site.
Indicative \$	Initial allocation of \$80k

EBM 2 – End-user analysis

Strand	EBM
Activity 2 Title	End-user analysis
Aim	Identify end-users of Challenge research and provide a mechanism for co-development of EBM 3 (Scenarios) and EBM 4 (Guides and toolkits).
Theory of Change Outcomes	All of the outcomes rely on uptake and implementation by end-users; therefore, this concept will ensure the next activities can meaningfully contribute to the TOC outcomes, specifically: <ul style="list-style-type: none"> • EBM practices are understood and accepted as a viable approach by decision-makers, stakeholders, and iwi .
Impact – how is it contributing to outcome and partner/end-user need	This activity will lay the foundation for outputs and outcomes in the other EBM activity and other Strands. It will feed immediately into influencing EBM 1 (Influencing Policy & Legislation).
Partners, co-developers	Project co-development teams. Some of the end-users.
Specific end-users	Planners, policy makers, lawyers, consent processors, politicians, marine business, iwi groups, hapū, whānau, community groups (including NGOs), government scientists, risk assessment consultancies.
Approach to activity	Short (Stage 1) and long term (Stages 2 & 3) to underpin scenario testing: <ul style="list-style-type: none"> • Start with survey of Challenge project leaders and co-development partners in combination with other projects to identify those end-user types and needs already engaged in/captured by the Challenge. • Undertake a gap analysis to identify missing types of end-users. • Assess the needs of identified end-users (to inform outputs and outcomes in EBM and other Strands), including the levers we should be focusing on from an end-user perspective. • Survey/interviews/workshops to identify and fill gaps. • Iterate throughout all stages.

	<ul style="list-style-type: none"> • Regular engagement with identified groups that become the co-development partners for activities 3 and 4.
Expertise required	<ul style="list-style-type: none"> • Ability to collate and display information in accessible formats. • Gaps analysis. • Interviewing / workshop facilitation skills.
Contributing projects	All, but especially 3.2 <i>Communicating risk and uncertainty to aid decision-making</i> , 1.3 <i>Modelling the social-ecological outcomes of community-based interventions</i> and 4.4 <i>Understanding and communicating the various implications of scales for EBM</i> , as these are all collating information from other projects and eliciting responses from co-development partners.
Timeline	Starting as soon as possible for stage 1.
Potential forms of outputs	<p>Communication briefs and searchable tables / data on the website that capture the following:</p> <ul style="list-style-type: none"> • Identification of potential end-user categories not already engaged with the Challenge through the co-development processes. • Identification of categories and end-user needs to input into scenario testing (EBM 3) and bundling the tools and guidelines (EBM 4). • Identification of types of outputs generally used by the different end-users. • Identification of end-user types and needs captured by the Challenge to feed into the Synthesis of Synthesis SS 2 (Ocean knowledge).
Indicative \$	\$70k

Appendix 2 - Blue economy strand activity stage 1 concepts

Blue economy 1 – Sustainability reporting and the BE premium

Strand	Blue Economy
Title	Nature-related disclosures and the BE Premium
Aim	Ensure that concerns with biodiversity, Te Ao Māori, healthy marine ecosystems and EBM are incorporated into nature-related disclosures and related standards and frameworks and highlight their potential for creating BE value and supporting EBM.
Theory of Change Outcome	<ul style="list-style-type: none"> • The value of blue economy business models is recognised and adopted by Aotearoa New Zealand businesses. • Decision-making processes explicitly identify and address both risk and knowledge uncertainty in a way that reduces risks to ecological, social, cultural and economic wellbeing. • Knowledge from the Challenge (science and mātauranga) is used in decision-making to improve ecological health and influences Aotearoa New Zealand’s marine management practice and policy.
Impact – how is it contributing to outcome and partner/end-user need	<ul style="list-style-type: none"> • Support sustainability reporting initiatives (NRDs and others) as a BE goal (in itself), including ensuring that EBM principles are picked up and translated into policy. • Support regulatory push to encourage early adopters and bring slow-movers up to the level of progressive businesses by demonstrating to businesses win-win scenarios and potential BE premium and supporting businesses to adopt measures. • Supporting policy agencies to incorporate EBM principles into nature-related reporting. • Extend minimal requirements into the wider adoption of BE principles.
Partners, co-developers	Sustainability Standards Accounting Board, blue economy environmental consultancies, sector organisations.
Specific end-users	External Reporting Board, Sustainability Standards Accounting Board, Blue economy businesses.
Approach to activity	<ul style="list-style-type: none"> • Assemble a knowledge base for NRD from Challenge research. • Assemble a BE expert panel - to inform agencies developing NRD, translate Challenge research into the process, engage with business end-users, and co-develop initiatives to identify and demonstrate BE premium. • Host webinars, liaise with BE businesses to engage businesses in development processes and support early adopters.
Expertise required	Sustainable business expertise, sector-specific business expertise, BE champions, ecological measurement expertise, public sector measures and statistics, Te Ao Māori, mātauranga Māori, new technology adoption in business.
Contributing projects	EBM synthesis Activity 1; Projects 2.2 <i>Restorative marine economies</i> , 2.3 <i>Indigenising the blue economy in Aotearoa</i> , 2.17 <i>Kia tika te hī ika</i> :

	<i>Exploring fisheries tikanga and mātauranga, 3.3 Risks to businesses from uncertainty, 1.1 Ecological responses to cumulative effects, S7 Ki uta ki tai.</i>
Timeline	Activity needs to start immediately to engage effectively with the NRD process; Stages 2 and 3 will develop in tandem with external processes.
Potential forms of outputs	Expert panel formed; webinars; meetings with NRD and related development panels; report outlining data availability, opportunities to incorporate biodiversity, Te Ao Māori, healthy marine ecosystems and EBM, and potential for a BE premium.
Indicative \$	\$80k

Blue economy 2 – Applying principles of a Blue Economy

Strand	Blue economy
Title	Applying Blue Economy principles
Aim	Develop/create core principles of Blue Economy that synthesise and translate BE research for application in end-user decision-making
Theory of Change Outcome	<ul style="list-style-type: none"> • The value of blue economy business models is recognised and adopted by Aotearoa New Zealand businesses. • Decision-making processes explicitly identify and address both risk and knowledge uncertainty in a way that reduces risks to ecological, social, cultural and economic wellbeing. • Knowledge from the Challenge (science and mātauranga) is used in decision-making to improve ecological health and influences Aotearoa New Zealand’s marine management practice and policy. • Researchers and iwi and stakeholders involved during the life of the Challenge continue to actively promote, research in, and use knowledge from the Challenge.
Impact – how is it contributing to outcome and partner/end-user need	<ul style="list-style-type: none"> • To achieve transitions to a BE in New Zealand, investment will need to be channelled into marine economy activities that perform economy differently. Decision-makers will require tools and guidance to make that happen – from existing businesses to new investors, science funders, and resource management agencies. A set of principles designed to guide decision-making will enable these tools to be constructed. • Will support policy making (local and central government as well as sector and iwi based) to channel science and economic development funding decisions into transitioning to a blue economy.
Partners, co-developers	Use Challenge partners (MBIE, MPI, MfE, Regional Councils, sector bodies, Kāhui Maori, Stakeholder Panel) and BE Strand Advisory Group, to assist in identifying potential partners (including Māori entities – iwi, pan-iwi - Sustainable Business Network, ethical investor / social enterprises, sector leaders).
Specific end-users	<ul style="list-style-type: none"> • Hapū/iwi/pan-iwi economic entities (large and small). • Sector bodies (seafood, fishing, aquaculture, tourism, blue-tech).

	<ul style="list-style-type: none"> • Māori Economic Development Panel, finance industry, regional EDAs, regional/local government, economic development agencies, Sustainable Business Network.
Approach to activity	<ul style="list-style-type: none"> • Identify relevant Phase I work (eg. mapping a Māori economy). • Assemble and collate examples of BE principles internationally and in other forms (eg. certification frameworks, promises, commitments). • Canvas key informants (business, policy, Māori economy, BE champions) to collate material for draft principles. • BE webinar series focused on core principles to engage across multiple sectors and sizes of enterprise. • Identify potential blue economy champions in multiple fields and enrol champions in BE webinar series, Challenge conference, and development of BE Strand activities. • Appoint and engage BE Strand Advisory Group, and scope opportunities and priorities to influence end-user decision-making. • Workshop to assess relevance, purpose and scope of principles alongside other certification, standards, audit/promises processes etc.
Expertise required	Sustainable business, standards setting, Te Ao Māori, mātauranga Māori, BE principles, ethical investment practices, sector-level expertise, business model and investment expertise, local government environmental and economic development policy, science investment and economic development funding expertise.
Contributing projects	Blue Economy core projects, Innovation Fund projects, Project 3.1 <i>Perceptions of risk and uncertainty</i> , 3.2 <i>Communicating risk and uncertainty</i> , 3.3 <i>Risks to businesses from uncertainty</i> , 4.1 <i>Treaty relationships and EBM</i> , 4.2 <i>Policy and legislation for EBM</i> , 4.3 <i>Enabling kaitiakitanga and EBM</i> , Synthesis Projects.
Timeline	Begin now to link effectively to other BE synthesis strands and EBM Activity 1. Will continue to progress across all three stages.
Potential forms of outputs	Across all stages: Set of core BE principles; webinars and workshops; vignettes demonstrating business opportunities; guidelines for businesses of how to adopt the principles; interactive criteria/scorecard for businesses to measure progress; guidelines and criteria for local/regional government planning and consenting. Outputs for Stage 1: Webinars; Advisory Group named and engaged; BE champions identified and supporting material collated; map of end-user sites and potential influence; draft set of principles.
Indicative \$	\$30k

Blue economy 3 – Building an interconnected blue economy in place

Strand	Blue economy
Title	Building a blue economy in place
Aim	Identify value creation opportunities from connections among different BE activities across sectors, different types of business and economic activity (from corporate to community scales) and develop strategies for place-based blue economy development.
Theory of Change Outcome	<ul style="list-style-type: none"> • The value of BE business models is recognised and adopted by Aotearoa New Zealand businesses. • Knowledge from the Challenge (science and mātauranga) is used in decision-making to improve ecological health and influences Aotearoa New Zealand’s marine management practice and policy. • Researchers and iwi and stakeholders involved during the life of the Challenge continue to actively promote, research in, and use knowledge from the Challenge.
Impact – how is it contributing to outcome and partner/end-user need	<p>This project will enable Regional Council, iwi, community and private sector-led blue economy development plans, strategies, and initiatives, and support all economic actors to build a successful and resilient blue economy at relevant place-based scales. It will:</p> <ul style="list-style-type: none"> • Enable strategic approaches that ensure investment delivers more than the sum of its parts to local communities and nation. • Identify opportunities, improve investor confidence, and channel public science and economic development investment.
Partners, co-developers	Regional Councils, regional Economic Development Agencies (EDA), mana whenua, core regional businesses, sector organisations, community groups, MBIE and Callaghan Innovation, Local Government.
Specific end-users	Regional EDAs, regional businesses, economic development and science funding agencies, environmental management agencies.
Approach to activity	<ul style="list-style-type: none"> • Identify examples of successful regional or place-based cross-sectoral BE initiatives and identify what works and what doesn’t. • Bring together project leaders from across BE projects and relevant Tangaroa and Synthesis projects to examine opportunities for connections across sectors and types of economy. • Incorporate place-based development as a topic into BE webinar series - scope levels of interest in incorporating blue economy initiatives into Aotearoa NZ regional development programmes. • Workshop place-based BE development approaches (eg. regional development strategy, or other locally scale initiatives) with BE champions and co-development partners. • Assemble case specific teams and approaches for 1-3 cases based on existing Challenge research.
Expertise required	Regional development expertise (clusters, smart region, sustainable development, place-based development), sector specific business expertise, business experience (across sizes from SME and whanau bases to corporate), community and hapū base economy, mātauranga Māori, EDA experience.

Contributing projects	Core BE projects; Innovation Fund projects; Projects 3.1 <i>Perceptions of risk and uncertainty</i> , 4.1 <i>Treaty relationships and EBM</i> , 4.4 <i>EBM and scale</i> , T1 <i>Awhi Mai Awhi Atu: Enacting a kaitiakitanga-based EBM</i> , S1 <i>Hawke's Bay regional study</i> , S2 <i>Synthesis of Tasman Bay and Golden Bay Phase I research</i> , S3 <i>Synthesis of Tangaroa Phase I research</i> , S6 <i>Marlborough Sounds regional study</i> ; S7 <i>Ki uta ki tai</i> .
Timeline	Start in Stage 1 but ongoing through Stages 2 and 3 – needs to start immediately to facilitate co-development processes, and leverage interest from Nelson Regional Development Agency and existing regional synthesis work with Hawke’s Bay Regional Council.
Potential forms of outputs	<ul style="list-style-type: none"> • Report on place-based BE opportunities and what works and what doesn’t in co-ordinating the development of place-based BE opportunities (combining outcomes of Phase I research analysis and Phase II BE research workshop). • Case study and activity team selection and co-development process established. <p>Later stages: Regional development strategies for case regions (including whanau, community, and social enterprises); and put strategy into action.</p>
Indicative \$	\$50k

Appendix 3 - Te Ao Māori strand activity stage 1 concepts

Te Ao Māori 1 – Te Ao Māori Framework

Strand	Te Ao Māori
Title	He Taura Here, Developing a framework to weave/connect Te Ao Māori Strand with other strands of the challenge
Aim	Develop a framework that supports the Te Ao Māori strand to collate findings across the challenge associated with Māori ways of knowing, thinking and practice
Theory of Change (ToC) Outcome	<p>It is envisaged that an established Taura Here framework will provide a platform to collate, analyse and share understandings produced by the kaupapa Māori projects of the Challenge. It will contribute to the following Theory of Change outcomes:</p> <ul style="list-style-type: none"> • Knowledge from the Challenge (science and mātauranga) is used in decision-making to improve ecological health and influences Aotearoa New Zealand’s marine management practice and policy. • The complementarity of local expressions of kaitiakitanga and EBM are well understood and enabled • Decision-making processes explicitly identify and address both risk and knowledge uncertainty in a way that reduces risks to ecological, social, cultural and economic wellbeing. • Researchers, Iwi and Stakeholders involved during the life of the challenge continue to actively promote, research in, and use knowledge of the challenge.
Impact	<p>The Taura Here Framework will provide a guide to highlight Māori ways of knowing, understanding and practice from within the Challenge and will provide impact by:</p> <ul style="list-style-type: none"> • Showing examples and guidance of kaupapa Māori epistemologies within Challenge projects. • Communicating the value of kaupapa Māori projects within the Challenge by the project co-partners. • Providing guidance for following activities within the Te Ao Māori Synthesis Strand. • Providing a framework to weave, connect and underpin Te Ao Māori approaches within the EBM and Blue Economy strands.
Partners, co-developers	<ul style="list-style-type: none"> • Kāhui Māori, Te Hononga (including the Vision Mātauranga Leadership Group (VMLG)). • Targeted iwi, hapū and Māori entity partners in Challenge projects – connected to via Te Hononga members. • Policy and planning representatives from agencies relevant to our iwi, hapū and Māori entity partners.
Specific end-users	<ul style="list-style-type: none"> • Challenge Māori researchers. • Broader Challenge researchers. • Iwi, hapū and Māori entities. • Policy and planning (Local and Regional Govt) representatives from agencies relevant to our iwi, hapū and Māori entity partners.
Approach to activity	<p>Initial workshop with VM Leadership Group to:</p> <ul style="list-style-type: none"> • Discuss the synthesis activity and expand on the ideas, options, planning, and preparation for all three Stages.

	<ul style="list-style-type: none"> Identify potential project links. Identify potential Advisory Group members and role. <p>Establish Advisory Group:</p> <ul style="list-style-type: none"> Approach potential members. Organise a wānanga with the members to introduce the project, refine its aims and approaches. <p>Wānanga with Te Hononga to:</p> <ul style="list-style-type: none"> Discuss the synthesis activities and draw on the collective knowledge, experiences, and information from members relevant to the research and partnerships they have in the Challenge. Co-design the approach and concepts for Stages 2-3.
Expertise required	<ul style="list-style-type: none"> Advisory Group (Te reo, kawa & tikanga, te ao Māori epistemologies). Kaupapa Māori Researchers. Workshop/Wānanga Facilitation. Communications and Coordination. Interviewing. Qualitative analysis. Policy/planning.
Contributing projects	Tangaroa projects (Phase I & II) <i>Indigenising the blue economy in Aotearoa, Treaty relationships and EBM, Enabling kaitiakitanga and EBM, EBM and scale</i> and Phase II Innovation Fund projects.
Timeline	Stage 1 (finishing in stage 3)
Outputs	Stage 2-3 concept/s. Information (in the form of wānanga summary reports), narratives from wānanga participants.
Indicative \$	\$82K

Te Ao Māori 2 – He Waka Taurua

Strand	Te Ao Māori
Title	He Waka Taurua – Māori approaches and principles for mātauranga Māori based marine management.
Aim	To discuss, articulate and share understandings of Te Ao Māori principles and approaches that guide mātauranga Māori based approaches to marine management.
Theory of Change Outcome	<ul style="list-style-type: none"> Decision-making practices that are more inclusive, multi-sectoral and account for the effects from cumulative and multiple activities are adopted. Knowledge from the Challenge (science and mātauranga) is used in decision-making to improve ecological health and influences Aotearoa New Zealand’s marine management practice and policy. The complementarity of local expressions of Kaitiakitanga and EBM are well understood and enabled. Decision-making processes explicitly identify and address both risk and knowledge uncertainty in a way that reduces risks to ecological, social, cultural and economic wellbeing. EBM practices are understood and accepted as a viable approach by decision-makers, stakeholders and iwi.

	<ul style="list-style-type: none"> • Māori rights, interests and values are supported through the application of EBM. • Researchers and iwi and stakeholders involved during the life of the Challenge continue to actively promote, research in, and use knowledge from the Challenge.
Impact	<p>This activity aims to draw on the experiences of kaupapa Māori projects and co-partners within the Challenge to outline Māori ways of knowing, understanding and practicing their reciprocal relationships with the moana. This will develop from within a Te Ao Māori context and enable and empower a more meaningful connection to EBM which is developed from within a science context. Impact focus will be on the following:</p> <ul style="list-style-type: none"> • Contextualise kaupapa Māori ways of knowing, understanding and practice. • Clarify how Challenge research has benefited Te Ao Māori approaches. • Profile the role of kaupapa Māori researchers and project partners within the Challenge.
Partners, co-developers	<ul style="list-style-type: none"> • Kāhui Māori, Te Hononga (including VMLG). • Targeted iwi, hapū and Māori entity partners in Challenge projects – connected to via Te Hononga members. • EBM and Blue Economy synthesis strand and workstream leaders.
Specific end-users	<ul style="list-style-type: none"> • Challenge researchers. • Whanau, hapū iwi settlement trust partners in the Challenge. • Māori entity partners in the Challenge. • Local and central government representatives.
Approach to activity	<p>Initial workshop with VM Leadership Group to:</p> <ul style="list-style-type: none"> • Discuss the synthesis activity and expand on the ideas, options, planning, and preparation for all three stages. • Identify potential project links and personnel to undertake stages 2 and 3. <p>Facilitate wānanga with the Kāhui Māori and Te Hononga to:</p> <ul style="list-style-type: none"> • Discuss the workstream and draw on the collective knowledge, experiences, and information from members relevant to the identification of an initial set of key Te Ao Māori principles for marine management. • Co-design the approach and concepts for Stages 2-3.
Expertise required	<ul style="list-style-type: none"> • Kaupapa Māori Researchers. • Workshop/Wānanga Facilitation. • Communications and Coordination. • Te reo, kawa and tikanga, te ao Māori epistemologies. • Facilitation. • Interviewing. • Qualitative analysis.
Contributing projects	<p>Tangaroa Projects (Phase I & II) and <i>Indigenising the blue economy in Aotearoa, Treaty relationships and EBM, Enabling kaitiakitanga and EBM, EBM and scale</i> projects.</p>
Timeline	<p>Stage 1 (finishing in stage 3).</p>
Outputs	<p>Stage 1. Stage 2-3 concept/s.</p>

	Information (in the form of wānanga summary reports), narratives from wānanga participants. Initial set of Te Ao Māori principles for marine management.
Indicative \$	\$58k

Appendix 4 – Research Process strand activity stage 1 concepts

Research Process 1 – Academia to impact

Strand	Research Process
Activity 1 Title	Academia to impact
Aim	To synthesise and document lessons learned as Challenge researchers transitioned to co-developed, transdisciplinary and end-user-focused research.
Theory of Change Outcomes	No direct link to TOC. Identified by ISP, Stakeholder Panel and Kāhui Māori as an important part of synthesis of the Challenge.
Impact – how is it contributing to outcome and partner/end-user need	Providing guidance tailored to the needs of specific end-users on co-developed, transdisciplinary research to enhance EBM, Blue Economy and Te Ao Māori outcomes.
Partners, co-developers	Co-development partners from Phase I and II.
Specific end-users	National and international researchers, stakeholders, Māori, and other research partners.
Approach to activity	<ul style="list-style-type: none"> • Determining interview/focus group approach with Project Leaders, other researchers, stakeholders, and other research partners across Phase I and II. • Conducting interviews/focus groups with researcher sample identified in 1. Interviews/focus groups will explore, among other things: what, if any, changes in thinking were required by researchers to focus on end-user impacts as a priority; co-development partners' experiences (including in Phase I); stakeholders' different experiences; and Māori partners' different experiences. • Analyses and comparisons of Phase I and II research team composition as initial step in documenting the transition from multi- to transdisciplinary. • Analyses and comparisons of Phase I and II output types (ie. guidance, tools, reports, articles). • Evaluation of how the role of Communications has changed from Phase I to Phase II (from ad hoc and centralised, to planned project-based communications).
Expertise required	Qualitative social science research skills (interviewing and focus group experience, analytical skills). Ability to identify relevant key informants, plan and execute data collection approach with multiple participants. Kaupapa Māori research experience.
Contributing projects	All projects – Project Leaders and co-development partners from Phase I and II (contingent on availability of those no longer part of the Challenge).
Timeline	Stages 1-3, with outputs throughout.
Potential forms of outputs	Summaries (eg. Challenge communications, output types), guidance, academic publication.
Indicative \$	\$80k