

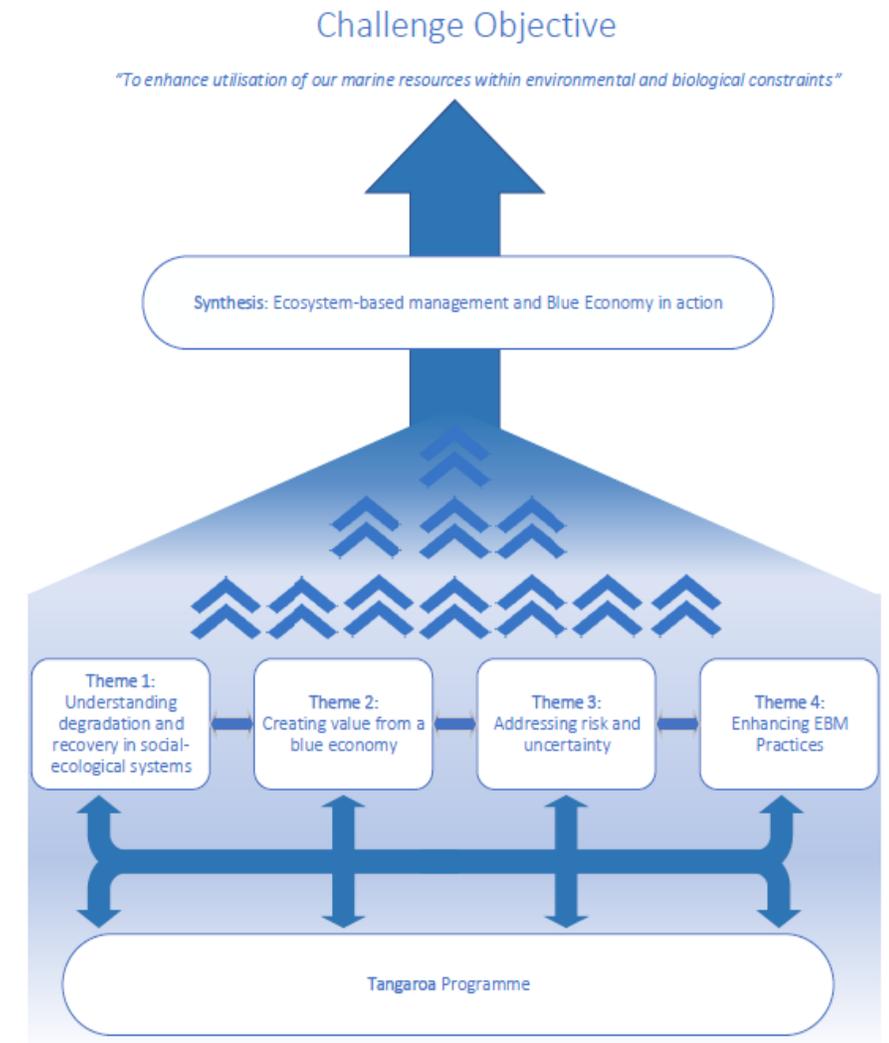
# Synthesis: EBM and Blue Economy in action

Chris Cornelisen & Emma Newcombe  
25 Feb 2020

# Synthesis aims

In order to deliver on the Challenge objective we need to:

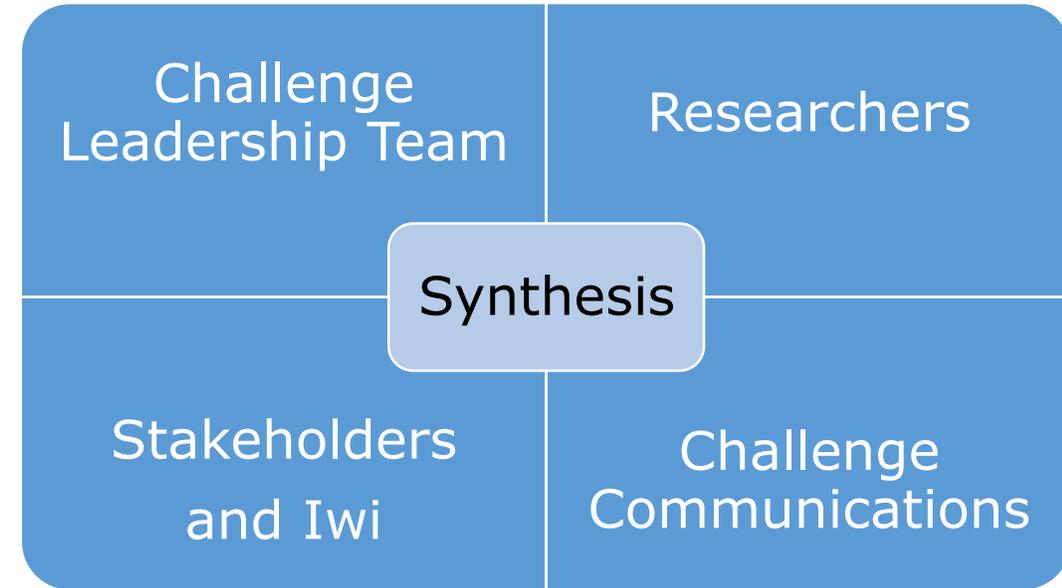
- provide a platform for research learnings and outputs to land and be **integrated**
- Synthesise across learnings and outputs to produce **new knowledge** based on the ‘sum of the parts’
- Produce **useful** outputs that have **high impact** and enable **implementation of EBM**.



# Synthesis activities

- Collate / integrate knowledge, learnings and outputs (e.g. tools);
- Carry out synthesis research and produce a range of different types of outputs that maximise impact;
- Facilitate regional studies aimed at addressing EBM issues and growing the Blue Economy;
- Develop synthesis process and build the foundation for carrying out Year 5 synthesis activities.

## Who will participate?



# What are we currently working on?

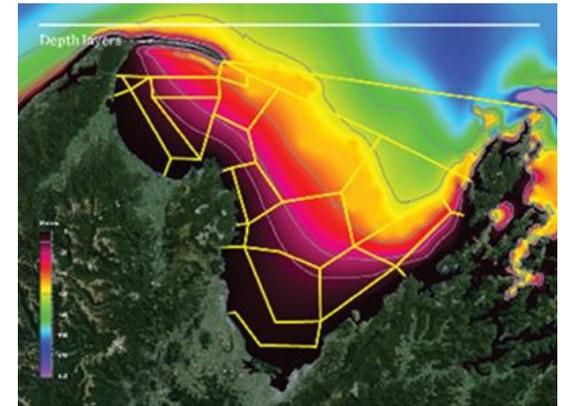
## Phase 1 synthesis

- Tasman Bay – Golden Bay (stage 1 near complete)
- Tangaroa research (stage 1 beginning)

## Synthesis topics likely to be initiated soon

- EBFM study in collaboration with MPI
- EBM Toolbox (Tools across the Challenge)
- Managing for cumulative effects / tipping points (links with MfE Marine Domain report, PCE estuary report pending)
- Socialising EBM and Blue Economy

Additional topics to be identified with stakeholders and iwi



# Regional studies (EBM and BE in action)

## Activities

- Trial processes, tools, frameworks, etc. in co-developed case study projects with willing stakeholders and Māori.
- Synthesise across case studies, bringing together learnings and developing outputs that meet the needs of decision makers and practitioners and enable them to implement EBM.

Hawkes Bay underway – starting with Systems Mapping  
Marlborough Sounds in planning stages



# Tasman Bay – Golden Bay (TB-GB) synthesis

Stage 1 of the TB-GB synthesis aims to collate research and findings in order to inform engagement with stakeholders and iwi, identify specific needs for implementing EBM, and help guide co-development of a synthesis output (Stage 2).

## The first stage has included:

- targeted engagement with key stakeholders and iwi representatives to assist in shaping content
- collation of information on datasets and research findings from Phase 1

# TB-GB synthesis data collection

- **What were the key new findings?**
- **Are actions recommended** by this project? (for **restoration** or otherwise) And if so, what? (policy/management/other)
- **Do the results help assess** whether **management changes** are making any difference to the health of marine ecosystems?
  - Can change be assigned to specific causes? (SoE vs management)
  - What metrics can we use to measure effectiveness of those changes?
- In the case of tools development, **what is the pathway to use** for new or potential users? (**including potential to integrate mātauranga Māori**)
- Does this project provide information about a **historical baseline**?
- What **data/maps** etc. are available to interested parties such as iwi?

# Information gathering

- Little project overview information
- Good communications regarding process, little regarding results (webinars often the best source of information)
- Restrictions on access (e.g. not open access publications)
- Some work not completed, or outputs not in a useable state

# Key findings

- Summarised

## Are actions recommended?

- Social science, Tangaroa, and VM – more easily identified recommendations
- Workshop recommendations – many but based on existing knowledge
- Few explicit management recommendations from new biophysical research

# Do the results help assess whether management changes are making any difference?

- Specific causes of historical change Estimating historic effects from sedimentation and fishing (4.3.4, Sean Handley)
- Models can be used to assess potential impact (i.e. likelihood of success) of different management options  
Ecosystem models (5.1.1, Ian Tuck)

# Pathway to use

- Question focused mainly on tools
- ‘Read the relevant report’
- Processes and models described in some reports, specialist input is generally required
- Clear paths to use for:
  - Plastics tracker
  - Forecasting contamination risk
  - SeaSketch layers?

# Historical baseline?

- Numerous present-day 'baselines'
- **Historical** baseline data Estimating historic effects from sedimentation and fishing (4.3.4, Sean Handley) Sediment and death assemblages

# Data/maps

(large-scale data that would be available for general use)

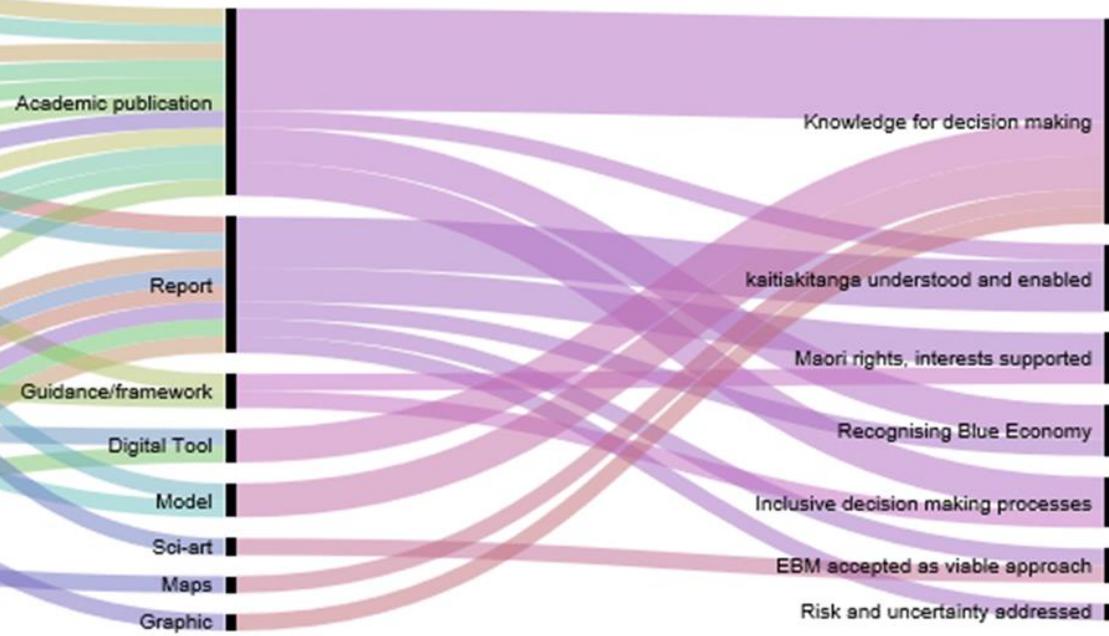
- Data assembled into SeaSketch. ~31 map layers What could ecosystem-based management look like in Tasman and Golden Bays? (CP2.1, Judi Hewitt) *Availability?*

# Research and outputs relevant to TB-GB

## Phase 1 Projects

- Spatially-explicit decision support tools
- EBM-enabling narratives for New Zealand
- Enabling collaboration on cumulative effects
- Frameworks for social licence
- Historic effects from sedimentation and fishing
- Kaitiakitanga in our marine environment
- Novel risk assessment tools
- Testing participatory processes for marine management
- Tipping points in ecosystem structure, function and services
- Ecosystem connectivity
- CP2.1 - Systems Mapping
- Creating value from a blue economy
- Ecosystem models
- Incorporation of indigenous approaches to guardianship
- Māori Moana, Māori Tangata, Māori Ora
- Navigating marine social-ecological systems
- Participatory tools
- Quantifying marine biodiversity using environmental DNA
- Stressor footprints and dynamics
- CP2.1 - Seasketch
- Forecasting contamination risk for shellfish harvest and beach use
- Creating a world-leading indigenous blue economy
- EBM within NZ's legislative framework
- Kaitiakitanga in practice
- Measuring ecosystem services and assessing impacts
- Repository of knowledge: mātauranga Māori
- Tikanga Māori me te Ture Pākehā ki Takutai Moana
- Māori governance jurisdiction models over marine resources

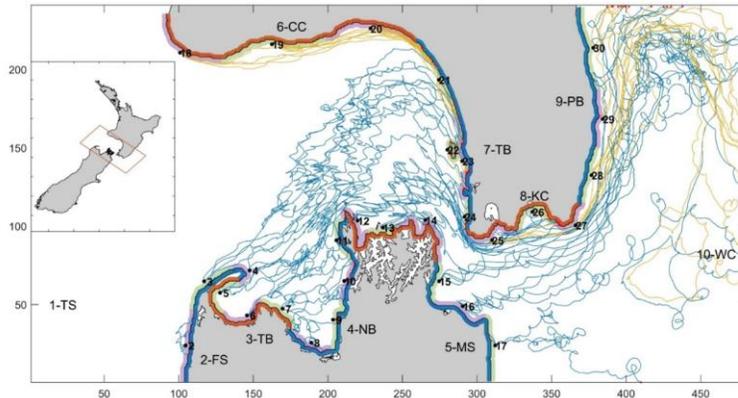
## Output types



## Theory of Change Outcomes

# What are the opportunities for TB-GB synthesis?

- Ways of working from VM/Tangaroa/Social science work
- Subject of synthesis shellfish / seabed health
- Tools that can be trialed and implemented



# How we could work (informed by Phase 1 research)

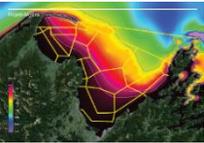
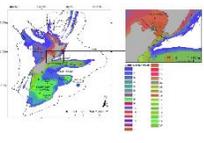
- evidence of Māori practices and values (Jackson, Rout et al, Šunde et al)
- legal analysis of why co-governance is needed (Joseph)
- descriptions of marine co-governance in NZ and Canada, criteria for success (Makey, Joseph, Tiakiwai)
- practical suggestions for co-governance processes and arrangements (Maxwell, Joseph Tiakiwai, Šunde et al)
- accounts of marine participatory processes and their outcomes in Auckland (Peart), Nelson (Connolly), and across NZ (Le Heron)
- recommendations for participatory process design (Le Heron, Peart, Connolly)
- a set of questions to guide organizational cooperation for cumulative effects management (Davies)

# What we could work on (informed by Phase 1 research)

**Topic:** Sedimentation, habitat integrity and scallops

- Atlantis: scallops should recover based on fishing effort, however
- Sediment cores show that:
  - bottom contact fishing now having the largest effect on the communities in soft-sediment habitats
  - resuspension is responsible for as much sediment arriving (at Separation Point) as new inputs
- Expert opinion: cessation of bottom contact fishing is required for scallop recovery
- Other factors:
  - terrestrial sedimentation/accumulated fine sediment
  - terrestrial nutrients/other contaminants
  - seabed restoration
  - climate change

# TOOLS

Tool	How can it be used?	Further development required?
	<b>Atlantis</b> To understand drivers of ecosystems and how ecosystem components may respond to various management interventions.	There is a functioning model for Tasman and Golden Bays; it can continually be improved, validated, etc.
	<b>Spatial Decision Support tools</b> To weigh up different spatial management scenarios and optimize spatial plans for maintaining seabed health and biodiversity.	Models can be used now and be continually improved.
	<b>BayesNet model and decision tool</b> To demonstrate how different management decisions lead to varying outcomes, the importance of which will vary among stakeholders.	The model requires revisiting through a proper stakeholder and iwi run process, whereby they participate in the model's construction.
	<b>Plastic Tracker</b> To visualize connectivity of our coastal waters. The tool is easily accessed and used with any device capable of logging onto the internet.	No further development required; the tool can be expanded to the whole of the EEZ.
	<b>Contamination nowcasting tool</b> To obtain 'nowcasts' of river plumes and levels of faecal contamination. Aquaculture farmers and Councils can use the tool to assist in managing shellfish harvest and beach closures.	Validation process and trials are required prior to roll out.
	<b>System mapping</b> To facilitate decision making; for example in helping communities prioritise, rationalize and implement management interventions to restore seabed health.	Two system maps have been completed (one pilot and one Maori led). A full system mapping exercise is required for real world application.
	<b>SeaSketch</b> To share spatial information and data layers widely and encourage participation; the tool has embedded functions for surveying, sharing knowledge (safely) and collaborative spatial planning (drawing on maps).	Tool is functional for TBGB. Requires training of users and someone to manage and load additional data layers.

# Next steps

## Further targeted engagement

- Nelson Biodiversity Forum
- Iwi CE/GMs forum
- Additional Council contacts

## Co-development of Stage 2 proposal

(if stakeholders / iwi are supportive and willing to participate)

