

SUSTAINABLE  
SEAS

Ko ngā moana  
whakauka

# TACKLING THE ISSUES FACING AOTEAROA'S MARINE ENVIRONMENTS

The state of our marine environment has not improved in the last three years. Resilient coasts and oceans are essential to New Zealanders' health and wealth, so urgent action is needed to address the decline.

Shifting to ecosystem-based management (see back cover) is critical to manage risk and sustain Aotearoa's coasts and oceans. This is even more important given the ongoing impacts of climate change.

# RESEARCH FOR

Our mahi directly addresses many of the issues identified in the *Our Marine Environment* report (MfE and StatsNZ, October 2019) but there are four areas of particular note: land-sea interactions and cumulative effects, incorporating tikanga and mātauranga Māori, impacts on marine values, and the blue economy.

We are mission-led, so our co-developed 2019–2024 research strategy is focused on impact and implementation. All of our 2019–2024 projects are also being co-developed with central and regional government, marine managers, Māori, industry and other interest groups, to ensure the ecosystem-based management (EBM) knowledge and tools we develop are fit-for-purpose.

## Land-sea interactions and cumulative effects

Coastal and marine ecosystems deliver multiple benefits and services, but they are increasingly under stress from nutrients, sediments and contaminants running off the land. As well as their direct impacts, these stressors interact with each other leading to cumulative effects (CE). Tackling CE is one of the most urgent and complex issues facing Aotearoa's coasts and oceans.

Improving monitoring and more research to address information gaps that hinder our understanding is important – but only part of the story. We need urgent action to change the way stressors and CE are managed. Shifting from a fragmented and inconsistent approach to a consistent, holistic, ki uta ki tai (mountains to deep sea) strategy is the only feasible way to tackle CE.

Sustainable Seas is leading collaborations with central government agencies, local and regional councils, Māori, and industry.

### We have:

- Carried out Aotearoa's first national marine experiment investigating how estuaries and harbours respond to excess sediment and nutrients. This knowledge is important for informing coastal management decisions. Regional councils have actively engaged with this work and they are already using the information and insights
- Co-developed the Aotearoa Cumulative Effects (ACE) framework, which can guide collaborative CE management across a range of scales.

### We are:

- Collaborating with Hawke's Bay Marine and Coastal Group, including the Regional Council, to map environmental stressors and their interactions, and provide guidance for reducing their impacts
- Identifying gaps in policy and practice and other barriers to implementing EBM
- Working with government agencies and other partners to trial the ACE framework
- Building understanding of CE on ecological function to support marine management
- Co-developing new tools to incorporate ecological responses to CE into management action.

## Incorporating tikanga and mātauranga Māori into monitoring and management

Māori ways of knowing and doing have to be part of the solution when addressing the issues Aotearoa's marine ecosystems face.

Sustainable Seas has research focused on improving the way Māori knowledge, practice, interests and rights can inform, guide and partner in marine management.

### We have:

- Co-developed an online pataka mātauranga (digital resource) to make both mātauranga Māori and contemporary science more accessible and useful to the kaitiaki and hapū of Tauranga Moana
- Co-developed a culturally-relevant pathway to enable mana whenua iwi in Tasman and Golden Bay to evaluate and contribute to management of their marine environment
- Developed a repository of mātauranga Māori associated with the marine environment that identifies themes that are important to consider, and signposts where to find the information needed, to make informed decisions about New Zealand's marine environments and resources
- Investigated the relationship between mātauranga and tikanga Māori and New Zealand law with relevance to its application in the marine estate
- Contributed to the development of innovative governance tools for the marine environment that enhance relationships between Māori, the Government and industry.

### We are:

- Expanding the co-developed online pataka mātauranga so it can be used at different locations and scales, and exploring how it can be used for EBM
- Establishing kaitiakitanga and other Te Ao Māori based frameworks to inform improved management at different scales and locations
- Investigating how EBM and kaitiakitanga complement and differ from each other, to improve decision-making processes.

# ACTION:

## Impact on marine values

*Our Marine Environment* highlighted the impact of ecosystem decline on New Zealanders' non-economic marine values.

Economic benefits such as employment opportunities are an important consideration in marine environmental planning, policy and decision-making, but are not the only ones that need to be incorporated. However, intangible values are often not properly considered, or even recognised, until they are already irreparably damaged or lost.

We need better ways to identify, and take into account, the importance of ecological, social, cultural and spiritual values as part of Aotearoa's marine management.

### We have:

- Investigated ways to assess the ecosystem services and non-monetary benefits provided by marine ecosystems
- Investigated ways to identify and assess the values New Zealanders hold for the marine environment
- Developed a framework for including non-monetary values in decision-making.

### We are:

- Investigating the degree to which personal, cultural and sectoral perceptions of risk differ, and how this affects decision-making
- Developing tools to improve understanding and communication of the consequences of risk and uncertainty in decision-making.

## A 'blue' marine economy

*Our Marine Environment* notes that our oceans support us ecologically and spiritually, as well as financially. Many New Zealanders earn their living from the seas; ensuring that future generations have this opportunity, without losing ecological and spiritual values, is part of our mission.

### What is a 'blue economy'?

We define this as marine activities that generate economic value and contribute positively to social, cultural and ecological well-being.

### We have:

- Worked collaboratively with hapū in Tairāwhiti to develop bioactives from kīna
- Investigated the potential for generating electricity from the Cook Strait's strong tidal currents
- Worked with industry to trial techniques to raise the pH of coastal waters around mussel farms to mitigate ocean acidification to improve shellfish growth
- Investigated the regulatory, social, economic and environmental considerations relating to decommissioning offshore oil and gas infrastructure in Taranaki.

### We are:

- Working with central government and industry to identify and prioritise opportunities for blue economy initiatives
- Allocating funding for co-funded innovative blue economy initiatives; these projects will be initiated in early 2020.

## Collaboration with central and regional government

All of our 2019–2024 research projects are being co-developed with central and regional government (as well as Māori, industry and communities), including:

- **Hawke's Bay 'EBM in action' case study – MPI, DOC, Hawke's Bay Regional Council**  
This collaboration with the Hawke's Bay Marine and Coastal Group (HBMaC) is mapping environmental stressors and their interactions, and will provide guidance for reducing their impacts. It will take a holistic approach to managing the local marine ecosystem by bringing together scientific knowledge and mātauranga Māori
- **Ecosystem-based fisheries management (EBFM) case study – MPI**  
This is in development
- **Marlborough 'EBM in action' case study – MPI, DOC, Marlborough District Council**  
This is in development.

We are also collaborating with various central government projects and initiatives:

- **MPI: Fisheries and aquaculture innovation research plan**  
Providing input to identify priority areas for investment
- **MfE: Response to *Our Marine Environment* report**  
Particularly around cumulative effects and incorporating tikanga and mātauranga Māori
- **DOC: Impacts of sedimentation**  
Collaborative activity with Our Land and Water National Science Challenge to assess the impacts of sedimentation and management options.





### Human activities

Humans, along with their multiple uses and values for the marine environment, are part of the ecosystem.



### Collaborative decision-making

Collaborative, co-designed and participatory decision-making processes involving all interested parties.



### Knowledge-based

Based on science and mātauranga Māori, and informed by community values and priorities.

# EBM

## Ecosystem-based management for Aotearoa

A holistic and inclusive way to manage marine environments and the competing uses for, demands on, and ways New Zealanders value them.



### Sustainability

Marine environments, and their values and uses, are safeguarded for future generations.



### Adapts

Flexible, adaptive management, promoting appropriate monitoring, and acknowledging uncertainty.



### Tailored

Place and time specific, recognising all ecological complexities and connectedness, and addressing cumulative and multiple stressors.



### Co-governance

Governance structures that provide for Treaty of Waitangi partnership, tikanga and mātauranga Māori.