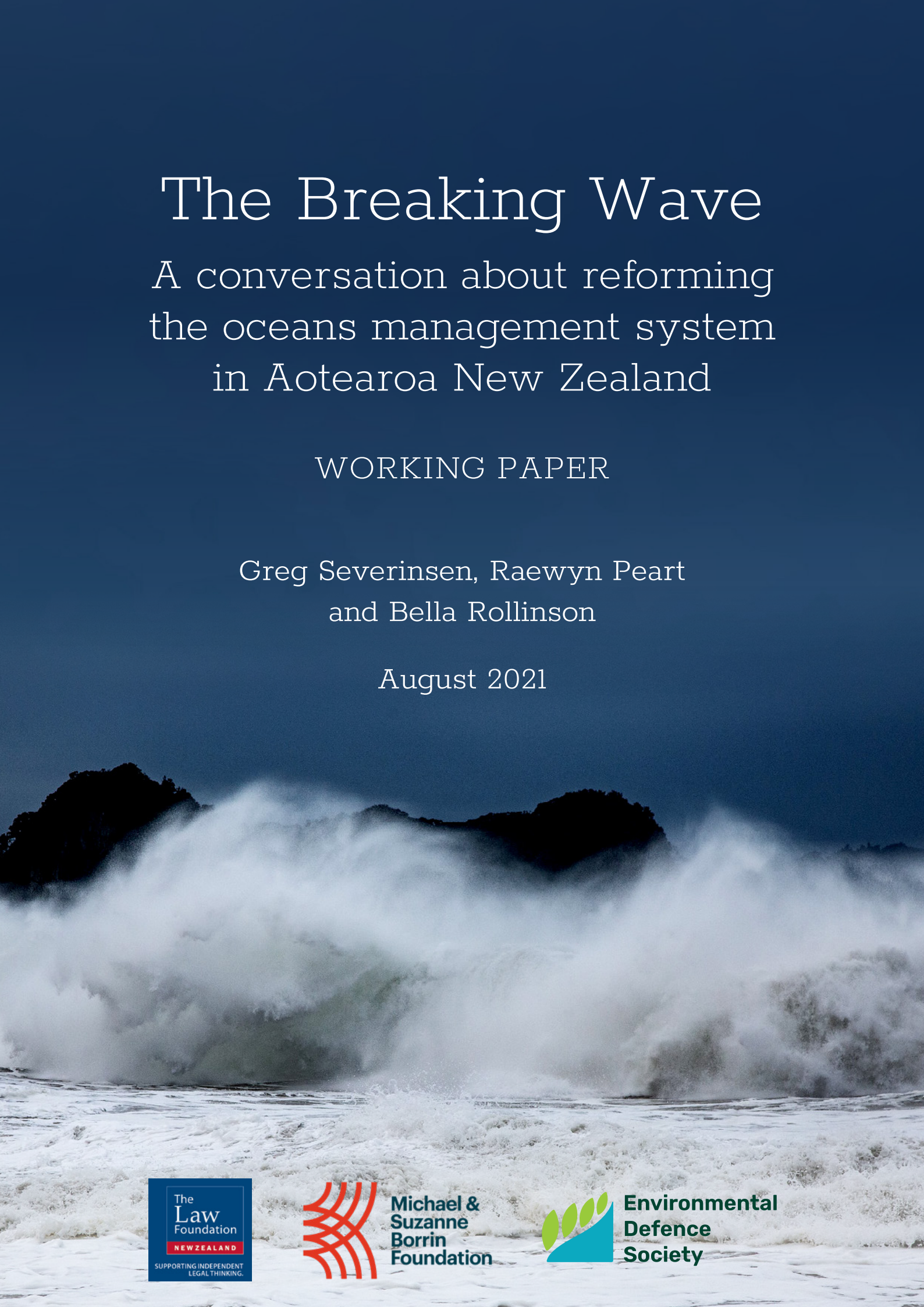
The Breaking Wave

A conversation about reforming the oceans management system in Aotearoa New Zealand

WORKING PAPER

Greg Severinsen, Raewyn Peart
and Bella Rollinson

August 2021



The Law Foundation NEW ZEALAND SUPPORTING INDEPENDENT LEGAL THINKING.

Michael & Suzanne Borrin Foundation

Environmental Defence Society

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I orea te tuatara ka patu ki waho[1]

A problem is solved by continuing to find solutions

1 This whakatauki (Māori saying) refers to the need for creative thinking, adaptability and perseverance in order to solve a problem. See <www.inspiring communities.org.nz/wp-content/uploads/2018/09/Inspiring-Communities-%E2%80%93-Whakatauki-information-sheet-pdf>.

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LIST OF ABBREVIATIONS

ACE	Annual catch entitlement
BMSY	The level of a stock that can produce the maximum sustainable yield
CPUE	Catch per unit effort
EDS	Environmental Defence Society
EEZ	Exclusive economic zone
EEZ Act	Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012
EPA	Environmental Protection Authority
Fisheries NZ	Fisheries New Zealand
FMA10	Fisheries management area 10
IMO	International Maritime Organization
ITQ	Individual transferrable quota
MACA Act	Marine and Coastal Area (Takutai Moana) Act 2011
NBA	Natural and Built Environments Act
NES	National environmental standard
NPS	National policy statement
NZCPS	New Zealand Coastal Policy Statement
QMS	Quota management system
RMA	Resource Management Act 1991
TAC	Total allowable catch
TACC	Total allowable commercial catch
TOKM	Te Ohu Kaimoana

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We also thank all those who have contributed written material including Glen Carbines, Tim Denne, Adrienne Paul, Phoebe Parson and Tracey Turner, as well as those who have given up their time to talk with us through interviews and workshops. To enable interviewees to express their views frankly and freely, all interviews were held in the strictest confidence and the identities of those interviewed have been kept anonymous. Because the point of the project is to facilitate a debate rather than test a proposition, we have fed people's perspectives into our general exploration of ideas rather than treating them as "stakeholder consultation" per se.

We also note that while the Ministry for the Environment and Department of Conservation provided some funding for the project, the views expressed and any omissions or errors are solely those of the authors/EDS.

CHAPTER ONE

Introduction

Medlands Beach, Aotea/Great Barrier Island

1.1 The project

Aotearoa New Zealand has jurisdiction over a very large marine domain. The state of that environment has recently been assessed in a joint report by the Ministry for the Environment and Statistics New Zealand (*Our Marine Environment 2019*).[1] It describes a highly valuable and important space with many conflicting uses and priorities, and with some serious and concerning environmental degradation and imminent threats of species extinctions. Biodiversity is in decline, as are habitats. Land-based activities are polluting our oceans and shorelines. Pest species are an ever-present threat. Climate change is affecting our seas and what can thrive in them. And there are questions about how we make the best use of scarce and contested marine resources. All of this is tied up with deep questions about the role of Māori and the implications of te Tiriti o Waitangi for how we manage our oceans.[2]

Our system for managing marine areas is in need of significant change if we are to turn this situation around and create a sustainable and fair future with respect to our oceans. That system often does not get the attention it deserves. We need to think about managing human activities in estuaries, the territorial sea, exclusive economic zone (EEZ) and continental shelf in an integrated way, including the land-based activities and catchments that impact on them. Oceans are not a world apart, and although for many of us they may be out of sight, we cannot afford for them to be out of mind.

The need to provide a more integrated framework has long been recognised. The current legal framework has developed over more than 50 years into an uneven patchwork of provisions. There are multiple pieces of overlapping marine legislation and some significant gaps in coverage, including no marine protected area legislation that applies outside the territorial sea. Some legislation is outdated and in need of radical revision, including, most notably, the Wildlife Act 1953, the Marine Reserves Act 1971 and the Marine Mammals Protection Act 1978. Ad hoc legislation for specific locations such as the Hauraki Gulf, Fiordland and Kaikōura is, arguably, indicative of failings in the broader system. The future of the Resource Management Act 1991 (RMA) is up in the air as the government moves to replace it with new legislation, but it appears that less thought has been given to the implications of RMA reform from a marine rather than a terrestrial perspective. There is no overarching mechanism to help ensure that all legislation impacting on the marine environment is interacting coherently or producing optimal economic, social, cultural and environmental outcomes.

Kaiteriteri Beach

At some point the accumulation of issues becomes so great, and so suggestive of deeper systemic problems, that it compels us to sit back and consider how the system works as a whole. This is a chance not just to fix a series of problems, but also to reflect on future risks and opportunities. There is a strong argument that we have reached this kind of reflection point. The process for reforming the land-focused resource management system is now well underway, in the wake of the report of the government's independent panel chaired by Hon Tony Randerson QC,[3] but this does not encompass all legislation and tools relevant to the oceans.

The need for a conversation about fundamental oceans reform was underscored last year by a Cabinet paper setting out the parameters for the government's review of the resource management system. This referred to overlapping marine legislative frameworks being addressed through "a subsequent review of the marine system".[4] Since the 2020 election and the creation of a new ministerial portfolio for Oceans and Fisheries, indications are that oceans reform is being seen by the government as important. Previous efforts at holistic reform in the early 2000s have for the most part languished since that time. We are convinced that it is timely to take a fresh look at the way we manage our oceans and rebuild momentum. This has been echoed recently in the government's announcement of a marine "vision" and a series of proposed reforms to the Fisheries Act, as well as its signal that it is open minded about deeper reforms to the oceans management system.[5]

It is against this background that the Environmental Defence Society (EDS) is conducting a research project looking at the future of our oceans management system. The EDS oceans project as a whole is about conceptualising New Zealand's oceans management system and putting forward options for change, including presenting three overall models for a future system that could be pursued. In doing so, it is building on previous work by EDS on marine issues and on its recent multi-phase resource management system reform project.[6] It is intended to support and encourage a first principles discussion about reform by providing a framework for thinking about the system as a coherent whole.

While reform is urgent and must take place within the next few years, we cannot afford to rush to pre-conceived ideas. New Zealanders all need to take the journey together. That said, the need for systemic reform should not be used as an excuse to do nothing in the meantime. There are many elements – legislative and otherwise – of the system that require targeted attention, and many (such as marine protected areas, regenerating the Hauraki Gulf, reducing catchment-based pollution and minimising waste) are on the government's radar. The EDS project is thinking about possible immediate changes – by using existing tools or tweaking key parts of our laws – within the wider framework of deeper system reform. Both are necessary, but careful thought needs to be given to how short term and longer-term reforms can work well together.

The purpose of this project is to take a first principles look at the oceans management system in Aotearoa New Zealand and outline options for reform. Exactly what we mean by the "oceans management system" and what its boundaries are is explored further below. By "first principles" we generally mean that we are asking fundamental, future-focused questions about how our overall package of laws, institutions and interventions should and can work. We are not just reacting to particular problems or looking at better ways to do the same things. We are asking why we do certain things, whether we should be doing them, and how we should be doing things in a future that will be quite different from the present.

The purpose of this working paper is more constrained in scope and depth than our final report will be. It presents our thinking so far and seeks to prompt discussion. To that end, it poses questions throughout (in green boxes). We welcome feedback both on the ideas and areas warranting further exploration.

The working paper outlines the way in which we are thinking about the oceans management system and breaking it up for analysis, identifies key biophysical problems and issues with the existing system and how it operates, and considers various options for reforming the system in the future. In terms of the latter, its focus is on how we might: change or use aspects of our toolkit to make it more effective; reconfigure legislative boundaries; and test normative assumptions about our objectives and worldviews. It also outlines some interesting approaches to marine management taken in other countries, and includes an initial exploration of the role of science and information in the system. The appendices to the paper provide more detail on key aspects. Appendix 6 provides a compiled list of key questions for feedback.

The final report, due for publication at the start of 2022, will provide a more complete analysis and range of options, including in relation to institutional design, public participation, non-regulatory tools and incentives, and the flow of information and money. It will also draw various threads together to present three overall models for what a future system could look like (similar to our approach in previous work on resource management system reform).

The project is not, however, intended to be an exhaustive list of detailed options for reform – it is primarily about framing a discussion about the system as a whole and its future, not exploring the minutiae of legal frameworks. Nor will it be making firm recommendations or arriving at a single proposition for reform; what we need first is an open conversation.

The project is not about making recommendations. Instead, it is seeking to frame and support a conversation about the future of the system as an integrated whole. This working paper explores and tests ideas and thinking so far, and we welcome constructive feedback and suggestions for areas to explore further. A final report will be produced at the start of 2022.

1.2 Defining the oceans management system

In this section, we describe the project's conceptual analytical framework. This is the way in which we are conceiving of the "system", and the way in which the system will be analysed. It does not reflect the narrower and more selective scope of this working paper; rather, it is an indication of how we are approaching the system in the work as a whole, and is likely to reflect the structure of our final report.

First, we need to consider what the oceans management system is, and how it can be split up for analysis. This "system" describes a general idea with fuzzy edges, not a concrete thing or universally agreed set of rules and processes. It is seldom talked about at all, with most preferring to think in terms of specific sectors (eg the fisheries system), statutes (eg the RMA), issues (eg marine pollution), solutions (eg marine protected areas) or disciplines (eg law, ethics, economics, social science). The oceans management system cuts across all these things.

However, we need to be careful not to define the system so widely that it loses its usefulness. The system cannot include everything, as that quickly becomes overwhelming. Compartmentalising things can make for more effective and targeted action. However, the bigger risk is to define it so narrowly that a reform package misses key components that will, in practice, undermine what we are hoping to achieve through reform. For example, recurring efforts to reform the RMA – including the most recent through the Randerson Panel process[7] – have covered some elements of oceans reform but have consistently excluded consideration of fisheries, conservation laws, and cross-cutting yet important aspects like the education, public finance and local government systems. What is true for the wider resource management system is even more important for oceans management, in that:[8]

> extensive overlap exists between multiple systems with ill-defined edges. Flow-on effects between systems need to be carefully considered when placing one system at the forefront of analysis.

Too narrow a view of the system also sits uneasily with te ao Māori, where te taiao (the interconnected and holistic relationship between all living things in respect of our natural world)[9] and te moana (the ocean) have no clear boundaries within them or between them and people.[10] Just as Tangaroa and Hinemoana (deities of the sea) see the whole of Aotearoa from the perspective of te moana, so too is the oceans management system about looking at the wider resource management system through an oceans *lens* rather than just looking at the oceans as a geographically distinct area. Importantly, that includes things happening on land that affect our marine areas.

The system is not something that is defined in legislation or elsewhere; it is, rather, a construct that includes all the laws, institutions, incentives and norms that collectively manage or influence outcomes in our seas. However, this label, while a convenient one, can be misleading. Our system of laws, institutions and so forth does not actually manage the oceans. The oceans have managed *themselves* since time immemorial. What the system does is manage *people*, and their *interactions* with the oceans. It would be more accurate – albeit probably also more confusing – to call it the marine *people* management system.

The oceans management system is about managing people's interactions with te moana. It has its eyes fixed on the oceans but its peripheral vision scans threats and opportunities beyond them, including on land. The system is a broad concept, but not one that is defined in legislation.

Coromandel mussel farm

Below, in Figure 1.1, we provide a working definition of the system, building upon that used in our resource management reform project. Essentially, this treats the oceans management system as a sub-set of the resource management system, recognising that it is more focused than the broader system but also intimately linked to it. We welcome feedback on how this definition might be added to or otherwise amended. The remainder of this chapter outlines how we are conceptualising and breaking up this system for analysis.

Port of Tauranga

"Aotearoa New Zealand's oceans"	The oceans management system is about Aotearoa New Zealand's oceans, which include areas where New Zealand has sovereignty or sovereign rights. The landward boundary of the ocean is mean high-water springs, and the seaward boundary is either the edge of the EEZ or (where it is further out) the edge of the extended continental shelf. For the purposes of this project, it does not include areas within New Zealand's Antarctic marine jurisdiction[11] or areas of the high seas where New Zealand has jurisdiction over its flagships. Oceans include all natural and physical resources in those areas, whether they are animate or inanimate, public, private or neither, or natural or built.[12] To the extent that seeing the oceans in terms of "resources" is considered unacceptably instrumentalist – a fair point – this term can be replaced with the marine "environment" or "te moana".[13] The point is that the system includes everything in the oceans. We use the terms seas, oceans, te moana and the marine environment interchangeably.
"Management"	Management includes the following *public* interventions in relation to the marine resources/environment described above: ▪ Regulation: requiring or restricting human action (you must/must not) ▪ Behavioural incentives: influencing human action (you should) ▪ Resourcing/funding: enabling human action (you can) ▪ Strategy: making a plan for how the above three interventions will happen over time and space In order to generate the following kinds of actions: ▪ Limiting or preventing human activities to manage adverse impacts on the environment or other users (whether resources are used, and how) ▪ Influencing the use of resources for environmental, social and economic benefit (economic and social planning, and environmental enhancement – how and why resources are used) ▪ Shaping the spatial distribution of resource use, protection and enhancement (spatial planning – what happens where) ▪ Shaping the temporal distribution of resource use, protection and enhancement (strategic planning – when things happen) ▪ Distributing resources to different parties or communities of interest (allocation – who gets what) The concept of "management" therefore includes all human activities that use or protect natural and physical marine resources (eg conservation, recreation, shipping, fisheries, mining etc).[14]
"System"	The system is the framework of norms, structures (eg legislation and institutions), tools and networks within which all of these public interventions interact.

Figure 1.1 Working definition of Aotearoa New Zealand's oceans management system

A few points should be explained here. First, the main purpose of this project is to contribute to *government*-led reform. As such, it deliberately limits the system to questions of "management" – that is, public interventions that are imposed (or deliberately not imposed) to influence public and private action (such as regulations, funding and other incentives). That is not to demean the importance of behaviour change at the level of individuals or companies, which can be affected by other drivers. It simply reflects what government – and therefore this project – can influence. In short, a focus on public interventions means that purely private actions are not conceived of as forming part of the "system", although public actions that *influence* private behaviour (eg tax settings, education campaigns, psychological nudges, government financial support for community groups, regulation and compliance measures) are.[15]

Secondly, the fact that activities occurring outside the marine environment (eg on land, in catchments and in the air) can impact on the oceans and what is in them, means that "management" includes interventions outside te moana itself. In other words, the geographical constraints of the system ("oceans") is about where outcomes manifest rather than where interventions occur.

Thirdly, we have defined "management" to include interventions that generate various "actions". This word has been deliberately chosen instead of "outcomes". The reason is that the boundaries of the system should not be arbitrarily defined according to the outcomes sought, because these – the objectives of the system – are one of many key design choices that need to be debated rather than just defined. While some objectives or principles, such as ecosystems-based management, might be obviously desirable,[16] what we want the system to achieve ultimately depends on our worldviews and ethics. We begin our exploration of these in Chapter 4.

This definition of the oceans management system remains relatively abstract, and leaves grey areas around the edges. For example, is the Public Finance Act (which governs government budgeting decisions) part of the oceans management system? What about the Electoral Act (which determines how key decision makers get their powers), or the Education Act (which guides the curriculum that establishes the knowledge and ethics of future decision-makers)? And are higher level concepts like capitalism and democracy included? Ultimately, the answer is yes (at least in part), but at the same time we must focus on what is most useful.

In particular, the system cannot always be confined to sharp *legislative* boundaries, and we have resisted simply listing a series of existing statutes to define its scope. We have previously noted that some reform measures may even be so systemic as to not comfortably fit within a specific statutory framework at all. For example, many public authorities operate within powers of general competence, including government departments and councils. That means their interventions can be extremely diverse (eg funding various initiatives, deploying new technology, or undertaking projects), and not obvious from looking at the statute book. These are still part of the system.

Finally – and an important point – is that the concept of an oceans management system includes tikanga Māori (rules, protocols, practices and norms). This is a culturally important system through which tangata whenua[17] manage the relationships between people and te moana, although those relationships are couched in very different terms to how a system built on a Western foundation frames them.

> The oceans management system includes all the laws, institutions, incentives and norms that collectively manage or influence outcomes in our seas. This encompasses te ao Māori (Māori world view)[18] and tikanga Māori.

1.3 Breaking down the oceans management system

Below, we outline the basic structure of our analysis. This reflects the way we are conceptualising, or breaking down, the system. It also reflects the anticipated structure of the final report (see Figure 1.2 below). Being a working paper, this report is structured differently (to present the ideas that we have focused on so far), but it is working within the spirit of the same analytical framing. We hope that the discussion prompted by this framing can be of use, not just to structure subsequent parts of our work, but also to prompt reflection within government about how any future efforts for system-wide reform could be conceptualised.

We are structuring the work in three parts. Part 1 is about describing what we have now. This includes looking at our marine environment, the existing oceans management system, the context in which reform to the system would take place (eg reforms that are planned or underway), and the constraints that international law places on reforms. In short, Part 1 gives a sense of the starting point from which reforms would occur.

Part 2 then looks at options for reforming the system, tackling four interrelated "themes" in order: (1) norms, (2) tools, (3) structures (legislation and institutions), and (4) networks (various things that flow through the system). Each theme has a number of sub-themes. The logic of this structure is explored further below.

Part 3 is about drawing the various options together and presenting three overall alternative models for what a future system could look like. This will be presented in the final report in early 2022, after receiving feedback on various options and considering how elements could work together in different ways. We also intend to provide some comment on the prospect of deeper societal change and how reforms could be progressed in practice (including the idea of a "just transition").

Chapter 1	Introduction	Te ao Māori and te Tiriti o Waitangi	Opportunities from resource management reform process
Part 1: What we have now			
Chapter 2	Our marine environment		
Chapter 3	Our existing marine management system		
Chapter 4	The context in which reforms would take place		
Chapter 5	The requirements of international law		
Part 2: Options for change			
Chapter 6	Norms: Rationale for the system, ethics, principles and objectives		
Chapter 7	Reconsidering the toolkit		
Chapter 8	Improving connections within the system		
Chapter 9	Legislative design		
Chapter 10	Institutional design		
Chapter 11	Networks: Information, participation, money and evaluation		
Part 3: Drawing the threads together			
Chapter 12	Three models for a future system		
Chapter 13	Deeper societal change		
Chapter 14	The process of reform		

Figure 1.2: Structure of the oceans reform project, reflecting indicative chapters in the final report

The project is structured according to three parts: (1) describing what we have now, (2) exploring options for reform, and (3) drawing the threads together to offer possible overall models for a new system. That will be reflected in the structure of the final report due early in 2022.

1.4 Part 1: Describing what we have

Part 1 is about describing the here and now: what New Zealand's marine environment looks like, how it is used and valued, and what it may look like in the future.

We are also looking at the problems and pressures we are seeing in the marine environment, and what is causing or contributing to them (see Chapter 2). Many current and past human activities, and other factors, work together in complex ways to produce undesirable outcomes over time, and we lack the information to attribute causation in some cases. What is clear, however, is that humans continue to cause substantial harm. There are also potential opportunities for our oceans in the future – although these may bring with them new challenges.

We then look at Aotearoa New Zealand's existing marine management system and problems with it (Chapter 3). Although there are many lenses through which we could describe the existing system (eg legislation, institutions, tools, norms etc), proceeding through statutory frameworks is the simplest way to give a sense of what it looks like.

Although many problems are specific to individual statutory frameworks, it is not possible to identify all of these in a project of this nature. More significant is that common types of problem seem to emerge across legislation – whether under the RMA, the Fisheries Act 1996, conservation legislation, and so on – due to the underlying features of the broader system. It is these categories of problem – such as fragmentation, complexity, outdated norms and a lack of a future focus – that we are most concerned with.

The context in which reform is likely to occur is also important. The current system is not static, and changes are likely to proceed at pace over the coming

months and years. For example, significant changes have recently been signalled in a series of Cabinet papers concerned with fishing,[19] and a process for extensive resource management reforms is well underway.[20] The government is also embarking on three waters reform (involving significant institutional changes)[21] and has commissioned an independent review of local government.[22] The system is constantly evolving, and deeper marine reforms need to be cognisant of that.[23]

The final element of Part 1 of the work is international law. This is important in two senses: (1) it establishes and constrains the country's jurisdiction in marine areas, and (2) it imposes substantive obligations with respect to the marine environment (eg for marine pollution and biodiversity). Any new system will need to implement New Zealand's international obligations as well as be consistent with softer forms of international commitments. In Appendix 5 we summarise the country's obligations under key international legal frameworks, which we will explore further in the final report.

Part 1 of the report is about describing what we have now. This involves describing (1) New Zealand's marine environment and problems/challenges being faced in it, (2) New Zealand's current oceans management system, (3) the context in which reforms would occur, and (4) the requirements of international law.

1.5 Part 2: Options for reform – four key themes

Part 2 of the project is about exploring options for reform. One cannot simply analyse the oceans management system as an undifferentiated whole. Nor is it particularly useful just to offer a laundry list of possible changes in random order. Instead, we need to conceptualise the system as a connected whole and "chunk" it into manageable pieces in a way that makes sense. This could be done in a variety of ways.

In our resource management reform work we considered different ways to split up the wider "resource management" system. This is equally applicable to oceans. For example, as shown in Figure 1.3, it would be possible to look at it on a sector-by-sector basis (eg chapters on fishing, aquaculture, mining, urban development etc); a resource-by-resource basis (eg chapters on fish, coastal space, minerals); or a space-by-space basis (eg chapters on the Hauraki Gulf, Fiordland, a particular fisheries management area).

One could even look at the oceans management system on a domain-by-domain basis. This is because the marine environment, although a domain in its own right, is impacted by other domains like freshwater catchments, land use, climate and waste. The marine environment also contains the cross-cutting domain of "biodiversity". The report could dedicate a chapter to each of those things.

Lens	Explanation	Examples
Domain	An interrelated set of resources, or a "part" of the environment that is valued. A single domain can exist across multiple spaces,[24] be impacted by multiple sectors, and contain multiple resources. It is not uncommon to see relevant analyses with chapters having headings of this nature. It is, for example, the way in which our environmental reporting is done.	Marine, freshwater, biodiversity (or fauna and flora),[25] soil, land, air, climate.
Space	A geographical area, or a category of area defined by its predominant use. A space can contain multiple domains,[26] support multiple sectors, and contain many resources.	Taranaki (a region); the EEZ (a jurisdictional area); rural/urban (a category of area);[27] Fiordland (an area defined by physical characteristics).
Sector	The different ways in which humans use resources.[28] A single sector can use multiple resources,[29] impact multiple domains, and operate across multiple spaces.	Fishing, mining, aquaculture, shipping, tourism, scientific study, conservation.
Resource[30]	The category of thing being used/consumed.[31] A single resource can be used by multiple sectors,[32] exist in multiple domains,[33] and exist across different spaces.[34]	Fish, oil and gas, water, sand, wind.

Figure 1.3: Some different ways to break up the oceans management system for analysis

Different lenses that could be used when splitting up the system are shown in Figures 1.4 to 1.6. below. Others are no doubt possible too.[35] Previous reports with relevance to oceans have, for example, focused on:

- A particular sector, like fisheries (eg the Prime Minister's Chief Science Advisor's report on commercial fisheries).[36]
- A particular objective, like elements of the system that are te Tiriti compliant (eg the Tangaroa workstream within the Sustainable Seas National Science Challenge).[37]
- A particular tool, like marine protected areas, marine spatial planning, the quota management system (QMS) or a biodiversity strategy.[38]
- A particular space, like the EEZ.[39]
- A particular institution, like the Environmental Protection Authority (EPA).[40]
- A particular statutory framework, like the RMA.[41]

The challenge when looking at the system as a whole is to consider how all these lenses fit together.


Whāingaroa/Raglan Harbour

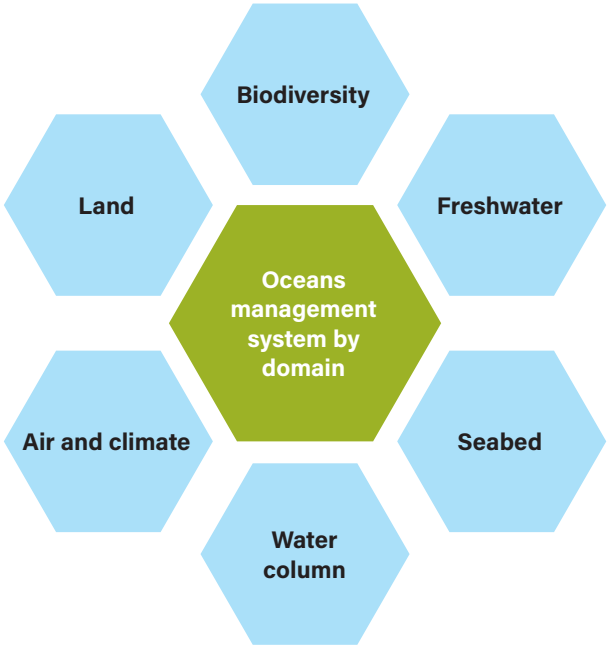


Figure 1.4 The oceans management system by domain

Figure 1.5 The oceans management system by sector

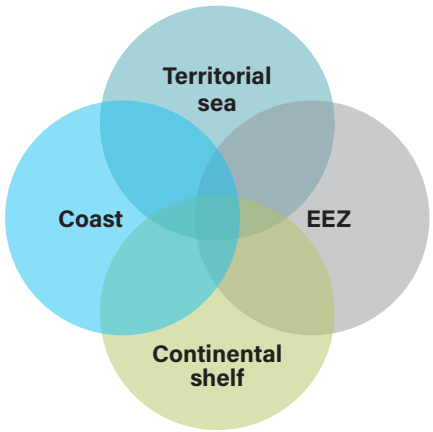


Figure 1.6 The oceans management system by spatial category

Part 2 of the work is about exploring options for reform. This involves "chunking" the system into different parts for analysis. How the system is divided is important, as it reflects how one conceptualises the system as a whole.

Focusing on specific lenses like domains, spaces, sectors and resources remains important. We need to consider what makes the management of some of them different from others. For example, extensive property rights on land (one space) mean aspects of the system may look quite different to that for the sea (another space).[42] Some specific locations (eg Fiordland) have features that may warrant dedicated protection or focus. We may have objectives or visions for some sectors or resources (eg renewable energy or aquaculture) that do not apply to others (eg oil and gas extraction).

However, an approach that only looks through one of these lenses risks a siloed approach, where interactions between spaces, sectors, resources and domains are either lost or underappreciated. For example, a focus on fishing as a sector may ignore the many land-based pressures (eg sediment) that affect fish stocks directly or through habitat degradation. This has been the experience of the system in practice, which has a sectoral silo for fishing that has little influence over decisions taken on land that impact the sector.[43] Similarly, a focus on mining as a sector risks ignoring the tensions that might arise between potential competing uses of surface or subsurface space (for example, between oil and gas extraction and carbon geo-sequestration).[44] Overall, as we explained in a previous report:[45]

> the greatest risk is that domain-based, spatial and sectoral approaches all have a tendency to presuppose at least something. A domain-based approach assumes that each receiving environment can be considered, at least partly, in isolation of the others. In reality, they are intimately connected across varying spatial scales [for example, the important link between freshwater catchments and estuaries].
>
> Similarly, a spatial approach tends to focus on spaces artificially delineated by humans [for example, the arbitrary line between the territorial sea and exclusive economic zone, or the catchment rather than marine based line between different regions]... It also runs the risk of ignoring ecological and other units (eg landscape or cultural units) that frequently exist across lines on a map.
>
> Furthermore, considering sectors is not only hard to do (there are thousands of potential categories, from horticulture to fishing), but also risks neglecting the importance of cumulative effects on receiving environments (which may be impacted by a large number of different sectors at the same time).

Indeed, as shall be seen, a significant issue with the current oceans management system is that it is fragmented across legislation, institutions and tools that are focused on a narrow range of sectors, spaces or resources. Looking at each existing statute in turn – the RMA, the Fisheries Act, the Marine Reserves Act – may also fail to capture some important bigger picture questions like the tools that can be deployed to link them together (eg marine spatial planning), the coherence of the objectives underpinning them (eg te oranga o te taiao[46] versus maximum sustainable yield), or the potential for fundamental legislative redesign (eg combining separate statutes into a single Oceans Act).

There are risks in approaching the system as a series of discrete sectors, geographical spaces, individual resources, domains or existing legislative frameworks. Doing so may not capture the important links between and across these things.

In this project we are taking a "thematic" approach by breaking down the oceans management system into four broad themes: (1) norms, (2) tools, (3) structures and (4) networks. These are explained below. A thematic approach is useful because it encourages thinking about the system as a highly interconnected whole, not just as a collection of independent sectors, spaces or statutes.

This structure is also arguably more sensitive to the holistic approach of te ao Māori. Māori matters are not simply things the system has to address or "do". Te Tiriti needs to pervade all tiers of the system, so that Māori perspectives are fully integrated, not treated as an add-on, afterthought, or a group of matters placed in opposition to (or as grudging concessions to) a dominant Western paradigm.

Of course, splitting analysis into themes also creates risks. Themes like legislative design, institutional settings and public participation are also closely connected to *each other* and cannot be treated in isolation. For example, fragmented legislative frameworks can potentially be integrated through non-statutory mechanisms, such as an overlay of marine spatial planning, or by combining institutional responsibilities into one agency that has roles across different statutes. There is also a grey area where questions about designing "institutions" morph into considerations of how we provide for "participation" (eg whether the role of tangata whenua is one of a participant or decision-maker). It is therefore important to draw all these threads together (which we intend to do in Part 3 of the work), to consider how various options across all themes could fit together.

When considering system-wide reform options we are structuring our analysis according to four themes: (1) norms, (2) tools, (3) structures and (4) networks.

One important question is the *order* in which we tackle these four themes. Should reform, for example, start from the "top down"? That would see analysis begin with overarching questions around ethics and principles, through to legislative structures, institutional design, broad planning tools and then smaller scale interventions like

consents and economic incentives. Broadly speaking, we took this top-down approach in our resource management reform project, saying:[47]

> It makes sense to see relationships as broadly linear by starting with norms (what outcomes we ought to pursue, such as principles), then considering components of the system needed to achieve them (what kinds of things it needs to do, and the structures we need to establish, such as legislation and institutions), and ending with how we implement them (mechanisms such as plans, consents, processes and incentives). The conclusions of the prior exercise inform the consideration of the latter.

Alternatively, we could build our way from the "bottom up", focusing on the easy wins first (eg improvements to individual tools) and moving to larger scale interventions like changing institutional settings (eg restructuring local government) and legislative boundaries (eg creating an integrated Oceans Act). Only at the end would we consider options for more fundamental shifts to our ethics and principles. Essentially, this would be about moving from "least change" options to "most change" options, where the reader would be invited to draw a line at the point at which his or her appetite for reform abated.

1.6 Theme 1: Norms

In our view, big picture normative questions need to be tackled first. Even smaller scale change (eg the deployment of underutilised tools like sustainability measures or marine protected areas) requires us to consider first *what we are aiming for and why*. For example, deploying tools/mechanisms like legal personhood for nature, or putting a price on the natural world, requires us first to think deeply about potentially conflicting worldviews (is it right to treat nature as a commodity? Is it naïve to think of the oceans as a non-human person?). Deploying marine reserves requires us to ask what their purpose is – scientific research? Overall biodiversity enhancement? Tourism and recreation?

There are a number of important elements to tackle when we speak of the "norms" underpinning a future system. The first is also the deepest – why we have a system in the first place, and what the limits of the system should be. When is there overreach? For example, even though environmental outcomes might be improved by more people engaging in planning processes or collecting plastic off the beaches, the system cannot realistically compel them to do these things. Nor can it simply take away private property rights.

Some have seen the role of the system as quite limited – to internalise externalities. Others have seen it as being much broader. Teasing out basic assumptions as to why we have a system is important to determine what roles the system should be playing in the future – from setting environmental limits, to giving effect to te Tiriti, to allocating resources.

Having considered what the legitimate boundaries of a future system might be, the next step is to determine what, within those boundaries, the system should be aiming to achieve. Rather than jumping to identifying dozens or potentially hundreds of specific objectives (eg a "thriving aquaculture industry" or "deployment of high protection areas"), it is worth first interrogating the basic worldviews that could underpin a future system.

Often worldviews are left unstated, but they can have significant implications for more specific design choices (eg the types of tools we use and the language that is used in statutes). For example: why is it that some people value indigenous species more highly than others? Why do we care so much about marine mammals like dolphins? Is pollution prevention about human health and wellbeing, or the rights of ecosystems to thrive? Should living things have a dollar value? Is our ethical obligation simply to prevent extinctions, or does it go further than that?

Different ethical foundations can provide different answers, and different solutions. Te ao Māori offers a particular way of seeing te moana and its whakapapa relationships with humans. Our ethical assumptions about the land can also differ from those at sea; for example, the persistent property-based notions of the "quarter acre dream" and "my home is my castle" on land are less persuasive offshore, where the ocean might be regarded as being more of a commons or wilderness to be shared.

Different worldviews can have tangible impacts on system design, but they can be hard to pin down or encapsulate in words. One way to operationalise them is through the creation or recognition of legal and ethical *principles*, such as sustainability, precaution, and ecosystem-based management. Many concepts, such as mauri (life force or essence), mana (honour and respect) and kaitiakitanga (caretaking/guardianship) are bound up in te ao Māori.[48] The legal framing of principles matters, particularly in the marine environment. For example, a pertinent question is whether "maximum sustainable yield" is the right principle on which to base fisheries management.

Principles (and the relationships between them) can vary depending on one's worldview. For example, the idea of distributional equity (how resources should be allocated) could look quite different from the perspectives of te Tiriti or economic efficiency. In fact, sustainable management in the RMA was deliberately phrased differently to the international term of sustainable "development" because of the latter's association with social objectives and fairness.[49] The neo-liberal ethos of the time instead saw the market as the primary mechanism by which allocation would occur,[50] a theme echoed in the creation of quota (transferable property rights) under the Fisheries Act during roughly the same period.

Ultimately, however, principles are only guides. Sustainable management might tell us we want to preserve the natural world for future generations, but that is hardly a concrete thing to aim for with respect to oceans. If a future system is to be about more than just passive management (preservation of the status quo), we

need to have a hard conversation about more specific objectives. There are many objectives to choose from – ranging from a general statement of desirable outcomes (eg a low carbon marine economy) to a particular tangible change (eg the phasing out of an entire industry). The crucial thing will be how objectives interact with each other (eg whether they are hierarchical, traded off, mutually reinforcing, or designed to change over time). They need to be coherent.

In any whole of system reform exercise, it will be important to conceptualise the system in a way that reflects the important connections between its component parts, and to tackle them in logical order. It will always be important to start with normative questions (what the system should be achieving) before considering other more tangible design questions.

The normative foundation for a future oceans management system involves looking at four key things: (1) the boundaries and roles of the system (what it should and should not be allowed to do); (2) the basic worldviews and ethics that underpin its design; (3) legal and ethical principles that flow from those; and (4) the more specific objectives/goals that the system should be aiming for.

1.7 Theme 2: Tools

Having considered the normative underpinnings of a new system, the next theme to consider is the tools contained within a future system. "Tools" is a general term that we are using to encompass any measure influencing how people interact with the marine environment. That includes anything from a national environmental standard under the RMA, to the imposition of a rāhui (temporary ban), to the creation of a marine reserve, to a non-statutory marine spatial plan. It also includes the drafting of important legislative provisions, such as the purpose and principles of the RMA or Fisheries Act.

Essentially, we are asking how we might use our existing toolkit better, how we might change how tools are framed and deployed, and whether we might add new tools. For example, there is provision in the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ Act) for an EEZ policy statement, but none has been created. The system also lacks the ability to create marine reserves within the EEZ.

Tools can be looked at from three directions. First, there are tools that already exist in our current system that could be used more (eg national direction under the RMA, sustainability measures under the Fisheries Act), new tools that could be located comfortably within current frameworks (eg a green tax or resource rentals), or tools that could replace existing ones (eg a permit-based alternative to the QMS). All of these require us to think about what we could achieve by working within existing legislative silos. They could be achieved either with no legislative amendment, or by amending specific statutes one by one. That requires consideration of *why* available tools have not been used.

Secondly, there are "families" of tools that span multiple frameworks (eg marine protected areas, te Tiriti clauses) or that exist outside them (eg the Biodiversity Strategy) that are worth considering in a more holistic or system-wide way. Just because a type of tool is fragmented across legislation at the moment, does not mean it needs to be done that way in the future. For example, consideration of marine protected areas in the round might reveal potential for them to be deployed through broader legislation like the RMA (or its replacement) or new area-based legislation, rather than relying on existing types of protected areas under (for example) the Marine Reserves Act or Fisheries Act.

Thirdly, there are higher level tools that can be designed to have an integrative function across other tools – to act as glue that binds them together. These include marine spatial plans and an oceans policy/strategy. Marine spatial planning is a way in which multiple interests and uses of a defined marine area (including protective measures) can be planned and mapped in an integrated way (through a single planning exercise). The recent experience of the Sea Change – Tai Timu Tai Pari marine spatial planning process has yielded some valuable lessons.[51] If tools like these were to be deployed to better connect parts of the system, deeper legislative redesign measures may become less pressing.

Some tools may require more significant change than others. It may even be that some (such as tax settings, or changes to the QMS) could shake the status quo far more than changes to legislative or institutional design. It is therefore not quite right to say that surgical changes to our toolkit reflect a lesser degree of change than wider institutional and legislative changes.

That said, focusing on the toolkit before considering deeper structural reforms (changes to how we configure legislation and institutions) is prudent. It is about "maxing out" the (underutilised) potential of the current system before jumping to complete overhaul. Sir Geoffrey Palmer, for one, has observed with regret that Aotearoa New Zealand tends to rely on complex legislative reform agendas when simpler solutions might be possible.[52] Furthermore, it is worth keeping in mind that:

- We have a reform-minded government with an appetite for change in the marine space. Considering how more targeted changes could be progressed, without overhauling the system as a whole, will provide a suite of reform measures that can be undertaken in the short term while still being cognisant of the bigger reform picture. The enormous resourcing implications of overhauling the oceans management system at the same time as resource management reforms are progressing means a staggered approach over a number of years will be needed.

- Considering targeted changes to the toolbox may be useful to avoid unnecessary disruption and cost. If adding a new tool here or there – such as a resource rental, a new tax or an integrated oceans policy statement – will fix some problems, it might be preferable to do that rather than immediately jumping to more dramatic measures.
- Conversely, looking at how to "max out" the current system may illustrate that there are fundamental limitations to what can be achieved without deeper measures. That is also a useful thing to know before starting a discussion about foundational reforms to legislation or institutional design.

The second theme we are looking at involves options for improving the toolkit in a future oceans management system. We are considering how we could amend, add or use tools that fit within the broad frameworks we already have, as well as cross-cutting tools designed to better integrate aspects of the system without resorting to wholesale legislative redesign.

1.8 Theme 3: Structures

It is possible to have a general discussion about what tools are desirable without first determining exactly where they will fit in a legislative sense. For example, it might be possible for marine spatial planning to be contained within the RMA, new marine protected areas legislation, an integrated Oceans Act (or independent of any statutory framework at all, as is the case with the Sea Change – Tai Timu Tai Pari initiative). Indeed, legislative arrangements should be moulded around the tools that are likely to be most effective, not the other way around.

However, reform options may need to go beyond just the toolkit. The existing system is highly fragmented across legislation and institutions that have different processes, purposes and mandates and do not connect well to each other. The third theme we explore is therefore concerned with the "structural" features of a new system. There are two key components to this.

The first is about how we arrange our legislative frameworks. This involves exploring how various principles of legislative design might apply to oceans, and what that means for how our statutes are configured. One option, for example, is for an integrated Oceans Act that includes functions performed by several pieces of existing legislation. In this working paper our initial focus is on what such an Act might look like if we were to pursue it. Other, less extensive, options are available too (eg merging the RMA or its replacement with the EEZ Act).

The second structural element to consider is institutional design. Changing institutional arrangements could complement, or be an alternative to, legislative changes. Reforms on this front could be comparatively minor (eg an extension of an existing organisation's functions or strengthening of its mandate) or more far reaching (eg the creation of a new institution or the merging of others).

A third important theme relates to the structural features of a future system. This involves looking at options for changing or rearranging legislative frameworks and how different approaches might be taken to institutional design.

1.9 Theme 4: Networks

The fourth and final theme to be explored in Part 2 of the work relates to what we are calling "networks". These include (1) the flow of information; (2) the flow of money; (3) public participation; and (4) the dynamics of compliance and enforcement.

While legislative frameworks, institutions and tools can be seen as the building blocks of a future system, networks are elements that flow *through* the system. They are dynamic features, and if they stop, then everything is likely to grind to a halt. While aspects of these networks may also be features associated with particular tools (eg the funding required for managing marine protected areas), particular legislation (eg the potential for joining up participatory processes under the RMA and Fisheries Act) and particular institutions (eg the establishment of an independent public scientific research entity), they warrant attention as a theme in their own right. This is because each network travels *across* and *through* multiple tools, legislation and institutions, rather than just being a feature of any given one of them. One might compare this to a subway system, where we need a view of the whole network in action (where the energy is coming from, how fast things are moving, where people are getting on and off) rather than just looking at the train, the track and the station as static elements.

The four networks mentioned above interact not just with legislation, institutions and specific tools, but also with *each other*. For example, valuable *information* can be gathered through forms of *public participation* (eg citizen science and submissions to consent processes), which in turn require *money* (eg from the Environmental Legal Assistance Fund). *Information* and *funding* can also be generated from *compliance* processes (eg from monitoring consented activities and fines for breaches). Raising *money* often involves a *participatory* process (eg consultation for rates increases and other funding tools by local government). Obtaining *information* from scientific research requires significant amounts of *funding* and can be used to inform *compliance* activities. The overall point here is that options for reforming networks of information, money, participation and compliance need to complement each other as well as fitting well within the structural features of the system like legislative frameworks.

Theme 4 is about the networks that flow through the system. We are looking at how we might reform four key networks: information, money, participation and compliance.

Above, we have taken some time to outline a conceptual, theme-based framing for the oceans management system and the order in which its components can be most usefully addressed. This has two purposes. First, it outlines the way in which we are thinking about the system and future options in this project, and the logic of how the work is structured. But it is also intended to highlight the importance of having *some* form of overarching conceptual framework, and for that to be clearly articulated in any future reform process the government undertakes. A theme-based conceptualisation is one that could be used (norms, tools, structures, networks), although others would also be possible.

1.10 Part 3: Drawing the threads together

Part 3 of the project – which will be developed in the final report – is about drawing the threads of various themes together. This will culminate in the presentation of several overall models for a new system, all of which we will consider to be viable but none of which we will explicitly recommend. They are, instead, intended to be a tangible starting point for debate and represent quite different approaches to reform. They are likely to range from least change to most change.

These overall models are useful, because there are potentially hundreds of reform options, across multiple themes, which must work well together. They are like Lego blocks that can be mixed and matched, but stitching them together randomly will not work. For example, it might make sense to enact a new statute to support the tool of marine spatial planning (a "Marine Spatial Planning Act"), but alongside that policy makers might choose to reject fundamental changes to the QMS or the integration of legislation into a single Oceans Act.

We intend to conclude the work – again, in the final report – by offering some higher level comments on the potential for deeper change to our society, followed by our take on what the process of reform could look like. Deeper change might involve things like rethinking our assumptions about consumers, producers and the marine economy, and what "Capitalism 2.0" or a stronger Māori economy might look like in respect to the oceans.

And, of course, a new system (no matter what it looks like) will not simply snap into place instantly; there will be a journey to get there over time. A sound transition plan, and one that is just and equitable in managing the process of change, will be crucial once there is a sense of what a new system should look like.

Part 3 of the work is about drawing the various threads together. As a starter for conversation, in our final report we intend to offer three alternative models for how a future oceans management system might look. We will conclude by considering the case for deeper changes to our society and economy, and what the process of reform might look like.

1.11 Cross cutting elements

Two key matters need to cut across all components of a conversation about oceans reform. First, te ao Māori/tikanga Māori and te Tiriti o Waitangi need to inform thinking about a new system; these are not just "subjects" of a system that is otherwise assumed to be "Western" in its foundations (things to be contained *within* it or protected *by* it).[53] Tikanga and te Tiriti are also living and evolving things that exist *outside* the system, and are guiding factors (among others) in designing what the system should look like in the first place (including how problems are identified and articulated, how tools are deployed and how information influences decisions).

In the spirit of a blue skies review, it is interesting to test some often unstated assumptions about what a system of laws fundamentally looks like. For example, it is possible to picture an entirely tikanga based system – perhaps even one without legislation, Western-style courts or defined terminology – that occasionally gives a nod to Western sentiments (eg a requirement to have regard to sustainability) or that provides for the transfer of some powers from iwi to, say, local government.

An entirely tikanga based marine management system might be a jarring picture for some – and may be seen as politically unrealistic (it also gives rise to much wider issues about sovereignty, rangatiratanga (leadership/self-determination), power sharing and the interpretation of different versions of te Tiriti than the oceans management context). However, it hits home that this is arguably what the current system does in reverse. People are, perhaps, more used to thinking of Māori interests and values as artefacts to be safeguarded *by* the system (eg recognising ancestral connections,[54] having regard to the principles of te Tiriti)[55] or as concessions to right historical injustices (eg quota rights for fisheries[56] or customary title to the foreshore and seabed) than starting points for what a system itself should look like.[57]

There has also arguably been a tendency to see largely Western values as those which drive the basic design of the system within which Māori interests and concepts are safeguarded. Such things – like the vast legal machinery underpinning private property rights, the mapping of inflexible jurisdictional boundaries, or the technocratic nature of scientific evidence, tend to fly under the radar as "normal" or "universal" rather than "Western" because they have permeated the system for so long. This is not at all to suggest that "Western" or other values are *wrong*, or should be dispensed with. It is also hard to say what is "Western" and what is not, or what this term really means. It is simply to say that perspectives on such things could be thought of in a more balanced way.

There are interesting possibilities where different world views might come together and form a "third way",[58] although such options need to be treated with care because they can become open to allegations of cultural assimilation or appropriation.[59] For example, some tensions have arisen over the use and definition of concepts like te mana o te wai[60] (and, more recently,

te oranga o te taiao), both because they can lose their flexibility and meaning once defined in a regulatory setting, and because there can be disagreements as to who is responsible for interpreting what they mean within specific contexts.[61]

Māori need to retain their distinct identity in a future system as much as the system needs to reflect Māori values and aspirations. This is particularly significant when it comes to questions about institutional design. Robert Joseph has, as part of the Sustainable Seas National Science Challenge, looked deeply into what a shared governance approach for the oceans might look like: one that makes room for tikanga.[62] We are continuing to engage with the ideas in that and related work for the purposes of our final report, including what it means with respect to options for our norms and institutional arrangements.

Te ao Māori and tikanga Māori are not just "subjects" of the oceans management system to be protected within that system. They also need to be factors that guide what the system looks like and the design choices made across all themes.

Another cross-cutting matter to be cognisant of is the opportunity to progress marine reforms through the government's parallel resource management reform process. These reforms are a crucial part of the context within which marine reform would occur, and the Randerson Panel's recommendations and the government's work programme are described in Chapter 3 of this report. These are relevant to decision-making on activities in the territorial sea as well as the management of catchment-based impacts on the marine environment. The proposed Strategic Planning Act, as conceived by the Randerson Panel, will also encompass the territorial sea. There is, therefore, considerable overlap between the current reform programme and oceans reform just as there is overlap between the resource management and oceans management systems.

The resource management reforms provide an opportunity for oceans reform. However, they may also be a practical constraint on how far marine reforms can go. For example, it appears that key policy decisions have already been taken about high level legislative and institutional design choices (eg the creation of a separate Strategic Planning Act, the retention of an integrated "RMA-like" regulatory statute, and the role of councils and the Environment Court), and while these could be nuanced in the marine context it is unlikely they will be fundamentally revisited. We also note that the ideas presented in this project - which are intended to stimulate discussion and are "blue skies" in nature - may not necessarily be within scope of reform initiatives currently underway or planned.

The government's resource management reform process provides opportunities for oceans reform, but also potential practical constraints.

Te Ūmangawhā-o-ngā-waka/Colville Harbour

1.12 A conceptual model: The oceans management system as the human body

Above, we have broken the oceans management system down into four key themes (norms, tools, structures and networks), with a number of sub-themes underneath (eg ethics, principles, legislative design, information flow). Yet the oceans management system remains a large and complex thing. This complexity is not just a feature of the fragmented system we have at the moment; any oceans management system will be inherently complex. For that reason, we have developed a reasonably simple visual model to represent the system.

Conceptualising a new oceans management system

In our conceptual model we are comparing the oceans management system to the human body. Both are highly complex systems. The four themes (and sub-themes) described above each relate to components of the body.

The bones of a human body – the **skeleton** – are akin to the **statutes** of the oceans management system. They provide the architecture or structure of the system. Bones can be large or small, just like legislation. They can also perform different functions.

Attached to bones are **muscles**. These are akin to the **institutions** in the oceans management system. They are designed to take action – whether it is to do things, or to stop things from happening. Like institutions, muscles can be large or small, and just as opposing muscles work together to extend and contract a limb, so too do institutions within the oceans management system need to work together in harmony (or in carefully-designed conflict). Many muscles are attached to bones, just as institutions (eg the Environment Court and councils) are created by or tied to roles under particular statutes (eg the RMA). But some muscles are not attached to bones, just as some institutions (eg most government ministries) are non-statutory.

The body also has various **organs**. These are like **tools**. Some of these are protected or supported by the skeleton, just like many tools are nestled within legislation. Other tools are non-statutory, existing outside this legislative skeleton. Just like organs, tools can have very specific jobs to do (eg the total allowable catch (TAC) under the Fisheries Act). Some can perform multiple tasks (eg there are many reasons why marine protected areas are established). Like organs, tools (eg RMA plans) often involve complex processes.

As described earlier, some tools like spatial planning and an oceans policy have potential to better connect or coordinate the different components of the system, and are like "glue". These are akin to the body's **connective tissue**. Tools might be designed to connect different legislative frameworks together (as ligaments connect bones to each other), to make connections between institutions and legislation (as tendons connect bones to muscle), or to connect institutions to non-statutory tools (as tendons connect muscles to organs like the eyes).

Legislation, institutions and different types of tools form the building blocks of the oceans management system, just as bones, muscles, organs and connective tissue form the structure of the human body. But the body also has various "**networks**" through which essential things flow – such as a circulatory system, a nervous system and a respiratory system. These service our bones, muscles, organs and connective tissue, which do not work properly without them. The oceans management system also has networks that flow through and across features such as legislation, institutional frameworks and tools. These features rely on various elements to travel through them, both to bring them to life, and to change or develop them over time.

Money is one important throughput in an oceans management system. This can be likened to the **circulatory system**, which delivers energy and nourishment to the body. Just as a muscle lies dormant without the energy to move, so too do public institutions lack the ability to undertake their functions without funding or financial incentives.

Information and evaluation (a system that actively monitors outcomes and induces corrective action) is a crucial throughput too. This can be compared to the body's **nervous system**, in that it gives prompt feedback and triggers a response. A system without a mechanism for gathering robust information and adapting in response will soon become ineffective, just as a human body without a functioning nervous system fails to respond to external stimulus and keep out of harm's way. **Public participation**, and **compliance and enforcement**, can also be likened to networks that run throughout the body, because they are sub-systems that span legislation, institutions and tools. Just as the various networks of the human body intersect with each other, so too do the different networks traversing the oceans management system.

Looming over all of this is a bigger question. What is a well-functioning body – or, by analogy, an oceans management system – designed to achieve? Just as bones, muscles, organs and various bodily networks do not exist for their own sake, the legislation, institutions, tools and networks of an oceans management system need to have a coherent purpose. They need to work towards common goals.

A coherent set of **objectives** for the system can be likened to the **brain**. The brain can be broken, just as our objectives can be misplaced; we need to think carefully about what we are aiming for and any trade-offs that involves before we set our tools, institutions and legislation to work.

Equally, problems can emerge when there is poor connection between the brain and other parts of the body, or where different parts of the body do not work in tandem. Similarly, problems can emerge where different components of the oceans management system do not achieve the objectives we have set, where they pull in different directions, or where they do not do their jobs in a timely way.

The metaphor above is by no means perfect, and one can only take it so far. But it encourages the system to be thought of as a single connected entity, where different components interact together to contribute to the healthiness of the whole. It is also serves to highlight that the oceans management system, like a human body, is a living and evolving organism that requires care and attention. In our final report we will continue to consider how this metaphor can assist when applied to various options for reform.

In thinking about the oceans management system in terms of a series of themes, it is useful to have a unified visual framing to hold in one's mind. We are conceiving of the system as being like the human body, comprised of various building blocks and networks that operate together to form a coherent whole.

Danish seining, Hauraki Gulf

1.13 Concluding comments

In this chapter we have conceptualised the oceans management system, and outlined how we are splitting it up for analysis. We have also outlined how a human body can be seen as a metaphor for a well-functioning oceans management system.

However, this system is not an abstract or academic thing; it has very important implications for the health of te moana. It is there for a reason – to protect and enhance what we as New Zealanders value. In the following chapter we look at the oceans that surround Aotearoa New Zealand, the ways in which we use and treasure them, and the pressures and problems they are facing.

Cape Rodney-Okakari Point Marine Reserve

ENDNOTES

1 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019).

2 Te Tiriti o Waitangi refers to the Treaty of Waitangi as set out in English and in Māori in Schedule 1 of the Treaty of Waitangi Act 1975.

3 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020).

4 Office of the Minister for the Environment *Comprehensive review of the resource management system: scope and process* (2019) at 10.

5 Minister for Oceans and Fisheries *Oceans and Fisheries portfolio – ensuring healthy ecosystems* (2 July 2021). See also Minister for Oceans and Fisheries *Fisheries system reform agenda* (2 July 2021); Minister for Ocean and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: landings and discards* (2 July 2021); Minister for Oceans and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: offences and penalties and agile decision-making* (2 July 2021); Minister for Oceans and Fisheries *Revitalising the Hauraki Gulf – Government Sea Change Strategy* (2 July 2021); Minister for Oceans and Fisheries *Initial response to Prime Minister's Chief Science Advisor's report on commercial fishing* (2 July 2021); and Minister for Oceans and Fisheries *On-board cameras across the inshore fishing fleet* (2 July 2021).

6 See Environmental Defence Society "RM Reform Project" (14 October 2020) <www.eds.org.nz/our-work/rm-reform-project>.

7 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020).

8 Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation Synthesis Report* (Environmental Defence Society, December 2018) at 31.

9 Department of Conservation *Te Mana o Te Taiao – Aotearoa New Zealand biodiversity Strategy 2020* (Department of Conservation, August 2020) at 6.

10 See Robert Joseph and others *Stemming the Colonial Tide: Shared Maori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 53–55.

11 These areas have a further overlay of specific international legal requirements.

12 This is excluding human resources. The oceans management system as defined here does not include, for example, labour laws for workers on ships, maritime insurance law, or health and safety laws. It is about human interaction with the marine environment. However, it does include non-natural resources. This is important because a key part of managing oceans is mediating between different human activities that can impact on *each other* over and above any impact on the natural elements of the marine environment. For example, the system might need to choose whether a particular space is used for aquaculture, recreation, a port or something else. However, often activities that impact on other users will also impact on the natural environment (eg sediment can impact on aquaculture and fishing activities as well as ecosystems and habitats). There is often not a bright line between such impacts, making it important to include them all. Most human uses of the marine area rely on ecosystem services to support them, so an impact on a user is often an impact on the environment on which that user depends (eg the destruction of fish spawning habitat impacts both the natural environment and the fishing industry).

13 See the extremely broad definition of "environment" in the RMA, s 2.

14 Conservation is as much a "use" as sectors like fishing or mining. Using a resource does not always mean a consumptive use.

15 Some grey areas exist between public and private intervention, partly because it can be unclear whether an entity taking an intervention (such as a council-controlled organisation, a state-owned enterprise, or a heavily regulated private institution) is itself public or private in nature.

16 Ecosystems based management is the framing under which the Sustainable Seas National Science Challenge is being undertaken. See Sustainable Seas National Science Challenges Ko nga moana whakauka <www.sustainableseaschallenge.co.nz>.

17 *Tangata whenua*, in relation to a particular area, means the iwi or hapū that holds mana whenua over that area; and *mana whenua* means customary authority exercised by an iwi or hapū in an identified area. See Resource Management Act 1991, s 2.

18 See also Chapter 4.

19 See Minister for Oceans and Fisheries *Oceans and Fisheries portfolio – ensuring healthy ecosystems* (2 July 2021); Minister for Oceans and Fisheries *Fisheries system reform agenda* (2 July 2021); Minister for Oceans and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: landings and discards* (2 July 2021); Minister for Oceans and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: offences and penalties and agile decision-making* (2 July 2021); Minister for Oceans and Fisheries *Revitalising the Hauraki Gulf – Government Sea Change Strategy* (2 July 2021); Minister for Oceans and Fisheries *Initial response to Prime Minister's Chief Science Advisor's report on commercial fishing* (2 July 2021); and Minister for Oceans and Fisheries *On-board cameras across the inshore fishing fleet* (2 July 2021).

20 See Ministry for the Environment "Overview of the resource management reforms" (June 2021) <www.environment.govt.nz/what-government-is-doing/key-initiatives/resource-management-system-reform/overview>.

21 Department of Internal Affairs "Central/Local Government Three Waters Reform Programme" (15 July 2021) <www.dia.govt.nz/Three-Waters-Reform-Programme>.

22 Department of Internal Affairs "The Future for Local Government" (2021) <www.dia.govt.nz/Future-for-Local-Government-Review>.

23 This does not mean that options need to adopt such changes, just that they need to be aware of them. They might mean that amendments are required, or that pathways towards deeper reform are changed.

24 For example, land spans the rural-urban divide and exists under lakes, rivers and the sea; flora and fauna/biodiversity does too.

25 Strictly speaking, "biodiversity" is less a domain than it is an objective (a diversity of flora and fauna, usually referring to indigenous flora and fauna). However, it is a convenient shorthand.

26 For example, Fiordland spans land and sea, while Taranaki contains freshwater and biodiversity.

27 Despite some treating "urban" as a domain alongside water, air and marine, it is better characterised as a space.

28 This is not exclusively for commercial gain. A sector can include recreation and conservation.

29 This includes the "resource" of a receiving environment for waste/pollution.

30 We recognise that the term "resource" tends to suggest an instrumentalist approach to value, and that other words may be more appropriate (eg taonga, te taiao or environment).

31 Not all resources are consumed. For example, marine mammals are a valuable resource for tourism (whale watching).

32 "Fish" and "fishing" are quite different. Fish can be used by sectors other than fishing (eg for conservation), and fishing has impacts on resources other than fish (eg habitats, marine mammals, other forms of bycatch).

33 For example, fish exist in domains like "marine", "freshwater", and "biodiversity".

34 For example, across urban-rural boundaries and jurisdictional boundaries like the EEZ-coastal marine area.

35 For example, by the type of harm caused – eg sediment (many sectors cause this and many resources are impacted by it), nutrients, greenhouse gases, chemical pollution etc; or objectives (eg a chapter on sustainability, a chapter on economic development, a chapter on fairness); or roles the system performs (eg a chapter on environmental bottom lines, te Tiriti o Waitangi, allocation of resource use rights).

36 Office of the Prime Minister's Chief Science Advisor *The Future of Commercial Fishing in Aotearoa New Zealand* (February 2021).

37 See Sustainable Seas "Tangaroa" Sustainable Seas: National Science Challenge <www.sustainableseaschallenge.co.nz/our-research/tangaroa>.

38 See for example, New Zealand's first integrated marine spatial planning process in the Hauraki Gulf Marine Park, Sea Change Tai Timu Tai Mari project, in Kelsey Serjeant and Raewyn Peart *Healthy Seas: Implementing Marine Spatial Planning in New Zealand* (Environmental Defence Society, 2019); and a description and review of New Zealand's QMS in Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, 2018) chapters 2 and 3.

39 See Raewyn Peart, Kate Mulcahy and Kelsey Serjeant *Governing our Oceans: Environmental Reform in the EEZ* (Environmental Defence Society, Auckland, 2011).

40 Ministry for the Environment *Review of the Effectiveness of the Environmental Protection Authority: Overview Report* (Wellington, April 2015); and Raewyn Peart *Improving Environmental Governance: The Role of an EPA in New Zealand* (Environmental Defence Society, June 2009).

41 See for example, Ministry for the Environment report on simplifying and streamlining the RMA "Report of the Minister for the Environment's Technical Advisory Group" (February 2009). The Randerson Panel also focuses primarily on the RMA: Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020).

42 Although there are still some property rights in the marine context (eg quota, privately held parts of the coastal marine area).

43 Fisheries Act 1996.

44 Carbon sequestration is a process by which captured and compressed carbon dioxide emissions are pumped into depleted or partially depleted oil and gas formations. See Barry Barton, Kimberley Jane Jordan and Greg Severinsen *Carbon capture and storage: Designing the legal and regulatory framework for New Zealand*, report for the Ministry of Business, Innovation and Employment and the New Zealand Carbon Capture and Storage Partnership (Centre for Environmental, Energy and Resources Law, Te Piringa Faculty of Law, University of Waikato, September 2013).

45 Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation Synthesis Report* (Environmental Defence Society, December 2018) at 34.

46 See *Natural and Built Environments Bill* (Exposure Draft, 2021), cl 5; Ministry for the Environment *Natural and Built Environments Bill Parliamentary Paper on the Exposure Draft* (June, 2021), [93]-[99] at <www.environment.govt.nz/publications/natural-and-built-environments-bill-parliamentary-paper-on-the-exposure-draft/>.

47 Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation Synthesis Report* (Environmental Defence Society, December 2018) at 35. In the Phase 1 report we structured our thinking according to a cascade of themes: from norms (ethics and principles), to functions (what roles the system should and should not play), to structures (laws, institutions, public participation), and finally tools (concrete interventions, like regulations and taxes, which shape people's actions).

48 Joe Williams "Lex Aotearoa: An Heroic Attempt to map the Māori Dimension in Modern New Zealand Law" (2013) 2 Waikato Law Review.

49 See Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation. Working Paper 1* (Environmental Defence Society, 2018) at 44-46.

50 Subject to some constraints, such as aggregation limits.

51 See "Sea Change" <www.seachange.org.nz>; Ministry of Primary Industries "Revitalising the Hauraki Gulf: Government action on the sea change plan" (22 July 2021) <www.mpi.govt.nz/ fishing-aquaculture/sustainable-fisheries/ strengthening-fisheries-management/revitalising-the-hauraki-gulf-government-action-on-the-sea-change-plan>; and Auckland Council "Sea Change – Tai Timu Tai Pari" <www.aucklandcouncil.govt.nz>.

52 Geoffrey Palmer QC "Law-Making in New Zealand: Is There A Better Way?" *The Harkness Henry Lecture* (2014) 22 Wai L Rev at 1.

53 Despite being often treated like that in practice in the current system (for example, in requirements to consider te Tiriti, have particular regard to kaitiakitanga, or protect sites of cultural significance).

54 Resource Management Act 1991, s 6(e).

55 Section 8.

56 Maori Fisheries Act 2004; Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

57 See the Marine and Coastal Area Act (Takutai Moana) Act 2011, and its process for recognising customary marine title and protected customary rights.

58 See Dame Anne Salmond "Iwi vs Kiwi: Beyond the Binary [Series]" *Newsroom* (online ed, 13 July 2021).

59 Although that needs to be treated with caution, as some might see such an approach as a dilution of tikanga and an abrogation of the Crown's duty of active protection of Māori culture.

60 See Ministry of the Environment "National Policy Statement for Freshwater Management 2020" (ME 1518 August 2020) at <www.environment.govt.nz/ publications/national-policy-statement-for-freshwater-management-2020/>.

61 The power to interpret the meaning of te oranga o te taiao, a core concept in the proposed NBA, is likely to be at issue in the select committee's inquiry on its drafting.

62 Robert Joseph and others *The Treaty, Tikanga Māori, Ecosystem-Based Management, Mainstream Law and Power Sharing for Environmental Integrity in Aotearoa New Zealand – Possible Ways Forward* (Te Mata Hautū Taketake – the Māori and Indigenous Governance Centre, Te Piringa-Faculty of Law, University of Waikato, 2019).

CHAPTER TWO

Te moana/the marine environment

Cavalli Islands *(Tanya Peart)*

2.1 Introduction

> What strikes many as ironic is that we have long called our planet the Earth, when – and this is of course especially noticeable when our blue and green spheroid is seen from outer space – it manifestly should more properly be called the Ocean.[1]

Aotearoa New Zealand is an island nation. The sea is never far away; it connects us to the rest of the world. Most of the country's population is not far from the sound of the waves,[2] and we are shaped both directly and indirectly by its presence.

The marine environment is highly dynamic. Natural change is a constant. However, a lot of change has been driven, or exacerbated, by people's activities. Our seas are quite different to what they were prior to human settlement, particularly prior to the arrival of Europeans. The casual observer should not be fooled by looking out to sea and seeing a big, blue, unbroken sheet. It is good at hiding from human eyes what can be quite fundamental shifts. Fell a forest, and we see it straight away; destroy a coral garden on the seabed, and it can be overlooked. A lot of marine change has been negative. The significance of this harm is enormous for both people and the environment, for tangata whenua and those of other descent, and for current and future generations.

In this chapter we define the marine environment and describe what it looks like. More information is contained in Appendix 1. We then look at what is going wrong, and what challenges we face in the future.

2.2 Defining the marine environment

What do we mean when we speak of the marine environment? The answer may seem obvious, but there are two ways in which the question can be approached.

The first is the technocratic answer we might find in a geography textbook. This sees the oceans as a spatially delineated area, mapped in two or three dimensions. It is something on a map (see Figure 2.1). Such a description is useful in conveying the geographical scope of what we are looking at in this work: Aotearoa New Zealand's territorial sea (out to 12 nautical miles from land),[3] its EEZ (which extends out to 200 nautical miles from land),[4] and its extended continental shelf (which extends out further than the EEZ and was formally claimed in 2008 through an international legal process).[5] These collectively span a vast area from sub-tropical to sub-Antarctic waters. From a "vertical" point of view, the marine environment is much more than just the water column and things within it – it includes the seabed and the air above.

Aotearoa New Zealand has either sovereignty or a reasonably wide range of "sovereign rights" in all its waters and extended continental shelf. This affords sufficient jurisdiction to cover most things "resource management".[6]

The outer boundaries of the territorial sea and EEZ are legalistically (and somewhat arbitrarily), rather than ecologically, defined. In contrast, the boundary of the extended continental shelf is defined geologically. In practice, this means that the country has significant areas of "deep seabed" – beyond the geological continental shelf – within its EEZ jurisdiction.

Although they are important matters (especially with respect to migratory species and their connectivity with the Pacific and Southern oceans), this project is not directly concerned with management of the high seas or the seabed beyond national jurisdiction.[7] These have a more complex international framing, and warrant separate attention. Nor are we directly concerned with Antarctic waters themselves. Finally, we are not exploring in any depth land-based "coastal" issues like coastal erosion, managed retreat or coastal landscapes. Such things are about how the sea impacts the land. Our eyes are firmly focused on the sea itself and what is in it.

However, our peripheral vision does need to stray further afield. There is no border wall between land and sea, or

The Noises Islands

between catchment and coast. It is dangerous to view oceans in isolation from the land on which humans conduct most of their activities and from which – at least according to some – the most significant pressures on our seas arise.[8] Many activities, like forestry, agriculture and urban development, happen a long way from the coast and yet have considerable impacts on it. Tangaroa has the mana to reach onto the land even if his home is in the sea.

The most striking thing about Figure 2.1 is just how extensive our oceans are. Indeed, Aotearoa New Zealand is a "continent" in its own right (often described as Te

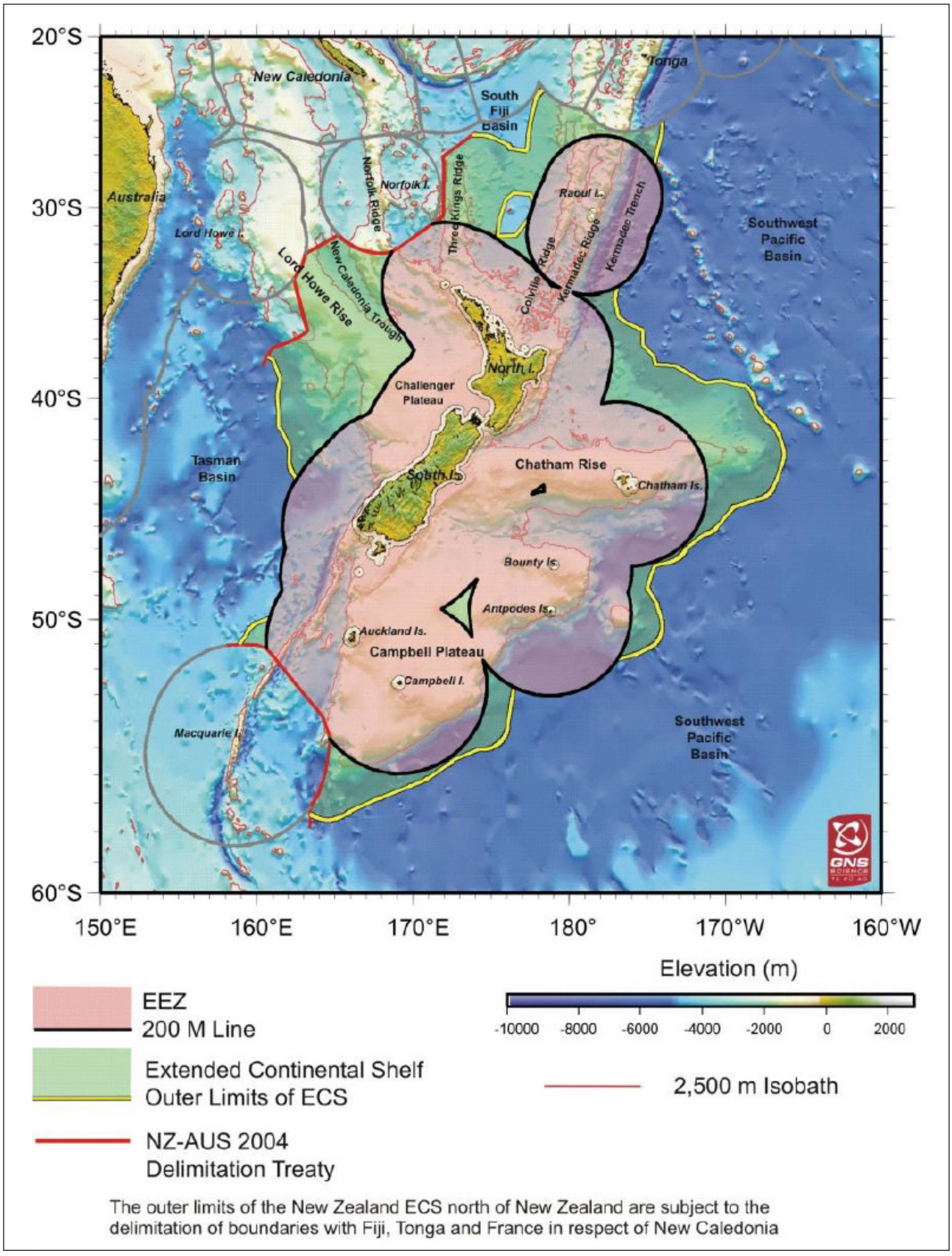


Figure 2.1: Aotearoa New Zealand's maritime areas *(Source: Ministry for the Environment, 2013)*

Riu-a-Māui/Zealandia) many times larger than what happens to be peeking above the waves at this point in geological history. The territorial sea extends over almost 170,000 square kilometres. That is significant, as is the country's more than 15,000 kilometres of coastline. But include the EEZ and this figure jumps to over 5.8 *million* square kilometres. It is not exaggerating to say that Aotearoa New Zealand has jurisdiction over a marine empire – one that is many times as large as our land mass – albeit one whose main inhabitants are non-human and in which all other nations of the world have an interest.[9]

Aotearoa New Zealand has responsibility for a huge marine area. In this project we are looking at reform of the resource management system from an oceans perspective. This includes the territorial sea/coastal marine area within 12 nautical miles from land, the EEZ out to 200 nautical miles, and the extended continental shelf. It also includes impacts from the land and atmosphere on this marine environment.

This is a technocratic definition of the oceans. But te moana can be described in a more values-based manner. Just as we can define a human being with reference to a physical body, we can define the oceans as something that takes up a particular space on a map; but just as a person is not just a bundle of DNA (we have a concept of *humanity*, which is much more), so too we can ask: what *are* our oceans?

That question is closely linked to our worldviews and ethics, which we are continuing to explore elsewhere in the project and which we offer some exploratory thoughts on in Chapter 4 of this paper. It is far from an academic question, because if we stray beyond a neoliberal mindset of the oceans as a supermarket shelf of resources to exploit, such perceptions have very real consequences for how we interact with those resources as well as the kinds of "management" tools we use. For example, are the inhabitants of the sea commodities to be harvested and traded, or non-human persons with rights and interests to be defended? Is te moana itself a space to be managed in order to maximise human welfare, or the embodiment of ngā atua (deities like Tangaroa or Hinemoana) to be respected?

While it defies a neat definition, our sense of what the oceans are is reflected in the stories we tell and the emotions we feel when we think about, look at or experience the sea. In particular, the oceans are deeply embedded in te ao Māori, and they have been an integral part of Māori life and culture for centuries. Te moana (through deities) is an ancestor, linked through oral tradition and whakapapa (kinship) to the people that use and protect it. Te moana evokes images of Māori deities, and a spiritual connection not only with the water (waitai) but with the life within it. It has been said that "waitai spiritually cleanses and heals wairua (the spirit or soul of a person)."[10] There is a rich genealogy to the moana in Māori culture:

> Traditionally, Māori divided the natural world into realms ruled by various gods. These gods, the children of Ranginui (sky) and Papatūānuku (earth), were seen as the original kaitiaki (guardians) of their realms. Kaitiakitanga was based around these ...[11]
>
> Water was considered to be an energy possessing myriad characteristics, shapes and natures. It upheld life, yet was also able to bring terrible destruction. This energy with all its forms, moods and expressions is called Tangaroa. The common translation, 'god of the sea', does not adequately convey its meaning.[12]

To Māori, the answer to the question *what are the oceans*? is therefore one with deep spiritual significance. It follows that harm to the oceans has significant spiritual, emotional and personal impact on mana whenua[13] and kaitiaki:[14]

> Species depletion and imposition of harvesting bans have prevented harvesting practice and thereby caused loss of traditional knowledge, such as understanding life cycles, species management and food harvesting methods. Locally specific knowledge and skills are no longer used, and therefore are not able to be passed on to subsequent generations. [This affects] the passing on of stories and knowledge that was part of the communal experience of collecting, preparing and eating local foods. ... Younger generations now have less familiarity with the foods that are part of tribal tradition, and how to prepare them, and lack broader knowledge about their ecology. ... Ultimately resource depletion affects iwi and hapū identity.

On the flipside, "the mauri, or life force, of a healthy moana enhances the mauri of those who interact with it" – people and ocean are closely linked.[15] Many non-Maori New Zealanders also have a deep spiritual and emotional connection with the sea that surrounds them. This is reflected in the myriad ways we use the marine space (see further below), but also in the stories we tell and the passion we feel for it. For example, one fisher has said:[16]

> I like seeing fish come up out of the water. I love the fact that you don't have to be that good at reading and writing but you can use your skill at sea to benefit yourself. Every day's different. You can be frightened at sea, which will get blood rushing around your body. With fishing, there are a thousand different things – currents, moons, time of year, depth, baits, time of day, habitat, whether sharks are in the area and whether small fish are getting the bait. When you line it all up it's a good feeling, very satisfying. Then other days you can do your 18 hours a day for $100 or a $6 an hour wage. On the calm days it's beautiful. We also get to go surfing and diving. So it's the job for me.

A lot of people who live or work in or near the sea may express similar sentiments and, for many, jobs out on the water or pastimes like surfing, fishing or diving are ways of life. That is not something that can be conveyed on a map.

The oceans can be defined in a technocratic way, but to many this may miss what the oceans truly *are*. In other words, our definition of our marine environment is inextricably bound up with how we, as people, perceive and value it.

2.3 Describing the marine environment

The natural environment

There are many ways to describe the natural marine environment surrounding Aotearoa New Zealand. It is useful to start in generalities, recognising that all parts of the marine environment are connected.[17]

Most obviously, the thing that defines the marine environment is salt water. This enormous body of water is constantly moving. Powerful currents shift seawater around the globe. From a big picture perspective, surface water reaches the country from the Southern Ocean and the subtropical Pacific (via Australia), with these two currents meeting at a latitude roughly corresponding to Fiordland and the Chatham Rise. Where this warm water meets cold, there is an efflorescence of marine life. There are, of course, many more localised currents that shift seawater around the coast too.

Although it is harder to see, water moves vertically as well. Wind blowing across the sea can create surface currents, which move seawater towards or away from the coast. Deeper, more nutrient (nitrate and phosphate) rich water rises to replace surface water moving away from land. This "fertilises" the water and promotes phytoplankton growth – creating the basis for a rich food chain and marine life. This phenomenon occurs in many places, but is particularly noticeable along the northeast coast of Te Ika-a-Maui/the North Island, and the west coast of Te Wai Pounamu/the South Island.

Just like the land, the seabed is far from uniform geologically. Some parts are much deeper than others. Generally, the further from land one goes the deeper the sea becomes. The country has an extensive continental shelf, and coastal waters and some of the EEZ is relatively shallow. However, about 75 percent of the country's total marine area has depths of more than one kilometre. The Kermadec Trench, to the northeast of Te Ika-a-Māui/the North Island, is up to 10 kilometres deep.

Differences in latitude, the physical and chemical composition of water and seabed, the climate and temperature, and interaction with land, has created a wide variety of environments for marine life (see Appendix 1). This *living* world of the oceans can be described through food webs. The basis of the marine food web, as on land, is the sun, which plants use for photosynthesis. The sun does not reach very deep into the water column, meaning that shallow coastal waters have more flora than the deep seabed. There is a huge variety of marine plants in our seas, including seagrasses and seaweeds, but the largest group of oceanic organisms belong to a group described as plankton. Plankton are not *just* plants; it is a generic name for tiny, often microscopic, organisms that rely on the currents for movement, and includes zooplankton (tiny animals such as worms and the tiny larval stage of creatures like crayfish). But plant plankton in its many varieties – called phytoplankton – forms the most significant pillar of the marine food chain.[18] As we described in *Sustainable Seas*:[19]

> Plankton are believed to be the most important life form on Earth. Through photosynthesis, phytoplankton convert water and carbon dioxide into organic material, or food and oxygen. They are at the base of the oceanic food chain, and without them, few other life forms in the ocean could exist.[20] Plankton are also responsible for manufacturing a significant amount of the Earth's oxygen.

Phytoplankton are fed on by zooplankton, which are then predated by fish and other marine creatures. Feeding relationships are extremely complex. For example, some fish, including parore, silver drummer and butterfish, graze on seaweed. Others, including maomao, trevally and demoiselle sift plankton from the seawater. Still others, including snapper, blue cod, kahawai, John Dory and moki, predate on smaller fish and invertebrates living in the rocky reef environment or on adjacent areas of sediment.[21] Bottom-feeding fish such as flounder, tarakihi, snapper, red cod and warehou predate on common residents of coastal soft sediments including a variety of worms, crabs, shellfish, starfish, sea urchins and sea cucumbers.

Small changes to marine food webs, whether through the removal of species, the addition of species or the introduction of stressors (eg climate or pollution), can have significant impacts on their structure. In particular, plankton might look uniform and resilient, but these tiny species have evolved to be tolerant of specific environmental conditions (eg temperature, salinity, light etc). They can be a useful early indicator of environmental change, but damage is not necessarily easy to reverse. The fortunes of entire marine ecosystems are dependent on the fortunes of their most tiny members.

> Our marine environment is extensive and diverse. The deep seabed looks nothing like the coastal environment, and powerful currents carry water around our shores, forming a constantly moving water column that is the home of many forms of marine life. At the foundation of complex marine food webs is phytoplankton.

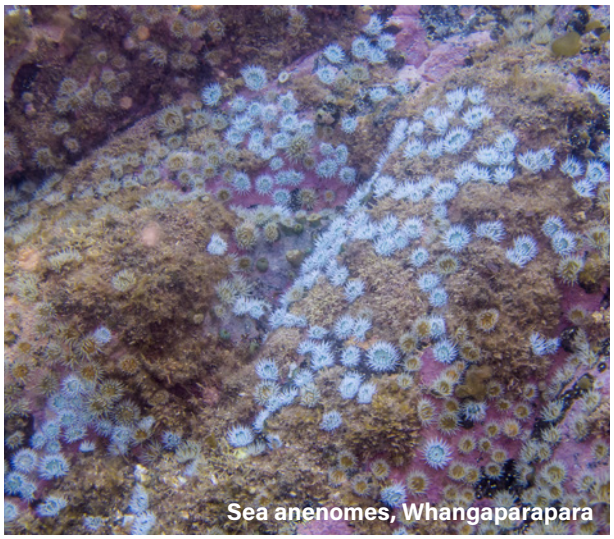
A generic description of habitats and food webs can take us only so far. As on land, marine habitats (and the relationships between organisms within them) differ enormously, from soft sediments to reefs to underwater volcanoes. We can define habitats with reference to their geology (eg rocky reefs), the biota that live in them (eg seagrasses), or their geographical location (eg estuaries). All these things combine and influence each other to create quite different places in which marine creatures live around Aotearoa New Zealand. Habitats provide shelter and food for the marine life that inhabit them. Biogenic habitats – those created by plants and animals, rather than just non-living landforms – are particularly important. Descriptions of some key habitats are included in Appendix 1.

Habitats support highly localised populations of marine life. These ecosystems can be complex, dynamic and often unique. Fish use the seabed and its flora as a spawning/nursery ground as well as a food source and a place to hide from predators. Marine habitats also support species that pass through them on much more ambitious journeys, often assisted by the currents. Some fish and marine mammals travel vast distances within and beyond the country's jurisdiction, and some have life cycles that take them on incredible migrations not just across marine habitats but also to terrestrial and freshwater environments. For example:[22]

> Some species will spend all their lives in one habitat whereas others will use a range of different habitats during their lifecycle. For example, adult snapper generally spawn their eggs in highly productive areas close to estuaries and harbours, such as the Hauraki Gulf. The juvenile snapper move into sheltered coastal areas to mature, and then once they have grown to adult size, they often move further out to sea.
>
> Studies have shown that the larvae of longfin eels actually hatch far away from New Zealand, possibly near Tonga, and one tagged female longfin eel took 161 days to swim from Canterbury's Lake Ellesmere to a point 160 kilometres north-east of New Caledonia.[23]
>
> New Zealand waters are visited by numerous migratory fish and they provide a critical habitat for many of them. Species such as the southern bluefin tuna and striped marlin migrate seasonally across the vast ocean basins.

The diversity of our marine environment is astonishing. An estimated 30 percent of Aotearoa New Zealand's biodiversity is in the sea.[24] Over 17,000 species have been identified in the EEZ.[25] Endemic species include around 95 percent of all known sponge species, over 80 percent of bivalves and gastropods, and three quarters of sea squirts.[26] It has also been pointed out that:[27]

> the animal kingdom Animalia[28] ... is by far the richest in species numbers with 13,415 marine species, followed by Chromista (a eukaryotic[29] supergroup) with 2,644 species, Plantae (mostly red and green seaweeds) with 702 species, Fungi with 89 and Protozoa[30] with 43 species.[31]


Sea anenomes, Whangaparapara

Furthermore, the 412 species of marine invertebrates that have been assessed are thought to represent only five percent of the total number of existing species. That is a humbling thought to those who think that the system is "managing" the marine environment. How can humans possibly make such a claim when they don't even know what is in it?

There is an astonishing diversity of marine life in Aotearoa New Zealand. A lot is not known about ecosystems and how they operate. There are also thousands of marine species that have yet to be identified. Species exist in complex relationships with each other, and make their homes in environments as diverse as reefs, estuaries and hydrothermal vents.

Looking through the lens of largely static habitats should not detract from the importance of particular species in the marine environment. Some species are found across many different types of habitat, or move between them. We look at some important species in Appendix 1, such as seagrass, seabirds and marine mammals.

It is worth emphasising that the marine environment contains specific species that are seen as particularly important beyond their role in maintaining a stable and healthy ecosystem or food web. The importance of some of these species is because they are rare or threatened; people's focus tends to come into sharp relief when there is the prospect of an entire species dying out, never to return. But for others, like whales and dolphins, their value is based on more complex moral considerations (for example, they are seen as iconic, intelligent and altruistic, and more like people). In contrast to many fish, is it therefore "wrong" to harm them, even if no significant damage is done to the ecosystems to which they belong? It is not a simple question, especially when it comes to discussion about cultural harvest of marine mammals or the extent to which some bycatch is or is not acceptable.

The marine environment is a vibrant place filled with a lot more marine life than just fish, and includes a variety of marine mammals like whales, dolphins and sealions, seabirds, invertebrates and flora like seagrass and kelp. Some species are particularly highly valued because they are rare or threatened, or for other more complex ethical reasons.

While it is useful to generalise by describing "types" of habitats, and "types" of marine life, there is also a lot of regional and local variation. One reef is not like another reef, nor is one estuary the same as another estuary. Some places may have forms of marine life found nowhere else.

It is also not always easy to differentiate between what an environment "looks like" and the cultural or historical meaning it has to people, including from a mātauranga

Māori (Māori knowledge) perspective. Many places around Aotearoa have special significance for Māori based on stories and histories of events that happened there or because of their place in the broader cosmogony of te ao Māori. For example, Wiremu Grace tells the story of Ngake and Whātaita, the two taniwha (guardian deities)[32] of Te Whanganui-a-Tara/Wellington Harbour, where what was originally a lake was opened to the sea.[33] Furthermore:[34]

> for Māori, Cape Reinga is the most spiritually significant place in New Zealand... It is here that after death, all Māori spirits travel up the coast and over the wind-swept vista to the pōhutukawa tree on the headland of Te Rerenga Wairua. They descend into the underworld (reinga) by sliding down a root into the sea below. The spirits then travel underwater to the Three Kings Islands where they climb out onto Ohaua, the highest point of the islands and bid their last farewell before returning to the land of their ancestors, Hawaiiki-A-Nui.

The social and cultural context in which a particular marine environment is placed means it can be described and thought about quite differently from others that might, to others, look similar in a purely biophysical description. The space between Cape Reinga and Ohaua is not the "sea" or a series of ecosystems – it is the path of the spirits. These place-based descriptions matter.

One ocean or many oceans?

It is interesting to ponder that our names for water bodies have come primarily from a navigational perspective – we need to know where we are on large, connected areas of water in relation to land – rather than one defined by ecology. How else can we account for the fact that the Pacific Ocean spans almost all latitudes and can look hugely different; yet it is all the Pacific Ocean?

Our labels reflect the fact that we see an undifferentiated mass of water as far as the eye can see; but that is like saying that the terrestrial environment is all the same simply because it is covered in air. On land, we recognise many different domains (soil, air, freshwater, biodiversity, land), but we tend to treat the marine domain as an undifferentiated area.

On the other hand, the connectedness of the marine environment – water moves freely, as do many marine species – means that we should arguably take the complete opposite approach – by speaking only of one global *ocean*. This concurrent "oneness" and "separateness" of the oceans is a paradox that can be challenging when it comes to a Western management system more familiar with compartmentalisation (eg sharply different regional council boundaries) and a focus on specific resources and activities (eg fish, minerals, shipping).

There is much about the marine environment that we do not know or understand. There are vast areas where habitats are not mapped. Thousands of species have yet to be studied in detail.[35] New species are being discovered all the time. Their interactions with each other, the physical environment, and with the atmosphere and land are not well known. Most significantly, the interaction between the natural environment and human activities are not well understood.

Our oceans are also changing over time. Some of this change – especially over long time periods – is natural. Many of our inshore coastal environments and the species in them have evolved slowly as geological, climatic and biological pressures have played out over thousands of years. They will continue to do so. However, a lot of the rapid change in natural structures and processes that has been witnessed over the past decades and centuries has been induced or accelerated by people.

Every part of our marine environment is unique. Many areas are defined not just by their topography and ecosystems, but by their significance to people. Particular places hold deep emotional and spiritual connections in te ao Māori. But our oceans are changing, and a lot of that is down to human activities and pressures.

2.4 Humans in the marine environment

People in Aotearoa New Zealand are highly active in the marine environment. We are a maritime nation. Māori have a long-standing and deep relationship with te moana, going back centuries. How we use the sea says a lot about how and why we value it.

The idea of the sea – even the deep sea – being a wilderness – may also be slowly changing. Some nearshore areas would no longer be recognisable to those who lived a hundred years ago, let alone to Māori who first used them. People are no longer just sailing on the sea or harvesting and landing its bounty. They are increasingly making their presence felt by farming it, reclaiming it, mining it, and harnessing its energy. Humanity is going deeper and wider. We are staying there longer. There are increasing conflicts over who gets to use things that we are realising are finite. That is not uniform across the country – but in some places like the Hauraki Gulf, close to large centres of human population, the sea is becoming particularly congested.[36]

The marine space is of significant and growing value to the people of Aotearoa New Zealand. *Our Environment 2019* points out that the marine economy – comprising many things – was worth $7 billion in 2017.[37] The total sector employs around 30,000 people. Commercial uses are varied, and increasingly diverse. Some particular parts of the marine environment are especially valuable. It has been suggested that the Hauraki Gulf, for instance, "supports the livelihoods of around one third of Aotearoa New Zealand's population".[38]

Some uses of the sea are extractive. Fishing is the main extractive use, occurring around all of the country. The seafood sector contributes over $4 billion per year to the economy, $1.4 billion in export earnings, and $1.1 billion in GDP.[39] In 2017, fishing and aquaculture contributed 29 percent to the marine economy, and employed over 13,000 people.[40] Wild commercial catch has remained stable at about 450,000 tonnes per year over the last decade, comprising over 100 species and using a variety of methods (see the spotlight later in this chapter). As of March 2019, there were 37 large deep-water trawl vessels conducting around 25,000 tows per year, with 140 smaller trawl vessels conducting over 50,000 trawls annually.[41] The total commercial fleet (including inshore) comprises around 860 vessels.[42] Māori are heavily involved in the fishing industry, and around a third of fishing quota is owned by iwi interests.[43] The primary use of fish is for food, and it is exported as well as being sold through supermarkets and local businesses. Fishing supports a much wider set of businesses and livelihoods too, from processors to high end restaurants to fish and chip shops.

Aquaculture is also now a large and developing industry. Total revenue from the sector in 2018 was over $600 million, the majority from mussel farming.[44] Recreational fishing is also significant commercially, in that it supports many economic activities (eg boat building, equipment, charter boat businesses etc).

Marine mineral mining is another extractive use of the sea. In particular, there has been increasing interest in recent years in deep seabed mining for phosphate (nodules are ground up for fertiliser), massive sulphides (from hydrothermal vents, containing deposits of copper, zinc, lead and gold), manganese nodules (containing various metals), cobalt, and iron sands. Although proposals have been put forward for iron sand and phosphate mining, these have met significant opposition and litigation, and no consents are yet operational.[45] It remains an emerging industry. However, sand has been mined in coastal marine environments for many years.[46] Oil and gas – notably off the Taranaki coast – has been a significant activity for decades and still forms one of the mainstays of the region's economy.[47] However, the future of the industry remains uncertain, with government policy being not to allow new offshore oil and gas permits. Overall, marine minerals comprised 27 percent of the marine economy in 2017 – a significant figure.[48]

Other commercial uses of the marine space are non-extractive. Shipping now provides the biggest contribution to our marine economy, including port operations, boat building and maintenance, and freight and passenger transport.[49] Busy passenger ferry services exist in the Haruaki Gulf, Wellington Harbour, and across the Cook Strait. Around 99 percent of all exports are transported by ship.[50] The size of ships, and traffic volume, have increased in recent times. Most major coastal towns have a port, and there have been periodic calls for Auckland's port to be relocated to a different site, including in the Hauraki Gulf, Manukau Harbour or Northland.

The sea is used in the communications and electricity sectors too – notably through the fibre optic and electricity cables that span the Cook Strait and the Hauraki Gulf. Marine tourism – including sightseeing, whale watching, dolphin swimming, shark diving and (until recently, due to Covid-19) cruise ships – also forms a significant element of the marine economy.

Future uses of the marine environment might look quite different. Aside from the potential growth of some existing industries such as aquaculture (especially into deeper, offshore waters, and new species like seaweed for different purposes, including stock feed and nutraceuticals), the slowdown of oil and gas operations, and the emergence of new markets for existing resources,[51] there is the prospect of entirely new activities being established. There has been some interest, for example, in offshore wind energy (which is deployed extensively overseas) and tidal energy.[52] Deep sea mining has not been explicitly prohibited, and efforts continue to establish operations (with an iron sands mining proposal before the courts at the time of writing).[53] What a changing climate looks like in terms of human activity is yet to crystallise, but the development of incentives for sequestering "blue carbon" could see new operations (eg seaweed farming) as well as marine carbon geo-sequestration (whereby carbon dioxide from point source emissions is compressed and injected deep below the seabed and stored in perpetuity).[54]

With Auckland's water shortages causing concern, a growing population, the prospect of a changing climate and increasing difficulties getting consent to take water from the Waikato River, there is the possibility of another use of the marine environment in the Hauraki Gulf and potentially elsewhere: desalination for drinking water. Although the actual marine footprint of desalination infrastructure is small, its implications are potentially significant. This is for two reasons: (1) the discharge of brine back into the marine environment following extraction of freshwater is extremely salty and potentially toxic, so it matters where it goes (in relation to both ecosystems/habitats and other uses like aquaculture); and (2) the desalinisation process involves an enormous amount of energy that must come from somewhere; this could potentially put additional pressure on the marine environment through the development of local infrastructure for electricity generation (eg tidal or offshore wind).

Pressures on urban domestic water supply could see other options explored, such as the reuse of wastewater, which is sometimes referred to as "purified-recycled water". Highly treated wastewater has been deployed overseas (eg in Australia and Singapore) for various purposes. However, even this "sustainability" measure has its consequences for the marine environment; the water itself is being used more efficiently, but the contaminants that are removed from it before reuse create a more concentrated stream of waste for disposal. This is not all removed before entering the environment, and the rapidly eroding social license to pollute freshwater means that

contaminants have to go somewhere – potentially into the sea via outfalls. The message here is that everything is connected, and that new or expanding ways of using the marine environment in the future could have impacts or risks that have not yet emerged.

People use the sea in a variety of ways. It is of enormous value in supporting commercial activities like fishing, aquaculture, tourism, shipping and mining. Other uses of the marine area may also be deployed or expanded in the future, such as different forms of marine farming, energy generation, carbon sequestration and a potable water supply (desalinisation).

Human use of the oceans is not just commercial. For one, it is extensively used for public purposes – as a receiving environment for stormwater/floodwater and treated wastewater, as a space for defence and security facilities and operations, and as a blue highway for public transport. But as a society we also value it for many reasons that cannot always be subject to a dollar figure, including recreational, cultural and spiritual reasons. There are often no clear distinctions between those categories.

Māori were the first to use and protect the waters of Aotearoa, and developed sophisticated fishing methods and knowledge about the timing of harvest.[55] Some seabirds have been targeted for customary harvest as well as fish. The relationship is a living relationship, not an instrumental one, reflected in the whakatauki: "mā te tai o Tangaroa, ka whakapiki te tangata Mā te mauri o te wai, ka ora ai te iwi; By the tides of Tangaroa we move [and] by the lifeforce of water, we live."[56] Cultural practices with respect to the oceans have been long in development and remain at the heart of coastal Maori communities, so:[57]

> it is critical to manage these resources [mahinga kai] to allow people to continue gathering kai (food) in the way the ancestors did, and [it is] about mana and manaakitanga – the ability to welcome and host visitors by providing bountiful produce, as a demonstration of hospitality and respect.

In particular, there is no clear distinction in te ao Māori between cultural, commercial and recreational use of the oceans, or indeed between use and protection.[58] Kaitiakitanga encompasses all those things. Furthermore, whakapapa connections are not based on sharply delineated boundaries, and there can be difficulties when multiple mana whenua with overlapping rohe moana (district, region or area)[59] are pigeon-holed into Western processes that focus on particular resources or spaces. For example, there are around 26 different iwi and hapū groups having interests in the Hauraki Gulf, which is managed under multiple pieces of legislation. The process for delineating areas of customary marine title (see Chapter 3 and Appendix 2) has also proved challenging where there are overlapping claims.[60]

There may be potential tensions between Māori as commercial operators under a Western capitalist system and more traditional Māori roles as kaitiaki of their rohe moana.[61] This is arguably a product of the system heading in two directions – first, the "Westernisation" of the management framework (eg through the creation of quota property rights and their use as currency to settle te Tiriti grievances) and the more recent and ongoing moves to accommodate more traditional Māori values and power-sharing through co-governance arrangements. This dynamic is still playing out. For example, commercial fishing plays an important role in the wellbeing and development of many iwi and hapū (subtribe), but some Māori communities want to see constraints put on commercial operators to help preserve their local marine areas and fish stocks.

The marine environment is valued by all New Zealanders in a variety of ways. People enjoy swimming at the beach, sailing and water sports. Many people own or use boats. Estuaries and bays are highly valued for leisure and recreation, including in urban areas and holiday hotspots around the country. We like seeing the sea teeming with marine life; one study from 2008 recorded a staggering 375,000 annual visits to the Cape Rodney-Okakari Point marine reserve near Leigh.[62]

Recreational fishing, in particular, is a core part of Aotearoa New Zealand culture. In a country with a population of around 5 million, in 2017-2018 people undertook around two million fishing trips a year and came home with seven million fish and almost four million shellfish.[63] It is thought that around 600,000 people go fishing (whether from boats, surfcasting or diving), with a significant portion of the recreational catch being snapper and kahawai.[64] Most recreational fishing occurs along the north eastern coast of the North Island, including in places close to large population centres like the Hauraki Gulf.[65] Many New Zealanders – including Māori – rely on recreational fishing as a source of food, not just a pastime.[66] However, the primary motivation of most recreational fishers is just that – sport and recreation.[67]

The marine environment is valued by Māori and non-Māori New Zealanders in ways that are not just commercial. It is a food basket, a playground, and a place to find spiritual renewal.

Humans do not necessarily need to "use" the sea directly in order to value it. Many New Zealanders rely on the sea indirectly – for example, those who buy items that need to be shipped from overseas, the millions who enjoy eating kai moana, or those operating land-based service business in communities that are reliant on marine activities like fishing and tourism. Such people have a direct stake in our oceans, as much as those who are out on the waves. Those who conduct activities that rely on catchments as a receiving environment for waste are also "using" the ocean, even though they may not think about it in this way.

Others may also appreciate the sea from a distance. A sea view, for example, can dramatically increase the

value of a property. Such viewshafts can be an important consideration when it comes to urban planning and tourism ventures, even if people are not actually on the water. And even when the sea is out of sight and out of mind, to many people it has existence value. We like that we are never far from the coast – its health is important to us. It informs our identity as a nation. On the flipside, it can distress us if the sea becomes degraded or inaccessible, even if we do not experience it on a day-to-day basis or harm cannot readily be seen.

The sea has many benefits for people even if they do not use it directly, including amenity value and the flow of economic benefits from marine resource use. It also has considerable existence value.

More tangibly, the sea is a constant source of what some describe as "environmental services". It helps us to survive and thrive as people and communities, and not just by providing income, resources, or a space in which to conduct activities. We often take these environmental services for granted because we do not see them, but we would be much worse off without them. For example, the sea provides local temperature regulation. It gives us a buffer for global warming by absorbing a significant portion of both heat and carbon dioxide from the atmosphere.[68] Studies have also suggested that seabed sediments are the largest sink of carbon in the world.[69] Marine habitats (eg mangrove forests) trap sediment from land, and habitats also form a key part of the nutrient cycle. Marine filter feeders provide valuable filtration services to "clean" the water coming off the land.[70] Some habitats, such as kelp forests, provide natural buffers against storm surges and erosion. They sequester carbon and produce oxygen. The sea not only provides kai moana directly in the form of fish; it also provides the habitats that shelter and support fish in their growth and development.

These ecosystem services, just like any other services we obtain, are all ways in which we *use* the marine environment even if they are not uses that involve us *intervening* in it. As such, by protecting oceans *from* environmental impacts that threaten ecosystem services, we are also "using" the marine environment in a very tangible sense, even if this is seldom given a dollar value. It is particularly important to note that we are "using" the marine environment's assimilative and diluting capacity when we discharge or dump contaminants, like sediment, wastewater and litter in it. These things do not just disappear.

The sea and marine life within it provide extensive ecosystem services, including temperature regulation, water purification, carbon sequestration, food, flood management and nutrient cycling.

2.5 Conflict in the marine environment

It is not surprising that a growing array and intensity of human uses of the marine environment can, and increasingly are, coming into conflict. That is particularly the case where activities need to be spatially defined, or where there is a shared resource being used in different ways. People may wish to use the same "resource" as others (eg fish), or they may use them in ways that have impacts on each other (eg excluding people from protected marine space).

Commercial activities can conflict with each other, but another notable tension has been between commercial, recreational and customary uses. That is particularly prominent in the case of wild fishing, where all three types of users have a stake in a shared resource but use it for quite different reasons. But tension is not limited to fishing; for example, conflicts have arisen between seabed mining operators and surfers concerned about mining impacts on wave action and surf breaks.[71] There are concerns about access to the coastal marine area for recreation, spiritual connection and enjoyment when spatially-fixed activities like inshore aquaculture are authorised. One can foresee many more such conflicts as human uses diversify and technology develops. Often these conflicts can be worded in terms of protecting the environment from particular kinds of use, but underlying them are very human concerns about who gets to enjoy what from the ocean.

It is also possible to see the tension between all these uses on the one hand, and environmental protection on the other, as another manifestation of conflicting "uses". For example, some may wish to "use" the marine environment as a protected area, while others may wish to use it for fishing. This perspective may be appropriate in some cases – such as where a community values the amenity provided by a protected area in their backyard or where protection is a by-product of another motivation like the exclusion of commercial fishing – but in many others it is not. This is because it undersells the importance of environmental protection, in assuming that it is just another interest group to be accommodated, and invites a value-based negotiation or trade off about *who* gets what. The reality is that ecosystem health is vital for all humanity, not just those who have taken it upon themselves to advocate for its protection. It is not about dispute resolution.

Conflicts can arise in the marine environment where different activities seek to use the same space or have impacts on each other. However, it would be wrong to frame environmental protection as just one more "use" to be accommodated or negotiated.

As outlined above, the oceans have clear value for humans. But do *we* need to value the sea for it to *have* value? That is a deeper question. In exploring norms we will look at various world views, including a te ao Māori perspective and ecocentrism. But it would be remiss of

us to leave the impression here that the oceans are there only *for* people, or that humans are the only species that use or value them. While we are unique in many ways, human beings are ultimately one species alongside thousands of others that belong in the oceans more than we do. To many, therefore, the oceans and the life within it have intrinsic value in the same kind of way that a human life does. This notion of intrinsic value is also akin to te ao Māori, where te moana is linked to people through whakapapa and whanaungatanga (relationship, kinship, sense of family connection).

> Te moana has intrinsic value, not just instrumental value. For Māori, its value lies in whakapapa and whanaungatanga – it is not just a resource to be used, but rather an ancestor to be treasured and looked after.

2.6 Problems in the marine environment

Human use of the marine environment has been far from benign. We have presided over a rapid period of decline, and most of that has occurred in the relatively short period of time since European settlement.

The government's most recent domain report in its environmental reporting series, *Our Marine Environment 2019*, makes for grim reading. This focuses on what we might call "biophysical" problems: traditional "environmental" issues concerning pollution, ecosystem health and the depletion of resources. However, we also note that the following account of problems should be read with a reminder that there is no sharp distinction between the biophysical, the metaphysical, and the social, including (but not exclusively) in te ao Māori. What impacts on the health and mauri of te moana also impacts us as people in many ways.

Below, we look first at biophysical problems, then what we might call a separate set of socio-cultural problems. These can all be described as problematic *outcomes* – ones that can be observed in a physical sense on the ground. There are also quite different problems with the marine management system *itself* (how it is structured and how it operates); these are looked at in Chapter 3.

Marine ecosystems, and the life within them, are being negatively impacted in many ways. While it is hard to generalise with respect to the thousands of specific ecosystems and habitats across the country, the available data for specific species is concerning at a national level. Some improvements have been observed in recent years (whether because of actual improvement or better data),[72] but the overall trend is one of decline.

A recent Aotearoa New Zealand conservation status assessment found that 90 percent of seabirds and 80 percent of shorebirds are at risk of, or threatened with, extinction.[73] Based on a 2019 assessment, 10 out of 45 assessed species of marine mammals are also threatened with, or at risk of, extinction, and thirty assessed species of marine mammals are classified as data deficient.[74] Orca, Bryde's whale, Hector's dolphin and the southern elephant seal are in particularly dire straits. The threatened and nationally vulnerable Hector's dolphin is estimated to have a population of 15,000.[75] But the Māui dolphin beats them all. It is estimated that this iconic animal has only 57 adults left.[76] Once we lose these species, they are gone for good.

These trends have not occurred by chance, or through natural change. We, as human beings, are responsible. Marine mammals, for example, are directly impacted by a wide range of human activities, many of which are still occurring and even increasing. Although hunting of marine mammals is generally prohibited,[77] some activities can still kill animals directly, such as when they are caught as bycatch in commercial fishing nets or are struck by ships. The Bryde's whale, living in the Hauraki Gulf, has had real problems with ship strike in the past, and although that has improved in recent years due to speed restrictions,[78] increased numbers of boats[79] are linked to increased likelihood of collision with marine mammals.[80]

Shipping and other underwater activities like mining and seismic surveying can also interfere with marine mammals and other marine life,[81] and people's activities on beaches (such as driving and dog-walking) can threaten animals like shorebirds, especially during vulnerable stages like breeding and nesting.[82] While the trend may be one of slow improvement, the entanglement of one Māui and 29 Hector's dolphins in the decade ending 2018 is still cause for concern given the small populations that remain and their slow reproduction rates.[83] Could one reasonably expect bycatch to be zero?[84]

We can also look with concern at figures for seabird bycatch – the non-target populations that arguably suffer most from commercial fishing activity. Although numbers are lowering, it is estimated that over 4,000 birds were caught accidentally in fishing gear in the 2016/2017 fishing year, including iconic, long-lived and vulnerable species like albatross (which have very low reproductive rates).[85] However, it is hard to establish the real figure due to low observer rates on commercial fishing boats and a lack of meaningful surveillance of recreational fishers. Fishing can also imperil the food sources of seabirds through fishing down "bait" fish.[86]

Commercial fishing bycatch also includes non-protected species, including non-target fish species. Quantities of bycatch are estimated by Fisheries New Zealand (Fisheries NZ) using models based on observer data for offshore fisheries, but there is less available data for inshore fisheries.[87] In 2017, 65,000 tonnes of marine species were estimated to have been caught as bycatch in offshore fisheries, of which 24 per cent (16,000 tonnes) was legally discarded (see Figure 2.2).[88] This is not an insignificant amount.

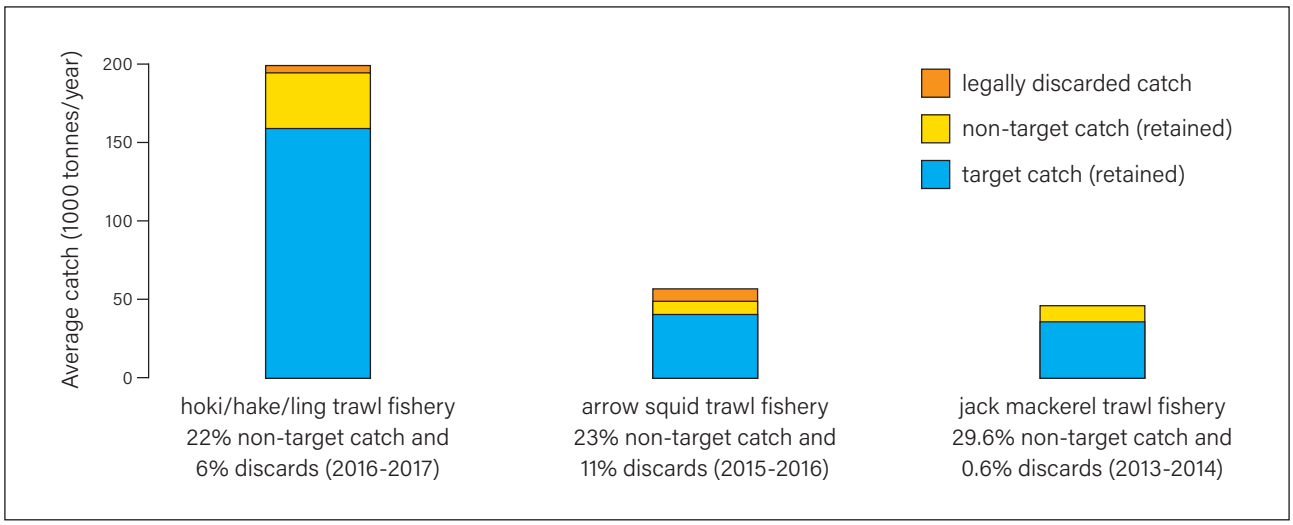


Figure 2.2 Examples of target and non-target catch for different fisheries[92] *(Source: Fisheries NZ)*

Marine mammals and other animals can be impacted indirectly by human activities as well. There is some evidence that feline faeces containing the toxoplasma gondii parasite, once entering the marine environment, can cause behavioural and reproductive harm as well as death in the critically endangered Māui dolphin.[90] The parasite has been identified as a potentially serious threat to (particularly) female Māui and Hector's dolphins, and was identified in nine dolphins that died between 2007 and 2018.[91]

Modern society's rapacious, industrial-scale fetish for creating disposable plastic products has also led to significant amounts of it being consumed by marine animals. Once consumed, plastics can block the digestive systems of birds, induce reproductive problems, cause poisoning, and block the uptake of nutrients.[92] It is disturbing that something as innocent sounding as a children's lollipop stick can end up as one of the main marine plastic pollutants noted in national level environmental reporting.[93]

Of course, iconic and threatened/protected species like whales and dolphins – a lot of them large, mobile and instantly recognisable – do not exist in isolation. They are part of wider marine ecosystems, and rely on healthy habitats comprised of less well-known species and physical features. Unfortunately, these too are suffering, which not only puts further pressure on threatened species, but also flirts with the possibility of wider ecosystem decline and collapse. The extinction of a specific species is morally abhorrent, but the collapse of entire marine ecosystems would be a disaster – not only for people with an environmental conscience but also for society as a whole.

The Ministry for the Environment has recorded that many biogenic habitats are degrading or are under threat, including seagrass meadows, kelp forests, bryozoan thickets, corals, shellfish beds, and tubeworm mounds.[94] The Parliamentary Commissioner for the Environment has recently looked at our estuaries, many of which are in a poor state across a variety of habitat types.[95] Deep-sea environments also face threats, but the productivity, proximity to land, and demand by people means nearshore marine environments face the greatest pressures and rates of change. For example, *Our Marine Environment 2019* has pointed out that green lipped mussels in Ōhiwa Harbour declined in number from 100 million to half a million in just one decade, and were:[96]

> once a dominant habitat growing on soft sediments in areas like the Firth of Thames, Hauraki Gulf, and the Kaipara Harbour. By the end of the 1970s, they were considered mostly ecologically extinct from soft sediment environments.

Some ecosystem degradation can be observed or measured fairly directly. If we understand what healthy ecosystems look like (or at least have baseline measurements), we can assess individual components of them. We can count fish. We can observe the prevalence of particular species like kelp or kina. Knowing that phytoplankton forms the basis for much of the food web, we can measure its extent and draw conclusions from that about the health of the whole ecosystem. We can see if an area of the seabed once teeming with life has become barren or shifted into a completely different, less productive state. Mātauranga Māori has many such indicators, based on centuries of interaction with the environment, and as a society we are re-learning the importance of that knowledge (despite some having been lost).[97] It is *useful* to us all – not just the discharge of a te Tiriti obligation.

For many things, people do not have to be trained in marine science to observe indicators of degradation. Fishers, divers, boaters, cultural practitioners and those who live near the sea are all well placed to see what is happening.

Other measurements can be proxies for ecosystem health or early warning signs, and these often require more technical approaches to measurement. Oxygen levels, pH levels, water clarity, sediment depth, concentrations of some chemicals and so forth can be measured with conclusions drawn as to how ecosystems are likely to respond and change. Other proxies, such as enterococci, indicate the presence of faecal matter and therefore disease causing viruses, bacteria and protozoa. Such

indicators show conditions are variable across the country, but can be problematic in places.

Our oceans are facing a number of problems. In particular, a number of species are declining, threatened or endangered, and ecosystems are facing significant stress. We are faced with the prospect of extinctions and ecological tipping points, with flow on effects for human health and wellbeing.

2.7 What is causing biophysical problems?

While ecosystem degradation is not uniform across the country, enough is known to conclude that it is a pervasive reality. What is sometimes harder to establish is what exactly is causing it, and in what measure, in a particular location. Pressures on ecosystems come from all directions; there is no simple chain of causation. Yet wherever we look, there are human induced pressures.

Fishing

Commercial fishing methods like bottom trawling and dredging not only remove vast amounts of both target and non-target marine life from benthic ecosystems, but also damage the underlying biogenic habitat (eg living reef structures), change the non-living structure of the seabed, and resuspend sediment that then blocks sunlight and smothers remaining benthic organisms. Recovery from such activities, if it happens at all, takes long periods of time; in the inner Haruaki Gulf, mussel beds still have not re-established despite dredging not having occurred for half a century.[98]

After climate induced changes, bottom trawling has been ranked as the greatest threat to marine environments in Aotearoa New Zealand.[99] Despite a downward trend,[100] large tracts of the country's marine area are still subject to trawling and each year new areas are trawled. In the 2019-2020 fishing year, 46 percent of Aotearoa New Zealand's catch volume was caught through bottom trawling.[101] And although since 2007 around one third of the country's deep sea benthic areas have been protected from bottom trawling, there is a question whether these areas are in the right place to provide actual protection.[102]

Bottom trawl net and bobbins

A spotlight on fishing methods

Some fishing gear and practices can cause physical damage to the marine environment, as a side effect of harvesting fish and shellfish. This is particularly the case when heavy fishing gear is dragged across the seafloor. Three types of fishing methods undertaken in Aotearoa New Zealand involve this practice: bottom trawling, Danish seining and dredging.

Bottom trawling is the most commonly used fishing method in the country, being used to catch just under half the country's total commercial harvest.[103] It typically involves dragging a large net across the seafloor with associated equipment. This includes two large heavy doors which keep the mouth of the net open, bobbin chains which weigh down the leading edge of the net and roll along the seabed, and ropes and wires that connect the gear together and to the fishing vessel.

Because the catch efficiency of this method relies on close and persistent contact with the seabed, bottom trawling can have substantial adverse impacts on the seabed and sensitive habitats.[104] Direct impacts include scraping (displacement), ploughing, and compression of seabed sediments; sediment resuspension, scattering and removal; and mortality of benthic organisms. In addition, indirect effects include post-fishing damage or mortality of benthic organisms and long-term change in habitat complexity and community structure.

Trawling can also have adverse impacts on sea birds. Trawling uses cables called warps to tow a net (or nets) at depth behind a vessel. When seabirds collide with trawl warps they can be injured or die, especially larger species like albatross.[105] Discharge of fish waste attracts seabirds and increases the risks of collision. Seabirds and marine mammals can also be caught by trawling if they get tangled in trawl nets as they are brought to the surface.

Danish seining involves dragging weighted lines across the seabed in a circular formation to herd fish into the net. Because the gear dragged across the seabed is lighter than that used for bottom trawling, the physical damage is less. However, it can still be significant.

Dredging involves dragging a steel box or bag across the seafloor to harvest shellfish living within the sediment. The area impacted by dredging is much smaller than with trawling, but the intensity of disturbance in affected areas is greater.[106] It does not just impact biogenic habitat – it can alter the geological structure of the seabed too.

The physical disturbance caused by dragging gear over the seabed results in a range of ecological impacts. In the first instance, organisms that grow above the seabed such as mussels, corals, sponges

and bryozoans are damaged. This is significant because the three-dimensional benthic habitat these species create provides settlement sites for larvae, nursery areas for juvenile fish, and habitat and food sources for a wide range of organisms. Bottom contact fishing methods also suspend sediment in the water column, reducing water clarity, smothering organisms when the sediment settles and, as heavier particles fall to the seafloor faster than fine particles, potentially changing the seafloor surface to a fine mud which (in coastal areas) is more susceptible to suspension through wave action.

Overall, benthic communities decrease in density and diversity as a result of such disturbance.[107] In some cases, bottom contact methods can push the seabed over a "tipping point", where it changes to a different (and less diverse) stable state and will not naturally recover. That includes where there has been physical alteration of the seabed itself, making recolonisation and recovery by benthic species much harder. Local examples of where dredging has helped tip a marine system include the Hauraki Gulf (with mussel dredging),[108] Tasman and Golden Bays (with scallop dredging)[109] and the loss of epifaunal reefs in areas dredged for oysters in Fouveaux Strait.[110]

The total catch of fish in our waters by weight over the past ten years has been around 450,000 tonnes.[111] The sustainability of some stocks is an issue, but there is also a lot of uncertainty due to a lack of information.[112] However, the general point remains: remove too many fish, or in the wrong proportions, and a cascade of effects rolls down (and up) an extremely complex food chain that is often hard to predict. As the Ministry for the Environment has pointed out:[113]

> Fishing changes the population structure of a species as well as reducing the overall number of fish. Fishing changes behaviour, leads to different size or sex ratios, and can affect population genetics. Population changes can have cascading effects through the food web by affecting the dynamics of predation, food availability, and competition for food and habitat.

The point in time that fishing occurs in relation to the life cycles of fish is also important, as is the size and age of the fish that are caught. Cascading impacts, and ecological tipping points, can be seen in the development of "kina barrens". This is where the depletion of adult snapper and crayfish (which eat kina) results in high kina numbers, which in turn feed on kelp. In some cases, this can cause kelp to disappear altogether, tipping an ecosystem into a completely different state (described as a kina barren). This affects not just the kelp, but the myriad of other marine life that relies on the kelp as both habitat and a food source.[114] The phenomenon has been notable in the Hauraki Gulf and Bay of Islands. Luckily we know that, in some cases, the system can slowly recover once fishing pressure is removed.[115]

Admittedly, it is not all doom and gloom. Reporting points out that 82.5 percent of *routinely assessed* fish stocks were, in 2020, considered within safe limits.[116] However, the remaining 17.58 percent were considered overfished, and nine stocks were considered to be collapsed.[117] Periodic collapse and rebuild of even this number of stocks – which are part of and have effects on wider ecosystems, including other stocks on which they predate or are predated – is concerning. For example, the size of the East Coast tarakihi fish stocks for the 2015-2016 fishing year was estimated to be just 17 per cent of virgin biomass, further reducing to 15.9 per cent by the time of an April 2019 stock assessment.[118] Although these stocks are now (hopefully) entering a period of rebuild, the fact that stocks were allowed to get so low, more than 30 years after their introduction into the QMS, is indicative of a system that is far from perfect.

Moreover – and most significantly – many stocks are *not* routinely assessed, which is a hugely important caveat.[119] In addition, for assessed stocks, some have questioned the adequacy and currency of the information on which assessments are made.[120] The ecological reality for many stocks remains murky.

Local depletion also matters. Stocks are assessed across large areas (quota management areas), and while many of these may be sustainable overall, that may not be the case in particular places within those areas where fish populations are valuable either as part of a local ecosystem (eg snapper and crayfish on rocky reefs as outlined above) or as a food or other source of value for local communities. In other words, it matters *where* fish are present within the areas in which stocks are managed.

Communities and tangata whenua have responded to such concerns by calling for localised rāhui and closures to rebuild local kai moana resources.[121] Notable examples of local depletion include East Coast tarakihi and Bay of Plenty crayfish. Because of their life cycles, spatial distribution and habitat preferences, for some species local depletion could mean the removal of an entire fish population. For example, it is thought that flatfish like flounder form isolated populations in enclosed waters, making them particularly vulnerable to overharvesting.[122]

Furthermore, the health of a fish stock is not just about how many are caught. In particular locations (eg around estuarine environments and other inshore areas), stocks are subject to complex pressures arising from land-based pollution, climate change, invasive species, and fishing. Even if a stock itself has high abundance now, the stock is not healthy if fish are stressed from other factors or if recruitment (when fish survive the early stages of their life-cycle to join the sub-adult population) and growth is vulnerable to ongoing pressures. If their habitats reach tipping points then the abundance of fish stocks can change abruptly.[123]

Fishing activities are placing stress on marine ecosystems in a variety of ways, including through damage to habitats and the removal of fish from ecosystems. Other stresses, including from land, can affect the sustainability of fish stocks.

Invasive species

Other types of sea-based activities and threats are also impacting on marine ecosystems. Invasive non-indigenous species – of which there are now upward of 200 in Aotearoa New Zealand – can predate on, compete with or crowd out indigenous species, fundamentally changing the nature of habitats and species that live there. They can also have significant impacts on human activities like aquaculture and fishing.

Most commonly, and despite best biosecurity efforts, these unwanted visitors arrive on the hulls of ships or in ballast water. As shipping increases, so does the risk of both incursion and subsequent spread around our shores.[124] Once established, it has proved extremely difficult to eradicate some invasive species. A brown seaweed called *Undaria pinnatifida* has proved particularly problematic, as has the sea squirt *Puyra doppelgangera*.[125] We will explore the impacts and risks of invasive species, and implications for reform options, further in our final report.

Invasive species pose threats both to marine ecosystems and human activities in the marine environment.

Plastics

As well as being a problem from the viewpoint of particularly valued species like birds and marine mammals, and from an aesthetic point of view (it comprises the majority of litter around our coasts),[126] plastics from both marine and land-based activities are impacting on broader ecosystem health. That includes micro-plastics, which are now well entrenched in the marine food chain, having been found in finfish and shellfish.[127] People do not fully understand the long-term impacts that the presence and ingestion of microplastics will have on ecosystems or human health – after all *we* are at the very top of the marine food web, at which point plastics have accumulated most. But some studies have made concerning findings; for example, microplastics have been linked to poor nutritional outcomes and mortality in plankton[128] and altered reproductive behaviour in shellfish like oysters.[129]

In other words, microplastics (and even smaller "nano-plastics") put additional pressure on parts of the marine food chain vital to healthy and stable ecosystems. Plastics are not just a problem when we discard them (eg as disposable packaging or single use nappies). They are more pervasive than that, which suggests human society may need to rethink its entire relationship with plastic products rather than just treat them as a waste stream that can be managed. For example, a significant source of plastic pollution comes from tiny fibres of what has become ubiquitous polyester and other synthetic clothing, which comes out through people's washing machines into wastewater flows. One study has suggested that up to 700,000 fibres could be released from an average 6 kilogram wash load of acrylic fabric.[130] Some of these microplastics are small enough to bypass processing and enter directly into the marine environment.[131] However, even particles that are removed during wastewater processing may make their way to the marine environment eventually via the disposal or use of sewage sludge.[132]

Plastics pose a threat to marine life in a number of ways. Perhaps of greatest concern are the risks posed by microplastics, which are now pervasive in the marine environment and the ultimate effects of which are not well understood.

A lot of plastic waste comes from land. Unfortunately, that is not all that our activities on land put into the marine environment. Ultimately, many things that comes down freshwater catchments end up in the sea. That includes nutrients (eg nitrogen and phosphorus) from agricultural and horticultural activities, sediment from a variety of land uses (eg forestry harvesting, urban development and expansion, infrastructure construction, and farming), and even more insidious substances like hormones, heavy metals, antibiotics, a cocktail of exotic chemicals, and pathogens that leach off the land and make their way through wastewater and stormwater systems. We do little testing for many of these things, and their long-term impacts are not well understood. Other contaminants – including toxic chemicals – also hitch a ride on sediment on its journey to the sea.[133] In short, a lot of things that harm waterways also harm the marine environment.

Significant amounts of marine pollution, of various types, emanate from the land and travel down catchments to the sea.

Sediment

Some land-based inputs are not in themselves problematic, but it is their *extent* or *rate* that is having an adverse effect. For example, the land always has and always will produce sediment, with significant volumes entering the coastal environment even from land that has full indigenous cover, particularly during and after storm events. Some marine environments were, prior to human settlement, already defined by a soft sedimentary seabed, and these supported healthy ecosystems; erosion is a natural process. Catchments and estuaries also have highly variable natural sediment accumulation rates across the country.[134]

However, the past one hundred and fifty years has seen an explosion in the volume and rate of sediment entering the marine environment. It has been noted that

"New Zealand has one of the highest rates of sediment runoff in the world; equivalent to around 35 million truckloads of sediment entering the sea annually."[135] It has accumulated, especially in some estuaries, at an unprecedented rate. Environmental reporting has noted, for example, that:[136]

> Inter-tidal sedimentation rates have generally increased and become highly variable since European settlement. In estuaries and harbours across the Waikato region, historical sediment accumulation rates were less than 0.5 millimetres per year. After European settlement, rates became unstable, reaching almost 200 times historical rates.

This is far from being an isolated example.[137] We cannot place the blame at a door of a single sector or industry; contributions, including from the deforestation of land and ongoing land management, come from many sources, including agriculture, horticulture, commercial forestry and urban development. Earthworks, often involving mass clearance of vegetation and deep disturbance of the soil, have had an impact disproportionate to the land area they occupy.[138]

Irrespective of where it comes from, large amounts of deposited sediment can smother, stress and kill benthic life. Suspended sediment (contained in the water column) can impact the amount of light reaching photosynthetic species on the seabed such as seaweed,[139] and impact fish spawning and survival.[140] Food webs are affected by all of this, in negative but often unpredictable ways. And (as mentioned earlier), especially in urban and intensive farming environments, sediment can also bring with it a confection of chemicals.[141] The seas get two types of pollutants for the price of one.

Planting trees has undoubtedly helped to stabilise soil that would otherwise have flowed to the sea as a result of land clearance and land use change, but the purpose of the tree matters – if every 30 years we allow extensive clear felling within a catchment (of plantation trees planted all at the same time), then such planting will have been of questionable value from a marine perspective (large bursts of sediment can be more harmful than slow release). And while local conditions matter for how much sediment ends up where (including how energetic the coastal environment is; the slope of land; the intensity and frequency of precipitation in catchments; mitigation measures; the nature of the soil; and the presence of sediment blocking habitats like mangroves), it is evident that in many places these factors are either not well understood or are not being tailored to the needs of our marine ecosystems. Marine life can only take so much stress.[142]

What resilience remains in marine ecosystems will, in many places, be further strained by a changing climate. In some places this may see heavier and more frequent rainfall (and therefore more sediment running off the land from a variety of activities) coupled with other climate-related stresses on ecosystems (see further below).

Sedimentation is a significant problem, especially in estuaries. A lot of sediment comes from land, including through urban development, forestry operations, and agricultural activities.

Nutrients

Nutrients are a vital part of marine productivity. Indeed, the presence of nutrients explains why some areas have an abundance of marine life. However, the concentrations of nutrients entering the sea from agriculture, horticulture and (in places) aquaculture, have in some places gone beyond what marine ecosystems have become accustomed to or are able to cope with while maintaining a stable or productive state. Intensification of agriculture over the last decade or two has exacerbated impacts. While environmental reporting indicates that total phosphorus levels have decreased in two thirds of monitored marine sites,[143] and low concentrations of chlorophyll-a at over four fifths of sites mean that "the effects of pollution are considered to be minimal",[144] of the sites monitored many have over the past decade or so had negative trends for total nitrogen (35 per cent increase), ammoniacal nitrogen (41 per cent), and dissolved oxygen (40 per cent).[145] Nitrogen inputs to the marine environment are of much more concern than phosphorus, as seawater is generally "nitrogen-limited" when it comes to producing marine life.

Substantial and largely unchecked expansion and intensification of urban and agricultural activity has had a large impact, particularly in some catchments that are intensely used, causing eutrophication – excessive nitrogen enrichment – in a number of our estuaries. This can cause algal blooms, reducing oxygen levels and leading to fish mortality, as well as throwing food webs out of balance. Blue-green algae (cyanobacteria) can be toxic to marine life and people.[146]

Catchments are a substantial source of nutrients entering the marine environment. While nutrients from land are an important part of a natural cycle, the excessive amount entering some places is having adverse impacts, including the eutrophication of estuarine environments and embayments.

Chemical pollution

Many other kinds of contamination come from catchments and land. While some overall measures of chemical pollution at a national level show signs of improvement,[147] it is difficult to generalise, not least because we understand so little about the long-term impacts of some pollutants. Pharmaceutical and cleaning products, antibiotics, hormones and so forth – the list is growing as we continue to concoct new chemicals – are entering our seas with uncertain results for ecosystem and human health. There are reasonable assumptions that they will not be positive and that they may contribute to ecosystem stress. For example, studies have linked medicinal waste to problems with feeding, immune response and habitat

binding in shellfish.[148] As mentioned earlier in the context of the parasitic threat to the Māui dolphin, biological threats can arise from land (cat faeces) as well as arriving from visiting vessels.

We understand a lot more about some chemicals and pathogens due to their immediate and obvious impacts on human health. Faecal matter and the presence of disease-causing pathogens is routinely monitored and leads to action like the closure of beaches.[149] Wastewater overflows – where raw sewage can sometimes discharge into the oceans – can occur within high density urban areas and near recreational beaches and where people collect kai moana.[150] While pastoral catchments record *E. coli* levels over a dozen times higher than indigenous forested areas, that figure is much higher in urban waterways. Much of this ultimately reaches the sea.

A logical public health response is to stop people (or at least warn them about) swimming in, coming into contact with, or consuming food from the area. But we cannot tell marine ecosystems to do that; they are left to deal with this periodic pollution as best they can, on top of more continuous stressors arising from catchment-based nutrients and pathogens. It is true that the water itself can dilute the concentrations of contaminants, nutrients will be taken up by marine life, and it will become safe to swim again in all but the most poorly flushed estuarine environments. The situation is much better than when raw sewage was routinely pumped into our rivers and ocean. Yet public health risks remain, and it has implications for people's expectations for healthy oceans and access to the marine environment.

Furthermore, some things are not removed from or rendered inert in wastewater during the normal treatment process (ie even where overflow events do not occur). Many of the novel chemicals and other contaminants mentioned earlier are pumped with the treated wastewater into the sea.

Aside from the occasional wastewater overflow event, people may be used to thinking of wastewater as being "dirty", but acceptable, as long as it is treated. New Zealanders are also arguably conditioned to think of stormwater as just a natural and therefore "clean" phenomenon (we are simply channelling it away from where it could cause damage). Neither of those things are true from the perspective of the marine area. In fact, when it comes to stormwater, there is a strong case for calling it something else. It is not as benign as its label suggests.

Stormwater refers to the runoff of rainfall from impermeable surfaces such as roofs, driveways, footpaths and roads. In urban areas, runoff usually enters an urban stormwater network which typically pipes the water into the sea. It is not "treated", it is simply diverted; stormwater is usually perceived as a matter of flood control, not waste disposal. And yet, especially in urban areas (where hard infrastructure like gutters and drains collects and channels it), its effect is to gather significant contamination together from many surfaces into one channel, and release it into a single spot in a river, onto a beach or into a marine area.

Stormwater can be contaminated by multiple sources including construction sites, motor vehicles, domestic properties, domestic animals and spills (see the spotlight below). Most would not give this a second thought as they hose down their chemically cleaned car, or watch as rainwater washes heavy metals off their roof, even if they occasionally look down to notice the little fish next to the grate warning that it goes directly to the sea. If we accept that what goes down our stormwater drain ends up in the sea, are we accepting that the sea itself is nothing more than a drain?

Stormwater pipe, Mangawhai

Environmental reporting notes one study in the Hawke's Bay where most contaminants in sediment were linked to urban and industrial runoff.[151] That effect is exacerbated as more impervious surfaces (eg concrete) are created, as wetlands are drained, and as coastal cities expand.

A spotlight on stormwater

Stormwater carries with it a wide range of contaminants including "litter, sediment, nutrients, metals, fuels, oils, polycyclic aromatic hydrocarbons (PAHs), legacy pesticides (such as DDT, lindane, dieldrin and chlordane), legacy synthetic compounds (such as PCBs), newer emerging organic contaminants (EOCs) including pharmaceuticals and pesticides, and pathogens".[152] It is a cocktail of contaminants.

Stormwater also usually carries sediment, which can be at high levels when earthworks are being undertaken within a catchment. The sediment, in turn, carries with it other toxicants which are bound into the soil particles. Stormwater can also be contaminated with raw sewage, which can occur when sewage systems overflow, or when accidental or illegal connections are made between sewage and stormwater pipes. This can result in the presence of pathogens and elevated levels of nitrogen and phosphorus. Domestic and feral animals can introduce pathogens into the system such as toxoplasma from cats which is affecting the Māui dolphin (see earlier). In addition, litter is often carried down stormwater pipes and can result in plastic fragments entering the marine environment.[153]

Roads are a major source of stormwater contaminants due to residues left by vehicles and road building materials themselves. Vehicles deposit particles of copper from brake linings and zinc from tyres on roads. Engines and exhaust systems also deposit particles of oil, grease and fuel. Exhaust gases, tyre wear, oil leaks and the wear of tar binders and asphalt on roads all contribute to the accumulation of polycyclic aromatic hydrocarbons. Historically there have been elevated levels of lead in stormwater due to its use as an antiknock additive in petrol, although this use has been banned since 1996.[154]

Heavy metals also come from a wide range of other sources due to their extensive usage in the fabrication of building materials. As well as being deployed as a decorative building material, copper is used for pipes and wires, in the manufacture of metal alloys and metal plating, and as a wood preservative and fungicide. Zinc is used widely in galvanised iron roofs and as an alloy.[155] In Figure 2.3 we list some contaminants often found in stormwater and describe their impacts on marine environments.

Type	Example	Effect
Litter	Plastic bags, containers, nurdles	Mortality to marine life, transport of other chemicals and organisms, visual
Sediment	Total suspended solids	Visual (fish), mortality to marine life (burial), reduction in photosynthesis and primary production
Nutrients	Nitrogen, phosphorus, nitrate	Algal blooms, oxygen depletion, toxic effect
Microbial contaminants	Pathogenic bacteria, viruses	Risk to human health when drinking freshwater, bathing and eating shellfish
Biodegradable organic materials	Oxygen depletion in rivers, lakes and coastal environments, grease	Fish death, odours
Trace organic materials	Fuels and oils, PCBs, polycyclic aromatic hydrocarbons, solvents, detergents, other emerging organic contaminants	Toxic effect, aesthetics, bio-accumulation in the food chain
Metals	Mercury, Lead, Cadmium, Chromium, Copper, Nickel	Toxic effect, bioaccumulation

Figure 2.3: Typical constituents present in stormwater discharges with associated effects[156]

Wastewater and stormwater can contain chemicals that pose threats to marine life and ecosystems. People do not fully understand the potential impacts that some contaminants and novel chemicals can have.

Coastal development

Some of Aotearoa New Zealand's most degraded marine environments are estuarine, particularly those with large catchments flowing into them.[157] That reflects the significant impact that land-based activities are having upstream. But not all land-based impacts on the sea come through catchments or pipes. Some contributions are more direct. Population increases and economic growth have seen development explode along great swathes of our coastlines. Such development generates the sediment and pollutants already described. We are also starting to see coastal landfills being eroded to the point that they disgorge their contents directly onto beaches or into the sea. We cannot even begin to know what is in there – there are often no records at all.[158]

Development is also removing an entire physical part of the marine environment in some places. Changing the natural structures of coastal areas, through activities like dredging and reclamation, not only impacts benthic communities directly, but can also alter things like wave formation and water currents and lead to erosion and sedimentation.[159] Of course, that is a generalisation – the actual nature of the impact of such activities is highly place-specific. The point is, they have potential risks for marine ecosystems.

Hard structures like concrete walls, wharves and port infrastructure are often built right up to, or in, the sea, leaving little or no inter-tidal habitat for shorebirds and other creatures to live and breed.[160] Even where some space is left, such as by setting back residential development, the risk is that rising sea levels[161] and the temptation to provide hard defences like seawalls and groynes to protect private property will mean that this ecologically valuable "middle ground" will disappear over time. Conversations about managed retreat versus protection on land are, therefore, also important for the health of the marine environment as well as to reduce risk to people and property.

Coastal development poses risks to the marine environment, including through the clearance of land and generation of sediment, the consequent runoff of chemicals from dense human settlement, and the physical removal or change of coastal habitat.

Climate change

While rising sea levels are one important manifestation of climate change, they may not be the most concerning from a marine perspective. A changing climate adds multiple other angles from which marine ecosystems are being affected. There is an important physical and chemical relationship between sea and atmosphere. Aside from more localised issues of marine air pollution (particulate matter and other compounds released by ships), this interface means that as the planet warms, our oceans are warming too. The oceans absorb a significant amount of global heat.[162] The Ministry for the Environment reports that over the last 40 or so years, the average increase in temperature was 0.2 degrees per decade. That is significant and the speed of increase is likely to accelerate in the future.

With a warming ocean comes a number of potential impacts on marine life and ecosystems. Some are direct – for example, some species' growth and reproductive cycles may be impacted,[163] including key species like plankton that form the basis of the food chain.[164] Mobile species like finfish may move elsewhere (an important thing to remember for the agility of fisheries management and its implications for equity in fishing rights). Other species better adapted to changing temperatures may take their place, with uncertain consequences for habitats and food webs. Species not endowed with fins or legs, and with fixed habitats, may simply disappear from places that no longer supply the conditions for that mix of life, or decrease in abundance. Impacts may not be universally negative – for example, it is predicted that an increase in phytoplankton in areas around the Chatham Rise may stimulate fisheries.[165]

Yet a warmer environment may also mean some species that may otherwise have struggled along no longer have the resilience to continue the fight against other stressors such as pollution, invasive species or severe storm events. Scientists have reported that in some places bull kelp, decimated by an unusually long period of warm waters in 2017-18, failed to recover in the face of competition from the invasive seaweed *Undaria*.[166] That could become a concerning pattern; new species have been observed making forays into inshore waters as it warms.[167] Some have pointed to patchy or depleted shellfish beds being more vulnerable to the physical disturbance of storms and extreme wave events – put simply, fewer and more spaced out individuals lack safety in numbers.[168] A lack of biological diversity in a community generally erodes resilience.[169]

Furthermore, climate change does not manifest uniformly across time or space. In some places,[170] an increasing risk of devastating marine heatwaves year on year, or an increasing frequency of severe storms, raises the prospect of ecosystems tipping over ecological thresholds abruptly rather than adapting or shifting (or declining) slowly.

Climate change does not just manifest in a warming ocean. Our oceans are also growing more acidic, a chemical reaction that occurs as the water column absorbs ever increasing amounts of atmospheric carbon dioxide.[171] (Incidentally, nutrient runoff from land and fish farms can also contribute to ocean acidity.)[172] Alarmingly, it is thought that the oceans have already absorbed up to *50 percent* of global emissions since the industrial revolution.[173] As a result, they have already become 30 percent more acidic,[174] with Aotearoa New Zealand measurements showing a 7.1 percent increase in the past 20 years.[175] That process is continuing; oceans are estimated to be absorbing over a quarter of carbon dioxide,[176] and it is predicted that pH levels around Aotearoa New Zealand may decrease by as much as 0.4.[177]

However, as the oceans warm they will be less *capable* of absorbing carbon dioxide. That may slow acidification

but, unfortunately, this is not a good thing. It means that *atmospheric* concentrations of carbon dioxide are likely to increase (unless we curb emissions), and warming may therefore accelerate even further – with all the consequences that brings for both land and oceans. People may be used to thinking of the "climate" as being about the atmosphere and CO_2, but the oceans tell the other important half of the story.

Acidification of the oceans adds a whole layer of impacts on marine ecosystems. In particular:[178]

> Acidification of seawater causes major problems for marine calcifying organisms, both large (eg calcareous macroscopic seaweeds, shellfish) and small (eg individual coral polyps, microscopic phytoplankton) because the lower pH both impairs the ability to build a shell, and dissolves existing calcareous shell. Scientists have established that ocean acidification will affect all primary producers – from microscopic phytoplankton to giant kelp forests, as well as higher trophic levels, including coral reefs, shellfish, and fish.

One study found that the shell of the tiny sea butterfly – said to be the "ocean's canary in the coal mine"[179] – dissolved in just 45 days when placed in sea water with pH levels anticipated for the year 2100.[180] In short, acidification may have potentially enormous impacts on the primary productivity[181] of the marine environment through food webs, even if a particular species is not directly affected. *Our Marine Environment 2019* has pointed out that edible and farmed shellfish like oysters, pāua and mussels are also vulnerable, which are valuable elements in ecosystems and have significant commercial value.

In short, climate change has impacts on multiple related fronts; a warming and acidifying ocean may directly reduce underlying ecosystem resilience (because species struggle to survive in those conditions), but climate change can also exacerbate the events that can end up sending those already weaker ecosystems over the edge (eg increasing frequency of storms and wave energy, the movement of invasive species, and increasing large scale sediment runoff events from land).

It is not the role of this report to go into detail about where anthropogenic greenhouse gas emissions are *coming from*. Suffice it to say, most are from land, rather than marine activities. Indeed, most are from other countries.[182] That said, the oceans provide both emission reduction and sequestration opportunities. The marine environment has the capacity to sequester significant amounts of carbon – it has been suggested that this figure may even be higher than our terrestrial forests.[183] Yet aside from the reducing capacity of the ocean itself (the water column) to absorb atmospheric carbon, there is the risk that habitat change due to climate and other stressors may result in the sequestration capacity of marine plant life and other photosynthetic organisms being reduced or lost. In other words, we might lose a significant carbon sink without realising it, contributing to a vicious feedback loop of warming that impacts the oceans even more.

Furthermore, as there is everywhere, there are opportunities and imperatives to reduce the further discharge of greenhouse gases at sea. The examples that may come to mind most readily are emissions from shipping and fishing vessels, which rely on fossil fuels. Of particular importance, however, is research highlighting the impact that bottom trawling can have on greenhouse gas emissions. One recent international study, published in *Nature*, has found that globally bottom trawling releases as much carbon dioxide as the entire aviation industry, by releasing it from the seabed into the water column.[184] That contributes to further ocean acidification and has consequent effects on biodiversity and productivity. In short, restoring the biodiversity of marine environments has potential to mitigate climate change; degrading it has the potential not just to forego that opportunity but also to significantly add to emissions by removing carbon sinks.

Mangroves, Firth of Thames

Climate change poses potentially the greatest threat to our marine environment, through warming seas and acidification. Its impacts are highly unpredictable. Our use of the marine environment also has the potential to mitigate or exacerbate the emission of greenhouse gases.

Cumulative impacts

Human pressures on the marine environment interact in unpredictable ways. Stressors from land, sea and climate interact with natural processes and features in particular places over time to produce highly complex and uncertain outcomes. It is these cumulative impacts that many have pointed out as the real crux of the problem we face.[185]

Uncertainty about cumulative effects comes from several angles – the inherent uncertainty of the future; a lack of complete information (eg robust time-series data or baseline measurements) on important indicators; lack of understanding of complex ecological and chemical systems (eg what will trigger a tipping point) even where we do have robust information; uncertainty as to how people will behave (both in their response to emerging threats and the activities that contribute to them); and uncertainty about how highly localised combinations of stresses and features will play out. Uncertainty is not just about difficulties in predicting the future – it is also about a lack of information about the impacts that have *already* been felt. In some cases, authorities have been forced to admit we know less than we thought we did previously – for example, some taxa have had to be changed to a status of "data deficient" where they were previously classified.[186] Regulators are forced to make assumptions about the state of fish stocks and roll over-fishing limits often based on modelling rather than real world information.

Even with the problems identified in the government's environmental reporting, perhaps the most concerning element is the sheer number of times such reports refer to how little is known and understood. For example, many marine mammal species are listed as lacking data. Limited information is available about seabird population numbers and their breeding sites.[187]

Causal links are often uncertain, too. Authorities know that many habitats are declining, and that species are threatened, and it can be said with confidence that many human activities are contributing. People understand the basic mechanisms by which, for example, sediment or nutrients or fishing change the behaviour and structures of ecosystems.

The overall effect may be that ecosystems are less diverse, shift suddenly to less productive states, fail to provide ecosystem services to people, and fail to support species that are highly valued. The case of the Firth of Thames is a cautionary tale about the cumulative effects that multiple pressures can have on the marine environment, and how impacts are often one step (or more) ahead of our understanding.

Cumulative effects: A spotlight on the Firth of Thames

By all accounts, the Firth of Thames was once a thriving, highly productive and biodiverse marine area. When early spar ships and traders visited the area in the late 1700s they reported immense kahikatea forests and a Waihou River that "abounds in salmon, flounders, breams, soles, and many other fish; also great quantities of crabs, clams, etc".[188] The extensive catchment draining into the Firth contained Aotearoa New Zealand's largest natural wetland system which had developed over thousands of years.[189] Sadly, subsequent impacts of forest clearance, wetland drainage, fishing and other human activities have significantly degraded the Firth's marine environment, and these impacts have been cumulative over time and across different stressors.

From the late 1880s up until the 1920s, the landscape of the Hauraki Plains was fundamentally transformed with the felling of trees, drainage of the enormous wetland and conversion of much of the land to dairy farms. This meant that the natural drainage services provided by the wetland, which had filtered sediment and nutrients out of the runoff before it entered the Firth, were critically compromised. The steep land on the Coromandel Peninsula was also logged and mined, further increasing sediment flows.[190] Later flood control works, which straightened the Waihou River and reduced flooding of land, further served to channel contaminants from the land directly into the sea with little filtering buffer.[191]

Extensive hard rock mining around Thames and elsewhere on the Coromandel Peninsula took place between the 1890s and 1950s. During this period, substantial quantities of mine waste were dumped directly into the Firth of Thames and mine tailings were also discharged into the Waihou and its tributary rivers which drain into the Firth. These mine tailings typically contained lead, zinc, copper and arsenic. Recent investigations have identified significantly enhanced levels of lead and zinc in sediments across a widespread area of the southern Firth of Thames. Although the levels measured are not high enough to currently pose a threat to marine life, there could be threats to the ecosystem if they were resuspended in the water column by such activities as dredging or bottom trawling.[192]

Much of the seafloor of the Firth of Thames used to be encrusted with thick green-lipped mussel beds. These are thought to be one of the most valuable habitats in the Hauraki Gulf due to the critical role they play within the local ecosystem. "They provide attachment surfaces for algae and immobile invertebrates, refuge for small mobile vertebrates, foraging areas for adult fish and probably act as important habitats for juvenile fish".[193] They also filter large quantities of seawater, with the Firth of Thames mussel beds estimated to have potentially filtered the entire water volume of the

Firth in less than a day.[194] During the early 1900s, a commercial mussel industry developed. Initially the mussels were hand picked off the rocks, but then steel dredgers were used to harvest from the seabed. By the early 1960s the stocks had collapsed, the mussel reefs were gone and the sea floor reduced to soft mud. Despite the cessation of fishing, the mussel beds have never recovered, indicative of a marine ecosystem that has gone over an ecological tipping point.[195]

These mussel reefs have, in part, been replaced by extensive mussel farms in the Firth of Thames, where mussels are grown on ropes suspended in the water column. However, locating mussels within the water column, and regularly harvesting them, does not provide the same ecological services as permanent natural beds located on the seabed. Monitoring has indicated that the farms have had only minor impacts on the Firth's marine ecosystems, with a small reduction in phytoplankton levels, small impact on water temperature and no impact on the clarity of the water (which suggests the mussels are not improving water clarity through their filtering activity, possibly due to the breakdown of the pseudofaeces which binds the filtered sediment once released from the organism).[196]

At the same time as the mussel reefs were being exploited, accelerated sediment flows from the Hauraki Plains were also impacting the seabed of the southern Firth of Thames. The area had historically featured gently sloping muddy-sand flats that were largely free of mangroves. But around the mid 1940s, there was a marked shift in the composition of the sediment which changed from sand to mud. This was followed by a rapid expansion of mangroves which were colonising the changed environment. The mangroves are efficient land builders and have since expanded around a kilometre into the Firth. Mangroves play an important role in the marine ecosystem, but in the Firth of Thames they have replaced "ecologically diverse and productive open intertidal sand and mud" and have reduced the area suitable for roosting shorebirds.[197] The excess flows of sedimentation are likely to be exacerbated by climate change with potential increases in the frequency and intensity of storms.[198]

Further seabed impacts to the outer Firth of Thames were caused by bottom trawling undertaken by commercial fishers. For example, in the first half of the 20th century, fishermen reported an extensive bed of horse mussels on a deep water shelf extending from the north of Coromandel Harbour up to Port Jackson and across to Waiheke Island. Longliners fishing above the beds reported large catches, indicating the productivity of the beds. During the 1950s, many commercial fishers in the Hauraki Gulf converted to bottom trawling and "with the trawler boards and sweep wires, they knocked the top off every horse mussel and in about five years they killed the lot".[199]

Horse mussel beds are now known to play a very important role within the marine ecosystem, supporting higher diversity and total abundances of marine life and providing hard strata enabling other reef-forming species such as bryozoans and sponge gardens to establish.[200]

The conversion of a wetland ecosystem to intensive dairying not only led to elevated sediment run-off but also increased nutrient loads into the Firth of Thames. "The once clear waters of the Thames, based on historical accounts from European settlement, are now considered a degraded nutrient-enriched environment".[201] This has increased plankton production, and therefore the ecological productivity of the water. However, there are warning signs that the enrichment may have gone too far. Water monitoring in the outer Firth of Thames has indicated seasonal oxygen depletion in the bottom waters. Typically levels of oxygen were found to be reducing to around 70 per cent saturation (with well-aerated water being 100 per cent). In one case the low levels remained for several weeks and on another occasion a drop to 40 per cent was measured.[202] Such oxygen drops within seawater can have adverse effects on sedentary marine life.

A potential cause of this reduction in oxygen levels is excess nutrients in the seawater driving a phytoplankton 'boom and decay' cycle, where the respiration of excess amounts of phytoplankton sucks oxygen out of the water. The process also makes the seawater more acidic, through the excess production of carbon dioxide, and increased acidification of the waters of the Firth of Thames have also been measured.[203] This is on top of climate change impacts more generally which are resulting in more acidic seawater. Ocean acidification will likely adversely affect organisms with carbonate skeletons such as plankton, corals, bryozoans and shellfish,[204] and the catchment-derived nutrient levels will be exacerbating these effects.

Another likely pressure on the Firth of Thames, which has not been quantified for this area, is the impact of harvest on target species (in terms of changing the abundance, population makeup and behaviour of fish species) and bycatch species (including seabirds).

Despite all these pressures, which cumulatively have meant that the Firth of Thames (as with the whole Harauki Gulf) is only a shadow of its former self in terms of diversity, productivity and resilience, the marine area is still ecologically significant in the context of the broader Hauraki Gulf. For example, recent research has identified the Firth as being an important snapper nursery area.[205] The area still supports important snapper and flounder fisheries and a large aquaculture industry. It also hosts a large population of migratory shorebirds. Efforts are now underway to restore the mussel beds in the Hauraki Gulf, but these seem unlikely to benefit the Firth itself until the existing stressors, such as sediment flows, are reduced.

The marine environment faces many pressures, such as land-based pollution, fishing impacts on habitats, and climate change. Often a range of stressors are concentrated in the same place, and act cumulatively and unpredictably. There can be cascading impacts where one stressor can send an ecosystem over a tipping point into a completely different state.

Biophysical problems are also social, cultural and economic problems

Above, we have described problems largely in terms of impacts on marine *ecosystems* and the *species* that form part of them. However, it is important to remember that by harming those ecosystems, we are not just harming something "over there". Flow on effects mean that we are also harming ourselves.

This is not just for moral, cultural, or metaphysical reasons (that we are part of te taiao, or linked through whakapapa) although they are important too, of course. Biophysical threats to the integrity of ecosystems also threaten the many tangible services that they provide to humanity that allow us to survive and thrive, even if we may not be aware of them on a day to day basis (eg the provision of kai moana, the opportunity for leisure and recreation, the cycling of nutrients and the sequestration of carbon). Uncertainty and a lack of information means that to some extent we simply do not know whether ecosystems will be able to continue to provide services.

Point Chevalier Beach

However, biophysical problems are not *just* about the risks that arise from ecosystem decline or collapse. Some problems are about the more direct impacts that people have on other people in the marine environment. For example:

> The pollution and invasive species that affect ecosystems (and which are exacerbated by a changing climate) can equally threaten the viability of activities like aquaculture and wild fishing. That is an economic problem as well as an "environmental" one, because the resource becomes less productive or unfit for consumption or use. Cumulative impacts on fish reproduction and mortality can be put in the same boat, as can the risks that increased storm frequency and marine heatwaves pose to all sorts of marine activities and infrastructure.[209]

> The contaminants that flow into an estuary, or out of an outfall, may not push a habitat beyond an ecological tipping point, but it may well make people sick if they eat shellfish or swim. This is a public health problem as well as an "environmental" one.

> The effective disappearance of an inter-tidal habitat is ecologically destructive, but it also excludes people from accessing te moana. That is a social problem as well as an "environmental" one.

> The localised depletion of some stocks – eg tarakihi and scallops – are as much a problem from the point of view of community access to a resource as they are ecological problems.

All of the above – indeed, all the problems outlined in this chapter – impact on Māori as mana moana, as kaitiaki, and as the human link in the integrated cosmogony of te ao Māori. In other words, biophysical problems are inextricably bound up with cultural belief and cultural practice, and cannot be pigeon-holed as "just" a series of environmental issues. That, if nothing else, automatically makes the health of te moana a pressing te Tiriti issue and of broader importance than just environmental protection. For example, reduced availability and loss of kai moana "undermines the ability of hapū to offer hospitality at marae… species depletion and [subsequent] imposition of harvesting bans have prevented harvesting practice

and thereby caused loss of traditional knowledge, such as understanding life cycles, species management and food harvesting methods. Locally specific knowledge and skills are no longer used, and therefore are not able to be passed on to subsequent generations." The decline in fisheries is also "impacting the passing on of stories and knowledge that was part of the communal experience of collecting, preparing and eating local foods. … Younger generations now have less familiarity with the foods that are part of tribal tradition."[207]

Threats to marine life and ecosystems have significant flow on effects for people who rely on ecosystem services and who have spiritual and intangible relationships with te moana.

We face non-biophysical issues in our marine environment

Biophysical problems can be seen as social, cultural and economic problems. They are of concern not just because we need to retain ecosystems intact and save species from extinction, but also because we want to protect a sustainable marine economy, cultural practice and integrity, and social and recreational opportunities that flow *from* them. Degradation (including from climate change) is also a social problem because it will potentially impact the wellbeing of future generations more than us. In that sense, doing things like leaving fish in the sea, or leaving oil and gas underground, are equally about future generations using that resource in a different way as they are some abstract notion of "environmental" protection.

However, a quite different set of issues has emerged that plays out *in* the marine environment, but is not concerned with that environment or ecosystem health per se. These can be described as "social" and "economic" issues, for want of a better term. In other words, such issues would still exist even if biophysical outcomes were optimal.

It is often less clear whether, or the extent to which, these are problems. That uncertainty arises not because of a lack of information or understanding, as with environmental problems; but rather because there is often a fierce contest of values (whether or not something *should* change). It is also worth noting that in te ao Māori it is not always easy to distinguish between "biophysical" and "social" and "economic" issues. This is because the health of the moana is about a whakapapa relationship, just as concepts like fairness and justice are about relationships between people.

For one, there are valid questions about whether we as a nation are making the most out of our seas. Should we be seeking to extract more *value*, not just more *stuff*, from them? Is this something that people, and the system, should be concerned with? It is an increasingly pertinent question as the marine environment becomes more congested, and as technology allows us to use it for different and potentially mutually exclusive things (eg offshore aquaculture, energy generation, using marine species for medicinal or nutraceutical purposes rather than mass harvest for export). However, we need to be careful that conversations about extracting more value from a blue economy do not just focus on how we can accommodate *more* activities or simply how we resolve conflict where there are growing spatial tensions. We need to think instead about how changes to our economically productive activities *reduce* pressure. Protection is a valid use as well, and one that can add considerable value.

Another social issue is whether the value generated by use of the marine environment is distributed fairly. This can manifest in various ways. For example, is it fair that most coastal occupation rights – including the exclusion of others for long periods of time – are determined largely on a first in, first served basis? Is it fair that customary title and rights are taking so long to resolve? The conflict between different fishing sectors (customary, recreational and commercial) using the same shared fish stocks also remains unresolved, with little clarity as to who should get what share and why other than through the discretion of politicians. Despite full and final settlement of fishing and aquaculture rights for Māori, te Tiriti issues continue on this front (eg exactly how a settlement relating to aquaculture space will be implemented at a regional level)[208] and the delineation between customary and recreational fishing (through which tangata whenua obtain food and engage in cultural practices).[209] Private interests can also generally use marine resources – which for the most part belong to no one[210] – with no obligation to return part of that value to the public through resource rentals or the like.[211]

One of the most notable social issues has arisen as a result of the privatisation of commercial rights through the QMS (described in Appendix 2).[212] In short, there are significant questions about who should benefit, and in what measure, from the market for commercial fish. Some have pointed to issues around the concentration of wealth, suggesting that quota are inequitably distributed and excessively aggregated to large corporate entities. This, it is said, has resulted in a power imbalance between quota holders and producers, with resulting community impacts including intergenerational concerns.[213] As economist Dr Tim Denne has pointed out:[214]

> Value will flow to the owner of the scarcest resource, which for most fisheries is quota shares … Where there is over-capacity in vessels and marine space is not limiting, value will always flow to the owners of quota. The value will be set by the discounted expected future willingness to pay for ACE [annual catch entitlement] and where there is no scarcity of vessels, this is expected to reflect the difference between the expected revenue from fish sales and the short or medium run marginal costs of fishing (labour, fuel and equipment replacement). Value will only sit with vessel owners when they become the scarce resource.

Another commentator puts it in less economically focused terms:[215]

> Quota landlords now hold all the power, the middlemen clip the ticket, and the fishermen doing the hard yards only earn a fraction of what the fish is worth.

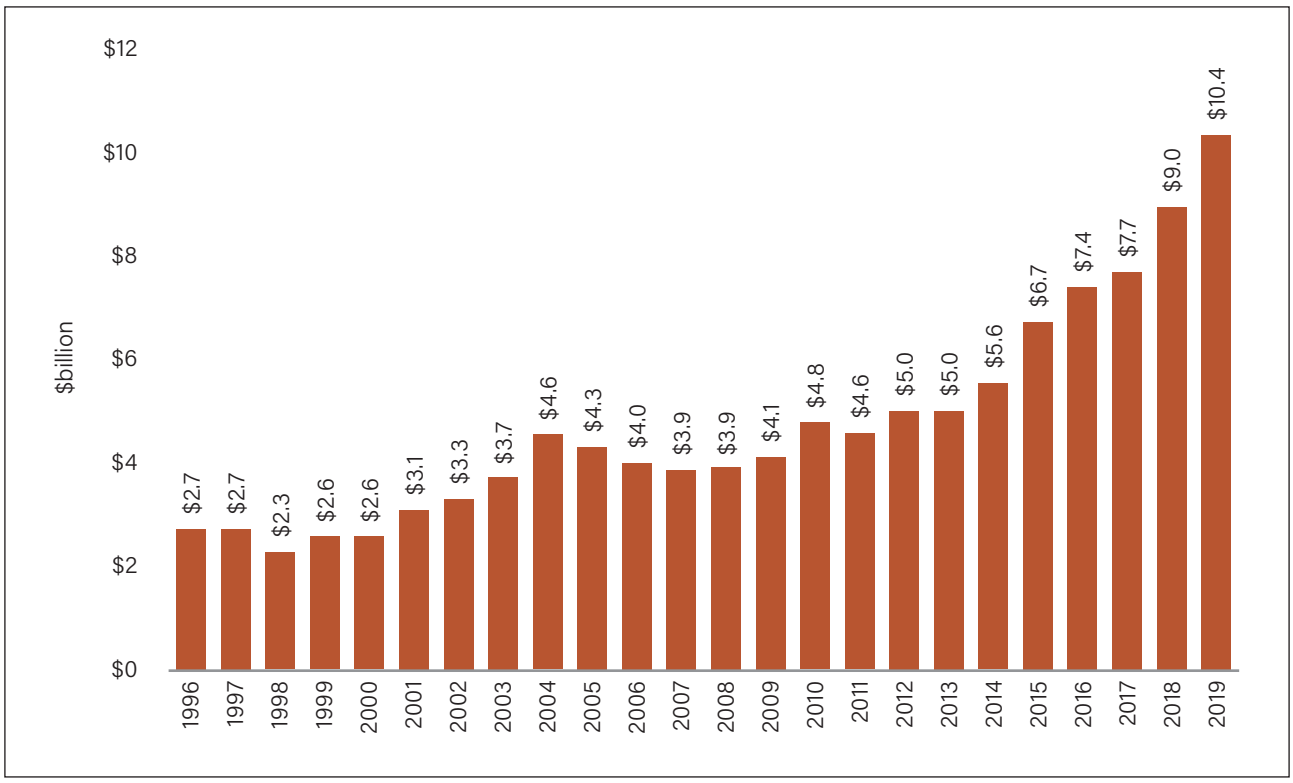


Figure 2.4 Total value of individual transferrable quota over time *(Source: Statistics New Zealand)*

In short, true value is captured disproportionately by quota owners, especially as the value of quota rises (see Figure 2.4 above). That is particularly true for deepwater stocks, although for some stocks quota is less aggregated.[216] But those doing the fishing usually do not hold quota,[217] and because of it are generally worse off. So too are local communities traditionally reliant on fishing and the income it brings, who have lost their commercial fishing fleets. To some, all of this might be more of an issue than examples of inequities on land (eg disparities in home ownership), because the oceans is meant to be a "commons" that benefits all of us. Recent Cabinet papers have signalled an intention to tackle such issues in some shape or form.[218]

A number of social and economic problems can be seen playing out in our oceans. There are questions as to whether we are making the best use of our commons, and whether the value generated through using it is being fairly distributed.

Longlining, Hauraki Gulf

2.8 Concluding comments

In this chapter (and Appendix 1) we have looked at Aotearoa New Zealand's marine environment, and problems that it is facing. It is not surprising that our marine ecosystems are under increasing stress. If anything, the most remarkable thing is that many have remained as resilient as they have. But there is no guarantee they will remain so in the future.

For some things, damage may have been instigated a long time ago and legacy effects are inevitable in the future, such as with the long time delay in pollutants travelling down a catchment. Elements of climate change now seem inevitable. We will need to play a long game in resolving such things, and measure our success accordingly. But this also reminds us that what we allow to happen now will have impacts that reverberate down the years. A decision to clear-fell forests (or plant in the expectation of doing so), or to overstock dairying land, or to allow novel chemicals and plastics into a waste stream from which they may not be filtered out, will be experienced by future generations. What we do now matters. Our oceans management system needs to be well positioned to tackle existing problems and prevent future ones from arising. It is to our existing system that we now turn in the following chapter, to look at what is going wrong with it.

Harataonga, Aotea/Great Barrier Island

ENDNOTES

1 Simon Winchester *Land: How the Hunger for Ownership Shaped the Modern World* (William Collins, 2021) at 7.

2 Approximately 65 percent of New Zealanders live within 5 kilometres of the sea: OECD *Responding to Rising Seas: OECD Country Approaches to Tackling Coastal Risks* (6 March 2019), as cited in Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019).

3 From a baseline defined in international law (under the United Nations Convention on the Law of the Sea), which has complexities around how to draw lines across harbours, embayments, estuaries and so forth.

4 This includes its underlying continental shelf/seabed. Under international law, the EEZ and its underlying continental shelf are defined in separate but overlapping ways. There is a further overlay of a "contiguous zone" between 12 and 24 nautical miles, which provides New Zealand with enhanced jurisdiction over particular matters like customs and sanitation.

5 Commission on the Limits of the Continental Shelf *Recommendation of the Commission on the Limits of the Continental Shelf (CLCS) in regard to the Submission Made by New Zealand 19 April 2006* (United Nations, 22 August 2008). See also United Nations Convention on the Law of the Sea 1833 UNTS 397 (opened for signature 10 December 1982, entered into force 16 November 1994), art 76(8).

6 Although it is important to note that jurisdiction over the extended continental shelf does not give corresponding jurisdiction over the water column above it, which remains the "high seas" under international law.

7 The "Area" is defined under international law as the common heritage of mankind and is managed by the International Seabed Authority. One important issue of domestic law with respect to the high seas is the regulation of New Zealand flagships.

8 See for example, Hauraki Gulf Forum *State of our Gulf 2020* (State of the Environment Report 2020, February 2020) at 17 and 90-119.

9 For example, because Aotearoa New Zealand must, under some circumstances, let other nations fish; because others have some rights like freedom of navigation; and because jurisdiction in the EEZ is actually *conditional* on environmental stewardship.

10 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 10.

11 Te Ahukaramū Charles Royal "Kaitiakitanga – guardianship and conservation - Understanding kaitiakitanga" (24 September 2007) Te Ara - the Encyclopedia of New Zealand <www.TeAra.govt.nz/en/artwork/11542/gods-of-the-natural-world>.

12 Te Ahukaramū Charles Royal "Tangaroa – the sea - The importance of the sea" (12 June 2006) Te Ara - the Encyclopedia of New Zealand <http://www.TeAra.govt.nz/en/tangaroa-the-sea/page-11>.

13 Mana whenua means customary authority exercised by an iwi or hapū in an identified area: see Resource Management Act 1991, s 2.

14 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at 2.

15 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 5.

16 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at 3.

17 Much of this section draws from EDS's previous publication: Lucy Brake and Raewyn Peart *Sustainable Seas: Managing the marine environment* (Environmental Defence Society, Auckland, 2015).

18 Cyanobacteria are important too – these are photosynthetic bacteria (they make their own food), but are not part of the plant kingdom.

19 Lucy Brake and Raewyn Peart *Sustainable Seas: Managing the marine environment* (Environmental Defence Society, Auckland, 2015).

20 Project AWARE Foundation *Aware: Our World, Our Water* (2009) at 2-10.

21 Lucy Brake and Raewyn Peart *Sustainable Seas: Managing the marine environment* (Environmental Defence Society, Auckland, 2015).

22 Lucy Brake and Raewyn Peart *Sustainable Seas: Managing the marine environment* (Environmental Defence Society, Auckland, 2015) at 14.

23 Paddy Ryan "Eels – Life cycle and breeding grounds "Te Ara – the Encyclopedia of New Zealand (24 September 2007) <www.teara.govt.nz/en/eels/page-3>.

24 Dennis Gordon and others "Marine biodiversity of Aotearoa New Zealand" (2010) 5(8) PLoS ONE e10905.

25 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 10.

26 Ministry for the Environment *Environment New Zealand* (ME 847, December 2007) at 316.

27 Lucy Brake and Raewyn Peart *Sustainable Seas: Managing the marine environment* (Environmental Defence Society, Auckland, 2015) at 10.

28 All animals are members of the Kingdom Animalia, also called Metazoa.

29 Any organism whose cells contain a nucleus and other structures enclosed within membranes.

30 Single-celled eukaryotes (organisms whose cells have nuclei) that commonly show characteristics usually associated with animals.

31 Dennis Gordon *New Zealand inventory of biodiversity. Volume three: Kingdoms Bacteria, Protozoa, Chromista, Plantae, Fungi* (Canterbury University Press, Christchurch, 2012).

32 For further definition see Maori Dictionary (online ed) <www.maoridictionary.co.nz>.

33 Wiremu Grace "Ngake and Whātaitai the taniwha of Wellington harbour" TKI Te Kete Ipurangi <www.eng.mataurangamaori.tki.org.nz/Support-materials/Te-Reo-Maori/Maori-Myths-Legends-and-Contemporary-Stories/Ngake-and-Whataitai-the-taniwha-of-Wellington-harbour>.

34 Department of Conservation "Cape Reinga/Te Rerenga Wairua heritage" <www.doc.govt.nz/parks-and-recreation/places-to-go/northland/places/te-paki-recreation-reserve/cape-reinga-te-rerenga-wairua/heritage/>.

35 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 10.

36 See Hauraki Gulf Forum *State of our Gulf 2020* (State of the Environment Report 2020, February 2020) at 6.

37 Ministry for the Environment *Environment Aotearoa 2019* (ME 1416, April 2019) at 88.

38 Minister for Oceans and Fisheries and Minister for Conservation *Revitalising the Hauraki Gulf – Government Sea Change Strategy* (2 July 2021) at [13].

39 Statistics New Zealand *Environmental-economic accounts* (June 2019).

40 Statistics New Zealand "Marine economy: 2007-17 (updated 27 June 2019)" at Tables 1-2, on Statistics New Zealand "Environmental-economic accounts: 2019 – tables" (14 February 2019) <www.stats.govt.nz/information-releases/environmental-economic-accounts-2019-tables>.

41 Department of Conservation and Fisheries New Zealand *National Plan of Action – Seabirds 2020* (Fisheries New Zealand, November 2019) at 13. Credit: Tim Denne.

42 In the 2019-2020 fishing year. See Minister for Oceans and Fisheries *Fisheries system reform agenda* (2 July 2021) at [19].

43 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at 3.

44 See Ministry for Primary Industries *Aquaculture Strategy* (2019); Ministry for Primary Industries *Aquaculture Strategy: 2021 Implementation Plan* (2019); and further Ministry for Primary Industries <www.mpi.govt.nz>.

45 See *Trans-Tasman Resources Ltd v Taranaki-Whanganui Conservation Board* [2020] NZCA 86; and *Decision on Marine Consent Application by Chatham Rock Phosphate Limited,* February 2015.

46 New Zealand Steel "The History of Ironsand" <www.nzsteel.co.nz/new-zealand-steel/the-story-of-steel/the-history-of-ironsand/>.

47 See Taranaki Regional Council "Oil & gas – production" <www.trc.govt.nz/council/plans-and-reports/monitoring-reports/consent-compliance-monitoring-reports/oil-and-gas-production/>.

48 Statistics New Zealand "Marine economy: 2007-17 (updated 27 June 2019)" at Tables 1-2, on Stats NZ "Environmental-economic accounts: 2019 – tables" (14 February 2019) <www.stats.govt.nz/information-releases/environmental-economic-accounts-2019-tables>.

49 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 39. Shipping accounted for 37 percent of the marine economy.

50 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 7.

51 For example, a recent Cabinet paper has suggested that "there are also small scale individual fishers who are looking beyond traditional fishing approaches and using more selective harvesting practices. They are creating new markets that allow them to create far greater value while leaving more fish in the water." Minister for Ocean and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: landings and discards* (2 July 2021) at [22].

52 See Venture Taranaki *Offshore Wind: A New Energy Opportunity for Taranaki Discussion Paper*; Ian Mason and Giacomo Caleffi *Developing Offshore Wind in New Zealand: Technical, socio-economic and environmental issues in relation to a post-pandemic future* (presented to 14th OERC Symposium, University of Otago, November 2020); and Sustainable Seas National Science Challenge "Energy from tidal currents - Kick-starting a new marine industry with huge potential" <www.sustainableseaschallenge.co.nz/our-research/energy-from-tidal-currents-kick-starting-a-new-marine-industry-with-huge-potential/>.

53 *Trans-Tasman Resources Ltd v Taranaki-Whanganui Conservation Board* [2020] NZSC 67 granted leave to appeal to the Supreme Court.

54 See Barry Barton, Kimberley Jane Jordan and Greg Severinsen *Carbon capture and storage: Designing the legal and regulatory framework for New Zealand* (report for the Ministry of Business, Innovation and Employment and the New Zealand Carbon Capture and Storage Partnership, Centre for Environmental, Energy and Resources Law, Te Piringa Faculty of Law, University of Waikato, September 2013); and Sustainable Seas National Science Challenge *Transitioning to a Blue Economy: Scoping and Horizon Scanning* (Envirostrat Ltd, December 2019) at 24. See further, Sustainable Seas National Science Challenge "Building a Seaweed Sector" <www.sustainableseaschallenge.co.nz>.

55 Sustainable Seas National Science Challenge "Ngā Tohu o te Ao: Maramataka and marine management" <www.sustainableseaschallenge.co.nz/our-research/nga-tohu-o-te-ao-maramataka-and-marine-management/>.

56 Benjamin Dimitrious Hanara and Anne-Marie Jackson *Tangaroa Ara Rau: Tangaroa the Atua of Human Movement* (Ngā Pae o te Maramatanga, 2019) at 15.

57 Environment Canterbury "Mahinga Kai" <www.ecan.govt.nz/your-region/farmers-hub/fep/mahinga-kai/>.

58 This can cause clashes with respect to, for example, marine protected areas where some forms of use are forbidden or restricted.

59 See <https://maoridictionary.co.nz/search?idiom=&phrase=&proverb=&loan=&histLoanWords=&keywords=rohe>

60 See *Re Edwards (Te Whakatohea (No.2))* [2021] NZHC 1025.

61 See for example, Fiona McCormack "Fish is My Daily Bread: Owning and Transacting in Māori Fisheries" (2010) 20(1) Anthropol. Forum at 19-39. See further, Valmaine Toki "Adopting a Maori Property Rights Approach to Fisheries" (2010) 14 NZJEL 197.

62 Louise Hunt *Economic Impact Analysis of the Cape Rodney Okakari Point (Leigh) Marine Reserve on the Rodney District* (Department of Conservation, Investigation number 4052, June 2008) at 9.

63 J Wynne-Jones and others *National Panel Survey of Marine Recreational Fishers 2017-18* (Fisheries New Zealand, July 2019).

64 John Holdsworth and others *Recreational Fishing in New Zealand: A Billion Dollar Industry* (New Zealand Marine Research Foundation, March 2016) at 3; and compare J Wynne-Jones and others *National Panel Survey of Marine Recreational Fishers 2017-18* (Fisheries New Zealand, July 2019).

65 J Wynne-Jones and others *National Panel Survey of Marine Recreational Fishers 2017-18* (Fisheries New Zealand, July 2019) at 44.

66 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at 3.

67 Kim Walshe and Jo Akroyd *Motivations and Perceptions of Seawater Recreational Fishers In New Zealand* (Ministry of Fisheries, REC9802, 2000) at 1, as cited in Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018).

68 Whether these things are a "service" or just another form of pollution depends on its extent and one's perspective.

69 Enric Sala and others "Protecting the global ocean for biodiversity, food and climate" (2021) 592 Nature.

70 See for example, Revive our Gulf "Restoring Mussel Reefs off the Hauraki Gulf" at <www.reviveourgulf.org.nz>.

71 Todd Prodanovich "The Battleground Below" *Surfer* (online ed, 16 July 2018).

72 For example, the New Zealand sealion went from nationally critical to nationally vulnerable between 2013 and 2019.

73 See Statistics New Zealand at www.stats.govt.nz/indicators/conservation-status-of-indigenous-marine-species> as reported in Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 16.

74 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 16.

75 See Department of Conservation, Hector's Dolphin <www.doc.govt.nz>.

76 Elisabeth Slooten and Stephen M Dawson "Delays in Protecting a Small Endangered Cetacean: Lessons Learned for Science and Management" (2021) 8 Frontiers in Marine Science 1 at 2.

77 Marine Mammals Protection Act 1978, s 4(1)(b); see also interpretation, s 2(a), "take".

78 Raewyn Peart *Bryde's whale voluntary protocol case study* (Unpublished report prepared for the Sustainable Seas National Science Challenge, Environmental Defence Society, 2017).

79 Including cruise ships, although Covid-19 has drastically reduced their number and cast doubt over future cruise ship numbers.

80 S Behrens and R Constantine *Large Whale and Vessel Collisions in Northern New Zealand* (International Whaling Commission Scientific Committee, SC/60/BC9, 2008), as cited in Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019).

81 Walker and others "Environmental Effects of Marine Transportation" *World Seas: An Environmental Evaluation* (2018), as cited in Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019).

82 See for example, Department of Conservation (media release 6 October 2020) "Shorebirds start nesting in Eastern Bay of Plenty" at <www.doc.govt.nz>.

83 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 37.

84 See Cabinet Paper *Hectors and Maui Dolphin Threat Management Plan Review - Fisheries Measures* (June 2020) at [7].

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196 Raewyn Peart *Farming the Sea* (Environmental Defence Society, Auckland, 2019) at 87.

197 Hauraki Gulf Forum *State of our Gulf* (State of the Environment Report, August 2011) at 35-36.

198 Seachange Tai Timu Tai Pari *Hauraki Gulf marine spatial plan* (May 2017) at 261.

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CHAPTER **THREE**

The existing oceans management system

Coromandel Harbour

3.1 Introduction

The existing oceans management system should not be the *conceptual* starting point for change. Options and analysis in a first principles approach should not be constrained by existing ways of thinking, or tinkering with existing frameworks or silos. Some options may be radical, and involve upending assumptions underpinning the current system. The scale of problems we face means it is legitimate to at least contemplate revolution, not evolution.

However, describing what we have now is important for a number of reasons:

1. It gives a practical sense of what the boundaries of the oceans management system are, making its definition in Chapter 1 more tangible;
2. It sets out the practical starting point from which any further reforms – whether smaller scale or transformational – would occur, and gives a sense of how much change would be involved in getting from here to there;
3. It enables the diagnosis of problems with the system, which will need to be addressed in the future;
4. It provides the framing for small-scale or targeted reforms; some changes may involve minor alterations to existing frameworks, or the use of tools already at our disposal, so it is important to understand the background against which that would occur.

Leigh Harbour

For those who are interested, we provide a summary of the existing system in Appendix 2. This system is hugely complex, and comprises much more than just our statute book. It also includes thousands of tools – from national direction and regional coastal plans, to catch limits and the QMS, to product stewardship schemes and waste levies, to mining permits and resource consents – and the institutions and processes that develop and use them. An important element of the system is the Treaty settlements that have been put in place for fisheries and aquaculture.

The focus of this chapter is on describing issues with the current system. Because the system is so vast, we tackle these by themes – categories of systemic problems that arise across multiple frameworks – rather than identifying every single complaint about every statute or institution. This approach inevitably makes the problem definition incomplete (and more specific issues will no doubt need to be addressed through any reform process).

We also stress that the existing system is not static. The government's reform programme is particularly active at the moment, and is discussed at the end of this chapter. In particular, the Randerson Panel's recommendations on resource management reform[1] may see a significant transformation in parts of the oceans management system in just a few years, and the government has recently signalled that changes to the fisheries components of the system will be occurring.

When we speak of an oceans management system, it is also important to remember there is actually more than one system in operation. The ways in which we manage our oceans are not limited to legislation, institutions and formal tools like regulations; that system is largely Western in its origins, construction and operation. Before it existed, the only human management system in Aotearoa was that of tangata whenua, based on tikanga.

Tikanga is more than just a te ao Māori worldview or set of metaphysical values. It is also a practical system of resource management (just as a system of legislation, institutions and tools is not the same thing as a "Western" worldview). The point is that tikanga should not be treated as just another "principle" to be given recognition alongside things like precaution, inter-generational equity, ecosystem-based management and so forth. It is an entire system in its own right, and comes with its own normative principles (eg kaitiakitanga, mauri, mana, utu and so forth).

In some senses tikanga has come to be eroded and dominated by a Western system since European settlement of Aotearoa New Zealand. Yet although it is often constrained by the extent to which Māori have control over resources and their management, it is still very much alive and operates on a day-to-day basis in Māori communities. Scholarship has also made strides in recent years to recover or better recognise traditional methods of managing the marine environment as well as traditional knowledge or wisdom (mātauranga).[2]

Tikanga in Western law: A spotlight on the Marine and Coastal Area (Takutai Moana) Act

A recent decision of the High Court in *Re Edwards*[3] made some poignant comments on the nature of the intersection between the dual systems of oceans management in Aotearoa New Zealand, in the context of claims to the foreshore and seabed. The importance of this decision is, for now, not its specific ruling, but rather the fact that it reminds us to be aware of the difference between tikanga and the hybrid constructs that might seek to formalise it in a Western system.

The Marine and Coastal Area (Takutai Moana) Act 2011 (MACA Act) provides an avenue for tangata whenua to establish customary marine title over areas of the foreshore and seabed. In ruling on various legal matters, the Court followed the approach of the Court of Appeal in the earlier *Ngati Apa* decision whereby "the existence and extent" of customary rights was not to be gauged by "applying common law concepts but [rather] from applying tikanga."[4] This would appear to build on previous decisions recognising the importance of tikanga as part of the common law of Aotearoa New Zealand.

In short, the Court found that the connections between Māori and te moana are strong, and they are not presumed to have been eroded by Western interventions like raupatu (confiscation without right), occupation, or the exercise of resource consents. The Court found that "in terms of tikanga, the confiscation of lands and destruction of property would not have severed the connection with the takutai moana."[5] With respect to existing resource consents, it was held that "[n]othing in the RMA shows an intention to extinguish Māori customary rights."[6] While activities relating to infrastructure "may well amount to substantial interruption", whether they do is determined by an examination of the facts in each case "not by applying a presumption".[7]

However, in addressing an opening submission of counsel that "there was very little that was 'customary' left in the concept of customary marine title" in the legislation, the Court noted that the restoration of customary rights under the Act is "given legal expression in accordance with the Act".[8] The upshot is that, although it refers to reinstating pre-existing customary entitlements and translating "inherited" rights into "legal" rights and interests, the "specific rights actually conferred by the Act are much narrower and more limited than the customary title and rights that Māori would have enjoyed and exercised in the foreshore and seabed as at 1840".[9]

In short, although the *existence* of new legal rights under the Act is to be determined by (at least in part) looking at tikanga, the actual rights that flow from that still fall short of enabling tikanga to be exercised. From one perspective, rather than conferring the right to exercise tikanga, the Act continues to *constrain* the ability to do so. The decision makes clear that the Act does not *create* or *replace* tikanga, which continues to exist alongside it – as it has always done.[10]

Although we recognise that tikanga is a system in its own right, this project is not attempting to *reform* tikanga. We are not the ones to undertake such an exercise. In any case, tikanga evolves through practice over time, and is not amenable to sharp or formal "reforms" such as legislative amendment or case law. That said, while our work is concerned with the "formal" system of legislation, institutions and so forth, it is also about the extent to which this accommodates te ao Māori through (1) te Tiriti o Waitangi obligations and (2) considering where the system can best *intersect* with a parallel system based on tikanga.

This is not to suggest that reform through an entirely te ao Māori or tikanga lens should be ruled out as an option to be explored. We would welcome Māori attempts to do so as a useful prompt for further debate, and note that elements of that are being progressed as part of the Sustainable Seas National Science Challenge.[11] It is simply that this project is intended to shape a conversation about the levers that the government can control.[12]

Tikanga Māori is a system of oceans management in its own right, and it intersects with the system of legislation, institution and formal tools. While it is the latter that we are seeking to reform (and not tikanga itself), part of that involves thinking about where the systems intersect and how the formal system can be informed by tikanga.

3.2 How our statutes are configured

Although a summary of existing legislative frameworks is provided in Appendix 2, it is worth taking more of a bird's eye view of the system as a whole. A number of characteristics stand out.

Most obviously, there is a great deal of complexity. This is reflected in the multiplicity of statutes that exist within the system, and which span the oceans management system and other systems. There is not a single place like an "Oceans Act" we can go to for all things marine. There are separate frameworks for resource management, conservation, fisheries, transport, climate change, biosecurity, mining, and many other things. These are matched by an equally diverse range of institutions that administer and operate them and hundreds if not thousands of tools that operate under them.[13]

Another thing to note is that the statute book is not configured in a way that makes the existence of an oceans management system obvious, or its boundaries clear. Much like New Zealand's unwritten constitution,[14] we

need to look at a range of legislation, parts of legislation, and elements beyond legislation to figure out what is relevant and what is not. In particular, the oceans management system forms one part of a much wider resource management system, and even this resource management system overlaps with other systems (eg those relating to property, health and safety, te Tiriti o Waitangi, local government and so forth).[15] Different systems have complex webs of connections, and changes to one can impact on others.

This helps to explain why we have many statutes that span land and sea, or that cover both resource/environmental matters and property/health and safety matters. The RMA, for example, covers everything from noise, to urban design, to the impacts of marine mining; the Wildlife Act spans land and sea, as do the species it protects; even the Fisheries Act is not just about *marine* fishing – it extends to freshwater too.[16] This reminds us that although the oceans are an important lens through which law reform should be viewed, we should not lose sight of other important connections across other systems.

Moreover, there is no single lens through which our legislative frameworks have been created (eg on a domain basis, a sectoral basis, an outcome-basis or something else). There are layers of legislation and overlaps in purpose or topic. Some of this may be a conscious system design choice. For example, a sector-specific Fisheries Act has been deliberately separated from broader outcomes-focused frameworks like the RMA and EEZ Act, despite fish stocks being a natural resource that would otherwise fall within their ambit. Similarly, the rate of depletion of marine minerals has been deliberately excluded from the RMA and EEZ Act, because they are finite resources that cannot be managed "sustainably".[17] Climate change has been largely carved out into a separate legal framework too.[18]

Other statutes may be a product of political expedience or pragmatism. It is often easier to pass a single, standalone statute than seek to amend core parts of a larger one. For example, we have a lot of bespoke, area-based statutes like the Hauraki Gulf Marine Park Act 2000 and Fiordland (Te Moana o Atawhenua) Marine Management Act 2005, which create more nuanced marine protected area and integrative mechanisms than are available under more general legislation like the Marine Reserves Act.

Still other statutes reflect the gradual development and layering of new areas of concern as they emerge over time. For example, our conservation laws have developed iteratively, from the Wildlife Act, to the Marine Reserves Act, to the Marine Mammals Protection Act, to the Conservation Act 1987. They grapple with different issues as each has become more important. Similarly, the spatial separation between the RMA and the EEZ Act (one applies within a 12 nautical mile line and the other outside it) was aimed to fill a "gap" that became more and more untenable, despite the fact that the two pieces of legislation do quite similar things. If one were to design a new system from scratch, this is probably not the approach one would take.

In Figure 3.1, we outline the key statutes that form the core of the current oceans management system, and their spatial application.

Common dolphins, Bay of Islands

Family of statutes	Statute	Spatial application		
		Land/ fresh-water	Territorial sea	EEZ and extended continental shelf
Resource management	Resource Management Act 1991			
	Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012			
Fisheries	Fisheries Act 1996			
	Treaty of Waitangi (Fisheries Claims) Settlement Act 1992			
	Māori Commercial Aquaculture Claims Settlement Act 2004			
	Māori Fisheries Act 2004			
	Fisheries (Quota Operations Validation) Act 1997			
Shipping	Maritime Transport Act 1994			
Biosecurity	Biosecurity Act 1993			
Conservation	Conservation Act 1987			
	Marine Reserves Act 1971			
	Wildlife Act 1953			
	Marine Mammals Protection Act 1978			
	Hauraki Gulf Marine Park Act 2000	(islands and catchments)	(specific area)	
	Fiordland (Te Moana o Atawhenua) Marine Management Act 2005		(specific area)	
	Sugar Loaf Islands Marine Protected Area Act 1991		(specific area)	
	Kaikōura (Te Tai o Marokura) Marine Management Act 2014		(specific area)	
Climate change	Climate Change Response Act 2002			
Mining	Crown Minerals Act 1991			
	Continental Shelf Act 1964			
Other	Heritage New Zealand Pouhere Taonga Act 2014			
	Marine and Coastal Area (Takutai Moana) Act 2011			
	Submarine Cables and Pipelines Protection Act 1996			

Figure 3.1 Key statutes that form the core of the current oceans management system, and their spatial application

There are also statutes that do not address marine management specifically (in the sense of activities occurring in the oceans), but which regulate or guide human activities that can have consequential impacts on the sea and its inhabitants. Examples include the Land Transport Management Act 2003, Urban Development Act 2020, Building Act 2004, Litter Act 1979 and Waste Minimisation Act 2008. Some statutes in the table above also manage activities occurring outside the marine environment that can have impacts on it, like the RMA (pollution from catchments, coastal development, noise), various conservation laws (species that travel between the sea and land/freshwater, reserves bordering the sea), and climate change legislation (emissions produced on land).

Finally, there is a variety of statutes that establish various aspects of the system's architecture, but do not directly restrict or influence human activities. Some of these are marine focused, but others are not (where, for example, they create institutions or processes that span land and sea). They include the Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977 (not to be confused with the EEZ Act), Environmental Reporting Act 2015, Local Government Act 2002 (and related local government legislation), Environmental Protection Authority Act 2011 and Environment Act 1986 (see Figure 3.2).

We have many statutes in the current oceans management system. This system has not come into being at one time, and has emerged and changed over decades in an organic and piecemeal fashion. The statutory frameworks in the current system, and the tools and processes under them, interact with each other in complex ways.

What other statutory frameworks are important for how our oceans are managed?

The array of statutes in the current system means that they interact with each other in complex and sometimes unclear ways. These are too numerous to list here. However, a few are worth noting.

- There is an important, overlapping and ultimately (still) unclear relationship between the RMA (which controls activities impacting on the marine environment) and the Fisheries Act (which manages fish stocks and the impacts of fishing on the marine environment). The Court of Appeal has, in recent times, made a significant ruling on that relationship in the *Motiti* case, which will be explored when we consider legislative design.[19]
- There is a sharp spatial distinction between the jurisdiction of the RMA (out to 12 nautical miles)

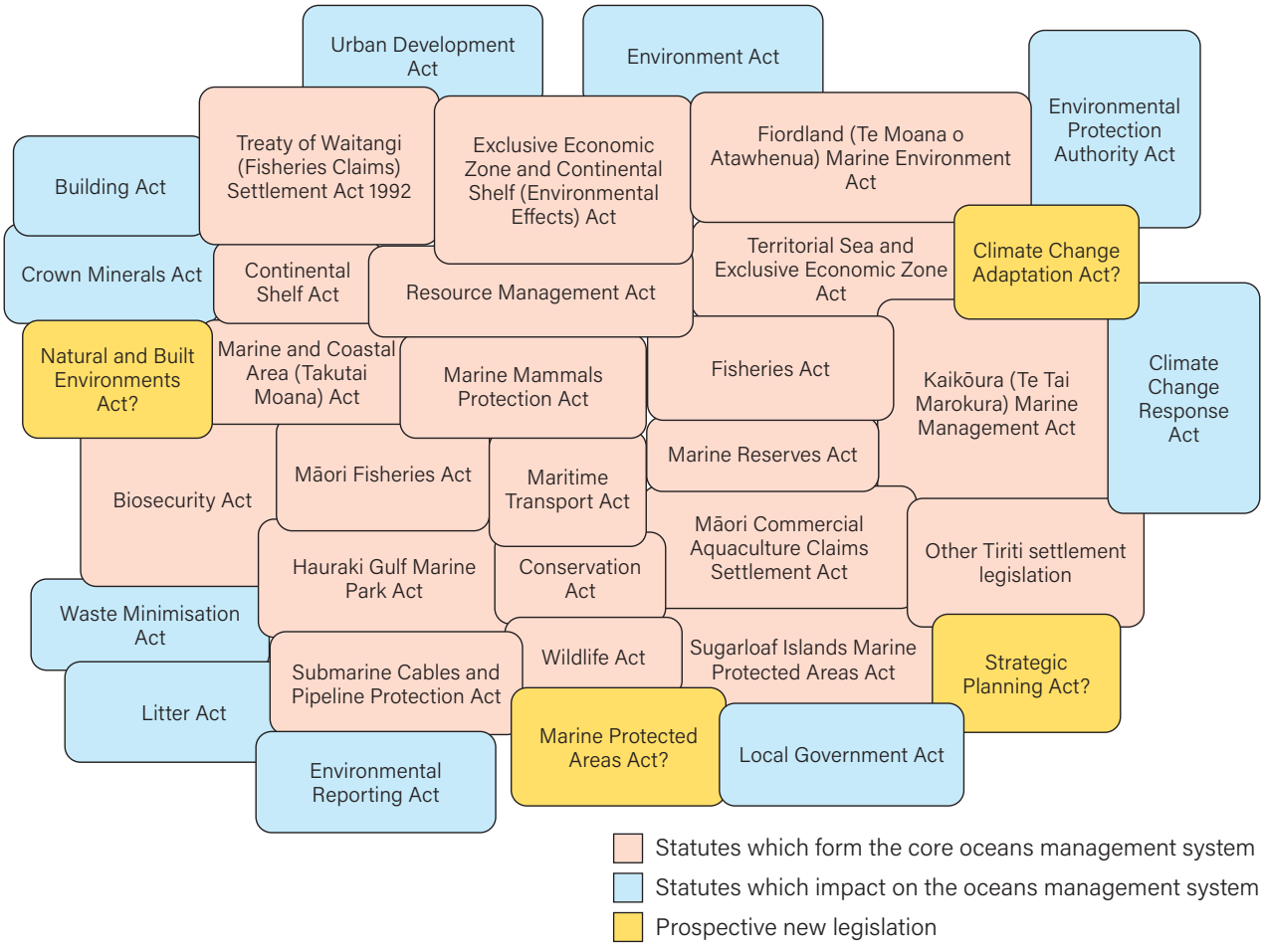

Figure 3.2 Statues which form the core of, or impact on, the oceans management system

and the EEZ Act (beyond 12 nautical miles). Cross-boundary activities are framed under the latter (and there are processes to coordinate these across the statutes), but that relationship can still be unclear where effects, rather than activities, span the artificial jurisdictional line. A similar spatial distinction is the basis for the relationship between the Crown Minerals Act 1991 and the Continental Shelf Act 1964.[20]

- Marine biosecurity functions are discharged under both the RMA and Biosecurity Act.
- The MACA Act intersects with processes under the RMA and conservation legislation, including through special input into planning processes and a requirement for additional permission rights to be obtained.
- Generally, conservation laws form an additional layer on top of more general frameworks like the RMA and EEZ Act (ie restrictions under both layers will apply in a particular space). However, some interface in more complex ways (eg where instruments created under one, like the Hauraki Gulf Marine Park Act, are deemed to be a national policy statement (NPS) under the RMA).
- Marine-focused te Tiriti settlement legislation stands alone, but also intersects with broader legislation like the Fisheries Act and the RMA[21] (often through the inclusion of specific amendments within the latter Acts).
- The rate of depletion of minerals (including oil and gas) and decisions about its allocation are carved out from the RMA and EEZ Act into the Crown Minerals Act and Continental Shelf Act, but the former statutes still have jurisdiction over the effects of mining activities on the marine environment beyond the resource itself.
- Environmental jurisdiction (especially relating to discharge of pollutants) is split between the Maritime Transport Act 1994 and the EEZ Act, despite a substantial shift of functions from the former to the latter a few years ago. In essence, the Maritime Transport Act governs discharges from most ships as well as oil spill preparedness and response, while the EEZ Act covers all other discharges and dumping in the EEZ.
- The RMA provides for councils to monitor and report on the state of their marine environment, but other legislation does not have such provisions (eg the EEZ Act and the Fisheries Act), and at a national level more integrated reporting is done under the auspices of the Environmental Reporting Act.
- The Climate Change Response Act 2002 requires the creation of emissions reduction plans, but tools under other legislation like the RMA and EEZ Act, and potentially the Fisheries Act, could be used to achieve them. It is still unclear how this relationship will play out in practice.

Inter-statutory relationships have implications for how we might redesign our statute book in the future, and will be explored further when we consider legislative design and how we might make better connections across the system.

A description of the system's legislative frameworks, and the connections between them, does not present the whole picture or complexity of the system. An institutional lens is important too, because various institutions have roles under multiple statutes or have mandates that go beyond legislation. These can have quite different characteristics – central, regional or local (eg the EPA, regional councils, iwi/hapū); independent or accountable (the Parliamentary Commissioner for the Environment, various Ministers of the Crown); focused only on the sea


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or on subjects that span the land-sea divide (Maritime New Zealand, the Environment Court). They can be designed to interact with each other in many different ways (co-operatively, in tension, or hierarchically). We have described various maritime institutions in previous work, and will explore these further in our final report when we look at institutional design.[22]

For now, we illustrate below the sheer diversity of institutions in the current system, and where they fit in terms of two of their key characteristics – centralisation and independence[23] – in Figure 3.3. Of particular note, however, is the recent establishment of a ministerial portfolio for Oceans and Fisheries, and associated Oceans Secretariat, signalling a stronger leadership role within the political sphere of central government for taking action on oceans in a holistic sense.

Figure 3.3 by no means captures all the institutions in the oceans management system. Dozens if not hundreds of others exist. However, there are several interesting features of the existing system when looked at through an institutional lens. For example, we have relatively few entities focused exclusively on the marine area (although divisions within them may have this focus). More common are those whose concerns span land and sea. There is also a much wider range of institutions at a central level, reflecting that central bodies have a wide spatial coverage (the whole country) but are more noticeably divided across subject areas (eg climate change mitigation, conservation) or tasks (eg policy creation vs enforcement). At the more devolved level, institutions (eg councils) tend to have a broader range of functions integrated into a single entity, although these are more spatially fragmented across regions and districts.

It is also worth keeping in mind the non-statutory features of the current system. These arise partly because institutions have broader mandates and powers of general competence beyond just the statutory frameworks under which they have specific roles and duties. For example, Ministers, councils and government departments are particularly adept at creating strategies, policies and programmes, and supporting initiatives through funding and investment. It is not always easy to say that all these things are part of the "system" – for example, some are more comfortably regarded as political manifestos for *changing* the system,[24] while others are short-term grants of money – but some are more significant as parts of

	Centralised → **Devolved**		
Independent ↑	Higher Courts	Iwi	Hapū/whanau
	Environment Court		
	Parliamentary Commissioner for the Environment		
	Waitangi Tribunal		
	Climate Change Commission		
	Te Ohu Kai Moana		
	Environmental Protection Authority	Hauraki Gulf Forum	Fiordland Marine Guardians
	Conservation Authority		Kaikōura Guardians
	Maritime New Zealand	Harbour masters	
	Statistics New Zealand	Conservation boards	
	Heritage New Zealand Pouhere Taonga		
	Government departments (including Department of Conservation, Ministry for the Environment, Ministry for Primary Industries/Fisheries NZ, Ministry of Transport, Ministry of Business, Innovation and Employment, Te Puni Kokiri, Treasury) and working partnerships (eg Oceans Secretariat)		
Accountable ↓	Ministers of the Crown (including Oceans and Fisheries; Conservation; Environment; Energy)	Regional councils	Territorial authorities

Figure 3.3 Institutions within the current oceans management system, and where they fit in terms of centralisation and independence

the system itself. For example, *Te mana o te taiao – the Aotearoa New Zealand biodiversity strategy 2020* is a non-statutory document, but one required of the government to discharge the country's obligations under international law.[25] Various funds are also significant, such as the *Jobs for Nature* investment programme.

A feature of the current oceans management system is its considerable complexity. We have many separate statutes and institutions. While there may be scope for rationalisation and simplification, the system will to some extent always be complex, because it manages complex issues.

3.3 Problems with the existing system

Introduction

If we accept that the outcomes described in Chapter 2 are problems (eg threatened species, habitat loss, social inequities),[26] then the existing system that presides over them must, itself, be problematic to a degree. After all, to prevent such problems is a core reason for having the system in the first place.[27] However, problems with the oceans management *system* are a subtly different thing to the biophysical and social outcomes described in Chapter 2, and are therefore worth looking at separately. This is for two reasons.

First, for some things, the system may be expected to make a *contribution* rather than entirely "fix" a problem. In other words, the system can be said to be working "well" even if some degree of problem remains. For example, even the best oceans legislation will not be able to prevent warming and acidifying seas. This does not make climate change any less of a problem, but it does mean that the system has not necessarily failed or is need of an overhaul. Other measures, including planting trees on land,[28] private action, and mitigation measures in other countries, are required to contribute as well. Similarly, for many problems (eg sedimentation from catchments), it might be years before action results in meaningful improvements. The natural world may recover only slowly. A well-functioning system may be one in which *trends* are positive or improvements are *predicted*, not one in which everything is perfect straightaway.

Secondly, the system can create an entirely *new* range of problems. Even if (in a hypothetically perfect future) the negative outcomes described in Chapter 2 disappeared, the system could still be problematic, because how it operates (who is involved, how long it takes, how costly it is, the values that underpin it etc) can be as important as the measurable results it generates. That is particularly the case from a te Tiriti perspective; as has been seen in the case of the proposed Rangitāhua/Kermadec Islands Oceans Sanctuary, process can be as important as outcome.

Problems with the existing system are a separate category of problem to the biophysical and social problems outlined in Chapter 2. This is because (1) the existence of a problematic outcome does not *always* mean the system behind it is broken, and (2) a poorly designed system can itself create a wider range of problems through *how* it operates, not just the tangible outcomes it produces.

There is, of course, substantial overlap between biophysical and system problems. Most obviously, the existing oceans management system is squarely responsible for most of the poor biophysical outcomes and trends discussed in Chapter 2. Their very existence indicates a serious systemic failure:[29]

> the most significant problem is that the system has failed to achieve what it was always clearly meant to: notably in its establishment and defence of many environmental bottom lines and associated limits on human activities.

The system has not prevented year on year increases in greenhouse gas emissions that are acidifying the seas. It has not prevented land uses that have continued to smother coastal habitats and estuaries in sediment. And it has not prevented the often irretrievably harmful impacts on benthic environments caused by bottom contact fishing methods. The list goes on.

The existing system has failed to achieve many of the outcomes that it was always intended, and expected, to achieve. This is its most significant problem.

Other problems, however, have arisen because the system was not really designed to do some things it arguably should have been (or at least should *now* be expected to do). For example, it has not resolved allocative questions in a way that is most "fair", provided meaningful targets for environmental enhancement, or driven the deployment of spatial protections in a coherent way.[30] Part of these deficiencies may be down to the market-led ethos of the era in which much of the system was put in place (including the RMA and Fisheries Act), where there was a drive for efficiency over equity and where the government was seen as a trusted manager, rather than a change maker to be held accountable for continuing progress towards something *better*.[31]

The existing system was not really designed to achieve some outcomes that it may now, in a modern context, be expected to achieve.

Another set of issues with the system has arisen through the manner in which it has evolved over time. It has grown much larger, more complicated, and more fragmented than it used to be. Layers of complexity have been added, things have been carved out, and amendments have transformed what were once

reasonably coherent statutory schemes into chaotic behemoths that interact with dozens of others.

> The way that the system has evolved over time means it has gradually become less coherent and more complex.

Finally, a distinct set of issues reflect inherent tensions that may never be resolved or "fixed" to the satisfaction of all parties (eg the tension between participation, efficiency and timeliness of decision-making, or between the interests of commercial and recreational fishers in a shared resource).[32] While the balance may need to be shifted one way or another as times change, we need to keep in mind the difference between true system failures and the system simply performing one of its key roles – resolving disputes.

> The oceans management system will not always please everyone, but this does not necessarily mean it is broken or problematic at a systemic level. One of its key roles will always be to resolve disputes, and that will produce a perception of winners and losers.

Below, we consider some more specific characteristics of the existing system that can be regarded as problematic. These are cross-cutting characteristics, rather than a comprehensive list of things that might be wrong with particular statutory frameworks or individual decisions. That reflects the concern of the project – things that need addressing on a system-wide scale. We also recognise that many more detailed issues will need to be resolved through a reform process, and we welcome comment on other issues that need addressing.

Weak environmental limits

Not all elements of the current system are fundamentally broken. Some have had notable successes. For example, it is reasonably clear that the QMS has produced better sustainability outcomes for fish stocks than our previous fisheries management system, or when compared to international experience.[33] Using catch limits and a system of tradeable rights has achieved the rebuild of a number of stocks. A significant leap forward was also made in the *King Salmon* litigation when the Supreme Court held that the RMA, through the New Zealand Coastal Policy Statement (NZCPS), can set environmental limits that cannot then be undermined by revisiting them in lower-level planning and consenting decisions.[34] The ban on products containing micro-beads through the Waste Minimisation Act, and prohibitions on marine dumping under RMA regulations, are also forms of a "limit".

However, overall, the existing system can be said to lack strong environmental limits in the marine area. By this, we mean lines in the sand beyond which impacts are unacceptable and which trigger strict prohibitions on activities or their effects, not just mitigation or trading off of values. This can be seen in a number of core frameworks.

- The Marine Reserves Act is powerless to impose area based protections for reasons other than scientific research, and there is no compulsion to use its tools (ie limits do not exist until a reserve is established). High protection areas are also unable to be created in the EEZ.
- The RMA lacks consistent national level regulatory limits for activities impacting the marine environment (eg an National Environmental Standard (NES) for wastewater discharges). Some tools even require development that will inevitably impact the marine area (the NPS on Urban Development) or hinder the establishment of controls to prevent impacts (eg the NES for Plantation Forestry).[35]
- Limits can exist in theory but not be realised in practice; for example, the NZCPS requires avoidance of adverse effects on areas set aside for protection of indigenous biological diversity under other legislation, such as marine reserves, but has failed to prevent the consenting of harmful activities higher up in catchments (eg with sediment causing the degradation of the Long-Bay Okura[36] and Whanganui A Hei (Cathedral Cove)[37] marine reserves.
- No firm policy-based limits exist in the EEZ (since policy statements have not been created). Regulations that have been made apply only to a relatively narrow range of activities and provide largely for consenting pathways by which discretion is exercised (eg for deep sea mining) rather than prohibitions on activities or impacts when a limit is reached.
- Although specific place-based restrictions and regulations abound under the Fisheries Act,[38] these cannot really be regarded as systemic limits, as core sustainability measures (eg protecting habitats of importance to fisheries or preventing destruction of benthic ecosystems through practices like dredging and bottom trawling) are discretionary and have not been forthcoming. Similarly, there are questions as to whether benthic protection areas in the EEZ can be regarded as a true environmental limit, given their location in areas which appear to be of low value for the protection of biodiversity.[39]
- The TAC set for fish stocks under the Fisheries Act looks like a firm limit. However, that hides issues. There is in practice no overall limit for the recreational take component (predicted catch is estimated and controlled through things like daily bag limits, but there is no line at which recreational fishing must stop; and the recreational catch can increase despite a bag limit if people fish more frequently or twice the number of people fish than expected).[40]
- Furthermore, the TAC is not always set in a place that achieves the outcome sought by a limit (retention of an unfished biomass that leads to maximum sustainable yield),[41] whether because of a lack of information, a stock assessment being outdated, or reliance on an alternative measure

(eg voluntary shelving of annual catch entitlement (ACE)).[42] Catch limits have not prevented the decline of some fish stocks in practice (eg East Coast tarakihi), because they have been set in the wrong place.[43] This is illustrated by the fact that for some stocks, recorded catch is much *lower* than the TAC, indicating that there may be a shortage of fish and the limit is not actually performing its intended function.[44]

- Provisions allowing for legal discarding for commercial fishing under the Fisheries Act, where harvested fish are not counted against ACE, arguably amount to a soft rather than a hard limit.[45]
- Catch limits for single stocks do not necessarily reflect an ecosystem based limit (ie to support dependent species or avoid trophic cascades) or limits protecting highly valued species.[46] For example, seabirds and marine mammals rely heavily on certain fish as a food source, so fishing down their abundance can have impacts on those species.
- Generally speaking, the Wildlife Act does not protect marine life unless it is specifically listed in a schedule to the Act, and very few species are listed.[47]
- There is a lack of comprehensive limits to protect threatened or valued species. For example, although there are firm prohibitions on hunting dolphins as a protected species, a statutory loophole allows an uncapped number of them to be killed in fishing nets without recourse to prosecution.[48] Similar provisions apply to seabirds and other protected marine wildlife.[49] There is statutory provision for the development of population management plans for protected marine species, which are designed to impose limits on mortality, but these are not mandatory, are not triggered by the status of a species, and have proven difficult to progress (with none having been finalised since the insertion of the provisions in 1996).[50]

Commercial fishing vessels, Motueka

A spotlight on population management plans

Since 1996, the Marine Mammals Protection Act and Wildlife Act have both provided for the creation of population management plans to address fisheries bycatch. The plans are designed to ensure the recovery of *threatened* species to non-threatened status, or to prevent populations declining, but they can be created for non-threatened species as well. Plans can specify a maximum amount of fishing-related mortality for a species. When a population management plan is approved, the Minister of Fisheries is required to take all reasonable steps to ensure that the maximum allowable fishing-related mortality set is not exceeded.[51]

The plans require the joint sign off of the Ministers of Conservation and Fisheries, and the Minister of Fisheries is required to consider the impact of the plan on commercial fishing.[52] Thus while such plans can impose limits once created, they are not really systemic limits, because they can involve trading off the economic benefits of fishing with the desire to protect marine mammals.

There have been several attempts to create population management plans for the New Zealand sea lion and Hector's dolphins but none have been completed. The reasons for this include an overly complex statutory process for their development, the need for cross-agency support which was difficult to obtain at the time, and the targets set in the legislation being unworkable.[53] Instead, agencies have focused on developing non-statutory plans such as national plans of action for seabirds and sharks and threat management plans for Hector's and Māui dolphins. These often leave the implementation of fishing bycatch controls to the provisions of the Fisheries Act, which is potentially problematic, given that the purpose of that Act is the sustainable *utilisation* of fisheries, and it is not focused on the absolute protection of marine mammals or other marine wildlife.

Overall, the system has many tools that *can* impose limits, but often these are not mandatory. Furthermore, limits set in one place can, in practice, be undermined by exceptions or allowances in other places. The process for setting some limits can be highly politicised and, in the absence of strong legislative backing, be liable to capture by vested interests in terms of the *level at which* they are set. While we have no shortage of strong sounding environmental principles (including in the Fisheries Act,[54] RMA[55] and EEZ Act[56]), in practice they are often not translated into actual regulatory limits on human activity. The *EDS v New Zealand King Salmon* decision highlights some of the inherent shortcomings of the RMA when it comes to the establishment of limits.

A spotlight on *King Salmon*: Limitations of environmental limits under the RMA

The *King Salmon* jurisprudence made a significant positive contribution to how environmental limits are recognised under the RMA, and it played out in the coastal environment. The legal position prior to the case was that decision-makers were to engage in reaching what was generally called an "overall broad judgment" when making decisions on plans and consents. That meant that a decision-maker had recourse to Part 2 of the RMA in balancing the benefits and costs of a proposal, even if objectives and policies in lower planning instruments were much more specific, directive and protective. As the Randerson Panel said, this approach "allowed environmental limits in plans to be set aside on the basis of advancing [the] social, economic and cultural wellbeing" reflected in Part 2.[57]

In *King Salmon*, the Supreme Court overturned that approach. It emphasised that, in certain circumstances, the RMA was about defending firm environmental bottom lines set under it, not about weighing up many factors. Central to the decision was the fact that the NZCPS contained directive and firm provisions concerning the protection of the coastal environment. The Court made it clear that national direction could impose firm, policy-based limits and that subsequent lower-level decisions would not be allowed to undermine them by referring back to the wider, more balanced set of considerations in Part 2 of the RMA. That was a big step forward, because "the failure of the RMA to deal well with cumulative effects is … partly rooted in the misinterpretation of its purpose statement".[58]

Since 2014, the Supreme Court's message has been applied and refined through a number of other decisions. However, overall, this line of case law still falls short in a number of senses. It has since been made clear that a balancing approach (including in the consenting context) will often still need to happen (eg where there are no firm and directive policies in planning instruments to point to, or where there are multiple provisions that conflict). This is a real issue, because limits are scattered across national direction, regional plans, district plans, policy statements and consents. It is not always clear whether something is a true limit or not, or how flexible it is meant to be. Much depends on the (sometime tortuous) unpicking of particular words in non-regulatory policies (like "avoid") and how dozens of provisions in different documents interact. Even in a reasonably well developed tool like the NZCPS, many important policies are expressed in language much weaker than an obligation to "avoid" harm.[59]

The Supreme Court also stressed that Part 2 is not an operative set of provisions; it sets an expectation that a cascade of subordinate instruments will impose strict protections.[60] But it does not itself demand that firm limits *are* generated through planning instruments; regional plans are not mandatory, rules are not required, and the government could make the NZCPS less protective if it wished. In the RMA, Parliament has above all created a *framework* for limit setting in the marine environment rather than directly creating limits. The absence of modern marine protected area legislation to fill some of that gap makes the system even shakier.[61]

In addition, *King Salmon* does not change the "deliberate openness" of Part 2 itself, and questions still abound over what exactly the Court means when it concluded that the word "while" in the sustainable management purpose of the RMA, means "at the same time as".[62] After all, enabling people to provide for their economic wellbeing cannot always happen at the same time as protecting crucial biophysical bottom lines.[63] Furthermore, the Supreme Court effectively confirmed that section 6 matters of national importance are not themselves true environmental limits, because although they require steps to be taken, they do not actually give primacy to the protective elements of sustainable management.[64]

The important lesson from the Supreme Court is, essentially, that authorities can impose bottom lines if they consider Part 2 demands it (although there is no effective mechanism to ensure action is taken), and it is not permissible to undermine a higher-level authority's (eg a Minister's) decision to do so. However, even that may not be watertight. There are ongoing efforts to carve out exceptions to environmental limits for activities that are recognised as having benefits under the NZCPS, notably ports.[65]

There are other risks here, too. As more national direction is produced, not all of it is about setting true "environmental" limits. A concerning trend has been for the RMA to be used to impose "top lines" or "social and economic ceilings" in the interests of wider policy agendas. For example, it is not clear that the drive for development under the NPS on Urban Development aligns or links well with the imperative to reduce sediment entering the sea from land clearance, earthworks and impermeable surfaces, or (arguably) that the NES for Plantation Forestry supports the policy intent of the NZCPS to *reduce* sediment loadings in runoff to the extent (for example) that the latter still allows clear-felling and whole of catchment harvesting.[66] *King Salmon* is therefore a double-edged sword, and there are risks that recognising the primacy of firmly worded provisions in subordinate instruments can swing both ways depending on what those instruments actually say.

There is an ongoing conversation as to whether the RMA's proposed replacement – the Natural and Built Environments Act (NBA) – will take a more effective approach to setting environmental limits.[67]

While the current system is capable of imposing firm environmental limits, and does so in a number of cases, overall it can be said to lack a robust approach to environmental bottom lines. It is sometimes not clear whether a limit is fixed or negotiable, whether it must be set, or why it should be set in one place instead of another.

Outdated norms and values

There is a strong case to indicate that the norms that underpin our legislation do not reflect modern times and concerns. There is an inconsistent approach to te Tiriti across legislation, including the RMA's requirement to take its principles into account[68] and the EEZ Act's simple and presumptuous assertion that the provisions of the Act already embed the principles without needing further interpretation.[69] Older legislation is generally silent as to the impact of te Tiriti or its principles, although older marine conservation legislation is tied to the Treaty clause of the more modern Conservation Act.[70] There are increasing calls to strengthen such requirements,[71] for example to "give effect" to te Tiriti principles.[72] The formulation in the EEZ Act, where compliance with te Tiriti is essentially deemed to have occurred in the provisions of the Act rather than guiding subsequent decisions under it, has come in for particular criticism.[73]

Many are of the view that a meaningful expression of such principles also needs to flow through to other design features (eg co-governance and the inclusion of mātauranga in decision-making), not just be a general statement of principle.[74] Tikanga struggles to find recognition in legal processes focused on a narrow approach to fact finding and evidence,[75] although there have been recent efforts to incorporate it more into the mainstream of some statutory decision making.[76] Criticisms have also been made about processes not respecting te Tiriti, such as for the establishment of marine protected areas[77] and the length of time and inadequate resourcing for progressing claims for customary marine title under the MACA Act.[78]

Aside from te Tiriti, the most egregious example of outdated norms might be the Marine Reserves Act, which proclaims that it is concerned only with scientific research.[79] It reflects a time in which much deeper concerns like biodiversity protection and climate change were not high on the agenda. But there are numerous examples of this. The Wildlife Act does not make a clear distinction between the importance of protecting indigenous species and introduced ones.[80] The Crown Minerals Act and Continental Shelf Act are concerned with maximising the economic benefits of mineral extraction, and do not temper that ambition with a recognition that keeping oil and gas beneath the seabed (as a carbon sink) might be a better use, or that alternative uses of subsurface space like carbon geo-sequestration might be considered.[81] Even something as "modern" as the RMA is oriented towards passive management and mitigation of adverse effects rather than defending limits and striving for positive outcomes for the oceans. That no longer reflects what we are trying to achieve. Many statutes, including the Maritime Transport Act, do not have clear purposes at all. On the institutional front, the EPA does not have a clear environmentally focused mandate and it remains unclear what its position in the system should be.

While there are still debates to be had at the margins – for example, whether fish stocks should be managed under a principle of maximum sustainable yield, or what the purpose of the RMA's replacement should be – our existing system overall reflects a patchwork of norms and objectives that do not sit well with each other or with society's current values. This has, unfortunately, been the case for some time. The words of the Parliamentary Commissioner for the Environment over 20 years ago ring just as true today, in that:[82]

> values and fisheries management systems that permitted the desecration of Spirits Bay in Northland ... and ecosystems such as sea mounts, are simply not good enough to meet New Zealand's needs in the first years of the 21st century.

The norms underpinning legislation in the current system, overall, are outdated and reflect the concerns of a time different to the present. That is particularly noticeable when it comes to te Tiriti o Waitangi, climate change, and the imperative to protect and restore the natural environment, not just mitigate effects on it.

Fragmentation, gaps and overlaps

While the system has a number of large statutory schemes like the RMA and Fisheries Act, our package of legislation has overall developed in an ad hoc way. In many cases it provides bespoke workarounds to existing frameworks no longer fit for purpose. For example, special legislation for the Hauraki Gulf reflects not only the importance of this special place and the unique pressures it is under, but also the absence of a statutory regime under which multiple agencies and stakeholders can be compelled to work cooperatively together across silos, and the complications produced by regional boundaries shaped by catchments rather than coastal ecosystems. Similarly, place-based legislation establishing marine protected areas (eg in Fiordland, and forthcoming for the Hauraki Gulf to implement its non-statutory spatial plan) in part reflect shortcomings with more general frameworks like the Marine Reserves Act.[83]

Furthermore, while various options were on the table as to what the EEZ Act should include or subsume, a decision was made that it should simply fill gaps and be squeezed into the existing landscape rather than revisit how other statutes were configured (eg to combine it with the RMA). And it is by no means clear that there is a sensible reason for the fragmentation of conservation legislation whereby marine mammals are protected under one framework and other wildlife under another, or whether protection

of *places* under the much-maligned Marine Reserves Act should be separate to measures to protect *species* under the Wildlife Act. There is now talk of even more layers of place-based legislation, including for the creation of fit-for-purpose marine protected areas (eg in the Hauraki Gulf) and to connect the tools available under other frameworks.[84] What we have been left with is a system that is steadily accreting statutes, that is not entirely coherent, and where the new modus operandi appears to be to reach for the drafting pen when something needs to be done.

Whether this matters or not is an interesting question. It is not necessarily the case that a single piece of marine legislation – one act to rule them all – would be desirable. What creates integration in one way might cause fragmentation in another, and there is something to be said for statutes having a focused purpose and even responding to the needs of a particular place. Some have suggested that fundamental legislative changes do not get to the core of the issues we face, and instead are sometimes a way for policy makers to show something is being done, putting off the hard work of achieving actual change to the future:[85]

> New Zealanders tend to exhibit an innocent and misplaced faith in the efficacy of legislation. We seem to be addicted to passing legislation for the sake of it. We seem to believe it will solve our innermost ills. The government must be seen to be acting or reacting. Passing a law is seen to be doing something.
>
> In New Zealand we have a tendency to pass big statutes, find we do not like the results and engage in a constant pattern of amendments whereby the statute risks losing both its principles and its coherence.

We are continuing to explore such issues in the context of legislative design, and we explore some options in Chapter 6 of this paper. However, how statutes are configured *can* matter even if legislative change is not a magic solution. Generally speaking, the more statutes we have, the more interfaces that are needed. These interfaces increase exponentially, and can create uncertainty. The words of the then Parliamentary Commissioner for the Environment two decades ago, are even more valid today, given the creation of yet more statutes, agencies and strategies since that time:[86]

> we have an extraordinary plethora of legislation and agencies with marine responsibilities. There are 18 main statutes, 14 agencies and six government strategies for marine management. We have also signed up to at least 13 international conventions with marine implications. Inevitably there are gaps, overlaps and inefficiencies.

The case of the Bryde's whale in the Hauraki Gulf gives an indication of how fragmentation in the system (along with other factors) can lead to poor outcomes.

Port of Nelson

A spotlight on the Bryde's whale: Why legislative fragmentation can matter

Bryde's whales are nationally critically threatened. The Hauraki Gulf is favoured habitat for the whales, with up to 50 Bryde's whales regularly using the Gulf at any one time, out of a larger national population of around 150. The Hauraki Gulf is also the location of Aotearoa New Zealand's busiest port (at Auckland). Geographically, the Bryde's whales and commercial vessel traffic occupy overlapping water space. This caused a spatial conflict whereby, historically, at least 17 whales were known to have been killed by ship strike at an average of around two a year.[87]

In 2010, when the issue was publicised by scientists studying the whales, many of the ships coming and going from the Hauraki Gulf were travelling at well over 14 knots. International research indicated that there was a high chance of a whale dying if hit by vessels travelling at this speed, but at less than 10 knots, an impacted whale had a good chance of surviving. For this reason, researchers concluded that in order to reduce the risk to the whales to acceptable levels, whilst maintaining safe ship navigation, vessels needed to slow down to speeds of 10 knots or less.[88] It would seem a remarkably simple solution.

However, at least four potential mechanisms can be used to reduce vessel speed to protect whales in Aotearoa New Zealand under existing legislation. The first is for the Minister of Conservation to create a marine mammal sanctuary under the Marine Mammals Protection Act with regulations setting a maximum speed within it. The second is for Auckland Council to change the coastal component of the Unitary Plan under the RMA to incorporate a new rule that makes operating a ship at speeds greater than 10 knots within the Hauraki Gulf a prohibited activity. Given Policy 11 of the NZCPS, which requires the avoidance of adverse effects on threatened species, there may well be a duty on the Council to act in this way. The third is for the Minister of Transport to recommend the creation of a Maritime Rule by Order-in-Council under the Maritime Transport Act to restrict ship speed in the Hauraki Gulf. The fourth potential mechanism is to present a proposal to the International Maritime Organization (IMO) for a ship routing measure which could be voluntary or mandatory. The advantage of such an international measure is that the restriction would be noted on the relevant nautical charts and would thereby be brought to the notice of overseas vessels entering the country.

This plethora of potential tools vividly illustrates the overlaps that exist between legislation. The targeted purpose of one Act – in this case, one would naturally gravitate towards the Marine Mammals Protection Act which has a protective purpose – can in practice be achieved through tools provided under quite different legislation. This is not necessarily a bad thing, as it can be useful to have several regulatory tools in the toolbox when seeking to address an issue. However, overlap can lead to paralysis, because no agency is obviously in charge of addressing the issue. Agencies are often risk adverse and would prefer, if possible, to leave politically contentious issues to someone else. In the Bryde's whale example, none of the agencies with regulatory tools at their disposal took action to solve the issue. In this regulatory vacuum, fortunately a consortium of Auckland University scientists, the Hauraki Gulf Forum and EDS initiated a collaborative process which resulted in a voluntary agreement to reduce ship speed.[89] This has undoubtedly saved many whale lives. Yet the underlying problem with the system remains.

The solution is not necessarily legislative redesign; we could instead work on clarifying the relationship between the purposes (and therefore tools) of different statutes or between the mandates and duties of different institutions. However, a more integrated legislative framing may be one way to make progress and ensure things do not fall between the cracks. We offer some thoughts on legislative design in Chapter 6, and are continuing to give thought to how better connections can be made (eg through tools like marine spatial planning).

Ironically, overlaps can create gaps, by giving a sense of complacency where a solution is assumed to belong elsewhere. Managing the impacts of ship strike on the Bryde's whale is not an isolated example. It is characteristic of the system as a whole, which is split in ways that do not take an integrated approach to marine habitats or species. The most obvious example is the protection of marine habitats that are important to both fisheries and the broader biodiversity of the environment. This is dealt with under the RMA (and potentially EEZ Act) and Fisheries Act. The relationship between these acts has recently been the subject of significant jurisprudence from the Court of Appeal, concluding that regional councils retain substantial jurisdiction to regulate the impacts of fishing in the coastal marine area.[90]

Overlaps between legislation can also cause complexity and multiple points of potential failure, where tools need to be used carefully in tandem (or at least where the relationships between them need to be sorted out) to make a difference. This requires cooperation and joint processes that are not always easy to achieve. Difficulties in deploying large scale marine protected area networks could, for example, be put down partly to the perception that they are about the *removal* of existing "rights", particularly when they are not undertaken at the same time as providing new *opportunities* in a marine space.

This is very visible in the Hauraki Gulf, where coordinated action across frameworks and institutions (eg for sedimentation, marine protected areas, fishing controls, Māori interests, ecological enhancement activities and

other things) has required a long non-statutory spatial planning process driven partly outside government, and followed by a long period of government consideration, before any tool is actually deployed. As described above, action looks to be forthcoming now, but this remains a fragile thing – much depends on political will (and funding) to continue to drive the measures in a coordinated way.

The same issue can also be seen in the difficulties of addressing land-based sedimentation impacts on fishing. Impacts on fishing are obvious, but there is a disconnect between the interests that are affected (fishing) and the framework under which those impacts are managed (the RMA). There is no clear or directive mechanism by which the fishing aims of the Fisheries Act – maximising utilisation of fish stocks – can determine controls on land based activities generating sediment under the RMA (when, for example, a regional plan is being reviewed or urban growth is being considered under a district plan). Quite different tools are used, and sustainability measures under the Fisheries Act cannot be used to prevent activities further up catchments.

Where there are arbitrary spatial distinctions between frameworks this can also cause perverse incentives. For example, some may perceive the EEZ Act to be a "softer" framework than the RMA (partly due to the more robust participatory and notification provisions of the latter), and choose to conduct potentially harmful activities just on the seaward side of the 12 nautical mile boundary.[91]

The current system is fragmented across legislation, institutions and tools. This can lead to gaps, overlaps, inefficiency and a lack of coordination of frameworks that need to work together to achieve outcomes.

Complexity and inaccessibility

A fragmented system creates not just gaps, overlaps and uncertainty, but also complexity. Even those deeply involved in the system can find it complicated, and it has become more and more inaccessible over time as more processes, carve outs and legislative layers have been added. For example, former Chief Justice Sian Elias put it well when she said that the RMA is "meant to engage communities, not alienate them" and bemoaned the "impenetrability" of the Act.[92] There has also been a proliferation of alternative planning and consenting processes. The RMA is much longer than it used to be. Current decision-making processes for fisheries are slow, cumbersome and largely inaccessible to non-commercial fisheries stakeholders and the general public (with one estimate of eight years to change a TAC).[93]

Other legislation is also complex. The Maritime Transport Act is a good example,[94] and has been criticised as a mess of an Act[95] with an incoherent structure overall.[96] The lack of coherence has been accentuated by the repeal of certain parts of the Act, as Maritime Rules[97] replaced primary legislative provisions as the means of regulating activity. The Act contains 17 separate interpretation provisions throughout its 29 existing Parts, and contains both general and specific provisions which are reinforced by voluminous regulations, Maritime Rules, and Maritime Protection Orders.[98]

The ways in which different pieces of legislation interact with each other is also complicated and often not apparent. It can be hard for one not intimately acquainted with legislation to know what measures can be taken under the Marine Mammals Protection Act, Fisheries Act and Wildlife Act, and why the three are so different.

Complexity is not just limited to statutes. To understand how the oceans management system works, one must be familiar with how markets operate (eg the QMS), the place of non-statutory strategies and policies, and an overwhelming array of regulations, plans, policy statements, existing use rights, orders, and so forth. The list grows every day. How they interact with each other is not always clear and often requires litigation to determine.[99] The system will always be complex, but it is apparent that it is much more complex than it needs to be.

The current system is extremely complex and confusing. Fundamental features, such as the interpretation of the purpose of the RMA and its relationship with the Fisheries Act, frequently require resolution in the courts. While the system will always have a degree of complexity, it is by no means clear that the present complexity is necessary or desirable.

Lack of stewardship/leadership

The Bryde's whale example, given above, illustrates that legislative fragmentation not only creates overlaps, but can also create a vacuum of leadership where agencies struggle to work together or simply assume that responsibility lies elsewhere. A cornucopia of different tools that *can* be used does not automatically mean they *must* or *will* be used. The existing system is, generally, characterised by a strong assumption that those responsible for marine outcomes will choose to use the mechanisms available.

While there are positive signals – for example in the recent establishment of a new portfolio for Fishing *and* Oceans as well as an Oceans Secretariat to support government marine initiatives (and facilitate sharing of resources), these are not legislated and could be undone easily. We have seen that happen in the abortive attempts to establish an oceans policy two decades ago (see spotlight further below). While marine issues are by no means simple, shaky leadership can be seen on many fronts. Central government has made little progress on establishing a coherent network of marine protected areas, or controls on damaging fishing methods. The mandatory NZCPS has existed since the enactment of the RMA, but (in contrast to the enabling of productive activities like forestry) it has not led to national level regulations (an NES for the sea)[100] or a meaningful policy framework for estuaries in the same way as (for example) urban development. This is not so much an issue with the RMA, but rather with the political will to use the RMA in the ways it was intended to be used.

Similarly, while regional councils have always had responsibilities under the RMA (and NZCPS) for habitat protection in the marine area, the extent to which that has manifested in practice is patchy and varies around the country. And councils are only now, after *Motiti*, coming to terms with what the legislation has always envisaged – that they are expected to be active in controlling the impacts of fishing on the marine environment.[101]

It is arguable that the current system lacks leadership and a framework of accountability for achieving outcomes.

A lack of strategy and agility

Generally speaking, the existing system can be said to lack both a future focus and agility to respond to environmental change in a timely way. The RMA, for example, talks about enhancement, but lacks a framework for setting targets and a mechanism for holding authorities to account if they fail to meet them. National direction is for the most part optional, and until recently (for freshwater) has not been concerned with establishing a pathway towards change. Even where a pathway for change is created, amendments to regional coastal plans can take years to achieve, and even longer to flow through to outcomes on the ground. Moreover, existing use rights on land (eg for sediment-inducing activities like agriculture, urban development and forestry) can be hard to change legally as well as politically, meaning the best strategies and policies in the world may struggle to be effective in practice. The lack of strategy is even more noticeable under the EEZ Act, where even general statements of policy are not mandatory and have, as a result, not been created.[102] In short, the RMA and EEZ Act are about management, not pushing towards something better.

Generally speaking, the same can be said about fisheries. Although there are notable examples of agility where risks are significant and clear (such as where closures were put in place following the Kaikoura earthquake in 2016), in other situations agility and strategy is not so obvious. For example, there are ongoing questions about what tools like fisheries plans are actually intended to achieve (if anything) in a strategic sense, and if they are meant to be industry-led self-management tools or an instrument for government and communities to steer commercial fishing in a different direction.[103] They are not mandatory.

Furthermore, the boundaries of quota management areas are large and difficult to change,[104] despite the fact that localised depletion is fairly common and boundaries often do not reflect the biological reality of stocks within and across them.[105] Climate change may exacerbate that as marine life moves within and across quota management areas. Stock assessments and catch limits do not keep up with the actual state of a fishery.[106] The biological and ecological state of fish stocks and marine ecosystems can change rapidly (especially in a changing climate), but such changes are not always reflected in the system that manages them.

A lack of strategy and agility is also observable in the marine conservation context. A change in the status of protected marine species does not automatically trigger a regulatory or policy response (eg the creation of a population management plan or the provision of funding).[107] Conservation strategies and plans can routinely be out of date, and lack adequate weight when it comes to the consideration of concessions.[108] Similarly, a strategy for the deployment of marine protected areas has been left largely to political discretion[109] or has been tackled through bespoke legislation following collaborative processes or negotiation (eg in the Hauraki Gulf), rather than forming a core part of the system itself.[110] *Te mana o te taiao – the New Zealand biodiversity strategy 2020* – is a non-statutory document and its relationship with operational statutes is neither strong nor clear.[111]

There are many other examples of ways in which the current oceans management system lacks strategic direction and the agility to respond to and force change. All of this is in stark contrast to more modern legislation like the Climate Change Response Act, where there is a much stronger framework for establishing system-wide targets, stepping stones towards them, plans for driving change, and an institutional framework to ensure transparency and accountability.

The current system lacks a future-focus, clear goals for what it is trying to achieve for the future, and the agility to respond in a timely way to changes in environmental conditions.

Procedural fairness

How elements of the existing system operate is arguably unfair. This is not uniform across all the system, and some complaints may be more about some people's or interests' dissatisfaction with where a balance has been struck. However, many complaints are understandable or at least deserve consideration.

Some of these relate to the social issues described in Chapter 2, for which the system is directly responsible. For example, the Fisheries Act deals directly with limits on the aggregation of quota (which may not be effective enough at least for some stocks), and established the market for quota and ACE which has resulted in the unequal distribution of value across the fishing sector (with most profit going to quota holders, who tend not to be those out on the sea).[112] The RMA allows for coastal occupation rights to be allocated using structured tendering processes (which use would be "best"), but more common is the use of the default setting of "first in first served" consenting.[113] Charges can be imposed but tend not to be (and are done inconsistently), while the harvesting of marine life under the Fisheries Act operates on a cost recovery basis rather than "royalties" basis. It is in the operation of the system – the ways in which its tools are used – that these issues arise.

Other equity issues arising from processes under the existing system include:

- An ongoing uncertainty about when compensation should be forthcoming for an erosion of "rights" in the marine area (such as a diminution of value of quota due to spatial exclusions or restrictions on fishing methods). At present, such decisions are largely based on negotiation and political factors.
- The lack of strategy and agility within the system, mentioned earlier, can have implications for equity as the environment changes. For example, the movement of fish between quota management areas as the climate changes may cause fish stocks – and the value of quota – to decline in some places and increase in others (a windfall capital gain of sorts).
- There are relatively extensive statutory rights for the public to participate in the development of instruments like national direction and regional plans under the RMA, but despite pre-engagement and public consultation occurring, there is less formal opportunity to participate in the development of instruments, or decision-making, under the Fisheries Act (eg hearings and merit appeals).
- The proactive involvement of iwi and hapū in marine management decisions and processes varies across the country and across legislation, with much being discretionary (eg the transfer of powers under the RMA). In practice it can also vary due to differences in resourcing, with many Māori groups struggling to sustain involvement across multiple system processes and lacking financial support.[114] Māori voices are saying that they feel excluded or marginalised from decision-making processes and that the system does not reflect Treaty principles.[115]
- The broader public can also struggle to participate in marine planning and consenting processes (eg under the RMA) due to a lack of resources or "burnout". This can be perpetuated where interests need to be litigated in the formal and expensive setting of the courts, especially in frameworks like the Fisheries Act where there is recourse only to judicial review in the High Court and not scope for appeals on the merits or substance of a decision.[116]
- Some may be concerned with the "privatisation" of the marine area (eg for aquaculture, private ownership of coastal land) and its implications for access. The marine area gives New Zealanders many benefits, but it is not usually talked about with the same urgency as, say, access to the roading network or drinking water.
- The operation of the system is also arguably inequitable from an eco-centric perspective. People have many rights, and these are often used to defend interests in legal and political processes. But despite advocacy functions of institutions like the Department of Conservation, nature itself is seldom represented in a systemic way. Much is left to the efforts of private individuals and civil society, whose resources can be stretched and whose interests are not necessarily aligned with the "environment".

In short, there is a degree of dissatisfaction with how the system operates. However, such things are not easy to resolve because there are frequently tensions between different interests, and the idea of "fairness" is often somewhere in the middle and in the eye of the beholder. Perhaps, most importantly, the system lacks a *clear* foundation when it comes to social equity and procedural justice, with complaints about equity continuing to arise on a case-by-case basis. This can be seen in the processes by which individual protected areas continue to be created on a largely ad hoc basis.[117]

Te Whanganui A Hei Marine Reserve

A spotlight on the proposed Rangitāhua/ Kermadec Ocean Sanctuary

The lack of a clear framework for marine protected areas beyond the coastal marine area has resulted in ad hoc and hotly contested mechanisms for creating protections on a case by case basis, which can have significant implications for the fairness of the process. Nowhere is this more obvious than in the context of the proposed Rangitāhua/Kermadec Islands Ocean Sanctuary. On 29 September 2015, at the United Nations General Assembly in New York, Prime Minister John Key announced that Aotearoa New Zealand would create an oceans sanctuary in the EEZ around the islands. At 620,000 km^2, and twice the area of the country's landmass, this was to be "one of the world's largest and most significant fully protected ocean areas".[118] The area is renowned for its high biodiversity, with 32 per cent of all fish species known in Aotearoa New Zealand being from the region. The Kermadec Islands themselves are a nature reserve managed by the Department of Conservation. A marine reserve protecting the territorial sea surrounding the islands was put in place in 1990. In addition, a benthic protection area established under the Fisheries Act in 2007 protects the EEZ around the islands from bottom impacting fishing methods. Ngāti Kuri and Te Aupōuri have mana whenua status over the area.

The announcement of the Sanctuary followed a long campaign since 2008, led by the USA-based Pew Foundation and supported by WWF New Zealand and Forest and Bird, to establish the sanctuary. The Kermadec Islands had been one of nine focus areas worldwide supported by Pew as part of its Global Ocean Legacy Project aimed at establishing the world's first generation of great marine parks, with others in places such as the Pitcairn Islands, Easter Island and Palau.[119] The Departmental Disclosure Statement for the Bill indicated that the decision to create the sanctuary was largely informed by a number of reports prepared by the Pew Foundation.[120]

The National-led Government's decision to create the sanctuary was kept secret until just before the United Nations announcement. Key affected parties such as Māori fisheries trust Te Ohu Kaimoana (TOKM), Ngāti Kuri, Te Aupōuri, deep sea mining company Nautilus Minerals NZ Limited and the Pew Foundation were only informed by telephone the night prior to the announcement.[121]

The Kermadec Ocean Sanctuary Bill was introduced into Parliament on 8 March 2016, with its first reading on 15 March when it was referred to the Local Government and Environment Select Committee. The purpose of the Bill was to "preserve the Kermadec Ocean Sanctuary in its natural state".[122] Shortly afterwards, TOKM announced that it would be launching judicial review proceedings against the Government. This was soon followed by the New Zealand Fishing Industry Association which also launched proceedings. Meanwhile public submissions were sought on the Bill and the Select Committee reported back on 22 July 2016 with some minor recommended changes. The legal proceedings are currently stayed pending passage of the Bill through Parliament. The Bill itself is stalled while the parties seek a negotiated settlement and it is still awaiting a second reading.

The legal challenges against the Bill raise three key allegations:[123]

- The Bill effectively confiscates Individual Transferable Quota (ITQ)
- The establishment of the Sanctuary is a breach of the Crown's duty of good faith to Māori (through the failure to undertake fully informed consultation, and to proceed without consent of TOKM or iwi and without compensation)
- The actions of the Crown are contrary to the 1992 Māori Fisheries Settlement

TOKM's claims have yet to be determined by the courts, and this seems unlikely to occur in the future, due to the Crown's focus on negotiating a settlement to the proceedings. The controversy over the Sanctuary may have had a chilling effect on other marine protection initiatives, including the development of new marine protected area legislation which has yet to progress despite the release of a discussion document in January 2016.[124] Nevertheless, both a legislated solution to the Rangitāhua/ Kermadec Sanctuary, and to marine protected area legislation more generally, still appear to be on the table for the present government.

The Kermadec's experience is a cautionary tale about how the reform process is managed, but also a reminder that a continued ad hoc approach to marine issues reflects a system that does not deal with issues of procedural fairness and justice in a coherent or effective way. In that case there was no transparent standardised process provided for Māori or stakeholder engagement,[125] other than the select committee process to review the legislation. For the future we lack predictable framing for what the purpose of bespoke legislation will be, including the extent to which it will incorporate Māori principles or a consistent approach to how customary or commercial rights are to be treated.

There are a number of ways in which the current system is arguably unfair, both in terms of substantive outcomes and the processes by which decisions are made. For one, there is no overarching framework for how oceans management decision-making is to be conducted in a way that implements the principles of te Tiriti o Waitangi.

Information and funding

The oceans management system is information hungry, and the collection and use of information can be expensive. Some have pointed to problems with how information and funding operate in the current system. This is not unique to oceans. For example, the Parliamentary Commissioner for the Environment has pointed to the lack of a coherent research strategy for environmental issues more broadly (and the absence of forward planning for what our data needs might be)[126] and the existence of significant gaps.[127] Monitoring data and fundamental research is "cobbled" together in an opportunistic way from a range of sources to present in reporting, rather than being collected in a highly purposive and time-series fashion according to what is most useful to tackle pressing problems.[128]

Information is also not aggregated or stored in a way across institutions that is easily accessed, interrogated or used. Datasets often do not speak well to each other,[129] and research is often stored in an unstructured way and can be lost and then sometimes replicated. Nor is funding for research ringfenced from other competing funding pressures,[130] and funding for research both within and beyond government can be intermittent and insecure.[131] Sometimes institutional knowledge disappears due to staff turnover, and almost across the board, the system does not allow for full input or consideration of mātauranga Māori.[132] Some have pointed to the lack of "data sovereignty" for Māori, and called for greater integration of mātauranga Māori into broader research databases and datasets.[133]

A lack of information is particularly important in the sea, because we cannot easily see beneath the waves to observe what is going on first hand. Oceans management is heavily reliant on science (including indigenous knowledge). Environmental reporting is full of references to things we don't know.[134] This ranges from an incomplete understanding of the biology and life cycles of species and the condition of many fish stocks, to the extent of human activities in the marine environment and how these and other pressures impact on complex ecosystems (including cumulatively).[135] In particular, while topographical mapping exists, there is a paucity of data on the nature and extent of habitats in the marine environment.[136] There can be issues over the commercial sensitivity of some information.

Some progress has been made in deploying tools that make marine datasets speak better to each other, such as *SeaSketch* and the *National Aquatic Biodiversity Information System*.[137] Overall, however, it is still reasonable to conclude that:[138]

> we simply do not know enough about the marine ecosystem, and our impacts on it, to manage it sustainably. It can be argued we will never know enough. That is not the central issue. We do know enough now to be aware that we should proceed with caution, like a ship sailing in poorly charted waters. Instead we are charging ahead as though the precision of our ecological knowledge matched the precision with which we can position a trawl net in the ocean or an oil well in the earth's mantle beneath our seas. Sustainable management of the marine environment will, in practical terms, be a process of continual research and improvement.

There are significant questions as to whether we are investing enough in research in the marine environment to understand it better, whether such research is targeted at the right things, and whether our institutional settings[139] and funding tools[140] are adequate to improve the situation. The Parliamentary Commissioner for the Environment has pointed out that is difficult to tell how much actually *is* being invested.[141] The Prime Minister's Chief Science Advisor has also recently pointed to a number of issues about data and information in decision-making in the context of commercial fishing, and we will be exploring this further in our final report.[142] In Chapter 8 of this paper we explore the science and information system with a focus on fisheries management.

> The way in which information is generated, funded, stored, shared and used in the current system has a number of issues.

Compliance with international law

We are continuing to explore the implications of international law for domestic reform options. For the purposes of this working paper, we include a summary of our international marine obligations in Appendix 5. While there are general obligations to protect the marine environment under the United Nations Convention on the Law of the Sea (and it is hard to establish that we are breaching those in any specific sense), there are more focused requirements and commitments under treaties like the Convention on Biological Diversity.[143] Some have questioned whether Aotearoa New Zealand is living up to them, particularly with respect to slow progress in creating marine protected areas.[144]

> There are questions to be asked as to whether we are living up to international expectations with respect to oceans management, especially when it comes to marine biodiversity protection.

3.4 The context of reform

The description of the system above, and problems with it, shows a snapshot in time. The reality is that the system, like the sea itself, is dynamic and constantly evolving. Some features of the current system are the product of recent change, and are described in Appendix 2. However, there are other features (including a number of legislative reforms) that are emerging at the time of writing or are planned for the future. Below, we summarise some of the key ones, which provide important context for future, deeper, oceans reforms.

- Ongoing work on national direction under the RMA, including common wastewater standards, an NPS for indigenous biodiversity, and rollout of freshwater policy under the NPS for Freshwater Management.
- The development of emissions reduction plans under the Climate Change Response Act (which may have implications for marine activities, as well as for broader activities impacting on the marine environment).
- A review of the Biosecurity Act (including marine biosecurity).
- Ongoing reform of "three waters" – drinking water, stormwater and wastewater – which envisages the establishment of a small number of publicly owned water service providers and a much smaller role for councils. This has implications for the funding, planning and provision of infrastructure that can cause or prevent harmful discharges to the marine environment.
- A review into the structure of local government (which has implications for the role of regional councils in marine management as well as territorial authorities in managing infrastructure and land use).
- Measures to tackle freshwater and sediment from land use practices are being advanced by the Essential Freshwater package and the Productive and Sustainable Land Use package.[145]
- A review of waste legislation – the Waste Minimisation Act and Litter Act (which have implications for what kinds of waste end up in the marine environment) – and the deployment of tools under the former Act to phase out various single use plastics.
- Continued efforts by regional councils to grapple with the implications of the *Motiti*[146] decision, and how they discharge their responsibilities for managing fish habitats under the RMA.
- Ongoing actions set out in *Responsibly delivering value - a minerals and petroleum resource strategy for Aotearoa New Zealand: 2019 – 2029.*[147]
- Ongoing work by the Minister/Ministry of Transport to decarbonise the shipping sector.
- Ongoing development of case law through the courts, including in relation to how environmental limits under *King Salmon* are applied to marine infrastructure like ports,[148] relevant factors in determining how fish stocks recover under the Fisheries Act,[149] and how the EEZ Act and its precautionary principle applies to deep sea mining activities.[150]
- International law developments, including "work with Pacific Islands Forum partners relating to sea level rise and a 2050 Blue Pacific Strategy, global engagement on marine plastic litter, negotiating a new High Seas Biodiversity Treaty, and a Post-2020 Global Biodiversity Framework".[151]

Many iwi throughout Aotearoa New Zealand have also lodged applications with the Crown and in the High Court for recognition of customary title and protected customary rights under the MACA Act, and the extent of these applications is such that they cover the majority of the Aotearoa New Zealand coastline.[152] Few claims have been processed by Te Arawhiti (formerly the Office of Treaty Settlements), which on behalf of the government, received over 380 applications by the statutory cut-off date.[153] While this involves a site by site assessment, cumulatively the ongoing process has potential to alter the way in which many parts of the foreshore and seabed are managed.

Cutting across all these things are ongoing te Tiriti negotiations creating bespoke arrangements not just for redress of grievances, but also for place-specific co-governance and other arrangements.[154] And although it is not a reform measure itself, the release of *He Puapua* has contributed to the deeper conversation about how the Māori-Crown relationship – and society – will work in the future, including at a constitutional level.[155] This goes back to broad and evolving discussions about the nature of te Tiriti o Waitangi itself and what this means in the 21st century.

Kaiteriteri Beach

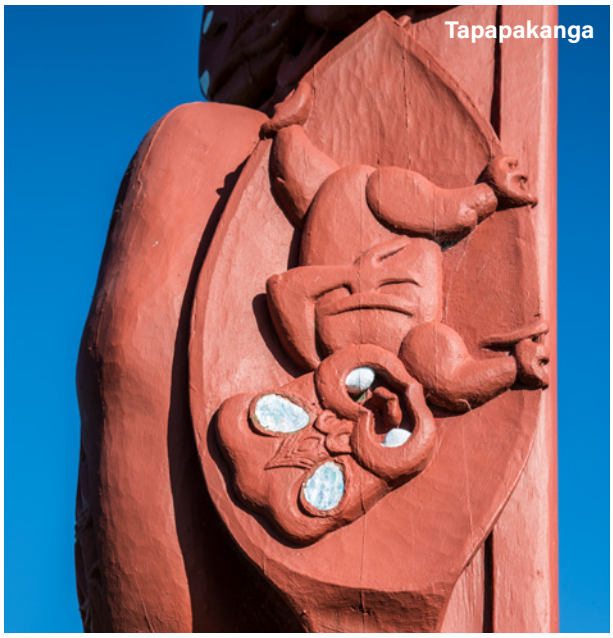
A spotlight on te Tiriti o Waitangi

Although it extends well beyond the marine context, te Tiriti o Waitangi forms the backdrop for reform. The legal place of te Tiriti itself, the principles of the Treaty, and statutory references to them, have evolved over time. However, it is worth going right back to consider the origins of the document and for this to be held in the minds of policy makers. Central to this is the question of whether sovereignty was ceded to the Crown, and the nature of rights to manage resources. Parliamentary sovereignty is a practical legal reality in Aotearoa New Zealand. However, the Waitangi Tribunal when hearing the Wai 1040 Treaty Claim has said (among other things) that:

- The rangatira who signed te Tiriti o Waitangi in February 1840 did not cede their sovereignty to Britain. That is, they did not cede authority to make and enforce law over their people or their territories.
- The rangatira agreed to share power and authority with Britain. They agreed to the Governor having authority to control British subjects in Aotearoa New Zealand, and thereby keep the peace and protect Māori interests.
- The rangatira consented to the Treaty on the basis that they and the Governor were to be equals, though they were to have different roles and different spheres of influence.
- The rangatira agreed to enter land transactions with the Crown, and the Crown promised to investigate pre-Treaty land transactions and to return any land that had not been properly acquired from Māori.
- Though Britain went into the Treaty negotiation intending to acquire sovereignty, and therefore the power to make and enforce law over both Māori and Pākehā (non-Māori), it did not explain this to the rangatira. Rather, in the explanations of the texts and in the verbal assurances given by Hobson and his agents, it sought the power to control British subjects and thereby to protect Māori.
- There has been considerable dispute due to interpretation of the te reo (Māori language) and English language versions of te Tiriti. Many are of the view that there was not a proper meeting of the minds. Significant questions will be grappled with over the coming years in the political sphere, and reforms will need to provide space for that to be worked out without needing further overhaul. In short, reforms will need to respect te Tiriti as a living document, give effect to its principles, and defend existing settlements.
- There is also the question of what a post-settlement Aotearoa New Zealand should look like, which is a conversation that is about more than just a legal interpretation of rights and obligations under te Tiriti. As Dame Anne Salmond has pointed out in a series of articles,[156] the evolving context of reform might be one in which there is a strong sense of partnership, reciprocity and above all a weaving of different outlooks in a non-binary way. It is about our identity as a nation.

Turning to more specific matters, two key packages of measures are particularly notable for oceans reform due to their breadth, depth and imminence. The first relates to resource management system reform, in which EDS has been intimately involved in recent years. The government's independent resource management panel, chaired by Hon Tony Randerson QC, released a report in 2020 outlining a series of recommendations for sweeping reform.

The scope of this report and the government's programme of "resource management" reforms is not as wide as the "system" we defined in our work (in that the former is firmly focused on the replacement of the RMA, its connections with existing legislation, and the introduction of new legislation for spatial planning and climate change adaptation). This means that the oceans management system – at least as we have defined it – is not a "subset" of the government's narrower conception of the resource management system, because oceans has many components that lie beyond it (notably fisheries and conservation legislation). However, there is still considerable overlap, in that the RMA is intimately concerned with marine management in the coastal marine area. The upshot is that a significant part of oceans management is set to be reformed, and further oceans reforms need to be cognisant of that. Current resource management reforms represent both an opportunity to progress oceans reform (and to tailor it to that context where needed) and a potential constraint (in that high level policy decisions, for example around legislative design, have already been taken and are unlikely to be revisited at a fundamental level).


Tapapakanga

Key recommendations of the Randerson Panel on resource management reform[157]

- Repeal the RMA and replace it with a new NBA with a revised purpose and principles. These signal a wider shift from managing environmental effects to achieving positive outcomes.
- Create a new Strategic Planning Act, requiring the preparation of regional spatial strategies encompassing both land and the coastal marine area. These strategies would align functions across other statutes, including the NBA, the Local Government Act, the Land Transport Management Act and the Climate Change Response Act.
- Enact a dedicated Managed Retreat and Climate Change Adaptation Act, which would provide for managed retreat and for the establishment of a climate change adaptation fund.
- Require decision-makers to give effect to the principles of te Tiriti o Waitangi, and incorporate the overarching concept of te mana o te taiao in the purpose statement of the NBA.
- Establish a National Māori Advisory Board to monitor the performance of central and local government in giving effect to te Tiriti and provide for an integrated partnership process between mana whenua and councils.
- *Require* national direction to be made on a range of core matters, and combine this into a coherent suite of instruments that clearly resolve conflicts and relationships between them.
- Require the establishment of environmental limits and targets.
- Reformulate existing RMA plans into combined regional plans, reducing the 100 or so plans we have now to just 14.
- Reform the planning process, including establishing joint planning committees comprising regional council, territorial authority and mana whenua representatives.
- Require an audit of plans by the Ministry for the Environment before they are notified.
- Alter how the notification framework operates, including removing the "no more than minor" threshold for notification of consents.
- Remove non-complying activity status.
- Provide an alternative dispute resolution pathway for minor matters.
- Strengthen the overall role of the Environment Court.
- Strengthen the framework for water conservation orders.
- Provide more flexibility to review existing resource consents to create a more responsive system.
- Provide for greater use of economic instruments to drive behaviour change.
- Establish a nationally coordinated environmental monitoring system led by the Ministry for the Environment.
- Expand the role of the Parliamentary Commissioner for the Environment to provide a stronger auditing and oversight role of the resource management system.
- Establish regional hubs for compliance, monitoring and enforcement.
- Strengthen offences and penalties for non-compliance.

The above is a selective summary. The recommendations of the Randerson Panel are wide ranging and complex, and we are continuing to give thought to what they mean for oceans as they evolve (including when considering specific options for marine reform). There are two overarching points to note for the marine context, though. First, everything that is changing about the RMA will apply to management in the coastal marine area. This ranges from the mandatory establishment of limits for this area, to a more comprehensive and integrated approach to national direction (and its implications for the NZCPS), to how plans are made and supported by central government.

Secondly, there remains uncertainty as to how new legislation for spatial planning will (or should) apply to the marine context, despite the fact that it is intended to extend to the edges of the coastal marine area. We have an initial look at this in the context of legislative design in Chapter 6. There are also questions about how a new statute on climate change adaptation will apply offshore – whether it will be primarily about issues on land like managed retreat (including the impact of things like hard seawalls on marine life), or whether it will also seek to manage climate induced changes *in* the marine area (eg how sectors like aquaculture can adapt).

The process of implementing reform is now well underway. In particular, the government has recently released an "exposure draft" of some of the key provisions (including a purpose and principles part) of a new Natural and Built Environments Bill, which will be considered through a novel select committee process.[158] We are continuing to unpick what implications the specific

drafting has, but for the most part it confirms the spirit of the Randerson Panel's proposal.[159]

We emphasise, however, that resource management reform does not obviate the need for wider ranging oceans reform. For instance, there are spatial limitations to the current process – it doesn't include anything beyond the territorial sea. There are also important sectoral exclusions (especially fishing). And its normative foundations are focused on land rather than sea. Careful consideration will be needed as to how many different reform streams intersect (including over time), particularly in light of the limited capacity of the public service to support various reforms and investment priorities.

The other key contextual element worth noting is the government's interest in pursuing holistic oceans reform directly. This was signalled early in the establishment of a new ministerial portfolio for Oceans and Fisheries (previously just fisheries). While the extent of appetite for reform remains unclear, there have been strong indications in a series of recent Cabinet papers that significant fisheries-focused reform is planned.[160] That goes as far as saying that "significant reform of the fisheries system is required",[161] including commercial fishing (which was the subject of a report by the Prime Minister's Chief Science Advisor earlier in 2021).[162]

Among the reforms signalled are targeted measures like the rollout of cameras on boats,[163] potential changes to the QMS (although retention of the basic tool), revisiting the National Plan of Action on Sharks, significant changes to rules around discarding and landing fish,[164] a more graduated and nuanced system of penalties for non-compliance, the ability to establish pre-set changes to catch limits and other sustainability measures in advance, more responsive tools to set recreational fishing (eg bag) limits, and an industry transformation plan (with possible support for innovation, including transitioning away from harmful fishing methods like bottom trawling).

Proposals also include targeted initiatives, such as implementing some of the recommendations of the Sea Change – Tai Timu Tai Pari process in the Hauraki Gulf. That includes using available tools to do things like reduce the trawling footprint[165] and create a spatially based fishing plan (the first of its kind);[166] a trial and eventual framework for novel locally-controlled ahu moana areas; and likely bespoke legislation to establish novel high protection areas that allow some customary use.[167] The further development of legislation for Rangitāhua/the Kermadec Islands is also signalled, as is support for new marine development opportunities (eg offshore aquaculture). The South-East Marine Protection initiative is also continuing (to implement a network of marine protected areas in the south-eastern South Island coastal marine area). And despite a chequered history, there is still a commitment to progress new marine protected area legislation (although that may come after more targeted protections through Sea Change and for Rangitāhua/ Kermadec Islands).

Overall, this package is significant. However, equally significant is the signal that this will take place within a broad "vision" for the oceans founded in ecosystem-based management, described as "ensuring the long-term health and resilience of ocean and coastal ecosystems, including the role of fisheries". Cabinet papers refer to a suite of objectives and principles that are intended to support this vision, and the establishment of an Oceans and Marine Ministers Group[168] as well as an inter-agency Oceans Secretariat[169] to progress an integrated work programme. Although what it would comprise and how far it could go is still up in the air, longer-term and deeper reform measures are also mentioned as a possibility,[170] with EDS's project specifically mentioned as an input. There is to be "an assessment of how far the initial work programme will go in realising the vision and objectives, and what future longer-term work may be necessary".[171] It is heartening to see that the horizons for fundamental reform are broadening – including the possibility of institutional change and legislative rearrangement.

The idea of a "vision" for Aotearoa New Zealand's oceans falls short of really being part of the formal "system", and instead should be regarded as a manifesto and mandate for change. But combined with an integrated oceans portfolio, and the coordinated way in which surgical measures are being progressed, it shows that the winds of change are blowing across our seas once again. We say "once again", because the concept of a vision and oceans policy is not new. Twenty years ago there were similar efforts to progress a conversation about marine reform, but these foundered on the rocky reefs of the controversial foreshore and seabed debate. It is worth considering that process as valuable historical context in which reforms will occur in the present.


Muriwai

A spotlight on the oceans policy process of the 2000s

The early impetus for the attempt to develop an oceans policy for Aotearoa New Zealand stemmed back to the early 1990s, when a report following the decommissioning of the research vessel *Rapuhia* drew attention to the potential wealth in the country's relatively unexplored oceans. A group of officials were directed by Cabinet to investigate the matter further and several work streams were pursued during the mid-1990s to investigate a range of matters such as the United Nations Law of the Sea, marine research and hydrography, but not environmental governance or management.[172]

While that narrow scope should have sounded warning bells, this early work did help raise the profile of oceans matters within government. The 1990s was also the decade when the QMS was bedding in, the aquaculture industry was rapidly expanding,[173] Māori claims to commercial fisheries were finally settled (1992),[174] Aotearoa New Zealand ratified the United Nations Convention on the Law of the Sea (1996), and marine mammal tourism was also becoming established around the country.[175] The United Nations Year of the Ocean was held in 1998 and during that year the Environment and Conservation Organisations of Aotearoa New Zealand hosted a conference focused on oceans management. This "brought together a group of New Zealand's leading marine scientists, policy and resource managers to address future directions for management of human impacts at sea".[176]

In March 1999, a group of Ministers (Environment, Conservation and Biosecurity) directed officials to investigate current arrangements for the management of Aotearoa New Zealand's marine environment. It was recognised that oceans management required a whole-of-government approach, and so the Department of the Prime Minister and Cabinet was given the responsibility for managing the ongoing project.[177]

Shortly thereafter, in December 1999, the Parliamentary Commissioner for the Environment released his report *Setting course for a sustainable future: The management of New Zealand's marine environment*. This identified a number of problems with the current ocean management system and recommended the establishment of a Coastal and Oceans Task Force to develop a long-term strategy for the marine environment comprising goals and principles and then actions and policies "for the future sustainable management of New Zealand's marine environment". It was to look out until at least 2043 and consider the pressures, opportunities and potential state of the environment. The Parliamentary Commissioner recommended that the Task Force should be administered by an agency independent of any particular government department or minister, be representative of all key stakeholders, and report directly to the Prime Minister.[178]

On reading the Parliamentary Commissioner's report, the then Prime Minister Hon Helen Clark was reportedly moved to take action to prepare an oceans policy.[179] In March 2000 she appointed Hon Pete Hodgson, the then Minister of Fisheries and Energy as well as Research, Science and Technology, to take over responsibility for the development of an oceans policy for Aotearoa New Zealand.

The development of the oceans policy was officially initiated in July 2000, when cabinet established an ad hoc group of six Ministers (Fisheries, Foreign Affairs and Trade, Conservation, Māori Affairs, Commerce and Environment) to oversee the policy development process. Cabinet directed that the project was to focus on managing the marine environment within Aotearoa New Zealand's jurisdiction and on the interaction between land management and the status and quality of the marine environment and the intertidal zone. It was to identify "clear goals and principles" and provide an "integrated framework" for managing the oceans.[180]

The policy development process was to have three stages. The first stage involved developing a vision. Stage two focused on designing policies to achieve the vision. Stage three was to deliver the policies, processes and tools necessary to achieve the vision (see Figure 3.4).

A Ministerial Advisory Committee, chaired by Hon Dame Cath Tizard, was appointed by Cabinet in March 2001 to undertake wide public consultation in order to assist in defining a vision for oceans policy.[181] Between June and August 2001 the committee undertook an extensive consultation process throughout Aotearoa New Zealand, including 47 public meetings and 24 hui attended by around 2,000 people. The committee also received 1,160 written submissions.[182] In September 2001, the committee produced a report titled *Healthy sea: Healthy society: Towards an oceans policy For New Zealand*. This identified many problems. For the most part these still exist today.

Once the Advisory Committee report had been delivered, a cross-departmental officials group was established, initially led out of the Hon Pete Hodgson's office. The group immediately focused on developing a vision and establishing process goals, values and principles for the development of the oceans policy.[183] To give the initiative more momentum, a small dedicated Oceans Policy Secretariat was subsequently established within the Ministry for the Environment. The work of the Secretariat was overseen by an Ocean Policy Steering Group of officials chaired by the Deputy Chief Executive of the Ministry for the Environment, a

Chief Executives Group comprising the heads of key agencies and, in turn, the ad hoc Ministerial Group which was tasked with providing overall leadership and direction for the project.[184]

The Oceans Secretariat was given the directive to deliver a draft policy within nine months and was given a modest budget of around NZ$1 million.[185] The tight time frame resulted from Ministerial frustration at the slow pace of policy development during the previous two years and the wish to "get something done". As well as focusing on delivering the policy within the stipulated time frame, the Secretariat also aimed to obtain the support of key stakeholders for the policy and to deliver a policy which was tangible and practical, so that people could clearly understand what impact it would have.

After commissioning various pieces of work, the Secretariat prepared a discussion document for approval by cabinet, which outlined the policy options and proposed solutions, and planned to carry out broad public consultation on the preferred policy options during September and October 2003. However, before the paper could go to cabinet, the policy process came to an abrupt halt due to controversy over customary rights to the foreshore and seabed. The discussion document was never made public.

As the political storm around foreshore and seabed matters intensified, the cross-governmental Oceans Policy Secretariat was disbanded and oceans issues handed back to the Ministry for the Environment. However, two projects stemming from the oceans policy initiative did continue. The first was the development of an information-based framework for setting priorities for oceans management and research. The second was an investigation into the environmental regulation of activities beyond the territorial sea.[186] Both projects produced reports in June 2005.

The furore over the foreshore and seabed legislation created a chilling effect over any development of marine policy for many years. In November 2005 the then Minister for the Environment announced that work on Aotearoa New Zealand's oceans policy had recommenced.[187] However, this was more a political statement than actuality. There was no attempt to reconstitute the Oceans Policy Secretariat. But work did continue within government on one matter, the development of a legal framework for the EEZ, with a paper published in 2007 proposing two options for reform, and gap-filling legislation endorsed by Cabinet in 2008.[188] However, it was not until the National Government repealed the Foreshore and Seabed Legislation in 2011 (with the MACA Act) that the new legislation could proceed.

Reforms to the oceans management system will take place against a constantly shifting background of policy, legal and institutional change. The current government has an active reform agenda, and this presents opportunities and potentially constraints for future reform. Most significant will be the implementation of the Randerson Panel's recommendations on resource management reform; targeted changes to fisheries law; and an ongoing and evolving conversation about Māori sovereignty under te Tiriti o Waitangi.

What other elements of reform and social/political context will be important as part of the background against which oceans reform takes place?

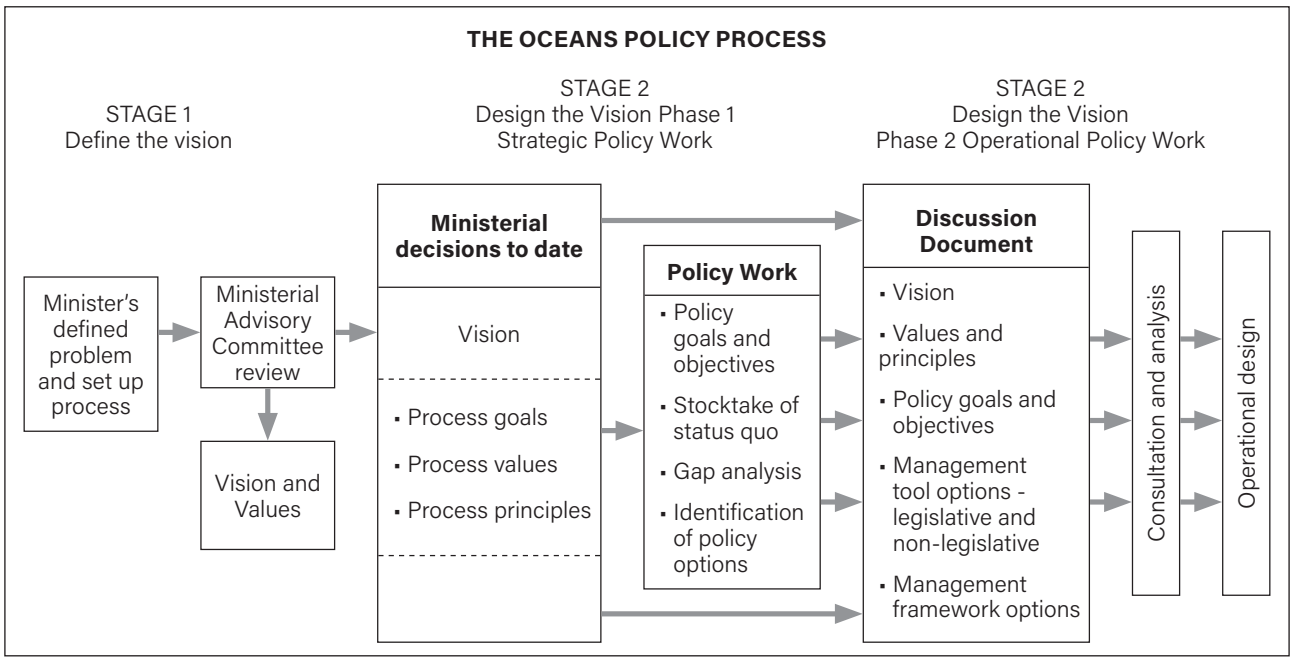


Figure 3.4: The process adopted for the first attempt to develop an oceans policy for Aotearoa New Zealand[189]

3.5 Concluding comments

The last two chapters have been focused mainly on problems. This is important, because if things were going well there would be no impetus for change. Reforms will need to tackle problems head on. They will also need to pre-empt and address future challenges that could emerge. In particular, the system will need to contemplate:

- Human population change, and its implications for the pressures humans will put on oceans (especially in urban areas where population growth will be fastest) and food security (including the role of protein from fish and fish farming)
- Technological change, including the risks this poses for the marine environment (eg novel chemicals, new activities that enable novel or more intensive forms of resource exploitation) but also the opportunities it affords in terms of cleaner industry and enhanced monitoring and information gathering
- Increasing political and economic expectations of Māori, and ongoing settlements and conversations about te Tiriti o Waitangi[190]
- The unpredictability of climate change and its impacts not just directly on the oceans, but also on human society and its use of the marine space
- Social change and the evolving expectations of society
- International developments, including in relation to international marine law but also more macro-level socio-political trends
- The ongoing, unpredictable and cross-cutting implications of Covid-19 and future social and health emergencies.

However, in a first principles rethink of our oceans management system, it is legitimate to go further than just putting out fires and anticipating problems. With the possible exception of the late 1980s, 2021 can arguably be seen as an unprecedented hive of policy activity and creative thinking. Environmental awareness is growing, and Covid-19 has caused an important moment of reflection about our society and what it stands for. Thus we need to think positively – the system is a tool for building our relationship with te moana, not just to reign in the more destructive tendencies of humanity. What opportunities are out there? What do we want our future to be, keeping in mind it is likely to be quite different?[191] What values do we want it to reflect, in our unique cultural context?[192] We have an opportunity to think about creating something new, meaningful and reflective of who we are as a people and a country. What should that look like? This depends on our worldview, ethics and objectives.

Hot Water Beach

ENDNOTES

1 The Panel's work was described as "resource management" reform, but it did not encompass the whole resource management system, including many aspects of marine management (eg the EEZ and fisheries).

2 See Benjamin Dimitrious Hanara and Anne-Marie Jackson *Tangaroa Ara Rau: Tangaroa the Atua of Human Movement* (Ngā Pae o te Maramatanga, 2019).

3 *Re Edwards (Te Whakatohea (No 2))* [2021] NZHC 1025.

4 *Re Edwards (Te Whakatohea (No.2))* [2021] NZHC 1025 at [37]; *Attorney-General v Ngāti Apa* [2003] 3 NZLR 643 (CA). See further *Re Edwards* at [70], [71] and [120]. This approach also aligns with s 99 of the MACA Act which provides for the Court to refer to the Māori Appellate Court or pūkenga for opinion or advice on tikanga. Churchman J also referred to "Kupe's Law" and "Cook's Law" and noted that the courts have started to engage in an analysis of the relationship between the "first and second laws of Aotearoa New Zealand and their impact on the current legal system" at [69].

5 *Re Edwards* at [206].

6 *Re Edwards* at [227]

7 *Re Edwards* at [230]. For the effect of reclamation on customary marine title and protected customary rights claims see [231] – [250]; and regarding third-party structures and use of third-party use and occupation, see [251]-[269].

8 *Re Edwards* at [32]. Churchman J here referred to MACA 2011 s 6(1) and Preamble (4).

9 Per Churchman J in *Re Edwards* at [33].

10 See generally Dame Anne Salmond "Iwi vs Kiwi: Beyond the Binary [Series]" *Newsroom* (online ed, 13 July 2021); Dame Anne Salmond "He Puapua and a Forgotten Promise" *Newsroom* (online ed, 12 July 2021).

11 See Sustainable Seas "Tangaroa" Sustainable Seas National Science Challenge <www.sustainableseaschallenge.co.nz/our-research/tangaroa>.

12 The government can pass legislation consistent with tikanga or create a space for it to be exercised, but it cannot reform tikanga itself.

13 Depending on how one defines a "tool".

14 New Zealand Government "New Zealand's Constitution" The Governor-General <https://gg.govt.nz/office-governor-general/roles-and-functions-governor-general/constitutional-role/constitution/constitution>.

15 See Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation Synthesis Report* (Environmental Defence Society, December 2018).

16 For example, see Fisheries Act 1996, s 2(1) definition for 'farmed fish', and Part 16, s 301.

17 See RMA, s 5(2)(a).

18 Although jurisdiction has recently been re-established under the RMA, it is still by no means clear what can or should be done through that mechanism other than broad considerations like low-emissions urban design.

19 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust & ors* [2019] NZCA 532.

20 Although the latter is little more than a shell through which key parts of the former are deemed to apply beyond the coastal marine area.

21 See Treaty of Waitangi (Fisheries Claims) Settlement Act 1992; Maori Fisheries Act 2004; Maori Commercial Aquaculture Claims Act 2004; Fisheries Act 1996, s 5(b); and Resource Management Act, ss 165E and 165K.

22 See generally Lucy Brake and Raewyn Peart *Sustainable Seas: Managing the marine environment* (Environmental Defence Society, Auckland, 2015).

23 A question is "independent from what?". We are using this term in the sense of independence from government. Accountability is also used in this sense – being accountable to a broad electorate.

24 Such as proposals for new legislation, an oceans vision etc.

25 See Department of Conservation *Te Mana o Te Taiao - Aotearoa New Zealand Biodiversity Strategy 2020* (August 2020).

26 Whether they *are* problems, and the *extent* to which they are problematic, may depend on worldviews.

27 Again, with the caveat that not all will agree on what the rationale for the system is.

28 We might expect more afforestation on land than sequestration in the sea, meaning the role of the oceans management system is far from obvious.

29 Greg Severinsen *Reform of the Resource Management System: A model for the future: Synthesis report* (Environmental Defence Society, December 2019) at 70.

30 See Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation Synthesis Report* (Environmental Defence Society, December 2018).

31 See generally Jane Kelsey *The New Zealand Experiment: A World Model for Structural Adjustment?* (Auckland University Press with Bridget Williams Books, 1995).

32 On such issues more generally, see Quentin R Grafton "Responding to the 'Wicked Problem' of Water Insecurity" (2017) 31(10) Water Resour Manag 3023.

33 See Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at xi and xii.

34 *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38, [2014] 1 NZLR 593.

35 Although it allows "stringency" where more stringent controls can be imposed by councils to achieve the objectives of the NZCPS.

36 See Keep Okura Green Incorporated *Hauraki Gulf and the Long Bay Okura Marine Reserve. Case Study: Weiti Development* (July 2017). DOC is currently undergoing research on the area: Department of Conservation "Long Bay-Okura Marine Reserve sentinel site research" <www.doc.govt.nz/nature/habitats/marine/type-1-marine-protected-areas-marine-reserves/marine-sentinel-site-programme/sentinel-site---long-bay-okura-marine-reserve/>.

37 See Suzannah Dodd and Kay Vopel *Proposal for monitoring sedimentation in the Te Whanganui-a-Hei Marine Reserve* (Auckland University of Technology, Auckland, July 2010) at 2 and A Schwarz, R Taylor, J Hewitt, N Phillips, J Shima, R Cole and R Budd *Impacts of terrestrial runoff on the biodiversity of rocky reefs* (Fisheries New Zealand, New Zealand Aquatic Environment and Biodiversity Report 7, 2006).

38 See V A Froude and R Smith *Area-based restrictions in the New Zealand marine environment* (Department of Conservation, 2004).

39 J Leathwick, K Julian and M Francis *Exploration of the use of reserve planning software to identify potential Marine Protected Areas in New Zealand's Exclusive Economic Zone* (NIWA, June 2006) at 29 and A Reiser, L Watling and J Guinotte "Trawl fisheries, catch shares and the protection of benthic marine ecosystems: Has ownership generated incentives for seafloor stewardship?" (2013) 40 Marine Policy 75. Seamounts have been identified by the United Nations as specific habitats that need protection; however, only half of all seamounts in Aotearoa New Zealand's waters are protected: Ministry for Primary Industries "Benthic protection areas" (16 November 2020) <www.mpi.govt.nz>.

40 Anecdotal evidence suggests that more people are engaging in recreational fishing since Covid-19. There is an argument that recreational fishing is essentially self-moderating, as people do less of it when it becomes harder to catch fish (ie when stocks decline), but that is by no means clear.

41 Fisheries Act 1996, s 13(2).

42 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, 2018) *Sea* at vii.

43 At 53. See also *Royal Forest and Bird Protection Society v Minister of Fisheries* [2021] NZHC 1427.

44 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, 2018) *Sea* at 48-50. There are a range of reasons why the recorded catch may be less than the TAC and this can include the configuration of the fleet or market price for the species. However, it can also reflect a decline in the abundance of the stock, and at the very least, provides a warning sign that the stock may not be healthy and should be assessed.

45 But see proposed measures to change settings: Minister for Ocean and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: landings and discards* (2 July 2021).

46 Dependent species must be considered in setting TAC, but this does not always take into account the complexity of marine ecosystems and trophic cascades.

47 See Wildlife Act 1953, s 7BA and sch 7A.

48 Through providing a defence from prosecution if dolphins are killed "accidentally or incidentally" in the course of fishing and the event is reported and logged. See ss 26(4) and 16 of the Marine Mammals Protection Act 1978. While failure to report under the strict reporting requirements of s 16 is an offence under the Act, there is no penalty for incurring the fishing-related mortality or injury itself.

49 Wildlife Act 1953, s 68B.

50 OpenSeas NZ *Associated Species - Marine Mammals: Section Detail Report* (29 May 2019), p4.

51 Fisheries Act 1996, s 15(1).

52 Marine Mammals Protection Act 1978, s3H(1)(n).

53 Kate Mulcahy and Raewyn Peart *Wonders of the Sea: The protection on New Zealand's marine mammals* (Environmental Defence Society, Auckland, 2012) at 80-82.

54 Fisheries Act 1996, ss 8 and 9.

55 Resource Management Act 1991, pt 2.

56 EEZ Act 2012, s 10.

57 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020) at 52.

58 At 52.

59 See New Zealand Coastal Policy Statement 2010.

60 *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38, [2014] 1 NZLR 593 at [130].

61 See generally Kate Mulcahy, Raewyn Peart and Abbie Bull *Safeguarding Our Oceans* (Environmental Defence Society, Auckland, 2012) at Chapter 8.

62 *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38, [2014] 1 NZLR 593 at [24].

63 It is telling that the Court's solution (to litigants seeking to use Part 2 to override more specific limits in subordinate instruments) was not to say Part 2 imposes limits, but rather to say Part 2 cannot be used to override instruments that *do* impose limits. This is essentially saying that Part 2 itself is reasonably weak.

64 *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38, [2014] 1 NZLR 593 at [148]-[149].

65 *Environmental Defence Society Inc v Otago Regional Council* [2019] NZHC 2278 [*Port Otago*].

66 See New Zealand Coastal Policy Statement 2010, policy 22(3): "Control the impacts of vegetation removal on sedimentation including the impacts of harvesting plantation forestry." Compare National Environmental Standards for Plantation Forestry 2018. See Madeleine Wright, Sally Gepp and David Hall *A Review of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017* (Environmental Defence Society, Auckland, April 2019) at 15 which explains that although the NES for Plantation Forestry allows councils to apply more stringent rules to protect significant natural areas in the coastal marine area (as specified in Policy 11 of the NZCPS), in practice only a few councils have identified such areas and as a result, ecologically significant coastal sites may not receive adequate protection from sedimentation impacts through regional rules.

67 See Environmental Defence Society "Submission on the Natural and Built Environments Bill (Exposure Draft) 2021", <www.eds.org.nz/our-work/media/media-statements/media-statements-2021/changes-needed-to-strengthen-the-exposure/>.

68 Resource Management Act 1991, s8.

69 Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act, s 12. In practice, the Act has been read in a much wider light, despite this narrow Treaty clause. See *Trans-Tasman Resources Ltd v Taranaki-Whanganui Conservation Board* [2020] NZCA 86 at [133]-[180].

70 See Deidre Koolen-Bourke and Raewyn Peart *Conserving Nature: Conservation System Reform Issues Paper* (Environmental Defence Society, 2021); *Ngāi Tai ki Tāmaki Tribal Trust v Minister of Conservation* [2018] NZSC 122; and Waitangi Tribunal *Ko Aotearoa Tenei: A Report into Claims Concerning New Zealand Law and Policy Affecting Māori Culture and Identity* (Wai 262, 2011).

71 Waitangi Tribunal *Ko Aotearoa Tenei: A Report into Claims Concerning New Zealand Law and Policy Affecting Māori Culture and Identity* (Wai 262, 2011); *Ngāi Tai ki Tāmaki Tribal Trust v Minister of Conservation* [2018] NZSC 122; and Ministry for the Environment *Natural and Built Environments Bill Exposure Draft* (June 2021).

72 See Ministry for the Environment *Natural and Built Environments Bill Exposure Draft* (June 2021), proposed s 6.

73 Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012, s 12. See Robert Joseph and others *Stemming the Colonial Tide: Shared Maori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 254–266.

74 See Robert Joseph and others *The Treaty, Tikanga Maori, Ecosystem-based Management, the RMA and Power Sharing for Environmental Integrity in Aotearoa New Zealand – Possible Ways Forward* (Te Mata Hautū Taketake – the Māori and Indigenous Governance Centre Te Piringa-Faculty of Law, University of Waikato, 2019) at 3.

75 At 108.

76 See *Re Edwards (Te Whakatohea (No.2))* [2021] NZHC 1025 on determining the existence of customary marine title under the MACA Act.

77 Jo Moir "Govt no closer to landing Kermadec Sanctuary" *Newsroom* (online ed, 15 March 2021).

78 Waitangi Tribunal *The Marine and Coastal Area (Takutai Moana) Act 2011 Inquiry Stage 1 Report* (Wai 2660, 2020).

79 Marine Reserves Act 1971, long title.

80 Deidre Koolen-Bourke and Raewyn Peart *Conserving Nature: Conservation System Reform Issues Paper* (Environmental Defence Society, 2021).

81 See Crown Minerals Act 1991, s 1A and Continental Shelf Act 1964.

82 Parliamentary Commissioner for the Environment *Setting course for a sustainable future* (1999), preface.

83 That said, there have been other drivers for place-based legislation, such as the desire to implement packages of tools together (not just protected areas) and to be more focused in terms of implementation.

84 See for example Sea Change Tai Timu Tai Pari *Hauraki Gulf marine spatial plan* (May 2017), chapter 6; Minister for Oceans and Fisheries *Revitalising the Hauraki Gulf – Government Sea Change Strategy* (2 July 2021).

85 Geoffrey Palmer "Law-making in New Zealand: Is there a better way?" (2014) 22 Wai L Rev 1 at 5.

86 Parliamentary Commissioner for the Environment *Setting course for a sustainable future* (1999), preface.

87 S Behrens and R Constantine *Large whale and vessel collisions in northern New Zealand* (Report for consideration by the Scientific Committee of the International Whaling Commission, 2008).

88 Raewyn Peart *Bryde's whale voluntary protocol case study* (Unpublished report prepared for the Sustainable Seas National Science Challenge, Environmental Defence Society, 2017).

89 Raewyn Peart *Bryde's whale voluntary protocol case study* (Unpublished report prepared for the Sustainable Seas National Science Challenge, Environmental Defence Society, 2017).

90 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust* [2019] NZCA 532.

91 For example, the marine dumping ground off Cuvier Island is just outside the boundary of the coastal marine area.

92 S Elias *Righting environmental justice* (address to the Resource Management Law Association, 25 July 2013) at 2. Compare TM Lenihan and J Bartley *Review of Māori planning futures: Review of the Productivity Commission's "Better urban planning" draft report* (Nga Aho and Papa Pounamu, 2016) at 36.

93 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018).

94 MWD White *Australian Marine Pollution Laws* (2nd ed, The Federation Press, Annandale (NSW), 2007) at 186.

95 Bevan Marten *Maritime Law in New Zealand* (Thomson Reuters, 2016) at 66.

96 See *Laws of New Zealand* Maritime Law: Shipping and Navigation (online ed) at [2.11]

97 Under the Maritime Transport Act the Director of Maritime New Zealand and the Minister of Transport have broad powers to make delegated legislation by way of maritime rules to regulate maritime activity, and marine protection rules to implement international conventions and standards relating to the marine environment.

98 Bevan Marten *Maritime Law in New Zealand* (Thomson Reuters, 2016) at 66.

99 See for example *Attorney-General v The Trustees of the Motiti Rohe Moana Trust* [2019] NZCA 532.

100 The NES Marine Aquaculture can hardly be said to be designed to implement the policies of the NZCPS – it is a much more targeted reconsenting tool.

101 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust* [2019] NZCA 532.

102 See EEZ Act 2012, s 37A.

103 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at 128.

104 At 14. See also Fisheries Act ss 25A and 25B.

105 At 14-15.

106 At vii, 38 and following.

107 Kate Mulcahy and Raewyn Peart *Wonders of the Sea: The protection on New Zealand's marine mammals* (Environmental Defence Society, Auckland, 2012) at 80.

108 Deidre Koolen-Bourke and Raewyn Peart *Conserving Nature: Conservation System Reform Issues Paper* (Environmental Defence Society, Auckland, 2021) at 72.

109 Kate Mulcahy, Raewyn Peart and Abbie Bull *Safeguarding Our Oceans* (Environmental Defence Society, Auckland, 2012) at 101.

110 See for example Seachange "Sea Change" <www.seachange.org.nz>.

111 See Department of Conservation *Te Mana o Te Taiao - Aotearoa New Zealand Biodiversity Strategy 2020* (August 2020).

112 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018), at chapter 5.

113 Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation – Synthesis Report* (December 2018) at 114.

114 See for example, Waitangi Tribunal report *The Final Report on the M V Rena and Motiti Island Claims* (Wai 2391 and 2393, 2015) at 39-43 and 57-58.

115 See Robert Joseph and others *The Treaty, Tikanga Māori, Ecosystem-Based Management, Mainstream Law and Power Sharing for Environmental Integrity in Aotearoa New Zealand – Possible Ways Forward* (Te Mata Hautū Taketake – the Māori and Indigenous Governance Centre, Te Piringa-Faculty of Law, University of Waikato, 2019).

116 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at 121.

117 Although protected areas have been/are being progressed on a considered basis in places like the subantarctic Islands, the West Coast of the South Island, South-East Otago and the Hauraki Gulf, these processes are not framed by an overarching legislative framework or common/predictable process.

118 New Zealand Government "Kermadec Ocean Sanctuary Bill introduced" (press release, 9 March 2016).

119 PEW "Global Ocean Legacy" <https://www.pewtrusts.org/en/projects/archived-projects/global-ocean-legacy>.

120 New Zealand Government *Departmental disclosure statement: Kermadec Oceans Sanctuary Bill* (26 February 2016).

121 New Zealand Government *Establishment of a Kermadec Ocean Sanctuary* (Cabinet Economic Growth and Infrastructure Committee, 10 September 2015).

122 Kermadec Ocean Sanctuary Bill 2016 (B120-2), cl 3.

123 Ben France-Hudson "The Kermadec/Rangitāhua Ocean Sanctuary: Expropriation-free but a breach of good faith" [2016] Resource Management Theory and Practice at 61.

124 Ministry for the Environment *A new Marine Protected Areas Act: Consultation document* (ME 1224, January 2016).

125 Toni Love "The Kermadecs conundrum: Marine protected areas and democratic process" (2017) 13(2) Policy Quarterly 17 at 20.

126 Parliamentary Commissioner for the Environment *A review of the funding and prioritisation of environmental research in New Zealand* (December 2020) at 35, 45 and following.

127 At 3.

128 At 72.

129 At 37.

130 At 57.

131 At 52.

132 At 49.

133 At 41; see also Waitangi Tribunal *Ko Aotearoa Tenei: A Report into Claims Concerning New Zealand Law and Policy Affecting Māori Culture and Identity* (Wai 262, 2011) at 561 and following.

134 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 3. See also Fisheries New Zealand *Aquatic Environment and Biodiversity Annual Review 2019-2020* (Ministry for Primary Industries, June 2020).

135 See for example Office of the Prime Minister's Chief Science Advisor *The Future of Commercial Fishing in Aotearoa New Zealand* (February 2021) at 108 and following.

136 Parliamentary Commissioner for the Environment *A review of the funding and prioritisation of environmental research in New Zealand* (December 2020) at 76.

137 Department of Conservation "New Zealand mangroves and seagrass database" (November 2018) Seasketch <https://www.seasketch.org/#projecthomepage/5357cfa467a68a303e1bb87a>; and Ministry for Primary Industries "National Aquatic Biodiversity Information System" <https://maps.mpi.govt.nz/templates/MPIViewer/?appid=96f54e1918554ebbaf17f965f0d961e1>.

138 Parliamentary Commissioner for the Environment *Setting course for a sustainable future* (1999), preface.

139 For example, is our system of Crown Research Institutes and the way central government is configured to fund and directly deliver research adequate?

140 For example, are funding tools available to regional councils sufficient for them to discharge their responsibilities in managing marine habitats and biodiversity?

141 Parliamentary Commissioner for the Environment *A review of the funding and prioritisation of environmental research in New Zealand* (December 2020) at 3.

142 See Office of the Prime Minister's Chief Science Advisor *The Future of Commercial Fishing in Aotearoa New Zealand* (February 2021).

143 The Convention on Biological Diversity 1760 UNTS 69 (opened for signature 5 June 1992, entered into force 29 December 1993).

144 See for example Eugenie Sage "International report card on New Zealand's indigenous nature – we must do better" (4 April 2019).

145 See Ministry for the Environment "Essential freshwater new rules and regulations" (April 2021) <www.environment.govt.nz>; and Ministry for Primary Industries "Productive and Sustainable Land Use" (16 November 2020) <www.mpi.govt.nz>.

146 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust & ors* [2019] NZCA 532.

147 Ministry of Business, Innovation and Employment *Responsibly delivering value - a minerals and petroleum resource strategy for Aotearoa New Zealand: 2019 – 2029* (November 2019).

148 *Environmental Defence Society Inc v Otago Regional Council* [2019] NZHC 2278.

149 *Royal Forest and Bird Protection Society v Minister of Fisheries* [2021] NZHC 1427.

150 *Trans-Tasman Resources Ltd v Taranaki-Whanganui Conservation Board* [2020] NZCA 86.

151 Minister for Oceans and Fisheries *Oceans and Fisheries portfolio – ensuring healthy ecosystems* (2 July 2021).

152 P Majurey and C Whata "Maori and Environmental Law" in *Environmental and Resource Management Law* (LexisNexis, online ed, 2021) at [14.69].

153 Robert Joseph and others *Stemming the Colonial Tide: Shared Maori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 288.

154 See generally Jacinta Ruru "Indigenous Ancestors" in Sumundu Atapattu and others (eds) *The Cambridge Handbook of Environmental Justice and Sustainable Development* (Cambridge University Press, Cambridge, 2021) 183.

155 Claire Charters and others *He Puapua: Report of the Working Group on a Plan to Realise the UN Declaration on the Rights of Indigenous Peoples in Aotearoa New Zealand* (Te Puni Kōkiri, 1 November 2019).

156 Anne Salmond "He Puapua and a Forgotten Promise" *Newsroom* (online ed, 12 July 2021).

157 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020).

158 Ministry for the Environment *Natural and Built Environments Bill Exposure Draft* (June 2021).

159 With some exceptions, notably the absence of mandatory targets. See also Environmental Defence Society "Submission on the Natural and Built Environments Bill (Exposure Draft) 2021", accessible at https://www.eds.org.nz/our-work/media/media-statements/media-statements-2021/changes-needed-to-strengthen-the-exposure/.

160 See Minister for Oceans and Fisheries *Oceans and Fisheries portfolio – ensuring healthy ecosystems* (2 July 2021); Minister for Oceans and Fisheries *Fisheries system reform agenda* (2 July 2021); Minister for Oceans and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: landings and discards* (2 July 2021); Minister for Oceans and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: offences and penalties and agile decision-making* (2 July 2021); Minister for Oceans and Fisheries *Revitalising the Hauraki Gulf – Government Sea Change Strategy* (2 July 2021); Minister for Oceans and Fisheries *Initial response to Prime Minister's Chief Science Advisor's report on commercial fishing* (2 July 2021); and Minister for Oceans and Fisheries *On-board cameras across the inshore fishing fleet* (2 July 2021).

161 Minister for Oceans and Fisheries *Fisheries system reform agenda* (2 July 2021).

162 Office of the Prime Minister's Chief Science Advisor *The Future of Commercial Fishing in Aotearoa New Zealand* (February 2021).

163 Around 300 inshore fishing boats are intended to have cameras by 2024.

164 Which is to be rolled out over several years to maintain the value of quota as fishers transition to more selective methods of fishing to avoid non-target species. QMS species, whether alive or dead, will need to be landed unless an exemption is issued by the Minister for Oceans and Fisheries. In other words, fishers will have to account for all fishing mortality against ACE or deemed values, creating an incentive to avoid fish that has low or no value to them – in simple terms, if you kill it you will need to pay for it.

165 Methods such as bottom trawling and Danish seining will be excluded from the Hauraki Gulf except within limited trawl corridors. Recreational scallop dredging will be banned and commercial scallop dredging limited to its current footprint.

166 And establishment of a multi-stakeholder Hauraki Gulf Fisheries Plan Advisory Group.

167 Expanding the Leigh and Hahei marine reserves as well as establishing 11 new High Protection Areas and 5 new Seafloor Protection Areas. There is an intention to use new legislation to achieve this, to avoid "the antiquated procedures in the Marine Reserves Act".

168 Comprised of the Minister of Oceans and Fisheries, Minister for the Environment, Minister of Conservation and the Under-Secretary for Oceans and Fisheries.

169 Hosted by the Department of Conservation. This comprises officials from the Ministry for Primary Industries and Ministry for the Environment, and is supported by other agencies as required.

170 One Cabinet paper suggests this "could consider issues such as: Marine spatial planning across the territorial sea and the EEZ... comparisons with oceans governance and ecosystem-based management in other jurisdictions, and their potential suitability in the New Zealand context...i.e. legislative, institutional and funding arrangements, including the incorporation of Māori world views and interests..." (Minister for Oceans and Fisheries *Oceans and Fisheries portfolio – ensuring healthy ecosystems* (2 July 2021) at 8-9).

171 At 8.

172 Patrick Helm "New Zealand's ocean future opportunities and responsibilities" in Catherine Wallace, Barry Weeber and Sam Buchanan (eds) *Seaviews marine ecosystem management: obligations and opportunities*, (Environment and Conservation Organisations of New Zealand, Wellington, 1998) at 251.

173 Raewyn Peart *Farming the sea* (Environmental Defence Society, Auckland, 2019) at 6.

174 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at 19-21.

175 Raewyn Peart *Dolphins of Aotearoa: Living with New Zealand dolphins* (Craig Potton Publishing, Nelson, 2013) at 159-160.

176 Parliamentary Commissioner for the Environment *Setting course for a sustainable future: The management of New Zealand's marine environment* (1999) at 1.

177 Carolyn Risk "An oceans policy for New Zealand: Why, what, how?" (Office of the Hon Pete Hodgson, Wellington, 2002) at 2.

178 Parliamentary Commissioner for the Environment *Setting course for a sustainable future: The management of New Zealand's marine environment*, (1999) at 99-100.

179 Pete Hodgson, Minister of Fisheries and Forestry 2000 "The oceans policy: Managing NZ's marine environment" (Energy and Natural Resources Law Association, 12 October 2000) at 6.

180 Carolyn Risk "An oceans policy for New Zealand: Why, what, how?" (Office of the Hon Pete Hodgson, Wellington, 2002), at 2.

181 Ministerial Advisory Committee on Oceans Policy *Healthy sea: Healthy society: Towards an oceans policy for New Zealand* (Oceans Policy Secretariat, 30 September 2001) at 53-54.

182 At 3.

183 Carolyn Risk "Oceans policy project: Structure and methodology for stage two" (Ad Hoc Ministerial Group on Oceans Policy, 2002) at 7.

184 Oceans Policy Secretariat, "The team" (2003) *Oceans Blueprint* 1 at 7.

185 Carolyn Risk *Oceans policy: Stage two work programme* (Ad Hoc Ministerial Group on Oceans Policy, 2002) at 9.

186 Ministry for the Environment *Offshore options: Managing environmental effects in New Zealand's exclusive economic zone* (Ministry for the Environment, 2005).

187 Michael Vincent McGinnis *Ocean governance: The New Zealand dimension* (Victoria University of Wellington, 2012) at 34.

188 Karen Scott "Does Aotearoa New Zealand need an oceans policy for modern oceans governance?" (2021) 35 *Ocean Yearbook* at 25-26.

189 Raewyn Peart *Looking out to sea: New Zealand as a model for oceans governance* (Environmental Defence Society, Auckland, 2005) at 184.

190 A specifically Māori economy is thought to currently be around $50 billion. See Chapman Tripp *Te Ao Māori: Trends and insights* (June 2017) ; The Treasury *He tirohanga mokopuna: 2016 statement in the long-term fiscal position, New Zealand* (22 November 2016).

191 Greg Severinsen and Raewyn Peart *Reform of the resource management system: The next generation* (Environmental Defence Society, 2019), at ch 3.

192 At 38; Waitangi Tribunal *Te Paparahi o Te Raki (Northland)* (Wai 1040, 2014); Waitangi Tribunal *Ko Aotearoa Tenei: A Report into Claims Concerning New Zealand Law and Policy Affecting Māori Culture and Identity* (Wai 262, 2011); and Waitangi Tribunal *The stage 2 report on the national freshwater and geothermal resources claims* (Wai 2358, 2019).

CHAPTER **FOUR**

Norms

Recreational fishing on mussel farms, Hauraki Gulf

4.1 Introduction

If one looks up while walking down the northern end of Wellington's Lambton Quay, one sign is particularly prominent: it has been posted by controversial businessman Sir Bob Jones, and reads "save the krill, kill the whales". One may assume it is there for shock value. But it's author's point, he says, is genuine – to highlight the inordinate moral value that humans place on large creatures relative to small ones.[1] Whether or not one agrees with the specific message, it does highlight the interesting relationship between the different things we are trying to achieve through the oceans management system, not all of which are well defined or even deeply questioned.

Are we concerned about overall ecosystem health, and its productive capacity (food and other ecosystems service)? Preventing the extinction of threatened species? Preventing cruelty to animals? Protecting the lives of individual animals that we, as humans, tend to value above others for whatever reason? And why do we do any of these things? For us, or for "nature"? Western responses could differ. A te ao Māori lens may give quite different answers, pointing out that the compartmentalisation of such questions is itself the wrong approach. Aren't we instead concerned with the mauri and ora (wellbeing) of the moana, and the connected mana of the kaitiaki?

In our final report, we will provide a more structured exploration into the norms that could underpin a future system – what it should be aiming to do and achieve. For the purposes of this paper, our focus is on (1) suggesting a framework for thinking about norms; (2) posing some of the key questions that will need to be addressed; and (3) testing assumptions about what normative change could look like.

This working paper is outlining a structure for thinking about the normative discussion that will drive oceans management reform – what we should be seeking to achieve. It is also testing some ideas and assumptions about worldviews and what they mean for tangible reform options. We intend to provide a fuller normative framing in our final report.

The relationship between norms and problems

A short word should be said about the relationship between norms and the problems described in Chapters 2 (with the marine environment) and 3 (with the system). In a way, leaving norms until now is like putting the cart before the horse. Although some problems are obvious – and there is a great deal of consensus about them – they cannot be diagnosed without a sense of what our values are.

What is problematic for one person may not be at all for another. And even if there is an agreement that something is a problem, the way that is expressed (eg in terms of biophysical, social or metaphysical dimensions) can be different depending on one's values. That makes it a very different kind of problem, not just a different way of articulating the same problem. It can be the case for Māori versus non-Māori, where the reason something is seen as a problem can be quite distinct (eg that the norms underpinning legislation do not reflect tikanga, that governance structures undermine the kaitiaki functions of iwi/hapū, that Hinemoana is suffering, or that tangata whenua feel a sense of shame or loss of manaakitanga with a loss of mahinga kai).

Furthermore, the solution to one problem can often create or exacerbate another, and the system must strike a balance between the two. In that case, there is unlikely to be consensus as to whether there is truly a problem or not, because trade-offs can be quite finely weighted. For example, a lack of public participation (including appeal rights) in fisheries decision-making might be seen as problematic by some, but the additional time and cost associated with providing such rights might be *more* of a problem for others. Similarly, the complexity of the system might be seen as a problem by some, but others might lament the lack of certainty that could come from over-simplifying a system that deals with a very complex subject. In other words, something may be accepted as negative, but still be seen as a trade-off worth making. Is that still a "problem"?

Whether a "complaint" about the system can be diagnosed as a "problem" depends on a careful assessment of what (and whose) values should underpin it. As such, it might be better to characterise Chapters 2 and 3 as being about issues to be grappled with.

Of course, we should not leave the impression that problems with the system are entirely subjective. Some outcomes or system features are obviously problematic no matter what worldview one holds – such as the collapse of marine habitats or inconsistencies in the norms underpinning our statutes. Yet even where there is a high degree of consensus, it is worth interrogating *why* we think such things are bad, because different worldviews might give different answers (and therefore different solutions).

It is not possible to definitely diagnose problems without first having a sense of what we want to achieve, and therefore what we perceive as going wrong. However, it is fairly clear that some outcomes described in Chapter 2 are "problematic" and need to be addressed.

Is it possible to have a purely objective assessment of problems? Which of the problems identified in Chapters 2 and 3 are there likely to be consensus about?

4.2 A framework for thinking about norms

There are several elements to norms, and they should be tackled in a logical order. The first element is really about the scope of the system itself – whether there should be constraints on what the system, being a set of *public* interventions, should be allowed to do and what should instead be left to private persons to determine themselves. For example, some may be of the view

that the system should only step in where there is an "externality" that needs to be "internalised" (ie where the market has failed), and that the system should not interfere in private property except where absolutely necessary. That has implications, for example, for whether the QMS is regarded as being part of the "system" that is amenable to reform, and whether it could be replaced or fundamentally changed.

At the other end of the spectrum, some may be of the view that the system should be much more directive and perform a wider range of roles – such as transitioning away from a particular "sunset" industry towards a different "desirable" one, reallocating resources to create a fairer society, or even embracing a "planned economy" in the marine space because it is a "commons". There is a lot of debate possible between those extremes.

Once we have a sense of what roles the oceans management system might play – when it is legitimate for it to intervene in *some* way – we can turn our mind to what it is trying to achieve when performing those roles. For example, the system might be expected to set environmental limits *somewhere*, but where exactly should they be set, and why? And who should be setting them? Why should we allocate a resource to one person and not another? Perhaps surprisingly, the current system fails to provide clear or consistent answers to such questions.

What we want the system to achieve ultimately depends on our worldviews. This is the second key element of our normative inquiry. People's worldviews can differ markedly. For example: do we see the oceans as being a collection of resources to be husbanded carefully for future human use? Do we see te moana and the elements within it as a metaphysical entity capable of rights, interests and pain? Why is it wrong to hunt marine mammals but permissible to kill some by accident in fishing nets? Is access to the oceans and its resources a "birth right" for all New Zealanders, or just those who can afford to pay for it (like land)? And what is the nature of our moral obligation to future generations?

Whale stranding, Coopers Beach

A spotlight on valuing marine species

Some marine decision-making is based on the premise that it is an ethically bad thing to make a species extinct. That is arguably an eco-centric way of thinking; it is unlikely to undermine ecosystem services or impact on people's everyday lives if the Māui dolphin were no longer with us, just as we do not tend to notice any tangible effects from the demise of the moa. Yet it undeniably *matters*. A recent Cabinet paper has said, for example, that the rollout of cameras on boats will be "targeted to those fisheries that pose the greatest risk to protected species"[2] and a pilot project was focused on fishing in areas known to be frequented by the Māui dolphin.

But is it wrong to kill a wild animal if the population of that species is healthy? We commonly kill wild fish, for example, and manage that harvest on the basis of maximum sustainable yield. We rarely frame that activity as a moral choice, as to whether it is right or wrong to kill marine life, other than as an animal welfare issue (that the method of capture should be humane). But we treat marine mammals differently.

The 1978 Marine Mammals Protection Act makes it illegal to hunt (or otherwise harass) a marine mammal without a permit. The legislation followed that in the United States (the Marine Mammals Protection Act 1972) and was in the wake of the anti-whaling movement, which argued that whales had a right to life. The New Zealand Government has since been a strong supporter of the moratorium on whaling and has opposed the resumption of so-called scientific whaling by Japan.[3] Although this position has been partly based on the unsustainability of whaling, which decimated wild stocks, it also reflects the value placed on the intrinsic values of whales as well as abhorrence at the inhumane nature of whale harvesting practices.[4]

Dolphins have been the subject of a more interesting legislative history in Aotearoa New Zealand. There have been regulations designed to protect individual animals (as opposed to a species in general). Pelorus Jack, the Risso's dolphin that followed ferries in Pelorus Sound during the late 1880s, prompted special regulations under the Sea Fisheries Act 1894 that prohibited the harvest of Risso's dolphins in Cook Strait. They were designed to protect Pelorus Jack from hunting (which was legal at the time). In 1956, the Fisheries (Dolphin Protection) Regulations made it unlawful for anyone to take or molest a dolphin in the Hokianga Harbour, designed specifically to protect Opo, a bottlenose dolphin that had befriended humans there.[5]

Dolphins are highly intelligent animals capable of abstract thought and altruistic behaviour. Some have argued that dolphins have such impressive cognitive and social capabilities that they should be given a different legal status from other animals – that of a "non-human" person.[6] So if they are highly intelligent creatures, capable of strong social bonding and suffering (recall the recent story of the orca mother who carried around the carcass of her dead calf for 17 days),[7] is it wrong to kill dolphins? The prohibition on (unpermitted) hunting in the Marine Mammals Protection Act implies this is the case; it equally applies to threatened and non-threatened species. But on the other hand, around 100 common dolphins are killed each year in trawl fisheries,[8] and this is enabled through a provision in the Act that provides a defense to prosecution if dolphin bycatch is reported. Common dolphins are not generally thought to be threatened. But equally, they are not regarded as a "pest" species where numbers need to be controlled. So if one accepts it is wrong to hunt them,[9] why is it okay for them to be entangled in fishing nets?

Going even further, why is it ethically defensible to carve out a special place for marine mammals like dolphins and whales, but to allow other non-threatened species to be killed? Arguably our perception of marine mammals is less an eco-centric ethic than it is a projection of our anthropocentric bias; the more a creature behaves or thinks like us, the more it seems to matter.

Te ao Māori is one way of seeing and living in the world, existing over centuries and incubated within an integrated social and cultural setting. It remains a powerful worldview amongst Māori in modern Aotearoa New Zealand, but it is not one that forms the foundations of our current oceans management system (even though components of it are present).[10]

Māori values are not homogenous. There is considerable diversity, just as there is within a "Western" worldview. That said, te ao Māori has strong common cultural roots. Hirini Moko Mead emphasised that "culture provides the general template of what Māori society was and is about. Through time the people developed systems that covered all aspects of life" led by the ancestors and then evolved down through the generations to form the modern Māori culture of today.[11] This is the ethical system and a system of common law that is referred to as tikanga Māori.

Through the lens of te ao Māori the environment is not seen as a collection of resources to exploit for human benefit, nor as a separate entity to protect; rather, people are seen as part of a cosmological system based on kinship, respect and reciprocity.[12] Every aspect of corporeal and incorporeal life is connected. Robert Joseph explained that:[13]

> A traditional Māori cultural worldview ... was based on the Māori cosmogony (creation stories) that provided a blueprint for life setting down innumerable precedents by which communities were guided in the governance and regulation of their day-to-day existence. Māori

> worldviews generally acknowledged the natural order of living things and the kaitiakitanga (stewardship) relationship to one another and to the environment. The overarching principle of balance underpinned all aspects of life and each person was an essential part of the collective. Māori worldviews are therefore ones of holism and physical and metaphysical realities where the past, the present and the future are forever interacting. The maintenance of the worldviews of life are dependent upon the maintenance of the culture and its many traditions, practices and rituals.

It has also been pointed out that the essence or the philosophy that informs tikanga Māori is based on relational and genealogical connection to all facets of the environment:[14]

> Whakapapa is not only a genealogical construct of who we are and where we are from, but it narrates our life through the people and places we come from. More importantly, it is a cultural tool used in connecting us to the environment which in turn, spiritually denotes a relationship to the atua (gods) who personify and represent these realms. Whakapapa therefore dictates our genealogical link back to our natural environment and therefore the atua that reside within these domains.
>
> Māori atua exist as personifications of the natural world. [They] are derived from Māori mythology, theology, knowledge and history passed down as tradition through generations. The domains they represent are inherited by Māori and these environments become not only part of our culture, but part of our whakapapa.

The sea, te moana, has a central place in Māori worldviews. Māori have always been a seafaring people, tracing their histories back to Polynesia. The well-known origin story of Aotearoa sees the hero Maui catch the great fish of the North Island – te Ika a Maui – from his waka. This emphasises, according to some te ao Māori traditions, that the oceans were the place from which life itself first appeared. It continues to have great significance, not just as a source of kai and resources, but as a powerful element in a tightly woven tapestry of existence. According to some:[15]

> In the most well-known version of the Māori creation story, Tangaroa is the son of Papatūānuku, the earth mother, and Ranginui, the sky father. He is one of the 70 children who, when earth and sky were separated, went to live in the world that was created.

This is the story that tells how the atua became the family entrusted to take care of specific areas of the environment. Oral tradition also says that Tane was the one who created the female element from the clay of Papatūānuku named Hineahuone, and she then coupled with Tane to produce the first human being named Hinetitama. It is this whakapapa that connects/links and infuses Māori to the environment. Moreover:[16]

> In some genealogies human history is traced from fish to amphibian, before finally taking human form. Perhaps the most well-known expression of this idea can be found in the whakairo (wood carvings) which adorn meeting houses throughout the country. The bulbous heads of the carved ancestors, their three fingers and serpentine bodies indicate the belief that humankind had marine origins.

Other commentators have noted other oral traditions that relate to the Māori creation story:[17]

> Tangaroa was one of the many children involved and saw the repercussions of Tāne separating Ranginui and Papatūānuku. This separation caused conflict between the atua, more specifically to Tāwhirimātea who resented the thought of separating their parents. Tāwhiri expresses his rage through his control over the weather and how it continues to beat down on the domains of his siblings who remained with Papatūānuku. Some of this reflected on Tangaroa as the rage caused a separation of the sea creatures as some fled to land and the others fled deep into the ocean.
>
> Tangaroa has whakapapa to connect the waters that rain down on our mountains and down through our valleys, fresh waters that run through our land, water that nourishes our soil, to the waters that we consume and comprise 80% of our human body.[18]

This account of atua linked to each other and to people through whakapapa – in tension and harmony – conceptualises the environment as it is; not a series of separate domains and mapped boundaries, but rather as connected spheres, each with its own champion. In much Māori lore, the sea is something to be feared and respected – it takes on a human face and a human sense of injustice – not just a challenge to be conquered or a resource to be exploited.[19]

While the Māori worldview is a spiritual one encapsulated in a rich oral storytelling tradition, it is also one that is translated into practice. It is ultimately designed to explain the world and guide human behaviour. Tikanga is central to the Māori outlook. Robert Joseph describes this as "values, principles, ethics or norms that determine appropriate conduct, the Māori way of doing things, and ways of doing and thinking held by Māori to be just and correct".[20] It is about *doing*, not just *explaining*. Further, Hirini Moko Mead has said of tikanga that:[21]

> It is difficult to imagine any social situation where tikanga Māori has no place ... Tikanga Māori might be described as the Māori ethic ... Tika means "to be right" and thus tikanga Māori focusses on the correct way of doing things ... From this standpoint it is but a short step to seeing tikanga Māori generally as a normative system.

To emphasise, tikanga Māori values include the following:[22]

1. Whanaungatanga – "the centrality of relationships to Māori life";

2. Manaakitanga (and kaitiakitanga) – "nurturing relationships, looking after people, and being very careful how others are treated" and an ethic of guardianship;
3. Mana – "the importance of spiritually sanctioned authority and the limits on Māori leadership";
4. Tapu/noa – "respect for the spiritual character of all things";
5. Utu – "the principle of balance and reciprocity".

These values are intertwined with intangible or spiritual relationships as an absolute foundation to Māori society as well as the key institutions of te ao Māori.[23] Robert Joseph has added whanaungatanga (maintaining kin relationships with humans and the natural world); koha (gift exchange); aroha (charity and generosity); mauri (recognition of the life-force of persons and objects); and hau (respect for the vital essence of a person, place or object).[24] Tikanga is also bound up with customary rights and practices, including with respect to the use of marine areas and the cultural harvest of marine species (including some protected species).

These are general concepts of tikanga that Māori embrace, and could be used to anchor a future oceans management system. However, pinning down such concepts or defining them in a Western framework of formal legal mechanisms like legislation, regulation and institutions can prove challenging. For example, commentators have pointed out the challenge of defining tikanga Māori through a Western judicial system:

> metaphysical concepts do not fit well within this objective framework, which depends on the presence of physical facts that can be quantified by science in order to render them more or less probative...[25]

> there is danger in assigning a Pākehā term to a Māori concept, as it isolates that concept from the Māori worldview it is born from.[26]

In addition, further challenges arise from the interpretation of Māori terms within a statute, and the question of who provides their interpretation. An example where this has played out is under section 6 of the RMA. The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taonga is deemed a matter of national importance to be recognised and provided for. Due to many hapū groups existing within the same region, there are different tikanga Māori values that exist, but the legal system can only accept one version. This can have a significant impact if there are many hapū in the same area who find themselves in a legal process.

Furthermore, there is a question around whether te ao Māori is so intimately connected to Māori as a people that recognition of the world view also brings with it a recognition of Māori stewardship of that system. Can we have a system where te ao Māori is administered by both Crown and Māori in partnership? Or a dual system whereby te ao Māori is administered or at least overseen by Māori? *He Puapua* has sparked an interesting and much broader ranging debate in this area, and the ocean is one arena to which it applies.

Many other worldviews are held by New Zealanders, and these can coexist in people's personal systems of ethics. People's values are complex and hard to reduce to a simple list. We are continuing to explore these for the purposes of the final report. But our often-unspoken worldviews – whether te ao Māori, ecocentrism, biocentrism, anthropocentrism and many others – colour the more detailed principles that end up in our laws. Principles are the third element we look at, and there are dozens of potential ones we could adopt. We have outlined some of them in our previous work on resource management reform. Ecosystem-based management is a particularly important principle in the context of our oceans, given how connected they are.

Yet general concepts like sustainability, precaution and resilience can be worded very differently depending on the worldviews underpinning them. For example, if something is "sustainable", what are we actually trying to "sustain"? Is it the ability for a resource to keep us alive? Its ability to support economic growth? The ability for a species to be kept from the verge of extinction? The ability for Māori and their mokopuna and beyond to exercise kaitiaki responsibilities and protect (and use) taonga? This difference is most obvious when we look at the conceptual gulf between sustainability that is underpinned by intrinsic value, concepts like kaitiakitanga, whakapapa and whanaungatanga, framing like te mana o te moana and te oranga o te taiao, and notions like maximum sustainable yield or maximum economic yield.

The fourth and final step in our normative assessment involves thinking about our objectives for a future system. In some senses, principles *are* objectives. For example, we can be aiming for sustainability and resilience. Other principles are harder to characterise in this way, such as precaution and non-regression. Furthermore, principles are ultimately *guides* to determining what an outcome should be – an aid to our thinking – and seldom specify exactly what an actual outcome should be.

But objectives can be much more specific than principles. That is most obvious in the climate change context, where our objective is in the form of a numerical target rather than a general desire to reduce greenhouse gas emissions, and is likely to lead to more detailed objectives to phase out fossil fuel based activities (eg conventional vehicles). We need to entertain the possibility that objectives could look similarly specific for oceans. For example, rather than wanting a sustainable seafood sector, do we envisage a future in which we farm, rather than hunt, fish? And instead of just protecting biodiversity, do we want a 30 per cent coverage of marine protected areas by 2030?[27] Or even more specifically, "to set up an ocean sanctuary in the northeast of Aotearoa New Zealand's EEZ" – the Rangitāhua/Kermadec Ocean Sanctuary?[28] One recent report has also called for actions to support the move from volume to value in commercial fisheries[29] – an objective that is essentially trying to shift

the orientation of an industry rather than managing environmental impacts.

The specificity with which we express our objectives also has implications for what we regard as problems and how we measure success (see Chapters 2 and 3). For example, it is common to hear people say that a small percentage of protected areas is a problem. Similarly, the decline of fish stocks prompted economists and policy makers to diagnose the "problem" as one of open access resources (that "everybody's property is nobody's property)."[30] An economic problem required an economic solution, and the QMS was born.

In our final report, we will be thinking about normative questions (what a future system should be aiming for) in four steps:

1. What the appropriate rationale is for the system (the conceptual boundaries beyond which the system should play no role)
2. Within those boundaries, what basic worldviews could underpin the things the system is trying to achieve
3. Framed by those worldviews, what legal and ethical principles could guide the design of the system and the decisions made under it
4. What specific objectives the system could be seeking to achieve beyond general principles.

Are there other normative questions that need to be asked in the context of oceans reform?

We do not intend to delve too deeply into this framework in this working paper. Instead, we present a more selective range of ideas and questions to prompt discussion about what norms should underpin a future system, and what implications those choices might have when it comes options for system design. We do so in a series of think pieces.

Green-lipped mussels, Hauraki Gulf

4.3 Ethics and ecosystem services

In Chapter 2 we touched upon the ecosystem services that our marine environment provides to people, from kai moana to nutrient cycling to carbon sequestration. Our point there was that when we protect the ability of the environment to perform those services we are still "using" it. Protection can be a use, and use can achieve protection; the distinction is not a binary one.

An interesting thing to ponder, however, is some people's tendency to think of these functions in an anthropocentric way – as *services* (also noting that this thinking is in contrast to te ao Māori/tikanga Māori). It is one thing to recognise the value of our oceans in providing us with sustenance, opportunities for recreation and transport. However, there are numerous references in the literature to other "services" like the containment of sediment, the cycling of nutrients, the diffusion of pollutants, and the filtering of water. For example, some have pointed to the cleaning prowess of shellfish:[31]

> It has been estimated that with the historic coverage of mussel beds, the volume of the Firth [of Thames] could have been filtered in a single day. Current estimates are that remnant mussel beds take nearly two years to filter the same amount of water.

That is quite true, and it is certainly regrettable. Those mussel beds – and a string of other habitats – would have done wonderful things for us if we had been more foresighted or ambitious in protecting them.

But the reality is that, in 2021, we are expecting the natural world to perform an increasingly onerous range of services for us. The "water" that these mussels would now be required to filter is quite different from the water that existed 200 years ago – they are not performing the service they signed up for across thousands of years of evolution. Yet the message often seems to be that true problems only arise when the natural world is no longer capable of dealing with our rubbish – that we should hover somewhere around "maximum sustainable pollution" in the same way that in fishing we aim for "maximum sustainable yield".

To put it another way, the danger is that we perpetuate the attitude of "if only we hadn't destroyed our ecosystem services, we wouldn't have to deal with the consequences of our increasingly unsustainable way of life". Perhaps we need to see the living world – including the mangroves, mussels and kelp forests that have to choke on our pollution – as having an existence that is about more than just servicing our needs and demands; the fact they are, increasingly, no longer doing so can be seen as nature's last available form of protest, rather than just a breakdown of a human production line. These are living things that can lead a precarious existence and are fighting to survive.

Our outlook here has tangible consequences, not just for how we feel, but for the tools we use in a future system (see Chapter 5). For example, should we engineer entirely new kelp forests or mangroves in our estuaries where none existed before, to "put them to work" for us? Or

should we seek to remove mangroves to restore marine environments to their previous state, even if we lose the services they provide? Should we establish colonies of filter-feeding shellfish at stormwater outfalls, so that a continuation of excesses on land does not send our biogenic marine habitats over a tipping point? Should we instead focus on the cause of our pollution, and just leave the marine environment alone? Or is there an ethically sound middle ground to aim for?

The oceans provide people with many services, and pollution and other stressors can lead to those being threatened. A future system could strive to restore elements of the environment that provide those services, to prevent harm being felt by humans. That could arguably lead to a concept like "maximum sustainable pollution".

Is it morally right for our objectives for a future system to be driven by the desire to create ecosystem services that benefit people? Are there situations in which that would be right, and others in which it would be wrong (for example, in the retention or removal of mangroves)?

4.4 Justice and equity in oceans reform

It is also interesting to consider reform of the oceans management system through the lenses of justice and equity, and in particular what a "just transition" means, rather than reverting to conversations about general, highly malleable and arguably less powerful principles like sustainability and environmental protection. Justice and equity can be looked at in a number of senses, including using the principles of distributional equity, environmental justice, inter-generational equity and ecological justice.

Most discussion about a "just transition" still occurs in the context of climate change. That generally focuses on *how* overall emissions reduction targets are met in a way that is equitable. That is also important for oceans reform – change can cause disruption and hardship, and impacts need to be distributed fairly.

However, it is not only a transition *process* that needs to be just (eg who gives up what to achieve society's goals, and whether they receive some form of compensation for doing so), but also the transition *itself* – the end point of where society is trying to get to. Another way to put this is that the alternative to a meaningful transition, whether it is just or not, is an "unjust stasis".

This is readily apparent in the context of climate change – if the rest of the world does nothing, it is grossly unfair for (1) low lying Pacific island states who will be flooded and who have contributed little to the problem, (2) those of lower socio-economic status who will be more vulnerable to the impacts of climate change, and (3) those who have enjoyed relatively little financial benefit from the historical emission of greenhouse gases.

In the marine context, the need for some form of change can also be justified with reference to what is just, although it is not quite as clear cut as with climate change. Careful thought needs to be given to *whether* a number of transitions are just (not just decarbonisation), because goals are largely undefined, multi-faceted and could look quite different depending on one's perspective on justice. There are a number of ways to look at what outcomes would be fair or just, and these have tangible implications for the reform measures we might take in response.

The concept of a "just" transition for oceans is as much about the justice of what we are wanting to achieve as it is about the justice of the process of getting there.

4.5 Distributional equity

First, policy makers need to consider *intra-generational equity* or *distributional equity* when considering if a transition to something new is just for oceans. The question is not only about who should *give up* what, and in what measure, to reach a target for a "public" good like environmental health (eg whether all or only some fishers should be excluded from new marine protected areas). It is also about whether the *benefits* of using resources should themselves be consciously redistributed. For example, as a society are we wanting to consciously transition towards a redistribution of rights to fish? Is *that* a just transition?[32]

From a te Tiriti perspective, there is already full and final settlement of Māori commercial fishing rights through the QMS, and customary take is also protected outside that framework. The former represents redress for past injustice – a breach of te Tiriti. This could be described as restorative, reparative or corrective justice – seeking to right a past wrong. In a similar vein, there are hundreds of claims in train for recognition of customary rights to the foreshore and seabed, under the auspices of the MACA Act.

But there are many other questions about redistribution of rights when looking through a lens of distributional equity. For example, is it fair that recreational fishing allowances are made before commercial ones, or that the relative proportion of such rights is left unclear in legislation and at the discretion of the Minister? Should there be stronger non-aggregation rules for quota holding, meaning rights are distributed more widely across society? Should quota holders be required to do the actual harvesting themselves, linking rights holders with operators to reduce the disparity in income that has arisen between investors and actual fishers?

Even more fundamentally, should existing rights be "wound back" (eg buyback of some or all quota by the Crown) and reallocated/leased based not only on the ability to pay market value (as under the QMS), but also based on environmental factors (eg who would use gear that has the least benthic impacts or generate the least

bycatch)? Should that extend to socio-economic factors too (eg who would best support local communities, such as by landing or processing catch locally)? Who should get to decide such things, and what would the weighting of the various considerations be? Moreover, does the historical context matter, in that it was – at least from some perspectives – unfair that quota rights were essentially given away for free to some operators (owners of commercial fishing vessels) while others (part time fishers and deckhands) were excluded?

Questions about distributional equity abound in the context of management of a commons like the oceans, and they are not limited to the fisheries context. Is it fair, for instance, that the allocation of coastal space is still largely achieved through a reactive, first-in-first-served process under the RMA?[33] If not, who should receive these "rights" and on what basis (and for what activities)? Should the market decide, or should that be the job of a well-intentioned public authority? Should communities and their representatives get a say? And should such rights be given away for free (on a cost recovery basis), or should there be a return to the public and Māori (by imposing a resource rental or koha)?

Furthermore, is it fair that new aquaculture rights are, essentially, dependent on them not having an undue adverse effect on wild fishing interests?[34] And is it fair that, albeit in a fairly unconscious fashion, the interests of some fishers, aquaculture proponents and recreationalists are effectively subservient to the "rights" of landowners who discharge nutrients and sediments into harbours, impacting the productivity of the marine environment? And finally, is it fair that the financial benefits of harvesting wild fish – a common resource – accrue to quota holders without a portion being returned to the public through a tax or resource rental? (On a deeper level, does society still even regard fish as a "common" resource of New Zealanders, or is it rather a "shared" resource between commercial, customary and recreational fishers?)

These questions are complex and value based. The point is that only once one determines *whether* the end point of a transition is fair – whether it should be pursued at all – can one think about *how* it is done in a fair way (eg through compensation for lost rights, partial buyback of quota, the establishment of a tendering process for new fishing rights/permits and so forth). The latter does not work without the former. For example, one might accept that some redistribution of quota is desirable in the interests of fairness. Only then is it useful to consider the justice of the method of doing so – for instance, whether it would be fair to buy back those quota at the taxpayer's expense given that (1) early on during the establishment of the QMS many rights were largely obtained for free based on an operator's historical catch levels[35] and (2) that some fishers received no quota (or compensation) at all when the QMS was brought in.

Similarly, only if one accepts that the public *should* receive some financial benefit from the use of a public resource can one ask whether it would be fairest to characterise that as a cost recovery levy type arrangement, a tax, a koha, or a resource rental, and what such revenue should be used for (eg marine conservation efforts, investing in the development of a fishery, assisting kaitiaki, or a general pot of government money). All of these questions are far from settled in the marine context.

The principle of distributional equity raises a number of complex questions about fairness in a future oceans management system. How we approach the principle has tangible consequences for what design choices we make and what tools we may choose to use, change or unravel.

- What would an equitable distribution of resource use rights look like in a future system?
- Would an answer be different if we considered what fairness to *nature* would look like?

Salmon farm, Marlborough Sounds

4.6 Environmental justice

The principle of environmental justice is another lens through which the justice of transitions can be viewed in the marine context. As with distributional equity, this colours our view of *whether* a transition is just, not just *how* it occurs. It is closely related to indigenous environmental justice, which in Aotearoa New Zealand is often framed around obligations and redress under te Tiriti o Waitangi.[36]

Environmental justice is about who bears the *cost* of environmental degradation. At present, a lot of the costs, such as bycatch and other impacts on marine ecosystems of damaging fishing, land-based discharges and other activities are borne disproportionately by New Zealanders as a whole. And coastal communities and Māori – many of whom are advocating for greater involvement in decision making around fisheries and marine protection – are particularly impacted by the damage that occurs in their watery backyards in more than just an instrumental sense. Recreational and customary fishers (many of whom rely on the ocean as a source of food, not just an investment or source of income) are similarly impacted, not just by the depletion of shared stocks, but also by the damage from mass harvesting commercial methods in inshore areas. To Māori, this harm has a spiritual or metaphysical component.[37]

From an ecological perspective, human activities are damaging. But from an anthropocentric perspective, are they also "unjust"? And if one accepts that they are, what would a just transition away from that look like? For example, would regulators simply impose a prohibition on certain inshore fishing methods such as bottom trawling and dredging? Would there instead be investment and government incentives to encourage new gear and less damaging methods? Would there be spatial exclusion of vessels from vulnerable or recovering areas, through marine protected areas? And would that include both commercial and recreational interests? For any of the above, would it be fair to provide "compensation" or just an acceptance that environmental protections are the cost of doing business?

Whether the methods of transitioning away from environmental harm are just or not partly depends on how existing "rights," "privileges" and "interests" in the marine environment are perceived. Commercial fishing is a case in point, given that there are defined rights in quota – they are a form of property interest, not just a regulatory permit.[38] What is the nature of such rights? On paper, they confer a right to take a certain proportion of a fish stock within a total allowable commercial catch (TACC);[39] they are an allocative tool designed to apportion rights to one quota holder vis a vis another quota holder. But they are not a right to fish *per se*, in the sense of a right to fish in a particular area or time or using particular methods.[40] Thus while there may be industry resistance to sustainability measures being taken beyond the setting of a TAC (eg restrictions on fishing methods like bottom trawling), that does not mean it is automatically unfair to do so or an abrogation of the underlying property rights.

That said, does there come a point where environmental restrictions make the exercise of a separate property right untenable, and therefore a form of regulatory "taking" for which compensation should be offered? Would it depend on how *long* that restriction lasted (eg drastically reducing catch limits to allow a stock to rebuild over a number of years)? Would it depend on whether excluding the exercise of a right from one area (eg in a new marine reserve) still left large areas where a right *could* be exercised? Or if restrictions were actually in the long-term interests of rights holders (eg the potential of protected areas to act as nursery grounds and enhance fish stocks)? And would it make a difference if a restriction affected all quota holders equally, or if it affected only some (eg prohibiting methods where there are no reasonable alternatives for catching a particular species, or establishing protected areas in some quota management areas more than others)? This question about compensation for the "loss" of rights is also related to the question of who should pay for the environmental regulation of a sector. This plays out, for example, in the context of who should pay (or in what share) for the rollout of cameras on boats, or for fundamental research about the marine environment and ecosystems (beyond just stock assessments).

There are no easy answers to any of these questions. It is arguable, for example, that compensation for the establishment of protected areas would be unfair, as the same effect could be caused by the Minister simply reducing the TAC (for which compensation is not payable). It is also interesting to make comparisons to the situation on land, where compensation/grounds for overturning a decision for public interest land use restrictions are only forthcoming where they render land incapable of reasonable use.[41] That is a high bar, and there are much stronger property rights in land (ownership) than in quota (a right to a proportion of a stock once sustainability measures are taken). That said, the fairness of such a stance is still subject to debate on land (eg the fairness of compensation when it comes to recognising significant natural areas on private land).[42] It does beg the question, however: what makes the marine context different to land, and should the bar for compensation be higher or lower?

It also highlights the risks of creating property rights separate from their broader public interest context. It means that the exercise of a right is not clearly connected to, or conditional upon, the responsibilities that accompany it, and attempts to add responsibilities later on can therefore be resisted because the market has evolved (prices have been set) in their absence. This is conceptually quite different to where rights to common resources are exercised on land through the RMA (where a decision to allocate a "right" to use freshwater, for example, is decided in tandem with a decision about the acceptability of its impacts on the environment).[43] It is also quite different to coastal occupation rights, where "authorisations" (eg from a tendering process,

where that is used) give a preferential ability to apply for a coastal permit vis a vis others, but do not confer an expectation that the permit will actually be granted.[44] At least in theory, a person's "right" might not ever be allowed to be exercised if a permit is not granted. The question therefore is, often, whether it is fair and just to compensate not for the loss of a person's rights, but rather a loss of their expectations. The other side of that coin is whether it is fair for the public to pay to avoid further environmental damage.

Environmental justice is not just about the impacts of fishing. Many other users impact the marine environment, and issues of fairness arise here too. For example, it is arguably unjust that some people in Aotearoa New Zealand cannot use and enjoy their coastal environment (at least without the risk of illness) because of nutrient discharges from land-based activities, chemical contamination from stormwater (much of the impacts of which remain unknown), microplastic and other waste, or sewage discharges from public wastewater systems. Because of urban growth pressures and historical infrastructure underinvestment in some parts of urban Aotearoa New Zealand, these impacts are not felt evenly across the country.[45]

This begs much deeper questions about *how* Aotearoa New Zealand transitions towards a new system of infrastructure planning and funding, and associated settings for local government. The government's solution seems to be a slow creep towards centralising wastewater functions, injecting large investment into failing pipes and growth infrastructure, and reimagining the place of local government in Aotearoa New Zealand.[46] That involves many more questions about whether such solutions are fair for communities and taxpayers. But the point here is that the clear need for a transition can be justified with reference to what is *just*. It also emphasises that a transition to a new system needs to be broad and holistic in its scope. Policy makers need to look not only at a new oceans management system in a spatially defined sense (what happens on the sea), but rather at whole of resource management reform through an oceans lens. That includes what happens on land (in the spirit of ki uta ki tai – from the mountains to the sea), and beyond just regulatory settings to include funding and incentives needed to support practical action. Associated with all of this are questions about whether indigenous environmental justice requires co-governance arrangements with Māori in managing the oceans, or even the transfer of some powers or control.[47] At the least it will require recognition and engagement with mātauranga Māori – indigenous knowledge and ways of knowing.[48]

Environmental justice is about who bears the cost of environmental degradation, and is closely related to indigenous environmental justice and te Tiriti o Waitangi. As with the principle of distributional equity, it raises challenging questions that manifest across many sectors and topics.

We have outlined a number of questions in the preceding section. We will not repeat them here, but invite readers to engage with them in the context of the narrative above.

Talley's fish plant, Port Nelson

4.7 Inter-generational equity

Whether a transition is just can also be looked at in terms of inter-generational equity. In general terms (there is much more complexity within the concept), this is about maintaining the ability of current people to meet their needs while not compromising the needs of future generations.[49]

Inter-generational equity tends to be a less prominent principle in discussions about *how* a transition occurs – especially if it is an urgent change that takes place within the lifespan of a single generation[50] – but is central to *whether* a transition occurs and what society is aiming for. Inter-generational equity invites into the system of justice those who are not yet born and, although those alive at the moment cannot claim to speak for their interests, it reflects the idea that current generations cannot deplete our resource base that will also be needed to support the basic needs of those to come. It keeps their options open. The idea of inter-generational equity is also consistent with a te ao Māori perspective (the appropriate Māori term may be taonga tuku iho – a gift passed down through the generations).[51]

In particular, inter-generational equity points to the need to actively *enhance* the marine environment to restore its productive potential where it has been degraded (or where people have benefited from its past degradation), and to set firm environmental limits to prevent (at a very minimum) marine ecosystem collapse. With respect to enhancement, the principle might encourage policy makers to look at activities like regenerative aquaculture (eg seaweed farming) that can contribute not only to local ecosystem restoration, but also to climate change mitigation, as long as adverse effects are addressed.

But there is always a degree of fuzziness around what inter-generational equity actually means. Questions abound as to what justice between generations amounts to. Should laws provide for just the basic needs of future generations,[52] or should they provide for equality? Do they leave the natural world intact, or seek to pass on the benefits that some forms of development provide (eg offshore renewable energy generation)? Will, for example, future generations blame us more for degrading the environment or for failing to develop a resource they could enjoy?

This has particular resonance when one considers the norms underpinning fisheries legislation. Is it more intergenerationally just to aim to maximise sustainable yield, or something else entirely? Do our regulations instead need to reduce the numbers of fish caught – to rebuild the biomass in the short term to make it more resilient to land based and climate stressors? And does a reformed system need to focus on preventing the impacts of fishing and land-based activities on the environment in order to restore the productive potential of the marine environment and thereby its ability to produce more fish in the future (especially in light of a changing climate)?

Inter-generational equity is about maintaining the ability of current people to meet their needs while not compromising the needs of future generations. However, what the needs and interests of future generations are with respect to the oceans is not always clear.

Again, we have outlined a number of questions in the preceding section, and invite readers to engage with them in the context of the narrative above.

Te Henga/Bethells Beach

4.8 Ecological justice

Finally, there is the concept of ecological justice to consider. Some have suggested that traditionally anthropocentric concepts like justice can be useful starting points for a more ecocentric view of the world. This sees the natural world as an actor within, not an object outside, the human community of justice.[53] The inclusion of humans as part of the environment aligns with te ao Māori (eg in oral traditions like the creation story of Rangi and Papa).

An ecocentric view is not unfamiliar to the existing system – the existing prohibition on hunting marine mammals is not just because some are threatened, but also because it is seen as "wrong" to do so. Current laws see dolphins as different or special, and deserving of a kind of justice closer to that which humans enjoy.[54]

But should nature itself be conceived of as a separate entity, with interests or rights that should be separately recognised and defended? Should humans be seen as inherently superior beings, and should similarity to *humans* (as with dolphins) be the yardstick by which access to justice is measured? Humans could instead be seen as simply part of a complex web of natural relationships that need to be respected, not just users of resources having instrumental value. This is a view of the world and of justice that would arguably be more consistent with te ao Māori, which sees whakapapa and whanaungatanga (kinship relationships) as being at the heart of environmental management.[55]

As a general principle, ecosystem-based management (an integrated way of thinking with ecosystem dynamics at its heart) is essential to an ecocentric view of justice.[56] Whether something is "just" for nature cannot be determined without considering nature as a whole and interconnected entity. Nor can justice be sought for particular valued species without looking at how their broader environments support them.

However, the specific objectives flowing from an ecological justice approach are even harder to pin down than an anthropocentric principle like inter-generational equity. What does an ecologically just transition actually involve other than changing the language our laws and regulations use? Do drafters stop defining the oceans as resources in our laws and plans, and instead characterise them as equals, taonga, kin or ancestors? Should there be a rejection of any attempts to "price" such things, on the basis that natural capital approaches and cost benefit analyses are morally abhorrent? For fisheries, should a new system dispense with the principle of maximum sustainable yield, and replace it with environmental limits that reflect the intrinsic worth and inalienable rights of ecosystems of which fish "stocks" are a part?

Going further, should society build institutions that give the oceans a voice of their own? Can this build on the innovative legal personhood developed as part of the settlement processes for Te Urewera and Te Awa Tupua/Whanganui River,[57] and what would be the challenges in giving the oceans as a whole legal personhood (eg through recognition as Tangaroa or Hinemoana, or concepts like te mana o te moana)? Instead of a resource rental going back into the public purse, should that be treated as "payment" or koha to nature for its services (or compensation for past harm) and be invested in regeneration projects? And should policy makers pause to consider that while hunting dolphins is banned, there is still an allowance by which they can legally be killed as bycatch in set net and trawl fisheries? Would true ecological justice mean that legal frameworks became more normatively consistent, and take a zero-tolerance approach to bycatch – recognising that human respect for nature does not kick in only when species are faced with extinction? And does it become right to kill dolphins and seabirds as bycatch, just because it is economically expedient to do so?

> The principle of ecological justice sees the natural world as an actor within, not an object outside, the human community of justice. This has implications for our choice of tools, as well as institutional arrangements – including the idea of conferring legal personhood on aspects of the environment.

4.8 A procedurally just transition

How our laws and institutions transition to a new oceans management system has important procedural elements, alongside the more normatively charged aspects (about who gets or gives up things in the process of getting there). The literature generally refers to this as a distinction between substantive justice and procedural justice.[58] In short, even if an outcome is fair, it does not mean that the process has been. The significance of this has been seen in the case of Rangitāhua/Kermadec Islands, where the substance of a proposal for protection is arguably less of an issue than the way in which (and by whom) the proposal has been developed and communicated (see Chapter 3).[59]

There needs to be a practical pathway from the existing system to a new one, and policy makers will need to think hard about how that process is designed. There are several senses in which a transition to a new oceans management system could play out, depending on what the end point would be. Some important transitions are already playing out, including for climate change, fisheries, and resource management reform (replacing the RMA).[60]

Irrespective of the specific design choices that are made, potentially big shifts like this raise significant questions about procedural justice. Policy makers will need to think carefully about who is involved in the process (and what the justification is for different degrees or methods of involvement), who makes decisions and who provides the evidence to inform them, how fast things happen, the resourcing behind it (including for tangata whenua and those community voices who do not benefit commercially from the oceans) and how different elements might be staggered and prioritised over a workable timeframe. Māori will need to have a partnership role not only *in* a reformed system (eg through co-governance arrangements and

independent advice based on mātauranga Māori) but also in the process that leads to its creation.

> Procedural justice will be important in any transition towards a reformed oceans management system, including with reference to te Tiriti o Waitangi.

4.9 From fishing to farming? Equity issues in a hypothetical transition

As New Zealand Inc., we are developing a general vision for land use change (driven by climate change imperatives). That is illustrated in incentives for afforestation (through the emissions trading scheme and One Billion Trees programme), national direction for the protection of productive land, and proposals for a formal framework for spatial planning. We are also looking to transform a whole sector – transport – to make it carbon neutral, including through quite direct interventions like banning the importation of conventional vehicles and supporting the uptake of electric vehicles. This is far from the laissez faire approach to resource management we have become used to over the past three decades. Our objectives are becoming more specific, and more geared to forcing change.

This begs the question: should we not also have a similarly (or more) ambitious strategy for what would be the best use of ocean space? The oceans for the most part have status as a commons to be managed in the national interest, whereas land is characterised by private ownership. In that context, one would think that the former would be more amenable to strategic consideration about how it is used. Non-statutory marine spatial planning processes are increasingly delving into such questions as conflict resolution tools (people want the same space) and ways to achieve spatial environmental protections (eg marine protected areas) in particular locations like the Hauraki Gulf (see Chapter 5). But there are bigger picture strategic questions to consider too. For example, should we proactively plan for the roll out of offshore renewable energy projects, to mitigate climate change, provide for energy security, and to soften the impact on workers in the oil and gas sector? Or do we wait for the market to take the lead and deal with any spatial conflicts later on?

One even more radical question may be whether we should be more assertive in shifting our reliance from inshore wild fisheries (where information is difficult to obtain and impacts are potentially severe) towards sustainable forms of aquaculture (in appropriate places and with appropriate controls). Would such a shift have the potential to restore and enhance the marine environment while creating high value products and supporting local communities near to where activities are located? Will people a millennium from now look back at our 21st century reliance on wild fisheries and compare it to a mechanised version of pre-agricultural hunter gatherer societies?[61] After all, we do not rely on land-based hunting in that way. Is our obligation to future generations both to reign in the excesses of marine degradation while at the same time proactively investing in valuable alternatives to food production and export earnings that are less vulnerable to information gaps and collapse?

Such a shift is fairly speculative, of course, and our intention is by no means to recommend it. Aquaculture itself has a number of environmental impacts and risks, including with respect to biosecurity and climate change.[62] There are also difficult questions of ethics around whether wild or farmed protein is preferable from an animal welfare perspective, as there is on land. "Hunting and gathering" might sound uncivilised, but our millennia long experiment with agriculture has hardly been an environmental success story either – would we be creating similar problems by extensively farming the sea? Commercial fishing provides many benefits and it can be done sustainably if controls are in place.

Yet the thought experiment serves to broaden the horizons of our thinking. It tests our worldviews. In particular, it requires us to think about what the rationale for the system *is*, and when it has overstepped its bounds. Is it the role of public authorities to use the system to plan industry transitions at all, or is this "economic" planning still as much an anathema as it was in the 1980s? Or does it depend on *how* public authorities do such things (either through regulation or softer incentives)? For example, a push to offshore energy could be pursued by providing additional financial incentives for projects, or by constraining the ability to get consent for land-based wind farms.

In the biosecurity context, regulation can already be very intrusive where there is an incursion triggering an emergency response (requiring, for example, the destruction of privately owned livestock and crops, albeit with compensation). That can create immense hardship and apply to large areas, but it is an intervention that is seldom questioned. This is partly because it is for the overall *benefit* of the sector, not a way to transition *away* from the sector. It does beg the question, however: how deep does an *ecological* emergency need to become for similarly directive measures to be taken in the oceans? Jared Diamond has pointed to an extreme example from the past, where there is evidence that tribal chiefs on the tiny Pacific island of Tikopia decided to slaughter every single pig on the island,[63] because of the environmental impacts they were having and their inefficiency as a mode of food production. They did not bother assessing pig farm "consent applications", or impose conditions on them. Islanders simply shifted their source of protein elsewhere (fish and turtles); their objective morphed from environmental sustainability to a very specific course of action. While this relied on a system much more totalitarian than our own, and a population where each person knew each other individually, its small island context made it much more obvious to those living there that something needed to change. In our vast oceans, we cannot rely on the evidence of our own eyes and must instead use science.

Such questions about the proper role of the system are relevant to *any* objective that involves transitioning away from current industries, activities or practices, not just fishing. Deep seabed mining is one notable example where some are calling for an end to (or moratorium on) the activity, not just the management of its effects.[64] That is a specific objective that goes beyond a general principle. Similarly, at least for now, we are well down the same path with respect to offshore petroleum extraction, where new permits will not be granted.[65] Climate change and Covid-19 are increasingly testing assumptions about the role of the system in setting quite specific objectives to be pursued through many means (including strict regulatory restrictions).[66]

> Is it appropriate for "planning", rather than the market, to play a greater role in determining what the future uses of our marine space should be than on land?

So, hypothetically, how could a shift away from wild fisheries work? And what issues of equity might arise? For example, could there be a mechanism by which existing rights in quota were transferrable to rights to coastal space for aquaculture, and the former gradually phased out or ramped down as those transfers occurred? By incentivising such a shift, could there be a sinking ceiling for total allowable wild catch as more and more quota was removed from the system, and directed to the more efficient use of marine space through aquaculture areas proactively identified in integrated marine spatial plans?

Irrespective of whether that is a good idea or not – and we are by no means recommending it – it is nevertheless interesting to ponder what a just transition could look like here. It is positive that impacts from one kind of change can be softened by opportunities in others. But many issues of fairness would arise. For example, te Tiriti settlement quota represents a full and final settlement,[67] and not only would alternative rights need to be of equivalent value (and on top of existing aquaculture rights achieved through settlement), there would also need to be meaningful partnership of Māori in spatial planning that determined the use of marine space (which would also

Westhaven marina

need to tie in with the customary rights and title to parts of the foreshore and seabed recognised through MACA Act processes).[68] There would need to be incentives to transfer/surrender quota, not a direct taking or a forced transfer. A negotiated settlement would likely be required, potentially including shared income from a resource rental applied to the use of the space.[69] It might even be simpler for the government to purchase some quota (perhaps limited to non-settlement quota) on a willing buyer/willing seller basis and then to separately "sell" aquaculture space[70] (which would still be fiscally neutral), recognising that those two things might not necessarily be able to, or need to, happen at the same time.

There could be significant challenges in creating extensive new rights in spatially fixed areas, especially if they were characterised as perpetual property rights that could be bought and sold rather than (as at present) time-limited permits issued under the RMA.[71] Such concerns could be softened by the imposition of resource rentals to return some benefit to Māori and the Crown, but it would still represent the privatisation of a resource that, at least under current law, does not belong to anyone.[72] In 2021, is privatisation still the well-worn path that we wish to chart? What would it mean for the ever-simmering foreshore and seabed debate?[73] And would this effectively be excluding new entrants to aquaculture in a similar way that part time fishers were disenfranchised after the creation of property rights under the QMS?[74] On the other hand, would it be fair for anything less than a property right – even a *perpetual* property right – to be offered in exchange for what are, essentially, perpetual property rights in quota?

Other issues of fairness might arise in transition, too. Fishers might not have the means or inclination to shift industries to aquaculture (the gear and knowledge is not necessarily transferable),[75] and support would likely be required (eg mentoring, subsidies for capital costs etc). There could also be impacts on some independent fishers who rely on leasing ACE rather than owning quota holdings;[76] quota owners would be the ones with the transferrable rights but often not the ones who have invested in gear or rely on the day to day income that fishing provides. The actual harvesters could be left high and dry, so to speak, adding to inequities in the current fisheries sector.[77] Support for workers to transition would be needed, not dissimilar to the situation in the oil and gas sector.[78]

Moreover, there could be more general reluctance to adopt such a strategy, given that fishing is often less of a job than a way of life;[79] aquaculture, even offshore, may not have the same allure. Incentives might fail to persuade people to shift sectors. Careful thought would also be needed as to what such a transition would mean for the recreational sector (would it be fair to loosen restrictions on recreational users as a total allowable commercial catch was reduced?) and the extent to which some commercial quota should remain active (subject to environmental safeguards). Then there are questions about practicality – within environmental constraints and other potential uses of the marine area, do we have enough aquaculture space to account for the value currently held in quota (or the amount of quota we might want to "retire")?

Another potential pitfall to be aware of is the establishment of spatially fixed rights without the ability to be flexible as to how activities could shift over time. Aquaculture may need to be more mobile – operations themselves can be moved, but the regulatory regime for occupying space is much less responsive and forward looking. As mentioned earlier, we also need to be careful about creating a whole new category of specific property rights that are not closely connected to the public interest responsibilities that accompany them (as opposed to conditions in resource consents).

The hypothetical example of consciously transitioning one use of our marine space to another (fishing to aquaculture) shows the breadth and scale of equity and justice issues that can arise if our objectives become quite specific and directive. A system can be incredibly hard to unravel once established. Less extensive changes will also require careful consideration as to how equity is provided for – not just in what the system is aiming for, but how it transitions to achieve it.

4.10 Concluding comments

In this chapter we have offered some initial thoughts on how our worldview, ethics, principles and objectives can affect the more tangible design choices involved in system reform. We have done so through a series of think pieces, including through the lenses of justice and equity. It is by no means a comprehensive account – it reflects work in progress – and there remain a number of important questions to be tackled. We intend to look across these in our final report, within the structure outlined at the start of this chapter.

Particularly important will be an exploration of alternative principles to "maximum sustainable yield" and "sustainable management"; how principles embedded in te ao Māori could be both deployed and used to inspire new concepts like te mana o te moana; what a te Tiriti compliant set of norms might look like; and how ecosystem-based management could be defined and applied in a useful way in a future system.

Oceans system reform presents policy makers with challenging normative choices. This is not just about defining or drafting general principles and purposes in legislation. Norms also have direct implications for more fundamental design choices, such as what kinds of tools we use (eg rāhui, legal personhood, pricing mechanisms) and how specific our objectives are (eg general biodiversity protection vs supporting or transitioning away from particular industries). In other words, the norms underpinning a future system will determine not just what we are aiming for (and by when), but also the choice of tools we deploy to get there. There are no hard and fast answers, but there are many conversations worth having.

ENDNOTES

1 Sir Bob Jones "Anti-whaling outcry simply sizeism" *NZ Herald* (online ed, 7 August 2012).

2 Minister for Oceans and Fisheries *On-board cameras across the inshore fishing fleet* (2 July 2021).

3 See Ministry of Foreign Affairs and Trade *Joint statement against whaling* (18 December 2017).

4 Department of Conservation *The conservation of whales in the 21st century* (undated).

5 Raewyn Peart *Dolphins of Aotearoa: Living with New Zealand dolphins* (Craig Potton Publishing, Nelson, 2013).

6 Thomas White *In defense of dolphins: The new moral frontier* (Blackwell Publishing, Malden, 2007).

7 See L Cuthbert and Main "Orca mother drops calf, after unprecedented 17 days of mourning" *National Geographic* (online ed, 13 August 2018).

8 The latest estimate was 104 common dolphin captures in trawl fisheries for the 2014-15 fishing year. See ER Abraham and K Berkenbusch "Estimated captures of New Zealand fur seal, New Zealand sea lion, common dolphin, and turtles in New Zealand commercial fisheries, 1995–96 to 2014–15" in *New Zealand Aquatic Environment and Biodiversity Report No 188* (2017).

9 It is not a universal view; for example, some iwi have expressed an interest in harvesting marine mammals if and when the populations are at suitable levels.

10 See generally Robert Joseph and others *Stemming the Colonial Tide: Shared Māori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020).

11 Hirini Moko Mead *Tikanga Māori: Living by Māori Values* (revised edition, Huia Publishers, Wellington, 2016) at 14.

12 Urlich Klein, "Belief-Views on Nature – Western Environmental Ethics and Māori World Views", 4 NZ J Envtl L 81 (2002) at 104-106.

13 Robert Joseph and others *Stemming the Colonial Tide: Shared Māori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 49.

14 Benjamin Dimitrious Hanara and Anne-Marie Jackson *Tangaroa Ara Rau: Tangaroa the Atua of Human Movement* (Ngā Pae o te Maramatanga, 2019) at 3 (citations omitted).

15 Te Ahukaramū Charles Royal "Tangaroa – the sea - The importance of the sea" (12 June 2006) *Te Ara - the Encyclopedia of New Zealand* <www.TeAra.govt.nz/en/tangaroa-the-sea/page-1>.

16 Te Ahukaramū Charles Royal "Tangaroa – the sea - The importance of the sea" (12 June 2006) *Te Ara - the Encyclopedia of New Zealand* <www.TeAra.govt.nz/en/tangaroa-the-sea/page-1>.

17 Benjamin Dimitrious Hanara and Anne-Marie Jackson *Tangaroa Ara Rau: Tangaroa the Atua of Human Movement* (Ngā Pae o te Maramatanga, 2019) at 7.

18 At 5.

19 See the story of Tinirau at Te Ahukaramū Charles Royal "Tangaroa – the sea - Tinirau and Kae" (12 June 2006) *Te Ara - the Encyclopedia of New Zealand* <www.TeAra.govt.nz/en/tangaroa-the-sea/page-3>.

20 Robert Joseph and others *Stemming the Colonial Tide: Shared Maori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 50.

21 Hirini Moko Mead *Tikanga Māori: Living by Māori Values* (revised edition, Huia Publishers, Wellington, 2016) at 16.

22 Joe Williams *He Aha te Tikanga Māori?* (Paper presented to the Mai I Te Ata Hāpara Hui, Te Wānanga o Raukawa, Otaki, New Zealand, 2000) at 9. Law Commission *Māori Custom and Values in New Zealand Law* (NZLC, SP9, 2001) at 28-40.

23 Carwyn Jones "A Māori Constitutional Tradition" (2014) 12 NZJPIL 187 at 190; Williams, "Lex Aotearoa: An Heroic Attempt to map the Maori Dimension in Modern New Zealand Law" [2013] WLR 2 at 2-5; Linda Te Aho "Tikanga Maori, historical context and the interface with Pakeha law in Aotearoa/New Zealand" [2007] NZ Ybk NZ Jur 4 at 11.

24 Robert Joseph and others *Stemming the Colonial Tide: Shared Maori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 55-56.

25 Toni Love "Incorporating Māori Approaches to Ecosystem Management in Marine Management" (2018) July Māori LR, as cited in Robert Joseph and others *Stemming the Colonial Tide: Shared Māori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 207.

26 Mason Durie *Te Mana, Te Kawanatanga – The Politics of Māori Self-Determination* (Oxford University Press, Melbourne, 1998), as cited in Robert Joseph and others *Stemming the Colonial Tide: Shared Māori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 208.

27 The biodiversity strategy also aims for: "by 2035, an effective network of marine protected areas and other tools, including marine and coastal ecosystems of high biodiversity value is established and is meeting the agreed protection standard" and "by 2050, an interconnected series of marine and coastal ecosystems have been protected and restored to a 'healthy functioning' state and are connected to indigenous land, wetland and freshwater systems." Department of Conservation *Te Mana o Te Taiao - Aotearoa New Zealand Biodiversity Strategy 2020* (August 2020) at 53.

28 Minister for Oceans and Fisheries *Oceans and Fisheries portfolio – ensuring healthy ecosystems* (2 July 2021) at 7.

29 Office of the Prime Minister's Chief Science Advisor *The Future of Commercial Fishing in Aotearoa New Zealand* (February 2021).

30 SV Ciriacy-Wantrup and Richard Bishop "Common Property as a Concept in Natural Resources Policy" (1975) 15(4) Natural Resources Journal at 713.

31 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019) at 22.

32 As touched upon below, there are deeper questions from an ecological justice point of view: is focusing on redistributing rights to resources repeating the same anthropocentric worldview? Should we instead be focusing on what is better for the *ocean*?

33 See Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation – Synthesis Report* (December 2018) at 114.

34 Ministry for Primary Industries "About the undue adverse effects test" (5 July 2021) <www.mpi.govt.nz>.

35 Although that argument only applies if the current quota holder was the one who received that allocation. Later quota were auctioned.

36 On indigenous environmental justice, see Meg Parsons, Karen Fisher and Roa Petra Crease *De-colonising blue spaces in the Anthropocene: Freshwater management in Aotearoa New Zealand* (Palgrave, 2021).

37 See generally Robert Joseph and others *Stemming the Colonial Tide: Shared Maori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 49 and following; Ngā Pae o the Māramatanga "Arotahinga Rangahau – Research Focus: Te Aho Tapu" (10 February 2017) <www.maramatanga.co.nz/project/arotahinga-rangahau-research-focus-te-aho-tapu>.

38 See OECD *Using market mechanisms to manage fisheries: Smoothing the path* (2006).

39 Raewyn Peart *Voices from the Sea* (EDS, Auckland, 2018) at 9; see also Fisheries Act 1996, s 42.

40 This is made clear under the Fisheries Act itself, in that the exercise of quota rights is subject to sustainability measures imposed by the Minister. It is also subject to measures taken under the RMA to safeguard indigenous biodiversity, which is made clear by the Court of Appeal in *Attorney-General v The Trustees of the Motiti Rohe Moana Trust* [2019] NZCA 532.

41 See Resource Management Act 1991, s 85. That is quite different to where there is a desire to use land for a different *purpose* (or to extinguish a specific existing land use), in which case compensation is forthcoming through Public Works Act processes or on a willing seller/willing buyer basis.

42 See the current debate over proposed significant natural areas in Northland. Far North District Council "Significant Natural Areas" <www.fndc.govt.nz/Whats-new/Have-your-say/Significant-Natural-Areas>; Tūmamao Harawira "Māori landowners in Far North worry over council 'land grab'" *Stuff.co.nz* (online ed, 26 May 2021).

43 Resource Management Act 1991, s 104.

44 See Resource Management Act 1991, ss 162 and 165R.

45 On infrastructure failures, underinvestment and its impacts, see New Zealand Productivity Commission *Local government funding and financing* (2019); *Strengthening the regulation of drinking water wastewater and stormwater* (Cabinet minute CAB-19-MIN-0332, 1 July 2019)

46 See Department of Internal Affairs "Central/Local Government Three Waters Reform Programme " (15 July 2021) <www.dia.govt.nz/Three-Waters-Reform-Programme>; Department of Internal Affairs "The Future for Local Government" <www.dia.govt.nz/Future-for-Local-Government-Review>.

47 See Robert Joseph and others *Stemming the Colonial Tide: Shared Maori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020).

48 See Meg Parsons and Lara Taylor "Why Indigenous knowledge should be an essential part of how we govern the world's oceans" *The Conversation* (online ed, 8 June 2021).

49 See generally EB Weiss *In fairness to future generations* (United Nations University Press, 1989); EB Weiss "Intergenerational justice and international law" in S Busuttil et al (eds) *Our responsibilities to future generations* (Foundation for International Studies, 1990); Klaus Bosselmann *The principle of sustainability: Transforming law and governance* (Ashgate, 2008).

50 Although it is relevant where, for example, long-term investments in wastewater infrastructure are made using debt finance that is paid back by ratepayers or taxpayers over more than one generation.

51 The gift can refer to any relevant oral tradition/customary practice.

52 Compare Resource Management Act 1991, s 5(2)(a) (meeting "the reasonably foreseeable needs" of future generations).

53 See generally Prue Taylor *Respect for nature: A theory of environmental ethics* (Princeton University Press, 1986) in RL Revesz *Foundations of environmental law and policy (*Oxford University Press, 1997); Christopher Stone "Should trees have standing? Towards legal rights for natural objects" (1972) 45 S Cal LR 450; Robyn Eckersley *Environmentalism and political theory: Toward an ecocentric approach* (State University of New York Press, 1992).

54 See Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation – Synthesis Report* (December 2018) at 58.

55 See generally *Friends and Community of Ngawha Inc v Minister of Corrections* [2002] NZRMA 401 (HC), [2003] NZRMA 272 (CA); *Bleakley v Environmental Risk Management Authority* [2001] 3 NZLR 213 (HC); Briar Gordon "Treaty of Waitangi and Māori issues in environmental law" in Peter Salmon and David Grinlinton (eds) *Environmental law in New Zealand* (1st ed, Thomson Reuters, 2015); Robert Joseph and others *The Treaty, Tikanga Māori, Ecosystem-Based Management, Mainstream Law and Power Sharing for Environmental Integrity in Aotearoa New Zealand – Possible Ways Forward* (Te Mata Hautū Taketake – the Māori and Indigenous Governance Centre, Te Piringa-Faculty of Law, University of Waikato, 2019).

56 On ecosystem-based management, see the variety of papers produced through the Sustainable Seas National Science Challenge (available at <www.sustainableseaschallenge.co.nz/>). The Challenge is rooted in the concept of ecosystem-based management, and it explores this concept from many different lenses (including its relationship with Māori concepts like kaitiakitanga – see www.sustainableseaschallenge.co.nz/our-research/phase-i-20142019-research/tangaroa/>).

57 See Meg Parsons, Karen Fisher and Roa Petra Crease *De-colonising blue spaces in the Anthropocene: Freshwater management in Aotearoa New Zealand* (Palgrave, 2021).

58 See generally David Miller "Justice" (26 June 2017) Standford Encyclopedia of Philosophy <https://plato.stanford.edu/entries/justice/#ProcVersSubsJust> at [2.3].

59 See, for example, Ben France-Hudson "The Kermadec/Rangitāhua Ocean Sanctuary: Expropriation-free but a breach of good faith" [2016] Resource Management Theory and Practice 55.

60 See Ministry for the Environment "Overview of the resource management reforms" (June 2021) <https://environment.govt.nz/what-government-is-doing/areas-of-work/rma/resource-management-system-reform/>; and Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020).

61 For an interesting account of the rise of agriculture, see Jared Diamond *Guns, Germs and Steel: The Fates of Human Societies* (WW Norton, New York, 1997).

62 See Raewyn Peart *Farming the sea* (Environmental Defence Society, Auckland, 2019), ch 7. For example, an industry itself (or parts of it) could collapse due to biosecurity incursions.

63 See Jared Diamond *Collapse* (2011) at 293.

64 See Greenpeace NZ "What is seabed mining and why does it threaten the oceans?" (6 August 2020); and Kiwis Against Seabed Mining <www.kasm.org.nz>.

65 Although the difference, of course, is that the Crown *owns* the petroleum resource so it is not a revolutionary idea to say that it can determine whether or not it is extracted.

66 For example, the objectives of the Climate Change Response Act are very specific (beyond just a general reduction of greenhouse gas emissions), and restrictions imposed to prevent the transmission of Covid-19 have been swift and severe (eg national lockdowns).

67 Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, s 9.

68 See the description of this legislation in Appendix 2.

69 How to value aquaculture space relative to quota value could prove problematic, as occupation rights are granted on a permit basis that are not freely transferable. There is no "market", or objective valuation, in the same sense as for quota. That said, the Crown did, following the disestablishment of the framework for aquaculture management areas, put a value on aquaculture space (as a mechanism to offer an alternative cash option to iwi instead of coastal space). Therefore such an exercise would not seem impossible, even if it would be challenging.

70 Or at least to sell the right to apply for a permit; the general outcome of the permitting process (albeit subject to conditions) should be reasonably clear if it had been identified in a spatial plan based on sound science and robust public participation.

71 Resource Management Act 1991, ss 87(c) and 123A.

72 Marine and Coastal Area (Takutai Moana) Act 2011, s 11(2).

73 It would require unravelling aspects of the MACA Act, especially section 11.

74 See Raewyn Peart *Voices from the Sea* (EDS, Auckland, 2018) at 96.

75 Smaller fishers may struggle even to upgrade gear to meet new standards. See Minister for Ocean and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: landings and discards* (2 July 2021) at 8. That said, some fishing companies engage in both wild fisheries and aquaculture and may, given the right incentives, be well positioned to transition.

76 ACE is the actual amount of fish that a quota holding (the proportion of the total allowable commercial catch) provides in a given fishing year (see Appendix 2 for a description of the current system).

77 See Chapter 2; Raewyn Peart *Voices from the Sea* (EDS, Auckland, 2018), chapter 5.

78 See Ministry of Business, Innovation & Employment "Just Transition" (16 July 2021) <www.mbie.govt.nz/business-and-employment/economic-development/just-transition/>.

79 Raewyn Peart *Voices from the Sea* (EDS, Auckland, 2018) at 3.

CHAPTER **FIVE**

Reconsidering the toolkit

Te Arai Beach

5.1 Introduction

In this chapter we consider the "toolkit" of the oceans management system. This concept is a broad one, and essentially encompasses all interventions that could be made through the system (from RMA-style plans and consents, to fisheries sustainability measures to non-statutory measures like strategies, subsidies and behavioural incentives). That is a vast topic.

This working paper is concerned with two things. First, it outlines a range of possible tools that could be deployed without overhauling existing legislation (ie rearranging legislative boundaries). This is not comprehensive, and further areas of exploration are identified – but is designed to prompt discussion about, in particular, whether many issues we face could be addressed simply by using our toolkit better. Some tools might be used quite differently, or even replaced; reforming the toolkit does not necessarily mean low level change. Secondly, it considers how new tools (particularly marine spatial planning and an oceans policy) could be used to better connect the parts of our fragmented system. It therefore forms something of a bridge to the following chapter on legislative design, where we think about how deeper connections could be made by redrawing statutory boundaries.

5.2 Making better use of the existing toolkit

Below, we outline a number of tools that could be deployed, or altered, through existing legislative frameworks. Again, these are a starting point for conversation rather than recommendations, and we welcome thoughts on which would be best to pursue and why.

We note that tools do not exist in isolation. Policy makers will need to think about how different types of tools work together (including strategic tools, regulatory tools and non-regulatory incentives) and where effort should be focused. For example, there is the question of how a tool like the emissions trading scheme interacts with tools under the RMA and Fisheries Act when it comes to the emissions implications of bottom trawling,[1] and how a strategic tool like an oceans policy could influence regulatory frameworks (eg regional coastal plans under the RMA).

We are also continuing to consider the toolkit for the purposes of our final report. In particular, it will be important to think about "types" of tools in the round, rather than just tools that could fit within the machinery of existing statutory frameworks. Some types of interventions (eg marine protected areas, economic incentives, legal personhood) may need to be deployed in a coherent way across multiple frameworks, and therefore be looked at as tools in their own right.

The RMA, NBA and EEZ Act

The RMA presents a number of opportunities to use and expand the toolkit for oceans management. Horizons open up even further through the proposed replacement of the RMA with a new NBA, and we weave discussion of that within the options outlined below.

First, it is worth noting that the purpose of the NBA is proposed to be something quite different to sustainable management, through inclusion of the core concept of "te oranga o te taiao".[2] This is defined non-exhaustively in an exposure draft of the Bill, to include the health of the natural environment and the intrinsic relationship between Māori and the environment.[3] While this does not refer specifically to te moana, it opens up the possibility that tools like national direction, plans and consents will (1) approach oceans management in a more protective and holistic way; and (2) provide a stronger voice for iwi/hapū to themselves use tikanga to further define what that concept means at place (through regional plans).

There is also a separate, more focused, purpose proposed for the setting of environmental limits (to protect human health and maintain ecological integrity).[4] That may have implications for how tools are used in the marine space – for example, if the management of fish stocks is needed to maintain the ecological integrity of an area, that may affect the relationship between the NBA and Fisheries Act (potentially expanding the jurisdiction of the former).[5] The clause relating to te Tiriti, which would require all decision-makers to give effect to its principles, also has implications not just for the protection of Māori marine interests (eg ancestral connections, wāhi tapu, and taonga species), but also for how allocative decisions may be made under the Act (eg for the allocation and reallocation of coastal space).[6]

It is also interesting to consider whether the NBA's purpose could be more marine focused than it is currently. For example, the EEZ Act has a dual purpose (essentially, sustainability *and* the prevention of pollution), and its strong second pillar has been interpreted as being significant for how tools are used, such as when determining applications for consent.[7] That could be reflected in the NBA as well.

The purpose of the RMA could be amended, and is proposed to look quite different under the proposed NBA.

What implications does a new purpose for the proposed NBA ("te oranga o te taiao"), and a more focused purpose for the setting of environmental limits (including ecological integrity) have for the marine environment?

The concept of an "environmental limit" under the NBA is a new tool that could be used to achieve better marine outcomes. Limits are envisaged to be mandatory, and must be set for various things. Two of those things are "coastal waters" and "estuaries"[8], although greater specificity is not provided. This tool could be strengthened

by providing a schedule outlining the elements of the marine environment that require limits (eg sediment, nutrients, wastewater, chemicals, habitat protection etc) and the human activities requiring limits (eg forestry, agriculture, urban development). The risk of leaving this tool vague is that it gets narrowed down to only some indicators and pressures (eg coastal water quality) and not others (eg limits on biodiversity loss).

A "limit" for marine biodiversity would raise the interesting possibility of it requiring spatial expression (ie areas being mapped, not just general prohibited activity status for an activity), and therefore a duty to ensure that the NBA is used as a mechanism to create a network of protected areas rather than relying on things like marine reserves or bespoke marine protected area legislation. While it is not included in the exposure draft, the Randerson Panel recommended that the Minister have an active duty to identify and prescribe significant habitats, which might translate into an obligation to *map* them. In short, limits could be used as a tool to deploy marine protected areas in the more integrated setting of a regional plan. This has, to some extent, been achieved through RMA tools via bespoke legislation in Fiordland.[9]

The Panel has also suggested that the NBA include mandatory targets for a number of things, including the restoration of ecosystems and "viable populations of indigenous species". That includes the coastal marine environment. Such targets could be a tool to pursue quite specific marine objectives through the NBA for which the RMA has not been used. That could include (for example) a percentage target for marine protected areas, population targets for threatened species,[10] or even catch limits to achieve "viable" populations for "indigenous" fish above maximum sustainable yield (although much would depend on how the interface with the Fisheries Act was provided for and what legal influence targets had). The NBA could be used to directly implement some of the specific future-focused marine objectives of *Te mana o te taiao* (the Biodiversity Strategy).[11]

Mandatory limits and targets could be included for the marine environment under the proposed NBA.

Should environmental limits and targets under the NBA be used as a mechanism to progress spatial protections (eg marine protected areas) and targets for marine species to complement conservation legislation?

The NBA's intent to provide a more comprehensive package of national direction could be used as an opportunity to promulgate both national policy and regulations to fill notable gaps in marine management. Some are underway or have been previously suggested, such as an NES outlining common minimum standards for wastewater (and possibly stormwater) discharges, national direction on offshore aquaculture, and an NPS outlining how the te Tiriti relationship is intended to work under the NBA (including in the marine space). Other NPSs could be developed for marine biosecurity more generally, and/or for plastics (including risks to the marine environment). Existing national direction could be strengthened using a marine lens, for example to prohibit or phase out clear-felling of plantation forestry (or at least to require integrated catchment approaches to stagger planting and harvesting),[12] to extend the NPS for Freshwater Management to include estuaries as management units (and strengthen provisions for sedimentation),[13] and to link the concept of good urban design under a revised NPS on Urban Development to the benefits that such design can have for marine outcomes.[14]

While new national direction could lead an independent existence, the NZCPS itself could also get a makeover. Provisions on sediment could be strengthened to complement the NPS for Freshwater Management.[15] It could be made clear that all policies requiring the "avoidance" of adverse effects are deemed to be "limits" under the NBA, and it could deal more explicitly with the adverse effects of fishing activity on marine biodiversity, thereby signalling to councils the range of things that regional plans must deal with (see *Motiti* discussed in Chapter 6).[16]

New national direction could be created under the more comprehensive National Planning Framework envisaged for the NBA, including for wastewater and stormwater discharges, offshore aquaculture, and how te Tiriti obligations are to be applied in the coastal marine area. The NZCPS itself could be strengthened.

What additional national direction could be promulgated under the RMA to improve marine outcomes?

Another option would be to pair the NZCPS with new national level regulations (an NES) that are explicitly designed to give effect to its objectives and policies. We have had an NZCPS since the inception of the RMA, but that has never translated into complementary regulations, instead being left to regional councils to implement.[17] This has led to uneven outcomes, with some councils still to give effect to the 2010 NZCPS more than a decade after its promulgation.[18]

The NZCPS could even be a place in which the Minister of Conservation or Minister for Oceans and Fisheries exercised jurisdiction over the broader biodiversity impacts of fishing – for example, an NES on bottom contact fishing methods. That would recognise, essentially, that such methods are almost by definition harmful to benthic biodiversity (beyond considerations of the sustainability of fish stocks themselves).[19] Such provisions might even be required as mandatory limits under the Act. After all, the lesson from the *Motiti* decision

is not just that regional councils have jurisdiction over the biodiversity impacts of fishing, but also that the *RMA* does.[20] The NBA could potentially go even further, specifically restricting the act of fishing (in its equivalent of the RMA's Part 3), and requiring consent unless expressly authorised in a regional plan.[21] As we said in a previous publication:[22]

> Arguably the RMA is a more well-developed regime for the management of broader ecosystem impacts of fishing in the territorial sea than the Fisheries Act, and action under the legislation could be expanded in this area to help address the lacuna. The RMA has a strong framework of policy and planning instruments (including the New Zealand Coastal Policy Statement, regional policy statements and regional plans) and well-tested environmental impact assessment methodologies. Councils and the Courts routinely make decisions on environmental matters that involve the exercise of private property rights (such as with land). In stark contrast, under the Fisheries Act, there is no active policy on environmental matters and … inshore fisheries planning is particularly weak on environmental matters.

Finally, the NZCPS could be strengthened so that it provides for more extensive "implementation" provisions as has been seen in the most recent iteration of the NPS for Freshwater Management. It would become an active, not a passive, tool. That could require the achievement of milestones through particular timeframes to address land and sea-based stressors and outline how the NZCPS and NPS for Freshwater Management would work together. This kind of thing is arguably anticipated by the proposed NBA's provisions that define limits as including regional planning provisions that are designed to give effect to national level policy limits.[23]

A package of national direction could also be structured differently so that it gave proper attention to the interconnectedness of marine issues. The draft Bill describes national direction as a "National Planning Framework" but does not explain how that would be structured (or even if it would be a single document). The marine environment could be given greater focus by ensuring that, for example, an integrated set of domain-based policies formed a first layer of provisions (including the incorporation of the NZCPS and NPS for Freshwater), and other elements (eg sectoral policies and rules for forestry, urban development and wastewater disposal) would then be required to be consistent with or implement that first layer. That would prevent potential misalignments arising between narrower sectoral regulations and the policy intent of broader tools like the NZCPS, and ensure that the former were designed in a way that actively *gave effect* to the latter.

Proposed changes to plan making mean NBA plans also have the opportunity to become more effective tools for marine management. Notably, the production of an integrated combined plan for each region could enable a more holistic approach to the coastal marine environment to be taken (including where particular land uses are enabled and where urban growth is directed), and iwi/hapū will have a stronger voice through partnership with councils in plan-making.

The NZCPS could be expanded in scope to deal with the national level impacts of fishing on marine biodiversity, and be complemented by a mandatory NES that gave effect to it at a national level. A National Planning Framework provides an opportunity to structure national direction in a more logical way, and for marine matters to be more thoroughly integrated into other parts of national direction (eg forestry, urban development).

Should national direction under the NBA be expanded to address the environmental impacts of fishing?

It is still unclear what the NBA will look like, and which tools will be carried over. The RMA provides a number of tools that could be used more or in a more nuanced way. For example, the ability to transfer decision-making power to mana whenua has existed since the inception of the Act, but has been used only once.[24] The NBA could put more framing around when that power *should* or *should not* be used in the marine context (especially in light of impending claims for customary marine title under the MACA Act, and the wider jurisdiction over fishing controls that regional councils are discovering post Motiti),[25] rather than just leaving it sitting there in the toolbox. That is part of a bigger conversation about what the shift to giving effect to te Tiriti principles means under a new Act, and we note that there are other questions (eg around tribal boundaries and mandates) that would need to be addressed as well. More generally, however, the Waitangi Tribunal noted that control over taonga in the marine environment should shift from being a settlement-based grievance process to a proactive management process that occurred as of right.[26] That does not mean that all powers should be transferred under section 33 (or its future equivalent), but it does point to a need to clarify why the tool is there.

Existing use rights are a tool employed by the RMA to give landowners and occupiers certainty that their land use can continue as long as certain conditions are met. The Randerson Panel has pointed out that defending such rights could imperil the ability to achieve environmental change, and that is particularly true in the oceans (eg where sediment and other runoff from land can have devastating impacts long after a land use stops).[27] The Panel suggested that existing use rights might be overridden where they threaten environmental limits, so it will be important for that tool (a limit) to be defined to include the key threats facing the marine area.

The NBA could provide greater framing around when powers were to be transferred to iwi in the marine environment, potentially linked to claims under the MACA Act. Existing use rights for land could also be addressed, so that they could be overridden where environmental limits were threatened (eg to avoid significant impacts on protected areas in or near estuaries).

Under what circumstances should powers under the RMA/NBA be transferred to Māori?

The RMA (and the NBA) are not just about protecting the environment; they also have significant roles to play when it comes to the allocation of resources, including coastal occupation rights. The debate about rights to the fixed use of space has in the past largely centred on aquaculture (see the spotlight below), but has implications for many other activities as uses of the marine environment diversify.[28]

At present, tools like tendering are already available to allocate coastal space under the RMA, but the dominant mechanism is still the consenting process (first in, first served). Options for allocation in the future could include tools like auctioning and the mandatory use of tendering (or the development of national policy for when it is required or encouraged,[29] including clearer principles as to the outcomes sought).

Another option could be greater activity-based zoning to allocate spatial rights to different sectors.[30] As we explained in *Farming the Sea*, for example, it is by no means clear that the concept of aquaculture management areas (specific identification of space outside of which aquaculture could not occur) was a bad one, and many other reasons can explain its lack of uptake.[31] The idea of proactively identifying suitable areas for activities like aquaculture, including in relation to other activities and uses (eg marine protection), has been notable in the Sea Change – Tai Timu Tai Pari marine spatial planning process in the Hauraki Gulf.[32] These bigger picture spatial allocations (which focus on identifying uses which are appropriate, rather than who gets to undertake those uses) could be progressed through a prior process of marine spatial planning (see later in this Chapter).

Harvesting oyster spat, Mahurangi Harbour

A spotlight on allocation in the marine environment: Aquaculture

Historically, regional councils had little ability to control allocation for aquaculture activities under the dual system of the Fisheries Act and the RMA's first-in, first-served model.[33] Alternative methods were considered, but largely rejected by councils, as it was concluded that the RMA's allocation model did not sufficiently enable councils to devise alternatives (such as balloting).[34] A moratorium on new allocation was put in place in November 2001, and reforms in 2004 introduced a single process for aquaculture planning and consents, through designated "aquaculture management areas".[35] These were abolished in 2011, and marine farms can now be established outside of them. The first-in-time consenting approach was reinstated, although regional councils can now provide for alternative allocation methods in regional coastal plans.[36] This provides a lot of flexibility for councils if they choose to use it. However, uptake of such methods has been patchy, with industry choosing to focus its efforts on national action (eg an NES dealing with reconsenting of existing marine farms) and specific regulations for relocation.[37]

Allocative issues have also arisen in relation to Māori rights relative to Crown breaches of te Tiriti o Waitangi.[38] Māori claims to commercial aquaculture were fully and finally settled in 2004, with allocation of 20 percent of existing and new aquaculture space.[39] The process for achieving this was originally to provide to Māori 20 percent of the space in aquaculture management areas once they were created. However, with the requirement to create such areas removed in 2011, a new settlement mechanism needed to be found. Settlement can now be achieved through the use of regional agreements, which estimate prospective future space and provide the option for a monetary settlement in lieu of (uncertain) future space. Despite some progress, this has proved a fraught process.[40] Allocative tools in a future system will need to respect this ongoing process.

Overall, the ability since 2011 to deploy flexible tendering and other competitive processes under the RMA can be regarded as a positive thing. It is a relatively low-cost way to find out the value potential users attach to resources and where it can be used most efficiently.[41]

That said, while the Act allows for tendering, and this has been used (eg for a fish farming area in the Coromandel),[42] it does not really drive its use or put a normative framework around it. One option would be to make tendering mandatory under the RMA, or some other process by which the relative merits of multiple applications are assessed at once. The Act could also be strengthened in a new NBA by including clearer allocative principles to guide tendering processes (beyond just sustainable management and te Tiriti settlement obligations). Purely financial approaches to tendering (and auctioning) do not consider equity of access or wider values, such as cultural considerations. There is also the risk of corporatising rights in a few large users, forcing out others, constraining new entrants, and undermining overall community wellbeing.[43]

Tools under the NBA may also need to reflect the need for activities (and protections) to be more agile, and to rethink what "occupation" means in an age of climate and other environmental change. An aquaculture operation that only has rights to exist in a particular place, that becomes untenable for both operational and environmental reasons, is not desirable for anyone. Our tools may need to be more flexible.

One option would be to support a transition (where possible) towards aquaculture operations that were mobile (eg nets that could be towed rather than permanently fixed to the seabed),[44] and to provide for tools that allow operations to shift between approved areas (a permit based on biomass rather than location). For example, in Norway licenses are attached to biomass which can be moved between different aquaculture areas depending on environmental conditions and market requirements, helping to avoid the risk that operators become trapped in marginal or unsuitable sites.[45] A mechanism could even be developed to shift permits granted under the RMA/NBA to ones in the EEZ were open ocean aquaculture to be encouraged. An option would be for such "mobile" occupation rights to be perpetual and tradeable (as concerns about the environmental impacts of the right on a particular location would be less important), although that may raise similar issues of social equity to what we have seen with the fisheries QMS.[46] Corporatising and commoditising rights to occupy the marine commons is – depending on one's worldview – arguably more inappropriate than doing so with fish, because it has implications for access, not just to a resource, but to the marine area itself.

- Should the use of tendering or other competitive processes for allocating rights in the marine area be mandatory, or more direction provided as to when it should be used?
- Should there be attempts to revive the concept of aquaculture management areas in a more nuanced manner (eg to implement broader marine spatial planning processes)?
- Should occupation rights for aquaculture relate not to a particular space, but rather to a biomass that can be shifted to different areas?

Another potential tool available under the RMA (and presumably the NBA) would be resource rentals or charges. This is not about the allocation of rights, but rather about the allocation or distribution of value that is created by those rights, recognising that a non-private resource should see some of its value returned to the public and iwi/hapū. As explained below, charges are possible at the moment under the RMA, but are not uniform or consistent. One option would be to make charges compulsory through amendment to the Act, or to provide greater policy guidance through the use of national direction on the subject. A sub-option might be to charge for some types of use but not others, for example to incentivise uses of the marine area that had beneficial environmental effects (eg some forms of shellfish or seaweed aquaculture).

A spotlight on charging for use of the marine environment

Prior to the RMA, charges for the use of the coastal environment were levied under the Harbours Act 1950 by a variety of regulators, including Harbour Boards and the Marine Division of the Ministry of Transport.[47] Other charges were levied under special Acts of Parliament relating to the coastal marine area.[48] The result was an ad hoc charging regime which was applied inconsistently. During the mid-1990s, a report was commissioned to review charging regimes and it concluded that coastal charges could valuably employ the market mechanism of supply and demand, both to allocate coastal space in a manner that acknowledged its scarcity and to promote allocation of the resource to its best use. The report concluded that the existing system should be discontinued and replaced by some form of user or occupation charge, applying as an adjunct to the coastal planning regime and appropriately tied to local circumstances.[49]

The Resource Management Amendment Act 1997 provided regional councils with express powers to charge for occupation of coastal space. Regional councils must now include statements in their regional coastal plans as to whether charging will be employed, and consider the balance of public and private benefits when determining whether or not to employ a regime.[50]

However, few councils have undertaken charging.[51] Reasons put forward for not introducing charging regimes include the risks being too high due to lack of clarity in the legislation, a number of barriers to implementation, and issues regarding equitable implementation.[52] Others include (rather unbelievably) uncertainty around what coastal occupation charges are; the low level of coastal occupation in a district; uncertainty over future ownership and management of the foreshore and seabed; and the likelihood of a lengthy plan change process holding up other priorities.[53]

Should there be a compulsory charge for coastal occupation under the RMA/NBA, or clearer direction as to when/what such charges should be imposed for different uses?

Novel tools could also be developed within the framing of the NBA. For example, an intriguing model is provided by water conservation orders (see the spotlight below). Although water conservation orders are not applicable to the marine area (and themselves require significant improvements),[54] they provide an interesting template for other "order-based" tools that could be deployed in our seas. We could, for example, include "ocean conservation orders" in the NBA as a mechanism to respond quickly to adverse environmental changes.

A spotlight on water conservation orders

Water conservation orders are a hangover from pre-RMA legislation,[55] and seek to provide targeted protection to water bodies having high intrinsic value (eg wild rivers). They were a response to a rapidly expanding hydro-electricity sector.

Once an Order is in place, councils must ensure that their policies and plans are not inconsistent with it and resource consents must not be granted if they are contrary to the Order. Any party can apply for an Order[56] with the bulk of the applications having been by the New Zealand Fish and Game Council (and the Department of Conservation only having made one application). Uniquely, they are not subject to Part 2, and have their own highly protective purpose nested within the RMA,[57] in a way not dissimilar to separate conservation legislation (eg national parks or reserves). They could, in theory, be equally at home in other legislation.

These orders are a direct mechanism by which the "normal" RMA planning process can be bypassed, where there are outstanding values to be protected. But why should that mechanism be limited to freshwater, and limited to where outstanding values remain? For example, rather than just protecting examples of relatively pristine elements of the environment, could a similar process be used to impose directive environmental "emergency" orders at the other end of the spectrum – where bottom lines have been infringed and a part of the ocean is unacceptably degraded (eg in a polluted estuary)? Could they be used as a mechanism by which untouched but vulnerable elements of the marine environment could be protected in a faster way, to recognise their intrinsic value (eg biogenic reefs, hydrothermal vents, or critical habitat for threatened species)?

The concept of an emergency order is not dissimilar to the Randerson Panel's suggestion that a general regulation making power should remain outside of national direction

(NPSs and NESs) where there is an immediate risk of environmental damage.[58] It could be a temporary measure to allow breathing room to learn more about the pressures facing an area, and could even be accompanied by support and compensation for lost rights (eg a temporary restriction on harvesting plantation forests in a catchment, or reducing stocking rates). We see a similar thing in the context of biosecurity incursions, where emergency restrictions can be draconian (eg the removal of shellfish and disestablishment of marine farms) where the economy is imperilled.[59] Yet environmental issues can be similarly urgent, and warrant a similarly firm response.

This "order" style tool could potentially also form the framing for rāhui as a formal tool under the NBA, although there would be questions to address as to who was able to apply for such an order, what could trigger it (eg environmental harm or broader cultural factors) and who would be responsible for granting it. Further questions would arise surrounding the relationship between these orders and the tikanga practice of rāhui: would the orders supersede customary cultural practices or enhance them?

A spotlight on rāhui

Rāhui is a Māori concept and cultural practice that uses constraints on activities and locations in order to give time for the area to physically and spiritually rebalance. Rāhui are seldom permanent, and are usually ended when the problem is addressed and resolved. A rāhui may, for instance, be a temporary prohibition on harvest of a species when it has become scarce in a location. A permanent rāhui may be imposed, for instance, on food gathering at a battle site or place specifically associated with death, such as a drowning. In addition, a rāhui is carried out to pay respect to the area and to the people who may have been affected by the problem as a result.

Rāhui has no direct current recognition in statute, although mechanisms such as temporary fisheries closures can be used as a means of enforcing a rāhui. Other mechanisms, like marine reserves, are less consistent with rāhui in that they have indefinite duration. This reflects a Western tradition of spatial separation of wilderness and human activity. Rāhui is also a tool to secure cultural practices, not just "environmental" ones as understood in the Western sense. As such, the concept and practice of rāhui could in some cases present some tensions between Western and Māori ways of thinking.

- Should the RMA/NBA contain new, more directive types of tools where an environmental limit is threatened, like an "emergency" marine conservation order? Should such things be temporary?
- Could iwi be empowered to use such tools in a way that reflects traditional uses of rāhui? Or will it become a disadvantage from a mandatory perspective, ie whose rāhui will be used in a specific area?

No doubt there are a number of other tools that could be deployed under a new NBA. For example, individual pieces of national direction have become adept at providing their own framing for the development of other instruments (eg future development strategies under the NPS on Urban Development), and similar strategic instruments could be created under the auspices of a revised NZCPS. We welcome suggestions as to what other tools could be used, or deployed in different ways, under an NBA that seems likely to resemble the toolkit of the existing RMA in many ways.

Cockle harvesting, Kawakawa Bay

Many of the above points are applicable to the EEZ Act as well, which provides a similar (albeit much simpler) framework that applies in the EEZ. However, a handful of other options also stand out. Most obviously, since 2017 there has been the ability to promulgate an EEZ policy statement under the Act (prior to that, regulations were made largely in a policy vacuum other than the Act's general purpose and principles). Yet no such instrument has been made, despite broad criteria being included as to what the Minister must consider when deciding whether to do so.

This is clearly a tool that could be made much better use of. Regulations, especially where they provide for a discretionary consenting pathway rather than outlining permitted and prohibited activities, are no substitute for objectives and policies that both assist decision makers in determining consent applications and provide a policy justification for why regulations exist. Ongoing difficulties and uncertainty about deep sea mining can be seen equally as the product of a lack of policy and strategy (whether, where and why we want mining to occur or not) as a scientific assessment of what the impacts of mining operations would be.[60] An EEZ policy statement could build on the relevant general provisions of the NZCPS, or target policy towards the activities likely to occur in the EEZ (eg mining, offshore aquaculture). It could also – even at a broad level – engage in a spatial sense by identifying valuable features of different areas (eg the Chatham Rise or around Rangitāhua/the Kermadec Islands).[61]

The Tiriti clause of the EEZ Act is also a "tool" that could be amended. Although the courts have made heroic efforts to interpret it more broadly, its approach remains problematic in that it essentially deems the Act to comply with te Tiriti rather than opening a space for subsequent decisions to do so.[62] To many that may be an inappropriate presumption; how can a framework implement te Tiriti when it provides for discretion to be exercised in a way that does not even (on the face of it) need to have regard to its principles? That is particularly problematic because no policy framework has been established (as outlined above).

- Should an EEZ policy statement be developed? What should it contain? How should the EEZ policy statement interface with other policy statements?
- Should an EEZ policy statement be made mandatory (like the NZCPS under the RMA)?
- Should the te Tiriti clause in the EEZ Act be amended to include consistency with the Conservation Act and proposed NBA?

The Fisheries Act

A number of tools under the Fisheries Act could be deployed or used better in a future oceans management system. Perhaps most obviously, the "sustainability measures" enabled under the Act can encompass a wide range of things, including:

- Setting the TAC and TACC
- Restricting the size, sex or biological state of the species harvested
- Restricting the areas from which any species may be harvested
- Restricting the fishing methods that can be used to harvest any stock or which are deployed in any area
- Restricting the fishing seasons that apply to any stock, any area, any fishing method or any fishing vessel
- Other methods not specifically described which are aimed at managing the effects of fishing on any stock or on the marine environment

Despite this very broad range of management tools, relatively few have been deployed since the QMS was introduced. In many places, management of commercial fishing has largely focused on the setting and (in some cases) adjusting of TACCs. Management of recreational fishing has largely focused on imposing bag limits and minimum harvest sizes, followed by closures when stocks collapse.[63] Measures such as closing areas for habitat protection and requiring the adoption of less damaging fishing gear have been much less noticeable.

The tools are clearly there in the Act. For example, methods to further reduce the impacts of fishing could include the creation of additional benthic and other protected areas, and minimum requirements for fishing gear (coupled with incentives for innovation and uptake).[64] It would also be possible for regulations to simply prohibit or phase out bottom trawling and dredging in coastal waters, although for some fishers that may cause hardship and may need to be accompanied by supporting measures.

Some have also suggested banning other methods like purse seining, on the grounds that this would enable fish closer to the surface to flourish and provide more food for seabirds,[65] and set netting to protect dolphins and vulnerable reef fish. And in addition to setting a TAC for a stock, one option would be to impose controls on fishing effort, and there could be a shift to more selective fishing methods more broadly (eg long lining). A less ambitious option would be to freeze the current dredge and trawl footprint, at least until additional protective measures for benthic habitats could be designed.[66] Impacts on seabirds can be reduced by managing fish waste and using devices that scare or deter birds from risk areas.[67] All such things can be done under current tools. One paper has identified four key types of action that could be focused on: technical measures, spatial controls, impact quotas, and effort control (see Figure 5.1).

Class	Option	Objective
Technical measures	Modify or adapt existing bottom trawl gear	Reduce seabed impacts and maintain or increase catchability of target species
Spatial controls	Prohibit by gear type	Eliminate high impact gears in a defined region
	Freeze trawl footprint	Confine impacts to previously impacted areas
	Nearshore restrictions and zoning	Reduce bottom trawling in shallow, sensitive habitats and minimise gear conflicts
	Prohibit by habitat type	Protect sensitive areas
Impact quotas	Multipurpose habitat management	Protect essential, representative and vulnerable habitats
	Invertebrate bycatch quotas	Reduce bycatch of benthic invertebrates
Effort control	Habitat impact quotas	Habitat conservation to protect benthic organisms
	Removal of fishing effort	Reduce impact by reducing fishing activity

Figure 5.1: Options to reduce habitat impacts of fishing[68]

When it comes to mechanisms for reducing the impacts of fishing on the broader marine environment (including marine mammals),[69] the problem is not so much that the tools are lacking, than that there is a lack of will to use them.[70] However, that is compounded by a (at least perceived) lack of certainty around the nature of property rights in fish (ITQ). There can be debates about whether a particular sustainability measure taken to protect the environment is "taking" or "eroding" a property right or not, whether some form of compensation should be payable, and whether te Tiriti rights are being eroded by stealth. The Act is torn between using a reasonably robust toolbox to achieve one part of its purpose (ensuring sustainability), and the defence of property rights underpinning the other (utilisation of fisheries).[71] While the sustainability principles of the Act sound firm on paper, they fall short of the directive approach to limit setting being taken under the RMA (eg for fresh water) and floated for the NBA.

It is therefore worth considering whether a similar approach to that proposed in the NBA should also inform the reform of the Fisheries Act – the idea of having a mandatory, comprehensive set of firm environmental limits rather than just a toolbox of measures to be deployed in a selective or discretionary manner. This could provide clarity as to what kinds of measures are legitimate and necessary to achieve the purpose of the Act, and which might still trigger compensation or support.

Mandatory limits could relate to many different things, including mortality to threatened species, bycatch of marine mammals and seabirds, and ecological integrity. They could even be required to be expressed spatially where appropriate; for example, that could require a large scale national mapping and assessment process from which benthic and other protected areas were deployed according to clear ecological criteria (similar to the identification of Significant Natural Areas on land, or Natura 2000 areas in Europe), rather than being the result of a balancing of different interests.[72] For example, there have been criticisms that benthic protected areas in the EEZ, while extensive, are of relatively low value because they are not in the right places to make a real difference.[73] An ecological approach could see, for example, areas around reefs and other nursery areas protected from bottom contact methods as well as fragile habitats such as seamounts.

New, mandatory environmental limits under the Fisheries Act could be made to dovetail with the broader policy context set out in a reformed NZCPS, creating a more integrated approach to oceans management (and reflecting the current lack of meaningful policy instruments on environmental protection under the Fisheries Act). Alternatively, a mandatory strategy could be provided for at a national level under the Fisheries Act itself, outlining not just general objectives and policies concerning the environmental impacts of fishing but also an *implementation* strategy for how it could be achieved. It could, in principle, look not too different to the NPS for Freshwater Management, where arguably most value lies in its directive provisions around implementation.

- Should there be a mandatory, comprehensive set of firm environmental limits required under the Fisheries Act as under the NBA, rather than just a toolbox of measures to be deployed in a selective or discretionary manner? If so, what should be included in them?
- Should there be a national fisheries environment strategy, outlining a strategic plan for how sustainability measures would be rolled out to meet environmental limits?

In this light, it is interesting to consider the place of fisheries plans within the system. These can be created under section 11A of the Fisheries Act, and while the Minister must take them into account when making decisions, they are not mandatory and their purpose remains murky. They are nothing like the structured, focused and legally influential plans that are made under the RMA.[74] As we have said previously:[75]

> There is currently a very weak policy and planning framework to guide fisheries decision-making .... The legislative framework only provides for fisheries plans (not policy or standards), and the provisions are sketchy as to the purpose, content and preparation process for the plans. [However,] the development of such documents helps to engage a broader constituency in fisheries management, and to provide greater certainty as to how fisheries management will be effected in the public interest. Once the policy or plans are settled, it helps to reduce the politicisation of decision-making and the frequent u-turns which have characterised fisheries decision-making to date. A key matter to resolve is what the role of fisheries planning should be, the scope and content of such plans, and how they should be developed.

Fisheries plans could conceivably be made mandatory, their place/hierarchy in the system made clearer, and their content or at least their purpose prescribed. They could also be regional or local in their application (bioregional fisheries plans) as opposed to the general ones that have been prepared in the past,[76] involve greater public input,[77] and reflect the full range of values reflected in the purpose of the Fisheries Act (but which for the most part have not flowed down into other tools). For example, it is interesting to contrast the values that underpinned the proposed Auckland Fisheries Management Plan from 1989 to the economic rationalism underpinning the rights based QMS. The biological objectives for fisheries set out in the plan were wide ranging, and much broader than maximum sustainable yield and harvest levels, including:

- To minimise fishing mortality on juvenile fish and shellfish
- To minimise wastage of fishery resources
- To protect areas important as habitats for fish and shellfish, especially at vulnerable stages of the life cycle
- To minimise pollution and other forms of degradation of marine and freshwater habitats
- To improve awareness and knowledge of aquatic ecosystems and the need for conservation of fishery resources.[78]

The deployment of more "RMA-style" fisheries plans raises questions as to whether another feature of the RMA should accompany it: resource consents. While we mentioned earlier the possibility of requiring a "consent to fish" under a new NBA, that could equally be done through the Fisheries Act, which already requires permits to fish. However, such permits are not like resource consents, and although they can be subject to wide-ranging conditions, these are simply what are considered "appropriate" and are not linked to policies or objectives in a fishing plan or any other instrument.[79] Permits could, however, be made to operate more in line with the RMA, where fishing could, depending on location and method (and therefore environmental impact), be a permitted, controlled or discretionary activity (and where consents would be assessed in light of objectives and policies of a place-based fisheries plan).

- Should fisheries plans and permits operate in a manner more similar to the RMA/NBA, where a "consent to fish" and conditions are linked to the environmental policies and objectives of a plan? Could this result in a first in first served situation?
- Should there be a requirement for fisheries plans to be place-based, to complement mandatory regional coastal plans under the RMA?

Commercial fishing boats moored at Whitianga Harbour

However, all of the above raises important questions as to what the nature of property rights under the QMS is,[80] and the extent to which it is proper for planning instruments to impact on them beyond the setting of a TAC. It also begs the question as to why such things would be developed in parallel under the Fisheries Act when the RMA might be more suited to the task, and (if there is an irreconcilably difficult legislative boundary) whether the two might not be combined in a single Oceans Act (see Chapter 6).

It is also worth considering smaller scale options for the toolkit when it comes to setting catch limits for fish stocks themselves (rather than tools for protecting the broader marine environment). One option would be for the Harvest Strategy Standard, which is currently used as a non-statutory guide when setting catch limits, to be formalised in legislation as a core part of the system. A recent High Court decision has confirmed that this instrument cannot be ignored (see the spotlight below). However, the Standard does not have formal status under legislation; in future it could be recognised under the Fisheries Act to ensure there is rigour around setting commercial catch limits (to ensure they are not managed to below maximum sustainable yield). This might go some way to remedying the lack of formal policy instruments under the Fisheries Act, and could even evolve to add more value-based principles for setting catch limits (ie to aim for something other than sustainable yield).

A spotlight on the Tarakihi decision: The place of the Harvest Strategy Standard in the fisheries management system

In June 2021, the High Court issued its judgement on a challenge by Forest and Bird of decisions made by the Minister of Fisheries which set the TAC and TACC for East Coast tarakihi fish stocks.[81] For the 2015-2016 fishing year, the size of the stock was estimated to be just 17 percent of virgin biomass, further reducing to 15.9 percent by the time of an April 2019 stock assessment. In response, the Minister made decisions to reduce the TAC and TACC for the stock for the 2018 and 2019 fishing years resulting in a combined reduction of 22.3 percent for the East Coast tarakihi stock.[82]

The Court found that the Minister had made an error of law (in setting the rebuild period for the stock), failed to take into account a mandatory consideration (the Harvest Strategy Standard), and had regard to an irrelevant consideration (an Industry Rebuild Plan) when making the decisions. Although the decisions were not set aside, the findings of the Court will guide the Minister's decision for the stock in 2021, and will no doubt have flow on effects for decisions on other stocks which require a rebuild.

The decision provides useful clarity on the application of several provisions of the Fisheries Act to stock management, and the way in which environmental limits are to be applied in that context.

The Court made it clear that stocks are not to be managed below maximum sustainable yield, thereby confirming it as a firm limit. It dismissed the argument that social, cultural or economic considerations could be taken into account when determining the period of rebuild, on the basis that this was "not a tenable interpretation" of the relevant section (s13(2)(b)(ii)) because it would enable stocks to be "perpetually" maintained below maximum sustainable yield.[83] This was in the context of the Minister being influenced by an Industry Rebuild Plan when setting a longer period for stock rebuild.[84]

The Court also made it clear that the Act required more than the Minister simply "moving in the right direction" when stocks were below maximum sustainable yield.[85] The Minister is required to identify the rebuild target (ie target stock size), the period of rebuild (which must be appropriate for the particular stock), and the probability of achieving the target which are all "essential elements of the rebuild plan".[86]

One of the matters successfully argued by Forest and Bird was that the Harvest Strategy Standard and accompanying Operational Guidelines were a mandatory consideration for the Minister when making decisions on setting the TAC/TACC. This was despite there being no mention of the Standard (or the setting of any policy or standards) in the Act itself.

The Harvest Strategy Standard was developed by the Ministry for Primary Industries in 2008. It establishes default limits and standards for fish stocks including management targets, soft limits (which when breached generate a rebuild plan) and hard limits (which when breached may generate closure of the fishery). When applied to the tarakihi stock, it indicates a management target of 40 percent of virgin biomass (with a 70 percent probability), a soft limit of 20 percent and a hard limit of 10 percent. It also indicates a rebuild time of 10 years. Any departures from these default settings "must be justified in terms of the particular circumstances that warrant such departure".[87]

The Court found that although the Standard did not have legislative force, it constituted "best practice", was an "established and recognised body of opinion" and therefore was the "best available information" under section 10 of the Fisheries Act. This section sets out a number of information principles that "must be taken into account" by decision-makers, with subsection (a) stating that "decisions should be based on the best available information". This meant that the Minister must take the Standard into account, although he or she is not required to comply with its provisions.

However, the Court did highlight that, in this case, the weight to be given to the Standard "is not solely at the Minister's discretion" as "while the HSS [Harvest Strategy Standard] does not have legislative force, there is no counter argument from the respondents to the HSS statement that one cannot be satisfied that rebuild is complete until there is at least a 70 percent probability that the target has been achieved".[88] This indicates that the Minister cannot decide to depart from the Standard unless there is a solid scientific basis for doing so.

An indication that the Harvest Strategy Standard has not been adhered to in fisheries decisions to date is shown by the advice given to the Minister by Fisheries NZ on the tarakihi stock. In 2018, Fisheries NZ provided the Minister with three options to rebuild the stock. Only one (Option 1) was estimated to rebuild the stock within the 10 year target indicated by the Standard (requiring a 55 percent reduction in TAC). Option 2 was projected to require a 20 year rebuild (through a 35 percent reduction in TAC), and Option 3 which included a lower TAC reduction (20 percent) had no estimate of rebuild time. The Minister adopted Option 3.

The 2019 advice paper contained four options provided by Fisheries NZ, none which met the requirements in the Standard. Option 1 (31 percent reduction in TACC unevenly spread) had a rebuild period of 12 years and Option 2 (35 percent reduction evenly spread) 11 years, both with only with a 50 (rather than 70) percent probability; Option 3 (no TACC reduction but voluntary industry measures) had a reduced rebuild target (of 35 rather than 40 percent of virgin biomass), a rebuild target of 20 years and no associated probability; Option 4 (10 percent reduction and voluntary industry measures) had a rebuild period of 25 years (with 50 percent probability) and a rebuild of more than 30 years with a 70 percent probability. The Minister adopted Option 4.

As a result of the Court's decision, the Harvest Strategy Standard can now be considered as a policy document that establishes default limits for the setting of the TAC and TACC for stocks, and these can only be departed from on the basis of sound scientific grounds. However, that begs the question whether the legislation itself should have such a document at its heart.

Should the Harvest Strategy Standard or something like it be formalised as part of the decision-making system?

The stock assessment process, and TAC, could also move away from a focus on single stock assessment and "counting fish" towards a more ecosystems-based approach.[89] The assumption that harvest quantities are the only important driver of fish stock condition no longer holds in many inshore fisheries where degradation of marine habitats due to other factors is occurring.[90] Again, this may be not so much to do with the Act's framing of its stock assessment tools like the TAC (see the spotlight below), but rather the ways in which the process occurs and what informs it.

Longlining, Hauraki Gulf

Strengthening an ecosystems approach to stock assessment

Some commentators have argued that fisheries management tends to focus on single species rather than taking account of interactions between species or with the ecosystems within which fish species live.[91] Within the food web, fish function both as predator and prey, and in those roles, they affect the structure and function of the habitats in which they live. When fish are removed by harvest, this reduces the size of their own population, but also in turn affects the populations of other biota and the relationships amongst them within complex food webs. Focusing management primarily on the size of the harvested stock (and "counting fish") has the potential to lead to the wider effects of fishing being ignored, including changes in ecosystem components that may affect the managed stock itself in the longer run.

The Fisheries Act does not limit management to a single species approach. In fact, section 9 requires that decisions take account of the need to sustain associated or dependent species, the maintenance of biological diversity of the aquatic environment and protection of habitat of particular significance for fisheries management. This is evident in the plenary assessments of fisheries stocks[92] including its use of the Aquatic Environment and Biodiversity Annual Reviews,[93] which provide summaries of scientific data and analysis of wider ecosystem effects and relationships including by-catch, benthic effects of fishing and ecosystem status.

However, in practice, and despite the Annual Reviews, the wider effects are less well understood because the research focus and investment has largely been on valuable commercial species rather than non-commercial species or the quality of the marine environment in a wider sense. The Ministry for the Environment with Statistics New Zealand note that about half of Aotearoa New Zealand's fish stocks (mainly minor fished species) have too little information to reliably assess their stock status.[94] Yet these are often vital components of the broader marine food web.

McKoy suggests some of the problem is attributable to the "user-pays" funding model for research because it relies on a levy on quota owners who can influence what the research is focused on (see Chapter 8).[95] In addition, the costs are levied back to quota in individual stocks, and some of the smaller less valuable stocks do not produce enough revenue to make investment in their research financially viable (which raises the interesting question of whether we should be fishing stocks if we cannot afford the research to understand the effects of doing so). Quota owners are understandably more focussed on the stock they own quotas in, and on those that are of the most commercial value.

Alternative funding models are likely to provide a better basis for science aimed at achieving sustainability in its widest sense. For example, funding might still come partially from a levy on quota owners but with research guided by an independent panel with a wider societal remit, and more thoroughly integrated into a coherent strategy and plan for environmental research.[96] And other sources of funding might be looked at, too, recognising that there are considerable recreational fishing and broader public interest in having a strong information base. For example, one option could be to provide a licensing regime for recreational fishers and ringfence revenue for ecological rather than stock-based research. Our system for environmental research, information and science has been looked at recently by the Parliamentary Commissioner for the Environment,[97] and oceans are an important part of that given how little we know and how difficult things can be to observe. Arguably there needs to be a more fundamental rethink of our funding model.

How could a future system strengthen an ecosystems-based approach to stock assessments and catch limits? Would changing approaches to research funding make a difference?

We are continuing to explore various other options for how tools could be deployed more effectively under the Fisheries Act, whether under current settings or with reasonably small-scale legislative amendments. Whether these are good options or not depends fundamentally on one's worldview, and therefore how one defines problems and objectives. For example, options not already covered above could include the following.

Charter recreational fishing, Hauraki Gulf

- Stronger aggregation limits for quota in some fish stocks;
- A transfer of some powers to iwi/hapū (eg binding rāhui, ability to self-manage areas);
- The redrawing of the boundaries of quota management areas according to the biological reality of fish stocks (or the establishment of catch limits for local areas within a quota management area);
- A more flexible mechanism by which quota management areas can be changed as stocks move due to climate and environmental changes;
- Mixed species quota (where fish are commonly caught together);
- A different process by which sustainability measures are set, including formal public participation and potentially merits appeals in some cases;
- A requirement that sustainability measures be deployed where there is evidence of environmental harm;
- A different treatment of "commercial" recreational fishing (eg charter boat operators);
- A government directed industry transformation plan with teeth (eg to transition one industry to another);
- The ability to transfer ITQ to occupation rights for sustainable aquaculture;
- A mandatory licensing framework for recreational fishing, and obligations to report catch;
- Clearer principles around how to allocate fishing rights across customary, recreational and commercial fishers;
- The creation of quota (and a total cap) for recreational fishing;
- The imposition of resource rentals associated with the landing of fish, to be ringfenced for use in ecological research for the marine environment (including a portion to Māori for mātauranga research and monitoring);
- The creation of a framework around ahu moana areas (as recommended through the Sea Change – Tai Timu Tai Pari process);[98]
- A broader distribution of licensed fish receivers around the country, targeting communities in need (including potential Crown investment or ownership).

There is also a more fundamental option to think about. That is whether the property-based tool of the QMS should remain at all (or be fundamentally changed). On the one hand, the QMS has proved successful in reducing fishing effort and in enabling the rebuilding of some fish stocks. It has underpinned the settlement of Māori fishing claims and associated economic revival of iwi. It has also supported the development of considerable financial capital in the fishing industry. To dismantle it would be extremely difficult, due not just to the extensive property rights involved, but also because quota has been used as currency for full and final Treaty settlement purposes. Furthermore, arguably it is not the QMS itself that has caused environmental impacts; it is the absence of supporting sustainability measures under the Fisheries Act and the RMA which can still be strengthened while maintaining a system based on ITQ.

That said, the social outcomes of the QMS have been far from uniformly positive,[99] and it is arguable that the existence of strong and perpetual property rights without closely associated responsibilities[100] (and an expectation of few constraints) is a significant factor in *why* sustainability measures have not been taken. The separation of quota ownership from those doing the fishing (through the creation of ACE) has also arguably diluted the stewardship benefits of creating property rights in a resource, due to many fishers no longer having a long-term stake in the industry.[101] The quite different management mechanisms for commercial, recreational and customary fishing have also arguably exacerbated tensions between them, which remain unresolved.[102]

Some, such as Legasea, have therefore proposed unravelling the QMS through the mass buyback of ITQ and instead authorising commercial fishing through a permitting process, including associated environmental conditions and a financial return to the public and Māori.[103] This "Rescue Fish" policy is described as requiring:[104]

> the Government to buy back existing quota rights in the inshore fisheries at fair value. The estimated buyback cost is between $0.76 and $3.1 billion. … Commercial fishing will be subsequently managed by a permitting regime. Permits will be leased, time limited and have a resource rental attached. Rental income will be collected by the Crown and shared with Māori. A new Fisheries Act will both prioritise the maintenance of healthy fish stocks and exclude bottom trawling and dredging from inshore waters. Priority will be given to Māori customary and public fishing.

Of course, this measure would go well beyond using the "existing" toolkit better; it would be about fundamentally changing or replacing one of the tools in the toolbox. Achieving such a thing may also prove very challenging, not least because of the implications for te Tiriti obligations.

More fundamentally, the legitimacy of the option may depend on whether we still see the QMS as a "tool" within the system at all. Instead, has ITQ become irretrievably woven into a Western cultural tapestry of private property rights, and once given this status escaped from the scope of the "system" entirely? And has the QMS become so embedded in the te Tiriti settlement framework that it is practically impossible to unwind? Would changing the terms of the Māori Fisheries Settlement open the floodgates to relitigating a whole raft of broader Treaty settlements?

One might compare private property rights in land, where (except in a very targeted sense where there is an

intense public interest in acquiring small tracts of land, such as for a road) such rights are seldom regarded as a tool to be granted and unwound to achieve changing public policy goals – no matter how important.[105] Instead, they are treated as the "natural" state of things in a capitalist society – *someone* must own the land – that must be eroded as little as possible. In the QMS, have we irretrievably projected this land-based attitude to our oceans, or are we open to a different way if an equitable transition can be achieved?

A more modest option at sea might be the purchase and retirement[106] or redistribution (eg by tender) of a smaller portion of quota by the Crown on a willing seller basis. The Crown (or an arm's length agency) could become a significant quota holder, itself leasing out quota or ACE in order to achieve positive social, environmental or other public outcomes (eg leasing ACE at less than market value for fishers using environmentally friendly techniques, or gathering scientific information).

- Should the QMS be unwound entirely and replaced with a non-market-based system (eg permitting)?
- Should there be some buy back of quota, and the establishment of a public quota holder to lease out rights based on a broader range of social and environmental factors?

As a final thought, it is interesting to ponder whether Fisheries Act tools could be used in quite a different way beyond the purpose of the Act. Setting a catch limit is a tool currently deployed under the Fisheries Act, in order to maintain fish at a biomass that achieves maximum sustainable yield.[107] However, some experimentation with the tool has occurred as part of the proposal for the Kermadec ocean sanctuary, and it begs the question as to whether we should be able to use fisheries tools like the TAC for broader purposes.

A spotlight on the Rangitāhua/Kermadec ocean sanctuary

The proposed Rangitāhua/Kermadec Sanctuary largely coincides with Fishery Management Area 10 (FMA 10). When the QMS was introduced, nominal quota was created for FMA10 in the event that a commercial fishery was established there. This has yet to occur and so the quota has not been allocated to iwi or fishers. It is held mainly by the Crown with 16 percent held by TOKM as part of the fisheries Treaty Settlement.[108] The reasons for the lack of development of a commercial fishery in FMA10 include the presence of a marine reserve in the territorial sea which prevents a coastal fishery, a benthic protection area which prevents bottom trawling within the EEZ[109] and the distance of the islands from the mainland.

The Bill inserts into the Fisheries Act a prohibition on fishing within FMA10 (to be enforced by the Ministry for Primary Industries), and a provision to set the TAC and TACC to zero for all stock that coincide with FMA10. This means that the quota itself would not be extinguished but it could not be utilised until the TACC was increased.[110] A small part of the catch of highly migratory species (4 percent) such as bigeye tuna, swordfish and moonfish was being taken from within FMA10, but as the quota management area for these species includes the entire country's EEZ, they could also be caught outside the Sanctuary area by quota owners.

One claim brought by TOKM raises the issue of whether the creation of the Sanctuary undermines the Māori Fisheries Treaty Settlement by unilaterally changing the redress provided after the fact. This is through reducing the value of the quota held by Māori in FMA10 and also undermining the ability of Māori to exercise rangatiratanga through managing and utilising the fish stock.[111]

However, it also raises the issue of whether it is appropriate for a tool developed for one purpose (to maximise the sustainable yield of fish) to be used for another (to create a protected area for broader, value-based reasons including intrinsic values and meeting international commitments). Admittedly, the use of the tool in this case was mainly because we lack a more comprehensive framework for establishing high protection marine protected areas in the EEZ, and it is easier to piggyback on tools under other legislation. However, it raises other possibilities. For example, should we be able to set a lower (but not zero) commercial catch limit in some marine protected areas for reasons broader than managing the fish stock itself? Should regional councils under the RMA be able to deploy a catch limit in the service of broader biodiversity outcomes (see Chapter 6 on legislative design)?

Should Fisheries Act tools like the TAC be "hijacked" by other frameworks with quite different purposes, such as for marine protected areas (zero take) or areas in which pressures on habitats for broader biodiversity reasons need be reduced (eg under the RMA/NBA)?

5.3 Tools under other frameworks

We are continuing to give thought to how the toolkit under conservation legislation might be improved or used better in the marine context. This includes looking at the efficacy of tools like marine mammal sanctuaries, marine reserves, population management plans, conservation strategies and plans, and concessions. Generally, such tools lack the rigour and structure of their planning and consenting counterparts under the RMA, and some tools

have not been used to their full potential (for example, the use of wildlife sanctuaries in the marine area under the Wildlife Act).[112]

It is also important to consider the interface of conservation tools with other frameworks like the RMA (including how control of land-based stressors interact with marine protected areas) and Fisheries Act (including how conservation protections can be undermined by carve outs for fishing, including with respect to interactions with marine mammals like dolphins). We note that our parallel project on conservation system reform is also looking at such things in a broader context than the oceans, and we will continue to build upon that in our final report. Also important will be tools under the Biosecurity Act and Maritime Transport Act, as well as the Climate Change Response Act (notably emission reduction plans and a national adaptation plan) and their relationship to other tools.

Tools under "non-marine" frameworks also warrant consideration. For example, how we address plastic waste is of enormous importance to our oceans, but (although much more could be done through the Fisheries Act, RMA and EEZ Act) must largely be achieved outside "marine" statutes, such as through product stewardship schemes and prohibitions on manufacture under the Waste Minimisation Act and measures under the Litter Act.[113]

Similarly, the performance of our wastewater and stormwater infrastructure and urban centres can impact on te moana, meaning that tools for funding infrastructure and bylaws under the Local Government Act and mechanisms like the Building Code have potential to make a difference.[114] So too do broader measures as diverse as taxation, subsidies, behavioural incentives, public service messaging, the school curriculum, corporate responsibility and disclosure rules, product certification schemes, financial tools (eg environmental impact bonds) and many other things.

Some legislative tools can also be found in unexpected places, such as the curiously broad regulation making powers under the Territorial Sea, Contiguous Zone and Continental Shelf Act.[115] Furthermore, many important tools are not linked to particular statutes, such as the Treasury's wellbeing framework (which helps inform significant budgetary decisions), *Te mana o te taioa: the Aotearoa New Zealand biodiversity strategy 2020*, and various funds through which marine research and restoration is undertaken.

The tools by which data and information, including mātauranga Māori, are collected, funded, tested and used are particularly crucial in a setting as information hungry as oceans management. That is particularly the case for fisheries management, where management is active (TACs and other measures are set in advance) rather than passive (eg the RMA waits until someone seeks to conduct an activity) and therefore requires a constant flow of information to inform decisions. Some might describe this as a system in its own right.[116] The flow of information will be explored further in our final report. We also include a think piece on information and science in Chapter 8 of this working paper.

Finally, we note that while a lot can be achieved by using mechanisms available to us now, gaps remain in our toolkit. Perhaps, most obvious, is the lack of a legal mechanism to create marine reserves or other highly protected areas beyond the boundaries of the coastal marine area.[117]

We are continuing to give thought to a number of tools that could be deployed in more effective ways, and how gaps in the toolkit could be filled. Not all of these are found in "marine" focused statutes.

5.4 Integrative tools

Tools can be used as targeted mechanisms to achieve our objectives. But they can also be used in quite a different way: to connect up multiple tools that are wielded by different institutions across multiple legislative frameworks, to ensure that they are used in a coordinated way with respect to timing, the space in which they operate, and how they can create synergistic benefits. In short, they can form the "glue" that holds the building blocks of the system together, without fundamentally shaking up legislative boundaries themselves (see Chapter 6 on legislative design). This can be achieved in a number of ways.

For example, stronger legislative cross-references can be made. This could be used to make boundaries between statutes clearer; for example, the EEZ Act and Maritime Transport Act specifically explain how and why each statute deals with particular elements of marine pollution. The same could be done to clarify the respective jurisdictions of central government and regional councils for managing marine biodiversity under the RMA and Fisheries Act. At present, that boundary remains uncertain (see Chapter 6). To use the Court of Appeal's language,[118] the two acts are designed to "look at each other". But could they instead be made to "touch" each other, or even "hold hands"? Furthermore, cross-references could be made between marine protected area legislation and the Fisheries Act, specifying principles for when a reduction in value in fishing rights (quota) through protected areas is justified, or warrants compensation. At the moment, such questions are left up to political discretion.

Better cross-referencing could also see the timing of different instruments aligned (eg the development and review of spatially focused fisheries plans[119] at the same time as the marine and catchment components of regional plans, relevant parts of an EEZ policy statement, and processes for the establishment of marine protected areas).

Going even further, tools created under one framework could be used to connect to decision-making under others. For example, the relevant parts of the NZCPS could be deemed to be an EEZ policy statement, or (if expanded in its scope) required to be given effect to through fisheries plans or decisions on sustainability

measures under the Fisheries Act. It could even outline a national strategy for the deployment of marine protected areas, to be implemented through other legislation. This kind of approach has been experimented with on land, where tools created under RMA national direction (future development strategies, under the NPS on Urban Development) are intended to influence infrastructure funding decisions under the Local Government Act.[120]

Greater normative alignment could also potentially be achieved either by amending (or creating) purpose and principles clauses for legislation (eg to insert common principles like ecosystem based management and environmental limits), or by creating guidance as to how they are intended to be used in a synergistic way. That could be reinforced by clarifying the mandate (whether statutory or not) of the institutions responsible for administering or making decisions under various statutes. The Prime Minister's Chief Science Advisor has recently recommended, for example, that a future system "define the relationships between the different legislative requirements and strategic visions across Ministries, Departments and Agencies to provide clarity to stakeholders".[121]

- Could more effective cross-referencing between existing frameworks ensure that their tools are deployed in a more coordinated and strategic manner?
- Could an expanded NZCPS perform a more integrative role, by being deemed to be an EEZ policy statement and/or a fisheries strategy?
- Should the purpose and principles of existing legislation be amended to provide for cross-cutting (and identically defined) principles like "ecosystems-based management", "mana", or "oranga"?

These measures may be useful to knit the system's tools together spatially, temporally and normatively. But it relies on stitching different pieces together one by one, with the hope that they will all hold together, rather than on creating a more holistic envelope within which they can be placed. What we are really lacking in the current system is a strategy by which the hundreds of available tools are to be deployed in the service of a bigger vision. One can compare this to a builder who has access to a lot of equipment and materials (albeit not always the best ones) yet lacks a blueprint for what she or he is constructing. Below, we consider two more general tools that could give our institutional builders a better blueprint for using their tools: marine spatial planning and an oceans policy/strategy.

There are a number of ways that connections could be improved between legislative frameworks. However, resolving the issue of fragmentation may require an overarching instrument, capable of reaching across multiple frameworks and taking a strategic and coordinated approach to how each framework would be deployed to achieve a common vision. Marine spatial planning is one such tool.

5.5 Marine spatial planning

Introduction

Marine spatial planning has many different meanings. If we were to develop a framework for such planning in Aotearoa New Zealand, we would need to have some clarity around what marine spatial planning is, and therefore what it could be expected to deliver. Such planning has become increasingly popular with marine planners internationally, with UNESCO identifying such planning initiatives (at various stages of progress) in around 70 countries.[122] All member states of the European Union are required to establish maritime plans by 2021, which has resulted in a plethora of marine planning activity in that region.[123]

Various definitions have been proposed for marine spatial planning. This is partly a reflection of the evolving application of the tool over the last 30–40 years and the different drivers of and outcomes sought from it in various contexts.[124] UNESCO's 2009 publication *Marine spatial planning: A step-by-step approach towards ecosystem-based management* provides the following definition:[125]

> Marine spatial planning (MSP) is a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process.

The EU Directive on Maritime Spatial Planning 2014 defines maritime planning as "a process by which the relevant Member State's authorities analyse and organise human activities in marine areas to achieve ecological, economic and social objectives".[126] In 2010 a group of 21 scientists offered a different definition which emphasises the delivery of ecosystem services: [127]

> Ecosystem-based MSP [marine spatial planning] is an integrated planning framework that informs the spatial distribution of activities in and on the ocean in order to support current and future uses of ocean ecosystems and maintain the delivery of valuable ecosystem services for future generations in a way that meets ecological, economic, and social objectives.

This definition expressly recognises the need to maintain ocean ecosystem services, and therefore brings a focus to the underlying health and productivity of marine ecosystems, consistent with ecosystem-based management. Drawing on this approach, we have adopted a working definition of marine spatial planning for the purposes of this analysis (although there are many different options and we would expect a more nuanced definition to be developed as a result of any formal policy development process):

> Marine spatial planning in Aotearoa New Zealand is an integrated, strategic planning approach which guides the management of activities that cumulatively impact on the marine environment in order to maintain and restore healthy ecosystems while providing for kaitiakitanga and current and future uses.[128]

Marine spatial planning in Aotearoa New Zealand

The key point is that spatial planning in the marine area can improve the connections between parts of the system that might have regulatory processes that have different purposes, different stakeholders, different timeframes, and different subject matter. It is something that focuses on place – through mapping and identifying specific actions – rather than just expressing general principles and outcomes. It is also important to note that it is about the process of *planning* and not just the *plan* – the process which brings together iwi/hapū and stakeholders to build relationships, and continues after a plan has been made, is just as important as the document that is created by it. This is closely linked to Treaty partnerships.

In Aotearoa New Zealand there is currently no legislative provision for integrated marine spatial planning. The RMA goes part of the way there, with the requirement to develop regional coastal plans (and the ability to link these to catchment plans), which include spatial measures, but these do not address matters outside the jurisdiction of regional councils (notably control of fishing for Fisheries Act purposes, and the creation of protected areas like marine reserves).

Despite this legislative vacuum, some progress has been made in applying the approach, with the successful completion of a marine spatial plan for the Hauraki Gulf in late 2016 (see case study below). That project applied an ecosystems lens to the Hauraki Gulf's marine environment, identifying the strategic drivers of ecological decline and actions needed to address them. At the same time, it sought to make provision for cultural, social and economic uses of the Gulf, including through strengthening the role of mana whenua in marine management, supporting the fishing industry to move to higher value fisheries, and providing space for the expansion of aquaculture. It was about using our tools in a purposive and aligned way (and recommending new ones).

Sea Change Tai Timu Tai Pari catchment field trip

A spotlight on Sea Change – Tai Timu Tai Pari

The Sea Change – Tai Timu Tai Pari project had its inception in the Hauraki Gulf Forum's *State of Our Gulf 2011* report which indicated that current management approaches were not sufficient to reverse the ongoing environmental decline of the marine system.[129] At the same time, there was growing awareness that marine spatial planning was becoming increasingly popular overseas. In order to understand what such an approach might contribute to the Hauraki Gulf, the Forum commissioned an international review of marine spatial planning. The resultant report, which was released in 2011, concluded that "Marine spatial planning is a well-accepted strategic planning process which could help achieve the purposes of the HGMPA [Hauraki Gulf Marine Park Act] including integrated management and the protection and enhancement of the life-supporting capacity of the Gulf."[130]

The report generated considerable interest, and with the encouragement of the Hauraki Gulf Forum and EDS, Auckland Council and the Waikato Regional Council agreed to lead a marine spatial planning project in partnership with iwi, the Department of Conservation and the Ministry for Primary Industries.

A 16-member co-governance Project Steering Group was established to oversee the project, develop the terms of reference for the Stakeholder Working Group, and adopt the marine spatial plan once it had been written. Members consisted of eight representatives of the statutory bodies involved in managing the Gulf and an equal number of mana whenua representatives.

The Stakeholder Working Group undertook the actual work of developing the marine spatial plan. It consisted of representatives from commercial and recreational fishing, farming, aquaculture, infrastructure, community and environmental interests. Four positions on the group were made available to mana whenua. The group operated on a consensus basis which meant that "every member either supports or does not actively oppose (can live with) the decision".[131]

The Stakeholder Working Group first convened in December 2013, and met approximately monthly up until late 2016 when the plan was completed. An Independent Chair, appointed by the Project Steering Group, facilitated the group. During the early stages of the project six 'Roundtables' were established to focus the plan development work on key elements of the overall picture as well as to involve a broader range of stakeholders. The topics for the Roundtables were fish stocks, water quality and catchments, aquaculture, biodiversity and biosecurity, accessible Gulf and Gulf infrastructure.

The resultant marine spatial plan was structured around four kete of knowledge: Kaitiakitanga and Guardianship; Mahinga Kai – Replenishing the Food Baskets; Ki Uta Ki Tai –Mountains to Sea; and Kotahitanga – Prosperous Communities.[132] The front end of the plan, which largely consists of objectives and actions, was supported by a summary of the scientific basis underpinning the plan in the appendices.[133] There was no legislative straitjacket for the plan to work around, so it was able to be structured in a way that was sensitive to context and tikanga.

The plan identified 13 new aquaculture areas and 13 new protected areas as well as an extension in size of two existing marine reserves. In addition, an extensive area was identified as being *unsuitable* for aquaculture due to its proximity to the Auckland metropolitan area where there are many potentially conflicting uses of the water space. Fishing was also tackled, and the plan recommended that large benthic areas be protected through the retirement or mitigation of key stressors, such as bottom trawling, in order to allow natural regeneration. Smaller areas within these zones were to be the focus of more targeted passive restoration (through the establishment of marine reserves) and active restoration through the transplanting of species and/or establishment of new habitat patches.

Fishers were to be assisted to transition to methods such as long-lining which produce higher quality fish, achieve a higher market price, and have less environmental impact. Without that broader framing – what should go where, and support for making changes –the deployment of protected areas and fisheries restrictions could struggle to get traction, being seen only as a removal of rights. Breaking down statutory silos creates opportunities for dialogue and synergies, rather than conflict, lobbying and ultimately stasis. While not free of problems,[134] the Sea Change process offers a number of lessons for marine spatial planning in a future system. The government has recently announced a package of measures it intends to take to implement the non-statutory plan.[135]

There is currently no legislative framing for integrated marine spatial planning in Aotearoa New Zealand. However, a non-statutory planning process was undertaken through the Sea Change – Tai Timu Tai Pari initiative which successfully developed a marine spatial plan.

Benefits of marine spatial planning

Marine spatial planning provides a number of things that the current system does not:

- It is strategic, rather than reactive – it is a plan for what is going to happen in the future and when, and is focused on driving positive change rather

than just mitigating harm. For example, it could contemplate how protected areas, aquaculture areas and other activities could move in response to a changing climate (warming seas), biosecurity risks or population change. There is the prospect of mobile marine farms that are towed in nets rather than being fixed to the seabed, and more flexible marine protected areas that can move as representational ecosystems move.

- It is integrated – it contemplates the deployment of multiple tools under different frameworks used as a package. There are a large number of marine-related statutes, some significantly dated, with no overarching mechanism to ensure they (or, rather the tools under them) are interacting coherently. There are also frameworks, like the Local Government Act, which require forward planning for the use of the marine environment as communities change (eg for potential wastewater outfalls, desalination facilities, maritime transport routes etc).
- Its objectives are multi-faceted, and it provides the opportunity to realise synergies (and not just be a conversation about closing areas to fishing).

One commentator has said that marine spatial planning can overcome the "mismatch between the goals of EBM [ecosystem-based management] and the realities of their implementation across different spatial and temporal scales".[136] Because of its integrated nature, it provides an opportunity to fulfil the Crown's obligations under te Tiriti o Waitangi in the marine area and provide a mechanism to integrate mātauranga Māori into marine management. Dealing with a particular place provides a much better opportunity to achieve this, by engaging with local knowledge and tikanga. A future framework for marine spatial planning could draw on mātauranga Māori as a key source of knowledge and reflect the values of tangata whenua in the relevant marine area.

Marine spatial planning can be done through a collaborative process, although this is not a requirement. The future may need to see a shift towards a more collaborative and negotiated style of decision-making (noting that collaborative decision-making is also a feature of tikanga Māori). However, the potential for a consensus -based model may be reduced by increased diversity in Aotearoa's population and tensions over resource use. Furthermore, there may be some natural justice risks of using a collaborative or negotiated process (which cannot include everyone) if it has the direct result of creating regulatory change under legal regimes with their own purposes. Moreover, international experience shows a risk to be aware of, in that:

> where [ecosystem-based management] is equated with MSP [marine spatial planning], and in the presence of competing marine interests … efforts have focused on the establishment of marine protected areas. This is often at the expense of environments outside of 'pristine' areas, and of local community or Indigenous rights which could be complementary to environmental objectives."[137]

Integrated marine spatial planning has a number of potential benefits. It provides a forward-looking strategic lens and a pathway to get there, a mechanism to integrate different tools under separate statutory (and non-statutory) frameworks, and allows collaborative conversations to happen that are place-based and are not just focused on one interest at a time.

Content of marine spatial plans

There are different options for what a marine spatial plan could include. Some things would be common – plans should contain a robust description of the health of the marine area, its importance to those using it, and a broad and comprehensive description of pressures or issues faced. Plans could include a vision statement, objectives and desired outcomes (including environmental bottom lines). They could also include the spatial identification of marine areas to be managed for specific purposes and areas suitable or not suitable for specific activities. Plans could be non-regulatory, in the sense that they would not be intended to have direct binding effect on individuals, However, they could link to regulatory plans, such as regional coastal plans under the RMA and fisheries plans under the Fisheries Act.

Alternatively, marine spatial plans might themselves contain regulatory provisions. These could, for example, create a layer of marine protected areas through the plan itself, without relying on clunky mechanisms under other legislation like the RMA, EEZ Act, Marine Mammals Protection Act, Marine Reserves Act or Fisheries Act. However, that could cause more complexity when it comes to legislative design (see Chapter 6).

Spatial plans could also contain strategic measures. These might include an action plan of the tasks needed to be undertaken by agencies, iwi/hapū or stakeholders to achieve the desired outcomes. Provisions could set out matters such as marine research priorities, biosecurity measures, needed coastal infrastructure, and shellfish beds, wetlands and dunes to be restored. Funding arrangements to implement these provisions would need to be identified and could be encapsulated in "implementation agreements" as recommended by the Resource Management Review Panel.[138]

Finally, marine spatial plans could contain a monitoring and evaluation section. This could identify key performance indicators to allow progress towards the plan's objectives and outcomes (including environmental bottom lines) to be ascertained. Indicators could relate to matters such as nutrients, sediment, biodiversity values or fish stocks. Plans could incorporate cultural monitoring approaches and include tohu (indicators of change). Some outcomes could have targets (interim steps on the way to achieving the long-term outcome) also established. They could also include triggers whereby prescribed management action would be required if targets were not being met. This is not dissimilar to the structure of environmental bottom lines, targets and outcomes set out in the proposed NBA.

Marine spatial plans could include environmental bottom lines, targets and outcomes for the marine area. They could be strategic only, and rely on implementation through other frameworks. Alternatively, they could include regulatory provisions themselves as an alternative pathway for things like environmental limits and marine protected areas.

- Should marine spatial plans be strategic only, or should they be able to have direct regulatory effect?
- If the latter, should they be an alternative to other frameworks like the RMA or marine protected area legislation, or a replacement for them?

Triggers for marine spatial planning

Marine spatial planning could be applied "wall to wall" to a country's entire marine space, or be deployed more specifically to some areas when there are pressures or conflicts to be addressed. This depends on what we see the purpose of such planning as being. Is it a conflict resolution tool? Or something more? A middle road would be to gradually roll out marine spatial planning to the entire marine area over time, but starting in areas where there are currently significant issues.

The "wall to wall" comprehensive approach has been favoured in other jurisdictions. The European Union Directive on Maritime Spatial Planning requires member states to "establish and implement" maritime plans for all their marine waters.[139] In response England, for example, is rolling out a series of 10 marine plans throughout its entire territorial sea and EEZ.

The Resource Management Review Panel took a similar approach for the preparation of regional spatial strategies, which the Panel recommended should include all the coastal marine area. After considering a more targeted approach, the Panel concluded that it should be mandatory for all regions but with provision for prioritisation and sequencing by the responsible Minister(s). This was because spatial planning was seen to have broad benefits which would be applicable to all regions.[140]

An important consideration, in deciding an approach to rolling out marine spatial planning in a targeted or broader manner, is the considerable resources required to mount an integrated planning exercise for the marine area. Fully integrated marine spatial planning can be resource intensive and it is therefore not something to be embarked on lightly; there should arguably be a pressing need, complex issues or conflicts to resolve, and an appetite for change.[141]

Marine spatial plans could be targeted to areas where there are particular issues or conflicts or they could cover all the country's marine areas. There could be specific trigger points specified for when a planning process was deemed necessary.

If we were to adopt spatial planning, would marine spatial plans be rolled out across the country, or created as the need arises?

The planning process

The process by which a marine spatial plan is produced has many options. As with other processes by which tools are created and used, it is also inextricably linked to public participation and institutional design, because who is involved and who makes decisions are part of the process. For example, it might depend on whether the proposed Strategic Planning Act is chosen as the location for marine spatial planning, as this already has a broad procedural framework in development. This could be amended to reflect a marine focus (see Chapter 6). However, it is worth considering from first principles what marine spatial planning processes could look like, drawing on lessons from the Sea Change – Tai Timu Tai Pari process and international models.

For example, a planning process could be initiated with the establishment of a "co-governing partnership" comprising representatives from relevant agencies (from central, regional and local government) and iwi/hapū. This would enable iwi and hapū, as kaitiaki, to partner with the Crown in management of te moana and should help better integrate Māori interests and mātauranga Māori into the planning process.

The role of the co-governance partnership could be either to prepare the marine spatial plan itself (which was broadly the approach proposed by the Resource Management Review Panel), or to oversee the plan's preparation by a collaborative stakeholder group (which was the approach adopted for the Sea Change – Tai Timu Tai Pari project).

Whatever option is chosen, it will be important for the governing body to continue to operate for at least a transitional period after the plan is completed to oversee and champion implementation. This was a key learning from Sea Change – Tai Timu Tai Pari process, where the disestablishment of the governance body (and stakeholder working group) on the adoption of the plan saw the loss of important champion entities for its implementation.[142] In contrast, Scotland's marine planning partnerships will continue to operate during the implementation phase of regional marine plans, and will be responsible for ongoing monitoring of the effectiveness of plans, supported by the central government agency, Marine Scotland (see further below).

Marine spatial plans could be developed either by a co-governance partnership (consisting of representatives from central, regional and local government and iwi/hapū) or by a collaborative stakeholder group overseen by the governance body. Either way, it would be important for a governance body to remain in existence to oversee implementation of the plan.

However the marine spatial plan is developed, a process for public consultation and formal approval would need to be adopted. The Resource Management Review Panel recommended that the special consultative procedures in section 83 of the Local Government Act be used as a starting point for the public process for regional spatial strategies[143] and this could similarly apply here.

To the extent there is a regulatory component of the marine spatial plan (ie the plan has direct legal effect), the process would need to be outlined in legislation. Submissions on such provisions would need to be heard by an independent body in a process whereby plan provisions could be rigorously tested against the applicable legal frameworks. One option would be for the Minister of Oceans to appoint a Board of Inquiry which would hear the matter, akin to the process currently provided for in the RMA for proposals of national significance.

Another option would be for the Environment Court to hear and decide marine spatial plans. The Environment Court would bring strong independence, and for this reason may be a more appropriate body than a Board of Inquiry. As Aotearoa New Zealand's experience in marine spatial planning grows over time, it would be beneficial to have Environment Commissioners appointed to the Environment Court who have specialist knowledge and experience in marine matters. The Environment Court could release a decision whereby proposed plan provisions were accepted, amended or rejected. Where the marine spatial plan interfaced with RMA matters, the Court could make a direction to the relevant local authority to amend RMA policy statements or plans without using Schedule 1 process, to implement the Court's decision.

For marine spatial planning provisions intended to take effect under other legislation, such as the Fisheries Act, EEZ Act or conservation legislation, the Court could make a formal report to the relevant Minister recommending that the regulatory provisions in the plan be made as proposed, or be amended or rejected. This is the current process followed for water conservation orders under the RMA and has worked well.[144] Provision for the separate input and participation of tangata whenua as set out in the Fisheries Act and RMA, and any other relevant legislation, would be retained and would need to be incorporated into the engagement process.[145]

There are different options for how a spatial plan could interact with other frameworks. However, some linkage would be important to ensure that implementation occurred.

It is important that there is a strong link between marine spatial planning and terrestrial spatial planning. The latter is an important tool for addressing impacts *on* the marine environment (including on industry) – eg where agriculture can and cannot go, where cities are to expand, mitigating climate change and so forth. We have previously pointed out that in the Sea Change - Tai Timu Tai Pari context:[146]

> The impact of poor water quality on the ecological health of the Hauraki Gulf was one of the greatest areas of concern, with the main stressor being sediment ... The approach set out in the plan is wide-ranging and includes measures to reduce soil erosion, to minimise sediment entering waterways and to stabilise sediment once it has reached the marine environment ... The plan recommends that a cap is placed on nitrogen discharge levels which are to be kept at or below current rates until sufficient scientific work had been completed to enable an appropriate nutrient load limit to be put in place.

This raises the question as to whether terrestrial and marine spatial planning are in fact so inter-linked that they should occur together, and whether the proposed framework for spatial planning under the Strategic Planning Act should include marine spatial planning (see Chapter 6 and Appendix 3). A recent Cabinet paper has confirmed that the Strategic Planning Act is intended to apply to the coastal marine area;[147] depending on how it is drafted, it may also be compatible with rollout in the EEZ. Alternatively, the provisions in marine spatial plans could serve to drive responses in terrestrial plans (a "sea to the mountains" approach), including through directly influencing or changing provisions in regional and district plans.

Should marine spatial planning and spatial planning on land be done separately, or through the same (or connected) processes?

Sediment flows at Beachlands

A spotlight on marine spatial planning in the United Kingdom

Marine spatial planning in the United Kingdom is undertaken within the auspices of the Marine and Coastal Access Act 2009. This establishes a regime for marine planning as well as broader regulation of the country's marine area. The Act was heralded as "a trailblazing piece of legislation" as "it marked the point at which marine spatial planning became an established part of the administration of marine activities in UK waters".[148]

The Act applies to the entire British marine area including the territorial (or 'inshore') seas, and the EEZ or 'offshore' seas. It provides for a two-tiered approach to marine planning,[149] which includes the preparation of marine policy statements, which are discretionary, and marine plans, which are mandatory where there is a marine policy statement in place for the area, but which are otherwise discretionary.

Under the Act, a marine policy statement is to set out general policies for contributing to the achievement of sustainable development within the country's marine area.[150] Such a statement was adopted in 2011. This sets out a vision for the marine environment which is for "clean, healthy, safe, productive and biologically diverse oceans and seas".[151] It includes 21 high level marine objectives grouped under the themes of achieving a sustainable marine economy; ensuring a strong, healthy and just society; living within environmental limits; promoting good governance; and using sound science responsibly.[152] It confirms that the statement and marine plans "form a new plan-led system for marine activities" providing for "greater coherence in policy and a forward-looking, proactive and spatial planning approach to the management of the marine area, its resources, and the activities and interactions that take place within it".[153]

Because a marine policy statement exists for the whole of the country's marine area, marine plans are mandatory for the entire territorial sea and EEZ.[154] Under the Act, a marine plan is required to state policies for the sustainable development of the area, identify (by means of a map or otherwise) the marine plan area that it relates to, and conform with any relevant marine policy statement.[155] The marine policy statement further explains that "marine plans will provide a clear, spatial and locally-relevant expression of policy, implementation and delivery".[156] They are to be "based on an ecosystem approach" and be "participative and informed by data provided by consultees, stakeholders, regulators and relevant experts".[157]

The responsibility for preparing marine plans lies with the Secretary of State (for England), Welsh and Scottish Ministers, and Department of the Environment in Northern Ireland for their respective areas. These functions may be delegated to a public body, although not the decision to adopt and publish a plan once prepared, which remains with the Ministers/Secretary.[158]

In England, the Secretary of State's marine planning powers have been delegated to the Marine Management Organisation, which is charged with developing a marine planning system for England, and has led the development of regional marine plans. This is an executive, non-departmental public body established by the Act which also has broad statutory marine functions (effectively acting as an integrated oceans agency). In Scotland, the development of regional marine plans has been devolved to marine planning partnerships which consist of "marine stakeholders who reflect marine interests in their region".[159] These include representatives from local councils, fishing and other industries and environmental and recreational non-governmental organisations.[160]

Before beginning work on developing the plan, the marine planning authority must give notice of its intention to do so to related planning authorities such as councils whose area of jurisdiction lies adjacent to the marine planning region.[161] It must also publish a statement of public participation.

The statement of public participation is required to identify the area for which a plan is being prepared,[162] invite the making of representations on matters to be included in the proposed plan (ie before a consultation draft is prepared),[163] and be brought to the attention of interested persons.[164] It must also include a proposed timetable for the preparation and publication of a consultation draft, the making of 'representations' (ie submissions) on the draft, the consideration of those and the adoption and publication of the plan.[165] Provision may be made for public meetings to be held. The marine plan authority must take "all reasonable steps" to comply with the statement and it must be kept under review.[166]

Once proposals for the marine plan have been developed, a consultation draft must be publicly notified.[167] Prior to this, a sustainability appraisal of the draft plan must be carried out and the results published at the same time as the consultation draft.[168] Submissions on the consultation draft can be made by any person, in accordance with the statement of public participation.[169]

The marine plan authority must consider appointing an independent person to investigate the proposals contained in the consultation draft and to report on them, but is not required to do so.[170] If appointed, the independent investigator makes recommendations on the plan, must include reasons for them, and these must be made public.[171]

A determination on the final marine plan must consider any recommendations as a result of an independent investigation, the reasons given by the investigator, and any other matters the marine plan authority considers relevant.[172] Any amendments to the published consultation draft can be made as the marine plan authority thinks fit.[173] The marine plan is adopted once the marine plan authority has decided to publish the plan. This can only be done with the agreement of the Welsh and Scottish Ministers (for Wales and Scotland respectively), the Secretary of State (for England) and the Department of the Environment in Northern Ireland.[174] Thus, while a delegated agency may be responsible for preparing the marine plan, it operates within the framework of broader government policy.

Marine plans have legal status insofar as any public authority must take any authorisation or enforcement decision "in accordance with" any appropriate marine plan, and have regard to any appropriate marine plan in taking any decision (which is not an enforcement or authorisation decision) which relates to the exercise of any function affecting the United Kingdom marine area.[175] Having said that, enforcement and authorisation decisions do not have to be made in accordance with the marine plan if relevant considerations indicate that they should not. In that case, reasons for that decision must be stated.[176]

The marine plan authority must keep the marine plan under review and report to Parliament every three years on the effect of the policies, their effectiveness in securing the objectives of the plan, progress made towards securing the objectives, and whether the objectives of the marine policy statement are being met.[177] After a report is published, the marine plan authority must decide whether or not to amend or replace the marine plan.

Ten years after the passage of the Marine and Coastal Access Act two regional marine plans have been adopted in England (in 2014 and 2018) with four well advanced. Scotland adopted a national marine plan in 2015 and is now working on regional plans. Wales adopted a national marine plan in 2019.[178] A review of the effectiveness of the plans indicated that many of their policies were expressed in broad terms, and others were conflicting and/or ambiguous, meaning that they appeared to have little effect on licencing decisions. The reviewers recommended that policies needed to be strengthened and made more specific. They also noted that efforts were needed change the culture of licensing officers who were reluctant to apply policies within marine plans to their decisions. In addition, they suggested that the plans should be subject to legal challenge, in a similar way to terrestrial plans, as this enables a pragmatic approach to be applied to their application.[179]

In Scotland, where regional planning has been devolved to stakeholder groupings, interviews with participants identified strong support for the approach, as opposed to plan making being led by a central authority as in England. The devolved approach "supported learning regarding other perspectives and building of trust between organisations" and had assisted with "conflict avoidance by enabling developers to explore appropriate siting of activities".[180] This was similar to the findings from a review of the Sea Change – Tai Timu Tai Pari project where the collaborative process was seen as one of its biggest strengths.[181]

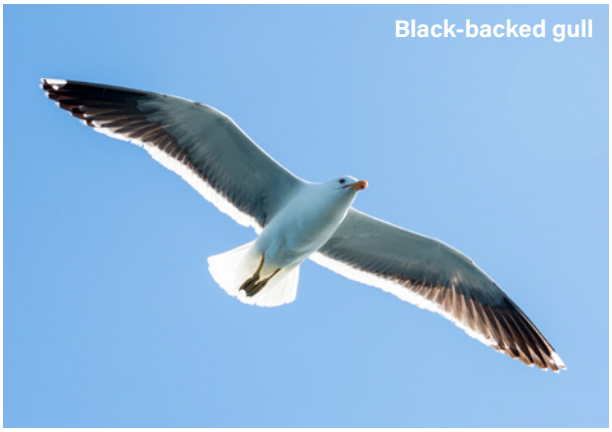
Lessons that can be drawn from the United Kingdom experience include the need to include clear and directive provisions in plans, to have a clear implementation pathway through linkages with consenting decisions, and to address planning and consenting culture in implementation. The Scottish experience also indicates the strength of adopting a devolved approach in bringing parties together, building trust and helping to resolve conflicts.

International experience highlights the importance of marine spatial planning having clear and direct influence and a clear implementation pathway, as well as the value of collaboration between stakeholders.

From spatial planning to an oceans policy

Reforms could go beyond a marine spatial planning framework, and think more broadly about an integrated oceans policy. As with marine spatial planning, that could mean different things.

At root, a national oceans policy is essentially a mechanism to provide a coherent approach for oceans management across a country's entire oceans realm. This is in the context of typically fragmented legislative and institutional arrangements. It is often seen as a way to address conflicts between different ocean uses, to support new oceans uses and to provide protection for oceans ecosystems and species. It is not place-based like marine spatial planning, and instead sets out a vision for the oceans as a whole and high-level principles.[182]


Black-backed gull

On one hand, this could be little more than a politically driven agenda for reform – a type of manifesto for change – which is arguably what the government's establishment of a vision and objectives for oceans is.[183] However, an oceans policy could be conceived of as something more concrete – a structural and living feature of a future system (an actual instrument with ongoing influence) – rather than just a manifesto or process by which a new system is transitioned to. Part of this could be a strategy for *deploying* marine spatial plans.

A spotlight on a marine spatial planning strategy

One way to achieve a coherent or principled roll out of marine spatial plans would be for the responsible Minister to develop a "Marine Spatial Planning Strategy", which would set out a programme for developing marine spatial plans. This would be similar to the marine policy statement provided for under the United Kingdom Marine and Coastal Access Act 2009 which provides the framework for the preparation of marine plans.

The Strategy could be reviewed at least every 10 years and identify priority areas for marine spatial planning over the next 10-year planning period, based on a set of statutory criteria. Preparation of the Strategy would necessitate a strategic look at which parts of the coast and marine environment should be targeted, and in what order, allowing prioritisation of effort. High pressure and contested areas, or those that are particularly vulnerable, might be prioritised. The Strategy could also set out high level objectives for marine spatial plans in the identified areas, akin to a high level terms of reference. This would enable, for example, objectives to be included on increasing marine protected area coverage in a proposed planning area, the powers to be transfered to iwi/hapū, and the provision of renewable energy and public infrastructure.

A Marine Spatial Planning Strategy could also allow public funds to be set aside for plan development and implementation, and encourage agencies to align other planning and funding processes with the marine spatial planning process (eg regional councils could decide to defer changing regional coastal plans until the process was complete).

A Marine Spatial Planning Strategy, developed by the Minister of Oceans, could provide a policy framework for marine spatial planning and set out a programme for developing marine spatial plans.

However, the concept of an oceans policy goes beyond just marine spatial planning. For example, it could outline strategic actions to reduce pressures on the marine area that are not "spatial" or place-based, such as measures to reduce production of plastics or their release to the environment, funding for the improvement of stormwater and wastewater infrastructure, and building controls to mitigate impacts on the marine environment.[184]

Public presentations given by the former Oceans Secretariat in the 2000s, before the oceans policy process was halted, indicated that the proposals at that time included a statement of a *vision* for the oceans, the establishment of a set of overarching *objectives* to govern management of the oceans, and the development of a *National Oceans Plan* to set national priorities, baseline ecological standards and processes and tools for reconciling competing uses.[185] In the report of the Ministerial Advisory Committee established as part of the 2000s oceans policy process, the Chair highlighted that the consultation process had identified a high degree of interest in the idea of preparing a "comprehensive national policy" and agreement that it was timely to try to "define a vision and develop an overarching framework to guide and rationalise the management of our interaction with the seas". [186]

Of course, this was before the advent of the EEZ Act, when there was a glaring hole in the oceans management system. However, commentators like Karen Scott still see a justification for an oceans policy as an integrative device despite some gaps having been filled.[187] She has recently suggested that an oceans policy should include an articulation of values, goals and principles and development of processes to support bioregional and/or spatial planning.[188] This could promote the implementation of ecosystems-based management across Aotearoa New Zealand's marine area, facilitate integrated management, provide an ecologically coherent framework for area-based protection measures, provide a framework for co-governance of ocean resources with Māori, raise the profile of oceans as an economic and environmental priority and help to implement Aotearoa's international commitments and demonstrate international leadership.[189] Scott also suggests that a co-governance Oceans Council be established to develop, report on, and provide advice in relation to, an "Aotearoa Oceans Policy". A new "Ministry for Ocean Affairs" would then be given the mandate for the operational implementation of the policy along with other oceans matters.[190] An oceans policy could also provide a framework for future scanning – to ensure that it remained a living document that was sensitive to changes in the marine environment, climate change, technological change and social change.

The Prime Minister's Chief Science Advisor recently also recommended to government that it "develop a bold *Oceans Strategic Action Plan* for 2040 to protect and manage Aotearoa New Zealand's territorial sea and EEZ, with a clear integrative framework to prioritise, coordinate, implement and measure outcomes to achieve 100% sustainably managed oceans."[191] In terms of the fisheries component of such a plan, she suggests that the Action Plan could include a definition and role for an ecosystems approach to be applied to fisheries; provide a clear framework for reporting, decision-making, planning and responsibilities; provide a framework for the development

of fisheries-related plans; include actions to support a move from volume to value in commercial fisheries; and prioritise actions across a multi-year programme. The Oceans and Fisheries Minister was identified as the appropriate Minister to lead the development of the Action Plan.[192]

EDS's previous analysis of the development of national oceans policies in the USA, Australia, Canada and Aotearoa New Zealand identified five key elements of such policies, which still resonate today, and provide a broad architecture to encompass many of the suggestions above:

- *A common purpose* for the management of oceans, which can be articulated in the form of a vision for the oceans and high-level management objectives and principles which are to apply to oceans management.
- *Integrative mechanisms* to jointly harness the actions of different oceans managers to achieve the common purpose. This may be through joint committees, working bodies, advisory bodies and/or the establishment of specialist oceans institutions.
- *Strategic actions* which are required to implement the policy. These often focus on addressing gaps and conflicts in the current oceans management system. This can include such matters as reforming outdated legislation (such as the Marine Reserves Act) and reviewing the management of specific sectors such as fisheries.
- *A framework for area-based planning* (marine spatial planning) which applies the principles of the policy to a specific marine ecosystem, as described above.
- *Performance management systems* which include the ongoing monitoring of the health of the oceans and regular review of the effectiveness of management actions. This enables progressive 'learning by doing' and the adaptation of management approaches and the oceans system itself, in light of new information or changes in technologies, markets and community values. This can include oversight mechanisms such as the Parliamentary Commissioner for the Environment being tasked with undertaking regular independent reviews of the implementation of oceans policy.

This oceans strategy or policy could form the normative glue that holds disparate parts of the system together. Others have said a similar thing, describing it as a normative "anchor" for the system similar to *Te Mana o te Taiao - Aotearoa New Zealand Biodiversity Strategy 2020*, which:[193]

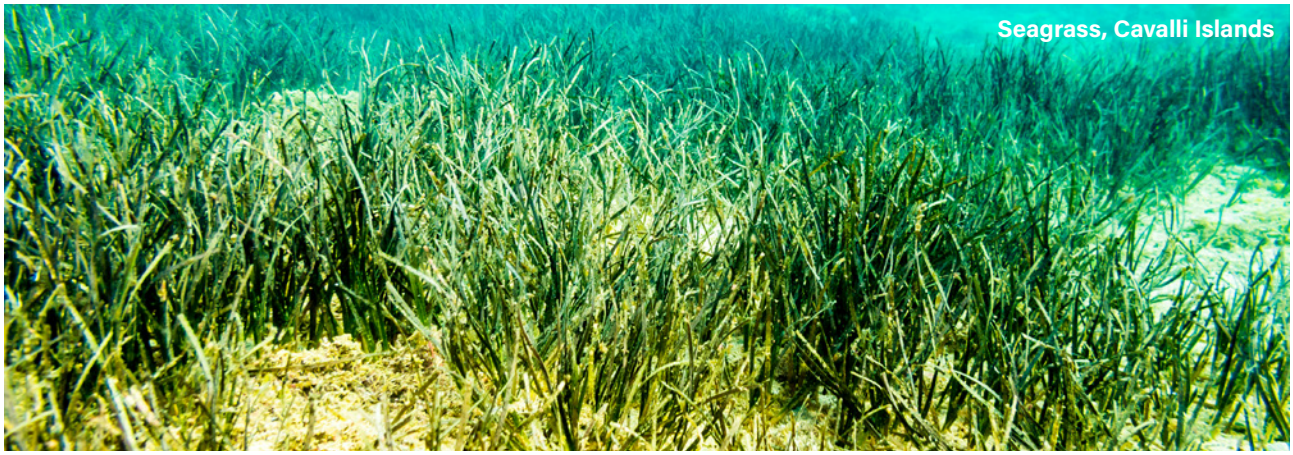
> provides a holistic, integrated, intergenerational approach to protecting and preserving biodiversity based on *Te Ao* Māori (Māori worldview)... [and] recognises that humans are a part of nature, and have kinship relationships with living natural ecosystems, and seeks to set fundamental objectives and values applying across the regulatory regime.

That said, careful thought would need to be given to how effective this normative glue or anchor could be in practice when faced with prescribed statutory principles that might differ – for example, maximum sustainable yield under the Fisheries Act – and take primacy when regulatory decisions were being made. Nevertheless, some are optimistic that a strategy should set:[194]

> an expectation that any fisheries-related plans, when created or revised, must specify how they will progress the objectives of the Oceans Strategic Action Plan and demonstrate progress against this in annual review reports.

A national level Oceans Policy could be a strategic instrument going beyond just an action plan for rolling out marine spatial plans. It could, with sufficient framing, be a form of "constitution" for the oceans.

- Should an overarching Oceans Policy be developed in Aotearoa New Zealand to set high level goals and outline a vision for the future?
- Should this be a manifesto for reform (with an end point) or a living instrument with ongoing application to how decisions are made under other frameworks?
- Is this kind of thing worth doing if it lacks direct effect or influence on other regulatory or funding frameworks having their own more targeted purposes and processes?



Seagrass, Cavalli Islands

A spotlight on Australia's Oceans Policy

Australia's oceans policy, released in 1998, consisted of two volumes. The first volume set out the overall vision and goals for the policy, described the concept of ecosystem-based oceans planning and management, set out the institutional arrangements for implementation, and identified some key initial implementing actions to be carried out by the Commonwealth government. The second volume of the policy identified specific proposed actions for particular economic sectors and some other areas. The key implementing mechanism for the policy was to be the development of what were called "regional marine plans".[195]

Four institutions were put in place to support the implementation of the oceans policy. A National Oceans Ministerial Board of Commonwealth Ministers was to oversee implementation of the oceans policy and approve regional marine plans. Reporting to the Ministerial Board was an independent executive agency in the form of a National Oceans Office. A National Ocean Advisory Group was established to get input from a range of sectors and it included members from industry, science, conservation and the community and government stakeholders. Regional Marine Plan Steering Committees were also established by the Ministerial Board. They comprised non-governmental and governmental regional stakeholders, and were to oversee the development of regional marine plans. An Oceans Policy Science Advisory Group was also subsequently established to provide science input.[196]

However, it has been said that "the consensus is now that the Oceans Policy has failed to realise its full potential ... and Australian marine and coastal regulation continues to be described as highly fragmented, *ad hoc*, inconsistent and inefficient."[197]

A spotlight on Canada's oceans strategy

Under the Canadian Oceans Act 1997, the Minister of Fisheries and Oceans was given the task of leading and facilitating the development and implementation of a "national oceans management strategy". The strategy was to be based on the principles of sustainable development, integrated management and the precautionary approach. The Act emphasises the importance of ecosystem-based management, stating in the preamble that "conservation, based on an ecosystem approach, is of fundamental importance to maintaining biological diversity and productivity in the marine environment".

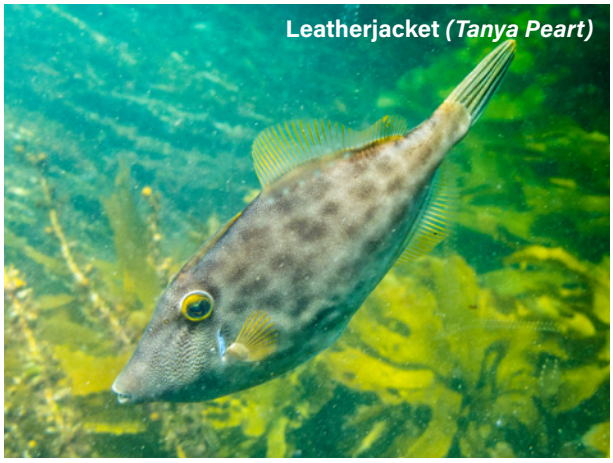
A high-level strategy was released in 2002[198] and has not been updated since. It was followed in 2005 by an oceans action plan. This identified 18 specific initiatives to be undertaken across six federal departments.[199] A key focus of the action plan was the application of integrated management planning to large ocean management areas (a form of marine spatial planning). Planning for these areas was to be undertaken on a collaborative basis between the various management agencies, Indigenous peoples and stakeholders. Implementation of the oceans action plan was being overseen by a Deputy Minister's Interdepartmental Committee on Oceans which consists of representatives of 19 federal departments and agencies involved in oceans management. However, the programme has struggled due to the marine plans lacking direct legal force.

In short, Canada's experience has been one of trying to use a more integrated strategy, followed by an action plan, to coordinate multiple institutions and multiple legislative frameworks towards a common end. In other words, it has been about using an additional layer of measures to bring together what was already there (improve connections and align actions), rather than redesigning that system itself. It tries to act as the "glue".

However, that might be closer to PVA than super glue. A 2011 review identified impediments to the successful implementation of Canada's Oceans Act. Specific problems identified included[200] no requirement for other federal departments to comply with or implement the Oceans Act, and no specific provision to give integrated management plans legal force.

Reflecting on the Australian and Canadian examples, it would make sense for an oceans policy in Aotearoa New Zealand to be closely linked to a framework for marine spatial planning, just as national level policy under the RMA is closely linked to place-based planning for the coastal marine environment. Marine spatial planning would be one way – but not the only way – in which a policy would be implemented at place.

An oceans policy could be closely linked to, and provide a set of common principles for, marine spatial planning.



Leatherjacket *(Tanya Peart)*

5.6 Do integrative tools need statutory backing?

When it comes to the creation of significant new tools like marine spatial planning and an oceans policy, we need to consider whether such things require legal framing. The Sea Change – Tai Timu Tai Pari marine spatial planning process was non-statutory, and provided many lessons. It was extremely valuable in bringing together various agencies, Māori, councils and stakeholders to work together and consider how various tools could be deployed in a more integrated way. It provided a forum. However, implementation has been slow and it has taken over four years for the government to make a commitment to its implementation. And that has yet to become a legal commitment. So should we legislate for marine spatial planning? And for an oceans policy?

On the one hand, Sir Geoffrey Palmer and the Legislation Design and Advisory Committee remind us that we should not legislate unless there is good reason.[201] The statute book is already complex. On the other hand, inadequate legislative hooks have been partly blamed for the Australian oceans policy not being as effective as it could have been.[202] A review in Canada also identified the lack of legal force of such plans as a reason for them underperforming.[203] Arguably the difficulty in making progress with ocean planning resulted from ambiguity in the Oceans Act and the voluntary nature of participation by partners and stakeholders, suggesting that the provisions of the Act could usefully have been more prescriptive.[204]

Another difficulty with making progress in implementing Canada's Oceans Act was the fact that regulation of significant oceans activities such as oil and gas exploitation lay outside the jurisdiction of the Department of Fisheries and Oceans. Combined with the fact that oceans plans do not have regulatory effect, this institutional separation presented a stumbling block when seeking implementation by other government departments. Perhaps the lesson is that an oceans policy or spatial planning does not necessarily need statutory backing, but it does need a strong institutional champion.

Canada's experience is not dissimilar to the implementation challenges that our first marine spatial plan in the Hauraki Gulf has faced (see spotlight below), and which other areas face in even getting a marine spatial planning process off the ground. Other issues identified with the Canadian approach were changes in political priorities (and diversion of funds away from plan implementation), lack of operational guidance for integrated oceans management, and limited action plans to implement the oceans plans, given that they are high level documents.[205] Overall, the review found that ocean planning had helped progress the development of a marine protected area network but had not had other outcomes.[206]

It is possible for marine spatial planning to be undertaken through non-statutory processes with implementation achieved through formal avenues following a plan's completion. However, without a statutory framework, such planning remains an ad hoc process that may or may not occur, and which remains outside the formal toolbox for marine management.

Even if a marine spatial planning project is initiated, there is a risk that the plan will not be completed, or will founder at the implementation phase. Non-statutory processes rely on strong political leadership and interest being maintained over multiple years, and as demonstrated by the Sea Change – Tai Timu Tai Pari project, this can be particularly difficult with Aotearoa New Zealand's three-year election cycle. There is also no clear path for implementation (eg through legal influence on lower level regulatory and funding decisions, or the ability for provisions to take direct effect).

Even with a high level of political interest and commitment to implementation, there are less than ideal procedural issues associated with relying on non-statutory plans. Processes such as iwi/hapū engagement, stakeholder participation, scientific input, and agency consideration of planning provisions would need to be undertaken within the marine spatial planning process and again under the relevant statutory framework (eg RMA, fisheries or marine protection). This would be costly in terms of agency resources and may lead to general consultation fatigue. In addition, implementation would occur under multiple pieces of legislation, which have different purposes and are overseen by different Ministers. As such, there is no guarantee that plan provisions will get implemented as an integrated package.

- For a non-statutory plan to be successfully implemented, strong political leadership and interest needs to be present and maintained over multiple years. This is difficult with Aotearoa New Zealand's three-year political cycles.
- Non-statutory marine spatial planning processes will usually require a duplication of public processes (eg consultation, hearings), when implementation requires separate regulatory processes under different pieces of legislation, and may result in the plan losing its integration and coherence, as each of these statutory processes is only considering a part of the whole picture.
- Currently there is no compulsion to undertake marine spatial planning, even if there are pressing issues in the marine environment including serious environmental degradation. A statutory framework that both initiates marine spatial planning and provides agencies, mana whenua and stakeholders with guidance on principles and process steps, could spur effort in this area.

- Should marine spatial plans and an oceans policy be statutory tools?
- Would this require a separate statute to be created to overlay existing ones, or could an existing framework be used?

A spotlight on implementation of Sea Change – Tai Timu Tai Pari: A spatial plan without a legislative basis

Implementation of the non-statutory marine spatial plan for the Hauraki Gulf has proved challenging. This was particularly due to the three yearly electoral cycles and lack of an enduring champion to oversee the implementation of the plan.

A local government election was held just prior to the plan being adopted and several key members of the project steering group (the co-governance body), who were strong advocates for the plan, lost their seats. Once the plan was finalised and publicly released, both the project steering group and the stakeholder working group (who developed the plan) were disestablished. After the 2016 local body election, the membership of the Hauraki Gulf Forum changed. Although the Forum had been the initiator of the project, a majority of its members no longer supported implementation of the plan. There was therefore no institutional champion for the plan's implementation as a coherent whole, and no formal process for broader public consultation on its provisions.[207]

Auckland Council did establish a Political Reference Group, which first met in 2017, to provide oversight and guidance for council activities relevant to the plan as well as to integrate with the work programme of other agencies. Both Auckland Council and Waikato Regional Council evaluated the recommendations in the plan, identifying relevant actions and assessing them against current work programmes and budgets. Waikato Regional Council is currently reviewing its regional coastal plan, and this is being informed by the provisions in the Sea Change – Tai Timu Tai Pari plan, as will subsequent land and water regional plans.[208]

The Department of Conservation and Ministry for Primary Industries delayed any external activity to implement the plan, until after the national election in September 2017, and the confirmation of subsequent ministerial posts. But it was not until July 2019 that the Ministers of Conservation and Fisheries jointly appointed a Ministerial Advisory Committee to "help shape the Government's response to the Conservation and fisheries proposals" in the plan.[209] Officials were tasked with writing the government's response with advice from the Committee.

A draft response document was completed just prior to the October 2020 general election, after which new Ministers of Conservation and Fisheries were appointed, and had to be brought up to speed. It took until June 2021 for the government to announce commitment to implement proposals in the plan that are under its jurisdiction,[210] and these have generally been received positively. However, these must still proceed through various avenues under other legislation, such as the Fisheries Act. Because of the inadequacies of the underlying legal frameworks (especially for marine protected areas), more special legislation for the Gulf is anticipated to implement key elements.[211] Success still relies on the ongoing commitment of many parties.

As part of the oceans policy process in the 2000s, the Oceans Secretariat considered different theoretical approaches to dealing with the problem of integration, and the Canadian and Australian experiences of developing oceans policy. It concluded that both a strong legislative basis and a sound planning process were required to deliver the desired outcomes. The fragile nature of the implementation phase of the Sea Change process also suggests that some statutory framing may be useful, and it would be necessary if spatial plans were to have direct regulatory effect or a legally influential relationship with other implementation statutes (eg the RMA, Fisheries Act).

That said, excessive statutory prescription for marine spatial planning or an oceans policy may be counterproductive. In Victoria, a more flexible legislative background is provided in its Marine and Coastal Act 2018. Here, a framework has been established not just for spatial planning but for a broader oceans policy to be established.

Sea Change Tai Taimu Tai Pari forestry field trip

A spotlight on the Marine and Coastal Act 2018 (Victoria, Australia)

Victoria's Marine and Coastal Act 2018 establishes a tiered system of planning documents comprising a Marine and Coastal Policy, a Marine and Coastal Strategy, and a variety of regional and local plans. The Act also establishes a new Marine and Coastal Council and creates offences and enforcement mechanisms for unauthorised use or development of marine and coastal Crown land.[212]

The Act requires development of a Marine and Coastal Policy[213] which was published in March 2020. The Policy was developed by the Minister for Energy, Environment and Climate Change. It sets out a vision for Victoria's marine area which "is for a healthy, dynamic and biodiverse marine and coastal environment that is valued in its own right, and that benefits the Victorian community, now and in the future".[214] A framework for marine spatial planning is a mandatory element of the policy under the Act, which is to establish "a process for achieving integrated and co-ordinated planning and management of the marine environment".[215] Victoria's marine environment extends three nautical miles offshore.

Unlike the case in the United Kingdom, the Marine and Coastal Act does not set out a process for developing marine plans; instead it is contained in the Marine and Coastal Policy. This describes the planning process as "as a continuous, iterative process that will adapt according to new knowledge or needs" as opposed to a process that seeks to create a one-off "master plan". The first step is to determine marine planning areas and prioritise when marine spatial planning will be undertaken for each, which is eventually to be undertaken on a state-wide basis.[216]

The Minister is required to authorise a marine spatial planning process before it can commence. As part of the authorisation, the Minister will outline the scope of the process, who must be involved, the body which will coordinate and oversee the planning process and the implementation of its outcomes, and funding mechanisms.[217] This provides considerable flexibility to tailor the configuration of the marine spatial planning process to the particular area concerned. However it sets out some minimum requirements. Traditional Owners must be invited to "participate" in marine spatial planning with the method of participation to be determined by those groups.[218] Draft plans must be released for public comment.

The marine plan is required to "identify when, where, and how the goals and objectives for the planning area will be met", including identifying its scope; a vision, goals and objectives for the planning area; key issues; management approaches to address the key issues and achieve the goals and objectives (with a timeline for implementation); a zoning plan if required; and a monitoring, evaluation and reporting strategy for the plan. In addition, the plan should identify agencies or partners responsible for implementing specific actions within the plan.[219]

The Marine and Coastal Act enables the establishment of "regional and strategic partnerships" which have as their purpose "to respond to an identified regional issue relating to or affecting the marine and coastal environment" and to prepare a "product".[220] This is a mechanism that the Victorian Government has indicated it may use to oversee the development of a marine spatial plan. The partnerships consist of two or more partner agencies, which can be government or non-government bodies that have an interest in or connection with the marine and coastal environment.[221] They can be established on direction by the Minister, or following a request to the Minister by the Victorian Marine and Coastal Council or a partner agency. They can only be established with the agreement of each partner agency and approval of the Minister.

The instrument establishing a partnership must identify a lead partner agency, the terms of reference, a statement of whether an implementation plan is necessary, and the reporting requirements. The lead agency is responsible for coordinating the preparation and implementation of the "product", in this case the marine spatial plan.[222] The Act also sets out consultation requirements with key stakeholders and the public, and includes a requirement for inviting and considering public submissions. The Minister formally approves the plan and publishes notice of the approval in the government *Gazette*.[223]

Marine spatial plans, as products of regional and strategic partnerships, are statutory documents with legal effect under the Marine and Coastal Act. In determining consent applications on marine and coastal Crown land, the Minister must ensure that the consent is "consistent with" a marine spatial plan.[224] Crown land managers must take all reasonable steps to implement marine spatial plans in respect of the land managed on behalf of the Crown.[225] However, there is no legal mechanism to achieve recognition or implementation of the plan by agencies operating under other statutes such as fisheries legislation.

The Victorian government has yet to embark on a marine spatial planning exercise under the new legislation and policy. The Department is currently undertaking a state-wide assessment of Victoria's marine environment to identify priority areas for marine spatial planning and developing guidelines which will provide instructions on how to undertake a planning process in a specific planning area. Both are targeted for public release in late 2021. Following this, the Victorian government plans to scope and initiate the first marine spatial planning process in a priority area.[226]

The Victorian government has adopted a flexible approach to marine spatial planning, providing a very broad structure for it within the legislation, and requiring a framework to be provided within a ministerially approved policy document. This enables more flexibility and learning by doing, where the framework can be regularly adjusted and updated as required. The policy is being implemented in a stepwise fashion, with priority areas being established first, before the first planning process is initiated. This makes sense and would be applicable to the Aotearoa situation, where the process could be tailored to the regional context.

To what extent should the legal framing for marine spatial planning be prescriptive, or flexible?

5.7 Concluding comments

The toolkit of a future oceans management system is where the rubber hits the road. Tools can be strategic – outlining a vision for the future and ways to get there; they can be regulatory – preventing people undertaking certain activities or requiring them to take action; or they can be non-regulatory – including mechanisms for raising and spending money, taking direct action like restoration activities, and implementing softer measures like behavioural incentives and education. Our toolbox is vast, and there are new tools we could develop. However, there is a lot that could be done by using our existing tools better, and this may require surgical legislative change or no amendments at all. All we might need is the resources and inclination to use them in innovative ways (or to use them at all).

In this chapter we have looked at some of these opportunities, and no doubt there will be many more. In particular, the proposed NBA and Strategic Planning Act present opportunities to expand our toolbox, and by changing the orientation of statutes like the Fisheries Act and Marine Reserves Act to be more strategic and proactive, we could unlock a world of possibilities without overhauling the system.

However, tools do not exist in isolation. They need to be deployed in a coordinated way across space and time, and also be geared towards achieving compatible goals. Integrative tools like marine spatial planning and an oceans policy have potential to provide stronger glue in what has become a fragmented system, and one that does not reflect the interconnectedness of either the marine environment or the problems facing it. Many tools also need to be framed within legislation, which provides transparency around how they will be developed, used and (if they are regulatory) enforced. They also require institutions to deploy them – they do not happen by magic just because they are on the statute book. In the coming chapters we therefore consider options for legislative design and institutional settings that could support a future toolkit.


Kawau Island

ENDNOTES

1 See Enric Sala and others "Protecting the global ocean for biodiversity, food and climate" (2021) 592 Nature 397.

2 Natural and Built Environments Bill, cl 5; Ministry for the Environment *Natural and Built Environments Bill Parliamentary Paper on the Exposure Draft* (June, 2021), [93]-[99] at <www.environment.govt.nz/publications/natural-and-built-environments-bill-parliamentary-paper-on-the-exposure-draft/>.

3 Clause 5(3).

4 Clause 7(1).

5 See for example, discussion of the interaction of the RMA and the Fisheries Act in *Attorney-General v The Trustees of the Motiti Rohe Moana Trust* [2019] NZCA 532. A new NBA, providing for mandatory limits for biodiversity and ecosystems in the marine space, may necessitate that relationship being retested.

6 See Natural and Built Environments Bill, cl 6; compare *Ngāi Tai Ki Tāmaki Tribal Trust v Minister of Conservation* [2018] NZSC 122.

7 *Trans-Tasman Resources Ltd v Taranaki-Whanganui Conservation Board* [2020] NZCA 86 at [221].

8 Natural and Built Environments Bill 2020, cl 7(4)(c) and (d). And for all domains limits include the minimum biophysical state of the natural environment or of a specified part of that environment. See cl (3)(a).

9 The direct amendments to Southland's Regional Coastal Plan through special legislation for Fiordland illustrates how the RMA could be used more proactively to achieve marine protected areas that are more nuanced than marine reserves. See the concept of "China Shops" in Fiordland (Te Moana o Atawhenua) Marine Management Act 2005, sch 12, Policy 4.1.4.

10 Extending the reach of the Wildlife Act 1953. At present, the RMA and NZCPS are focused on avoiding harm.

11 Department of Conservation *Te Mana o Te Taiao - Aotearoa New Zealand Biodiversity Strategy 2020* (August 2020).

12 This direction would be consistent with the New Zealand Coastal Policy Statement 2010, policy 22(3): "Control the impacts of vegetation removal on sedimentation including the impacts of harvesting plantation forestry." While the NES for Plantation Forestry allows councils to impose more stringent restrictions to give effect to policy 22(3), the NES itself does not require it (and, if anything, makes it more difficult to do by requiring strong justification through section 32 reports).

13 As policy 22(3) is relatively weakly worded compared to others. On the need to include estuaries in the NPS for Freshwater Management, see Parliamentary Commissioner for the Environment *Managing our estuaries* (August 2020).

14 For example, onsite stormwater disposal, how urban form interacts with the coast (eg providing a buffer to avoid hardening of coastlines), etc.

15 Recognising that not all sedimentation is about estuaries.

16 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust* [2019] NZCA 532.

17 Furthermore, the NES for marine aquaculture is far from a complete reflection of the policies in the NZCPS.

18 For example, Environment Canterbury is only just now embarking on a review of its regional coastal plan which was notified in 1994 and made operative in 2005.

19 See Prime Minister's Chief Science Advisor *The future of commercial fishing in Aotearoa New Zealand* (Office of the Prime Minister's Chief Science Advisor, February 2021) at 89; spotlight on fishing methods in Chapter 2. Even if a trawl footprint is limited to areas trawled in the past, this is arguably still "damaging" in that it increases chronic harm and imperils the regeneration of those areas.

20 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust & ors* [2019] NZCA 532.

21 For the purpose of the NBA, of course, not to control fish stocks for the purposes of the Fisheries Act.

22 Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, 2018) at 138.

23 Natural and Built Environments Bill 2020, cl 7(2)(b).

24 Resource Management Act 1991, s 33; and Tūwharetoa Māori Trust Board "Section 33 Transfer with Waikato Regional Council" (online ed, 31 July 2020). The Council transferred water monitoring functions around Lake Taupō to Ngāti Tūwharetoa.

25 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust & ors* [2019] NZCA 532.

26 Waitangi Tribunal *Ko Aotearoa Tenei: A Report into Claims Concerning New Zealand Law and Policy Affecting Māori Culture and Identity* (Wai 262, 2011) at 286.

27 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020) at 200, 267, 268, and 281.

28 For example, the deployment of offshore wind generation.

29 For example, this could be similar to the idea of monitoring demand through housing and business land assessments under the NPS on Urban Development, where the appearance of pressures trigger the use of tools.

30 And for space to be auctioned, tendered or consented on a first in time basis within those areas.

31 See generally Raewyn Peart *Farming the sea* (Environmental Defence Society, Auckland, 2019).

32 See *Hauraki Gulf Marine Spatial Plan* (April 2017) at 4, 42 and 81.

33 Derek Nolan "Coastal" in Derek Nolan (ed) Environmental and resource management law (6th ed, LexisNexis, 2018) at [5.72].

34 Golden Bay Marine Farmers v Tasman District Council EnvC Wellington W42/2001, 27 April 2001.

35 Aquaculture Reform (Repeals and Transitional Provisions) Act 2004.

36 Resource Management Act 1991, s 165G.

37 Resource Management (National Environmental Standards for Marine Aquaculture) Regulations 2002.

38 Waitangi Tribunal *Ahu Moana: The Aquaculture and Marine Farming Report* (Waitangi Tribunal, WAI953 Waitangi Tribunal Report, 2002) at 4-5.

39 Māori Commercial Aquaculture Claims Settlement Act 2004, ss 7-18 and 19-31.

40 See generally Te Ohu Kaimoana *Te Ohu Kaimoana Annual Report 2017* at 15.

41 Ministry for the Environment *Water programme of action: Water allocation and use* (December 2004) at 22.

42 New Zealand Government Electronic Tenders Service "RFT SAS2016-2017-1800 - for release of fish farming space Coromandel marine farming zone" <www.gets.govt.nz/WARC/ExternalTenderDetails.htm?id=18331664>.

43 That said, such problems are equally likely to appear under a first-in-time consenting approach.

44 See for example Skara Bohny "Aquaculture experts drawn to Nelson for open ocean expo" *Stuff.co.nz* (online ed, 6 August 2019).

45 Raewyn Peart *Farming the sea* (Environmental Defence Society, Auckland, 2019) at 104.

46 See generally Raewyn Peart *Voices from the Sea* (Environmental Defence Society, Auckland, 2018).

47 Derek Nolan "Coastal" in Derek Nolan (ed) *Environmental and resource management law* (6th ed, LexisNexis, 2018) at [5.62].

48 At [5.62].

49 At [5.62].

50 Resource Management Act 1991, s 64A(1).

51 At present, Environment Southland is the only regional council to have introduced coastal occupation charges, although Marlborough District Council has recently included a coastal occupation charge in its proposed Marlborough Environment Plan which will be levied through the annual plan process.

52 See, for example, Tasman District Council Section 32 report on Draft Plan Change 56 at 14.

53 See, for example, Gisborne District Council Proposed Variation 15 to the Proposed Regional Coastal Environment Plan at 9.

54 See Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation Synthesis Report* (Environmental Defence Society, December 2018) at 109.

55 They were first brought into the statutory framework in 1981 through an amendment to the Water and Soil Conservation Act 1967 and were carried through into Part 9 of the RMA in 1991.

56 Resource Management Act 1991, s 201.

57 Section 199.

58 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020) at 204.

59 Biosecurity Act 1993, s 144; Fisheries Act 1996, s 16. See also New Zealand Government *Biosecurity Response Guide* (Ministry for Primary Industries, October 2018).

60 Much effort has focused on what the general precautionary principle and purpose of the Act say.

61 For example, it could provide for regulations to be promulgated classifying areas for a range of reasons, including because they are especially vulnerable due to their biophysical characteristics.

62 See the discussion in *Trans-Tasman Resources Ltd v Taranaki-Whanganui Conservation Board* [2020] NZCA 86 at [153]–[163].

63 Fisheries NZ "Central Recreational Fishing Rules" (Ministry for Primary Industries, July 2020); see also Ministry of Primary Industries "Fishing rules" <www.mpi.govt.nz/fishing-aquaculture/recreational-fishing/fishing-rules/>.

64 Stephen Eayrs, Tony Craig and Katherine Short *Mitigation Techniques to Reduce Benthic Impacts of Trawling: MIT2019-02 A review for the Department of Conservation by Terra Moana Limited* (Terra Moana, April 2020). Technology is currently available which could be rapidly deployed to significantly reduce impacts: see Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at 87.

65 LegaSea *Rescue Fish Ika Rauora: A pathway to fish abundance and marine ecosystem recovery* (May 2020).

66 Compare Seachange Tai Timu Tai Pari *Hauraki Gulf marine spatial plan* (May 2017).

67 Department of Conservation and Fisheries New Zealand *National Plan of Action – Seabirds 2020* (Fisheries New Zealand, November 2019) at 13.

68 Source: Stephen Eayrs, Tony Craig and Katherine Short *Mitigation Techniques to Reduce Benthic Impacts of Trawling: MIT2019-02 A review for the Department of Conservation by Terra Moana Limited* (Terra Moana, April 2020), adapted from Robert McConnaughey and others "Choosing best practices for managing impacts of trawl fishing on seabed habitats and biota" (2020) 21 Fish and Fisheries 319.

69 We note that the Marine Mammals Protection Act applies not just to the marine space or activities in it, as some marine mammals spend significant amounts of time on land.

70 That said, some tools are not the most effective; Cabinet papers have sought to address issues with them (eg landing and discard rules, cost recovery for cameras on boats etc). See Minister for Ocean and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: landings and discards* (2 July 2021); Minister for Oceans and Fisheries *Fisheries Amendment Bill: Strengthening fishing rules and policies: offences and penalties and agile decision-making* (2 July 2021); and Minister for Oceans and Fisheries *On-board cameras across the inshore fishing fleet* (2 July 2021).

71 Fisheries Act 1996, s8.

72 See for example ArcGIS "Public SNA Map November 2020: Taupō District Council" <www.arcgis.com/apps/webappviewer/index.html?id=8f43029c9e574eaf8f0e6ae1cf6857f6>; European Commission "Natura 2000" <https://ec.europa.eu/environment/nature/natura2000/index_en.htm>.

73 Prime Minister's Chief Science Advisor *The future of commercial fishing in Aotearoa New Zealand* (Office of the Prime Minister's Chief Science Advisor, February 2021) at 91-92.

74 Influential in the sense that "avoid" can essentially impose bottom lines.

75 Raewyn Peart *Voices from the Sea* (Environmental Defence Society, Auckland, 2018) at 144.

76 The first place-based fisheries plan is set to be created in the Hauraki Gulf as a result of the Seachange Tai Timu Tai Pari process. Contrast the more general Fisheries New Zealand *National Inshore Finfish Fisheries Plan* (Discussion Paper 2019/18, November 2019), which is still in a draft phase.

77 The Prime Minister's Chief Science Advisor has recommended to "improve the processes for input and engagement in fisheries management, particularly in regards to undertaking effective iwi and stakeholder engagement, public involvement, and adequate checks and balances." Prime Minister's Chief Science Advisor *The future of commercial fishing in Aotearoa New Zealand* (Office of the Prime Minister's Chief Science Advisor, February 2021) at 22.

78 Ministry of Agriculture and Fisheries *Proposed Auckland fishery management plan* (New Zealand Fisheries Management Planning: Regional Series No. 1, 1989) as cited in See Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at 130.

79 See Fisheries Act 1996, s92 where conditions can be imposed relating to areas or methods; use or non-use of vessels; types and amounts of fishing gear; the taking and handling of fish; places where fish may be landed; and periods of time in which fish may be taken.

80 See generally B France-Hudson "Surprisingly Social: Private Property and Environmental Management" (2017) 29 *Journal of Environmental Law* 101.

81 *Royal Forest and Bird Protection Society v Minister of Fisheries* [2021] NZHC 1427.

82 At [47].

83 At [92].

84 At [199] and [200].

85 At [108].

86 At [117].

87 At [144].

88 At [166].

89 See Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018) at 41—42, 86, and 144.

90 See Raewyn Peart *Voices from the Sea: Managing New Zealand's Fisheries* (Environmental Defence Society, Auckland, 2018), chapter 4.

91 Terrance Quinn "Ruminations on the Development and Future of Population Dynamics Models in Fisheries" (2003) 16(4) Natural Resource Modelling 341.

92 See Fisheries New Zealand *Fisheries Assessment Plenary: Stock Assessments and Stock Status* (Volume 1, May 2021) at preface.

93 For example, Fisheries New Zealand *Aquatic Environment and Biodiversity Annual Review 2019-20: A summary of environmental interactions between the seafood sector and the aquatic environment* (Ministry for Primary Industries, June 2020) at 427 and following.

94 Ministry for the Environment and Statistics New Zealand *Our marine environment 2019* (ME 1468, October 2019).

95 John McKoy *Fisheries resource knowledge, management, and opportunities: Has the Emperor got no clothes?* (paper presented at Royal Society of New Zealand conference, 16 November 2006).

96 Compare Parliamentary Commissioner for the Environment *A review of the funding and prioritisation of environmental research in New Zealand* (December 2020).

97 Parliamentary Commissioner for the Environment *A review of the funding and prioritisation of environmental research in New Zealand* (December 2020).

98 Seachange Tai Timu Tai Pari *Hauraki Gulf marine spatial plan* (May 2017) at 4.

99 See Raewyn Peart *Voices from the Sea* (EDS, Auckland, 2018) at 26 and following.

100 ITQ themselves are not linked to or conditional upon measures to protect the environment, as is a permit issued under the RMA.

101 Raewyn Peart *Voices from the Sea* (EDS, Auckland, 2018) at 17.

102 Raewyn Peart *Voices from the Sea* (EDS, Auckland, 2018) at 28 and following

103 LegaSea *Rescue Fish Ika Rauora: A pathway to fish abundance and marine ecosystem recovery* (May 2020).

104 LegaSea *Rescue Fish Ika Rauora: A pathway to fish abundance and marine ecosystem recovery* (May 2020) at 3.

105 That might be changing in the context of climate change adaptation and coastal retreat.

106 Retirement of quota would, to have any effect, rely on a proportional reduction in the TAC and, ultimately, a higher abundance target than maximum sustainable yield.

107 Fisheries Act 1996, s 13.

108 New Zealand Government *Establishment of a Kermadec Ocean Sanctuary* (Cabinet Economic Growth and Infrastructure Committee, 10 September 2015); Kate Allan, *A Kermadec/Rangitāhua Ocean Sanctuary: Issues and insights into marine protection processes* (LLB (Hons) Thesis, Victoria University of Wellington, 2017).

109 New Zealand Government *Establishment of a Kermadec Ocean Sanctuary* (Cabinet Economic Growth and Infrastructure Committee, 10 September 2015) at 8.

110 Kermadec Ocean Sanctuary Bill, cl 47, inserting new sections 113AB and 113Ac into the Fisheries Act.

111 Ben France-Hudson "The Kermadec/Rangitāhua Ocean Sanctuary: Expropriation-free but a breach of good faith" [2016] Resource Management Theory and Practice 55 at 78.

112 See generally Deidre Koolen-Bourke and Raewyn Peart *Conserving Nature* (Environmental Defence Society, Auckland, 2021) at 122 and following; and Kate Mulcahy, Raewyn Peart and Abbie Bull *Safeguarding our Oceans: Strengthening marine protection in New Zealand* (EDS, Auckland, 2012).

113 See Waste Minimisation Act 2008 and Litter Act 1979.

114 Local Government Act 2002 and Building Regulations 1992.

115 Territorial Sea, Contiguous Zone and Continental Shelf Act 1977, ss 8 and 27.

116 The Parliamentary Commissioner for the Environment and the Prime Minister's Chief Science Advisor have recently explored such issues. See Parliamentary Commissioner for the Environment *A review of the funding and prioritisation of environmental research in New Zealand* (December 2020).

117 Marine Reserves Act 1971, s 2: the Act only applies to the territorial and internal waters of New Zealand (not the EEZ).

118 Itself adopted from counsel in the case, Sally Gepp.

119 Which have not yet been created, although one is signalled to implement the Sea Change Tai Timu Tai Pari marine spatial plan.

120 Although this has not been without its issues – see Greg Severinsen *Reform of the Resource Management System: The urban context* (Environmental Defence Society, August 2020).

121 Prime Minister's Chief Science Advisor *The future of commercial fishing in Aotearoa New Zealand* (Office of the Prime Minister's Chief Science Advisor, February 2021) at 18.

122 UNESCO "MSP around the globe" <http://msp.ioc-unesco.org/world-applications/overview>.

123 EU Directive on Maritime Spatial Planning 2014/89/EU (23 July 2014).

124 For a history of the development of marine spatial planning worldwide, including in-depth case studies, see Raewyn Peart *Turning the Tide: Integrated marine planning in New Zealand* (Environmental Defence Society, Auckland, 2018) at Chapter 3 and Hauraki Gulf Forum *Spatial Planning for the Gulf: An international review of marine spatial planning initiatives and application to the Hauraki Gulf* (2011).

125 Charles Ehler and Fanny Douvere *Marine spatial planning: A step-by-step approach toward ecosystem-based management* (UNESCO, Paris, 2009) at 18.

126 EU Directive on Maritime Spatial Planning 2014/89/EU (23 July 2014), art 3(2).

127 Melissa Foley and others "Guiding ecological principles for marine spatial planning" (2010) 34(5) Marine Policy 955.

128 Kelsey Serjeant and Raewyn Peart *Healthy Seas: Implementing marine spatial planning in New Zealand* (Environmental Defence Society, Auckland, 2019) at 4.

129 Hauraki Gulf Forum *State of our Gulf 2011* (2011) at 13.

130 Hauraki Gulf Forum *Spatial planning for the Gulf: An international review of marine spatial planning initiatives and application to the Hauraki Gulf* (2011) at 40.

131 Sea Change Tai Timu Tai Pari *Stakeholder Working Group: Terms of reference*, (Auckland Council, 2013) at 2-4.

132 Seachange Tai Timu Tai Pari *Hauraki Gulf marine spatial plan* (May 2017).

133 A copy of the plan and background documents can be accessed at www.seachange.org.nz.

134 Auditor-General *Sea Change – Tai Timu Tai Pari: Creating a marine spatial plan for the Hauraki Gulf* (Office of the Auditor General, B.29[180], December 2018). This review found that in the working group, some interests were better represented than others. There was a lack of formal consultation on the proposals, and the 2017 Plan was not easily to implement for central and local government agencies. It needed more agency involvement, discussion with stakeholders, and communication with the public.

135 Department of Conservation, Fisheries NZ and Ministry for Primary Industries *Revitalising the Gulf: Government Action on the Sea Change Plan* (Ministry of Primary Industries, June 2021).

136 Elizabeth Macpherson and others "'Hooks" and 'Anchors' for Relational Ecosystem-Based Marine Management" (2021) 130 *Marine Policy*.

137 Elizabeth Macpherson and others "'Hooks" and 'Anchors' for Relational Ecosystem-Based Marine Management" (2021) 130 *Marine Policy*.

138 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020) at 144.

139 Kelsey Serjeant and Raewyn Peart *Healthy Seas: Implementing marine spatial planning in New Zealand* (Environmental Defence Society, Auckland, 2019) at 53.

140 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020), 134-135.

141 Raewyn Peart and Brooke Cox *Governance of the Hauraki Gulf: A review of options* (Environmental Defence Society, Auckland, 2019) at 8.

142 Raewyn Peart *Turning the tide: Integrated marine planning in New Zealand* (Environmental Defence Society, Auckland, 2018) at 39.

143 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020) at 151.

144 Resource Management Act 1991, s 215.

145 Fisheries Act 1996, s 12(1)(b).

146 Raewyn Peart *Turning the tide: Integrated marine planning in New Zealand* (Environmental Defence Society, Auckland, November 2018) at 36.

147 New Zealand Government *Natural and Built Environments Bill - Parliamentary Paper on the Exposure Draft* (June 2021) at [49].

148 Anne-Michelle Slater and Jim Claydon "Marine spatial planning in the UK: A review of the progress and effectiveness of the plans and their policies" (2020) 22(2) Environmental Law Review 85 at 86.

149 See Marine and Coastal Access Act 2009 (UK), pt 3.

150 Marine and Coastal Access Act 2009 (UK), s 44(1).

151 HM Government *UK marine policy statement* (2011) at 10.

152 At 11.

153 At 7.

154 Marine and Coastal Access Act 2009 (UK), s 51(2).

155 Sections 51(3) and (5).

156 HM Government *UK marine policy statement* (2011) at 10.

157 At 12.

158 Marine and Coastal Access Act 2009 (UK), s 55.

159 Scottish Government "Marine Planning Partnerships: Clyde and Shetland Isles" (5 December 2018) <https://www.gov.scot/publications/marine-planning-partnerships-clyde-and-shetland-isles/>.

160 See for example the membership of the Clyde Marine Planning Partnership: Clyde Planning Partnership "About the Clyde Marine Planning Partnership" <https://www.clydemarineplan.scot/about-us/about-the-clyde-marine-planning-partnership/#membership>.

161 Marine and Coastal Access Act 2009 (UK), schedule 6, clause 1(1).

162 Schedule 6, cl 5(3).

163 Clause 5(5).

164 Clause 5(6).

165 Clause 6.

166 Clause 7.

167 Clause 11.

168 Clause 10.

169 Clause 12.

170 Clause 13.

171 Clause 13.

172 Clause 14.

173 Clause 15(6).

174 Section 55.

175 Section 58.

176 Schedule 6, cl 58(2).

177 Section 61.

178 Anne-Michelle Slater and Jim Claydon "Marine spatial planning in the UK: A review of the progress and effectiveness of the plans and their policies" (2020) 22(2) Environmental Law Review 85 at 89.

179 Anne-Michelle Slater and Jim Claydon "Marine spatial planning in the UK: A review of the progress and effectiveness of the plans and their policies" (2020) 22(2) Environmental Law Review 85.

180 Greenhill L, T A Stojanovic and P Tett "Does marine planning enable progress towards adaptive governance in marine systems? Lessons from Scotland's regional marine planning process" (2020) 19 Maritime Studies 299 at 306.

181 Raewyn Peart *Turning the tide: Integrated marine planning in New Zealand* (Environmental Defence Society, Auckland, 2018) at 23.

182 Compare Office of the Prime Minister's Chief Science Advisor *The Future of Commercial Fishing in Aotearoa New Zealand* (February 2021).

183 See Minister for Oceans and Fisheries *Oceans and Fisheries portfolio – ensuring healthy ocean ecosystems* (2 July 2021).

184 For example, rainwater tanks that mitigate the need for alternative sources like desalination which could have consequential impacts on the marine environment.

185 Raewyn Peart *Looking out to sea: New Zealand as a model for oceans governance* (Environmental Defence Society, Auckland, 2005) at 189-190.

186 Ministerial Advisory Committee on Oceans Policy *Healthy sea: Healthy society: Towards an oceans policy for New Zealand* (Oceans Policy Secretariat, 30 September 2001) at 3.

187 Karen Scott "Does Aotearoa New Zealand Need an Oceans Policy for Modern Oceans Governance?" (2021) 35 Ocean Yearbook.

188 Such elements, with supporting institutions, could be given formal recognition in an Oceans Act, says Scott: at 38 and following. On an Oceans Act, see Chapter 6.

189 Karen Scott "Does Aotearoa New Zealand need an oceans policy for modern oceans governance?" (2021) 35 *Ocean Yearbook* at 38-43.

190 At 26-29.

191 Prime Minister's Chief Science Advisor *The future of commercial fishing in Aotearoa New Zealand* (Office of the Prime Minister's Chief Science Advisor, February 2021) at 17.

192 At 17.

193 Elizabeth Macpherson and others "'Hooks" and 'Anchors' for Relational Ecosystem-Based Marine Management" (2021) 130 *Marine Policy*.

194 Prime Minister's Chief Science Advisor *The future of commercial fishing in Aotearoa New Zealand* (Office of the Prime Minister's Chief Science Advisor, February 2021).

195 Raewyn Peart *Looking out to sea: New Zealand as a model for oceans governance* (Environmental Defence Society, Auckland, 2005) at 149-151.

196 At 150-152.

197 Elizabeth Macpherson and others "'Hooks" and 'Anchors' for Relational Ecosystem-Based Marine Management" (2021) 130 *Marine Policy*.

198 Fisheries and Oceans Canada *Canada's oceans strategy: Our oceans, our future*, (2002).

199 Fisheries and Oceans Canada *Oceans action plan* (2005).

200 Sabine Jessen "A review of Canada's implementation of the Oceans Act since 1997 – from leader to follower?" (2011) 39(1) *Coastal Management* at 24-28.

201 Legislative Design and Advisory Committee *Legislation guidelines: 2018 edition* (March 2018) at 7. Compare Geoffrey Palmer "Law-making in New Zealand: Is there a better way?" (2014) 22 Waikato LR.

202 See Elizabeth Macpherson and others "'Hooks" and 'Anchors' for Relational Ecosystem-Based Marine Management" (2021) 130 *Marine Policy*.

203 Fisheries and Oceans Canada *Final evaluation report: Evaluation of the Ocean Management Program* (17 January 2018). See generally Megan Bailey, Brett Favaro, Sarah P Otto et al "Canada at a crossroad: The imperative for realigning ocean policy with ocean science" (2016) 63 Marine Policy 53.

204 Similar to the Auckland Plan, which is a statutory document but has weak links to regulatory frameworks.

205 Fisheries and Oceans Canada *Final evaluation report: Evaluation of the Ocean Management Program* (17 January 2018) at <www.dfo-mpo.gc.ca/ae-ve/evaluations/16-17/6D014-eng.html>.

206 Fisheries and Oceans Canada *Final evaluation report: Evaluation of the Ocean Management Program* (17 January 2018) at <www.dfo-mpo.gc.ca/ae-ve/evaluations/16-17/6D014-eng.html>.

207 Raewyn Peart *Turning the tide: Integrated marine planning in New Zealand* (Environmental Defence Society, Auckland, 2018) at 28.

208 Waikato Regional Council "Sea Change" <https://www.waikatoregion.govt.nz/council/policy-and-plans/coastal-policy/sea-change/>.

209 Hon Stuart Nash and Hon Eugenie Sage "New Ministerial committee established to progress Hauraki Gulf marine plan" (press release, 2 July 2019).

210 Department of Conservation, Fisheries NZ and Ministry for Primary Industries *Revitalising the Gulf: Government Action on the Sea Change Plan* (Ministry for Primary Industries, June 2021).

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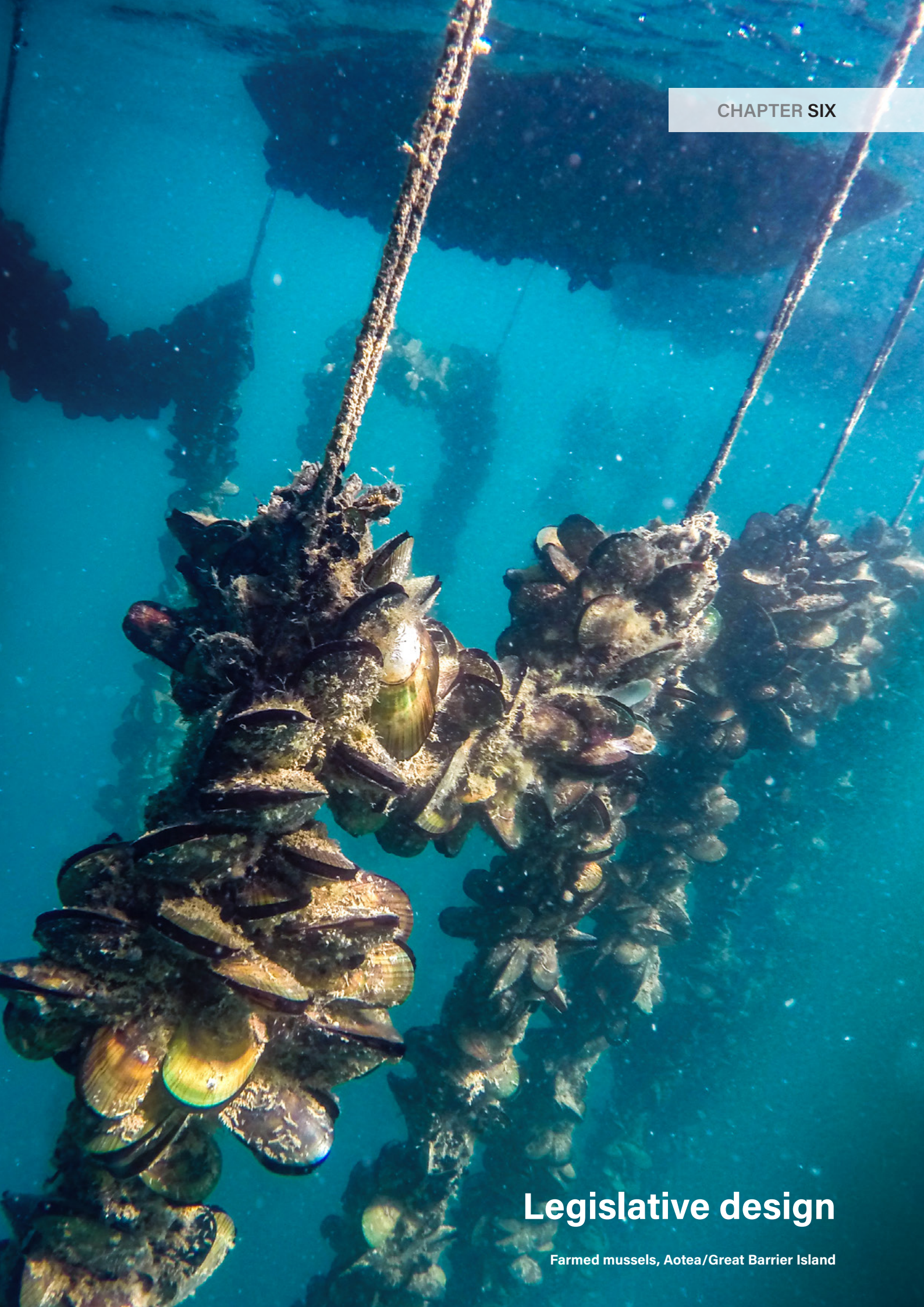

CHAPTER **SIX**

Legislative design

Farmed mussels, Aotea/Great Barrier Island

6.1 Introduction

A lot could be achieved by reconsidering the toolkit of the current oceans management system, whether by using tools already available or by amending/adding to the toolkit. However, it is not immediately clear that this will be enough. Arguably many issues with the system stem from how we have designed our package of legislation – where boundaries are drawn, what falls between the cracks, and what this means for how statutes interact. In Chapter 3 we described the existing system, and pointed out that our statute book has not been created through a consistent lens. If anything, the marine context has seen more carve outs and workarounds than on land.[1] Unlike for land, freshwater and air (where multiple pieces of legislation were rationalised into the RMA), a similar process has yet to be undertaken for the marine area. Even if we were to develop cross-cutting tools like spatial planning, there are serious questions about whether this "glue" will be enough to give the overall system coherence and integration. Our legislation is hugely significant, and has been described as forming the backbone of the rule of law.[2]

We are continuing to consider options for legislative re-design, and why we might take some measures rather than others. Central to that will be a te Tiriti perspective, not just to ensure that Treaty settlement legislation is defended, but also to ensure that a te ao Māori perspective is reflected in terms of where boundaries are drawn and how frameworks are aligned to different purposes.

A fuller framing will be contained in the final report, including the potential benefits and risks of different options. In this working paper, we make some preliminary comments and then seek to present a few possible options for change.

6.2 Principles for legislative design

Legislative design involves thinking about a number of questions. Why do we have so many (or so few) statutes? Why are they split up in the ways that they are? Why do the relationships between them look like they do? Should they be arranged differently? And does it really matter?

In our resource management reform work, we identified a number of principles relevant to legislative design. The principles highlighted by the Legislation Design Advisory Committee are also helpful (even though they do not provide deep guidance on how to design whole of system change).[3] Although they do not provide answers, principles can provide a useful guide. These are equally applicable to the marine space, although there is the added complication that the oceans management system needs to be regarded as a *part* of the wider resource management system. We cannot treat it as a legislative island.

We refer readers to our previous work on legislative design principles for more explanation. In short, we consider that design should ensure that resource management legislation and its boundaries are coherent, certain, accessible, durable, integrated, tailored to New Zealand circumstances (including te Tiriti), and efficient.

A system is coherent if it has "clarity and intelligibility" or is "logically ordered";[4] and relationships between statutes need to be designed so it is clear how they operate together (even if they may be intentionally conflicting).[5] A suite of legislation should be designed in a way that is intuitive and accessible to those who use it;[6] people (including institutions) need to understand why statutes are arranged as they are, partly in order to determine easily whether they are affected by them. Duplication and overlap should be avoided unless there is good reason.[7]

The main point is that good legislative design demands that statutes are divided in a way that makes sense. In particular, while we can divide our statutes in many different ways, a reasonably consistent rationale for doing so needs to be maintained across the whole system if we are to ensure it is coherent. Here, the concept of lenses can be useful.

A lens is, essentially, about what our main concern is when we slice and dice legislative boundaries. If we have a broad, outcomes-based framework like the RMA (regulating all sectors for the same basic environmental reasons – sustainability), it can undermine coherence if we then introduce an Act regulating the environmental impacts of mining, or of urban development, on top of it. What is the point of a broad framework if you have to look elsewhere for extensive additions, exceptions and alternatives for particular industries or spaces? That is an important thing to ponder when it comes to the place of fishing within the oceans management system, which we explore further below.

> Legislation in the oceans management system should be designed and arranged to be coherent, certain, accessible, durable, integrated, tailored to Aotearoa New Zealand circumstances (including te Tiriti), and efficient.

6.3 Ways of dividing up statutes in the oceans management system

There are many different ways of dividing up the statute book. Five broad types of division are notable in the current oceans management system, and can form a good basis for discussion about future possibilities. Sometimes the division between different statutes can be accounted for in more than one of these ways.

The first type is a spatial division. This exists, for example, between the RMA and the EEZ Act, where there is a sharp jurisdictional line drawn at a 12 nautical mile limit. It can also be seen between Acts focused only on the marine environment, like the Marine Mammals Protection Act, and statutes that span both land and sea, like the RMA, Biosecurity Act and Wildlife Act.

Another manifestation of a spatial division is between legislation that applies across the whole country (again, like the RMA or Conservation Act), and that which applies only to very specific areas (eg the Hauraki

Gulf or Fiordland).[8] Often the reason for place-based legislation is not to create carve outs, but rather to create an additional layer of management (ie both frameworks apply) or to make sure the tools under other frameworks are being used in a coordinated and place based way (eg that marine protected areas, fishing restrictions and aquaculture space are mapped or planned together).

It would be possible to divide up statutes on a spatial basis, reflecting that different spaces require different treatment. Many spatial divisions are observable in the current system.

The second way of splitting the statute book is sectoral – including the division between what we might call broad, outcomes-based statutes (like the RMA and EEZ Act) and sectoral statutes like the Fisheries Act, the Crown Minerals Act and the Maritime Transport Act. The former set of laws are focused on the environment itself (outcomes being sought irrespective of what is causing them), whereas the latter are focused on the *ways* (ie the activities) in which people use or create risks to elements of the environment. Another way of describing this might be that the former are effects-based and the latter activity-based.

Statutes could be divided on a sectoral basis. This is also noticeable in the current system.

The third type of division is a purposive one. The division between the RMA and Fisheries Act, and between the RMA and the Crown Minerals Act, can be seen in this light. These are also sector-specific statutes (reflecting the sectoral distinction described above) but arguably the *reason* they have a separate existence is because the purpose of managing those sectors is quite different to the purpose of Acts like the RMA. For example, both the Fisheries Act and the Crown Minerals Act are directly concerned with how to allocate resources to achieve something other than sustainable management (essentially, maximising long-term utilisation of fish stocks and maximising a financial return to New Zealanders from the use of Crown-owned minerals). Arguably this represents a recognition that some nationally valuable resources are to be managed in an active, not passive, manner (reinforced by the fact that the nature of the resource is different in that there are private property rights in minerals and fish).[9] We do not manage other resources (eg coastal space) to maximise their use. The minerals context is also different because they are finite resources that cannot be managed "sustainably".

A similar purposive distinction can be seen in the division between the RMA and conservation legislation like the Marine Reserves Act and Wildlife Act, and between the RMA, Biosecurity Act and Maritime Transport Act. They all have different purposes (they are trying to achieve different things),[10] even though they are managing some of the same matters (marine "environmental" impacts). When it comes to place-based statutes in Kaikōura or Fiordland, those acts arguably reflect the limitations of the purpose of the Marine Reserves Act (scientific research) and the RMA (too broad for conservation), thereby justifying a separate Act; such fragmentation is not *just* a result of political expedience.

In fact, one of the distinguishing features of any individual statute is that it has its own distinct purpose,[11] so it is not surprising that a lot of legislation is split in this way. However, one question is whether Acts' purposes are really sufficiently distinct to warrant structural separation. For example, one could say that the "purposes" of regional coastal plans under the RMA are quite different from each other, because they respond to different contexts and have bespoke objectives. Yet that does not justify separate statutes for each, and they continue to be made under the RMA.[12] Even more striking is the fact that water conservation orders under the RMA have their own more targeted purpose instead of Part 2.

The lesson here is that we need to have a sense of what purposes or objectives we want to achieve from the system as a whole, and how those relate to one another, before we can reach conclusions about legislative design. In other words, form must follow function.

Statutes can be divided according to differences in their purpose. However, it is not always easy to determine when one purpose is sufficiently similar or compatible with another to warrant inclusion in the same legislation.

A fourth type of division is where a statutory framework provides for specific tools to be deployed. For example, although climate change mitigation falls within the purview of the RMA, the emissions trading scheme (and associated measures) is complex and forms a standalone tool under the Climate Change Response Act. The same kind of thing can be said for the tools under the Waste Minimisation Act and Biosecurity Act – they pursue outcomes that are within the broad framing of sustainable management under the RMA, but are not integrated within it.

This is also arguably true of the stock assessment process under the Fisheries Act (for setting TAC), which not only has a distinct purpose (sustainable utilisation) but also requires specialist processes and institutional knowledge to implement. It is therefore possible to argue that even if some sustainability measures could be located in the RMA instead of the Fisheries Act, that shift should not include tools like the setting of catch limits, size limits or bag limits that require a deep understanding of fisheries dynamics. However, that assumes that current institutional arrangements remain (which may not be the case), and that neither a national level environmental regulator nor regional councils would be capable of strengthening their capacities to do such things in the future (which may be eminently possible). Even so, the toolkit remains quite different from the planning and consenting framework of the RMA, in that something like the TAC needs to be agile and aligned with changes in stock size which may not align with the timeframes required for plan changes

and reviews. Because of the sheer number of fish stocks and operators, it could not be done through a consenting process either.

Even if the outcomes sought by different frameworks are broadly the same, they might still be justifiably separate. Sometimes, the overall goal of a framework (eg the Climate Change Response Act) might be to support some of the *same* goals of another framework (eg the RMA), but the real *purpose* of having a separate statute is to create a home for a complex tool that will be one among many means of achieving the joint goal. It is interesting to consider sustainability measures under the Fisheries Act in this light, because arguably many of these (eg a prohibition on bottom contact fishing methods) can be achieved equally through the planning and consenting tools contained in the RMA and EEZ Act.[13]

The overall lesson, however, is that it can be hard to determine how to configure our statutes without first having a sense of which tools we want to deploy and how those tools are intended to relate to each other.

Statutes can be split according to the types of tools contained within them. Some are created as a framework for one or more quite specific or complex tools (rather than seeking to achieve an entirely different purpose), and therefore have purposes that overlap with other acts. If a tool would not fit easily into the scheme of one statute, it may require a home elsewhere.

A fifth and final type of division is where connections need to be made with other systems. For example, while from an oceans management perspective it might make sense for marine biosecurity to be closely connected to (and possibly subsumed within) a new, more integrated Oceans Act, that is not obviously the case when looked at from a broader perspective. Links between pest management on land and sea need to be strong, and more efficient management is likely if institutions responsible do not have arbitrary spatial distinctions. To put it another way – is the stronger intra-statutory connection required within the oceans management system, or within the biosecurity system? These kinds of boundaries are common, because many aspects of oceans management are linked to other things requiring an even more integrated approach such as climate change, catchment management and local government. Even something like the Fisheries Act is concerned with more than just fish – it is also about licensing boats and managing access of foreign vessels.[14]

Sometimes these cross-cutting connections are reinforced by institutional arrangements. In other words, institutional settings rather than coherent purpose can drive the design of the legislation under which they operate. For example, the RMA is arguably defined as much by the framework of institutions with roles under it – councils, the Minister for the Environment and the Environment Court – as its purpose. The Biosecurity Act has its own institutional framing, with roles for the Ministry for Primary Industries and regional councils. Even more obvious is the Fisheries Act, under which Fisheries NZ (and the Minister) has the prominent role. Nowhere is this phenomenon more obvious than under the Maritime Transport Act, where the legislation has no real purpose and is instead a collection of matters designed to form a coherent set of responsibilities for (primarily) Maritime New Zealand. The question here is whether legislative boundaries should be defined as tight institutionally driven silos, or whether they should be designed as purpose driven frameworks that draw together many institutions.

When considering options for reform, it is necessary to keep in mind that the oceans management system is part of a broader resource management system, and that even the resource management system overlaps with other systems. The question is, therefore, where the stronger connections should be made,[15] and how to ensure that connections across different statutes are as strong and clear as possible.

Statutes forming part of the oceans management system can be concerned with things other than the oceans, and close intra-statutory connections may be needed to bring those things together. It is important to remember (eg when considering options like an integrated Oceans Act) that integrating in one way can cause fragmentation across other important systems (eg for biosecurity or waste minimisation).

It is not immediately clear what division of the statute book makes most sense in the marine space. But it is worth a conversation, and we are encouraged by the general direction in the Legislation Act 2012 to facilitate "the progressive and systematic revision of the New Zealand statute book so that . . . it is arranged more logically".[16]

6.4 Options for reform

In Chapter 3 (see also Appendix 2) we briefly described the current system, which gave a sense of how our statutes are configured. We also looked at the issue of legislative fragmentation. In short, we have layers of legislation that interact in complex ways. Some divisions make sense, while others are the product of iterative and ad hoc changes over the years. Some reflect historical assumptions about the silos in which management should occur. In our final report, we intend to provide a pictorial representation of this logic (to the extent it exists).

For the purposes of this working paper, we wish to float some possible options for reforming our legislative landscape to prompt discussion and feedback, rather than delve deeply into whether those would be good or bad ideas. Across all of these options, there is the proliferation of Treaty settlement legislation to consider – which must be upheld, and which weaves into existing legislation (and would do so in future legislation) in sometimes complex ways.

Further below we consider what an "Oceans Act" could look like, the range of things it could include or subsume, and the benefits and risks it could bring. Yet other options

for legislative redesign could be relatively targeted and confined in their scope, and we mention these briefly below. For example:

- The Continental Shelf Act could be subsumed into the Crown Minerals Act.[17]

  The Continental Shelf Act is now little more than a skeleton framework through which key parts of the Crown Minerals Act are deemed to apply beyond the coastal marine area. The main substantive objection to integration may be that some of the Crown Mineral Act's provisions cannot, under international law, apply in the EEZ (eg Crown ownership of minerals) due to more constrained sovereign rights. However, that would be relatively easy to manage within a single statute. The few provisions that are not targeted at oil and gas exploration could be integrated into other frameworks.[18]

  Should we combine the Crown Minerals Act with the Continental Shelf Act?

- The RMA (or its replacement) and EEZ Act could be combined into a single statute.

  Merging the RMA and EEZ Act would recognise that the 12 nautical mile line between the frameworks is arbitrary when it comes to the environmental focus of the statutes, that cross-boundary management adds complexity, and that the division can create perverse incentives for where applicants choose to locate potentially harmful activities.[19] Separate statutes doing the same basic things on each side of an artificial line may threaten good ecosystem-based management. Merging the two acts would not necessarily require institutional responsibilities to be reconsidered,[20] or for the full extent of RMA tools (or principles) to operate in the EEZ, but it would necessitate careful thought with respect to the purpose and principles of the legislation. In particular, it would need to be sensitive to the different nature of sovereign rights beyond the territorial sea.[21]

  There are reasons to have some distinction in the management of the EEZ; for example, it is arguably beyond the capabilities of regions to administer, it may have more of a central than regional government interest in its management, it can get by with a simpler framework due to its low density of people and fewer applications, and it has different arrangements under international law. However, these features can arguably be reflected in different planning, institutional and funding arrangements within the same statute, rather than requiring an entirely separate statute, a different set of regulations, or markedly different principles underpinning the regime.

  Should the RMA and the EEZ Act be combined into one single, enlarged act (an expanded NBA)?

- The Wildlife Act and the Marine Mammals Protection Act could be combined (and updated) to break down the arbitrary distinction between the protection of different species in the marine area, and potentially overlapping tools like wildlife sanctuaries and marine mammal sanctuaries.

  Should the Marine Mammals Protection Act be folded into the broader framing of an updated Wildlife Act?

Container ship entering the Port of Auckland

- The RMA/EEZ Act could, if combined, also subsume legislation for marine protected areas (whether the Marine Reserves Act or new, separate marine protected area legislation).

  This could improve the integration between the range of spatial protections available under the RMA (including those enabled under the *Motiti* decision)[22] and type 1 and 2 protected areas designed for more "conservation" purposes.[23] It would, for example, enable a network of areas to be planned at a regional level through a relatively robust process involving submissions, hearings and appeals. It would also see tools like the NZCPS and an EEZ policy statement more thoroughly integrate forward planning for marine protected areas, not just include statements about avoiding adverse impacts on existing marine reserves.

  In short, integrating legislation in this way might form something of a "light" version of marine spatial planning. The Minister and Department of Conservation already have important approval and advocacy roles with respect to regional coastal plans under the RMA, so could be well placed to take a leadership role in the integration of marine protected areas within them.

  However, there could be downsides. There may be questions as to whether the broad purpose of the RMA (or its replacement) is protective enough as a foundation to establish highly protective marine protected areas like marine reserves. Furthermore, the premise of the RMA is that things can change – plans can be changed and reviewed. Whether that provides a "safe" environment for some marine protected areas is debatable, just as one might baulk at the prospect of providing for national parks under the RMA.[24] Furthermore, as we have noted in previous work, conservation legislation generally does not undermine the coherence of the system, because:[25]

  > These are, importantly, not carved out of general frameworks like the RMA. Location-based acts impose additional requirements and restrictions in particular areas... and there may be good reason to keep them distinct. Some may see them as adding a valuable layer of place-based integration, and being sensitive to the unique connections within local ecosystems and communities.[185]

  Should a combined RMA/EEZ Act also subsume proposed legislation for marine protected areas (or an updated version of the Marine Reserves Act)?

- The RMA and EEZ Act could be split in a different way: a land and coastal focused piece of legislation extending out to (say) three nautical miles, and oceans focused legislation beyond that boundary.

  This could reflect a more targeted focus for regional councils (the primary planners and regulators under the RMA) with respect to the interface between catchments, land and coastal environment, and an expanded role in the remainder of the coastal marine area for the EPA as a national level arm's length regulator. However, the EEZ Act itself may in that case need to be strengthened to have some more of the rigour of the RMA (including the development of

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policy statements of at least the same pedigree as the NZPS). It is not immediately clear that changing marine boundaries in this way would be worthwhile, and we have heard different perspectives on this in workshops. The same boundary question arises when we consider the potential for an integrated Oceans Act further below. Such an approach could cause difficulties with respect to the relationship between this legislation and the MACA Act, in that the latter extends to the 12 nautical mile mark.

> Should the boundary between the RMA and the EEZ Act be shifted, so that the former focused more on the coastal environment (eg out to three nautical miles or some other boundary) and the latter focus on the oceanic environment less impacted by land-based activities?

- Although it goes well beyond just the oceans management system, a more integrated and modern piece of conservation legislation – a Protected Species and Areas Act – could subsume existing legislation like the Conservation Act, Wildlife Act, Marine Mammals Protection Act, and the Marine Reserves Act (or new marine protected area legislation).

  This would recognise the importance of managing both species and protected areas in an integrated way across the land-sea boundary. However, a separation would remain between statutes for "conservation" and for "resource management" in the marine space. EDS is considering options for conservation law as a "system" in its own right in a separate project, and we have previously touched upon what integrated conservation law could look like in our resource management reform project.[26]

> Should we create an integrated piece of conservation legislation across land and sea, subsuming marine focused legislation like the Marine Reserves Act and Marine Mammals Protection Act?

- The boundaries of another sectoral framework, the Maritime Transport Act, could also be reconsidered. Its "environmental" components relating to discharges from ships could be shifted to the EEZ Act. This would provide a more consistent normative basis and integrated framework for rules and consenting with respect to discharges.

  However, some things would be an uneasy fit. Notably, oil spill preparedness and response measures (and liability) are quite unlike other tools in the RMA and EEZ Act, as are design requirements for ships. Furthermore, the boundary between the Maritime Transport Act and EEZ Act was considered closely when many provisions *were* shifted soon after the latter was enacted. It is not a "neat" boundary, but it is arguably a practical one.

A spotlight on the transfer of functions from the Maritime Transport Act to the EEZ Act[27]

Although, in 2011, Cabinet approved policy proposals to transfer regulation of discharges from offshore installations and dumping in the EEZ and continental shelf from Maritime New Zealand to the EPA, the EEZ Act did not initially enact this policy proposal.[28] The rationale for the transfer, through a subsequent amendment in 2013, was that:[29]

> Transferring the regulation of discharges and dumping to the EEZ Act enables discharging and dumping to be assessed within the same consenting regime as other activities relating to the wider operation [of petroleum activities regulated under the Act]. This adjustment provides greater certainty and reduced compliance costs for industry, avoids inefficiencies from duplicating processes, enhances environmental effects management such as consideration of cumulative effects, and provides the opportunity for improved public and iwi participation.

The EEZ Act was duly amended.[30] Maritime New Zealand and the EPA are now expected to work closely together, and the EPA will provide Maritime New Zealand with any information which may assist in the performance of its functions, and vice versa.[31] This is particularly important because Maritime New Zealand retains significant functions under the Maritime Transport Act, including spill preparedness and response, regulatory functions relating to the design of ships, and jurisdiction over discharges from ships. The pragmatic logic behind the split jurisdiction is that Maritime New Zealand has specialist knowledge of shipping, and that the environmental, health and safety and international law components are intimately connected and can be discharged most efficiently through a single sector-focused organisation.

> Should more of the environmental components of the Maritime Transport Act be shifted to the EEZ Act?

- New marine protected areas legislation could integrate (ie replace) not only the existing Marine Reserves Act, but also regional legislation in place such as the Hauraki Gulf Marine Park Act, the Fiordland (Te Moana o Atawhenua) Marine Management Act, legislation for the Sugar Loaf Islands, and the Kaikōura (Te Tai o Marokura) Marine Management Act.

  However, aspects of these may be more difficult to integrate than others, as they contain elements that go well beyond just the creation of bespoke protected areas (eg the creation of the Hauraki Gulf Forum and various guardian groups). It may be, however, that the different components of

those statutes could be split up into a wider range of statutes that provide for regionally specific arrangements (eg for marine spatial planning).

- Should area-specific conservation legislation be integrated into broader frameworks (eg marine protected area legislation) if those broader frameworks were made more fit for purpose and allowed for regional arrangements?

- Alternatively, new layers of place-based legislation could continue to be created, recognising that there is benefit in tailoring a cross-cutting package of measures to the needs of particular parts of the marine area (or across land and sea). New legislation is envisaged to implement the government's response to the Sea Change – Tai Timu Tai Pari initiative, and that could potentially be replicated elsewhere. This approach could have value as the Crown's relationship with Māori continues to evolve (including to implement elements of settlements), recognising that tikanga differs across different rohe moana.

  However, how new place-based legislation interacts with other frameworks is important. Adding layers of legislation creates complexity, especially if it relies on carve outs from other statutes or seeks to alter or influence how their tools work. This can be seen in the case of the proposed Rangitāhua/Kermadec Ocean Sanctuary.


Tiritiri Matangi

A spotlight on the Rangitāhua/Kermadec Ocean Sanctuary proposal

There is currently no legislation in Aotearoa New Zealand that enables the creation of a marine reserve within the EEZ. This meant that the creation of the Rangitāhua/Kermadec Ocean Sanctuary required special legislation, even though it resembles a marine reserve in a number of ways. Despite being a bespoke Bill, its interface with a raft of other legislation makes the mechanisms to establish and manage the area somewhat complex. From a legislative design perspective, it highlights the difficulties created by adding more and more place-based or issue-based statutes to the system on top of more general frameworks.

Within the Sanctuary, the Bill prohibits fishing; mining activity; the disturbance of, or the removal of living or non-living natural material from the seabed or subsoil; the dumping of waste or other matter; the causing of vibrations (other than vibrations caused by the propulsion of a ship) in a manner that is likely to have an adverse effect on marine life; and seismic surveying. Much of the Bill focuses on a process for granting authorisations for scientific research within the Sanctuary. The Bill also amends five other pieces of legislation: the Biosecurity Act, Conservation Act, EEZ Act, Environmental Protection Authority Act and Fisheries Act. In particular, it uses and alters the machinery of other acts to further its own ends:

- The Bill would insert into the Fisheries Act a prohibition on fishing within FMA10 (to be enforced by the Ministry for Primary Industries), and a provision to set the TAC and TACC to zero for all stock that coincide with FMA10 (which equates to the proposed Sanctuary area);
- Mining, disturbance of the seabed and subsoil, dumping and undertaking certain marine scientific research without approval would be identified in the EEZ Act as prohibited activities;
- The Biosecurity Act would be amended to make it clear that an activity to attempt to eradicate or manage invasive organisms within the Sanctuary was not caught by the prohibited activity provisions in the EEZ Act;
- The Environmental Protection Authority Act was amended to include the new Sanctuary legislation in the list of environmental acts under which the EPA exercises functions;
- The Sanctuary was to come under the auspices of the Conservation Act (through listing in the First Schedule) and be managed by the Department of Conservation. Provision was made to establish a dedicated Conservation Board for the area (including the islands, marine reserve and Sanctuary area) tasked with developing a conservation management strategy for it.

On the one hand, this approach of "cobbling together" the machinery of many statutes in the service of another has benefits – it means the Bill is not reinventing the wheel, familiar tools can be used with little change, and existing institutional frameworks can be utilised. However, on the other hand, it perpetuates the complexity and fragmentation of the system. It is something of a parasitic statute. The more statutes we have, the more interfaces there must be.

Some may argue that bespoke statutes are desirable to reflect the unique circumstances of a place. For marine protected areas, that argument is not particularly convincing; it would be entirely possible to craft general legislation that provided a process for place-based management. Although there are deep flaws in our Marine Reserves Act, the relationship between that Act and others is more straightforward than the relationships proposed in the Kermadecs legislation. For example, the Marine Reserves Act does not rely on the Minister setting a TAC under legislation with a completely different purpose (sustainable utilisation), suggesting that more general legislation may be preferable.

In short, creating a no-take marine protected area within the EEZ with bespoke legislation is complicated due to the multiple interfaces with other legislation with different purposes. Furthermore, while this does not necessarily mean all place-based legislation is undesirable, it begs the question as to whether there is a better way of framing regional differences within a single integrative statute. Marine spatial planning provides one means of doing so, and we explore options for an Oceans Act below.

Should we continue to create bespoke statutes for individual marine protected areas?

- As mentioned in the spotlight below on *Motiti*,[32] the boundary between the sector-focused Fisheries Act (with a purpose of sustainable utilisation) and the outcomes-focused RMA/EEZ Act (with a purpose of sustainable management)[33] could be shifted. The RMA, rather than the Fisheries Act, could become the mechanism by which sustainability measures would be imposed to protect the marine environment from the impacts of fishing activity. Reforms could even go further, with all forms of environmental "limits" imposed through the RMA/EEZ Act (including the setting of a TAC, bag and size limits and so forth), and the Fisheries Act becoming a vehicle for allocative decisions (which would be made following the establishment of environmental limits under the RMA). Effectively, the Fisheries Act would occupy a similar legislative space to the Crown Minerals Act. We explore this idea further below. It would even be possible to entirely merge the Fisheries Act into resource management legislation (if, for example, the RMA and EEZ Act were combined).[34]

There are a number of options to consider when it comes to legislative design in a future oceans management system. These range from the relatively minor (eg integrating the Continental Shelf Act with the Crown Minerals Act) to the more extensive (the integration of marine focused conservation statutes into a larger, more integrated piece of conservation legislation).

Rethinking the boundary between the RMA and the Fisheries Act

When we look at the resource management system as a whole (and with some significant exceptions) the basic framing makes some sense.[35] Broad, outcomes-based statutes like the RMA, Biosecurity Act or Waste Minimisation Act apply to almost all sectors and seek the same outcomes irrespective of the environment or resource in question. Layers are then added *on top* of those to achieve *additional* (not *alternative*) outcomes for particular sectors (eg mining) and spaces (eg Te Urewera). Ignoring recent measures (eg for urban development),[36] the system is one with relatively few carve outs.

This is not the case when it comes to oceans. We currently have a separate Fisheries Act, creating a contested boundary with the RMA (and the EEZ Act). The arrangement is unique, because it creates a carve out for managing human interaction with a particular living resource that is intimately connected to broader ecosystems, but for a quite different purpose.[37] Not only that, it also seeks to manage the environmental impacts *of* fishing on the broader marine environment through sustainability measures. This aspect means that both statutes can do the same or similar things for different reasons, and it is still not clear where one should start and the other should stop.

Game fishing vessel, Hauraki Gulf

A spotlight on the *Motiti* decision[38]

The *Motiti* case illustrates the confusion that can arise when statutory boundaries are defined with reference to subtly different purposes for which tools are used (ie where they are used to do the same or similar things for different reasons). The case focused on whether it was possible for a council to spatially protect parts of the marine environment from the impacts of fishing activity through provisions in its regional coastal plan. The impetus for the litigation was the events following the grounding of the *Rena* on the Otāiti/Astrolabe reef in October 2011, and attempts by the Motiti Rohe Moana Trust to retain a fisheries exclusion zone around the reef once the salvage operation had been completed.

The Court of Appeal stated that the RMA's purpose and the functions of regional councils would be, if not specifically carved out, enough "to authorise a regional council to control fishing in the coastal marine area".[39] Legislators had turned their mind to the interface between the two pieces of legislation, with section 30(2) of the RMA stating that a regional council must not perform certain functions "to control the taking, allocation or enhancement of fisheries resources for the purpose of managing fishing or fisheries resources controlled under the Fisheries Act 1996." It was the application of this section that was the focus of legal argument.

The High Court sought to reconcile the two pieces of legislation by concluding that the Fisheries Act was narrower, "focused on biological sustainability of the aquatic environment as a resource for fishing needs" whereas the focus of the RMA was broader encompassing "ecosystems and their constituent parts (including people and communities), and all natural and physical resources". Therefore, although the control of fisheries under the Fisheries Act would help achieve the broader purpose of the RMA it "does not purport to address, let alone control, all the effects of fishing on the wider environment (including people and communities)".[40]

The Court of Appeal, for the most part, endorsed the reasoning of the High Court. Essentially, regional councils have the jurisdiction to take measures to prohibit or control fishing where it is for the purpose of biodiversity protection rather than fisheries purposes. However, considerable questions remain about the interface. For example, the Court noted that whether a restriction is lawful will depend on the factual setting, and a number of "indicia" will need to be considered:

(a) Necessity: whether the objective of the control is already being met through measures implemented under the Fisheries Act;

(b) Type: refers to the type of control. Controls that set catch limits or allocate fisheries resources among fishing sectors or establish sustainability measures for fish stocks would likely amount to fisheries management;

(c) Scope: a control aimed at indigenous biodiversity is likely not to discriminate among forms or species;

(d) Scale: the larger the scale of the control the more likely it is to amount to fisheries management;

(e) Location: the more specific the location and the more significant its biodiversity values, the less likely it is that a control will contravene s 30(2).

This leaves the door open for argument on a whole range of fronts. For example, would widespread restrictions on damaging fishing methods (eg dredging or bottom trawling) be lawful due to the "scale" of control? What about the case of a particularly sensitive inshore benthic ecosystem vulnerable to climate change and land based stressors – would the imposition of a lower bag limit or commercial catch limit for shellfish (the "type" of control) be lawful if it was needed to protect an ecosystem fundamentally reliant on, for example, densely packed mussels? What if a restriction targeted a particular species (the "scope" of a control), not to protect that species, but because its protection was the only missing link in the chain to prevent ecosystem collapse (eg in the case of snapper and kina barrens)? And does the law effectively limit the role of councils to creating highly targeted areas of protection and prevent them discharging their statutory responsibilities to protect marine biodiversity in its wider coastal marine area?

Such questions may also be significant in light of the climate change implications of bottom trawling.[41] Councils have now regained jurisdiction in the RMA over the control of greenhouse gas discharges, which are released in significant quantities by trawling the seabed. Would councils have the ability to take action under the RMA for the climate, not biodiversity, reasons? What if a council wished to retain the ecosystem services of shellfish in estuaries to filter pollutants coming down catchments? Or to prevent the harvest of seaweed that is useful for mitigating the effects of storm surges?

A number of other questions about the statutory interface remain unresolved. For example, the Court of Appeal noted that:[42]

> Some of the submissions before us indicate that in other circumstances conflict could arise between Māori commercial or customary fishing rights

> and the exercise of a regional council's power to protect indigenous biodiversity. Notably, the New Zealand Māori Council, which is the fifth respondent, takes the position that s 30(2) would preclude a regional council from banning fishing in a taiapure fishery. Other intervenors submit that when an area has been declared a taiapure fishery it is unlikely that a council would find it necessary to ban fishing there in the interests of protecting indigenous biodiversity. We do not need to decide these points and we do not have all the information we might need to do so. Still less can we decide whether or how s 30(2) would apply when Māori commercial fishing interests are engaged. That would raise Treaty considerations that have not been addressed in argument.

The *Motiti* decision illustrates the complexity of the statutory interface between the Fisheries Act and the RMA, and has implications for its interface with the EEZ Act as well. Yet the growing complexity of the system as a whole can also be seen in the uncertain ways in which one could arguably influence another by a roundabout route. For example, the establishment of customary marine title under the MACA Act (which may eventually cover a significant portion of the coastal environment) allows title holders to require permission for certain activities requiring consent under the RMA.[43] Because of the *Motiti* decision, regional councils are likely to become more active in controlling fishing activity (possibly even requiring consent for some activities), and the extent of such jurisdiction remains unclear. This raises the possibility of rights under the MACA Act being exercised to manage fishing activities, even though there is no direct connection between those acts.

In short, although many questions remain outstanding, the Fisheries Act's role in managing fishing impacts on marine biodiversity can be seen as a subset of that undertaken by the RMA. This does beg the question as to whether the Fisheries Act should play a role in this area at all. If the RMA already provides a regime for managing the impacts of activities on marine biodiversity, why is there a need for sectoral legislation to do the same thing for a specific activity? It creates an awkward carve out.

While we are continuing to explore this idea, there is at least a legitimate conversation to be had as to whether parts of fisheries legislation – such as the impacts of fishing methods and spatial exclusions – should remain separate from the RMA and EEZ Act at all.

It is notable that we do not do the same thing elsewhere. For example, the impacts of mining activities on the marine environment are still considered under the RMA and EEZ Act, and consent is required to mine.[44] It would not be hard to imagine a requirement to obtain consent to bottom trawl, which can have similar effects.[45] One possibility could be for parts of the Fisheries Act concerned with the protection of the marine environment from the impacts of fishing (ie some sustainability measures) to be relocated to the planning and consenting framework of the RMA (and EEZ Act), and for an active role to be taken by the Minister for the Environment or Conservation in establishing mandatory national direction on the subject. This would be similar to how climate change mitigation is being approached in terms of the interface between the Climate Change Response Act and the RMA, with councils ability to consider the impact of climate change emissions being reinstated under the RMA, but the commencement of these provisions being delayed so the Ministry for the Environment has the opportunity to put in place national direction on the matter.[46]

This would mean that the Fisheries Act essentially becomes a vehicle for fish stocks to be managed, allocative decisions to be made (eg setting the respective shares of a stock between recreational, customary and commercial fishers) within environmental limits, and for the complex mechanics of the QMS.

There is a complex and still relatively unclear boundary between the RMA and the Fisheries Act, and many questions remain even after the Court of Appeal clarified some things in its decision in *Motiti*.[47] One option would be to shift some environmental responsibilities more clearly away from the Fisheries Act and into the more developed planning and consenting framework of the RMA/NBA (and potentially EEZ Act), making the interface more like that between the RMA and the Crown Minerals Act.

Should responsibility for the impacts of fishing on biodiversity and the environment (other than fish stocks themselves) be more firmly shifted away from the Fisheries Act and into the RMA/NBA?

However, even the taking of fish has significant environmental impacts beyond impacts on the populations of the actual fish taken. In the mining context there is a "cleaner" distinction with the RMA, because how much mineral is left on or under the sea often has less impact on the living components of marine ecosystems;[48] only the *method* of extraction has effects. In contrast, the removal of fish can have cascading impacts up and down food chains and needs to be closely linked to management of the broader marine environment. Fish not only live in marine habitats, but they create and modify them as well. Thus even the location of tools like the TAC and bag limits in the Fisheries Act can be regarded as something of a carve out – environmental limits set elsewhere – rather than an additional layer of management.[49] Is that justified?

On the one hand, such measures are closely linked to the allocation of fish stocks, and setting fishing limits have a different purpose to the RMA,[50] so there is a case for those to be integrated in a single regime. Furthermore, if setting catch limits retained the objective of achieving maximum sustainable yield, then shifting them into the RMA/EEZ

Act may not actually be doing that much, and could confuse the normative basis of the Act.

However, it is interesting to contrast this sectoral division to other important sectors on land. We do not have a separate "Agriculture Act" that manages the diffuse discharges of farming to fresh water with the aim of maximising the economic benefits of dairying. Nor, in putting limits on the use of freshwater, do we set the "maximum sustainable pollution" under a sector-specific Act designed to push towards the greatest use possible. Indeed, it is hard to imagine a concept more inconsistent with te mana o te wai (that the needs of the river come first) than that.[51]

The concept of a TAC, based on maximising sustainable yield, is arguably not so different to that of maximum sustainable pollution (both are about using the natural environment), begging the question: should the Fisheries Act become a narrower framework for allocating a resource within environmental limits – including catch limits – rather than a place where those limits are set in the first place?[52] This would allow fisheries sustainability measures to be integrated within a broader framework of habitat protection and restrictions on other marine activities. Locating limit setting under the RMA (or its replacement) would also bring with it greater participatory rights and potentially both greater local/regional control and the rigour of an Environment Court process.[53] We are not saying whether this would be a good idea or not – it is simply a debate to be had.

A more far-reaching option would be for the Fisheries Act to be a home for the QMS and other allocative mechanisms, but for all sustainability measures to be set under an expanded NBA (whether at a central or regional level).

Should the sustainability measures contained in the Fisheries Act be transferred into the RMA/NBA?

This raises further questions of whether a statute should form an integrated scheme primarily based on its purpose, or whether some other factor should determine a statute's boundaries. Even if we were to accept that fish stocks should be managed under something more akin to the RMA's purpose (by no means a settled conclusion), there may still be compelling reasons to retain separate legislation for the setting of catch limits and even other sustainability measures.

One reason might be that the nature of the tools are quite different to the planning and consenting framework of the RMA, including the process by which TACs are set or changed. For example, we do not locate the emissions trading scheme under the RMA, even though climate change mitigation is within its scope.[54] In setting a TAC, RMA jurisdictional boundaries (regions) also do not coincide with administrative boundaries (quota management areas), meaning that a system within a system would need to be created under the RMA. Would there be any point, or would it be shifting deck chairs on the Titanic?

Another pragmatic element is the institutional arrangements that surround the use of tools. A central government institution like Fisheries NZ can attract a concentration of expertise and has the clear function of administering an act focused on intimately connected fisheries measures that involve complex, lengthy and highly scientific exercises. A similar choice can be seen in the inclusion of restrictions on discharges from ships under the Maritime Transport Act, because Maritime New Zealand is practically well positioned to deal with all things "shipping".

The flipside of this is to consider how well-placed RMA decision-makers would be to do such things as setting a TAC on a regional basis. At present, the answer is probably *poorly*, given that the Ministry for the Environment is not geared towards it and regional councils are still grappling with the news that they are able to (and even expected to) do something much narrower – protect biodiversity from fishing activities under the RMA.[55] As the Court of Appeal noted:[56]

> [counsel] argued that Parliament cannot have intended to assign to regional councils functions that ought to be managed centrally by an agency with the institutional resources and competencies to do so ... fisheries management is a highly specialised discipline requiring expertise, scientific knowledge and specific regulatory and enforcement capability, all of which regional councils lack. For the BOP Council [counsel] readily acknowledged that it lacks the resources and expertise to undertake fisheries management. But that function is not synonymous with the local protection of indigenous biodiversity.

However, all this assumes that the current institutional arrangements remain unchanged, which does not need to be the case. Responsibilities and expertise could be reshuffled so that fishing decisions became more integrated into the fabric of resource management legislation, and the new NBA provides an opportunity to consider such possibilities.

There are practical reasons to suggest that tools for setting catch limits and other mechanisms for managing fish stocks themselves (eg bag limits, seasonal closures) might be better placed under a separate framework like the Fisheries Act.

Do the potential advantages of shifting catch limits and other stock management tools from the Fisheries Act to the RMA/NBA outweigh the potential disadvantages?

A chance to clean up the statute book

There are no doubt many other options for legislative reform, and we have simply provided some thoughts to ponder above. Finally, we note that reforms would

need to actually make a difference. For example, some rationalisations might make the statute book "neater", but may not be significant. It might, for example, make sense to integrate the EPA Act into the Environment Act (also concerned with establishing various institutions), but that is not likely to give much policy bang for one's drafting buck. Similarly, it would certainly simplify the statute book without any real downsides to integrate laws like the Territorial Sea, Contiguous Zone and Exclusive Economic Zone Act and Continental Shelf Act into others, like (respectively) the EEZ Act and Crown Minerals Act, but whether that would be worth it may depend on other measures being taken. For example, a recent Cabinet paper proposes: [57]

> to take this opportunity to repeal the Fisheries Act 1983. The Fisheries Act 1983 is the precursor to the Fisheries Act 1996 and its remaining provisions are redundant.

The reform process may provide many opportunities to do things like this in the interests of simplicity and accessibility. To the uninitiated, it can be confusing to appreciate exactly what is contained within statutes that have similar names and how they work together. A lot could potentially be subsumed within a dedicated Oceans Act, if we were to go down that path.

Oceans reform might provide an opportunity to integrate or otherwise rationalise a range of older or more "administrative" marine statutes into more modern ones, to create a more coherent statutory scheme.

An Oceans Act

Some of the options above are mutually exclusive, while others could (depending on one's appetite for reform) be pursued at the same time. We intend to explore these options further in our final report, and to consider three or four overall models for reform.

However, it is interesting for the purposes of this working paper to think about how far legislative redesign *could* take us. To do so, it is worth testing the idea of having an Oceans Act. This does not mean it is the best option, but it opens up horizons for what legislative design could mean if we were to undertake the deepest of systemic reforms.

There are two broad ways in which we could think about an Oceans Act. The first is what we might call an "integrative" piece of law. The second we might call an "integrated" statute. We consider them in turn.

There are two ways to think about an Oceans Act: as an integrative or "umbrella" type statute, or a more integrated statute that combined several existing ones into one place.

An integrative Oceans Act: An umbrella statute

An integrative Oceans Act would, essentially, be a new legislative framework that sits above others. It would ensure that better connections were made between multiple "operational" legal frameworks (eg for resource management, fisheries, minerals and so forth). This would not involve extensive legislative redesign (although it would not preclude other statutes from being reshuffled in ways outlined earlier), because it would form an additional layer.

This statute could form a home for statutory marine spatial planning and outline its objectives, processes and administrative provisions (see Chapter 5) as well as – if that tool were to be adopted – the development of a formal oceans policy/strategy. Essentially, it would contain a broad purpose for the whole oceans management system, the machinery outlining the process for developing and changing marine spatial plans and an oceans policy, and formal links to other statutory frameworks that would (for example) be required to "give effect" to it, be "consistent" with it, or some other relationship.

This type of Oceans Act could be a standalone piece of legislation. But, as with all aspects of the oceans management system, policy makers need to grapple with the links between land and sea. Thus an alternative would be for an overarching piece of legislation to cover not just marine matters, but instead a broader *resource management* strategy and spatial planning cutting across both land and sea. It is particularly interesting to consider the possibility of piggybacking on the Randerson Panel's proposed new legislation for spatial planning (the Strategic Planning Act) to progress marine spatial planning. We explore this in more depth in Appendix 3, but the key positive and negative elements of using the Strategic Planning Act for marine spatial planning are outlined below (and summarised in Figure 6.1).

Overall, the Randerson Panel proposals for the Act may not be adequate to provide for integrated marine spatial planning primarily due to limited scope, including through excluding most of the country's marine area (the EEZ) and most of the marine legislation currently applying to the marine domain. Significantly different approaches are also required for marine and terrestrial planning. This is why many countries have included provision for marine spatial planning in oceans-related legislation (such as Massachusetts, Canada, Victoria, Denmark, the United Kingdom and Scotland).[58]

If marine spatial plans were to have direct effect on marine legislation by providing a streamlined or direct process to (for example) create marine reserves, marine mammals sanctuaries, and plan changes (rather than requiring a "double" process by which those things needed to be implemented in other regimes), it would not be a good fit for the more "strategic" non-regulatory Strategic Planning Act. It also raises the question as to whether this type of framework for spatial planning in the marine area would render new marine protected area legislation redundant, if things like marine reserves (or similar tools) could be established directly under a framework Oceans Act.

Benefits	Drawbacks
Existing reform initiative which provides the opportunity to progress marine spatial planning (even if with limitations). It is least disruptive (in that it requires minimal amendment to other frameworks)	The Strategic Planning Act does not extend to the EEZ
Integrates spatial planning for land and the sea	The Strategic Planning Act does not apply to key marine-related legislation such as Fisheries Act, Marine Reserves Act, Wildlife Act, Marine Mammals Protection Act, Biosecurity Act etc
Helps to integrate planning with financial provision for marine management and restoration (through application of the Strategic Planning Act to the Local Government Act)	The Strategic Planning Act may embed a terrestrial approach to marine spatial planning (where integration or coordination of activities is prioritised) and downplay ecosystem-based management as the underpinning goal
Provides for iwi to be around the table when formulating the plan	The Strategic Planning Act does not provide for stakeholder-led collaborative plan making
Provides for central, regional and local government to plan together (with iwi) for the marine area in an integrated manner	The Strategic Planning Act does not provide for a regulatory component of marine spatial plans, and so could duplicate processes to some extent
The proposed national priorities statement provides a means of setting out national priorities for the marine space and marine spatial planning	A national priorities statement might not be broad enough
Environmental limits set under the NBA would apply to marine spatial plans	Because the Strategic Planning Act does not apply to key legislation like the Fisheries Act, any move to bring it within the scope of the Act raises questions about the right direction of influence between the frameworks
	Even if the scope of the Strategic Planning Act were expanded, it creates complex inter-statutory boundaries, issues about timing of various instruments, and it does not address issues with legislation that it links to (eg the inadequacies of the Marine Reserves Act)

Figure 6.1: Benefits and drawbacks of including marine spatial planning in the proposed Strategic Planning Act

The scope of the Strategic Planning Act *could* be expanded so that it had legal influence over decisions made under the EEZ Act as well as the RMA. That could happen in a variety of ways. However, that would create further complexity in a system arguably requiring simplification and rationalisation. Its scope *could* also be expanded so it had legal influence over decisions made under the Fisheries Act. However, it is not clear what the direction of influence should be here – should fisheries decisions influence a spatial plan? Or vice versa?

Moreover, the purpose of spatial planning on land and at sea is arguably quite different. Marine spatial planning is more firmly rooted in the concept of ecosystems-based management, whereas terrestrial spatial planning is (at least partly) driven by the need to coordinate land use and public infrastructure funding and supply. That calls into question the appropriateness of undertaking spatial planning for land and sea under the same legislative framework (although dual purposes and processes could be provided for).


Australasian gannet, Kaikōura

A spotlight on Canadian oceans legislation

Management of Canada's marine area is shared between federal and provincial governments with shipping, commercial fisheries, and oil and gas exploitation in offshore areas managed at a federal level. Canada was the first country in the world to adopt comprehensive legislation for oceans management. The Oceans Act 1997 declared Canada's EEZ and put in place a framework for more strategic and integrated management of the country's oceans. Unlike the United Kingdom legislation which brought together various oceans-related functions under one piece of legislation and management authority (see further below), the Canadian Oceans Act overlaid an oceans regime across existing regimes which remained intact, leaving fishing, marine protection and shipping under their own legislation.

As described in Chapter 5 (with respect to oceans policy), the Canadian approach (an additional layer of legislation) has had implementation troubles because it has struggled to meaningfully integrate the many other statutory silos (and supporting institutions) that continue to operate separately. This could be a problem if a similar overlay approach (whether under the Strategic Planning Act or a separate integrative Oceans Act) were taken in Aotearoa New Zealand.

Marine spatial planning could be provided for under the proposed Strategic Planning Act. However, it is by no means clear that this type of legislation would be a good fit.

- Should the proposed Strategic Planning Act be expanded to apply to the EEZ, and what should its relationship with the EEZ Act (and instruments under it) be?
- Should the Strategic Planning Act be expanded to include fisheries considerations?
- If so, should a regional spatial plan influence decisions under the Fisheries Act, or should decisions under the Fisheries Act shape the spatial plan?

An integrated Oceans Act: combining legislation

The second form an Oceans Act could take would include marine spatial planning and an oceans strategy/policy, but would also incorporate the "machinery" from other Acts. This would see much more extensive legislative integration and the dismantling of other acts, not just another layer over the top.

There is no single conception of what this "Oceans Act" might look like. It is, essentially, a general label to describe a system that is more integrated in a legislative sense than what we have now. It could, for example, see the integration of parts of the RMA (eg management of the coastal marine area beyond, say, a three nautical mile limit) with the EEZ Act, and nothing else. That Oceans Act would essentially be a beefed up EEZ Act that applied closer to shore. Boundaries could be drawn differently, including an Oceans Act that took over jurisdiction over the coastal marine area on the seaward side of mean high water springs.[59]

It could involve even more extensive integration not just spatially but also sectorally, bringing together the RMA (to the extent it applies to the coastal marine area), the

Paddle boarding on Wellington Harbour

EEZ Act, and one or more of the Fisheries Act, the Marine Reserves Act, the Marine Mammals Protection Act, the Maritime Transport Act, and the marine provisions of the Wildlife Act (seabirds and marine species). A more integrated Act has been created in the United Kingdom.

A spotlight on oceans legislation in the United Kingdom

The United Kingdom's curiously named Marine and Coastal Access Act 2009 does much more than what its title suggests. It creates an integrated system for marine planning, marine licensing and the establishment of marine conservation zones. The Act's geographical ambit includes both the territorial sea and EEZ. In the Aotearoa New Zealand context, this is similar to combining the marine parts of the RMA, the EEZ Act, the Fisheries Act and the Marine Reserves Act. One might call it an integrated oceans statute.

Arguably its most significant feature is that it treats protected areas as an integral part of the system, around which other decisions of resource management (including fisheries) are to be made. The Act was passed with cross party support. Unusually, it does not set out a purpose for marine management, but the objective of 'sustainable development' appears within various sections.

The Act provides for the promulgation of a "marine policy statement" to state general policies "for contributing to the achievement of sustainable development in the UK marine area".[60] In other words, it provides for a legislated concept of an oceans policy discussed in Chapter 5. In addition, as discussed in our exploration of marine spatial planning, marine plans are being prepared under the Act for the United Kingdom's entire marine area. The plans include policy and spatial guidance for management of the marine area and must be in conformity with the marine policy statement.

Marine plans and policy statements apply to all activities in the marine area and public authorities making consenting or enforcement decisions must do so in accordance with these documents "unless relevant considerations indicate otherwise".[61] An exception to this requirement applies to decisions taken under the Planning Act 2008 where the consent authority must only "have regard to" the marine policy documents.[62] This includes nationally significant infrastructure projects such as offshore energy generation.

Under the Act, government is required to designate "marine conservation zones". These areas, in combination with marine sites established under the European Union Habitats and Birds Directives, are to form a network of marine protected areas which achieve objectives set out in the legislation. Within two months after the passage of the legislation, the Minister is required to prepare a statement setting out how the Ministry intends to achieve this obligation, and he or she must periodically report on progress in achieving it (in 2012 and then every two years).[63] This is quite different to the approach we have in Aotearoa New Zealand, where marine reserves are optional and regarded as a tool to be used when considered desirable. However, it is more in line with the requirements proposed by the Randerson Panel to identify and map important areas under the proposed NBA.

The Marine and Coastal Access Act also created an integrated licensing system for certain marine activities including construction, dredging, removal or deposit of substances and scuttling of vessels. The licensing process is undertaken by the Marine Management Organisation and marine licences cover the entire life of the project to enable redundant structures to be removed.[64] Significantly, the Act also sets out a management system for inshore fisheries.[65] Overall, this example shows that a more integrated framework for oceans that incorporates resource management, protected areas and fisheries is possible.

There are various options for what a more integrated Oceans Act could encompass, ranging from the simple integration of the marine parts of the RMA and EEZ Act (eg split at mean high water springs) through to combining the marine components of conservation legislation, the Fisheries Act, the Biosecurity Act, the Maritime Transport Act and potentially others.

In Aotearoa New Zealand, the core features of an integrated Oceans Act could include those set out in Figure 6.2. We are continuing to give more thought to the institutional arrangements it might provide for.

New Zealand sea lions, Otago Peninsula

Overarching purpose and principles	▪ To provide a consistent management approach across the oceans regime ▪ Would need to include principles relating to te Tiriti (and a separate te Tiriti clause), stakeholder/public engagement, use of information etc
Development of a national oceans policy and national oceans plan	▪ To be overseen by the Minister of Oceans and co-developed by Ministerial-appointees and iwi – perhaps an Oceans Commission ▪ Could be a mandatory requirement ▪ Would need a monitoring and review requirement, linked to environmental reporting ▪ There could also be provision for local oceans policies, although these could be folded into marine spatial plans (which would operate at a more local/regional scale)
Establishment of Oceans Agency	▪ This agency could have a statutory basis with a clear purpose and functions (like the Department of Conservation in the Conservation Act) to ensure continuity ▪ A choice would need to be made as to whether the agency should be at arm's length from government or not (there are advantages and disadvantages of each approach; for example, the Australian Oceans Agency was quite separate and arguably became too disconnected from government; but Ministries/departments can become subject to Ministerial control)
Establish an independent oceans watchdog/ governance entity	▪ This could be the Parliamentary Commissioner for the Environment with an expanded role, an Oceans Commission, or something similar. An entity like this would recognise that the public are not as engaged in marine matters, particularly far out at sea, and therefore there needs to be a body to represent the public interest in healthy oceans ▪ There also needs to be an institutional vehicle – perhaps at a national level – for iwi involvement in oceans governance ▪ An Oceans Commission or similar could be constituted as a national oceans co-governance body with iwi ▪ Such a body could have a strong role in the development of national policy and planning documents
Purpose and framework for marine spatial planning	▪ We describe this in Chapter 5
Purpose and framework for iwi/hapū marine management tools and approaches	▪ Include modernised indigenous spatial management tools based on mātaitati, taiapure and rāhui and develop emerging concepts such as ahu moana
Framework for local marine management arrangements	▪ To incorporate the Hauraki Gulf, Kaikōura and Fiordland legislation and provide for future local/regional collaborative models to be developed ▪ Could make specific provision for co-governance arrangements with iwi/hapū
Purpose and framework for species protection	▪ If included in the Act (eg marine mammals, seabirds, threatened species)
Establishment of marine regulations	▪ Could cover marine pollution, shipping, vessel licencing, fishing activities (including setting TAC and TACC) etc. Would need different types of regulations tailored to different activities and functions
Establish environmental consenting regime for marine activities	▪ The assumption should be that this applies to all activities in the marine area (including fishing and shipping etc) unless expressly excluded ▪ Consenting regime would be undertaken within the framework of the national oceans policy and relevant marine spatial plan (and potentially a zoning plan similar to a regional coastal plan)
Establish marine biosecurity regime	▪ If this is included. Needs to include shipping regulations on ballast water, hull fouling, movement of vessels around the country etc as well as regular biosecurity monitoring, incursion response plans and pathway management plans
Monitoring and reporting	▪ Would need mandatory requirement for regular monitoring and reporting
Compliance and enforcement	▪ Would need to provide for a graduated range of enforcement tools and a rigorous penalty regime

Figure 6.2: Potential elements of an integrated Oceans Act

Irrespective of what it included, an integrated Oceans Act would have some benefits, including that it:

- Creates an integrated legislative framework within which interactions between different activities (and their effects) could be better addressed
- May be more likely to remain coherent and durable for longer; there is a risk that amending statutes individually, as silos, can lead them to grow apart and form less of a coherent whole over time[66]
- Creates a common legislative purpose (if that were possible with the variety of measures contained in it)
- Enables the legislation to be targeted to the challenges of managing the marine area
- Enables marine spatial planning to be directly implemented though regulatory and funding mechanisms (including the close alignment of non-regulatory measures like restoration projects and citizen science initiatives)
- Enables a dedicated Oceans Agency to develop a critical mass of expertise in oceans management and help ensure a dedicated focus on marine issues (a question of institutional design we are continuing to give thought to)
- Could provide a more generalised framework for iwi/hapū and stakeholder involvement in regional and local marine management, thereby avoiding a proliferation of local Acts.

Integrating existing marine legislation may have a number of benefits.

Another interesting possibility is that an Oceans Act could provide a more considered and consistent approach to allocative decisions across different resources. At the moment (other than through the framing of te Tiriti o Waitangi)[67] there is no real coherent framework for thinking about how or why we allocate resource rights (to fish, minerals, coastal space and so forth) in any principled way.[68] We are continuing to give thought to what such allocative principles could look like, but the point here is that an integrated Act could enable those to be considered and applied in an integrated way.

This would not necessarily mean that we would override existing rights – such as through an overhaul of the QMS – or that we would have the same system for allocating different resources that have different physical and ownership features.[69] But it would provide the chance to consider some general, overarching principles for what a fair and efficient distribution of non-private resources looked like (including what benefit the public should expect)[70] in a commons like our oceans, including with respect to te Tiriti. It could, for example, provide a firmer basis for decision-making when determining who has to give up what rights and in what measure when it comes to "deallocation" (where limits have been infringed),[71] how allocation between recreational, customary and commercial take should be made, when and to what extent resource rentals or charges should be imposed, or how as a society we might like to see the benefits of commercial fishing distributed across fishers, quota owners and coastal communities.[72]

An integrated Oceans Act may provide the opportunity to establish a set of common, high level principles for allocating rights to common resources.

However, an integrated act would have downsides too. For example:

- It would involve extensive legislative change, and could be quite disruptive and take some years to bed in
- Wherever the boundaries of the marine area to be managed are placed (ie at mean high water springs, or 3nm from land) there would be a difficult boundary to address (as land based activities have significant impacts on the marine area and the marine area itself is very fluid and interconnected)[73]
- The tools deployed under the various pieces of legislation can be quite different (eg resource consenting, fisheries ITQ, maritime safety), begging the question as to how much integration would actually be achieved other than stitching together different frameworks
- The legislation could become quite complex and long, especially if it were to subsume legislation like the Maritime Transport Act
- Integrating marine focused matters by looking at a particular *space* – the oceans – could weaken the very important links between land and sea. This could be because some *threats* to be managed span this boundary (eg pollutants from catchments, biosecurity risks), or because some things we are seeking to *protect* span the boundary (eg seabirds)
- No existing agency has the skill sets required to manage all these areas so it would require the development of a new agency from parts of the old (which could create the difficulty of melding very different cultures – a problem the Department of Conservation encountered when it was first established)
- It would potentially make it easier to defund marine management – through reducing budget allocations to a dedicated Oceans Agency (as happened with the Department of Conservation)

Finally, there are questions about whether a common purpose for all aspects of oceans management is realistically possible, and therefore whether an integrated framework could ever create normative alignment. For example, we protect both fish and dolphins, but the purpose for doing so is very different (one to eat, one for its intrinsic value). It is equally possible to see a *hierarchy* of purposes (eg that harvesting fish must not harm

dolphins), which does not mean everything needs to be in one Act.[74]

In fact, there is a strong case that an Act needs to be reasonably clear and coherent in its purpose – and therefore quite focused – so that decision makers (including the courts) and the public know what is expected of them under it. For example, the breadth of the RMA's purpose meant that, for much of its history, it was interpreted as requiring balance rather than environmental limits.[32] This could be particularly problematic if a framework that engaged in balancing the benefits and costs of activities under a general purpose was also responsible for the creation and defence of place-based protected areas (as opposed to having more focused protected area legislation). However, the United Kingdom experience and the Maritime Transport Act suggests that a lack of clear purpose *may* not be a fatal problem, and integration has benefits.

In summary, extensive integration risks creating a lack of focus/mandate/clear purpose, objective overload and paralysis, and causing otherwise transparent tensions to be played out behind closed doors. Contests and conflict – checks and balances – can be positive because issues become more visible. Such concerns have been echoed elsewhere, too:[75]

> although fragmentation and duplication clearly present challenges for regulators seeking integrated or ecosystem-focused outcomes, it is characteristic of responses to 'wicked problems', which are 'complex, multifaceted, and resistant to resolution because they are ever-changing and because our knowledge about the problem is incomplete or contradictory'. [One] study revealed that attempts to replace marine regulatory complexity with 'one-stop shop' approaches may have political appeal, but they are simplistic, may risk the abandonment of existing environmental or social 'wins', and have typically proved problematic in practice by failing to solidify trust and cooperation between competing interests.

There may be considerable downsides and risks of "over-integrating" legislation into an Oceans Act.

- Should a more integrated Oceans Act be created? If that were to happen, what existing statutes (or parts of them) should be subsumed?
- Would the potential benefits of integrating marine matters be outweighed by the downsides of fragmenting other systems (eg the catchment-sea interface, the movement of species across domains, biosecurity, the transport system)?

6.5 Concluding comments

In this chapter we have made an initial foray into questions of legislative design. Many options are possible, and we are continuing to explore how these could be best framed in a way that is most useful for policy makers. Boundaries can be drawn in quite different ways and by looking through different lenses. The boundary between fisheries legislation and "environmental" legislation, and between legislation that applies to the land and to the sea, are particularly interesting and difficult ones.

It is reasonably clear that fragmentation across the system is problematic, and connections and alignment between legislative silos are often weak. There is also a great deal of complexity in our statute book. However, fundamental legislative changes warrant caution. For one, fundamentally overhauling whole statutory frameworks risks opening up debates that can derail the entire reform process. For example, the enormity of the task ahead to resolve the hundreds of claims made under the MACA Act means there may be little appetite for interfering in that statute in a significant way. We also need to be sure that investing in the expense, difficulty and time to overhaul statutory frameworks is worth it. It may be naïve to hope that changing how statutes are arranged will automatically produce better outcomes, since integration in one way can cause fragmentation in another and a lot comes down to how statutes are implemented. Central to that are the institutions that administer and have functions under legislation, irrespective of the specifics of how legislative boundaries are drawn.

Surfing at Ocean Beach, Hastings

ENDNOTES

1 For example, place-based Acts undercut general legislation, and the Fisheries Act manages marine resources and activities separately from their environment. On the constant erosion of the RMA's coherence and carve outs from it, see S Berry, H Andrews and J Vella "The death of the RMA by a thousand cuts: The next two incisions" (2017) Resource Management Journal 3; S Berry and H Andrews "The final straw for the RMA? Some shortcomings of the Resource Legislation Amendment Bill 2015" (September 2016) Resource Management Journal 1; Local Government New Zealand A "blue skies" discussion about New Zealand's resource management system (2015) at 41.

2 Geoffrey Palmer "Law-making in New Zealand: Is there a better way?" (2014) 22 Waikato Law Review at 3, as cited in Greg Severinsen and Raewyn Peart Reform of the Resource Management System: The Next Generation Synthesis Report (Environmental Defence Society, December 2018) at 122.

3 Legislative Design and Advisory Committee *Legislation guidelines: 2018 edition* (March 2018). The guidelines do not directly address the question of how to design of a suite of statutes from first principles. They are more concerned with ensuring any new legislation is consistent with basic legal principles and integrates well with existing law. For sound practical reasons, they are often more relevant when assessing the content of new legislation that has to fit within an existing landscape of laws, rather than rethinking the landscape itself.

4 Compare Merriam Webster Online Dictionary "Coherent" (date unknown) with Legislation Act 2012, s 3(e)(i).

5 Complicated or uncertain boundaries with other legislation or the common law should be minimised: Legislative Design and Advisory Committee *Legislation guidelines: 2018 edition* (March 2018).

6 Legislation Act 2012, s 3(e).

7 Legislation Act 2012, s 3(e)(ii).

8 Some of these area-specific statutes were created due to more general frameworks failing to establish marine protected areas, making it necessary to establish these on a case-by-case basis.

9 They may not be absolute property rights, but they are distinct enough from rights to other things (eg time-limited rights to take water) to warrant different treatment. A different purpose for fisheries is also driven by international law framing under the United Nations Convention on the Law of the Sea.

10 For example, the Biosecurity Act is as much about protecting industries from pests as it as protecting the environment.

11 Even if some statutes (particularly older ones) do not have a specific purpose section, they still have a long title that outlines what the point of the legislation is and why it exists.

12 That said, Auckland has been treated as a special case (at least in some senses) in its Unitary Plan, and a similar thing can be said about the Hauraki Gulf.

13 Although on the other hand, the distinction might be more that the same type of tools are being used for a subtly different purpose – the protection of habitat for fisheries rather than for the safeguarding of broader biodiversity. However, it is debatable whether those two things are really that different, given that protecting habitats for biodiversity also benefits fisheries and vice versa.

14 See Fisheries Act 1996, pt 5.

15 Relationships between parts of a single statute tend to be more certain than boundaries between statutes and can be managed more easily.

16 Legislation Act 2012, s 3(e).

17 Continental Shelf Act 1964; Crown Minerals Act 1991.

18 For example, s 6 shellfish provisions could be placed under the Fisheries Act, s 7 application of civil and criminal law under the EEZ Act, and s 5A payment for use of the extended continental shelf under the EEZ Act.

19 For example, Ports of Auckland has an RMA permit from Auckland Council to dredge the seabed, but a marine dumping consent under the EEZ Act due to the dumping location. This meant that over half of the submissions opposing the initial permit were struck out as they related to the impact of dumping, which was deemed "out of scope". See Jean Bell "Rangitoto channel dredging: Move to reject submissions 'extraordinarily undemocratic'" RNZ (online ed, 12 June 2020).

20 That said, we heard in workshops some appetite for regional council jurisdiction to be extended to the edges of the EEZ – as long as it came with sufficient resourcing.

21 For instance, international law grants coastal states sovereign rights over "natural" resources, whereas the RMA deals with "natural *and physical*" resources: United Nations Convention on the Law of the Sea 1833 UNTS 396 (opened for signature 10 December 1982, entered into force 16 November 1994), art 56(1)(a). Compare RMA 1991, pt 2.

22 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust* [2019] NZCA 532.

23 See Department of Conservation "Type 1 Marine Protected Areas: Marine reserves" <www.doc.govt.nz/nature/habitats/marine/type-1-marine-protected-areas-marine-reserves/>; and Department of Conservation "Type 2 Marine Protected Areas" <www.doc.govt.nz/nature/habitats/marine/type-2-marine-protected-areas/>.

24 That said, the RMA does provide for tools other than planning and consenting, such as water conservation orders.

25 Greg Severinsen and Raewyn Peart Reform of the Resource Management System: The Next Generation Synthesis Report (Environmental Defence Society, December 2018) at 149.

26 Deidre Koolen-Bourke and Raewyn Peart *Conserving Nature: Conservation System Reform Issues Paper* (Environmental Defence Society, Auckland, 2021). This will be followed by Phase 2 looking at options. See also Greg Severinsen *Reform of the Resource Management System: A model for the future. Synthesis report* (Environmental Defence Society, Auckland, 2019).

27 Much of this background sources materials referred to by Steven Edward Farnworth "Liability for Pollution Damage from Offshore Oil Spills: The CLC and Fund Conventions, the EU's Environmental Liability Directive and their implications for New Zealand Law" (PhD Thesis (Law), University of Waikato, 2017), Chapter Four.

28 Ministry for the Environment *Managing our oceans: A discussion document on the regulations proposed under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill* (Ministry for the Environment, 2012) at 5.

29 Marine Legislation Bill 2012 (58-1) Explanatory Note, at pt 2.

30 Part 2 of the EEZ Act was replaced by section 11 of the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Amendment Act 2013, "Duties, restrictions, and prohibitions".

31 EEZ Act, s 158A; and Maritime Transport Act 1994, s 231.

32 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust & ors* [2019] NZCA 532.

33 For the EEZ Act, this includes the purpose of preventing pollution. Additionally, this purpose is likely to change under the NBA.

34 This merge would not work if the RMA and EEZ Act remained separate, because fish are too mobile across the spatial boundary between them.

35 See Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation Synthesis Report* (Environmental Defence Society, December 2018).

36 The Urban Development Act 2020.

37 Minerals are also managed separately, but these themselves are not part of the ecosystem on which the living parts of the environment rely. Arguably, a less extensive carve out is in the EEZ for discharges from ships.

38 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust & ors* [2019] NZCA 532.

39 At [33].

40 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust* [2017] NZHC 1429 at [8] and [9]. See also S Gepp and M Wright "Marine biodiversity and taonga species: slipping through the cracks" (2017) Resource Management Journal 15.

41 See Enric Sala and others "Protecting the global ocean for biodiversity, food and climate" (2021) 592 Nature 397.

42 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust & ors* [2019] NZCA 532 at [72].

43 Marine and Coastal Areas (Takutai Moana) Act 2011, s 66.

44 Minerals themselves – and their presence or absence – are not part of ecosystems (although they may influence them), so their management does not comfortably fit with the purpose of the RMA. In contrast, the presence or absence of fish are intimately connected with ecosystems, so can be regarded as a carve out rather than an additional layer.

45 This would help avoid the inconsistency which occurred on the Chatham Rise with the Chatham Rock Phosphate mining proposal, where trawling of the seabed in the area was being undertaken without any consent required, but the seabed mining proposal, which similarly disturbed the seabed, was required to undergo a rigorous environmental impact assessment and consenting process. See Decision on Marine Consent Application by Chatham Rock Phosphate Limited, February 2015.

46 See Resource Management Amendment Act 2020, ss 2 and 35.

47 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust* [2019] NZCA 532.

48 Although with mining for things other than deep oil and gas, that is certainly now worth questioning. For example, underwater hydrothermal vents and abiotic habitat are provided by minerals.

49 Even conservation law is not a carve out, because the RMA still applies in addition.

50 More so than other measures to protect the marine environment from fishing activities, eg bottom trawling.

51 See Te Kāhui Wai Māori Te Mana o te Wai (Ministry for the Environment, April 2019) at 4, where consumption is at the bottom of the hierarchy and only provided for if it does not negatively affect the mauri of freshwater. The highest priority is to protect the water, its health and its mauri.

52 That said, one issue might be that measures taken under the RMA to protect marine biodiversity in an overall sense may not always be enough to ensure the maximum sustainable yield of fish stocks (which rely on habitats for spawning, shelter and food), so even in this model, scope may still be needed under the Fisheries Act to impose additional protections. There is often an assumption that action under the RMA would be more protective than under the Fisheries

Act, but that is not necessarily the case; there have been fairly questionable outcomes from applying sustainable management over the past three decades.

53 Although, this would not be true if limits were set through national level instruments, for which appeal is not available.

54 Interestingly, nutrient trading has been established under the auspices of the RMA.

55 Recognising, of course, that not all councils are equal and it is as much an issue with resourcing as it is with political will.

56 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust* [2019] NZCA 532 at [66].

57 Minister for Ocean and Fisheries Fisheries Amendment Bill: Strengthening fishing rules and policies: landings and discards (2 July 2021).

58 See generally Kelsey Serjeant and Raewyn Peart *Healthy Seas: Implementing marine spatial planning in New Zealand* (Environmental Defence Society, Auckland, 2019).

59 That is not to suggest that this option would be desirable.

60 Marine and Coastal Access Act 2009 (UK), s 44(1).

61 Section 58(1).

62 Section 58(4).

63 Sections 123 and 124.

64 Marine Management Organisation "The future of marine licencing" <www.webarchive.nationalarchives.gov.uk/20110405233153/http://www.marinemanagement.org.uk/works/future.htm>.

65 Marine and Coastal Access Act 2009 (UK), pt 6.

66 Legislative Design and Advisory Committee, *Legislation guidelines: 2018 edition* (Legislative Design and Advisory Committee, 2018) at 10.

67 See *Ngāi Tai Ki Tāmaki Tribal Trust v Minister of Conservation* [2018] NZSC 122.

68 The Crown tenders largely to the highest bidder for minerals, fish quota were intially distributed based on grandparenting, and coastal space can be first in time or through a loose tendering process lacking any real guiding principles.

69 For example, some might be through markets and property rights, others through permits, some through tendering, etc.

70 For instance, through a resource rental or the achievement of environmental improvements.

71 This could operate to set bottom lines, but also chart a workable pathway to meet them. For example, there could be a need to move inshore aquaculture in sensitive areas or determine which creators of sediment need to give them up in catchments. That assessment could include who has invested more, who is having the largest impact, who had rights first, who is most capable of moving, who can pay more, etc.

72 For example, through partial buy-back of quota – like a government fisher.

73 One option could be to map a boundary based on ecological and geological factors rather than an arbitrary line.

74 In fact, it suggests that it should be done separately given the issues that have arisen under using the Fisheries Act.

75 Elizabeth Macpherson and others "'Hooks" and 'Anchors' for Relational Ecosystem-Based Marine Management" (2021) 130 Marine Policy (citations omitted).

CHAPTER SEVEN

Institutional design and international approaches to oceans governance

Bean Rock lighthouse, Auckland Harbour

7.1 Introduction

The second structural pillar of the oceans management system (alongside legislation) is its institutions. It is closely related to the first (legislative design), because changing our institutions can be an alternative to changing legislation. For example, the creation of an Oceans Agency with functions under both the RMA (or its replacement) and the Fisheries Act might address fragmentation without needing to think about redrawing the boundaries of our statutes. A similar thing was done through the creation of the Department of Conservation (and the Conservation Act), which was designed to be the "glue" that held disparate pieces of conservation legislation together.

Dozens of institutions perform important roles in the current system. These include various Ministers, government departments (including the Ministry for the Environment, Fisheries NZ within the Ministry for Primary Industries, and the Department of Conservation), councils, iwi/hapū (and affiliated entities like trusts and post settlement entities),[1] the EPA, the Environment Court, Maritime New Zealand, the Parliamentary Commissioner for the Environment, the Hauraki Gulf Forum, the Conservation Authority and conservation boards, various bespoke guardians,[2] and many others. Some institutions are important but are not often spoken of as part of the system – such as crown research institutes, universities, schools, the defence force, the coastguard, and so forth.

There is a remarkable diversity, and many institutions have evolved organically and been layered over time. Some are central, others are local; some are advisory, while other make decisions or take action; some are directly accountable to voters while others are not. Many are not creatures of statutes, notably iwi/hapū and most government departments. It can be harder to make sense of it all in a single picture than even our fragmented legislative arrangements.

Notable institutional changes have occurred recently within central government, although not all have a legislative foundation. For example, an integrated portfolio has been created at a ministerial level – we now have a Minister for Oceans and Fisheries – and the Minister is supported by a new Oceans Secretariat hosted by the Department of Conservation.[3]

In our work on resource management reform, we provided a framing for thinking about institutional design.[4] For oceans, we are thinking within broadly the same framing, with the important nuance that institutions may need to span multiple systems beyond just that for oceans. In this chapter, we briefly summarise the framework we are using and pose a number of questions about options for our marine institutions that this gives rise to. In Appendix 4 we explore some international approaches to institutions and governance. In our final report we will be exploring more deeply how those questions might be answered (fleshing out what options they give rise to), and how institutions might interact with each other (and legislative design choices) to form a coherent system.

7.2 Framing questions of institutional design

There is a potentially infinite array of institutional options available for a future oceans management system. Some we may already have, others could be modelled on overseas examples, and some could be imagined out of thin air. They could range from minor changes to existing institutions, to the addition of new ones, through to the replacement and redesign of the broader institutional landscape. Some – for example the National Fisheries Advisory Council, which would be charged to perform a potentially broad and independent advisory role to the Minister (including with respect to sustainability measures) – could be established now under the Fisheries Act if there were the inclination to do so.[5]

However, as with the system as a whole, it is worth considering how we frame a conversation about institutional design rather than just embarking upon a laundry list of possible options. We need to look, in a systematic way, at different possible combinations of characteristics that our institutions can have, before we decide which combinations we may want. While there may be others, in Figure 7.1 we present a number of characteristics that institutions might have.

Kawakawa Bay

1. **The degree of an institution's independence**

   An institution can be independent of political influence (such as the Environment Court) or politically accountable (such as Ministers and regional councils).

2. **The degree of an institution's centralisation**

   An institution can be central in that it functions across the whole country (such as a government department) or locally (such as a district council). Both central and local institutions can be accountable or independent.

3. **The extent of an institution's subject focus**

   An institution can focus narrowly on specific resources or domains or have a wide focus (such as the Ministry for the Environment).

4. **The extent of an institution's geographical focus**

   An institution can focus narrowly on a specific geographical area (such as the Fiordland Marine Guardians) or on a broad area (such as the Department of Conservation).

   Note that geographical focus is a different characteristic to the degree of centralisation. The latter captures the idea that there can be a nationwide division into locally controlled units (district councils are local, but they exist uniformly across the country). The former captures the idea that some institutions are responsible for an additional layer of interventions in particular areas that are treated differently from the rest of the country. An institution can be local but have a broad geographical focus (such as a district council, which manages all land in a district), or it can be central and have a specific geographical focus.

5. **The nature of an institution's task**

   An institution can have different kinds of tasks. Among other things, it can create policy, impose regulation, or enforce decisions.

6. **The formality of an institution's creation**

   Some institutions can be formally created (such as by statute), while others are created in a more informal way (such as by Cabinet decision).

7. **The nature of an institution's mandate**

   An institution can have a protective mandate (such as the Department of Conservation), or it can have an exploitative mandate and seek to secure the benefits of resource use (such as the Ministry for Primary Industries). The word "exploitative" is not intended to have any negative connotations. It simply means driving resource uses that are considered to be in the public interest.

8. **The extent of an institution's power**

   An institution can have binding powers (such as a Minister who promulgates an NPS) or a recommendatory power (such as the Parliamentary Commissioner for the Environment inquiring into an environmental issue).

Figure 7.1 Characteristics of institutions

Any given institution will contain a mix of these, and potentially other, characteristics. As we said in our resource management reform work:[6]

> particular combinations of characteristics may be viable and even desirable, but it would be extremely inefficient if we responded by creating entirely separate institutions to reflect each one. This can sometimes produce a tension between the need for efficiency and accessibility on the one hand (the fewer institutions we have, the less administrative duplication and points of contact for the public there are), and the benefits of separation on the other.
>
> We need to think very carefully about this tension when designing institutions. Desirable characteristics (eg a balance between independence and accountability) can be reflected through either well-considered internal design of an institution (such as a council-controlled organisation) or through the separation of institutions that interact with each other (such as a council and the Parliamentary Commissioner for the Environment). Most importantly, we need to keep in mind that separating institutions is not inefficient simply because it has substantial costs. We need to focus instead on whether separation or integration would best safeguard the outcomes we desire – ie whether the costs are worth it.

Institutions can have a variety of characteristics, and each type of characteristic can be seen as existing on a spectrum. For example, an institution can be central or local, or have binding or recommendatory powers.

Our choice of institutional characteristics is far from random; each is a conscious choice about (1) which features complement each other within a single institution, and (2) how those institutions, once constructed, then relate to each other. Both of those choices depend on what we want our institutions to achieve, and what settings would be most effective to enable them to do so. For example, the Parliamentary Commissioner for the Environment is highly independent, with a clear protective mandate, but has recommendatory rather than decision-making powers. That is designed to complement Ministers of the Crown, who are highly accountable and often have binding powers (eg under the RMA) and a more general (or flexible) mandate. The relationship between the two is (among other things) designed to enhance the accountability of the latter.

Koheru ***(Tanya Peart)***

It is therefore important to consider institutional characteristics not in a normative vacuum, but rather in the context of what we want them to do. Of course, the problem is that there are many different options for our objectives and even our worldviews, so a resolution to that conversation must really come before detailed consideration of institutional design. Again, form must follow function.

For example, giving legal personhood to te moana is, in essence, about creating a new institution, but would reflect a particular worldview. Creating a national level public quota holder would reflect an acceptance that a market-based approach to allocating fishing rights should remain. Similarly, creating a new institution to represent Māori at a national level would presuppose the level at which the system should enable Māori to partner. Some normative choices relate quite directly to institutional design, making it even harder to think about their characteristics in the abstract. For example, do we want more localism in making decisions about fishing? If so, our institutional arrangements would look quite different (eg councils and iwi/hapū) to if we saw primarily a national community of interest (eg ministerial decision-making).

Our institutions also need to be tailored to the roles they are expected to perform. For example, making trade-offs and balancing competing interests in the marine space needs to be a role performed by a reasonably accountable body with a broad and flexible mandate and a focused scope (eg councils). But there is a case for other roles – such as the imposition of environmental limits – to be performed by institutions with different characteristics (eg independence, focused mandate, a specific task like regulation making and a broad geographical scope).

That said, the ways in which institutions relate to each other is equally important to the internal design of any one entity. For example, it is possible to have a highly accountable and local institution like a council making a first instance decision, but for a national appellate body like a court or tribunal to override or refine it; or for an accountable minister to make a decision but be tempered by the review and oversight role of an independent commission; or for the enforcement of policies and regulation made by one agency to be undertaken by another.

In short, we need to know at least roughly what we want to achieve, and our underlying ethics, before we can crystallise what our institutions should look like. That said, there are obvious questions that can be posed, and they give rise to various ideas as to what institutional design might look like (see further below).

When thinking about institutional design, it is necessary to contemplate both (1) which characteristics would complement each other within a single institution, and (2) how those institutions, once constructed, then relate to each other. In doing so, policy makers need to have a clear sense of what those design choices are trying to achieve and what roles various institutions are charged with.

There are some features that are common to all institutions. First, all require clear and predictable funding streams. Core funding is especially important for those having a degree of independence from politically accountable institutions (who quite rightly hold the discretionary purse strings), or where local institutions are reliant on central funding. Capability is just as important as funding, and the two are related. Institutions rise and fall on the strength of the people within them. That is partly about technical expertise and experience, but includes capability in matters relating to te Tiriti o Waitangi and mātauranga Māori more generally.


Moturoa Island

We need to be mindful that New Zealand is a small country, and a proliferation of institutions can affect our ability to staff them appropriately. Although it is much harder to influence in a reform exercise, the culture and leadership of those directing institutions is crucial to their performance.[7] We need to recognise the limits to what institutional design can achieve; a lot will always come down to the people involved. That also speaks to the need to think about our education and professional training system. For example, some at workshops suggested the need for a clearer career path for dedicated oceans managers, including with respect to ecosystems-based management, rather than policy generalists.

All institutions should have some characteristics. They need to be adequately and securely funded to perform their roles, have capacity and capability, and strong leadership.

7.3 Key questions to be addressed through reforms

Below, we present some key questions about institutional design to prompt discussion and feedback, and some options for what could be created in the future. In doing so, we are putting an oceans lens over the more general discussion about institutional characteristics in our resource management system reform work. We also need to be cognisant of institutional changes proposed by the Randerson Panel, such as a greater auditing role for central government in plan creation, the use of planning committees (comprising multiple councils and iwi) as decision-makers for plans, and a stronger role for the Parliamentary Commissioner for the Environment.[8]

Centralisation vs devolution

- Should central government take a stronger role in the development of national direction under the RMA for the coastal marine area, by (for example) creating regulations that give effect to the NZCPS?
- Should the environmental impacts of fishing activity – or fishing management itself – be shared between central government (Fisheries NZ) and regional councils? What implications does that have for the resourcing and capabilities of councils in future?
- Should there be a transfer of decision-making power to mana whenua with respect to fisheries, coastal occupation and customary use, and on what basis/for what things?
- Should there be higher level co-governance put in place with respect to decisions (Māori and Crown), or should partnership occur at a regional level (iwi/hapū and council)?

A spotlight on iwi authorities

During the development of the RMA and the Local Government Act, a parallel statute was also being developed: the Rūnanga a Iwi Act. This statute was to provide details for the structures, constitutions and operations of iwi organisations, and their formal connections and relations to councils and the RMA. The legislation was enacted and repealed on the same day, in 1991. Leaving aside the question of whether this would have been beneficial legislation for Māori, it would have clarified how local government should engage with iwi. In its absence, and the absence of any other comparable legislation, the nature of iwi engagement has been unclear and is often problematic, including in the marine context. The RMA definition of an iwi organisation is not helpful in this context.

In some areas there is little or no ambiguity about which is the relevant iwi to engage with (but even in those areas there can still be localised dispute). In other areas, it is very unclear and often highly contested. For example, in Northland there are hundreds of hapū, some with populations greater than many iwi. In practice, engagement with hundreds of hapū is not usually possible. How should councils determine who to engage with? What criteria are relevant when deciding this? In the marine context, things can become even more blurred, because although the deep sea environment is of considerable spiritual importance to Māori, authority is less clear and is not likely to accord with Western management areas. What a meaningful co-governance framework for the EEZ or fisheries might look like is unclear.

This is an area for which improved statutory definitions, processes and standards could be developed. In some places, such as Auckland City, the "mana whenua" recognised are those with Treaty settlements. While this ensures that the entities have a legal personality and constitutions providing for accountability to beneficiaries, a tikanga based solution is an alternative. A requirement that there are processes specific to RMA implementation agreed by iwi, which require the iwi organisation to ensure that beneficiaries are appropriately informed and included in relevant decisions, could be considered as a means of satisfying hapū anxieties. Whatever the solution, the problem is a real one for both councils and tangata whenua in many regions and could usefully be addressed. However, it may be that efforts to draw sharp boundaries of this nature through new statutory definitions do not sit well with tikanga, and more nuanced solutions may need to be explored.

- Should the functions of regional councils beyond a certain line (eg mean high water springs or three nautical miles from land) be transferred to a central agency (perhaps with regional branches) such as the EPA or a new Oceans Agency?
- What is the proper role of a centralised body like the EPA when it comes to marine management? Should it have a clearer mandate?
- Should three water services (including waste water and stormwater, with significant impacts on the marine environment) continue to be managed by territorial authorities and council controlled organisations, or should there be greater centralisation?
- How much central involvement should there be in the development of marine spatial plans? Are they to be driven by communities, or national level concerns, and in what measure?
- To what extent should fisheries management be devolved to quota holders and operators (eg through industry led fisheries plans), and does there need to be more clarity around when that is acceptable?[9]

Independence vs accountability

- Should we establish an independent Oceans Commission to act as a watchdog and hold government to account, or as an expert appeal body for some marine management decisions?
- If we were to establish a Tikanga Commission at a national level, should this be an independent expert entity focused on mātauranga at a general level, or one that is representative of iwi and hapū and reflects different versions of tikanga across different rohe moana?
- Should there be an independent or arm's length Oceans Agency (potentially an expanded and strengthened EPA) to take on some regulatory decision-making (eg consents, sustainability measures) instead of accountable institutions like councils and ministers?
- Should the Environment Court have a role in reviewing decisions made under the Fisheries Act?


Tokerau Bay

A spotlight on the role of the courts under the Fisheries Act

Unlike under the RMA, there is no provision for merit appeals against decisions by the Minister of Fisheries on sustainability measures under the Fisheries Act. It means that those with property rights directly affected (quota owners and commercial fishers) and those whose local/regional environment is affected (local residents and marine users) have no ability to challenge the merits of the decisions on appeal. This has led to the use of judicial review as a way of resolving substantive issues, a tool that is poorly configured for the task.

A case in point is the litigation surrounding the protection of the critically endangered Māui dolphin. In 2001 the Minister put in place a set net ban along the west coast of the North Island to protect the dolphins. The decision was successfully challenged via judicial review by the fishing industry on the basis that the Minister had been misadvised about the level of bycatch that would result in the extinction of the dolphins.[10] The Minister reconsidered the matter and reached the same decision, but the protection of the dolphins was delayed for two years as a result.

In 2008, the Minister sought to extend the protection zone for the dolphins. This was again judicially challenged by the fishing industry and the Minister's decision was again overturned on a technicality, this time on the basis that he was misadvised about the reliability of one Māui dolphin sighting.[11] The Minister reconsidered the matter and the extension came into effect in 2011, but only after a further three year delay. This delay was significant given that at the time there was estimated to be only 55 surviving adult animals of the subspecies remaining.[12] Providing for a merits appeals may provide a more considered check and balance on decision-making in the interest of achieving the best outcome, rather than matters being determined on legal technicalities. Alternatively, as described in Chapter 5, sustainability measures could instead be mandated under the RMA (or its replacement), making use of that Act's existing machinery for merit appeals.

Subject and geographical focus

- Should central government be arranged as it is now (with marine matters fragmented across different departments and agencies), or should there be greater integration with the marine area as the focus (eg an Oceans Ministry)? Is an Oceans Secretariat and Minister for Oceans and Fisheries going to be enough to align the activities of those institutions?
- Should our institutions (eg regional councils and the Department of Conservation) continue to span land and sea, or should a regulator be more focused on oceans? What implications does that have for where a jurisdictional boundary is drawn, or are more complex overlapping jurisdictions required?

Mandate and formality of creation

- If we were to have an integrated Oceans Ministry, what should its mandate be? For example, there can be value in Ministers receiving different streams of advice from departments with clear mandates (eg the Department of Conservation). It can, for example, make the trade-offs in decision making more transparent.
- Should there be formal statutory establishment of key institutions (eg if we were to have an Oceans Ministry)? For example, the Ministry for the Environment and Department of Conservation have been established in this way and are therefore resistant to structural change and retain reasonably clear mandates.
- What should the mandate of the EPA be in the marine space?

Kelp, Kaikōura

A spotlight on the EPA

The Victorian (Australia) EPA began operating in 1971 under the Environment Protection Act 1970. However, more recent legislative changes established the objective of the EPA as being "to protect human health and the environment by reducing the harmful effects of pollution and waste."[13] This can be contrasted with the current objective of the New Zealand EPA, which is much vaguer: to undertake its functions in a way that "contributes to the efficient, effective, and transparent management of New Zealand's environment and natural and physical resources; and enables New Zealand to meet its international obligations."[14] Its place in the system is also unclear, given that it does not itself make regulations and its responsibilities for determining most publicly notified marine consents in the EEZ have been removed by amendment, leaving its marine functions largely limited to providing administrative support.[15] The Victorian model demonstrates the success of an EPA which has a clear purpose and tight focus on dealing with serious environmental risks. It is generally regarded as the most successful EPA model in Australia.

Power

- Should decision-making power lie with more independent or arm's length institutions like an Oceans Agency or EPA (or Environment Court), or lie with institutions that are accountable to voters (Ministers and councils)?
- Do sufficient independent checks and balances exist to hold accountable institutions to account?[16] Should there be an independent Oceans Commission and Tikanga Commission, or expanded role for the Parliamentary Commissioner for the Environment, to ensure that ministers and councils are performing their roles as intended? What should the extent of their power be (eg the ability to enforce duties in the courts)?

Such questions, and no doubt many others, give rise to some interesting possibilities for institutional design, which we are continuing to explore. We are interested in feedback as to what characteristics the following institutions could have, how they could relate to each other, and whether they would be helpful or not; there may be positive and negative aspects. There will no doubt be many more options available (see Figure 7.2 for a description of some of the options).

Crayfishing, Mercury Bay

An Oceans Ministry	A future system could combine all the marine elements of existing government departments into an integrated Oceans Ministry. This would create a greater focus on marine issues and go beyond the integrated ministerial portfolio for Oceans and Fisheries and the current Oceans Secretariat.
An Oceans Agency	An integrated, arm's length oceans regulator could be created, which could take on some or all marine functions of regional councils, the EPA, Maritime New Zealand and potentially even the Department of Conservation. This could, however, cause fragmentation across the land-sea divide and the organisation may lack a clear purpose or mandate.
Strengthening and expanding the role of the EPA in the oceans	At the moment, the EPA has a relatively limited role with respect to the oceans, and a relatively constrained mandate. As our national environmental regulator, this role could be expanded in a variety of ways. It could even become an Oceans Agency.
A greater role in fisheries management for regional councils	Regional council jurisdiction could be expanded beyond that confirmed in the *Motiti* decision (eg by allowing councils to set measures like TACs in local areas).[17] That could also be devolved to communities and iwi/hapū in partnership.
More integrated arrangements for councils and iwi/hapū to work together in plan creation	This has been proposed by the Randerson Panel in the notion of a joint planning committee for regional plans under the NBA and for regional spatial strategies under the Strategic Planning Act.[18] This could potentially be extended to fisheries decision-making too.
A greater role in oceans and fisheries management for iwi and hapū	Exploring institutional arrangements goes deep into questions of mana or governance jurisdiction for Māori (including the broader discussion around *He Puapua*),[19] and could take many forms (eg transfer of powers to iwi/hapū, co-governance, Māori wards at council level, novel mechanisms like legal personhood for nature).
An Oceans Commission	This entity could take different forms (eg it could have some regulatory powers), but in essence would be some form of independent oversight or watchdog body with a clear mandate to defend the interests of te moana. It could be designed to resemble the Climate Change Commission, the Māori Advisory Committee under the EEZ Act, or it could even be a vehicle through which te moana is given legal personhood (with the Commission being the voice of te moana).
The creation of a regionally-specific "guardians" model	This could see the replication of the guardians that have been created on a bespoke basis already (eg in Fiordland and Kaikōura),[20] and rolled out across the country. It would be one way to allow local involvement and integrated place-based oversight across multiple other institutional jurisdictions (eg conservation, resource management, fishing).
A national Māori advisory body for oceans	This could take the form of an independent Tikanga Commission with a branch focused on te moana, or it could be a vehicle for a more representative, national-level Māori body with which the Crown partners. The extent to which this would have decision-making power depends on a broader conversation about Māori sovereignty.
A more structured role for the Parliamentary Commissioner for the Environment	The Parliamentary Commissioner could have a stronger mandate (and resourcing) to be involved in the preparation of instruments related to the oceans, including regional plans, fisheries plans, and marine spatial plans.
A role for the Environment Court in hearing merits appeals under the Fisheries Act and Marine Reserves Act (or its replacement)	The Environment Court has an important role with respect to coastal plans under the RMA, but not with respect to fishing or marine protection. Its role could be expanded to provide greater oversight with respect to fisheries management and the creation of marine protected areas.
An independent science agency to conduct core oceans research or to guide/direct research needs[21]	This would not necessarily be focused only on marine research, but that would be a core component of its mandate.

Figure 7.2: Options for new institutional arrangements for oceans management

There are a number of possible options for reforming our institutional landscape with respect to the oceans management system. These range from the comparatively minor (eg a more structured role for the Parliamentary Commissioner for the Environment in the development of tools like plans and sustainability measures), to the more extensive (eg the creation of an Oceans Commission or Oceans Agency).

7.4 Concluding comments

In this chapter we have started an exploration of institutional settings in the oceans management system. Our existing institutions are diverse, and represent a mix of characteristics. Some are highly focused, some are independent of government control, and some are devolved. They interact in complex ways. Some international examples of oceans governance, which provide some alternative ways of thinking about institutional design, are explored in Appendix 4.

It is debatable whether our current institutional arrangements are broken or not. However, it is certainly worth thinking about why our institutions are designed and arranged as they are, and what could be done differently. What seems clear is that the system as a whole is not *focused* on oceans, and our institutions (like our legislation) are fragmented and siloed. Marine matters can fall between the cracks when institutions have their eyes elsewhere, as has been demonstrated with biodiversity-based controls on fishing. Efforts on one front can be undermined by competing mandates elsewhere. And, as one interviewee has warned in the conservation context, "there needs to be more multi-agency collaboration to avoid iwi having to talk to 22 different agencies" as they progress different processes and deploy different tools.[22] Fragmentation can jar with the more holistic approach embedded in te ao Māori. It is also not abundantly clear why some things can be determined by independent decision-makers (eg the Environment Court) while others are left to political discretion (eg fishing sustainability measures and the deployment of marine protected areas).

While fragmentation is an issue, some commentators have warned that excessive integration can lead to a lack of focus, transparency and trust, in that:[23]

> attempts to replace marine regulatory complexity with 'one-stop shop' approaches may have political appeal, but they are simplistic, may risk the abandonment of existing environmental or social 'wins', and have typically proved problematic in practice by failing to solidify trust and cooperation between competing interests.

Yet leadership and whole of system stewardship is important, and we need:

> a clear framework for annual reporting, decision making, future planning, and lead agency responsibility to coordinate all efforts in this space, including providing clarity around the roles of local and central government, Treaty partners and kaitiaki in fisheries and biodiversity management.

One way forward may be in layering institutional responsibilities, so that integration is achieved at the highest strategic level but focus and clarity is achieved through more targeted entities (each charged with doing different things). At the moment the former is lacking, but we are arguably already heading down this path with the creation of a ministerial portfolio for oceans and fishing, a central Oceans Secretariat and the gradual implementation of our first marine spatial plan.[24]

Another way to "layer" institutions could be to recognise that spatial jurisdictions can usefully overlap. For example, rather than having a hard and fast boundary between the jurisdiction of councils and iwi (in the coastal marine area) and the EPA (or a new Oceans Agency) in the EEZ, there could be a more nuanced system in which *both* had roles according to their interests and mandates. It is interesting to consider the California Coastal Commission model in this light (see Appendix 4) and also the (albeit quite contextually different) MACA Act, where the courts have confirmed that the Act contemplates joint or overlapping areas of customary marine title ("shared exclusivity").[25]

This approach is not problem free, in that overlapping regulatory or policy jurisdictions can risk inaction (where each institution believes it is the other's responsibility, so there is a lack of clear accountability) and potential conflict. But a carefully layered and overlapping approach to responsibilities could encourage agencies to work together across spatial boundaries and present opportunities for different perspectives (eg local and national) to shape decision-making.

More fundamentally, it may also be that much can be achieved without deep changes to institutional arrangements. For example, non-statutory partnerships can be formalised across different agencies so they work together more closely (eg through establishing more regional hubs in which multiple central and local agencies co-locate and collaborate on policy, regulation and operations); there can be sharing of resources and information; there could be transfer or devolution of powers; and there could be alignment of investment (and timeframes for deploying resources) to achieve common goals, including to prioritise action in particular places that need it most. There are important questions as to whether that approach would be more desirable, or more effective, than deeper and more disruptive reform.

We are continuing to give thought to the pros and cons of various institutional reform options, and how best to conceptualise them. In doing so, international experiences are interesting. Particularly important will be a deeper dive into options for implementing obligations under te Tiriti o Waitangi, including the partnership options developed through the Tangaroa stream of the Sustainable Seas National Science Challenge.[26] While norms reflecting te ao Māori are important, as are the deployment of tools consistent with tikanga, institutional design is really where the rubber hits the road with respect to deeper questions about te Tiriti.

A spotlight on co-governance

There are many forms that co-governance could take in the marine context. At a national level this can prove challenging, although there are interesting and contentious possibilities for nationwide constitutional changes being floated.[27] At a regional and local level there are a number of existing models that could be progressed.

For example, in contrast to the 50-50 split of appointees in an entity like the Waikato River Authority,[28] the Hauraki Gulf Forum has only six tangata whenua representatives out of a total of 21 members (the other being from local and regional councils and government departments). Instead of being selected by iwi/hapū themselves, the tangata whenua representatives are appointed by the Minister of Conservation, although after consultation with tangata whenua and the Minister of Māori Affairs.[29] The Forum has no binding powers, but brings together iwi/hapū with local/regional/ central government entities to share information and jointly consider management issues affecting the Hauraki Gulf.[30] It is therefore an integrating rather than a management body. Despite no requirement in statute, it has recently adopted a co-governance leadership model with the appointment of co-chairs, one who is from and confirmed by its tangata whenua members.[31]

Although it has done good work, one review has questioned the effectiveness of this model,[32] and there have been proposals to restructure it to be more in line with the Waikato River Authority (although with some modifications to incorporate community representation).[33]

The structure of the non-statutory Sea Change – Tai Timu Tai Pari project (for marine spatial planning in the Hauraki Gulf) was novel in that it brought together co-governance and collaborative models for a specific project. The 16-person governance body ("project steering group") comprised eight mana whenua representatives selected through a tikanga Māori process and eight representatives of government entities. These included Auckland Council, Waikato Regional Council, Thames-Coromandel Council (representing territorial authorities more broadly), the Department of Conservation, Ministry for Primary Industries and the Hauraki Gulf Forum. The stakeholder working group which prepared the plan itself included four tangata whenua representatives and 10 stakeholder representatives.

Yet there have also been calls to go beyond models of co-governance and instead recognise Maori sovereignty, kaitiaki responsibilities and tino rangatiratanga more directly, by transferring functions to iwi and hapū rather than creating hybrid institutions. Such models embrace Māori more as decision-makers than just as participants or the objects of decisions. For example, Robert Joseph has expressed a view that the RMA is "a right to culture model in that [it is] not aimed at granting political authority to Māori but rather focuses on stewardship, the 'relationship' of Māori with their environment, and effective participation in decision-making that may impact on them".[34] Despite the existence of mātaitai, taiapure and the ability to formalise rāhui through temporary closures (as well as the significant quota and aquaculture space held by iwi through settlement legislation), the same could be said of the broader institutional framework under the Fisheries Act. And despite recent case law highlighting the strength of the obligation to give effect to the principles of te Tiriti,[35] marine conservation legislation in some senses remains insensitive to Māori cultural expectations (eg permanent no-take spatial protections through marine reserves).

Ngāti Paoa waka

ENDNOTES

1 See New Zealand Government "Implementation - after a settlement is complete" <www.govt.nz/browse/history-culture-and-heritage/treaty-of-waitangi-claims/implementation/>.

2 See Fiordland (Te Moana o Atawhenua) Marine Management Act 2005, s 12; and Kaikōura (Te Tai o Marokura) Marine Management Act 2014, s 6.

3 David Parker, Minister for Oceans and Fisheries "Oceans and Fisheries: Our vision for healthy and productive oceans" (speech to the Forest and Bird Conference, 26 June 2021).

4 See Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation Synthesis Report* (Environmental Defence Society, December 2018) at Chapter 9.

5 Fisheries Act, s 276.

6 Greg Severinsen and Raewyn Peart *Reform of the Resource Management System: The Next Generation Synthesis Report* (Environmental Defence Society, December 2018) at 164 (citations omitted).

7 New Zealand Productivity Commission *Better urban planning* (2017) at 51.

8 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020) at 116, 390 and 467.

9 See M Harte "Industry Perspectives: Taking the Initiative for the Management of New Zealand's Commercial Fisheries" (paper presented to FishRights99 Conference, Use of Property Rights in Fisheries Management, Fremantle Western Australia, 11-19 November 1999).

10 *Northern Inshore Fisheries Management Co Ltd v Minister of Fisheries* [2002] BCL 360 (HC).

11 *The New Zealand Federation of Commercial Fisherman v The Minister of Fisheries* [2010] BCL 197 (HC).

12 Raewyn Peart *Voices from the Sea* (Environmental Defence Society, Auckland, 2018) at 122.

13 Environment Protection Act 2017 (Vic), s 6(1).

14 Environmental Protection Authority Act 2011, s 12.

15 See Resource Legislation Amendment Act 2017, s 227.

16 Compare the recommendation of Prime Minister's Chief Science Advisor *The future of commercial fishing in Aotearoa New Zealand* (Office of the Prime Minister's Chief Science Advisor, February 2021) at 22: "Ensure there are adequate checks and balances on the decision-making process including provision for independent review."

17 *Attorney-General v The Trustees of the Motiti Rohe Moana Trust & ors* [2019] NZCA 532.

18 Resource Management Review Panel *New Directions for Resource Management in New Zealand* (Ministry for the Environment, June 2020), at 238.

19 Claire Charters and others *He Puapua: Report of the Working Group on a Plan to Realise the UN Declaration on the Rights of Indigenous Peoples in Aotearoa New Zealand* (Te Puni Kōkiri, 1 November 2019).

20 Fiordland (Te Moana o Atawhenua) Marine Management Act 2005, s 12; and Kaikōura (Te Tai o Marokura) Marine Management Act 2014, s 6.

21 See also Parliamentary Commissioner for the Environment *A review of the funding and prioritisation of environmental research in New Zealand* (December 2020).

22 Deidre Koolen-Bourke and Raewyn Peart *Conserving Nature: Conservation System Reform Issues Paper* (EDS, Auckland, 2021).

23 Elizabeth Macpherson and others "'Hooks" and 'Anchors' for Relational Ecosystem-Based Marine Management" (2021) 130 *Marine Policy*.

24 However, leadership in this process was shared, with no one agency championing it per se.

25 See *Re Edwards (Te Whakatohea (No.2))* [2021] NZHC 1025 at [168]-[170].

26 See Sustainable Seas "Tangaroa" Sustainable Seas: National Science Challenge <www.sustainableseaschallenge.co.nz/our-research/tangaroa>.

27 See generally Claire Charters and others *He Puapua: Report of the Working Group on a Plan to Realise the UN Declaration on the Rights of Indigenous Peoples in Aotearoa New Zealand* (Te Puni Kōkiri, 1 November 2019).

28 Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010, s 22(1); see also Ngāti Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010, s 23(1).

29 Hauraki Gulf Marine Park Act 2000, s 16(2)(e).

30 Section 17.

31 "Co-chairs to lead Hauraki Gulf Forum" *OurAuckland* (online ed, 14 May 2020).

32 See N Bradly *Review of the Hauraki Gulf Forum* (Envirostat Consulting, 2015).

33 P Beverley, V Payne and M Molney *Hauraki Gulf Forum governance review and recommendations* (Hauraki Gulf Forum, 2016).

34 Robert Joseph and others *Stemming the Colonial Tide: Shared Maori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 201.

35 See *Ngāi Tai ki Tāmaki Tribal Trust v Minister of Conservation* [2018] NZSC 122; Robert Joseph and others *Stemming the Colonial Tide: Shared Māori Governance Jurisdiction and Ecosystem-Based Management over the Marine and Coastal Seascape in Aotearoa New Zealand – Possible Ways Forward* (Ko Nga Moana Whakauka and Te Mata Hautu Taketake – the Māori and Indigenous Governance Centre, 2020) at 266 and following.

CHAPTER EIGHT

Information and science in the fisheries management system

Glen Carbines

Danish seining, Hauraki Gulf

Institutions are an important structural feature of the oceans management system, but they cannot perform their tasks well without robust information. The creation and flow of information can be regarded as one of the networks which connects the different building blocks of the oceans management system (eg legislation, institutions and tools) together. This chapter focuses on an initial exploration of information flows within the fisheries management system. It looks at the nature of information, how and why it is collected, by whom it is processed, and the ways in which it is used. While fisheries management has been used to illustrate how information flows through one crucial part of the oceans management system, more wide-ranging aspects of information flows will be explored in the final report.

8.1 Overview of information

Types of information

As most agencies are required to consider the quality of information used in their regulatory processes, this is usually divided into either scientific or non-scientific information. At its most basic, "scientific" information comes from either research (ie making observations, doing experiments), monitoring (ie making repeated observations, creating time series, identifying trends) or modelling (ie creating representations that explain the past, the present, and predict the future). Anecdotal information, public feedback and liaison networks are generally grouped as non-scientific information.

The types of information that flow through the oceans management system are physical, biological, social or mātauranga Māori. Physical information usually includes the quantitative measurement of non-living environmental material (eg water pH or oxygen content) but can include qualitative measurements such as a description of the ocean's state. Biological information generally includes quantitative measurements of living things (eg microbial abundance or fish lengths) and qualitative measurements such as an animal condition or state. Both physical and biological information can be used to develop time series and complex environmental or population models for predictive purposes to consider things like environmental limits or to estimate population parameters and extraction limits (eg maximum sustainable yield for fish stocks). Physical and biological information can be collected using either a scientific method or anecdotally.

Social data is information derived from people. This can be simple demographics, such as the age distribution of a town recorded in the census, or can be more subjective and issue focused, such as public opinion surveys or feedback from liaison networks. Anecdotal information is a personal observation collected in a casual or non-systematic manner. It describes information uncorroborated by objective and independent evidence. Most anecdotal evidence is not empirical or verifiable and does not qualify as scientific information. It is generally regarded as opinion and treated as "social" information.

Mātauranga Māori is the term used to describe Māori knowledge,[1] or the body of knowledge originating from Māori ancestors and te ao Māori (the Māori world view) that everything living and non-living are interconnected. Mātauranga Māori is based on long-term empirical observations of local conditions grounded in intergenerational continuity that ensures prudent use and management of the environment.[2] Mātauranga Māori can be viewed in terms of nga tohu o te taiao, or the signs, signals, and environmental indicators of the natural world. Nga tohu (signs and signals) play a vital role in identifying trends or changes in the state of the environment, but they are not isolated or singular because the world is holistic, multifaceted, cumulative, and connected. Tohu have been used by many generations of Māori to sustain and enhance mahinga kai (traditional food harvesting areas); they indicate if ecological systems are improving or declining.

> Oceans information can be broadly categorised as either scientific (physical and biological), social (including economic matters) or as part of the mātauranga Māori body of knowledge.

Collection of information

The most robust methods for collecting data are observations that directly measure (*in situ*) aspects of the environment (eg the state of the environment or the abundance of fish). The most powerful information comes from measuring the entire environment or population, such as a census or a total area survey. Unfortunately, such complete information is usually prohibitively expensive, and so some inaccuracy from sampling a portion of the environment (and extrapolating up to an estimate for the survey area) is usually accepted. For example, an opinion poll can question a few thousand people to represent the views of the much larger population, or research trawls over a known area can be extrapolated up to estimate the fish stock for the survey area. However, such methods of direct observation are expensive and often difficult or unfeasible. Some uncertainty must be accepted when an indirect measure or a proxy is used.

Scientific investigations that describe aspects of the environment, especially the marine environment, are usually undertaken by government agencies, research institutions or universities, and the information is collected using a robust scientific methodology. The collection of commercial industry extraction data is often used as a proxy for fish abundance. However, commercial catch data is less robust than direct observations or catch data derived from purposefully designed surveys, as there is no control over where the former is collected and it may not be representative of the wider area. In addition, self-reported data may not be reliable due to the inherent incentives to under-report catch of both QMS species and bycatch.[3]

Citizen science is also an important source of information in the oceans management system. Citizen scientists are coordinated public volunteers who contribute to scientific

projects (usually by collecting or analysing data). There are an increasing volume of guidance materials, methods and tools produced by agencies and research organisations to support the collection of robust scientific information by the public, such as the Citizen Science Learning Hub.[4] Such guidance, alongside improving technology (eg the development of phone apps for collection of data) means the robustness, utilisation and uptake of citizen science is increasing all the time. It has the potential to fill information gaps, particularly through providing localised data. The number of citizen scientists continues to grow, and citizen science programmes are increasingly being used by teachers to make science education more relevant and engaging.

While there are many similarities between mātauranga Māori and other forms of science, such as long-term empirical observations of local conditions, the critical difference is that mātauranga Māori includes values and is explained according to te ao Māori.[5] Mātauranga Māori cannot simply be "collected" like some other forms of information. It is sacred knowledge and understanding, often a closely guarded taonga within hapū, and has been passed down through many generations. It is a way of "knowing" as much as it is the knowledge itself. Mātauranga Māori must come from engagement with Māori who can use it to indicate if ecological systems are improving or declining.

Social information is also challenging to collect, but methods such as public opinion surveys, focus groups, scenario testing and choice modelling workshops can elicit social information. Anecdotal data and other non-scientific information can also be collected from liaison networks and through public consultation.

Oceans information can be collected through a wide range of formal and informal methods. Due to the high cost of undertaking comprehensive surveys, sampling is normally used to approximate the broader area/population, or commercial fisheries catch data is simply used as a proxy for fish abundance. Mātauranga Māori cannot be "collected" as such and must come from engagement with Māori.

Uncertainty in information

Fisheries information, from estimates of stock size and original unfished-fished biomass, to determining the biomass which enables a fish stock to deliver their maximum sustainable yield (B_{MSY}),[6] is inherently uncertain. Considerable information is required to estimate such things. For example, determining the status of a stock in relation to B_{MSY} is often achieved using stock assessment models which are based on trends in relative abundance and life history parameters (such as growth rates and maximum age).[7] Growth rates and maximum age are determined by sampling the age structure of commercial, recreational and scientific survey catch. Relative abundance is estimated, either by standardising commercial catch per unit effort (CPUE) data, or by using standardised catch rates in fishery independent scientific trawl or potting surveys.

Despite these methods, the relationship between catch rates and the actual abundance of most species is difficult to demonstrate convincingly.[8] Furthermore, reliable CPUE data has only been available since 1990, when detailed catch effort returns were fully implemented. This means that it is difficult to establish a true estimate of what the historical unfished biomass might have looked like, as CPUE, because most stocks were already significantly fished down by 1990.

That said, software and computing power continue to improve, and statistical models are more complex and better at estimating uncertainty. However, we are still limited by the underlying data which is available to input into these models. Quantitative stock assessments constitute the best available information for fisheries management, but only 40 percent of fish stocks are "scientifically evaluated",[9] and only one percent are considered "virtually certain" to be at or above the target level.[10] Most species do not have sufficient data to undertake quantitative assessments and/or there is not a reliable index of relative abundance (such as CPUE).

Fisheries information is inherently uncertain. Although computer modelling can help in developing estimates of the health of fish stocks, they are still limited by significant gaps in the underlying data.

Management of fisheries information

Fisheries NZ is the prime manager of fisheries information within the country's oceans management system. There is a distinct division in the way it gathers and processes scientific versus social information.

Scientific information is managed by the *Science and Information Directorate*, which determines research needs and facilitates the development and procurement of research projects. It provides expert guidance and review of research projects through Fisheries Assessment Working Groups (discussed further below), and annually reports on the state of fish stocks and effects of fishing on the environment in the Plenary and the Aquatic Environment and Biodiversity Annual Review respectively. The Directorate also facilitates data archiving and interacts with Fishserve (a subsidiary of the industry-owned body Seafood New Zealand) which collects commercial fisheries data.

The *Fisheries Management Directorate* collects and manages social and non-scientific information. It includes both Inshore (customary, spatial management and regional) and Offshore (highly migratory species and deepwater) divisions. These divisions (1) engage with Māori, sector groups, fisheries fora and the public; (2) interact with the Science and Information Directorate in determining research needs and incorporating research outcomes; and (3) provide advice to the Chair of Fisheries NZ who advises the Director General of the Ministry for Primary Industries

and the Minister of Fisheries (who is the ultimate decision maker). These processes are shown in Figure 8.1.

Fisheries NZ does not typically use methods to independently gauge public opinion such as commissioning a Horizon survey or a Colmar Brunton poll. Other approaches such as undertaking public drop in sessions or targeted engagement, are often used to canvass ideas from the public at large, and the information gathered is then distilled into advice to the Minister. An economic analysis may also be undertaken to assess the impacts of changes of particular significance (ie their financial impact), such as for the Threat Management Plan for Hector's Dolphins. A submissions process is also commonly used to guage reactions to proposed changes to fishing regulations. However, these are often quite technical in nature and not something the general public tends to engage with.

Within Fisheries NZ, aquaculture policy and digital monitoring sit outside the Fisheries Management and Science and Information directorates.[11] Policy and compliance, and the observer programme, are located outside of Fisheries NZ entirely and are within the wider institutional framework of the Ministry for Primary Industries.

Fisheries NZ is the prime manager of fisheries information, with separate directorates managing scientific and social information

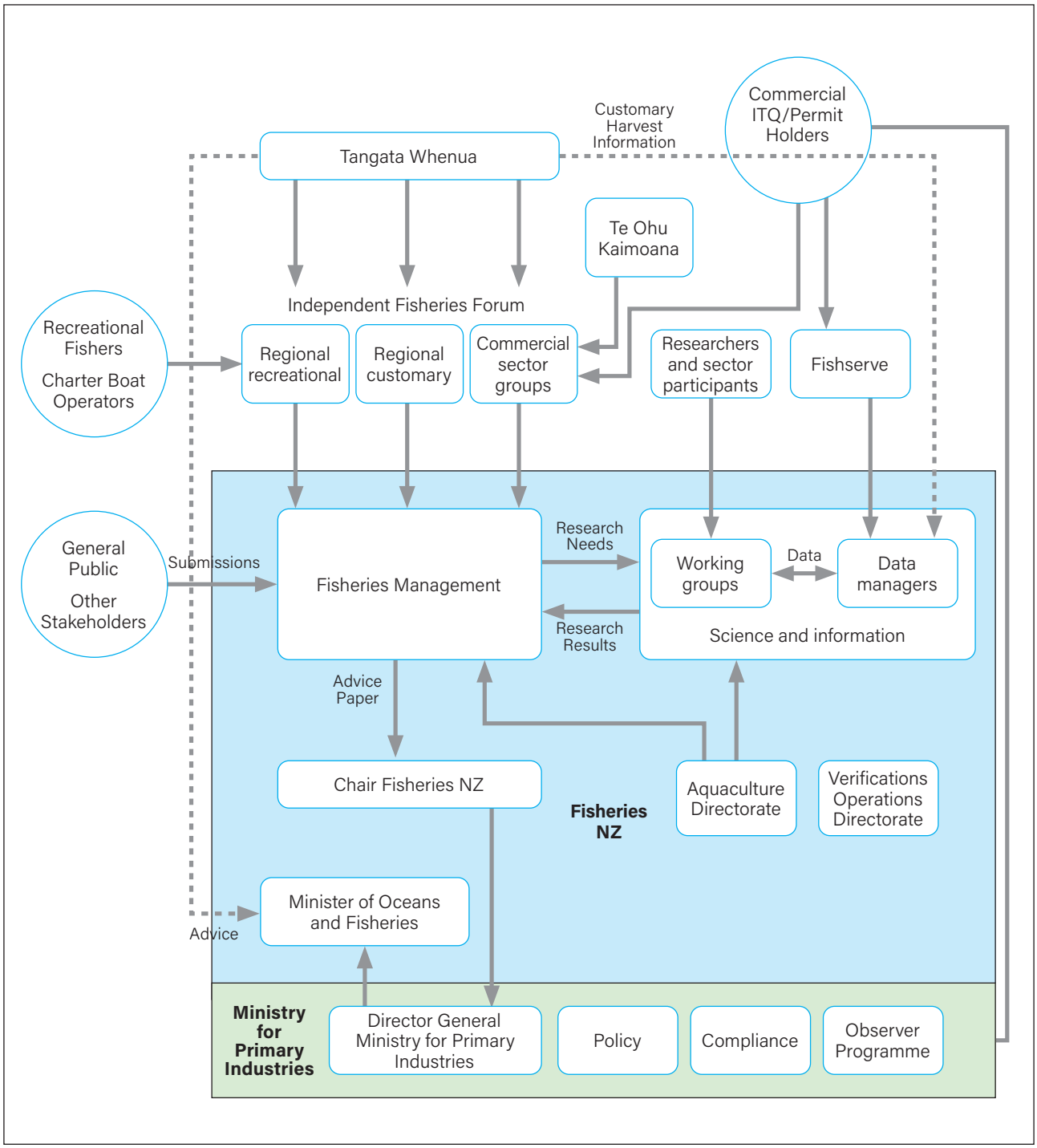

Figure 8.1 Information flow within the fisheries management system

8.2 Production of scientific information

Statutory requirements

Section 10 of the Fisheries Act sets out four "information principles" which decision-makers under the Act are required to take into account. Significantly, they state that decisions should be based on "the best available information".

Fisheries Act, Section 10 – Information Principles

All persons exercising or performing functions, duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account the following information principles:

(a) decisions should be based on the best available information:

(b) decision makers should consider any uncertainty in the information available in any case:

(c) decision makers should be cautious when information is uncertain, unreliable, or inadequate:

(d) the absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act.

The management of fisheries information is further guided by the *Research and Science Information Standard for New Zealand Fisheries*.[12] This is a policy statement of best practice for the delivery and quality assurance of research and scientific information that informs fisheries management decisions, regardless of its source. It provides guidance as to what constitutes high quality and reliable science information and provides support for implementation of the information principles in the Act.

The Standard sets out key principles for research and science information and its provision, responsibilities of different participants, requirements for peer review processes, prioritising science information quality, archiving of data and reports, and the documentation and communication of science results. The five key principles for science information quality are peer review, relevance, integrity, objectivity, and reliability. Peer review is an organised process within Fisheries NZ, using groups of expert scientists to evaluate the quality of research and science information. Research must be relevant to fisheries management requirements, have security of information, be accurate, impartial and unbiased.

The *Harvest Strategy Standard for New Zealand Fisheries*[13] and associated Operational Guidelines are also relevant to the flow of information within the fisheries management system. This Standard provides guidance, based on best practice, for the setting of stock management targets, reference points, and soft and hard limits. However, it is focused on single species biological considerations and related uncertainties, and has only limited consideration of economic, social, cultural or ecosystem issues. The High Court has recently held that the Standard was a mandatory consideration for the Minister of Fisheries in setting the TAC and TACC for East Coast tarakihi stocks (see Chapter 5).[14] It is therefore likely to play a more prominent role in future fisheries decision-making.

In accordance with section 10(c) of the Act, the Standard has "information considerations" that require fishery and stock targets and limits to be set more conservatively for stocks with lower levels of information or with higher levels of uncertainty. The information considerations also note that:[15]

> the amount of data available for a fishery will not necessarily be well-correlated with the amount of useful information contained in those data and the associated stock assessment models. This will depend on the type of data available and the credibility and robustness of the assessment models.

Another source of fisheries-relevant information is through the Conservation Services Programme which is managed by the Department of Conservation. This seeks to reduce the adverse effects of fishing on protected species such as marine mammals and seabirds. The programme includes information from observer coverage, research into by-catch issues and the development of mitigation technologies.[16]

Fisheries NZ produces an annual 'Plenary' which is over 2,000 pages long and split into four volumes. Three volumes are produced in May and one in November of each year. These provide updated summaries of the available information for each fish stock. In addition, the Aquatic Environment and Biodiversity Annual Review (of some 760 pages) reports annually on the effects of fishing on the environment.

The Fisheries Act sets out information principles to be applied to fisheries decision-making and these are further fleshed out in standards which apply to the production and use of science and how it is used to set harvest levels.

Research planning

Input received from fisheries fora, stakeholders and the public, and feedback from research providers, helps to inform the identification of research required by Fisheries NZ (see Figure 8.2). Fisheries plans (eg the Snapper 1 management plan), strategies (eg the National Plan of Action - Sea Birds 2020), medium term research plans, and international agreements are also considered. A list of research needs is then developed by Fisheries NZ scientists and fisheries managers, and further consultation on it undertaken with stakeholders and Māori. Based on feedback, the list of research needs is prioritised and presented to the Fisheries NZ leadership team who determine which research requirements are approved, which are then developed into project descriptions.

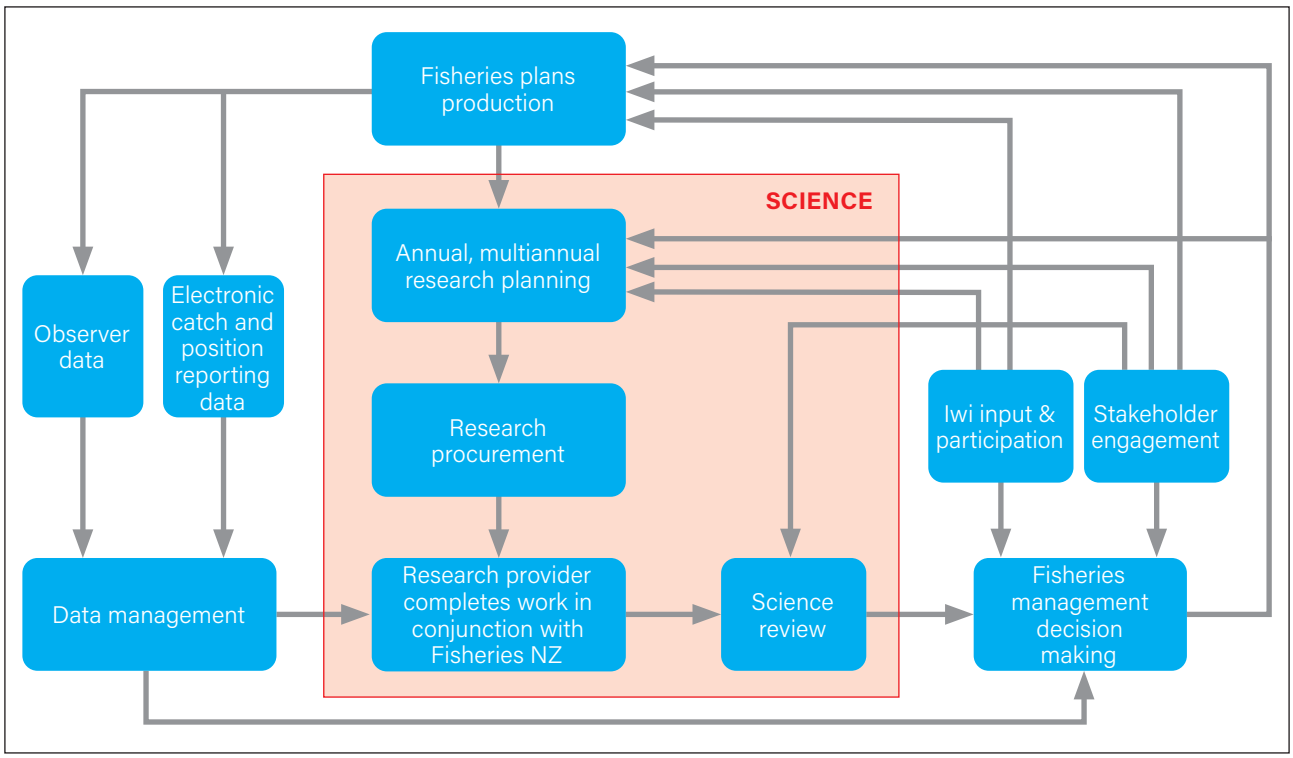

Figure 8.2: Fisheries NZ internal science process linkages *(Source: Fisheries NZ)*

The next step is consultation with the fishing industry over the recovery of research costs from quota owners. This step enables the views of the extractive industry to influence the setting of research priorities which has the potential to skew them more towards narrower stock management considerations rather than increasing understanding of wider ecological systems.

Research planning (ie identifying what research to invest in) is largely undertaken internally within Fisheries NZ. It is subject to a cost recovery consultation with quota owners which risks focusing research more towards extractive needs.

Research procurement

Fisheries NZ has different procurement approaches, such as a closed tender where a limited number of known suppliers can tender; direct tender where there is one research provider to approach due to limited capability in the supply market; or an open tender advertised on the Government Electronic Tendering System. However, a closed tender process restricted to a group of Fisheries NZ approved research providers, or a direct tender to the only research provider with capacity, are the methods most often used. The government owned Crown Research Institute, the National Institute of Water and Atmospheric Research, carries out most fisheries research, but research is also undertaken by fishing industry-owned research providers, independent research institutions and individual providers. Tenders are evaluated by Fisheries NZ scientists, based on several criteria including quality, capability and price.

There is also a portion of funding retained for "reactive research": to develop projects throughout the year on a much more ad hoc basis in response to unforeseen and immediate issues that develop or become more apparent after the research planning process. An example was the unforeseen need to collect recreational pāua catch data as part of the Kaikōura earthquake reopening of shellfish fisheries within the Kaikōura Marine Management Area. To address this research planning shortfall, a reactive research project was developed by Fisheries NZ in conjunction with the Marine Amateur Fisheries Working Group.

Fisheries research is tendered to science providers, which can include publicly owned and industry owned entities as well as individual providers. The small number of science providers within Aotearoa New Zealand means that research projects are often put out to limited tender or to only one potential supplier.

Information dissemination

The updated Plenary, Aquatic Environment and Biodiversity Annual Review, and 70–100 new research reports commissioned by Fisheries NZ each year, are published on the Fisheries NZ website by the Science and Information Directorate. Fisheries NZ funded research projects provide a detailed and often highly technical final report, usually published as a New Zealand Fisheries Assessment Report. Although these are available on the Fisheries NZ website, they can be difficult for members of the public to find and interpret. In contrast, the environmental domain reports prepared by the Ministry for the Environment and Statistics New Zealand have public facing documents with investment in infographics and supporting resources (eg Environment Aotearoa). These do incorporate a selection (albeit limited) of marine and

fisheries indicators, providing an avenue for the general public to gain an understanding the state of our fisheries.

8.3 Fisheries assessment working groups

All projects funded through the Fisheries NZ research budget must be reviewed by one of the fisheries assessment working groups (see Figure 8.3). Generally, data that is collected by stakeholders without peer review, cannot be used for management purposes unless it is presented and approved by an appropriate working group. There are science working groups for a number of things (eg the Antarctic, aquatic environment, biodiversity research, deepwater and middle depths, eels, fisheries data, highly migratory species, hoki, inshore, marine amateur fisheries, Research Co-ordinating Committee, rock lobster, shellfish, stock assessment methods, and the plenary). Once a research project is commissioned, the independent science provider must propose a sample design to the appropriate science working group for approval, followed by a staged process of technical guidance and review. Engagement with a science working group at the design phase enables technical problems to be identified, prevents wastage of resources on invalid or suboptimal methods, and results in more rigorous and robust science quality assurance.

There is some flexibility in the process, and research projects can be reviewed at various levels. For example, routine and uncontroversial projects can be signed off by a member of the Fisheries NZ science team, but most projects go through the wider science working group review process. Research projects that are novel, complex or contentious are subjected to more rigorous and robust science quality assurance and are peer reviewed at several stages throughout the science working group process. They may also be subjected to more than one form of peer review (including a comprehensive external expert review). Information from the science working group process then feeds into the fisheries management decision-making process (eg advice to the Minister on setting annual catch allocations and constraints), and the information process supporting the Plenary, fisheries plans and the annual research planning process.

Fishing assessment working groups are at the core of the system Fisheries NZ has adopted to manage fisheries information, with the groups reviewing almost all research proposals and outputs before the information is used by fisheries managers.

Snapper in slurry

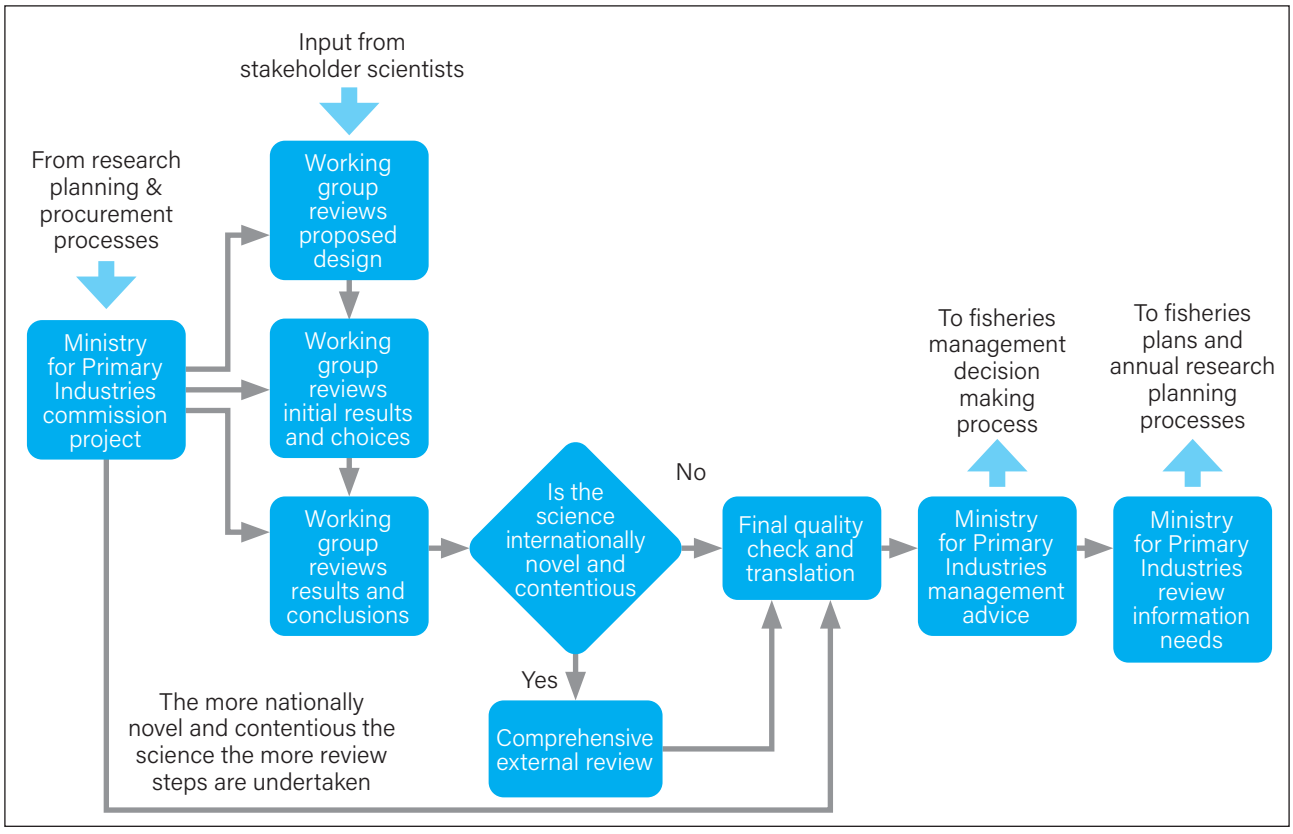

Figure 8.3: Key Fisheries NZ science review processes *(Source: Fisheries NZ)*

Working Group membership

The purpose of the fisheries assessment working groups is to provide expert science guidance and review. Members are recognised technical experts who must commit to an ongoing participation in the working group process.[17] However, aside from Fisheries NZ staff and contracted research providers, attendance at working group meetings can be dominated by those representing the commercial fishing industry. The recreational, customary and environmental sectors are often poorly and infrequently represented, and independent expert academics (eg such as from universities) are not routinely present. One of the main constraints on the diversity of technical expertise within working groups is the inability of non-commercial sectors to financially support technical expertise and attendance, or for academia to be able to financially justify their time in attending.

Members must agree to the working group terms of reference and confidentiality agreement (not to release working group documents, because they are working drafts which have not been reviewed).[18] This is to avoid errors being made public before they have been detected and addressed. However, such confidentially clauses can restrict the flow of relevant information to those outside the process, and reduce the utility of attending, if members cannot feed back information to their own groups. There is a risk that this further reduces the diversity of technical expertise present or engaged.

Although members of fisheries assessment working groups are required to be technical experts, their membership can be dominated by experts associated with the commercial fishing industry. Options for supporting non-commercial sectors (to build capacity to attend and engage) could be considered.

Coastal trawler, Port of Auckland

Science information from other funders and agencies

The working group process is arguably a robust but not particularly flexible system. All information from research projects funded by Fisheries NZ must be reviewed by an appropriate working group. In addition, all scientific information from other funders and agencies must also go through the working group process before it can be considered in fisheries management decisions. This can serve to ensure that all scientific information which influences decision-making meets prescribed standards, and is not misleading or biased. For example, one group of commercial quota owners was supported by the Sustainable Food and Fibre Futures fund to develop a harvest control rule for the Southland blue cod stock. Before the harvest control rule was considered for fisheries management, it was reviewed by the Inshore Fisheries Assessment Working Group to independently consider the validity of the work and to advise fisheries managers of the information's scientific credibility for use in fisheries management decisions.

However, although working groups can consider information from "outside", the requirement to funnel all fisheries management science through a working group can act as a barrier to a broader range of information (including peer reviewed published science) being utilised in fisheries management. The members of the working groups can, for instance, be more familiar with science that "counts fish" than with providing broader ecosystem-based information, or novel science. It may be worth considering other pathways by which scientific information can be utilised or relied on more directly (for example, evidence accepted in Environment Court processes in RMA decision-making on coastal plans and consents), although safeguards here would need to be thought through carefully.

A spotlight on the use of Department of Conservation monitoring data in the Marlborough Sounds

The Department of Conservation funded a long-term monitoring programme of the Long Island-Kokomohua marine reserve in the Marlborough Sounds. The work included underwater transects and timed line fishing to describe changes in fish size and abundance over time. Before this data could be considered when making decisions about the management of Marlborough Sounds fish stocks, it had to be considered by the fisheries assessment working group. However, this proved challenging, because the working group was comprised mainly of scientists who had very little experience with this type of monitoring. After some considerable debate, the Department of Conservation-funded research was eventually considered as science information, but several caveats were placed on how it should be interpreted.

Although the fisheries assessment working group process can help ensure that a high standard of science is used to inform fisheries management it can also result in useful information, which is produced outside the Fisheries NZ science system, being excluded.

8.4 Incorporation of mātauranga Māori

Mātauranga Māori is a Māori way of being and of engaging in the world, including the pursuit and application of knowledge and understanding following a systematic methodology based on evidence, incorporating Māori culture, values and te ao Māori.[19] It is based on ancient values of the spiritual realm of te ao Mārama (the cosmic family of the natural world) and it is constantly evolving. Mātauranga Māori uses kawa (cultural practices) and tikanga (cultural principles) to analyse and understand the world.

Mātauranga Māori can be viewed in terms of ngā tohu o te taiao, or the signs, signals, and environmental indicators of the natural world. Ngā tohu (signs and signals) play a vital role in identifying trends or changes in the state of the environment, but they are not isolated or singular because the world is holistic, multifaceted, cumulative, and connected. Tohu have been used by many generations of Māori to indicate if ecological systems are improving or declining.

Mātauranga Māori also provides a different perspective about knowledge and information. The Māori world view (te ao Māori) of connections and relationships between all things human and non-human (ie whakapapa), contrasts with other scientific approaches that focus on acquiring knowledge through the examination of something in isolation (ie function). Weaving mātauranga Māori together with other approaches to science and knowledge is a work in progress for Fisheries NZ. Currently, Fisheries NZ consults twice a year with iwi forums on catch limits, as a means of incorporating tangata whenua views into fisheries management. However, this risks retrospectively seeking Māori views. The Fisheries NZ Northern Regional Team is currently involved in a pilot study investigating how to use mātauranga Māori in the management of toheroa, but the application of such approaches more generally within the fisheries management system is some way off.

Fisheries NZ is one of many regulatory agencies in the beginning stages of developing approaches and frameworks for including mātauranga Māori and te ao Māori in the management of the marine environment. For example, the EPA has developed a Mātauranga Framework to help decision-makers to understand, test and probe mātauranga when it is presented in evidence.[20] In addition, Kaupapa Kura Taiao, the EPA's Māori Policy and Operations Group, provides guidance to iwi and applicants during the engagement process and raises iwi awareness of the role of the EPA and on how to

engage and participate in its decision-making processes. The EPA also supports a National Māori Network, Te Herenga, as a forum for kaitiaki and environmental resource managers to come together and discuss important environmental issues.

Within the Ministry for the Environment, Te Ohu Māori supports Ministry staff when they engage with Māori as part of policy development or when programmes are being delivered. It is responsible for ensuring Māori rights and interests are considered in policy across the Ministry. There are also several advisory groups targetted at specific areas. Te Ihirangi is a Māori-led initiative for climate change. Māori Experts for Waste Minimisation is an advisory group established to help develop the national strategy for waste. Kāhui Wai Māori – the Māori Freshwater Forum – works collaboratively with the cross-government Water Taskforce on the development and analysis of policy options. A scoping project has also been undertaken to inform future reporting on te ao Māori under the Environmental Reporting Act.[21]

Māori have had relatively limited opportunities to influence the science-policy interface in fisheries management. The mainstream view draws sharp boundaries between knowledge and management action, often placing experts outside of local communities. In contrast, a te ao Māori approach views knowledge and action as intertwined, and is more open to different forms of knowledge and expertise. As part of the Crown's constitutional responsibilities under te Tiriti, a significant re-think of the science-policy interface may be needed to reflect te ao Māori perspectives, aspirations and priorities. Ultimately, this needs to be led by Māori.

Mātauranga Māori uses kawa (cultural practices) and tikanga (cultural principles) to analyse and understand the world and draws on ngā tohu (signs and signals) to identify changes and trends in the state of the environment. Fisheries NZ is still exploring how to better acknowledge and use mātauranga Māori within the fisheries management information system. A range of mechanisms have been adopted across agencies, and consideration could be given to a deeper rethink of the science system and how it incorporates mātauranga Māori in a more cross-cutting and consistent fashion.

8.5 Social and non-scientific information

During the 1990s to the early 2010s, the agencies responsible for the Fisheries Act (the Ministry of Agriculture and Fisheries and subsequently the Ministry of Fisheries) maintained both regional fisheries liaison groups (ie individual sector groups for commercial, recreational and customary) and mixed sector area/stock/issue specific liaison groups (ie representing commercial, recreational, Māori and environmental interests). These liaison groups met regularly and were maintained by the north, central and southern regional teams. They funnelled mainly social and anecdotal information into the regulatory agency.

As an independent ministry administering the Fisheries Act, the Ministry of Fisheries (which operated from 1996 to 2012) was a high point in the capacity for anecdotal and social information from liaison groups to flow into the systems and processes under the Fisheries Act. Initially, the Ministry took a stock strategy risk-based assessment approach, but later, multi-sector collaborative fisheries plans were actively promoted. While the development of fisheries plans was prioritised for shared (or mixed) fisheries, they also informed biosecurity requirements, fisheries strategic research planning, fisheries regulation changes, and decisions setting the TACC. In addition, they have a statutory linkage with the development of plans under the RMA,[22] although the linkage between the fisheries and RMA planning systems has been weak in practice.

For several reasons, including the global financial crisis and fiscal constraints on the government, the stand-alone Ministry of Fisheries was disbanded in 2012. It was subsumed into the much larger Ministry for Primary Industries with a vision that "New Zealand will be the world's most sustainable producer of high-value food and primary products".[23] With this shift, came a refocus on core work, and a pulling back of regional liaison processes. It was consistent with a general reduction in capacity across the public service at the time.

The restructure saw the regional teams slashed by about 50 percent, and the network of regional liaison groups essentially disbanded. As a result, the flow of social and anecdotal information into Fisheries Act processes reduced dramatically. Without a clear and representative understanding of issues, it became much more difficult for fisheries managers in the regions to identify developing issues and local research needs to ensure sufficient information was available to guide remedial actions. For example, research projects like small-scale independent recreational fishing surveys that estimate catch in popular regional fishing areas like Kaikōura, were no longer a priority. There was also a change in strategy, with a move away from multiple regional collaborative area/stock/issue specific fisheries plans to just five national plans (ie a national inshore finfish plan, shellfish plan, freshwater fisheries plan (mainly eels), deep-water fisheries plan, and a national highly migratory species plan). Reduced sensitivity to regional fisheries issues caused community frustration with the fisheries regulators' perceived inaction in responding to local issues.

A spotlight on local marine management legislation

Local marine management area legislation first became established with the Hauraki Gulf Marine Management Act, then the Fiordland (Te Moana o Atawhenua) Marine Management Act and, most recently, the Kaikōura (Te Tai o Marokura) Marine Management Act. These cross-agency local area pieces of legislation establish iwi, sector and community representation groups (ie the Hauraki Gulf Forum, the Guardians of Fiordland and the Kaikōura Marine Guardians respectively). The latter two create a direct conduit of anecdotal and social information to the Ministers of Fisheries and Conservation.

This type of third-party "community-led" direct ministerial access version of public engagement is arguably cheaper than running individual sector liaison groups or regional area/stock/issue mixed sector groups facilitated by Fisheries NZ. However, these groups do run the risk of becoming disconnected from their community base over time. A mandatory review of their structure and inclusiveness is therefore often included in their legislation. One example is the current cross-agency review of inclusiveness, community representation, process, and structure of the Kaikōura Marine Guardians.[24]

To address the restricted capability of the fisheries regulator, Fisheries NZ was established as a separate entity within the Ministry for Primary Industries in 2018. With its focus back on sustainability, collaboration and engagement, there has been an incremental increase in regional capability, with Fisheries NZ looking to re-establish liaison networks and restore the flow of anecdotal and social information into the processes that support the Fisheries Act. The development of the National Blue Cod Strategy, the Southern Scallop Strategy, and Fisheries NZ's engagement with the Sea Change – Tai Timu Tai Pari process are examples of a recent resurgence in multi-sector collaborative fisheries plans. A feature of these initiatives is the use of technical advisory groups to guide the development of options, followed by wide engagement through public information sessions and other tools to support the gathering of anecdotal and social information.

The extent to which the fisheries management system has engaged with sector groups has ebbed and flowed over the past 30 years. Such engagement has recently been increased, which is important to ensure that there is a flow of social information into the fisheries management system.

Fisheries technical advisory groups

Fisheries technical advisory groups are established by Fisheries NZ from time to time for particular issues, and are typically made up of members selected from various stakeholder groups who share their expertise and experience in that sector (but do not formally "represent" their sector). Such groups are not a substitute for broader consultation with the public, although they often guide the development of options for fisheries management, which is then followed by actual public engagement (usually through the submissions process).

As with fisheries assessment working groups, members of technical advisory groups must sign up to confidentiality conditions (ie they cannot report details back to their wider organisations) and Fisheries NZ is largely responsible for selecting the participants, meaning that some important voices may not be included.

Public engagement

For consultation, Fisheries NZ mainly uses the written submission process based on proposals developed by technical advisory groups or internally by fisheries managers. There are no public hearings of submissions. Arguably, the non-fishing public are not seen as core stakeholders because they "have no skin in the game" and in many respects the focus of the Fisheries Act is on the extraction of marine life, being "utilisation".

The opportunity for the public (both fishing and non-fishing) to engage in Fisheries Act processes and decision-making is limited compared to the more accommodating systems and processes of legislation like the RMA. Unlike the Fisheries Act, RMA processes include public hearings and appeal rights.

Technical advisory groups and public consultation are important conduits of social information into fisheries management. However, the limited membership of advisory groups, and lack of broad public submission, hearings (and appeal) rights, can restrict the breadth and depth of that information.

Flesh-footed shearwater, Hauraki Gulf

8.6 Options to explore with respect to information

The Prime Minister's Chief Science Advisor's recent report on *The Future of Commercial Fishing in Aotearoa New Zealand* acknowledges that a single trusted source of information does not exist in the fisheries sector, and that the inherent uncertainty in fisheries management can be easily manipulated to support various narratives.[25] The report states, for instance, that "from an agreed percentage of how many of our stocks have been assessed, to the size of the original non-fished biomass, to a percentage of this biomass that can be sustainably harvested, to whether our trawling footprint is increasing or decreasing – the very basis of our fisheries management is often fiercely contested".[26]

There is a lot of data relating to the ocean environment, but it is not well integrated across stakeholders and government agencies. A centralised data storage system could enable greater access to, and utilisation of data, and help prevent the replication of earlier work. Aggregation and integration of data from stakeholders, a wide range of scientists of different disciplines, and government agencies and regulators, would increase the amount of information available on which to base decisions. But this is only likely to be effective if there is a mechanism to ensure the decision-making process incorporates this data in a transparent way.[27]

The Prime Minister's Chief Science Advisor's report also notes that local knowledge and mātauranga Māori are currently very underutilised and identifies a need for the regulator to be more sensitive to on-the-ground expertise and advice.[28] It strongly makes the point that a lack of data is no excuse for inaction.[29]

The most obvious concern about the flow of science information used in fisheries management is the potential for fisheries research priorities to be skewed towards extraction rather than understanding wider ecological systems. As discussed above, working groups can be composed primarily of those with the funds to participate (ie those that derive economic gain from fishing), and remedial action could be considered to support more consistent non-commercial sector expert representation and participation (including being able to draw on academic expertise).

There is also no dedicated mātauranga Māori fisheries assessment working group, or obvious alternate process to allow mātauranga or te ao Māori to specifically be considered in fisheries management information, to balance to the strong focus on other forms of science and knowledge. If mātauranga Māori is to be acknowledged and utilised, then options need to be explored for it to have a stronger presence in the working group process. This could be achieved through the establishment of a dedicated mātauranga Māori working group. However, how mātauranga Māori is used is a discussion that should be led by Māori.

Overall, a broader range of information could be considered in fisheries management. Customary and other non-commercial stakeholders often have diminished involvement in the flow of science information through the fisheries management system.

Fisheries NZ has indicated that re-establishing and maintaining strong regional independent sector liaison networks is required to restore the flow of anecdotal and social information needed for the regulatory system to have sufficient sensitivity to local issues.[30] In the current Covid-age fluency with video conferencing, it should now be considerably cheaper to liaise with sector groups than with regular face to face meetings. Representation will always be a bigger issue for some sectors than others, and the system will need to grapple with competing views on who should be included in each sector. For example, should commercial fishing industry representatives include just quota holder groups (ie property rights holders), or should the wider fishing industry such as skippers and processors be included?

Recreational fishing has always been a particularly difficult sector to get true representation from. There are clearly mandated and self-funded groups like the New Zealand Sport Fishing Council (a national affiliation of 55 fishing clubs with over 35,000 members). There are also social media based recreational fishing groups such as LegaSea and Fish Mainland, and community-based groups like the Marlborough Sounds Recreational Fishers Association. However, it is equally important to represent the majority of recreational fishers who don't belong to clubs, charter boat fishers, and the majority of Māori who gather their kai moana under recreational fishing regulations.

Remembering that most New Zealanders do not engage in recreational fishing, it is pertinent also to ask what anecdotal and social information is collected from them for the purposes of fisheries management under the Fisheries Act. Apart from some representation by environmental groups like Forest and Bird, ECO and Greenpeace, the main opportunity that the non-fishing public has to feed information into the processes is through the statutory public consultation process.

The Parliamentary Commissioner for the Environment, in his review of funding and prioritisation of environmental research, suggested that "central government needs to speak with one voice and it should do that through a regularly updated environmental research strategy led by the Ministry for the Environment."[31] He also proposed a reform option that "seeks to embed the necessary expert skills within an Environmental Research Council – a dedicated funding agency".[32] There would be an emphasis collaboration, with strong incentives for research institutions independent of central government, such as tertiary institutions and independent research organisations, to align their work with the proposed environmental research strategy. If fisheries research were integrated into a broader environmental research initiative, this could serve to widen the ambit of its scope to include a broader range of ecologically focused information on the marine environment.

There are a number of areas where the collection and use of fisheries management information could be improved, including through enabling broader attendance and participation in fisheries assessment working groups, providing a direct conduit for mātauranga Māori, and adopting a more open process for determining research priorities. Ultimately fisheries science could benefit from integration into a broader and more independent environmental science system as recommended by the Parliamentary Commissioner for the Environment.

How information and data is held and shared across the oceans management system is intimately connected to institutional arrangements (see Chapter 7, and which we are continuing to give thought to). This, for example, has implications for:

- how *existing* central and local government institutions operate in relation to each other (for example, the potential to have shared services or shared policy hubs in regional centres for oceans management);
- whether *new* cross-cutting institutions are desirable (eg the independent research council concept mentioned above, but also the potential to host an integrated data and information platform, and research strategy, within an independent entity with broader policy capability – such as an Oceans Commission along similar lines to the existing Climate Change Commission);
- how a future system configures institutional arrangements more broadly (eg whether an Oceans Ministry or Oceans Agency would be well placed to facilitate the flow of and connections between different sources of information, and how local mana whenua and communities could input meaningfully into any more centralised model for data collection and prioritisation).

Recreational fishing, Mercury Bay

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4 See <www.sciencelearn.org.nz/citizen_science>.

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6 The biomass that will support maximum sustainable yield.

7 Ministry for Primary Industries, Fisheries New Zealand, 'Fisheries Assessment Plenary - Stock Assessments and Stock Status Reports', "Volume 1 Introductory sections and Alfonsino to Hake" (May 2021), see <www.mpi.govt.nz/science/fisheries-science-research/about-our-fisheries-research/>.

8 Mark Morison and Glen Carbines "Estimating the abundance and size structure of an estuarine population of the sparid *Pagrus auratus*, using a towed camera during nocturnal periods of inactivity, and comparisons with conventional sampling techniques" (2006) 82 Fisheries Research, 150-161. See also, Ministry for Primary Industries, Fisheries New Zealand, G Carbines and V Haist "Relative abundance, population structure, and stock status of blue cod in Foveaux Strait in 2014. Experimental evaluation of pot catchability and size selectivity" (December 2017) New Zealand Fisheries Assessment Report 2017/63.

9 Ministry for Primary Industries, Fisheries New Zealand, 'The Status of New Zealand's Fisheries, 2020', see <www.mpi.govt.nz/dmsdocument/44890-The-Status-of-New-Zealands-Fisheries-2020>.

10 Ministry for Primary Industries, Fisheries New Zealand 'Status of stocks as at December 2020 or 'last assessment date'', see <www.mpi.govt.nz/dmsdocument/44896-Stock-status-table-for-fish-stocks>.

11 The Aquaculture Strategy and Development Team (within the Aquaculture Directorate of Fisheries NZ); the Aquaculture Settlement and Operational Policy Team (also within the Aquaculture Directorate of Fisheries NZ); and the Aquaculture and Fisheries Permitting Team (within the Verification and Operations Directorate of Fisheries NZ). Note also that there is now an aquaculture science position within the Science and Information Directorate.

12 Ministry for Primary Industries *Research and Science Information Standard for New Zealand Fisheries* (April 2011), see <www.mpi.govt.nz/science/fisheries-research-and-science/fisheries-research-processes/>.

13 Ministry for Primary Industries *Harvest Strategy Standard for New Zealand Fisheries* (October 2008), see <www.mpi.govt.nz/science/fisheries-research-and-science/fisheries-research-processes/>.

14 *Royal Forest and Bird Protection Society v Minister of Fisheries* [2021] NZHC 1427.

15 Ministry for Primary Industries *Harvest Strategy Standard for New Zealand Fisheries* (October 2008), at 11.

16 https://www.doc.govt.nz/our-work/conservation-services-programme/about-csp/csp-background-information/

17 Ministry for Primary Industries, Fisheries New Zealand, 'Fisheries Assessment Plenary - Stock Assessments and Stock Status Reports', "Volume 1 Introductory sections and Alfonsino to Hake" (May 2021), see <www.mpi.govt.nz/science/fisheries-science-research/about-our-fisheries-research/>, at 33-36.

18 Ministry for Primary Industries, Fisheries New Zealand, 'Fisheries Assessment Plenary - Stock Assessments and Stock Status Reports', "Volume 1 Introductory sections and Alfonsino to Hake" (May 2021), see <www.mpi.govt.nz/science/fisheries-science-research/about-our-fisheries-research/>, at 28-32.

19 Daniel Hikuroa "Mātauranga Māori—the ūkaipō of knowledge in New Zealand" (2017) 47 Journal of the Royal Society of New Zealand, 5-10.

20 Environmental Protection Authority "Partnership in action: The EPA's Matauranga framework" (June 2020) <www.epa.govt.nz/assets/Uploads/Documents/Te-Hautu/Matauranga-Maori-Report_Framework-Report.pdf>; see also Environmental Protection Authority "Incorporating Maori Perspectives into Decision Making" (undated) <www.epa.govt.nz/assets/Uploads/Documents/Te-Hautu/293bdc5edc/EPA-Maori-Perspectives.pdf>.

21 Sue Scheele and others "Reporting Environmental Impacts on Te Ao Māori: A Strategic Scoping Document" (Ministry for the Environment, June 2016).

22 RMA, s 66(2)(c)(i).

23 Ministry for Primary Industries "MPI's Strategy" (14 July 2021) <www.mpi.govt.nz/about-mpi/strategy/>.

24 See section 8 of the Kaikōura Te Tai o Marokura Marine Management Act 2014.

25 Office of the Prime Minister's Chief Science Advisor *The Future of Commercial Fishing in Aotearoa New Zealand* (February 2021) at 2.

26 At 2.

27 At 2.

28 At 2.

29 At 2.

30 See for example, Department of Conservation and Fisheries NZ *National Plan of Action – Seabirds 2020 Supporting Document* (November 2019) at 19.

31 Parliamentary Commissioner for the Environment *A review of the funding and prioritisation of environmental research in New Zealand* (December 2020) at 4.

32 At 5.

CHAPTER **NINE**

Concluding comments

Tahunanui Beach

The purpose of this working paper is to stimulate debate and encourage a kōrero about our oceans management system and the extent of reform needed. We have posed a number of questions throughout, and appreciate readers' feedback and ideas. We have flagged areas that are yet to be explored, and we welcome perspectives on those too. This paper is not about making recommendations, nor will our final report in early 2022 be doing that. We are wanting to frame an open conversation.

We are facing considerable challenges in our marine environment, and the existing system is not proving up to the task of tackling them. We need to think, not just about tinkering with what we have, but also the nature and orientation of the system as a whole. What do we want it to do, and should we reconfigure it from the ground (or the sea) up? While change is needed, it is by no means clear what form it should take. Oceans are not like climate change, where we have a clear normative end point (or at least milestones) to set our sights on. In the oceans, many things are contested.

At the root of the reform conversation are our worldviews, ethics and assumptions about what the system should be aiming for, and how we diagnose and articulate problems. Different worldviews, including te ao Māori, can give quite different answers. The normative challenge is not just about drafting a set of principles in legislation – for example, revisiting the idea of sustainable management or sustainable utilisation – it is also about the much more specific objectives we should (or should not) set, and the framework we establish to guide a pathway towards change in a way that is fair and just for people and nature.

Gone are the days where we can be content to just "manage" things. A new system needs to be strategic and both drive and pre-empt the process of change. Change – in its environmental, climatic and social manifestations – is upon us whether we like it or not. We cannot afford to treat different things as management silos. The environment is connected, and so too must be the system that controls human interactions with it. Those connections may not be so obvious when te moana is in a reasonably stable state, but they come into stark relief when things start to change.

There are also questions about how we get to a new future. To some, the status quo may be broadly appropriate, and what we need to do is focus on using what we have better. Outlaying huge amounts of time, money and resources overhauling the system requires a sound justification. We need to avoid "shuffling deck chairs on the Titanic" or, as Sir Geoffrey Palmer reminds us, simply showing something is being done in the halls of power.[1] In Chapter 5, we outlined a number of ways in which the toolkit is underutilised, and how we might reshape it, deploy it in a more integrated and coordinated way, or add new mechanisms. It is not clear that will be enough, however.

A system is framed by legislation and its purposes, its institutions and their mandates. Its success stands and falls on the ability of those things to work well together in the service of a common vision. Options need to be considered for legislative redesign and institutional change, and we have considered some of those in Chapters 6 and 7. International experience is useful in thinking about what we could do differently (and we have summarised some of this in Appendix 4), although any redesign needs to respond to our unique circumstances. In particular, the role of te Tiriti o Waitangi is central in thinking about future institutional settings, and that is a rich conversation that is evolving at pace.

Information, knowledge and science (including mātauranga Māori), and funding are also crucial, and the flow and creation of information has been considered (using fisheries as an initial focus) in Chapter 8.

In our final report we will be drawing various threads together to consider three or four overall models for what a future system *could* look like. These are intended to be tangible starting points about building blocks, not a finite list of options to be accepted or rejected wholesale.

A lot of the oceans may be out of sight and therefore out of mind for many. However, the effects of human impacts will not go away if we ignore them. If we take our oceans for granted, we may rue the day we did so.

Te moana and all that it contains are taonga, our watery backyard, and a commons both inherited from our ancestors and held in trust for future generations. What do they want? If we stop to listen, what does the voice of the ocean tell us? And how will we, as kaitiaki and stewards of our vast oceans, answer?

It is worth a deep conversation. Reforming the oceans management system is a kōrero that all New Zealanders need to be a part of.

Kia tau ngā manaakitanga a te mea ngaro
ki runga ki tēnā, ki tēnā o tātou
Kia mahea te hua mākihikihi
kia toi te kupu, toi te mana, toi te aroha, toi te Reo Māori
kia tūturu, ka whakamaua kia tīna! Tīna!
Hui e, Tāiki e!

Let the strength and life force of our ancestors
Be with each and every one of us
Freeing our path from obstruction
So that our words, spiritual power, love, and language are upheld;
Permanently fixed, established and understood!
Forward together![2]

ENDNOTES

1 Geoffrey Palmer "Law-making in New Zealand: Is there a better way?" (2014) 22 Waikato Law Review.

2 This is a traditional karakia used to close the Working Paper with the warm intention of turning to the wisdom of the past, so that our present knowledge can move us forward together. See <www.tpk.govt.nz/en/mo-te-puni-kokiri/karakia/he-karakia>.