Working Paper 2015/01

Ocean Management in New Zealand: Findings from a structured discussion

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Title *Working Paper 2015/01 – Ocean Management in New Zealand: Findings from a structured discussion*

Citation Please cite this publication as:

McGuinness Institute (2015). *Working Paper 2015/01 – Ocean Management in New Zealand: Findings from a structured discussion*. [online] Available at: www.mcguinnessinstitute.org/publications/working-papers [Accessed date].

978-1-972193-55-6 (PDF)
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Author McGuinness Institute

Research team includes James Tremlett

For further information
McGuinness Institute
Phone (04) 499 8888
Level 1A, 15 Allen Street
PO Box 24222
Wellington 6011
New Zealand
www.mcguinnessinstitute.org

Working Paper 2015/01: Ocean Management in New Zealand: Findings from a structured discussion

Author: James Tremlett

1. Purpose

In May 2014 the McGuinness Institute hosted a 'structured discussion' on ocean management. This was attended by around 60 guests, representing a broad range of scientific, governmental, industrial and environmental interest groups. The event was designed to explore the current priorities and areas of concern of New Zealand's professional 'oceans community' and to identify ways that the Institute's *One Ocean* project could best contribute to improving ocean governance. The ideas generated by attendees have proven invaluable in formulating the direction of our ongoing research, and we consider it important that a record of these discussions is made publicly available.

2. Methodology

In our conversations prior to the event, Institute staff and invited guest speakers decided that it would be useful to suggest an aspirational goal for ocean governance in New Zealand. We framed this as a deliberately generalised statement intended to generate discussion and explore ideas, rather than a definitive proposal as a basis for public policy. The suggested goal was :

A management framework that is collaborative, integrated and durable, based on a collective commitment to a healthy and productive ocean.

This aspirational statement was addressed by our three guest speakers. Bronwen Golder, Director of the Global Ocean Legacy programme of the Pew Charitable Trusts, made a critique of the current ocean management regime and concluded by emphasising the need for more collaborative and inclusive governance that acknowledges our shared aspirations for New Zealand's marine space. Ann McCrone, Marine Advocate at the World Wide Fund for Nature (WWF) New Zealand, provided a commentary on the development of our existing ocean management framework. James Palmer, Deputy Secretary, Sector Strategy, from the Ministry for the Environment (MfE), shared some of the recent initiatives from the Natural Resources Sector relating to ocean management and provided insight into future directions from a central government perspective.

Attendees were then asked to contribute written responses to three questions:

Question 1: What aspects of the current framework are working effectively towards this goal?
Question 2: What aspects of the current framework are working ineffectively towards this goal?
Question 3: What research, processes, instruments and institutions might best inspire and inform progress towards this goal?

About the author: James Tremlett is a geographer and marine ecologist and holds a BSc and BA(Hons) from the University of Auckland. The McGuinness Institute would like to thank Miranda Voke for valuable input into this paper, as well as Bronwen Golder, Ann McCrone, James Palmer and all those who attended the 27 May event.
Published 14 January 2015.
ISBN 978-1-972193-55-6 (PDF)

Attendees were asked to comment on the strengths and weaknesses of New Zealand's current ocean management framework and their perspectives as to the nature of change that is needed. These responses were written on 'sticky notes', which Institute staff collected and attached to the wall under the headings of each question. Following the discussion attendees had the chance to read the notes, and by attaching a small sticker to a particular note they could signify agreement with the thoughts and suggestions of other attendees.

Figure 1: Attendee responses following the discussion event.

Following the methodology of Lichtman (2013) and Hay (2005), responses to the scoping questions were categorised according to a number of recurring themes. The database of responses to each question was read through by Institute staff, and the major topics of response were recorded. Each response was then categorised under the one theme that was judged to best reflect its content. We compared the frequency of themes for each question to arrive at a rough approximation of the most common perspectives and priorities of respondents. These frequent themes are graphed and further discussed in the results section on the following page. The raw data containing all responses received is attached as the appendix to this working paper.

3. Limitations

There are a number of obvious limitations to the sampling and analysis processes. Although an attempt was made for the analysis and thematic classification of responses to be as rigorous as possible, the fact that some responses referred to multiple themes made this difficult. In order that each response was only classified once, judgements were made as to the theme of primary importance or highest relevance to the response as a whole. This was done on a case-by-case basis, and we recognise that some of these qualitative judgements may be contestable.

The data is subject to a number of non-sampling errors, in particular non-response errors from attendees who chose not to submit answers to particular questions. Additionally, some attendees submitted multiple

answers to the same question. Because of these limitations, we cannot claim that the responses received are necessarily representative of the opinions of those present at the discussion. Although an honest attempt was made to ensure that the scoping questions were as balanced and non-leading as possible, the fact that a prepared goal was presented for comment may have introduced bias into the responses.

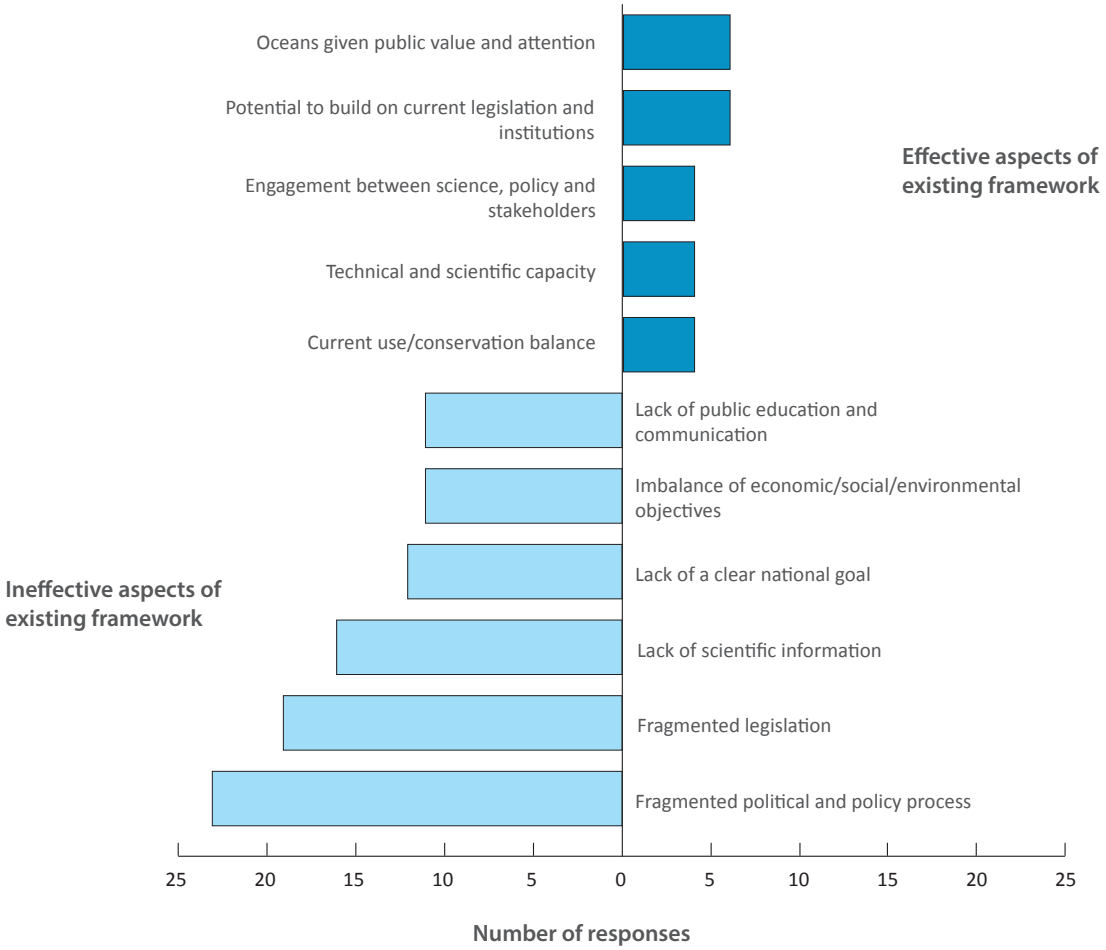
We also acknowledge that the range of groups present at this discussion was not all-inclusive and that these responses represent a very general survey of New Zealand's professional 'oceans community' rather than a comprehensive series of research interviews. However, the findings from this event have indicated a general direction in which our system of ocean management could be taken and in doing so have raised a number of fundamental issues to be resolved to achieve meaningful change.

4. Results

Question 1: What aspects of the current framework are working effectively towards this goal?
Aspirational Goal: *A management framework that is collaborative, integrated and durable, based on a collective commitment to a healthy and productive ocean.*

Five major themes were identified. There were far fewer responses to this first question (n = 34) than to those that followed. The most common responses related to the significance that many New Zealanders place on the ocean, with one respondent explaining that 'regardless of level of knowledge or experience many New Zealanders want to engage in the use and future value of our oceans'.

Figure 2: Aspects of New Zealand's existing ocean governance considered by discussion attendees to be working effectively or ineffectively.



The other common theme related to the potential for existing legislation such as the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ Act) to develop into the basis of more comprehensive governance; one comment, for instance, referred to the EEZ Act as 'one limb of a regime that could include marine protection'. The frequency of occurrence of these themes is plotted in Figure 2 above, in comparison with those aspects considered to be ineffective.

Question 2: What aspects of the current framework are working ineffectively towards this goal?
Aspirational Goal: *A management framework that is collaborative, integrated and durable, based on a collective commitment to a healthy and productive ocean.*

Six major themes were identified. A wide range of ineffective aspects of the current framework were identified in response to this second question (n = 139). The most common responses are also represented in Figure 2 (page 3). The primary theme of responses related to the fragmentation of legislation and policy into sector-based interests and the siloing of management responsibilities amongst government departments. Many attendees considered there to be no 'mechanism for collaborative approaches', resulting in 'adversarial approaches to oceans issues'. One response summed up many of the comments in this category by stating that 'Government agencies have a narrow focus, none is willing to take leadership of ocean management, fragmented responsibility'.

A lack of baseline scientific information and the perceived lack of financial and institutional resources necessary in order to undertake such research were also highlighted as major problems. A key response posed the question, 'How can we know how effective we are when the data is so fragmented and the agencies and industries cannot really share information?' Attendees also identified the absence of a clear, nationally relevant goal or aspiration for New Zealand's marine environment and an inappropriate balance (or lack of balance) between current economic, social and environmental objectives in our marine space.

Question 3: What research, processes, instruments and institutions might best inspire and inform progress towards this goal?
Aspirational Goal: *A management framework that is collaborative, integrated and durable, based on a collective commitment to a healthy and productive ocean.*

Six major themes were identified. The third question had a very broad scope and received a large number of diverse suggestions (n = 132). The most frequent responses are graphed in Figure 3 (see overleaf), with a key indicating which themes are best classified as relating to research, processes, instruments and institutions. Interestingly, the most common theme related to the need for a process of public education and engagement around oceans issues. There was an emphasis on both the need to raise 'general public consciousness ... and ownership of the decisions and objectives' relating to the ocean and the idea that this could be done by encouraging public 'understanding [of] the indivisibility of the health of the environment, and the health of society, of individuals'. Some respondents took this further, stressing that education should be 'not just for the public ... but for industry and policy-makers'.

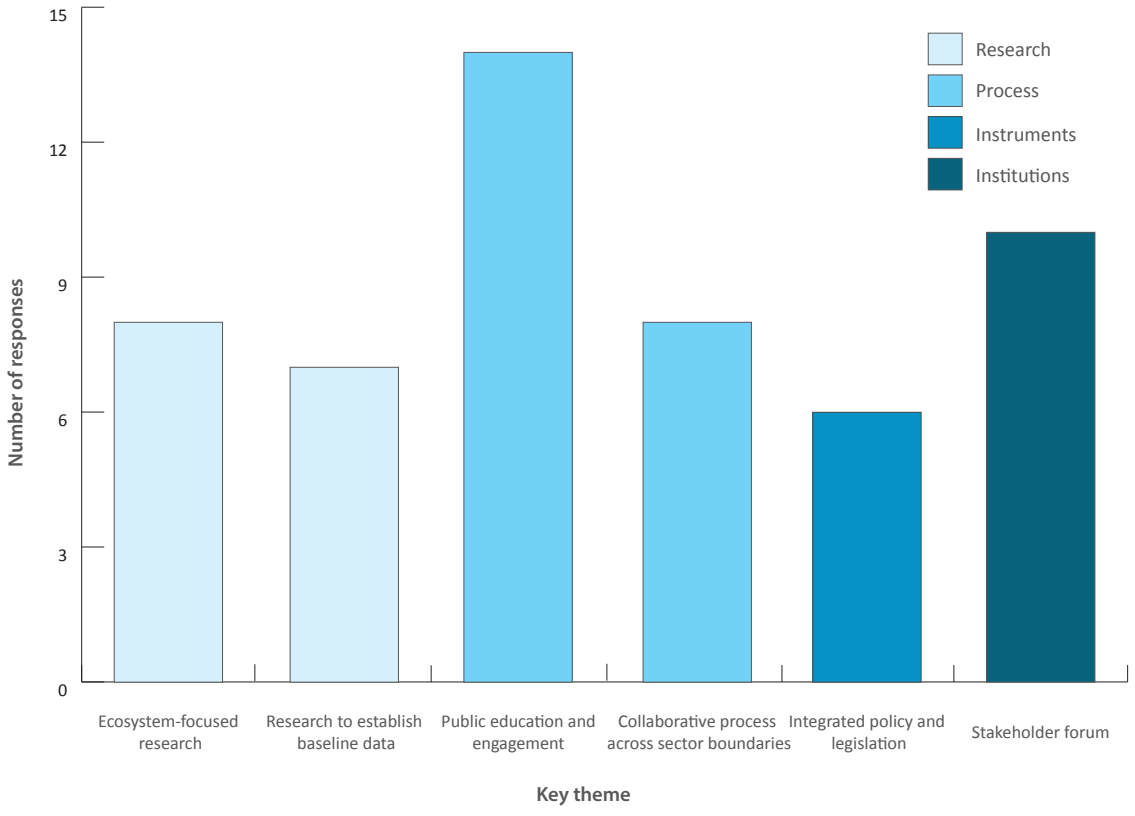
Respondents also identified the need for a collaborative, integrated system of governance that cuts across sectoral interests. This was stated in different ways. Some comments referred in a very broad sense to 'an ocean policy framework that integrates 'conflicting' legislation to deliver better conservation and economic outcomes' while others had a more specific call for 'marine protection legislation that has a graduated approach to protection, and works in an integrated way with the Fisheries Act'. Many responses had a general recognition of the need to 'place questions in a wider social context; science and policy do not exist in a vacuum'.

Attendees specified that ocean management should be grounded in an overarching ecosystem approach to scientific research, with 'recognition that an ecosystem approach is made up of many smaller parts, and specific research needs to be small scale but structured to build up the jigsaw puzzle'. Numerous comments also mentioned that this approach should include bottom lines for a range of biophysical indicators in the marine environment.

Although there were a number of proposals relating to institutional change that could improve ocean governance, the most common suggestion was a stakeholder forum modelled on the Land and Water Forum. One comment envisaged that this would be 'like the Land and Water Forum with a secretariat to structure engagement and develop objectives and actions to achieve them'. Another respondent described the potential of such a forum as follows:

> *One of the best ways towards collaboration is getting all the interested parties (scientists, industry, NGO's, government) in the same room to discuss the issues. The challenge is then to move the discussion towards an agreement on knowledge gaps, user conflicts, shared interests and requirements. Disseminating this agreement into recommendations that can be used to make real change and be discussed by the broader public to ensure what is agreed reflects what the public wants.*

Figure 3: Research, processes, instruments and institutions considered most important by attendees for progressing towards more desirable ocean management.



5. Conclusions

Despite the diversity of attendees, there was a surprising unity of opinion on a number of topics, as shown in the figures and results above. Significantly, we found these areas of agreement to be very similar to those reported in other recent studies. The Marine Futures research programme led by NIWA, for instance,

has facilitated a series of workshops with the similar aim of identifying research and policy priorities for ocean management and has identified five critical themes[1] to form the basis of future work in this area. Whilst this study was far more rigorous and comprehensive than our single discussion event, there is a broad correlation between their conclusions and our own (NIWA, 2014).

Likewise, many of our respondents submitted similar views to those stated in the interviews undertaken several years ago by McGinnis (2012). Like these previous studies, many attendees expressed a sense of frustration to us that despite ongoing surveys, interviews and discussions on the kind of changes needed in New Zealand's ocean governance, very little progress has been made. The reasons for this policy inertia are further explored in a report to be published by the Institute in late March 2015.

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1 Theme 1: Enhancing knowledge about the conditions under which sudden, disruptive and substantive undesirable changes are likely to occur and the potential implications of such changes for New Zealand communities and marine environments, i.e. socio-ecological knowledge of tipping points and the development of our preparedness capability.
Theme 2: Developing methodologies to reveal the complex and cumulative effects of change in marine systems, defining how and why these trajectories vary and their implications for resource use, stewardship and restoration in systems of different ecological health.
Theme 3: Assessing potential solutions to management issues that balance long-term and short-term benefits and encompass sophisticated understandings of social and environmental change to define future trajectories based on societal engagement in decision-making.
Theme 4: Establishing effective and appropriately resourced institutional networks for monitoring marine environments and foster solution-focused marine science encompassing local, regional, national and international scales.
Theme 5: Establishing effective solutions-focused institutions for translating diverse scientific and social-scientific knowledge into innovative regulatory and social and economic practice that enhances the value society places on the marine environment in resource use and conservation (NIWA, 2014).

Appendix 1: Attendee responses to scoping question from a structured discussion on ocean management held at the McGuinness Institute, 27 May 2014.

All responses have been transcribed directly from handwritten notes received during the structured discussion. Spelling has been corrected where necessary, but italics, capitals and underlining used for emphasis have been retained as written.

Question 1: What aspects of the current framework are working effectively towards this goal?

Goal: A management framework that is collaborative, integrated and durable, based on a collective commitment to a healthy and productive ocean.

Response
Scientists, stakeholders and policy-makers do engage on a number of levels.
Public interest: regardless of level of knowledge or experience many New Zealanders want to engage in the use and future value of our oceans. Drives funding, privatisation and personal investment.
At least there is dialogue between stakeholders – the EEZ enables this?
Renewed interest in marine issues from agencies and others which could lead to a more unified approach.
We have a new EEZ law – let's give it a try. It is one limb of a regime that could include marine protection (we need a Bill). There is a distinction between inshore, where there are competing demands for space, and offshore where there are not (except fisheries).
We have a Sustainable Seas National Science Challenge – that has potential.
Frustrations arising from first crack (EEZ Act) are heightening NZ attention to the issue.
We have a national culture and an economic climate that set an incredibly fertile ground (and in fact more and more demand) that enable a revolutionary and awesome solution. Plus, we are small enough to pull it off. Think of the anti-nuclear stance and our nation's appetite for it.
Able to make decisions, on activity by activity basis, that weigh up environmental, economic, social and cultural impacts.
Move away from single species focus to EBM.
Dataversity – NIWA collating data. 'NZ Biodiversity Stack'. Data maturity investigations.
Oceans Policy discussion in 1998??
Research funding is much more multidisciplinary than it was 10 years ago. So the BOTTOM UP forces are becoming more integrated.
Increasing recognition of growing competition in the oceans space and a growing number of groups thinking about the future of that space.
Lack of national direction spawning local/regional marine management initiatives is working well!
Some controls on use; some controls for conservation BUT the two are not connected.
We have powerful pieces of existing legislation e.g. RMA, EEZ Act, etc. as a basis already.
Already have a smart scientific community in NZ.
Democratic process – stakeholders get a say.
Commercialisation/use of natural resources as part of management – cannot leave everything untouched.

Response
Some science peer review processes that have been running for ages within gov. to ensure robust science (Fishery Assessment Working Group).
Clear accountability in some circumstances that provide the correct long-term incentives for conservation e.g. quota management system ensures quota owners have incentives to manage for longer term.
'Environment' now has a place in the framework (EEZ Act) – it's a start.
The government are aware of the issues and are taking steps to address them.
Quota Management System, growing industry collaboration, NGO and industry engagement.
Some steps towards valuing resources and strengthening institutional processes to enable next steps – not enough but could be built on e.g. partnering with volunteers in DoC work – local and central collaborations.
Recognition in Fisheries Act of the need for sustainable ecosystem-based fisheries, and use of precautionary principle.
Recognition that we need to move from adversarial stances to consensual goals and approaches.
Education of the younger generation concerning the need for wise, informed stewardship of natural environment.
Some progress with the EEZ legislation.
Keen and knowledgeable people care about the oceans – but nowhere for their energy to go!
Very little. The goal needs more explicitly to have biophysical limits. 'Productive' in which terms?
RMA and District Plans have potential to affect land-based (sediment and chemical/elemental run-off, e.g. from industry) considerably, with more certainty than currently exists. Perhaps needs overview bodies to input consistent and science-based (or policy-based) national direction.
QMS as an overall framework at large scale, but doesn't work at local level. Underpins sustainability and stewardship.

Question 2: What aspects of the current framework are working ineffectively towards this goal?

Goal: A management framework that is collaborative, integrated and durable, based on a collective commitment to a healthy and productive ocean.

Response
Devolving/avoiding central government responsibilities e.g. to councils, and being unable to progress [on] tough issues.
Allowing the use of the ocean for economic gain by relatively few.
The model of 'assets' omits the system linkages.
What about 'stability' instead of durability?
Unable to make strategic protection/use decisions across activities.
Lack of joined up framework – decisions on activity-by-activity basis. Lack of planning – decision by decision.
Uncertainty. Lack of information.
Adversarial ≠ collaboration.
Don't know the sum of individual decisions, may not lead to healthy and productive ocean.
How can we know how effective we are when the data is so fragmented and the agencies and industries cannot really share information? Ineffective: Lack of data; Lack of sharing data; Problems collecting data; Difficulty remembering what the marine env. was before – generational amnesia; Lack of community data.
Non-market values are barely recognised in the EEZ and CS Act. Intrinsic values not recognised. Not effective at giving recognition even to non-extractive values, let alone intrinsic values.
Lack of 'public good' science.
No provision for marine spatial and ecosystem based management – vestigial in EEZ Act but no operational provision.
The overarching public policy goal for economic growth omits both the concepts of limits and a full understanding of well-being both of the ecosystem and the human well-being.
EEZ and CSA is designed for policy instability.
Disjointed policy across Ministry and Departments.
Mapping the oceans and identifying sensitive environments and resources, i.e. informal policy, there is no commitment to spending money to find out more about the oceans.
There is no framework – many different Acts/legislation.
Adversarial process to get outcomes.
Public debates in media are generally sensationalised.
Different management regimes have different purpose and therefore goals. No common public goals – fishing quotas etc.
Public opinion is polarised to the point of prejudice regarding deep sea resource exploitation. The framework needs to bring the 'extreme' views together in public forum to dispel myths on deep sea exploitation and other issues.
There also needs to be better media engagement, in particular by scientists, to facilitate a balanced and informed discussion.

Response
Lack of cohesion across too many different pieces of legislation.
QMS not efficient enough.
Too much bottom-up process for conservation results in delays.
Imbalance of say or clout of some industries against others or different sectors.
No clear leadership from government.
Insufficient funding for research.
There is no integrated framework, i.e. multiple or non-connected pieces of legislation and policy, not all of which deal with all elements of use and protection.
All sectors of society (communities, Māori, industry etc) value the marine environment but not all sectors have a voice and not all are informed about the issues.
Different government/management agencies have very different goals and objectives.
There is a mismatch between bottom-up and top-down elements. They are on different pages as the processes are separate to a large extent.
Too many pieces of legislation that overlap (or not) and make it hard to achieve goals e.g. managing protected species falling under fishing act.
Disjointed marine reserves that do not form a coherent network that will effectively mitigate climate change or other perspectives.
Lack of a 'centralised' surveillance programme that central and local govt own and that accurately informs us of our current and emerging issues.
Collaboration ≠ compromise.
More funding for research.
The EEZ is a missed opportunity.
Educative initiatives about ocean management.
Too much talking/ranting.
Emphasis on blue-sky research by funding agencies.
Speaking in an accessible language about these things.
Measurement and monitoring.
WHO is missing from this conversation? Framing as a management issue can alienate voices who are missing but have a stake e.g. young voices, who have this future the longest.
Ad hoc legislation without overarching goal over all pieces.
Information gathering: what resources are in the ocean; the environment in the ocean; measurement and monitoring. Inadequate info means lack of understanding, means inadequate decisions.
Government agencies have a narrow focus, none is willing to take leadership of ocean management, fragmented responsibility.
Everyone is aware of the impact of uncertainty on ocean management, but there is no recognition of the importance of reducing uncertainty.
Doing anything in the ocean is expensive, there is no commitment to investing in knowledge to improve management outcomes, need baseline date.

Response
The framework is Byzantine in its complexity. Until it is better defined its effectiveness cannot be judged.
A lack of information and knowledge of the 'actual' issues versus perceived impacts on ecological/ natural ecosystems.
Lack of collective working together in central and local government and lack of common understanding between management agencies.
Lack of baseline data on species diversity throughout NZ.
Lack of understanding of the importance and significance marine pests pose to the environment.
Need to strengthen relationship between sectors: science, NGOs, Govt; and create space for the forums to share information and get public opinion to inform policy.
Many policy shapers have a shocking dearth of actual evidence. Ministers have an alarming lack of info, or WILL r.e. environment and social issues.
Not enough consideration of human dimensions of management (e.g. consider fishers not just fish).
Having to assign value to natural resources – cannot recognise intrinsic value that does not and cannot have price.
Quota Management System.
Lack of acknowledgement of the need to know the limits of natural resources when working to meet the human needs.
Disconnect between management/conservation of different parts of our ocean (i.e. fisheries protected areas not recognised in EEZ Act).
Lack of 'baseline information' collected independently and consistently.
Some ministerial decisions should be removed to reduce impact of 'political plans' from science based decisions.
Communication with public on ocean policy.
Not joined up.
No joined-up thinking.
No durability.
There is no framework. There is no oceans policy.
NZ polarised: no mechanism to find common ground. No collective discussion
No common good investment in knowledge needs.
Polarising legislation and regulation. Currently insufficient recognition of, or incentives for, collaboration or integration – including govt silos. Us vs them, use vs conservation, action vs precaution: until legislation removes these, we won't change.
We are somewhat working in the dark – in a knowledge vacuum. There is much we don't know about the physics and chemistry of the ocean – much less about biodiversity (especially in water column at depth) and even less about ecological interactions in relation to non-living processes. Hence we need more knowledge, knowledge, knowledge.
We have current insanity in legislation making it costly and difficult to collect marine life in EEZ and bring it ashore. This should NOT be regarded as importation!

Response
There is no comprehensive framework for natural resources management (as it relates BOTH to use and conservation). The existing 'silos' are ineffective too – cumulative effects raised by James [Palmer].
Lack of political leadership to encourage an integrated framework.
Not having a mechanism for collaborative approaches in the policy framework.
Fragmented legislative and agency response. They do it better overseas.
EEZ legislation not useful for strategic management of the oceans.
Adversarial approaches to oceans issues.
Disjointedness between scales of management and ecological processes.
Cross-sector conflicts.
Lack of collaboration between management agencies.
Lack of baseline info: habitat maps, stock-takes, species distributions/abundances.
So many Crown agencies administering so much different legislation = non-integrated.
Fragmentation of laws.
Environmental education teaches fragments not the whole picture and interconnections and social as well as environmental and cultural implications.
Lack of integration between terrestrial framework decisions and implications for ocean.
Cumulative effects only when at point that breaks the camel's back – need precautionary approach.
Lack of monitoring.
Lack of public understanding.
Lack of agreed, prioritised and measured environmental baselines for marine/ocean environment.
Quota management system ineffective.
Need to integrate natural biodiversity use more effectively.
'Language' such as protection is limiting.
Preparing (and creating policy for) climate change/ocean acidification – is policy 'durable' in this context? Adaptive management.
Need monitoring and measurement (research investment) so that we can measure changes.
EEZ is missed opportunity.
Quota management, especially in regards to Ross Sea.
Land-based water management and flow-on effects to marine environment.
Governments, and especially the current one, work to exclude voices of those who can rationally argue alternatives and other solutions. This government also discredits and denigrates international expertise and research that conflicts with their ideology.
Education and public sharing and discussion of knowledge to create a collaborative (and agreed = durable) robust framework for management as well as or including 'hands-off' oceanic wilderness areas.
Oceans less visible than on-land conservation areas?

Response
No ‘whole of govt’ approach and no proactivity, only compliance. Current ‘framework’ is siloed between govt agencies and policies so extraction and dredging (mining/drilling etc) not considered in healthy oceans policy.
Research is considered as largely finished – policy makers want models and solutions before system completely understood.
The current government’s economic policy goals trumping environmental protection and climate change considerations, i.e. encouraging coal mining and oil drilling activities.
New Zealand govt inviting overseas companies to exploit our natural resources.
A compromise is needed but environmental groups and govt don’t seem willing to compromise.
No overall objective for oceans and oceans management.
Lack of effective integration between many Acts and ongoing ring-fencing of fisheries (inside the Fisheries Act) whereas other acts often need to consent/concur etc with the Fisheries Act.
Burden on councils to make many high-calibre difficult decisions with inadequate resourcing/ expertise and lack of clear national direction.
Competing objectives within acts and amongst/between acts.
Complete void re. effective communication and awareness within and between organisations and with the public.
Industry and partners are at the table (they see the value of the resource) but there is no driving force/mandate/collective will.
Lack of clarity on how the framework works and its content.
Politicised.
Lack of industry input into govt investment of levies.
Lack of precaution.
Lack of limits.
Lack of protection.
Lack of recognition of climate change and ocean acidification.
Lack of certainty for the environment.
Poor public participation and engagement of fisheries and EEZ legislation.
Failure of a poorly concerned EPA.
The BPAs were wrongly constructed, and should be abolished.
We need a marine protection Bill to complement the EEZ law.
The regimes should be horses for courses: matched to the nature, magnitude, spatial scale and duration of effects.
Zoning is for ‘thick’ issues, where there are competing demands: e.g. fisheries. Case-by-case for ‘thin’ issues: e.g. minerals, oil/gas.
Better understanding and education needed.
Inadequate mechanisms for cumulative changes. Poor mechanisms for adaptation.
No guidance on allocation of share of externalities from decisions under different statutes.

Response
Inadequate definition or acceptance of responsibility for performance.
Lack of value mapping, mapping ecosystem values, economic and social values. This hampers understanding and improving decisions for trade-offs.
Local depletion.
Too many statutes.
The conversation about a shared goal for our ocean space has not gained traction.
Understanding and recognising and measuring the value of the ocean for all.
Institutions: None at present really do a good job because they don't often think and act beyond concerns about their bottom line.
Challenge is information sharing and short-term political carry on affecting long-term decision-making.

Question 3: What research, processes, instruments and institutions might best inspire and inform progress towards this goal?

Goal: A management framework that is collaborative, integrated and durable, based on a collective commitment to a healthy and productive ocean.

Response
Marine GIS shared across NRS.
Ecosystem services valuation.
Institutional structure is more competitive than collaborative, and hence need larger and more integrated science programmes.
Recognition that an ecosystem approach is made up of many smaller parts, and specific research needs to be small scale but structured to build up the jigsaw puzzle.
Need high technology tools (e.g. AUV, ROV) to do adequate research in the deep sea.
Mapping of habitat and species: need to know what we have and where it is to be able to manage it.
Baselines – physical, chemical and biological.
Reduce institutional competition and increase collaboration for the national benefit.
Increase student training opportunities.
Reconciliation of mismatches between scales of management and ecological processes.
Don't necessarily need to know everything, as so vast and costly – rather targeted info needed on priority areas.
Research for: SEEING – visualisation, ROVs, cameras, etc at all depths and systems; HEARING – acoustics etc; TOUCHING – collecting living and non-living samples at all depths and systems.
In situ experiments and measurements of marine living and non-living organisms/processes and interactions between them: what lives in the sea, where does it live, how does it live? Let's be informed.
Developing new technologies to sustainably harvest ocean resources at lower costs.
Research to achieve the goal needs to be done by institutions who have a demonstrable record of doing high quality objective science, i.e. Sustainable Seas National Science Challenge.
We should support the National Science Challenge 'Sustainable Seas'.
We need to quantify the provisioning of ecosystem services by natural capital in order to manage both capital and the services we derive from it.
Question what are the limits of this project? Southern Ocean? Interesting with idea of borders/ borderless.
Research best contributes when it targets policy objectives and need. Research should largely follow/be focused on addressing knowledge gaps supporting a goal.
Research into measuring value and life cycle of natural resources with different scenarios e.g. under current direction Orange Roughy below replaceable numbers in 30–40 years.

Response
Research into the ocean environment is sorely lacking. It is often said that we know more about the surface of other planets than we do about our own ocean floor. NZ, through lack of investment in science infrastructure (e.g. there are no submersible vehicles 'ROVs' in NZ), is relying on other countries to do this work (e.g. NSF in USA; Kiel, Germany; JAMSTEC, Japan). Collaboration is important for addressing the 'one ocean' agenda, but if research is driven by foreign resources, it will be tailored to foreign interests.
Marine research is both slow, and expensive. Long-term infrastructural support (e.g. ships, ROVs etc) is required.
Public good research available to NGOs and civil society. New science processes, provision. Public good research in the sense of non-rival and non-excludable and hence unfunded research.
Government agencies (e.g. MPI) need to 'research' science and social science aspects. Or even not research but give greater consideration to the social science aspects when decision-making.
Funding research – If there is a lack of information, the level and mechanisms for funding needs to be renewed.
Forward mapping of likely proposed economic activity in the marine environment and likely effects on ecosystems at a high level.
Information-sharing: marine environmental research is expensive but very valuable.
A stocktake process of ecosystem and biodiversity values, economic values, social values around coast and EEZ.
GIS mapping. Identify key areas and trade-offs.
Linked-up oceans research. Environmental bottom lines accepted – based on research.
We need to know what is out there to be able to make decisions based on actual knowledge.
Greater understanding of land-based impacts on the sea (nutrients, sediment).
Monitoring. ID of sensitive environments.
Real time monitoring of ocean floors, fauna, flora, sea life – have available on web.
Moving towards ecosystem-based fisheries management. Managing for ecosystem resilience and production (natural capital) – blanket rights to fish.
Open forums; frameworks for discussion; research funding (open not constrained).
Have a process to seriously monitor our processes and progresses and internal reporting of our international agreements – from CBD agreements and negotiations to positions NZ has ACTUALLY taken in global forums.
Crown-funded long-term ecological research programme that is publicly available online (we don't have private funding like other countries, we need govt lead).
'Kickstarter'-like online process that connects 'social' with 'science', similar to 'petrie-dish' in the US. But for the ocean space – to help fund small projects, possibly met with funding from Crown? (Petrie-dish is an online crowd-funding platform to raise $ for health research in US and has now developed to fund wider projects).
Integrating stakeholders to a common goal of sustainable resource use.
Share international expertise by hosting research symposium/conference/project activities to engender takeup by NZers … Talking up our role helps with political and public adoption. IPS/IGPS good at this.

Response
Stakeholder-based: based on trust, respect, credibility, relationships to create shared objectives, and a political mandate.
Progressing lessons already learnt.
Requires integration of research/progress/instruments and institutions.
Need more long-term clarity in science priorities to create a forward looking research community. With this need more security of funding (beyond term of a government).
We need a political champion to drive integration/national policy. Oceans needs to be promoted an area for prioritisation by government. A Minister for the Oceans?
Shift in management approach: shift from biological focus to biological and social focus → ecosystem approach.
LAWF seemed productive. Perhaps a similar forum could be adopted.
The Dataversity Group is already bringing as many groups (MPI, NIWA, DOC, RCs, DCs) together as possible to set data standards, and create a 'Biodiversity Stack' – standardised data and metadata.
Place questions in a wider social context; science and policy do not exist in a vacuum. Get rid of vs in many regards, including social vs science. Bring social scientists and humanities thinkers into debate and add FLEXIBILITY.
Engagement of all New Zealanders and Māori in particular.
A public conversation needed – create a space for a shift in thinking.
Don't reinvent the wheel – we had a RM Act process that came up with a durable system yet now it's being dismantled.
To be collaborative etc … The historical data needs to be incorporated. Social and biodiv.
1) Stocktake of what we know about the oceans. 2) Decide what we need to know to manage the oceans. 3) Commit to oceans research = more $.
One of the best ways towards collaboration is getting all the interested parties (scientists, industry, NGOs, government) in the same room to discuss the issues. The challenge is then to move the discussion towards an agreement on knowledge gaps, user conflicts, shared interests and requirements. Disseminating this agreement into recommendations that can be used to make real change and be discussed by the broader public to ensure what is agreed reflects what the public wants.
Learn from past public policy (e.g. Mike McGinnis).
Use research by Mike McGinnis and his Oceans Policy and Oceans Governance Policy research work. And other previous research e.g. IPS – Institute of Policy Studies at Victoria University.
Processes to allow inter-agency collaboration and understanding. Inter-agency information sharing and information sharing between industry and government.
Need to inform all sectors of society about the issues around use of marine resources, e.g. few people know that petroleum is used for more than 6000 products used in everyday life (petrol uses <50% of the oil we use); marine reserves encourage public use, which has negative impacts on biodiversity.
Societal education is essential. We know a lot about the oceans but society doesn't know it.
Process of coastal planning and EEZ planning to give effect.
LAWF was a process that excluded lots of people and organisms.

Response
Public discussion. Interaction with media: raising general public consciousness and engagement and ownership of the decisions and objectives.
'Belief-based vs. evidence-based' → everything else follows from this.
Education: looking wider, think about things in a more global way: our actions affect the WORLD. Make our young people AWARE of this global way of thinking, not an insular regional, small town way of looking. If something is far away and OTHER, they have no reason to care or act.
Understanding what processes inform our actions, and the will to 'conserve' → value systems.
Need to influence society's values and learn default position of assuming the public does have potential to understand issues and act responsibly.
Start on the bottom with Environmental Education Residents' groups identifying indicators for a healthy ocean and work up.
Investigation into market-based instruments in EEZ, and investigation into property rights in territorial sea as a way to use the market to overcome the 'central planning' issues of government/ direction.
Working with industry in positive collaborative way (shared funding, technology and skills) for mutually agreed goals the integrate use (extraction) and sustainability. Can't ignore cultural and moral/ethical considerations = managing humans to manage the environment.
Creating a public vision of a desirable ocean. Storytelling.
Real conversations that are then listened to and taken notice of. These conversations need to be visible. Need a way of meaningfully linking research and politics. Either a place or maybe a space for conversations.
We must create a new mindset and cultures that prohibit a 'vs' process. Changes are needed at every level, but until the inherent disparity is no longer enabled, change won't occur.
Value=more than price tag (intrinsic value linked to wilderness value). The whole conversation is about what do we as a collective see as important? (economics, science, ecosystems etc.)
Accept change in values and the physical environment over time but have an agreed framework.
Greatest opportunity for innovation is in our 'framework' – regulators, legislation, policy.
Marine protection legislation that has a graduated approach to protection, and works in an integrated way with the Fisheries Act.
Common Ocean Policy and legislation (incorporate all the different policies and acts – Fisheries Act, EEZ Act, Continental Shelf Act etc).
Open access to data.
Legislation/tools to consider protection AND use.
An Oceans Strategy!
A value system for ocean ecosystems.
National objective/goal for oceans management.
A true cost-benefit approach which does not only take into account economic costs and benefits but also social and environmental effects and future and cumulative effects.
Government required to act on recommendations of govt departments – not ignore them.
Integrate stewardship as a KPI of every public servant as well as CEOs.
Legacy data retrieval. Digital libraries → analysis.

Response
Education (not just for the public!) but for industry and policy-makers.
Share info, accessible resource delivery to communicate model: Global Education Network.
Ministerial accountability and responsibility.
Co-partnership with Māori.
A national-scale marine spatial planning system that shares info between and with NZ orgs, informs policy, guides research.
Public education ('Spirit level' stuff) around understanding the indivisibility of the health of the environment, and the health of society, of individuals.
Utopian vision of not legislating for protection/goal. Legislation requires right/wrong.
An ocean policy framework that integrates 'conflicting' legislation to deliver better conservation and economic outcomes.
Start at the top with the CBD and the Nagoya Targets. Educate minsters independent of the public service.
Train Environment Commissioners/Judges in ocean ecology before they make it to terrestrial consenting.
CCAMLR: what can be learnt from ANTARCTIC model? Take a look at this system with a number of stakeholders to see what has worked and what hasn't.
Social media for grassroots to let people know more about oceans and the issues we face.
Science communication: effectively getting across latest research re: state of the environment and ocean to public. People need to know why this is important. You 'listen' once you 'engage' with an issue, you 'engage' once you have some understanding.
Tool development – tools to effectively and efficiently respond to marine pest incursions. Value mapping of 'all' our values. Sharing information across agencies.
Much work on these things was done on all this in: 1) Sea Views Conference 1998 – multisectoral, ECO. 2) Oceans Policy, public work done in phases 1 & 2 and much agreement was done and means developed. 3) Michael McGinnis's paper on Oceans Policy – canvasses much of this: Spatial planning 'compatible uses', Public Trust.
Australian Environment Protection and Biodiversity Conservation Act. Developing Oceans Policy. Oceans Policy Panel Report from 2002. MFE et al Oceans work in 2003–2004 Phase 2 – Ocean Policy. Seaview Conference 1998 Report. Mike McGinnis Report.
Wise response reporting ideas with Government Officer like Parliamentary Commissioner for the Environment to do State of the Nation reporting. Resource monitoring and measuring via other agencies e.g. fishing ship observances could be expanded and resourced.
Legislate with environmental bottom lines. Open-minded processes led by independent organisations. We should build on consensus on environmental bottom line and not go back to zero.
We need a marine protection law: that is adjusted to the values present; and to the effect of the activities being carried out.
Get rid of the Kermadecs moratorium to incentivise private sector funding of research.
Give the EEZ law a try.
Spatial planning where there are competing demands. Case-by-case for other situations.
Curriculum in schools.

Response
Instruments that recognise investment and enable trading so that changes can occur in response to improved understanding of opportunities and threats to the ecosystems.
There is no one party offering 'one oceans' goal that would enable the public to 'speak' and hence government would act towards this 'goal'. Make people buy into the ocean – buy/sell shares?
A world year with no fish eaten.
Use of Marine Spatial Planning.
More joined up across responsibilities, joint decision-making.
Need a forum with resources, e.g. like the Land and Water Forum with a secretariat to structure engagement and develop objectives and actions to achieve them.
An Oceans Ministry – integrating/managing all oceans usage including protection.
Institution for education/resource development and communications on oceans and other environmental commons for schools/education institutes etc.
A marine/oceans forum to work like the land and water forum.
Governance is a major issue. Marine Research Council. Valuation of public views. Dept or Min of Oceans.
An independent NZ body responsible for representing the wellbeing of future generations.
A collective institution that reflects our one ocean and our collective investment in it … In failing that, and recognising the reactionary space that we work in, BUILD DEMAND. Let those that are integral to our one ocean know the story, the value, the issues, the history and what is NOT HAPPENING, and encourage action.
A marine forum (that all participate in) to develop a common goal for marine space.
The NRS, but needs to be empowered.
From what I have heard today we need some sort of brand new model that brings all entities together to enable a dialogue. A brand new institution that starts with a 'listening' process, initiates an informed research process, and culminates in an informed policy/legislation. Development – that sets up a framework which is as revolutionary as the RMA was!!
Oceans Ministry – to lead and coordinate, reduce duplication, provide focus, communication.
Institutions already exist – Govt, Industry, NGOs, Research.

MCGUINNESS INSTITUTE
TE HONONGA WAKA