OceanWatch Australia Marine NRM

NATIONAL MARINE

NATURAL RESOURCE MANAGEMENT PLAN

2017-2022

DRAFT RELEASE - for comment

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or

NRM Plan comments

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Acknowledgement of land and sea country

OceanWatch Australia respectfully acknowledges the Indigenous people on whose Land and Sea Country this Plan applies, pays its respects to Elders past and present, while recognising their important role as custodians of cultural and ecological knowledge for the benefit of all Australians.

Chair's foreword

OceanWatch Australia has been protecting biodiversity and threatened species for the benefit of the Australian marine environment since 1989. With the adoption of best practices for fishing and aquaculture, the encouragement of stewardship actions amongst coastal and marine users, and undertaking works to protect, rehabilitate, restore and enhance the marine environment as our core focus, we now embark upon our new role as Australia's Marine Natural Resource Management organisation.

At OceanWatch we believe that if you fish in it, play in it, eat from it, or just love it – a healthy marine environment matters to you. Our challenge is to convert peoples' love for the marine environment into stewardship actions, and together ensure a healthy and productive marine environment both now and into the future.

We hope you will join us on this journey, and make your actions count.

Geoff Blackburn
Chair, OceanWatch Australia

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ABOUT THIS PLAN

OceanWatch Australia Ltd (OceanWatch) is a not-for-profit company limited by guarantee, listed on the Register of Environmental Organisations (REO)[1].

In 2014 the Australian Government recognised OceanWatch as the national organisation responsible for the delivery of its marine Natural Resource Management (NRM) related programs.[2]

This National Marine Natural Resource Management Plan 2017-2022 (Marine NRM Plan or Plan depending on context) has been developed by OceanWatch and is in two sections.

Section 1 describes the scope of marine NRM, defines a unified, national vision and guiding principles for marine NRM, details the marine NRM outcome and priority areas and enabling actions that will contribute to the achievement of the marine NRM outcome .

Section 2 identifies primary and secondary marine NRM stakeholders, describes how stakeholders were engaged in the development of this Plan, outlines the challenges for marine NRM and illustrates how this Plan aligns with other national instruments.

This Marine NRM Plan acknowledges the presence of the other 55 regional NRM organisations, each with tailored priorities and related actions published within NRM plans, strategies or similar documents. These plans have been guided by stakeholders that include local communities; primary producers; Australian, state, territory and local governments and their agencies, Indigenous organisations and other relevant non- government organisations. Regional NRM organisations and their stakeholders play a lead role in the delivery of NRM related initiatives around Australia.

In addition, OceanWatch recognises that Landcare and volunteer based community groups provide a unique approach to protecting, rehabilitating, restoring and enhancing Australia's natural environment. Through implementation of this Marine NRM Plan, OceanWatch will complement their work and build on their successes.

This Marine NRM Plan also aligns with and supplements existing regional NRM plans and Australian, state, NT and local governments' legislation and policy, and will be implemented by OceanWatch at a scale relevant to available funding.

1 Further information regarding OceanWatch is available at:
http://www.oceanwatch.org.au/wp-content/uploads/2016/01/Corporate-Plan-Publication.pdf
2 Australian Government media release 6/3/2014
http://www.richardcolbeck.com.au/clients/richard/downloads/item554/060314__joyce_colbeck_support_for_oceanwatch.pdf

DEFINITIONS

For the purposes of this Marine NRM Plan, the following definitions apply:

Australians - includes all people living either permanently or temporarily in Australia regardless of their citizenship.

Australia's saltwater community - includes the 80% of Australians who live within 50km of the coast[3]. Recreational and Indigenous customary fishers, and seafood consumers are identified as saltwater community stakeholders.

Blue economy - refers to sectors such as ports, offshore oil and gas, ecosystem services, tourism, ship building, fishing and aquaculture that bring economic and social benefits which are efficient, equitable and sustainable.[4] The Blue economy includes the flow on benefits to the wider economy.

Environmental best practice - means operating using best available knowledge and technology to protect and conserve the environment.

Ecological sustainability - the use, conservation and enhancement of the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.[5]

Healthy marine environment - ecological processes are operating to ensure stable and sustainable ecosystems, critical habitats remain intact and water quality is appropriate for the plants and animals that live in or on it, and it is safe for human activities like swimming, boating, surfing or fishing.

Indigenous people - refers to Aboriginal and Torres Strait Islander people, communities, knowledge holders and Elders.

Indigenous customary fishing - accessing and utilising seafood resources by Indigenous fishers according to custom. This includes ceremony, exchange, trade or barter and consumption.

Marine environment - areas under tidal influence to the limit of Australia's Exclusive Economic Zone.(EEZ)

Natural Resource Management (NRM) - the management of natural resources such as land, water, soil, plants and animals.

Productivity - the rate of production of new marine biomass.

[3] ttp://www.abs.gov.au/Ausstats/abs@.nsf/Previousproducts/1301.0Feature%20Article32004
[4] Marine Nation 2025 – Marine science to support Australia's Blue Economy, Ocean's Policy Science Advisory Group 2013
[5] National Strategy for Ecologically Sustainable Development, 1992 - Prepared by the Ecologically Sustainable Development Steering Committee and Endorsed by the Council of Australian Governments. December, 1992

Recreational fishing[6] - the fishing of aquatic animals (mainly fish) that do not constitute the individual's primary resource to meet basic nutritional needs and are not generally sold or otherwise traded on export, domestic or black markets.

Responsible use - legal activities which follow all prescribed laws and regulations and are ecologically sustainable. It implies respect for marine biodiversity and cultural heritage, permitted commercial activities, and the provision of social amenity for individuals and the community.

Seafood industry - people involved in activities conducted in or from Australia concerned with the commercial taking, culturing, processing, preserving, storing, transporting, marketing or selling fish or fish products. It comprises the following three sectors: commercial wild-catch, aquaculture and post-harvest.

Stakeholder Engagement - any activity that informs, consults, involves, collaborates or empowers marine NRM stakeholders relevant to stewardship of the marine environment

Stewardship - the responsible use and protection of the natural environment through conservation and sustainable practices.

[6] UNFAO Technical Guidelines for Responsible Fisheries. No. 13. Rome, FAO. 2012.

SECTION ONE

MARINE NRM SCOPE

Australia's marine domain is approximately double the Australian Landmass at 13.6 million square kilometres, and is central to the national identity and economy. Australians derive significant socio economic and cultural wealth from marine environmental assets. While for practical purposes the management of the marine environment rests with the Australian, state and NT governments, it remains a community owned asset and ultimate responsibility for its stewardship lies with the community.

The extensive length of Australia's continental coastline (36,000 kilometres, 7th longest globally) spanning 35 degrees of latitude creates great diversity in habitat, and species. Shorelines include coral reefs, temperate rocky and sandy shores, more than 900 estuaries, 10,000 sandy beaches, and 8,000 diverse islands.[7] These marine, estuarine and associated terrestrial ecosystems provide habitat for a diverse range of species – about 4,500 finfish species, and perhaps tens of thousands of invertebrate species.

Despite its size, Australian marine waters are nutrient poor by global comparisons due to the dominance of the two southern flowing currents of warm tropical waters. Consequently Australia's marine fisheries rank 52nd in global tonnage terms (0.2 per cent of tonnage landed), but are relatively high in value (2 per cent of landed value).[8]

Marine ecosystems are highly connected across geographical catchments, with many species utilising a variety of wetland, estuarine and marine habitats while migrating large distances as an integral part of their life cycle. [See the example below]

Historically, the regional NRM model is based on geographical catchments and generally focuses on land based issues and primary producers. Although some regional NRM organisations have programs that include marine activities, the regional NRM model is ineffective in addressing many marine challenges due to its innate inability to deal with seascape scale environmental, socio economic and cultural connectivity.

Consequently, marine NRM requires a wider scope that enables a single co-ordinated approach to marine challenges across a broad geographical range, and that enables connectivity across multiple, terrestrially focused regional NRM boundaries to be addressed. This is an unconventional (in terms of the historical regional NRM model) but necessary approach to optimise marine NRM planning and delivery.

This Plan is a national seascape level response to challenges influencing the health and productivity of Australia's marine environment.

[7] National Marine Science Plan, 2014
[8] 2014 FRDC F&A Sector Overview, FRDC and Ridge Partners

Australia's wild-caught prawn industry had a production value of $272 million in 2014/15[9], with Eastern King Prawns providing a significant proportion of the catch.

Eastern King Prawns occur on the eastern Australian coast between Hayman Island in Queensland and north-eastern Tasmania (20–42°S respectively), and the species exhibit strong stock connectivity throughout their range. Undertaking northward migrations into deeper water as they grow, Eastern King Prawns utilise the East Australian Current to disperse larvae southward after spawning in offshore areas. Eastern King Prawns are harvested in Queensland and NSW fisheries, and are considered a single multi-jurisdictional biological stock.[10]

Juvenile and sub adult king prawns leaving Tasmanian, Victorian, NSW and Queensland estuaries as part of their annual spawning migration can travel through numerous regional NRM jurisdictions, and then be caught as far north as central Queensland.

This example illustrates how impacts on water quality, fish habitat and connectivity in a regional NRM catchment can have implications for ecosystems and regional economies far removed from that NRM region's jurisdiction.

"Marine NRM.... enables a single co-ordinated approach to marine challenges across a broad geographical range"

[9] Australian fisheries and aquaculture statistics 2015, ABARES

[10] Movements of juvenile eastern king prawns, *Penaeus plebejus*, and identification of stock along the east coast of Australia, Montgomery SS 1990

MARINE NRM VISION

Australia's marine environment is healthy, productive, valued, and used in a responsible way.

VISION VALUES

The health of Australia's marine environment matters because.....

with over 80 per cent of the population living within 50 kilometres of the coast, Australians depend on the varied, socio economic[11] and cultural benefits that a healthy marine environment generates.

The productivity of Australia's marine environment matters because.....

a productive marine environment is a significant driver of regional economic activity[12], and a sustainable source of food for Australian communities.

Although Australia's Exclusive Economic Zone (EEZ)[13] is one of the largest in the world with the total marine area of around 10 million square kilometres, 72 per cent of seafood consumed in Australia is imported[14] to meet consumer demand.

Valuing Australia's marine environment matters because.....

a highly valued marine environment instils changes in behaviour of the seafood industry, saltwater community and landholders and industries impacting marine health and productivity to ensure Australia's marine environment remains healthy and productive.

Responsible use of Australia's marine environment matters because.....

through the adoption of best practice, the saltwater community and seafood industry can minimise their impacts on the marine environment and maximise the benefits from its use, while ensuring intergenerational equity.

These vision values provide the guiding principles for marine NRM.

MARINE NRM OUTCOME

Australians have accurate and comprehensive knowledge of the marine environment and work collaboratively towards ensuring its health and productivity.

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[11] Valuing Coastal Fisheries FRDC 2014-301
[12] http://fish.gov.au/summary/Pages/default.aspx
[13] http://www.ga.gov.au/scientific-topics/national-location-information/dimensions/oceans-and-seas
[14] http://www.frdc.com.au/knowledge/Factsheets/Factsheet_Imported_Seafood_in_Australia.pdf

PRIORITIES AND ENABLING ACTIONS

OceanWatch has developed three priority areas and associated enabling actions that will contribute to the achievement of the marine NRM outcome.

1. Providing knowledge of the health and productivity of the marine environment

a) Supporting research and extending knowledge related to marine health and responsible use.

b) Engaging planning and decision making processes to support the needs of the marine environment and its users.

c) Establishing, supporting and extending new and innovative technical solutions as they relate to improving the health of the marine environment and growing the blue economy.

d) Encouraging a national and consistent approach to marine baselines and long term monitoring.

e) Increasing respect for, and understanding of, knowledge held within Indigenous communities, the saltwater community and seafood industry

f) Maintaining, informing and engaging a national marine NRM network that engenders a multi-disciplined and collaborative approach to marine NRM activities.

2. Advocating and supporting stewardship of Australia's marine environment

a) Supporting the saltwater community to develop and adopt best practice relevant to its marine activities.

b) Leading the development and adoption of best practice for the seafood industry through extension, training, recognition and support.

c) Providing incentives for seafood producers to improve practices by working in collaboration with businesses within the seafood supply chain and seafood consumers.

d) Engaging and assisting seafood consumers to make purchasing decisions which support responsible use of marine resources.

3. Undertaking works to protect, rehabilitate, restore and enhance the marine environment

a) Engaging the saltwater community, seafood industry and other NRM stakeholders in on ground works.

b) Engaging and supporting stakeholders on improvements to point and diffuse water quality.

c) Supporting the improvement of current and future structures of built environments

Effective marine stewardship today is desired above future rehabilitation of a degraded marine environment

SECTION TWO

BACKGROUND TO PLAN DEVELOPMENT

The development of this Plan has been informed by the aforementioned guiding principles for marine NRM, and followed extensive engagement with a large number and diverse range of stakeholders who manage, impact or interact with marine natural resources. The saltwater community, in particular Indigenous people, and the seafood industry have vast experience and unique knowledge of the marine environment while maintaining diverse environmental, socio economic and cultural values associated with its use.

To assist in prioritising the levels of engagement, marine NRM stakeholders have been segmented as primary or secondary.

Primary Stakeholders

The saltwater community

The saltwater community includes the 80 per cent of Australians who live within 50 kilometres of the coast[15].

In recent years, through the efforts of the Landcare movement and others, the Australian community in general has become increasingly aware and responsive to the need to protect, rehabilitate, restore and enhance natural aquatic resources (marine, estuary, river, wetland and other habitats) in order to maintain and promote biological diversity and processes.

Within the saltwater community there is a direct relationship between recreational and Indigenous customary fishers and seafood consumers to Australia's publicly managed renewable marine resources, giving justification for these groups being separately described. These groups also generate important socio-economic and cultural value within coastal communities.

Indigenous customary fishers

Indigenous people have developed a close, interdependent relationship with the land, water and living resources of Australia through customary fishing practices over tens of thousands of years. That relationship includes rights and responsibilities of particular Indigenous communities to areas of land and water. Indigenous people's stories and dance tell of times when there was abundant sea life, and their knowledge of marine natural resource management is many thousands of years old. In many places around Australia, this knowledge is shared with those who manage marine environments.

Many Indigenous people also participate in the commercial wild-catch and aquaculture sectors. The legal rights around Indigenous fishing are being refined over time and some aspects are now part of existing legislation and court decisions.[16]

[15] http://www.abs.gov.au/Ausstats/abs@.nsf/Previousproducts/1301.0Feature%20Article32004

Recreational fishers

About 3.4 million Australians of all ages and backgrounds participate in recreational fishing and enjoy the benefits of a healthy marine environment. Australians fishing for recreational purposes contributes about $1.8 billion to the Australian economy, and supports about 90,000 jobs.[17]

Approx.80 per cent of the recreational catch is from salt water – in estuaries, off beaches, jetties and from the ocean[18].

Australian seafood consumers

Seafood consumers desire access to a reliable and affordable array of seafood through retail and food service channels while also being concerned with the sustainability of wild-caught and farmed seafood both domestically and internationally. In some cases this has led to industry and governments demonstrating their commitment to best production and management practices through independent assessment and third-party certification.

Seafood demand in Australia has steadily increased over the last decade. In 2012–13 Australians each consumed an average of 15 kilograms (processed weight) of seafood, compared with 13 kilograms in 2000-01.[19] . A key driver is the awareness of seafood's prominent role in a healthy diet.

As direct beneficiaries of marine productivity and potential key influencers of sustainable development through purchasing choices, consumers can play a key indirect role in the stewardship of marine resources.

The seafood industry

Seafood industry enterprises range from low technology single-owner-operators for whom the lifestyle is important, to large vertically integrated companies that operate largely for profit. In 2012-13 the industry employed 13,813 people in the wild-catch (5,050), aquaculture (3,558) and post-harvest sectors (5,205).[20]

The seafood industry accesses approximately 120 wild-catch fisheries from which over 600 finfish and shellfish species are commercially harvested from marine and freshwater. There are also a large number of aquaculture species produced or in various stages of development; prawns, Southern Bluefin Tuna, salmonoids, edible oysters and pearl oysters accounted for over 80 per cent of the value of aquaculture in 2012-13. In that year the industry produced 237,318 tonnes of seafood of which 34 per cent was farmed; and was valued at $2.4 billion of which 43 per cent was derived from aquaculture.[21]

The industry's production is low in volume but high in value; and Australia's excellent international reputation for the quality, safety and environmental credentials of its exports of abalone, rock lobster, prawn, scallop, Southern Bluefin Tuna, tropical fish and pearls has

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[16] The Recreational and Indigenous Fishing Survey July 2003; FRDC Project No 99/158
[17] Australian Fisheries and Aquaculture Statistics, ABARES 2013.
[18] ibid
[19] Stephan, M & Hobsbawn, P 2014, Australian fisheries and aquaculture statistics 2013, ABARES
[20] Ibid
[21] Australian Fisheries and Aquaculture Statistics, ABARES 2013

maximised returns. In 2012-13 49 per cent of Australia's production was exported and valued at $1.65 billion.[22]

There remains some prospect for increasing Australian production through improvements in fisheries management, aquaculture and to a lesser extent better utilisation of low value wild-catch species and processing waste. However, Australia will continue to rely on imports, mainly from Thailand and China, to fill most of the seafood deficit which in 2012-13 was 66 per cent of total consumption.[23]

The seafood industry continues to seek social licence to undertake its core activities in public spaces. In a society that sees more and more people becoming coastal dwellers this pressure is set to increase. Furthermore, the seafood industry increasingly competes for access to resources with other primary marine NRM stakeholders. In this context, there is a stark difference between the seafood industry and other primary industries, and marine NRM and regional NRM.

With the growing seafood deficit combined with the strength of the Australian dollar over recent years, some businesses have been looking to re-orient their market portfolio towards increasing their share of the Australian market. Increasingly, businesses are seeking to improve their profitability and efficiency through focusing on the whole value chain through to consumers. This will see more companies becoming either vertically integrated or building partnerships to achieve similar results.

In some Asian markets consumption is also increasing with the growth of the middle class, especially in China and India. This will mean that Australia will be competing with these countries for imports that will consequently increase in price.

Landholders and industries impacting marine health and productivity

Landholders and industries impacting on receiving waters are core drivers of change in the marine environment. Some of these stakeholders are also a major focus of the other 55 regional NRM organisations.

Secondary Stakeholders

Australian, state and NT governments and their agencies

Australian, state and NT governments play a lead role in responding to marine environment, seafood industry and saltwater community NRM challenges. They do this through development and implementation of policy and legislation, and establishing operational management and co-management arrangements. Governments also fund specific activities of non-government organisations to deliver outcomes in areas for which they have neither the capacity, expertise nor the responsibility. Of most relevance to marine NRM is the Australian Government's investment in Natural Resource Management (NRM).

[22] Ibid
[23] Australian Fisheries & Aquaculture Statistics, ABARES 2013

Regional NRM organisations in coastal areas

Regional natural resource management (NRM) is about the planning and delivery of programs that support healthy and productive country, viable communities and sustainable industries. Regional NRM organisations work from the paddock to the regional scale to address issues that require a landscape perspective.[24] 56 regional NRM organisations act as delivery agents under the regional stream of the National Landcare Programme[25].

Local government in coastal areas

Local government is responsible for undertaking, managing, supporting and regulating, a wide range of activities that may impact upon marine NRM. This includes the development and implementation of land use planning schemes, managing public land, approving coastal development and regulating private activities. Local government also has a key role to play in translating the NRM policies of Commonwealth and State governments for local and on ground projects.[26]

Local government also has a range of functions, powers and responsibilities at its disposal to influence NRM on both private and public land. This includes both statutory and non statutory responsibilities.

Marine science community

Australia has only explored approximately 25 per cent its marine environment[27] and the future could include innovative technologies and products which are marine environment related/dependent. Marine scientists are key influencers in the marine NRM community as they contribute to science-based decision making in the management of marine resources. The inter connectedness of science disciplines requires biological, chemical, physical, engineering and social sciences to be included within this community if they are to influence downstream marine health and community well being.

STAKEHOLDER ENGAGEMENT[28]

Stakeholder engagement takes many forms. Previous Australian government marine NRM investments, delivered by OceanWatch since 1999, have resulted in long term engagement with the seafood industry and identification of their marine NRM priorities[29].

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[24] http://nrmregionsaustralia.com.au/
[25] http://www.nrm.gov.au/regional/regional-nrm-organisations
[26] http://www.lgnsw.org.au/files/imce-uploads/39/Wha_%20are_LGs_responsibilities_re_NRM.pdf
[27] National Marine Science Plan 2015-2025, National Marine Science Committee2015
[28] Stakeholder engagement strategy http://www.oceanwatch.org.au/wp-content/uploads/2017/02/OceanWatch-Marine-NRM-Stakeholder-Engagement-Strategy.pdf

[29] OceanWatch marine NRM outcomes
http://www.oceanwatch.org.au/wp-content/uploads/2016/05/SeaNet-Brochure.pdf
http://www.oceanwatch.org.au/glossary/tk/

Direct engagement relevant to the development of this Plan included face-to-face meetings with seafood producers and their representative organisations, a targeted cross sectoral fishing and aquaculture forum for saltwater community representatives, and National Marine NRM Expert Advisory Group (NMEAG) workshops. On a broader scale, all marine stakeholders were invited to engage in the marine NRM planning process through a widely distributed national marine NRM survey.

The results of these engagements are summarised below.

National Fishing and Aquaculture Forum[30]

Twenty-two seafood influencers participated in the first national forum on marine NRM. Each participant was invited based on their breadth of knowledge of the commercial, recreational, Indigenous customary fishing or aquaculture sectors. The aim of the forum was to establish the values, benefits and key opportunities for marine NRM now and into the future. Forum participants undertook workshop activities to establish a baseline of the seafood industry and saltwater community's understanding, perceptions and expectation of stewardship through marine NRM.

The forum participants agreed:

- Clean water and abundant marine life is vital for a healthy marine environment.
- Effective marine stewardship today is desired above future rehabilitation of a degraded marine environment
- Encouragement of stewardship and improved awareness and better practice on land and on water should be a key focus of marine NRM

Fish habitat, water pollution and biosecurity were identified as their priorities to be addressed by marine NRM.

National Marine NRM Survey[31]

An invitation was extended to all stakeholders to complete the 2015 National Marine NRM survey on line. A total of 720 responses to the survey were received. Survey respondents listed conservation, coastal resident and science or research as the activity or sectors that they most identified with.

Information was sought through the survey to determine which aspects of the marine environment were valued by respondents, which threats did respondents believe the marine environment faced and what should be the future focus for marine NRM. In addition, OceanWatch also sought to determine the respondent's level of support for the marine NRM vision.

[30] National Fishing and Aquaculture Forum
http://www.oceanwatch.org.au/wp-content/uploads/2016/01/Click-here-to-view-the-Forum-Report.pdf
[31] National Marine NRM Survey
http://www.oceanwatch.org.au/wp-content/uploads/2016/01/Click-here-to-view-the-survey.pdf

Respondents ranked clean water and abundant marine life as the highest value associated the marine environment, with natural beauty and connecting people to nature also ranking as very important. Two key threats to those values were identified as loss of fish habitat and understanding of human impacts.

Consequently they ranked improving land management practices, improving community understanding of human impacts and encouraging community stewardship as the highest priorities for the future focus of marine NRM. Over 80percent agreed with the vision for marine NRM.

National Marine NRM Expert Advisory Group (NMEAG)[32]

The purpose of NMEAG is to ensure strong working relationships with key stakeholders during marine NRM plan development, resultant operational activities, and review of progress towards the NRM outcome . Membership of the NMEAG includes individuals with knowledge and expertise in one or more of the following areas:

- Marine science
- Recreational fishing
- Commercial wild-catch fishing
- Aquaculture
- Catchment health
- Indigenous customary fishing
- NRM practice
- Social science
- Coastal community
- Environmental NGO

[32] NMEAG Terms of Reference http://www.oceanwatch.org.au/wp-content/uploads/2016/07/OceanWatch-Australia-Marine-NRM-Expert-Advisory-Group-Terms-Of-Reference.pdf

CHALLENGES FOR MARINE NRM

Stakeholder engagement and recent research[33] has identified the following challenges impacting on stakeholders' highest priority values of clean water and abundant marine life. These challenges for marine NRM have informed the development of the Priorities and Enabling Actions described in Section1.

Challenges for marine NRM	
Environmental	Promotion of planning and decision making processes that integrate the needs of the marine environment Protection, rehabilitation, restoration and enhancement of marine habitats Conservation of biodiversity Reduction of saltwater community and seafood industry impacts on marine habitats and water quality Reduction of land based impacts on marine habitats and water quality Development and extension of biosecurity knowledge and protocols Reduction of pollution, plastic debris and oil spills Development and maintenance of sustainable levels of fisheries and aquaculture production Extension and adoption of best practice for all marine activities Reduction of bycatch and interactions with Threatened Endangered and Protected species Improvement in understanding of, and adaptation to, climate variability and change Promotion of sustainable urban coastal development Development of a national approach to marine baselines and monitoring

[33] Kearney, R& Farebrother, G. 2015 The comparative performance of the management of the individual threats to marine environments and fisheries resources (FRDC 2013/029)

Social	Increase stewardship of coastal and marine environments Improvement in access to, and understanding of, knowledge regarding the status of Australia's marine environment Reduction of risks to food security and regional economies Increasing respect for, and understanding of, knowledge held within the Indigenous community, saltwater community and seafood industry Increase awareness and respect of, and support for, Indigenous customary fishing activities Improvement in understanding of seafood production methods and impacts Continued access to Australian seafood for Australian consumers Development of people and organisations to improve community participation in marine management Recognition within science and management frameworks of knowledge and understanding held within the saltwater community and seafood industry Promotion of evidence based decision making as the basis for marine environment policy and management decisions, including the allocation of resources between user groups and conservation interests Improvement in socio economic and cultural benefits for the saltwater community Balancing the needs and values of different stakeholder groups Improvement in public perception of the seafood industry
Economic	Promotion of an appropriate balance between marine protection and sustainable resource use Ensure marine environment resources are used responsibly and bring maximum economic benefit to Australia Development of support for sustainable production through purchasing choices Increase profitability for seafood producers

	Extension of innovative technologies to grow the blue economy

ALIGNMENT WITH NATIONAL AND INTERNATIONAL INSTRUMENTS

There are a number of national and international instruments in place which are relevant to this marine NRM Plan and its implementation.

National

The relationship between this Plan and the priority actions within relevant national instruments is detailed in the tables below.

National Landcare Programme	
Marine NRM Plan linkages A - Work on Adoption/Practice change C - Communicating outcomes D - Assisting with development E - Extending knowledge P - Participating/instigating projects/programs/research	
Communities are managing landscapes to sustain long-term economic and social benefits from their environment.	A,C,D,E,P
Farmers and fishers are increasing their long term returns through better management of the natural resource base	A,C,D,E,P
Communities are involved in caring for their environment	A,C,D,E,P
Communities are protecting species and natural assets	A,C,D,E,P

National Biodiversity Conservation Strategy 2010-2030		
Marine NRM Plan linkages A - Work on Adoption/Practice change C - Communicating outcomes D - Assisting with development E - Extending knowledge P - Participating/instigating projects/programs/research		
Priority Action 1	1.1 Maintaining biodiversity (1.1.1., 1.1.2, 1.1.3, and 1.1.4)	A,C,D,E,P

Engaging all Australians including subprogram outcomes	1.2 Increasing Indigenous engagement (1.2.2)	D
	1.3 Enhancing strategic investment and partnership (1.3.2)	C,E
Priority Action 2 Building ecosystem resilience in a changing climate including subprogram outcomes	2.1 Protecting diversity (2.1.2)	C,E,P
	2.2 Maintaining and re-establishing ecosystem functions (2.2.1)	A,C,P
	2.3 Reducing threats to biodiversity (2.3.1, 2.3.2 and 2.3.3)	A,C,E,P
Priority Action 3 Getting measurable results including subprogram outcomes	3.1 Improving and sharing knowledge (3.1.1and 3.1.3)	C,P
	3.2 Delivering conservation initiatives efficiently (3.2.1 and 3.2.2)	C,D
	3.3 Implementing robust national monitoring, reporting and evaluation (3.3.1, 3.3.2, and 3.3.3)	D

National Marine Science Plan 2015-2020	
Marine NRM Plan linkages A - Work on Adoption/Practice change C - Communicating outcomes D - Assisting with development E - Extending knowledge P - Participating/instigating projects/programs/research	
Key Recommendation 1. Create an explicit focus on a sustainable blue economy throughout the marine science system.	A,C,E
Key Recommendation 2. Establish and support a National Marine Baselines and Long-term Monitoring Program to develop a comprehensive assessment of our estate, and to help manage Commonwealth and State Marine Reserve networks.	C,D
Key Recommendation 3. Facilitate coordinated national studies on marine ecosystem processes and resilience to enable understanding of the impacts of development (urban, industrial and agricultural) and climate change on our marine estate.	A,C,E
Key Recommendation 4 Create a National Oceanographic Modelling System to supply defence, industry and government with accurate, detailed knowledge and predictions of ocean state.	A,C
Key Recommendation 5 Develop a dedicated and coordinated science program to support decision-making by policymakers and marine industry.	C
Key Recommendation 6. Sustain and expand the Integrated Marine Observing System to support critical climate change and coastal systems research, including coverage of key estuarine systems.	C,E

Key Recommendation 7. Develop marine science research training that is more quantitative, cross-disciplinary and congruent with industry and government needs.	C
Key Recommendation 8 Fund national research vessels for full use.	n/a

National Fishing and Aquaculture Research Development and Extension Strategy 2015-2020		
Marine NRM Plan linkages A - Work on Adoption/Practice change C - Communicating outcomes D - Assisting with development E - Extending knowledge P - Participating/instigating projects/programs/research		
National Priority 1 Australia's fisheries and aquaculture sectors are well managed, and acknowledged to be ecologically sustainable.	i. Advance innovative and cost effective methods for collecting data and improve assessment strategies for all sectors — particularly recreational, Indigenous and data-poor fisheries.	A,C,E
	ii. Develop and adopt standardised fishery management best practices.	A,C,D,E,P
	iii. Ensure harvest strategies address all sectors (including any social and economic indicators) and consider the wider impacts of their actions (e.g. on other marine industries operating in the same area).	A,C,D,E
	iv. Improve methods to document and, where necessary, mitigate the environmental impacts of fishing and aquaculture including interactions with threatened, endangered and protected species (TEPs), bycatch and discarding.	A,C,D,E,P
	v. Build community engagement, understand what influences the perception of fishing and aquaculture operations, and determine how performance can be measured.	A,C,D,E,P
National Priority 2 Security of access to, and allocation of fisheries and aquaculture resources is improved.	i. Conduct research on managing multiple uses of, and cumulative impacts on Australia's aquatic resources and define activities that will support informed debate on acceptable impacts, environmental standards and access for fishing and aquaculture.	A,C,D,E,P
	ii. Develop spatial planning and management frameworks/tools for aquaculture that encompass environmental and social values, system selection, production methods, market demands and other uses of adjacent environments.	A,C,E
	iii. Enhance the role of spatial planning in Ecosystem Based Fisheries Management, Ecosystem Based Modelling and Integrated Oceans Management and evaluate monitoring and performance.	A,C

	iv. Define how fishery and aquaculture access rights are allocated, across and within sectors.	A,C
National Priority 3 Benefits and value from fisheries and aquaculture resources (productivity and profitability) are maximised, and aquaculture production increased.	i. Improve knowledge of global and domestic demand, supply chains, country-specific preferences for Australian seafood, traceability systems, food safety and access to markets.	A,C,E
	ii. Identify the opportunities and constraints to the full and productive use of target species.	A,C,E
	iii. Realise the economic potential (and broader ecosystem impacts) for discards, waste and under-utilised species.	A,C,D,E,
	iv. Communicate the health, nutrition, lifestyle and cultural benefits from fisheries and aquaculture.	A,C,D,E,P
	v. Develop new technologies and systems to improve the efficiency of production methods.	A,C,E
	vi. Assess the environmental, economic and social benefits (and risks) of stock enhancement strategies, including restocking, translocation and artificial reefs.	A,C
National Priority 4 Governance and regulatory systems are streamlined.	i. Assess the real costs of regulatory systems, and investigate alternative cost-effective approaches.	C
	ii. Develop cost-efficient, risk-based methods for effective compliance.	C
	iii. Improve approaches to licensing and accreditation, including streamlining governance procedures and performance reporting systems.	A,C,E
	iv. Provide alternative governance and consultative systems (including co-management) that involve all stakeholders.	A,C,D,E
	v. Acknowledge and allocate access rights to all fishing and aquaculture sectors.	A,C,D,E
National Priority 5 Health of the habitats and environments on which fisheries and aquaculture rely are maintained.	i. Fill information gaps about the effects of environmental variability on marine ecosystems, including the links between catchments, coasts and oceans, and their role in fisheries and aquaculture production.	A,C,D,E,P
	ii. Understand the implications of climate variability on the range, movement and productivity of species and how ocean acidification will affect aquatic environments.	A,C,E
	iii. Recognise the impacts of habitat loss for species within a community and fisheries productivity. Identify cost-effective approaches to habitat rehabilitation and enhancement.	A,C,D,E,P
	iv. Enhance methods to rapidly detect and prevent exotic and endogenous invasive species and mitigate their impacts.	A,C,D,E
	v. Develop methods for ecological assessment and predictive modelling.	A,C
	vi. Implement new technology (e.g. remote	A,C

	sensing) that will add to existing infrastructure (such as Integrated Marine Observing System) for sustained ecological observing.	
National Priority 6 Aquatic animal health management is improved.	i. Enhance the capacity to respond to disease, biotoxin or contamination events.	A,C,D,E,P
	ii. Increase research into the causes of disease, origin and physiology of hosts and develop mitigation strategies for how to manage an outbreak.	n/a
	iii. Expand data on the interaction between pathogens/hosts/ environments, what triggers disease, how it spreads within populations and what geographical regions are susceptible.	n/a
	iv. Make veterinary medicines for the aquaculture industry more accessible so they support disease management, industry productivity and animal welfare. Develop effective biosecurity measures including on-farm plans that aim to improve aquatic animal health and performance.	A,C,E

National System for the Prevention and Management of Marine Pest Incursion		
OceanWatch Australia has been a member of the National Introduced Marine Pests Sectoral Group, and recently a member of the Stakeholder Consultation Group linked to the Marine Pests Sectoral Group. Marine NRM Plan linkages A - Work on Adoption/Practice change C - Communicating outcomes D - Assisting with development E - Extending knowledge P - Participating/instigating projects/programs/research		
Prevention	Ballast Water	A,C,E
	Biofouling	A,C,E
	Aquarium Trade Import	A,C
Emergency Management	Emergency Marine Pest Plan	A,C,E
	Pest Trigger List	A,C,E
Ongoing Management and Control	National control plans	A,C,E
Monitoring	Australian Marine Pests Monitoring Manual	A,C,E
Communication	Communications to encourage uptake of the National System	A,C,D,E,P
	Sector Based Communication projects	A,C,D,E,P
	Marine pest management resources and tools	A,C,D,E,P
Research and Development	Research and Development priorities	A,C,E

International

The United Nations Convention on the Law of the Sea (UNCLOS) attempts to regulate all aspects of the resources of the sea and uses of the ocean – it covers everything from navigational rights to the conservation and management of living marine resources. UNCLOS recognises the right of coastal states to jurisdiction (Economic Exclusion Zone - EEZ) over all resources, in the waters, ocean floor and subsoil of an area extending 200nm from its shore. Within its EEZ, Australia has sovereign rights to explore and exploit, conserve and manage the natural resources—both living (such as fisheries and genetic material) and non-living (such as oil, gas, minerals), as well as responsibility for the protection and preservation of the marine environment.

Australia is also a member of the United Nations Food and Agriculture Organisation (UNFAO) Committee on Fisheries which is responsible for the long-term sustainable development and utilisation of the world's fisheries and aquaculture. The UNFAO Code of Conduct for Responsible Fisheries (the Code) was initiated in 1991 by the Committee on Fisheries and unanimously adopted on 31 October 1995 by the over 170 member governments including Australia.

The Code provides principles and standards applicable to the conservation, management and development of all fisheries. It also covers the capture, processing and trade of fish and fishery products, fishing operations, aquaculture, fisheries research and integration of fisheries into coastal area management.

In February 2011 the first global guidelines for bycatch management and reduction of fishing discards were agreed upon by members of the Committee on Fisheries. The guidelines also cover bycatch management planning, improvement of fishing gear, fisheries closures, economic incentives to facilitate uptake of measures, monitoring, research and development, building the capacity of states to follow the guidelines and other relevant issues.

Legislative and policy review

An internal review by OceanWatch of international, Commonwealth, state and territory legislation and policy as it applies to activities undertaken on the coast and within the marine environment is summarised below. Whilst limited, it provides a snapshot of the number and complexity of directions, which totalled to over 270 instruments.

The key observations of the review are:

- Legislation is constantly evolving to meet the demands of current and future needs, eg, , *Carbon Rights Act 2003* projects forward to future policy directions. However some legislation is very dated, eg, WA *Wildlife Conservation Act 1950* only now is in the process of overhaul.
- The term “environmental law” refers to laws for protecting soil, air, water, the oceans and biodiversity, as well as laws which protect the environment as a whole. Environmental laws can protect areas of land or ocean (such as in national parks), individual species (such as wildlife conservation laws), require environmental impact

assessment be done before approvals are granted for an activity, make it an offence to harm the environment, and require people to remediate any environmental damage they cause (such as contaminated sites laws).

- The Commonwealth has legislative powers to make laws which apply in both state, territory and Commonwealth waters if the law is necessary to implement one or more international treaties, eg, Environmental Protection Biodiversity Conservation Act 1999.
- There are quite often Commonwealth, state and territory laws applying to the same environment. NRM's role is to manage the people's actions in the environment. Consequently, marine NRM staff must work across multiple jurisdiction and multiple laws.
- Penalties for breaches of environmental legislation appear to be more severe where risk to human health is proven.
- State and territory laws that are inconsistent with Commonwealth laws are invalid to the extent of their legal inconsistency. Legislation in some areas is well defined, but in other areas terminology used invites subjective interpretation particularly where compliance with quantifiable limits is deemed to be a major economic impost.
- Advisory regulations may promote better/ best practices rather then set specific limits/ actions. This appears to limit the ability to enforce tougher controls. Codes of practice are instruments designed to assist in the compliance with the general environmental duty. They help clarify what is the accepted practice. They do this by closely examining an industry or activity, its various aspects and impacts and through a process of negotiation, formulate reasonable and practical outcomes and recommended practices to achieve such outcomes.