DRAFT NSW Mainland Marine Park Network

Management Plan 2021-2031

This draft management plan aims to deliver a new approach to marine park management and sets a new direction for the existing mainland marine park network in NSW over the next 10 years. The draft plan applies to the management of Cape Byron, Solitary Islands, Port Stephens-Great Lakes, Jervis Bay and Batemans marine parks. It seeks to conserve and enhance the environmental, social, cultural and economic outcomes of the network by managing the priority threats to marine park values.

We are now seeking your views on the draft plan. To find out how visit www.marine.nsw.gov.au

Drafted by NSW Department of Primary Industries on behalf of the Marine Estate Management Authority

NSW Mainland Marine Park Network – DRAFT Management Plan 2021-2031

First published July 2021

More information

www.marine.nsw.gov.au/marine-estate-programs/marine-park-management-planning

www.marine.nsw.gov.au/yoursay

Acknowledgments

The Marine Estate Management Authority gratefully acknowledges the following key contributions in preparing this draft management plan for further consideration by the community of NSW:

Members of the Cape Byron, Solitary Islands, Port Stephens-Great Lakes, Jervis Bay and Batemans Marine Park Advisory Committees, who have generously volunteered their time to provide expert local advice and information

- NSW marine estate agencies:
  - Department of Primary Industries – Fisheries
  - Department of Planning, Industry and Environment – Environment, Energy and Science
  - Department of Planning, Industry and Environment – Planning and Assessment
  - Transport for NSW
- Department of Planning, Industry and Environment – Crown Lands
- Department of Planning, Industry and Environment – Water
- Heritage NSW
- Local Land Services
- NSW Food Authority
- Commonwealth Government – Parks Australia

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Summary

This management plan delivers a new approach to marine park management and sets a new direction for the mainland marine park network in NSW over the next 10 years. For the first time, this plan maps out a consistent approach across the five mainland marine parks: Cape Byron, Solitary Islands, Port Stephens-Great Lakes, Jervis Bay and Batemans. It seeks to deliver win-win environmental, social, cultural and economic outcomes by managing priority threats to marine park values. It considers all key threats to marine park values whether they originate in the marine park or in adjacent catchments.

By following the process required in the *Marine Estate Management Act 2014*, this plan maps out priority actions for the mainland marine park network and each local marine park over the next 10 years by identifying:

Values — What does the community value about this area of the marine estate?

↓

Threats — What are the priority threats to those values?

↓

Objectives — What are our goals for conserving values and managing threats?

↓

Actions and Programs — What do we need to do to achieve our goals?

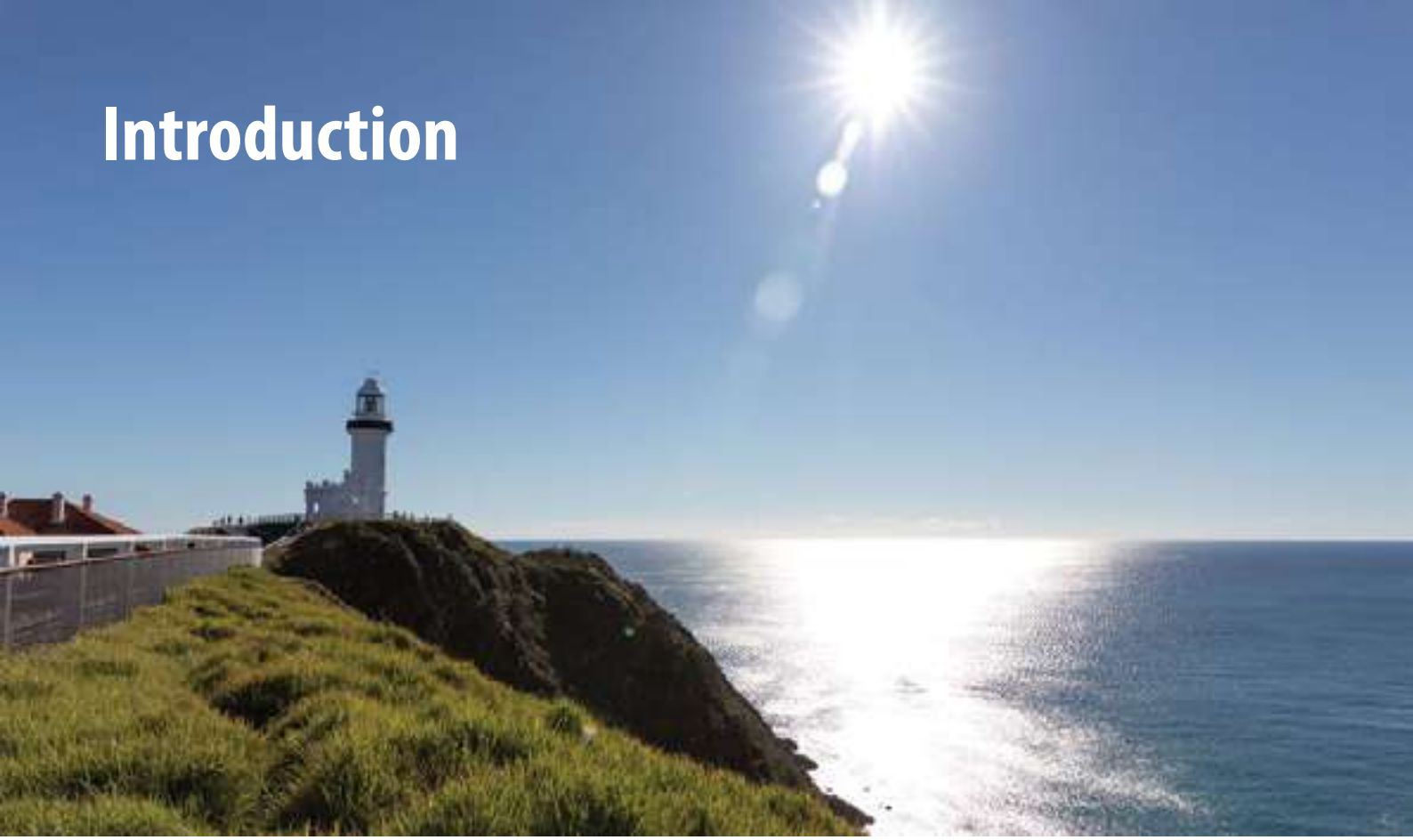
This plan uses the full suite of management tools available to conserve values and manage threats in marine parks. Rules (including zoning) are just one of many tools proposed. The detail of any changes to management rules will be developed separately for individual marine parks with the advice of marine park advisory committees, key stakeholders, government agencies and the community.

Three-year implementation plans will map out the details of operational delivery of the plan, including timeframes and resourcing.

Marine parks are treasured by the NSW community, and a whole of government, whole of community approach to plan implementation, monitoring, evaluation, reporting and adaptive management will be critical to this plan's success. This plan is for everyone who loves, lives, works or plays in these five NSW marine parks.

Contents

Introduction



The NSW marine estate is a valuable natural asset for the people of NSW. The marine estate includes the ocean, estuaries, beaches, dunes, headlands, islands and coastal wetlands, seaward to three nautical miles from the Queensland border to the Victorian border.

The NSW Government's vision for the marine estate is

'A healthy coast and sea, managed for the greatest wellbeing of the community, now and into the future'.

Owned by the community, the marine estate is one of the most significant natural resources in NSW. Over six million people live within 50 kilometres of the NSW coastline. It continues to be cared for by eleven coastal Aboriginal nations after thousands of years and is central to their culture. It supports the wellbeing, lifestyle and livelihoods of the community of NSW, providing valued recreational opportunities and generating billions of dollars for the NSW and Australian economy, including by attracting millions of domestic and international tourists.

Within the NSW marine estate, six marine parks have been declared to achieve special objectives as part of a suite of strategies under way to deliver the NSW Government's vision. The six marine parks in NSW extend across over one-third (about 345 100 hectares and 35%) of the NSW marine estate. Cape Byron, Solitary Islands, Port Stephens-Great Lakes, Jervis Bay and Batemans marine parks are located on the coast of mainland NSW (Figure 1), while Lord Howe Island Marine Park is situated 600 km offshore.

This management plan outlines the priority actions and programs to be delivered over the next 10 years to conserve and enhance the environmental, social, cultural and economic values identified across the network of five mainland marine parks in NSW and address priority threats to these values based on an evidence-based risk assessment and local knowledge. This plan is the first statutory marine park management plan prepared in NSW under the *Marine Estate Management Act 2014* to deliver a new approach to marine park management under the NSW Government's marine estate reforms.

Due to its unique values, threats and needs as an offshore island, a separate management plan will be prepared for Lord Howe Island Marine Park. Actions and programs to conserve values and address priority threats across the broader NSW marine estate are delivered through the NSW Marine Estate Management Strategy

NSW marine parks

Marine parks are special places designed to conserve marine biodiversity and ecosystems and deliver a range of values to the community of NSW, including recreational and commercial uses, research, education, public appreciation and enjoyment and Aboriginal culture.

NSW marine parks generally extend from the mean high water mark and the upper tidal limits of coastal estuaries and lakes, seaward to the three nautical mile limit of NSW waters and include the entire seabed. The intertidal zone, estuaries and sea bed of each marine park are generally Crown land.

Figure 1 – NSW mainland marine park network

HISTORY OF NSW MARINE PARKS

Marine parks have been conserving values and responding to threats in the NSW marine environment for 30 years.

The first marine park in NSW was declared at the request of the local community. The Solitary Islands Marine Reserve was declared in 1991 in direct response to community concern about threats posed by aquarium collection and anchoring to fragile coral reef ecosystems. The Reserve was the first zoned multiple use marine protected area in NSW and was declared the Solitary Islands Marine Park in 1998. The current marine park management rules have been in place for 19 years.

Other NSW marine parks have similarly built on historical efforts to conserve special parts of the NSW marine environment and the social, cultural and economic values they support. Julian Rocks Aquatic Reserve was declared in 1982, 20 years before being incorporated into the Cape Byron Marine Park in 2002. The Fly Point-Halifax Park Aquatic Reserve was declared in 1983 before being incorporated into the Port Stephens-Great Lakes Marine Park in 2005. Jervis Bay Marine Park was declared in 1998 and complements the Commonwealth Booderee National Park that was first declared in marine waters of Jervis Bay in 1992.

NSW marine parks have always been multiple use areas for everyone to enjoy, with management rules, including zoning, seeking to balance different values and uses. Currently 17.5% of the total area of the five mainland marine parks is set aside as 'no-take' or 'sanctuary zones' where extractive activities that may harm plants and animals are highly restricted.

WHY ARE NSW MARINE PARKS SPECIAL?

Marine parks are special areas set aside to conserve marine environmental values for everyone to share.

The primary purpose of marine parks under legislation is to conserve the biological diversity, and maintain ecosystem integrity and ecosystem function, of bioregions in the marine estate.

Each marine park has been selected to showcase the best representative sample of everything the NSW marine environment has to offer. Each marine park includes a unique mix of special natural features and ecosystems that underpin important environmental, social, cultural and economic values.

Image: Brett Vercoe

Legislative provisions have been in place for between 15 and 39 years to conserve these special places and protect them from a range of threats. This protection has given marine parks a unique identity and a special place in many hearts. The community feels a strong sense of ownership and stewardship for our marine parks. Marine parks have become hot spots for education, research, marine tourism, appreciation of Aboriginal culture and development of environmental best-practice.

Marine parks are uniquely placed to conserve some values and manage some threats.

Marine parks provide a unique opportunity to:

- provide a holistic, best-practice response to the suite of threats facing the marine estate at a local scale
- conserve intrinsic and bequest values
- provide reference sites for scientific research
- provide sites for marine environmental education
- manage some threats to marine ecosystem integrity and function
- respond to the ecological impacts of climate change
- provide unique social and cultural experiences
- enhance certain social, cultural and economic values

To deliver their special objectives, marine parks must strive to deliver a higher standard.

In delivering their primary purpose of conserving biological diversity and maintaining ecosystem integrity and function, it is important that marine parks respond to the full suite of threats facing those values. This may require a higher standard of action than in other areas of the NSW marine estate. Similarly, there may be opportunities for marine parks to enhance social, cultural or economic values beyond what is possible across the broader NSW marine estate.

Best-practice is a method or technique that has been demonstrated through experience or research to deliver the most effective outcomes.

Many actions in this plan are working to identify and promote uptake of best-practice. When best-practice becomes an accepted minimum standard, it can be reinforced in legislation. However best-practice is not dependent on regulation. By its nature, best-practice should be innovative, adaptive and aim for continuous improvement. Marine parks provide an opportunity to pilot, nurture and showcase new and innovative best-practice techniques to conserve values and manage threats for later uptake across the broader NSW marine estate.

A new approach to marine park management

Historically, marine park management has been guided by an individual zoning plan and operational plan for each park that aimed to conserve biodiversity and provide opportunities for sustainable use, public appreciation, enjoyment and understanding by managing activities within the marine park. Zoning and permitting have been used as the primary management tools to conserve environmental values and allow for marine park use. Operational plans outlined the 'scheme of operations' that marine park management intended to undertake or permit.

This management plan delivers a new approach to marine park management for the mainland marine park network in NSW by:

- aiming to conserve and enhance environmental, social, cultural and economic values and deliver win-win outcomes
- proposing a holistic response to all priority threats to marine park values, whether those threats originate within the marine park or in adjacent catchments
- choosing the most effective management response to conserve values and manage threats from the full range of potential management actions available, including research, education, rehabilitation, infrastructure, compliance, planning, policy, rules and partnerships, recognising that rules (including zoning) are just one of many tools available
- outlining a whole of government, whole of community approach that links to complementary programs and recognises the important role of all partners in marine park management.

This single statutory management plan replaces 10 separate zoning and operational plans for the five mainland marine parks. The management actions proposed to conserve values and manage threats are based on the best available evidence and engagement with the community and stakeholders.

Image: © Brett Vercoe

Network management plan

This management plan outlines a coordinated approach to conserve and enhance environmental, social, cultural and economic values across the mainland network of five marine parks in NSW: Cape Byron, Solitary Islands, Port Stephens-Great Lakes, Jervis Bay and Batemans. This is the first time a concurrent and consistent approach has been taken for management of the NSW mainland marine park network.

Each mainland marine park conserves a unique suite of values, faces a different range of threats, and supports communities and stakeholders who have special local needs. However, the five mainland marine parks also have much in common and share many challenges. While there are unique local issues that require a specific local response, there are many common values and threats that will benefit from a consistent network approach.

Historically, staggered planning processes across NSW marine parks have led to inconsistent management arrangements. This has caused confusion and some inequity for the community. Multiple planning and consultation processes have been resource-intensive for the community and government. Threats have often been identified in isolation at a local scale resulting in reduced impetus for change. Opportunities for more effective and efficient program implementation across multiple parks have been missed.

This management plan aims to balance coordination and consistency across the network with the need for tailored local solutions to:

- provide a consistent approach to common issues that can be tailored to local needs
- ensure clear and equitable arrangements for stakeholders across all mainland marine parks
- support streamlined planning processes that reduce engagement fatigue
- provide a consistent and timely response to new and emerging issues across the marine park network
- build a stronger business case for action in response to common threats
- support economies of scale in plan implementation.

Guiding legislation and policy

Marine Estate Management Act 2014

The ***Marine Estate Management Act 2014*** (the Act) and regulations govern and provide direction for marine park management in NSW.

PURPOSES OF MARINE PARKS

Section 22 of the Act states that the primary purpose of marine parks is:

- to conserve the biological diversity, and maintain ecosystem integrity and ecosystem function, of bioregions in the marine estate.

Section 22 also outlines a number of secondary purposes that must be consistent with the primary purpose:

- to provide for the management and use of resources in the marine park in a manner that is consistent with the principles of ecologically sustainable development
- to enable the marine park to be used for scientific research and education
- to provide opportunities for public appreciation and enjoyment of the marine park, and
- to support Aboriginal cultural uses of the marine park.

Biological diversity is the variety of living animal and plant life, and includes diversity within and between species, and diversity of ecosystems.

Ecosystem integrity is the ability of an ecosystem to support and maintain ecological processes including food webs and a diverse community of animals and plants.

Ecosystem function includes the physical, chemical and biological processes of a healthy functioning ecosystem.

MARINE PARK MANAGEMENT PLANS

The Act establishes the requirement for a marine park management plan to be prepared and adopted for one or more marine parks in NSW and provides clear guidance for the management planning process.

Section 48 outlines the required content, and states that management plans must:

- state the environmental, economic and social values to be conserved by the marine park
- identify threats to those values
- state the management objectives of the marine park in relation to those values and threats
- specify actions to achieve those management objectives, based on a consideration of risks
- set out the programs to be implemented for managing the marine park

This management plan delivers on these requirements.

ECOLOGICALLY SUSTAINABLE DEVELOPMENT

References to ecologically sustainable development are important to both the objects of the Act and purposes of marine parks. Section 4(2) of the Act defines ecologically sustainable development as:

- the effective integration of economic, social and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following:
  - » the precautionary principle
  - » intergenerational equity
  - » conservation of biological diversity and ecological integrity
  - » improved valuation, pricing and incentive mechanisms.

The precautionary principle is that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

Intergenerational equity means that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.


Image: Brett Vercoe

Other key legislation and policy

Other key legislation and policy references guiding marine park planning and management are detailed in Appendix A, including:

Legislation:

Objects of the *Marine Estate Management Act 2014*

Policy:

- NSW marine estate reforms
- Marine parks audit
- Managing the NSW Marine Estate: Purpose, Underpinning Principles and Priority Setting
- NSW marine protected areas policy statement

Strategic framework

This management plan is not a standard strategic planning document that nests neatly within a strategic framework. It is a statutory management plan developed to deliver against specific legislative and policy requirements. This plan delivers a specific decision-making methodology that requires management objectives to be based on the assessment of values and threats. Rather than a simple strategic framework, the plan has a number of key guiding legislation and policy drivers (Figure 2).

For the same reasons, this management plan complements and supports the statutory NSW Marine Estate Management Strategy (the Strategy), but it does not nest beneath the Strategy's Initiatives. While both approaches have been guided by the same threat and risk approach and decision-making methodology, the Strategy addresses threats that were assigned a risk level of moderate or high in all three regions (north, central and south) of NSW. The Strategy has then developed management objectives and actions to respond to these priority statewide threats at a statewide scale. This marine park management plan identifies priority threats at a local marine park scale and takes a place-based approach to conserving values and managing those threats that is consistent with the specific purposes of marine parks stated in the Act.

The Strategy is discussed further as a key complementary program below. The **NSW Marine Protected Areas Policy Statement** notes that the role of marine parks in overall management of the marine estate will be adjusted over time to achieve the best possible alignment with other marine management programs and a significantly more coordinated approach to managing the marine estate. It is appropriate for this management plan and the Strategy to exhibit many similarities as part of holistic management arrangements for NSW.

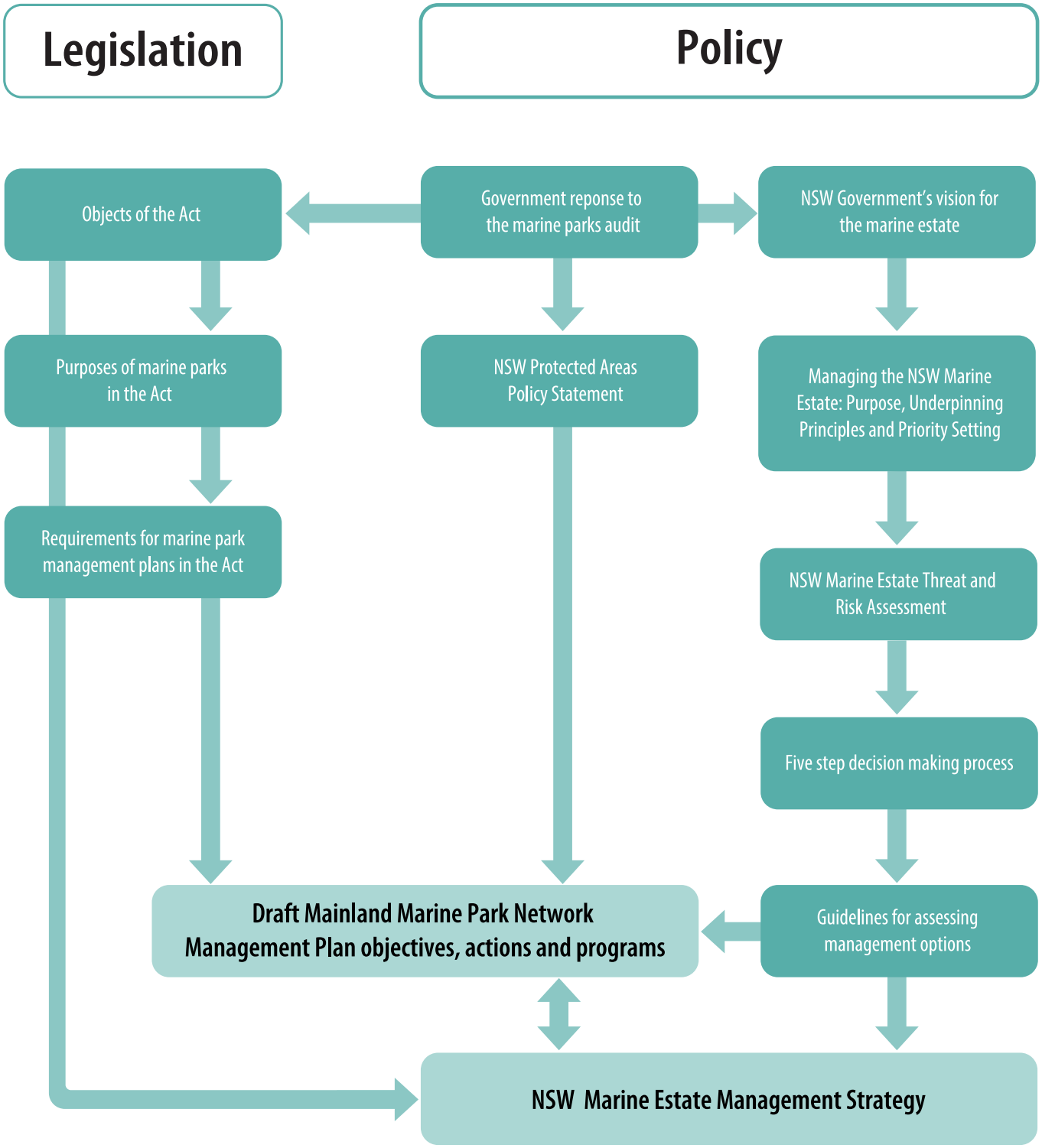


Figure 2 – Guiding legislation and policy drivers

Making decisions for marine parks

FIVE STEP DECISION-MAKING PROCESS

The NSW Marine Protected Areas Policy Statement states that a new marine park management plan will be informed by the Marine Estate Management Authority's (the Authority) five-step decision-making process (Figure 3). This includes an evidence-based approach that centres on values, threats and early and effective community engagement. This management plan has been developed in accordance with steps one to four of this five-step process. This plan also maps out implementation, monitoring, evaluation and reporting processes that will support plan implementation in accordance with steps four and five.

Icons from the five steps in Figure 3 have been included throughout this management plan to demonstrate where each step has been applied.

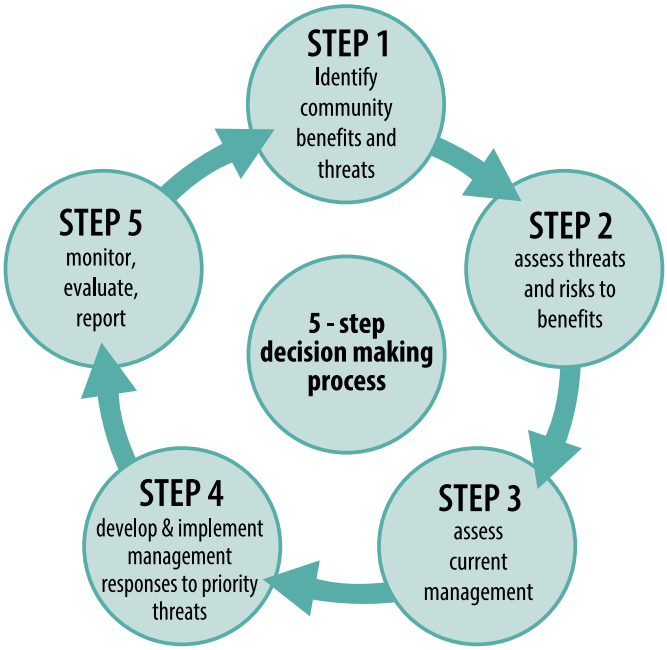


Figure 3 – Marine Estate Management Authority's five-step decision-making process

GUIDELINES FOR ASSESSING MANAGEMENT OPTIONS

The Authority's **Guidelines for assessing management options for the NSW marine estate** provide further guidance for steps three and four of the five-step decision-making process. The guidelines identify four questions to be considered in stages:

A. What issues need to be addressed in response to the threat and risk assessment?

B. What is being done already, should it be modified and where are the gaps?

C. What are additional and other mechanisms or tools that can be used?

D. Do these options effectively and cost-effectively address risk and maximise net community benefits?

These four stages have been applied in development and assessment of the management objectives and actions identified in this plan, as detailed in the corresponding sections below.

WIN-WIN OUTCOMES AND TRADE-OFFS

While the purposes of marine parks establish biological diversity, ecosystem integrity and ecosystem function as the highest priority, they also provide for quadruple bottom line outcomes that are consistent with the primary purpose.

Quadruple bottom line outcomes are win-win outcomes that can deliver benefits to environmental, social, cultural and economic values.

Many social, cultural and economic values rely on a healthy marine environment. At the same time, environmental, social, cultural and economic values are often facing the same threat. This presents many positive opportunities to enhance social, cultural and economic marine park values that are still consistent with the primary purpose of conserving biological diversity and maintaining ecosystem integrity and function.

The actions in this management plan strive to deliver win-win, quadruple bottom line outcomes wherever possible, in line with the purposes of marine parks.

It is recognised that it will not always be possible to achieve improvements in all environmental, social, cultural and economic values at the same time and in the same place. Particularly when considering management rules, trade-off decisions will be needed. Development of marine park management actions and rules must be subject to assessment of costs and benefits to environmental, social, cultural and economic values and assessment of financial costs in accordance with the Authority's Guidelines for assessing management options. Trade-offs must be assessed and be explicitly acknowledged.

The Authority's **Managing the NSW Marine Estate: Purpose, Underpinning Principles and Priority Setting** outline the relationship between win-win outcomes and trade-offs (Figure 4).

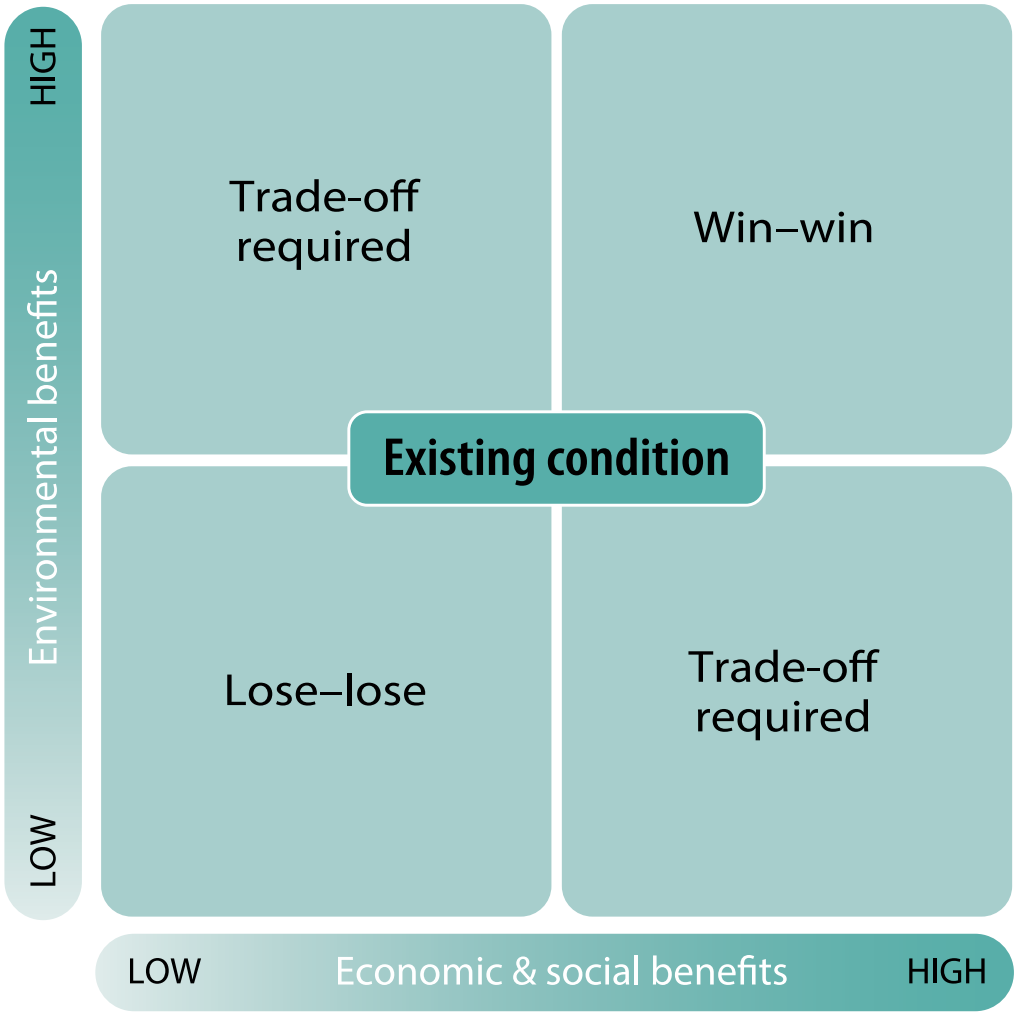


Figure 4 – Relationship between win-win outcomes and trade-offs

EVIDENCE TO SUPPORT DECISION-MAKING

The Authority's **Managing the NSW Marine Estate: Purpose, Underpinning Principles and Priority Setting** acknowledges that there are considerable current knowledge gaps and uncertainties about ecosystems, threats and the effectiveness of alternative management options. The principles recognise that best available information will be used in trade-off decisions, but where there are knowledge gaps, judgement will still be required. Identified knowledge gaps will guide future research to improve our decision-making.

Development of comprehensive scientific evidence requires significant resources and time. For this reason, locally-specific scientific evidence is understandably limited and inconsistent at a local marine park or local site scale. However, there are many valid and valuable sources of evidence available to guide decision-making in marine parks.

This management plan seeks to ensure all relevant and credible information sources are used to guide decision-making. This is recognised to include multiple sources of information from relevant local, state, national and international scientific literature, expert scientific opinion, community and stakeholder views. Informal evidence, including community input, advice and evidence from experts with specialist knowledge is particularly important in identifying values, threats and management actions for marine parks.

In general, the evidence informing development of this management plan can be sourced from one or more of the following:

- background information reports prepared by the Authority's member agencies and external consultants (Appendix B)
- additional information, research and academic papers identified by agencies, independent experts and key stakeholders
- opinion of subject matter experts, including the **Marine Estate Expert Knowledge Panel**, marine park advisory committees and agencies
- knowledge from Traditional Owners
- community input and advice

Community and partners

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There are many government, non-government, industry and community stakeholders who are actively involved in marine park management. Marine parks are also a valuable natural asset for the people of NSW and Australia. To effectively conserve marine park values and manage threats to those values, a whole of government and community approach is essential.

Collective resources for management of threats are limited and must be applied in a coordinated and strategic way to be most effective. Programs must be coordinated and complementary to maximise efficiency and minimise duplication and confusion. It is simply not possible for any one agency to deliver effective marine park outcomes in isolation. Early and effective engagement with the community, partnerships, collaboration and coordination are critical to effective marine park management.

Traditional Owners

Aboriginal people have been caring for the NSW marine estate for many thousands of years and have a continuing connection to Land and Sea Country, including areas now within marine parks. Local Aboriginal knowledge and expertise of land and sea management can add significant value to the management of marine parks and is essential to conserve Aboriginal cultural values.

Australian marine park management has adopted a number of key principles to support Indigenous people to engage in management of Australian marine parks. NSW has adapted similar and consistent principles in the management of NSW marine parks as follows:

1. Aboriginal people have been sustainably using and managing their Sea Country, including areas now included within NSW marine parks, for many thousands of years – in some cases since before rising sea levels created these marine environments

2. Management of NSW marine parks will be undertaken on the basis that Native Title exists in Sea Country within NSW waters
3. Aboriginal people will be engaged in planning and managing NSW marine parks on the assumption of their nationally and internationally recognised rights and cultural interests
4. NSW marine parks provide opportunities for Aboriginal people to enjoy the management and use of their Sea Country
5. NSW marine parks will provide opportunities for the development of Aboriginal livelihoods, consistent with national 'closing the gap' commitments
6. Governance and management activities within NSW marine parks should understand, respect and complement local Aboriginal governance arrangements, plans, capacities and activities
7. Aboriginal engagement in managing NSW marine parks should be undertaken through good faith negotiations, seeking to build on the common ground that exists between Aboriginal people and the NSW Government to protect and sustainably use the NSW marine estate
8. NSW marine parks recognise that Land and Sea Country are inextricably linked for Aboriginal people.

Native Title has been recognised over Sea Country in Cape Byron and the Solitary Islands marine parks, with further claims pending over Jervis Bay and Batemans marine parks.

Engagement with Aboriginal people in the management of NSW marine parks will be undertaken on the assumption that Native Title exists in NSW Sea Country. Engagement with Aboriginal people will be conducted as part of an ongoing relationship that aims to conserve and enhance Aboriginal cultural values within marine parks, incorporate local Aboriginal knowledge and wisdom, and engage Aboriginal people in marine park management.

Key stakeholders

AGENCIES

The **Marine Estate Management Authority** brings together the heads of the NSW Government agencies with key marine estate responsibilities to provide coordinated advice to the NSW Government on the management of the NSW marine estate.

The **NSW Department of Primary Industries (DPI) – Fisheries** is the lead agency for marine park management in NSW. DPI is supported in this role by its partners in management of the NSW marine estate: the **Department of Planning, Industry and Environment (DPIE) – Environment, Energy and Science** (EES), **DPIE – Planning and Assessment,** and **Transport for NSW**.

These government agencies lead management of the NSW marine estate with the support of other key government organisations, including:

- Local Government, including the 10 local councils adjacent to the five mainland marine parks and the corresponding **Joint Organisations of Councils**
- **DPIE – Water**
- **DPIE – Crown Lands**
- **Aboriginal Affairs NSW**
- **Heritage NSW**
- **Local Land Services**
- **NSW Environment Protection Authority**
- **NSW Food Authority**
- **Port Authority NSW**
- **Destination NSW**
- **Parks Australia**, the Commonwealth agency responsible for managing the adjacent network of Australian marine parks

MARINE PARK ADVISORY COMMITTEES

NSW marine park advisory committees provide a voice for local communities in the management of local marine parks. **The committee for each mainland marine park includes members with skills, expertise and knowledge across the following areas to ensure the range of community values can be considered:**

- Aboriginal culture
- commercial fishing
- local government
- marine conservation
- marine science
- maritime industry
- recreational boating
- recreational fishing
- recreational water use
- tourism

Additional areas of expertise have been identified according to the local needs of each marine park. A member is appointed for each expertise area with a maximum number of 12 members appointed to each committee for a term of up to four years. All vacancies are publicly advertised via an open call for nominations with the exception of local government representatives who are nominated by relevant Joint Organisations of Councils.

OTHER KEY STAKEHOLDERS

Many industry organisations, non-government organisations, local community groups and individual community members make a valuable contribution to marine park planning and management at a local and a marine park network scale. Many people often generously volunteer their time to make a positive difference for local marine parks.

Links to other management programs

Effective management of marine parks requires a coordinated management approach with strong linkages between catchment and marine park management.

As the lead agency for marine park management, DPI Fisheries will work with partners and stakeholders to understand, add value to and lever value from complementary programs. Marine park programs will complement, build on and fill priority gaps in existing external programs and avoid duplication. A number of key programs that are particularly relevant to effective marine park management are outlined below. Links to many other important programs have been identified against specific actions.

NSW MARINE ESTATE MANAGEMENT STRATEGY

The **Marine Estate Management Strategy 2018–2028** outlines how the most significant statewide threats to the environmental, social, cultural and economic values of the NSW marine estate will be managed over the next 10 years.

The Strategy provides for an overarching, strategic approach to the coordination and management of the NSW marine estate at a statewide scale through nine management initiatives:

1. Improving water quality and reducing litter
2. Delivering healthy coastal habitats with sustainable use and development
3. Planning for climate change
4. Protecting the Aboriginal cultural values of the marine estate
5. Reducing impacts on threatened and protected species
6. Ensuring sustainable fishing and aquaculture
7. Enabling safe and sustainable boating
8. Enhancing social, cultural and economic benefits
9. Delivering effective governance

Many of these initiatives are directly managing threats at a statewide scale that have also been identified as key threats at a local marine park scale. This management plan aims to complement actions under way through the Strategy and support delivery of Strategy actions within the five mainland marine parks.

NSW COASTAL MANAGEMENT PROGRAM

The NSW Government has established a modern and integrated coastal management framework to better equip coastal communities to respond to existing and future coastal management challenges and opportunities at a local or regional scale. The new framework aims to have thriving and resilient coastal communities living and working on a healthy coast, now and into the future.

The NSW Coastal Management Program is led by DPIE – EES. It is implemented by local government in consultation with local communities and key stakeholders. **Coastal management programs** (CMPs) set the long-term strategy for the coordinated management of the NSW coast, with a focus on achieving the objectives of the *Coastal Management Act 2016*.

CMPs identify coastal management issues and the actions required to address these issues in a strategic and integrated way. CMPs detail how and when those actions are to be implemented and resourcing requirements.

Many of the key threats to marine park values are actively managed under CMPs. The actions in this management plan identify opportunities to complement, integrate with and add value to this work.

AUSTRALIAN MARINE PARKS

The Australian Government has established 60 marine parks around Australia to help conserve marine habitats and species that live in Commonwealth waters. Three Australian marine parks within the Temperate East Marine Parks Network lie adjacent to NSW mainland marine parks. These Australian marine parks are managed under the **Temperate East Network Management Plan** led by Parks Australia.

Many of the priority threats identified for mainland marine parks in NSW are also relevant to Australian marine parks and may benefit from a consistent management approach. DPI Fisheries and Parks Australia have a strong partnership and collaborate closely to deliver research, education, Aboriginal engagement, communication and compliance actions across both the NSW and Commonwealth marine park networks.

Image © Brett Vercoe, NSW DPI

NSW FISHERIES MANAGEMENT

Sustainable fisheries management is delivered across the NSW marine estate through the ***Fisheries Management Act 1994*** and regulations, and supporting policies and plans. All fisheries management arrangements that apply in NSW waters also apply to the waters of NSW marine parks. Additional management arrangements apply in marine parks to achieve the objects of the *Marine Estate Management Act 2014* and purposes of marine parks.

While complementary, fisheries management and marine park management have different objectives. Fisheries management aims to conserve and maximise recreationally and commercially important fish stocks at sustainable levels. Marine parks aim more broadly to conserve biological diversity and maintain ecosystem integrity and function. Fisheries management seeks to maximise sustainable levels of target fish species, while marine parks aim to conserve all marine life, habitats, ecosystems and processes.

By its nature, sustainable fisheries management can alter the natural structure of fish populations, for example a well-managed fishery can deliver increased surplus yield by reducing the number of larger fish in a population to make room for greater numbers of new recruits. However, a larger population of smaller and younger individuals can change ecosystem integrity and function. A network of marine parks can complement fisheries management by providing areas of protection from these ecosystem changes.

Fisheries and marine park management in NSW share many common resource users and stakeholder groups. To support high quality customer service and efficient service delivery, it is important that education, communication and compliance programs are integrated wherever possible.

NSW NATIONAL PARKS

The NSW national park estate is managed under the *National Parks and Wildlife Act 1974* by the NSW National Parks and Wildlife Service (NPWS). NPWS is part of DPIE – EES. National parks and marine parks share a similar primary purpose that seeks to conserve biological diversity and maintain ecosystem integrity and function. Both national parks and marine parks provide important opportunities to conserve Aboriginal cultural values.

National parks are significant coastal neighbours for marine parks, with approximately 64% of the NSW mainland marine park oceanic coastline neighbouring national park estate.*

Some areas of national park extend below mean high water, overlapping with areas of marine park.

Many marine wildlife species such as shorebirds, seabirds and turtles depend on both healthy land and sea systems. Marine mammals, reptiles, shorebirds and seabirds both inside and outside of national parks and marine parks are managed by DPIE – EES. To conserve marine wildlife values, management of threats to these values must be integrated and complementary across land and water.

National parks are a significant land use in marine park catchments, with approximately 36% of all NSW mainland marine park catchment land protected in national park estate.*

Marine park values can be heavily impacted by catchment activities through changes to water quality (e.g. from urban development and stormwater). By protecting native vegetation, coastal landscapes and natural systems, national parks provide significant catchment areas that are free from most priority threats to water quality and estuarine habitats.

**Note these figures include Commonwealth national park for Jervis Bay Marine Park.*

Marine park values

STEP 1
Identify community benefits and threats

By understanding values for each marine park, we can identify opportunities to conserve and enhance those values.

Value = the importance, worth or usefulness of something

Identifying values for marine parks

In 2014, a comprehensive **community survey** was undertaken to improve understanding of the community's views on the range of values derived from the NSW marine estate, threats to those values and potential management solutions.

The NSW Marine Estate Threat and Risk Assessment (TARA) built on this survey to summarise key values for the NSW marine estate.

A comprehensive review of local evidence and extensive discussions with marine park advisory committees and agencies have identified local community values for the waters of each mainland marine park in NSW. These local values provide a detailed local perspective of what the community values within each mainland marine park (Appendix C).

The NSW marine estate value categories summarised in the TARA have been enhanced with consideration of the detailed local marine park value information to produce a summary of values for the NSW mainland marine park network (Table 1).

Table 1 – Values of the NSW mainland marine park network

ENVIRONMENTAL VALUES	
Estuarine and ocean waters	The water column that exists vertically between the seafloor and the water surface and horizontally between mean high water mark in estuaries and on the coastline to three nautical miles seaward.
Intermittently closed and open lakes and lagoons	Intermittently closed and open lakes and lagoons (ICOLLs) are a special type of estuary that alternate between open or closed to the ocean. While many of their habitat features are common to other estuaries and are listed as separate environmental values (e.g. estuarine waters, saltmarsh, mangroves, seagrass), the natural process of opening and closing depending on the sand entrance barrier makes them a unique value. A significant proportion of NSW ICOLLs are located within the five mainland marine parks.
Saltmarsh	Species of herbaceous plants and low shrubs that can tolerate high soil salinity and at least occasional flooding by seawater. Saltmarsh provides habitat and food for fishes, birds, mammals, insects and invertebrates, contributes to the base of estuarine food chains through decomposition of vegetation, and contributes to carbon sequestration.
Mangroves	Mangroves are found mostly in soft sediment areas in sheltered parts of estuaries. This habitat is high in biodiversity and provides important ecosystem functions, including stabilising sediments, supplying organic matter to the soil, maintaining water quality, carbon sequestration and acting as a buffer between the sea and land.
Seagrass	Provides habitat for a diverse range of flora and fauna, including invertebrates (such as crabs, bivalves), algae and fishes. These areas are an important habitat for juvenile stages of commercially and recreationally important species (such as Snapper, Yellowfin Bream). They contribute to coastal productivity, act as carbon stores, regulate nutrients and affect water clarity by stabilising sediments.
Beaches and mudflats	Beaches and mudflats are important habitats for a diverse range of faunal communities, forming a key part of the marine food chain. Invertebrates and other important prey species dominate subtidal areas, which are spawning, nursery, nesting, rookery and feeding areas for many marine organisms, birds and wildlife.
Shallow soft sediments	These habitats are extensive throughout NSW marine waters and are likely to be the dominant habitat in most sections of the coast and estuaries. Shallow soft sediments perform essential ecosystem functions such as the breakdown of organic matter, release of nutrients to the water column, and removal of nitrogen.
Deep soft sediments	These habitats are extensive throughout NSW marine waters and are found in deeper coastal waters than shallow soft sediments (> 25 metres in depth). These areas provide habitat for a similar assemblage of species to those found in shallow soft sediments (such as invertebrates, fishes, crabs, sharks, marine plants), and provide similar ecosystem functions (such as nutrient recycling).
Rocky shores	Rocky shores are common along the NSW coastline and are adjacent to most rocky headlands. Rocky shores are important habitat for seaweed and many invertebrates (such as oysters, crabs, sea urchins, starfish). A range of fish species are also commonly found in rock pools. Many of the migratory shorebirds that use the beaches and tidal mud flats use rocky shorelines for roosting, and other shorebirds and seabirds use rocky shores as feeding, nesting and foraging sites.
Oyster reefs	Large shellfish reefs were once common features in NSW estuaries and can still be found in many estuaries today. These distinct habitats consist of dense aggregations of live native reef forming shellfish species and dead shell. Shellfish reefs provide important habitat for many invertebrates and provide shelter to a diverse range of iconic fish species. Shellfish reefs naturally filter the water, helping to enhance water clarity which in turn can support the growth of other marine habitats such as seagrass. Shellfish reefs protect shorelines from erosion and storm surge by buffering wave energy and enhancing sediment deposition.
Shallow reefs	Shallow reefs are found in estuaries and adjacent to most headlands along much of the coast in depths up to 25 metres. Shallow reefs contain a diverse assemblage of marine plants, fishes, sharks, rays and invertebrate species.
Deep reefs	Deep reefs include rocky reefs deeper than 25 metres. They are inhabited by dominant habitat-forming biota (such as sponges) and support a wide diversity of invertebrates and fish.
Offshore islands	Offshore islands provide depth profiles, habitats, refugia and a land-sea interface that are distinct due to their remoteness from the coastline and stronger exposure to oceanic influences. These islands support unique environmental, social, cultural and economic values.

ENVIRONMENTAL VALUES

Planktonic assemblages	Planktonic assemblages are made up of microscopic plants (phytoplankton), animals (zooplankton and larval stages of other organisms), and microbes (bacteria and protists), collectively known as plankton that live in the water column. Plankton is the basis of most marine food chains, fundamentally supporting primary and secondary production. It is important food for many invertebrates, fishes and some species of whale.
Fish assemblages	NSW marine fish are diverse, often habitat specific and have large variations in the extent of movement either seasonally or all year round. Fish occupy a range of habitats, principally rocky reefs or soft sediments, from shallow rock pools to depths of up to around 100 metres within NSW coastal waters. Fish contribute to the functioning of most marine ecosystems influenced by their abundance and level in the food web. Many species of fish support recreational and commercial fisheries.
Protected species and communities	Includes NSW and Commonwealth threatened species such as the Greynurse Shark, White Shark, and Black Rockcod, and protected fish such as syngnathiformes (seahorses, seadragons, pipefish, pipehorses). Also includes marine mammals (whales, dolphins, and seals), marine reptiles (turtles, sea snakes), shorebirds (such as oystercatchers, plovers, sandpipers, herons), seabirds (such as petrels, albatrosses, shearwaters), and threatened wildlife species (such as Little Penguin).
Geodiversity	Includes geological or geomorphological features such as landforms, rock types and associated processes, provides the habitat for living things to grow on and underpins many environmental, social, cultural and economic values.
Environmental processes	Species and ecosystems rely on a range of natural ecological (e.g. food webs), chemical (e.g. photosynthesis) and physical (e.g. currents and sediment transport) processes for their survival. These natural processes also underpin many social, cultural and economic values.

SOCIAL VALUES

Participation	**Safety, health, wellbeing, relaxation:** including opportunities for scuba diving, snorkelling, swimming, boating, kayaking and fishing. These activities benefit our physical and mental health.
	Socialising and sense of community: including opportunities to socialise with family and friends, connect with each other, enhance relationships and our sense of place and belonging within our community.
Enjoyment	**Enjoying biodiversity and beauty:** (social intrinsic value) including science, research, education and learning, enhancing community connection to the natural environment, caring for the marine estate, therapeutic values, inspirational values and spiritual values.
	Consumptive or extractive use: mental and physical wellbeing associated with fishing, consumption of fresh local seafood, an active lifestyle and employment.

CULTURAL VALUES

Aboriginal	Tangible and intangible Aboriginal culture including traditions, practices, knowledge, stories, places, items, sources of food, spiritual values.
Other	Non-Aboriginal culture such as historical stories, places, maritime heritage and practices handed down through generations.

ECONOMIC VALUES

Intrinsic and bequest	The value of knowing that the marine environment is healthy and protected, without even directly visiting or experiencing the marine environment. The marine environment can be part of people's belief and value system. Bequest is the value of knowing that a healthy marine estate will be available for future generations to enjoy.
Viability of business	The ability of marine industries such as commercial fishing, aquaculture, recreational fishing, tourism, boating and maritime to operate, be profitable, employ people and contribute to local economies.
Direct	When the price that an individual is willing to pay for the enjoyment they gain from the marine estate exceeds the cost of their enjoyment, the difference is known as consumer surplus. It becomes an economic value associated with that enjoyment.

IMPORTANT POINTS REGARDING VALUES

Environmental values critically underpin social, cultural and economic values.

Importantly, the marine environment is valued when we directly interact with it and it is also valued for its intrinsic value – the value we associate with just knowing that it is there and is healthy. The marine environment is not only a value for the community today, but also for future generations.

It is important to note that marine park values are inextricably linked, and do not neatly fit into a single category. For example, many social and cultural values also provide important economic values. Many economic values also provide important social and cultural values (e.g. commercial fishing supports the social value associated with consumption of fresh local seafood).

Environmental values provide many direct and indirect economic values (e.g. the monetary value that mangroves, saltmarsh, beaches and reefs deliver by protecting built assets from a storm surge damage bill). While challenging, the monetary valuation of ecosystem services is a developing field that may support future valuation of marine park values.

Some of the stated local values are not necessarily unique to each marine park and may be shared by other areas of the NSW marine estate. Similarly, declaration of a marine park cannot necessarily be credited with creating these values. However, it is only by understanding the values offered by the area within a marine park that we can identify priority actions to conserve and enhance those values.

Inadequate social, cultural and economic information has been identified as a priority threat to marine park values, and it is hoped that values information can be improved throughout the life of this plan. This management plan includes specific actions to support collation of additional social and economic information.

Any general reference to marine park values in this management plan refers to environmental, social, cultural and economic marine park values.

Threats to marine park values

STEP 2
assess threats and risks to benefits

By understanding how threats are impacting marine park values, we can seek to minimise the impact of those threats.

NSW MARINE ESTATE THREAT AND RISK ASSESSMENT

In 2017, a **NSW Marine Estate Threat and Risk Assessment** (TARA) was undertaken in accordance with the Act. The Act requires marine park management plans to consider this threat and risk assessment. Assessment of threats is also required by the five-step decision-making process and the Guidelines for assessing management options.

The TARA assessed and prioritised the threats to environmental, social, cultural and economic values of the marine estate. It includes identification of threats to marine estate values, risk assessment of those threats, and identification of available evidence to support the assessment. The TARA assessed threats on the basis of current management arrangements, including marine park management rules. It is important to note that any future change in management may change that risk assessment.

The TARA undertook an assessment at a regional scale, including:

- North region (from Tweed Heads to Stockton including the Cape Byron, Solitary Islands and Port Stephens-Great Lakes marine parks)
- Central region (from Stockton to Shellharbour)
- South region (from Shellharbour to the southern NSW border including the Jervis Bay and Batemans marine parks).

IDENTIFYING THREATS FOR MARINE PARKS

Development of comprehensive scientific evidence regarding threats requires significant resources, so is understandably limited and inconsistent at a local marine park scale. However marine parks are representative areas of bioregions in the NSW marine estate. The regional TARA findings provide a comparable regional framework to inform identification of threats for marine parks.

All threats that the TARA identified as moderate or high regional risk have been ground-truthed in that region with local marine park stakeholders and available evidence to identify priority TARA threats that apply at a marine park scale.

Ground-truthing means checking and validating information for accuracy by comparing it with real world advice and information.

While some threats may not be significant at a regional scale, they may pose a greater risk to values at a local scale. Local stakeholders and available evidence have suggested:

- additional local priority threats for some marine parks that have not been identified as regional or statewide threats in the TARA
- additional local values at risk from each threat

Ground-truthing suggests that the regional TARA priority threats are generally highly relevant and applicable to local marine parks. Only a small number of additions have been made to respond to local advice and available evidence.

The combined list of ground-truthed threats from the relevant regional TARA and additional local threats forms a list of priority threats for each of the mainland marine parks (Table 2). While the mainland marine park network is faced with many common threats, some threats only apply in one or some of the five mainland marine parks.

The TARA presents a risk assessment for threats to environmental values and a separate risk assessment for threats to social, cultural and economic values. However, these values are inextricably linked and face many common or very similar threats. This management plan has combined consideration of TARA threats to present a list of priority threats for marine parks across environmental, social, cultural and economic values.

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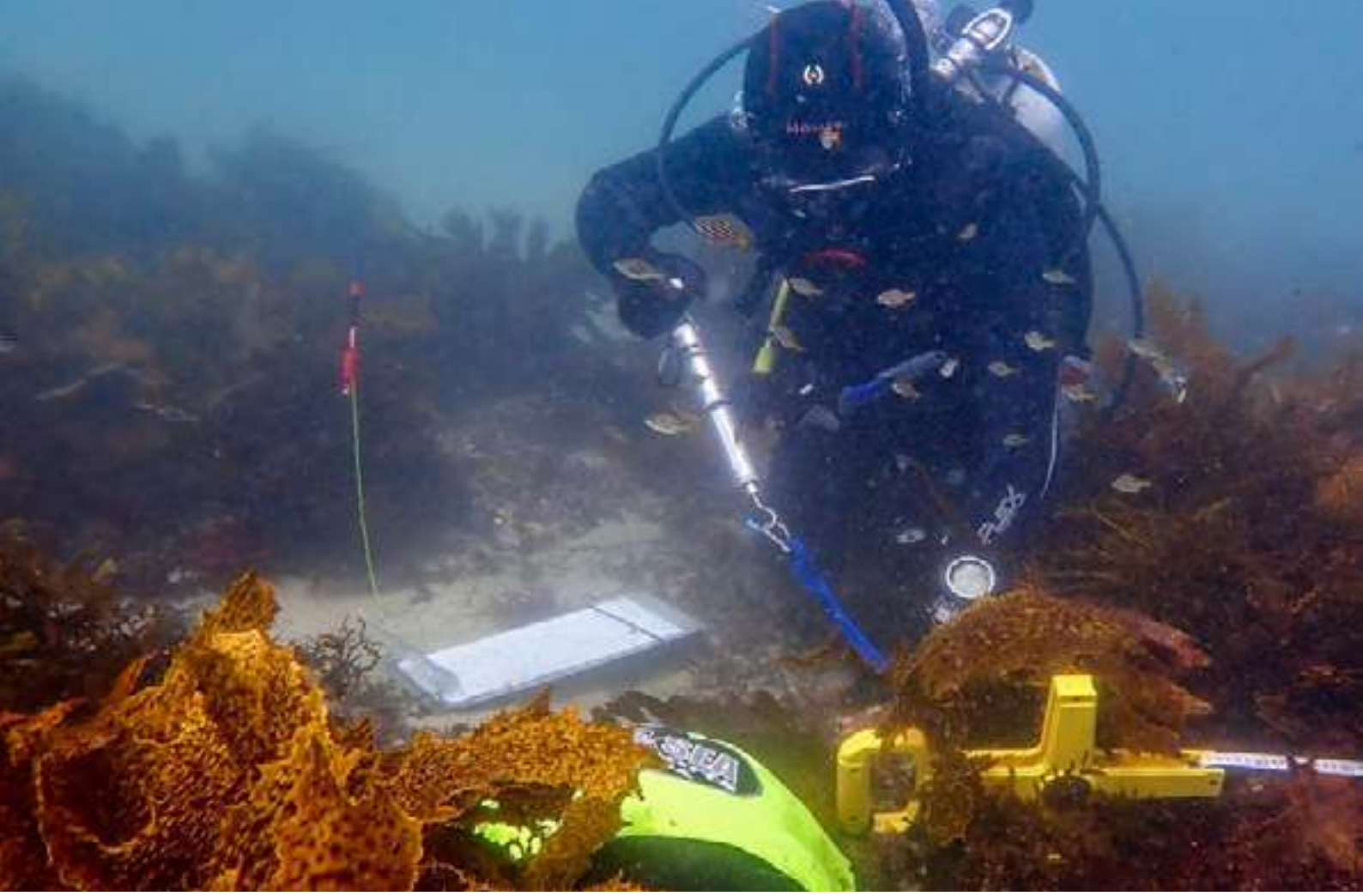

THREAT THEMES

The Authority's Guidelines for assessing management options recommend that development of management responses starts with analysing and grouping threats into themes to support a coordinated and integrated approach. In analysing and grouping threats, the Guidelines encourage consideration of:

- threats that pose risks to multiple values
- values that may be at risk from multiple threats
- activities that may drive multiple threats

Following this approach, analysis of threats across the mainland marine parks has identified six clear threat themes:

1. Ecosystems, habitats and species (as values at risk from multiple threats)
2. Water quality (as a value at risk from multiple threats)
3. Climate change (as a threat posing risk to multiple values)
4. Community access and opportunity (as a value at risk from multiple threats)
5. Community engagement and governance (as activities that may drive multiple threats if not implemented effectively)
6. Aboriginal culture (as a value at risk from multiple threats)

Each threat has been assigned to one of the first five threat themes above according to best fit. It is recognised that threats across all of the five threat themes pose a risk to the sixth theme, Aboriginal culture. Similar to values, it is important to note that many threats are complex and may not neatly fit into a single threat theme.

CUMULATIVE THREATS

A cumulative threat is the combined effect of multiple threats on the same values.

Analysis and grouping of priority threats into the six threat themes above reveals four key cumulative threats:

- Multiple threats to ecosystems, habitats and species
- Multiple threats to water quality
- Multiple threats to community
- Multiple threats to Aboriginal culture

While the impact of an individual threat may sometimes seem manageable, it is important to consider the impact of cumulative threats to the same marine park values. Similarly, some human activities may seem to have a negligible impact compared to natural events (for example repeated beach scraping and nourishment when compared with a major east coast low pressure system causing severe coastal erosion). However, it is important to consider the cumulative impact of natural

and human-induced threats. While natural processes may have an impact, any additional human activities add to the cumulative impact over time and may reduce the resilience of habitats, species and ecosystems to change.

The impacts of climate change may result in many stressors including increased extreme weather events, further challenging ecosystem resilience. Local stakeholders have emphasised that population growth and climate change will see cumulative threats increase into the future.

IMPORTANT POINTS REGARDING THREATS

While specific aspects of some activities have been identified as a threat to certain values, many of these activities are important values in their own right. Exploring the specific nature of threats, even those associated with activities we value, is necessary to identify opportunities to minimise any impacts of those threats and maximise outcomes for all values.

For the first time, the TARA has evaluated the potentially significant impact of catchment threats on marine park values. Marine park waters are also part of the waters of the NSW marine estate and connected to adjacent Commonwealth waters and beyond. Marine park management must monitor and respond to threats arising from adjacent and connected environments where possible.

The TARA assessed threats on the basis of current management arrangements. As management arrangements change, so may the risk posed by certain threats. New innovations and technologies might provide new tools to manage existing threats but may also present new threats. It is important for management to be adaptive, and to monitor and respond to new, emerging and changing threats. This will form an important part of the monitoring and reporting processes detailed later in this plan.

Table 2 – Priority threats to environmental, social, cultural and economic values for the NSW mainland marine park network

LEGEND			
	Environmental values		Social values
	Cultural values		Economic values
	Threat identified for this marine park		Additional threat identified at a marine park scale not listed in the regional TARA
	Marine parks in the TARA's north region		Marine parks in the TARA's south region

THREAT THEME 1 – ECOSYSTEMS, HABITATS AND SPECIES						
Activities and threats	Values identified as at risk from this threat	Cape Byron	Solitary Islands	Port Stephens - Great Lakes	Jervis Bay	Batemans
Foreshore development		●	●	●	●	●
Navigation & entrance management and modification, harbour maintenance, dredging etc.		●	●	●	●	●
Estuary entrance modifications		●	●	●	●	●
Beach nourishment and grooming		●	●	●	●	●
Recreation and tourism - boating and boating infrastructure		●	●	●	●	●
Habitat (physical) disturbance		●	●	●	●	●
Modified freshwater flows		●	●	●	●	●
Pests and diseases ✚ including invasive native Sea Urchin for the south region		●	●	●	●	●
Recreation and tourism - four wheel driving		●	●	●	●	●
Passive recreational use		●	●	●	●	●
Wildlife disturbance (shorebirds, turtles, whales) and impacts to ecological health by dog walkers, 4WD, marine vessels, etc.		●	●	●	●	●

THREAT THEME 1 – ECOSYSTEMS, HABITATS AND SPECIES

Activities and threats	Values identified as at risk from this threat	Cape Byron	Solitary Islands	Port Stephens - Great Lakes	Jervis Bay	Batemans
Charter activities – whale and dolphin watching ✚ and swim-with operations, seal watching and swim-with operations for south region		●	●	●	●	●
Oyster aquaculture		●	●	●		●
Reductions in abundances of species and trophic levels from extraction		●	●	●	●	●
Excessive or illegal extraction of species		●	●	●	●	●
Recreational fishing – hand gathering		●	●	●	●	●
Recreational fishing – boat-based line and trap fishing		●	●	●	●	●
Recreational fishing – shore-based line and trap fishing		●	●	●	●	●
Commercial fishing – Abalone					●	●
Commercial fishing – Estuary General		●	●	●	●	●
Commercial fishing – Ocean Haul		●	●	●	●	●
Commercial fishing – Ocean Trap and Line		●	●	●	●	●
Commercial fishing – Ocean Trawl		●	●	●	●	●
Commercial fishing – Sea Urchin and Turban Shells				●	●	●
Shipping – large and small commercial		●	●	●	●	●
✚ Light pollution affecting wildlife		●	●	●	●	●
✚ Extreme events, including bushfire, drought, flood and east coast lows		●	●	●	●	●
✚ Defence activities					●	

THREAT THEME 2 – WATER QUALITY

Activities and threats	Values identified as at risk from this threat	Cape Byron	Solitary Islands	Port Stephens - Great Lakes	Jervis Bay	Batemans
Clearing riparian and adjacent habitat including wetland drainage		●	●	●	●	●
Stock grazing of riparian and marine vegetation		●	●	●	●	●
Agricultural diffuse source runoff		●	●	●	●	●
Urban stormwater discharge		●	●	●	●	●
Water pollution on environmental values – litter, solid waste, marine debris and microplastics		●	●	●	●	●
Sewage effluent and septic runoff		●	●	●	●	●
Other water pollution/contamination affecting human health and safety		●	●	●	●	●
Sediment contamination		●	●	●	●	●

THREAT THEME 3 – CLIMATE CHANGE

Activities and threats	Values identified as at risk from this threat	Cape Byron	Solitary Islands	Port Stephens - Great Lakes	Jervis Bay	Batemans
Climate change stressors (sea level rise, altered storm/cyclone activity, flooding, climate and sea temperature rise, altered ocean currents and nutrient inputs)		●	●	●	●	●

THREAT THEME 4 – COMMUNITY ACCESS AND OPPORTUNITY

Activities and threats	Values identified as at risk from this threat	Cape Byron	Solitary Islands	Port Stephens - Great Lakes	Jervis Bay	Batemans
Limited or lack of access infrastructure to the marine estate		●	●	●	●	●
Loss of public access (either by private development or Government area closures)		●	●	●	●	●
Loss or decline of marine industries		●	●	●	●	●

THREAT THEME 4 – COMMUNITY ACCESS AND OPPORTUNITY

Activities and threats	Values identified as at risk from this threat	Cape Byron	Solitary Islands	Port Stephens - Great Lakes	Jervis Bay	Batemans
Seafood contamination		●	●	●	●	●
Conflict over resource access and use		●	●	●	●	●
Antisocial behaviour and unsafe practices		●	●	●	●	●
Overcrowding / congestion		●	●	●	●	●
Wildlife interactions (e.g. shark bite, jellyfish, boat striking a whale for the north region + and seal interactions for the south region)		●	●	●	●	●

THREAT THEME 5 – COMMUNITY ENGAGEMENT AND GOVERNANCE

Activities and threats	Values identified as at risk from this threat	Cape Byron	Solitary Islands	Port Stephens - Great Lakes	Jervis Bay	Batemans
Inadequate social and economic information		●	●	●	●	●
Lack of community awareness of the marine estate, associated threats and benefits, regulations and opportunities for participation		●	●	●	●	●
Lack of compliance with regulations (by users) or lack of compliance effort (by agencies)		●	●	●	●	●
Lack of or ineffective community engagement or participation in governance		●	●	●	●	●
Inadequate, inefficient regulation, over-regulation (agencies)		●	●	●	●	●

Management objectives

Image: © Mim Knollys

Marine park management objectives set the overarching goals for marine park management.

The Act requires that marine park management objectives must be stated in relation to the values and threats identified for marine parks. Consistent with the Authority's **Principles for Managing the NSW Marine Estate**, management objectives must be informed by threat and risk assessment to ensure the most effective allocation of limited resources to make the greatest improvement to environmental, social, cultural and economic values for the community.

Development of management objectives for marine parks has followed the specific guidance of the Authority's Guidelines for assessing management options. Consistent with the recommendations of the guidelines, a guiding management objective was developed for each of the previously identified threat themes. These guiding management objectives have been refined with the advice of marine park advisory committees and agencies into six management objectives for the mainland marine park network (Table 3).

Table 3 – NSW mainland marine park network management objectives

THREAT THEME	MAINLAND MARINE PARK NETWORK MANAGEMENT OBJECTIVE	PRIMARY LINK TO PURPOSES OF MARINE PARKS IN SECTION 22 OF THE ACT
Ecosystems, habitats and species	To protect and enhance species, habitats and ecosystems within marine parks	Primary purpose: Conserve the biological diversity, and maintain ecosystem integrity and ecosystem function, of bioregions in the marine estate
Water quality	To improve water quality and reduce marine litter for the environment and community	
Climate change	To help understand, mitigate and adapt to the impacts of climate change on the NSW marine estate	
Aboriginal culture	To partner with Aboriginal people for protection of Aboriginal cultural values and improved marine park management	Secondary purposes: • provide for the management and use of resources in the marine park in a manner that is consistent with the principles of ecologically sustainable development • enable the marine park to be used for scientific research and education • provide opportunities for public appreciation and enjoyment of the marine park • support Aboriginal cultural uses of the marine park
Community access and opportunity	To improve access and opportunity for enhanced social, cultural and economic values from marine parks	
Community engagement and governance	To support evidence-based, inclusive and effective decision-making and marine park management	All

Actions

STEP 3
assess current management

STEP 4
develop & implement management responses to priority threats

The suite of priority management actions required over the next 10 years to deliver each marine park management objective are outlined in Part A of this management plan.

A range of actions is needed to deliver marine park management objectives over the next 10 years.

DEVELOPING ACTIONS TO MAKE A POSITIVE DIFFERENCE FOR MARINE PARKS

Management actions have been developed by applying the four stages outlined in the Authority's Guidelines for assessing management options.

Ground-truthing and analysis of regional TARA threats with the advice of marine park advisory committees, agencies and available evidence specifically explored:

A. What issues need to be addressed in response to the threat and risk assessment?

- How each threat applies at a local marine park scale including the nature of the threat, key stakeholders affected, spatial hot spots and specific local values at risk

B. What is being done already, should it be modified and where are the gaps?

- Existing management arrangements to address each threat, whether these management arrangements are effective, why or why not and recommendations for improvement

C. What are additional and other mechanism or tools that can be used?

- Potential new management responses that should be considered in response to each threat at either a network or local scale

This analysis was used to draft a list of potential management actions. Draft management actions were repeatedly reviewed and enhanced with the advice of marine park advisory committees, agencies and available evidence to form a shortlist of actions for further assessment.

D. Do these options effectively and cost-effectively address risk and maximise net community benefits?

Shortlisted actions were qualitatively assessed for costs and benefits to environmental, social, cultural and economic values, financial costs to government and trade-offs. Where shortlisted actions were found to effectively address risk and maximise net community benefits, they were included in this management plan.

HOW ACTIONS ARE RESPONDING TO CUMULATIVE THREATS

Each identified cumulative threat has a corresponding management objective (Table 4). Holistic and integrated implementation of the suite of actions required to deliver each management objective will help to address the associated cumulative threat.

Table 4 – Management objectives addressing cumulative threats

CUMULATIVE THREAT	MANAGEMENT OBJECTIVE(S)
Multiple threats to ecosystems, habitats and species	To protect and enhance species, habitats and ecosystems within marine parks
Multiple threats to water quality	To improve water quality and reduce marine litter within marine parks for the environment and community
Multiple threats to community	To improve access and opportunity for enhanced social, cultural and economic values from marine parks
Multiple threats to Aboriginal culture	To partner with Aboriginal people for protection of Aboriginal cultural values and improved marine park management

NETWORK AND LOCAL ACTIONS

Consistent network actions are complemented by tailored local actions to address unique local needs.

A combination of consistent network actions and tailored local actions will be required to deliver management objectives. Where local stakeholders and evidence have indicated specific local actions are required to deliver management objectives at a local marine park scale, these have been listed beneath the network management actions. Some of these local actions provide further local marine park context for implementation of an identified network action. The suite of actions to be delivered for a particular marine park therefore includes the full list of network actions plus any specific local actions listed for that marine park. It is also expected that additional local actions will be identified for each network action through implementation planning.

Implementation

Programs

Similar actions can be delivered more effectively as part of a coordinated program.

A range of different types of management actions are proposed to conserve marine park values and manage threats. To support operational delivery, Part A assigns each action to one of 10 programs according to the operational action proposed. The actions for each program can be grouped to support integrated operational delivery. **The 10 identified programs are:**

- Aboriginal culture
- Compliance
- Education
- Infrastructure
- Partnerships
- Planning
- Policy
- Rehabilitation
- Research
- Rules

The Aboriginal culture program represents a suite of actions that will involve intensive engagement with a specific stakeholder group. The remaining nine programs represent areas where the same management tool will be used to deliver actions across multiple management objectives.

Programs will help to support:

- a strategic, consistent, integrated and equitable approach to delivery of similar actions across the marine park network
- efficiency of delivery and economies of scale
- development of specialised organisational capacity for delivery, including necessary staff, training and equipment (e.g. specialist research or compliance training and equipment)

Some actions are complex and may involve staged delivery under multiple programs as they progress. These actions have been assigned to the program that will best support the initial stages of implementation, but it is important to note that these actions may evolve into subactions for delivery under multiple programs over time.

Research, education and compliance have been highlighted as important management tools to conserve values and manage threats across all objectives. Actions 6.1a, 6.2a and 6.2e will deliver an overarching plan for each of these program areas. Other actions identified for the education, research and compliance programs reflect specific priorities already identified. These other education, research and compliance actions will also be incorporated into each program plan once developed.

Implementation plans

Delivery of this 10-year management plan will be supported by implementation plans.

While this management plan guides objectives and actions to conserve marine park values and manage threats over the next 10 years, more detailed operational planning is required over shorter timeframes to put this plan into action and deliver real and positive change for local marine parks. Three-year implementation plans will be developed for each marine park in partnership with marine park advisory committees, marine estate agencies and partners identified for specific actions in this plan. Implementation plans will detail operational implementation of network actions at a local marine park scale, including responsibilities, timeframes, key performance indicators, resourcing and prioritisation.

Resourcing

The actions proposed in this management plan include some that are additional to the existing programs of government agencies and are beyond existing resources. **However by acknowledging priority actions required, it is hoped that this management plan will support a business case for any partner to seek additional resources from a range of sources including:**

- reprioritisation of existing resources
- proposals for additional government funding
- competitive grant funding
- philanthropic funding opportunities
- corporate sponsorship

Implementation plans will prioritise actions for implementation according to available resources and funding priorities.

Management rules

Regulatory actions from this management plan must be delivered as management rules in regulation.

This management plan proposes a suite of potential management actions to conserve marine park values and manage threats. Only some of the actions proposed involve regulation. All actions that primarily involve regulation have been assigned to the Rules program.

The Act provides for the making of management rules for marine parks and states that management rules may include zones. Relevant actions assigned to the Rules program will be delivered through new management rules. Some actions in other programs (e.g. Planning or Research) may also later lead to some recommended changes to management rules.

The detail of any changes to management rules (including specific objectives and locations for any zones) will be developed for individual marine parks with the advice of marine park advisory committees, key stakeholders and government agencies. Any changes to management rules will be guided by the Authority's Guidelines for assessing management options, and subject to comprehensive assessment of costs and benefits to environmental, social, cultural and economic values, financial costs to government and trade-offs. This cost–benefit assessment will be undertaken by the Authority's member agencies.

Draft management rules will be available for a minimum of two months of community consultation. Any resulting changes to existing management rules will be widely communicated to the community.

NO-TAKE OR SANCTUARY ZONES

Some marine park management rules use spatial management or zoning to regulate certain activities within a defined area of a marine park. The **Government response to the Report of the Independent Scientific Audit of Marine Parks in New South Wales** recognises that no-take 'sanctuary zones,' or areas where extractive activities including fishing are restricted, do have an important role in marine estate management, as one tool in a suite of actions needed to conserve values and manage threats. **Advice and evidence received during development of this management plan has confirmed that no-take or sanctuary zones deliver a number of benefits in NSW marine parks by conserving specific values or managing specific threats, including:**

- conserving biodiversity, ecosystem integrity and function, particularly by managing cumulative threats associated with reductions in abundances of species and trophic levels
- providing scientific reference sites
- conserving bequest and intrinsic values
- increasing resilience to the impacts of climate change
- as one tool to manage some resource use conflict.

There is an action included in this management plan to support the use of spatial management in the form of no-take or sanctuary zones to deliver each of these benefits in future. This plan does not intend to increase access and opportunity for extractive activities in areas that remain or are designated as no-take or sanctuary zones in the future.

The management plan does include actions where increased access and opportunity for activities such as fishing, ecotourism and other secondary purposes of marine parks may be allowed in other zones where evidence indicates they are minimal or low risk and consistent with the primary purposes of marine parks.

Any proposed management changes will be effectively monitored and evaluated to ensure they achieve intended outcomes.

The Government response to the audit committed to reviewing the approach to multiple use zoning and zone objectives. The details of zones, including specific objectives, values to be conserved, threats to be managed and locations, will be developed as part of the management rules process and subject to a minimum of two months community consultation.

The Marine protected areas policy statement notes that where spatial management is identified as one of the management responses that can best address a priority threat, CAR principles will be considered in assessing the design options for these areas.

CAR principles include:

- comprehensiveness – include the full range of ecosystems recognised within and across each bioregion
- adequacy – use the required level of reservation to ensure the ecological viability and integrity of populations, species and communities
- representativeness – areas selected for inclusion should reasonably reflect marine ecosystem biodiversity.

In summary, this management plan and management rules aim to deliver the following outcomes for the network of mainland marine parks:

- healthy and biodiverse estuarine and marine environments that underpin the many values and uses of marine parks
- access and use of marine parks will be managed to sustainable levels in line with the primary purpose of marine parks, and closely monitored across the network.

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Monitoring, reporting and improvement

Photo © Brett Vercoe

STEP 5
monitor, evaluate, report

Monitoring

Management must be monitored and continuously improve to be most effective.

Action 6.1d will develop a monitoring plan for the marine park network. This plan will identify appropriate measurable outcomes, performance indicators, metrics and monitoring required to assess:

- performance against the purposes of marine parks in the Act
- delivery of marine park management objectives set by this plan
- effectiveness of key management responses
- Marine park resource condition change over time
- new and emerging issues.

The monitoring plan will include assessment of environmental, social, cultural and economic performance, and will closely link with and complement the **Marine Integrated Monitoring Program**.

Reporting and improvement

Delivery of implementation plans will be monitored and reported to each of the five mainland marine park advisory committees and the Authority annually. Each new implementation plan will adapt and improve to respond to lessons learned from the previous plan, address new and emerging issues, and meet changing priorities. Implementation plans will be an important tool to identify and promptly respond to new and emerging issues in timeframes that may not be possible for this statutory management plan.

Overall delivery of this management plan will be monitored and a progress report published for the information of the community after three, six and nine years of implementation. This will include a report of progress against each identified action.

All reports will be developed in partnership with the Authority's member agencies.

The Act requires formal review of this marine park management plan and management rules after 10 years. The final nine-year progress report will inform review of this management plan and improvement into the future.

Governance

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Marine estate management in NSW is supported by a **strong governance framework** that will also guide implementation of this plan and associated marine park planning and reporting processes. As the lead agency for marine park management in NSW, DPI will lead marine park planning, management and operational delivery. DPI will be supported in this role by its partners in management of the NSW marine estate: DPIE – EES, DPIE – Planning and Assessment and Transport for NSW.

The Marine Estate Management Authority includes senior executives from each of the marine estate agencies. The Authority will provide strategic oversight and advice to guide implementation of this plan.

Marine park advisory committees will continue to provide expert advice and an important voice for local communities in implementation of this plan.

All key planning documents developed to support this plan, including implementation plans, management rules and reports, will be developed in partnership by the marine estate agencies under the oversight of the Authority and with the advice of marine park advisory committees.

Part A – Objectives, actions and programs

Table A1 – NSW mainland marine park network actions 2021-2031

LEGEND	
#	Action number. The first number aligns to the overarching management objective. The number for each local action corresponds to the overarching network action.
Action	The action required to deliver each management objective.
Supporting statement	This statement provides further background, context and evidence to support each action, or may indicate specific values to be conserved or threats to be addressed. Each action should always be considered with the context of this supporting statement.
Management program	Each action has been assigned to one of 10 management programs to support operational delivery. These are further explained in the management plan under 'Programs'.
Links to other programs	Many of the actions in this management plan have strong links to work under way through the Strategy, CMPs or other government, industry or community programs. Implementation of marine park actions will complement, build on and fill priority gaps in existing external programs and avoid duplication. Resources for all programs are limited and must be carefully prioritised. Where similar actions have been identified in other programs, this management plan strengthens the case for limited resources to be prioritised to marine parks and their catchments by reinforcing priority actions for marine parks.
Lead	Each action has been assigned one or more leads to drive delivery and facilitate the contribution of all partners. This listing does not indicate that the lead organisation(s) has existing resources to ensure action implementation. However, the lead may actively pursue opportunities for additional resources.
Partners	Partners are acknowledged where they may have a strong interest in an action or a specific role to play in implementation. Partner contributions may range from allocation of cash or in-kind resources to implementation, provision of advice, in-principle support or communicating information throughout their networks.

OBJECTIVE 1) To protect and enhance species, habitats and ecosystems within marine parks

The suite of actions delivering this objective is responding to threats in the ecosystems, habitats and species threat theme.

ACTIONS FOR IMPLEMENTATION ACROSS THE NSW MAINLAND MARINE PARK NETWORK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.1 Support planning and development to conserve marine park values.						
1.1a	Strengthen how marine park values are taken into account in strategic land use planning and development approval decisions.	Strategic land use planning does not currently consider marine park values, yet land use planning decisions have potential for significant impact.	Rules	CMPs, Environmental Planning Instruments	DPIE – Planning and Assessment	DPI Fisheries, DPIE – EES, Local Government, OceanWatch Australia, Professional Fishermen's Association
1.1b	Require consideration of marine park values in the review and development of Water Sharing Plans, Regional Water Strategies and associated policies (e.g. Harvestable Rights Policy).	Water sharing plans and Regional Water Strategies do not currently consider marine park values yet modified freshwater flows have been identified as a priority threat to marine park values and mechanisms that alter natural flow regimes of rivers and streams has been listed as a key threatening process under the *Fisheries Management Act 1994*.	Rules	Water Sharing Plans, Regional Water Strategies, *Fisheries Management Act* Priorities Action Statement, Saving our Species	DPIE – Water	DPI Fisheries, DPIE – EES, Natural Resources Access Regulator (NRAR), OceanWatch Australia, Professional Fishermen's Association
1.1c	Strengthen approvals and consents for activities that may damage or interfere with estuarine or marine habitats, species or ecosystems.	Existing marine park consent provisions help to ensure consideration of marine park values and opportunities to minimise any impact (for example dredging, ICOLL entrance management, beach scraping). However, there may be opportunities to strengthen approval and consent provisions to consider marine park values across other planning instruments.	Rules	Saving our Species, *Fisheries Management Act* Priorities Action Statement	DPI Fisheries	DPIE – Planning and Assessment, Transport for NSW, Local Government, DPIE – Crown Lands, DPIE - EES, OceanWatch Australia, Professional Fishermen's Association
1.1d	Ensure DPI Fisheries has concurrence for riparian and coastal foreshore development that is directly adjacent to a marine park.	The Act currently requires consideration of marine park values however, advice is often not applied. The requirement for marine park concurrence ensures consideration of marine park values and opportunities to minimise any impact, including potential impact to habitats, species, water quality and from light pollution.	Rules		DPI Fisheries	Local Government, DPIE – Crown Lands, DPIE – Planning and Assessment, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association
1.1e	Strengthen how marine park values are taken into account in the approval of marine development that is adjacent to a marine park (i.e. north or south of marine park boundaries).	Development in marine waters north or south of marine park boundaries may impact marine park values but is not currently required to consider potential impacts on marine park values.	Rules		DPI Fisheries	Local Government, DPIE – Crown Lands, DPIE – Planning and Assessment, Transport for NSW

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.2 Conserve marine habitat, species and ecosystem values.						
1.2a	Provide areas of protection for ecosystems, habitats and species that are under threat or that underpin important environmental, social, cultural or economic values.	Spatial management can map and protect threatened or important species, habitats or ecosystems and provide protection from specific or cumulative threats (e.g. protection of sensitive seagrass habitat or coral ecosystems).	Rules	Strategy Initiative 5, Saving our Species, *Biodiversity Conservation Act 2016, Fisheries Management Act* Priorities Action Statement	DPI Fisheries	DPIE – EES, Transport for NSW
1.2b	Identify areas to provide representative localised protection to species abundance and trophic levels.	By its nature, well-managed, sustainable fisheries management can alter the natural structure of fish populations, for example by reducing the number of larger fish in a population to make room for greater numbers of new recruits. A population of predominantly smaller and younger individuals can change ecosystem integrity and function. Spatial management can provide areas of protection from these ecosystem changes.	Rules		DPI Fisheries	DPIE – EES, Transport for NSW
1.2c	Undertake a threatened species assessment for each marine park to understand key habitats, local threats and opportunities for marine parks to support protection and recovery.	Improved local knowledge is needed to understand how listed threatened species use marine parks and opportunities to manage specific threats most effectively at a marine park scale, including Black Rockcod and Greynurse Shark.	Research	Strategy Initiative 5, Saving our Species, F*isheries Management Act* Priorities Action Statement, Australia's Strategy for Nature, RedMap, Atlas of Living Australia, Reef Life Survey	DPI Fisheries	DPI Fisheries, DPIE – EES, Transport for NSW
1.2d	Review marine park protected and permitted species lists to ensure an evidence-based approach to species protection.	Existing local marine park management rules provide additional local protection to fish species that are not threatened or otherwise protected in NSW. Review is required to ensure local species protection rules are evidence-based and appropriate.	Rules		DPI Fisheries	Parks Australia
1.2e	Undertake research to better understand the benefits of marine parks to ecological integrity and function, and any spillover effect in NSW.	While there is a wide body of research in NSW demonstrating the benefits of marine parks to threatened species and the size and abundance of some target species, little is known about benefits to ecological integrity and function, or any potential spillover effect in NSW.	Research		DPI Fisheries	

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.2f	Undertake a light pollution risk assessment for each marine park to understand potential impact of existing land and vessel based artificial light on marine wildlife and options for mitigation.	Artificial light from foreshore development, maritime infrastructure and vessels may interrupt nesting, roosting and breeding behaviours in marine turtles, seabirds and shorebirds.	Planning		DPIE – EES	Local Government, DPIE – Crown Lands, DPIE – Planning and Assessment, Transport for NSW, DPI Fisheries
1.3 Manage beaches and foreshores to conserve marine park values.						
1.3a	Support implementation of best-practice rock revetment, seawall and breakwater design to maximise community access and environmental values.	When rock structures are installed (subject to consent) or periodically maintained, strategic design can deliver significant environmental and community access values beyond the primary purpose of the structure.	Infrastructure	Strategy Initiative 2, Coastal Management Program, NSW Maritime Infrastructure Plan, Environmentally Friendly SeaWalls, Fish Friendly Marine Infrastructure, Fish Friendly Marinas	DPI Fisheries	Local Government, DPIE – Crown Lands, DPIE – EES, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association
1.3b	Develop a foreshore development and bank management strategy for each marine park waterway and implement best-practice guidelines for construction to minimise impacts on marine park values.	Identification of best-practice bank management in each waterway ensures clear expectations for developers, can expedite approval processes and ensure consideration of marine park values.	Planning	Strategy Initiative 2, Coastal Management Program, Saving our Species, Coastal Lands Protection Scheme, NSW Maritime Infrastructure Plan	DPI Fisheries	Local Government, DPIE – Crown Lands, DPIE – EES, DPIE – Planning and Assessment, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association
1.3c	Undertake research to understand the potential cumulative impact of different beach nourishment, scraping and grooming methodologies on environmental values and develop best-practice guidelines.	Pressure for beach nourishment and grooming is increasing with the impacts of climate change. A variety of methodologies exist with limited understanding of cumulative impact on habitats, species or ecosystems and best-practice.	Research	Coastal Management Program, Saving our Species	DPIE – EES	DPI Fisheries, Local Government, DPIE – Crown Lands, OceanWatch Australia, Professional Fishermen's Association
1.3d	Develop and implement best-practice guidelines for four wheel drives, domestic dogs and horse riding on beaches in partnership with local land managers.	There are no consistent or well-communicated best-practice guidelines for four wheel drives or domestic dogs on beaches in marine parks.	Education	Coastal Management Program, Saving our Species, Strategy Initiative 5	DPIE – EES	DPI Fisheries, Local Government, DPIE – Crown Lands, DPIE – NPWS

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.3e	Protect dune vegetation, shorebird and turtle nesting sites from the impacts of four wheel drives and domestic dogs, including through spatial and temporal access management.	Spatial management can map and protect important sites from specific threats where and when needed.	Rules	Coastal Management Program, Saving our Species	DPIE – EES	Local Government, DPIE – Crown Lands, DPIE – NPWS, Local Land Services
1.3f	Support development and implementation of best-practice guidelines, minimum knowledge requirements and a standard template for entrance management in marine park ICOLLs.	There are currently no best-practice guidelines or recommended minimum data requirements to inform ICOLL entrance management, and no standard template for ICOLL entrance management strategies in NSW to support a consistent, evidence-based approach.	Research	Strategy Initiative 2, Coastal Management Program	DPI Fisheries	DPIE – EES, DPIE – NPWS, Local Government, DPIE – Crown Lands, Transport for NSW, NSW Shellfish Committee, OceanWatch Australia, Professional Fishermen's Association
1.4 Minimise the impact of pests and disease.						
1.4a	Undertake a marine pest, disease and aquatic weed risk assessment for each marine park and identify priority actions to minimise risk.	Marine pests, disease and aquatic weeds pose a risk to all marine park values. These threats will increase with the impacts of climate change, but specific threats have not been recently assessed.	Research	Strategy Initiative 6	DPI Fisheries	DPI – Aquatic Biosecurity, DPIE – EES, Transport for NSW, Parks Australia, OceanWatch Australia, Professional Fishermen's Association, NSW Shellfish Committee, Aquaculture industry
1.5 Enhance marine habitat.						
1.5a	Identify and prioritise sites for habitat rehabilitation and implement on-ground action in accordance with expert designs and advice.	This action may include coastal wetland and shellfish reef restoration, re-snagging, riparian rehabilitation, fish passage and drainage management works. On-ground habitat rehabilitation can enhance marine park values and habitat. Many stakeholders are keen to contribute. Resources for rehabilitation are limited and must be prioritised to sites that offer the greatest benefit to marine park values. Planning and design of on-ground works will require professional design advice in complex marine park environments and be subject to environmental assessment.	Rehabilitation	Strategy Initiative 1, Coastal Management Program	DPI Fisheries	Local Land Services, Local Government, Landcare NSW, recreational fishing stakeholders, NSW Shellfish Committee, Traditional Owners, DPIE – EES, DPIE – Crown Lands, Transport for NSW, Conservation groups, OceanWatch Australia, Professional Fishermen's Association
1.5b	Support the use of innovative structures such as shellfish reefs, artificial reefs, best-practice oyster lease infrastructure, living seawall modifications and seahorse hotels to enhance habitat and community values.	Innovative structures can enhance marine park values and enhance habitat areas. Any proposed structures would be in line with the purposes of marine parks and subject to environmental assessment processes.	Infrastructure	Strategy Initiative 1	DPI Fisheries	DPIE – EES, Transport for NSW, DPIE – Crown Lands, Local Government, Traditional Owners, NSW Shellfish Committee, OceanWatch Australia, Professional Fishermen's Association

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.5c	Identify opportunities for recreational fishers, commercial fishers and oyster growers to develop and implement habitat rehabilitation and clean-up projects.	Many recreational fishers, commercial fishers and oyster growers are passionate about healthy fish habitat and are seeking opportunities to actively contribute.	Rehabilitation	Tide to Tip, Strategy Initiative 1, Recreational Fishing Trust Habitat Action Program	DPI Fisheries	OceanWatch Australia, NSW Shellfish Committee, Professional Fishermen's Association, Recreational Fishing stakeholders, Oyster growers, DPIE – EES, DPIE – Crown Lands, Local Government, Traditional Owners, Transport for NSW, Conservation groups
1.6 Support sustainable marine resource use.						
1.6a	Establish a marine park boating stakeholder forum in marine parks to enhance engagement and facilitate safe and sustainable boating.	Boating underpins many marine park uses and values and local stakeholders report that boating activity is steadily increasing. A strategic approach is required at a marine park scale to support safe and sustainable boating that minimises impacts on habitats, species and other values while balancing social, cultural and economic considerations consistent with the primary purpose of marine parks. Marine park boating stakeholder forums will identify opportunities to enhance boating values and support best-practice anchoring, mooring, speed, wake, waste disposal and resource sharing to minimise impact on sensitive bottom habitats, eroding foreshores, marine wildlife, water quality, maritime heritage, community safety and wellbeing.	Planning	Strategy Initiative 7, NSW Maritime Infrastructure Plan, Boating Now, Coastal Management Program, Commonwealth Underwater Cultural Heritage program	Transport for NSW	DPI Fisheries, DPIE – EES, Regional Boating Advisory Groups, DPIE – Planning and Assessment, Heritage NSW
1.6b	Assess cumulative impacts of changing and increasing commercial and recreational marine mammal interactions and identify appropriate management interventions, if any.	Commercial and recreational tourism values are increasing with numbers of Humpback Whales and seals. The number of commercial charter operations is increasing. Commercial swim-with operations are also becoming more popular, but their impact and ability to comply with distance-off regulations remains unknown. Existing distance-off regulations are complex and resources for enforcement are limited. The community is concerned about the cumulative impact of commercial and recreational interactions on marine mammals, including any indirect impact on feeding and breeding behaviour.	Research	Saving our Species	DPIE – EES	DPI Fisheries, Transport for NSW

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.6c	Assess issues and hot spots for incidental capture of non-target fish and marine wildlife species from unattended line and entanglement fishing gear in each marine park and implement actions to minimise impact.	This action relates to specific types of actively fished unattended line (e.g. set line) and entanglement (e.g. hoop net) fishing gear. Local stakeholders have reported issues with incidental capture of non-target fish and marine wildlife species in this gear in marine parks. Entanglement issues must be properly understood so that actions can be developed to minimise impact while maintaining recreational and commercial fishing values. Discarded gear is considered marine debris and will be addressed as part of marine debris actions.	Planning	Strategy Initiatives 5 & 6, NSW Recreational Fishing Environmental Assessment	DPI Fisheries	Recreational fishing stakeholders, Professional Fishermen's Association, OceanWatch Australia, Transport for NSW, DPIE – EES
1.6d	Undertake a sustainability assessment of intertidal species and changing harvesting practices and identify and implement appropriate management interventions, if any.	Informal evidence suggests that recreational intertidal harvesting practices are changing and increasing. There is community concern that harvest is no longer sustainable in a number of locations. Aboriginal communities have reported that harvest levels are impacting on traditional food and culture.	Research		DPI Fisheries	
1.6e	Retain existing intertidal protected areas to provide areas of protection while the sustainability of changed harvesting practices is assessed.	Existing intertidal protected areas provide some protection until the impact of changing harvesting practices is understood.	Rules		DPI Fisheries	
1.6f	Identify preferred commercial shipping routes to minimise risk to sensitive habitats and species from physical disturbance, vessel strike and marine pollution.	Risk to sensitive habitats can be minimised without impacting shipping values if preferred shipping routes are identified.	Planning		DPI Fisheries	Port Authority of NSW, Transport for NSW, DPIE – EES, Parks Australia, OceanWatch Australia, Professional Fishermen's Association

ADDITIONAL LOCAL ACTIONS

CAPE BYRON MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.3 Manage beaches and foreshores to conserve marine park values						
C1.3g	Support implementation of the Domestic Waterfront Structures Strategy for the Brunswick River.	Identification of appropriate and inappropriate areas for waterfront structures in each waterway ensures clear expectations for residents and developers, can expedite approval processes and ensure consideration of marine park values.	Planning	Strategy Initiative 2, Coastal Management Program, NSW Maritime Infrastructure Plan	DPI Fisheries	Byron Shire Council, DPIE – Crown Lands, DPIE – EES, DPIE – Planning and Assessment, Transport for NSW

SOLITARY ISLANDS MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.2 Conserve marine habitat, species and ecosystem values						
S1.2g	Undertake priority actions to support protection and recovery of the critically endangered Marine Brown Alga *Nereia lophocladia*.	The distribution of Nereia is limited to the Solitary Islands Marine Park and limited adjacent sites immediately to the south.	Planning	*Fisheries Management Act* Priorities Action Statement	DPI Fisheries	Transport for NSW
S1.2h	Undertake priority actions to support protection and recovery of the large Leaf Oyster (*Isognomon ephippium*) bed in Woolgoolga Lake.	A large Leaf Oyster bed has been located in Woolgoolga Lake however, preliminary studies reveal a high mortality of oysters and impacted health of the bed.	Planning	Strategy Initiative 1 – Oyster Reef Restoration	DPI Fisheries	Woolgoolga Lake Working Group, Coffs Harbour City Council

PORT STEPHENS-GREAT LAKES MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.2 Conserve marine habitat, species and ecosystem values.						
P1.2g	Support implementation of priority actions to protect and recover the endangered White's Seahorse *Hippocampus whitei*.	Port Stephens has been identified as one of two important sites for White's Seahorse in NSW.	Planning	Strategy Initiative 7, *Fisheries Management Act* Priorities Action Statement	DPI Fisheries	Transport for NSW, Port Stephens Council, DPIE – Crown Lands
P1.2h	Support implementation of priority actions to protect and recover Cauliflower Soft Coral *Dendronephthya australis*.	The Port Stephens estuary is one of only two sites in NSW where the Cauliflower Soft Coral is known to occur in abundance.	Planning	Strategy Initiative 7, *Fisheries Management Act* Priorities Action Statement	DPI Fisheries	Transport for NSW, Port Stephens Council, DPIE – Crown Lands
P1.2i	Undertake actions to reduce threats to the Myall Lakes Ramsar site.	The Myall Lakes wetlands have been listed under the Ramsar Convention 1999 as wetlands of international importance.	Planning	National Park Plans of Management	DPIE – NPWS	DPI Fisheries, Mid Coast Council
P1.2j	Implement priority actions to protect and recover the vulnerable Gould's Petrel, vulnerable Black-tailed Godwit, endangered Curlew Sandpiper, vulnerable Great Knot, vulnerable Lesser Sand Plover and vulnerable Terek Sandpiper including monitoring, education and habitat protection.	Port Stephens-Great Lakes Marine Park includes particularly significant sites for these threatened bird species.	Planning	*Biodiversity Conservation Act 2016*, Saving Our Species, Strategy Initiative 5	DPIE – EES	DPIE – NPWS

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.3 Manage beaches and foreshores to conserve marine park values.						
P1.3g	Support development and implementation of a site action plan for shorebirds in the Port Stephens estuary.	Shorebirds have been identified as an important value for the Port Stephens estuary.	Planning	Saving our Species	Hunter Local Land Services	Birdlife Australia, DPI Fisheries DPIE – EES, Port Stephens Council, DPIE – Crown Lands
1.5 Enhance marine habitat.						
P1.5d	Undertake research to understand the potential value of oyster infrastructure to shorebird and fish habitat.	By understanding the value of oyster lease infrastructure to shorebirds, it may be possible to enhance this value more widely.	Research	Saving our Species	DPI Fisheries	NSW Shellfish Committee, Oyster growers, DPIE – EES
P1.5e	Map the location and support the ongoing removal of derelict oyster lease infrastructure and remediation of habitat impacts.	Derelict oyster leases remain a community concern for water quality, hydrology and fish habitat in the Port Stephens-Great Lakes Marine Park.	Rehabilitation	Oyster Industry Sustainable Aquaculture Strategy	DPI Fisheries	NSW Shellfish Committee, NSW Farmers Association (Oyster Committee), OceanWatch Australia, DPIE – EES, DPIE – Crown Lands

JERVIS BAY MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.2 Conserve marine habitat, species and ecosystem values.						
J1.2g	Support implementation of priority actions to protect and recover Cauliflower Soft Coral *Dendronephthya australis*.	Jervis Bay is one of only five sites in NSW where the Cauliflower Soft Coral is known to occur.	Planning	Strategy Initiative 7, *Fisheries Management Act* Priorities Action Statement	DPI Fisheries	Transport for NSW, Shoalhaven City Council, DPIE – Crown Lands, Underwater Research Group
1.3 Manage beaches and foreshores to conserve marine park values.						
J1.3g	Support development and implementation of a Domestic Waterfront Structures Strategy for Currambene Creek.	Identification of appropriate and inappropriate areas for waterfront structures ensures clear expectations for residents and developers, can expedite approval processes and ensure consideration of marine park values.	Planning	Strategy Initiative 2, Coastal Management Program, NSW Maritime Infrastructure Plan	DPI Fisheries	Shoalhaven City Council, DPIE – Crown Lands, DPIE – EES, DPIE – Planning and Assessment, Transport for NSW

BATEMANS MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
1.2 Conserve marine habitat, species and ecosystem values.						
B1.2g	Undertake priority actions to support protection and recovery of the critically endangered Marine Slug *Smeagol hilaris*.	Smeagol has not been found outside of Batemans Marine Park with the only known location at Merry Beach.	Planning	Fisheries Management Act Priorities Action Statement	DPI Fisheries	
B1.2h	Implement priority actions to protect and recover the vulnerable Gould's Petrel, including monitoring and habitat protection.	Batemans Marine Park includes particularly significant sites for the vulnerable Gould's Petrel.	Planning	*Biodiversity Conservation Act 2016*, Saving Our Species, Strategy Initiative 5	DPIE – EES	DPIE – NPWS
B1.2i	Continue Sea Urchin removal research to investigate potential impacts of Sea Urchin removal on biodiversity and ecosystem health.	Local stakeholders are very concerned about the impact of Sea Urchin barrens on local values.	Research		DPI Fisheries	Commercial fishers, conservation groups
B1.2j	Undertake research to understand Sea Urchin barrens and ecological processes at finer scales of between 100m and 1km, below 15 metre depth and at night.	Research has shown Sea Urchin barrens to be an important and stable ecological feature of the temperate rocky reefs of NSW at large spatial scales. However, little is known about ecological interactions and the impact of barrens at finer spatial scales and below 15 metres of depth. Some surveys at night may also be required to more accurately estimate population size and demography.	Research		DPI Fisheries	
1.3 Manage beaches and foreshores to conserve marine park values.						
B1.3g	Support development and implementation of a Domestic Waterfront Structures Strategy for the Clyde River.	Identification of appropriate and inappropriate areas for waterfront structures ensures clear expectations for residents and developers, can expedite approval processes and ensure consideration of marine park values.	Planning	Strategy Initiative 2, Coastal Management Program, NSW Maritime Infrastructure Plan	DPI Fisheries	Eurobodalla Shire Council, DPIE – Crown Lands, DPIE – EES, DPIE – Planning and Assessment, Transport for NSW
1.5 Enhance marine habitat.						
B1.5d	Map the location and support the ongoing removal of derelict oyster lease infrastructure and remediation of habitat impacts.	Derelict oyster leases remain a concern for water quality, hydrology and fish habitat in Batemans Marine Park.	Rehabilitation	Oyster Industry Sustainable Aquaculture Strategy	DPI Fisheries	NSW Shellfish Committee, NSW Farmers Association (Oyster Committee), OceanWatch Australia, DPIE – EES, DPIE – Crown Lands; Transport for NSW

OBJECTIVE 2) To improve water quality and reduce marine litter for the environment and community

The suite of actions delivering this objective is responding to threats in the water quality threat theme.

ACTIONS FOR IMPLEMENTATION ACROSS THE NSW MAINLAND MARINE PARK NETWORK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
2.1 Protect riparian buffers.						
2.1a	Strengthen land use planning and development consent provisions for new development to protect riparian buffers in marine park catchments.	New development can occur to mean high water mark in marine park catchments, posing a high risk to water quality.	Rules	Coastal Management Program, Environmental Planning Instruments	DPIE – Planning and Assessment	DPI Fisheries, Local Government, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association
2.1b	Support natural resource management programs to prioritise marine park catchments and undertake on-ground works for riparian protection and rehabilitation, including stock management.	Marine parks are not considered in natural resource management prioritisation frameworks.	Policy	Strategy Initiative 1, Coastal Management Program	DPI Fisheries	Local Land Services, National Landcare Program, Catchment Action NSW, Landcare NSW, Local Government, DPIE – Crown Lands, DPIE – EES, NSW Environmental Trust, Parks Australia, OceanWatch Australia, Professional Fishermen's Association
2.1c	Undertake targeted education with riparian land managers to increase understanding of the value of healthy riparian zones and enforcement of fish habitat offences where necessary.	Damage to marine vegetation has been established as an offence under the *Fisheries Management Act 1994* for several years. Marine park stakeholders, particularly oyster growers, are seeking increased action to respond to this priority threat.	Compliance	Strategy Initiative 1, Coastal Management Program	DPI Fisheries	Local Land Services, National Landcare Program, Catchment Action NSW, Landcare NSW, NSW Shellfish Committee, NSW Farmers Association (Oyster Committee), Conservation groups, OceanWatch Australia, Professional Fishermen's Association
2.2 Reduce marine debris.						
2.2a	Support monitoring programs in accordance with the Key Littered Items Study standard method (including citizen science) to identify priority local marine debris sources and hot spots for remediation.	Sources of marine debris must be understood to ensure action to reduce marine debris is effective.	Research	Strategy Initiative 1, Coastal Management Program, NSW Marine Debris Threat and Risk Assessment, NSW Litter Prevention Strategy	DPIE – EES	DPI Fisheries, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
2.2b	Deliver marine debris and catchment to coast community education and clean-up programs to change litter practices and reduce litter.	Understanding of the impact of marine debris can support practice change.	Education	Strategy Initiative 1, Coastal Management Program, NSW Marine Debris Threat and Risk Assessment, NSW Litter Prevention Strategy, Commonwealth Underwater Cultural Heritage program	DPIE – EES	NSW Environment Protection Authority, DPI Fisheries, Transport for NSW, Parks Australia, Recreational fishing stakeholders, Landcare NSW, Local Government, Heritage NSW, OceanWatch Australia, Professional Fishermen's Association
2.2c	Undertake targeted education to reduce recreational fishing waste from pelagic floats, cyalume light sticks, soft plastics, bait bags, discarded fishing line.	Fishing waste can impact environmental values and recreational fishing social licence.	Education	Strategy Initiatives 1 and 6, NSW Recreational Fishing Environmental Assessment and Fishery Management Strategy	DPI Fisheries	Recreational fishing stakeholders, Transport for NSW, Parks Australia, DPIE-EES
2.2d	Explore development of innovative, reusable or biodegradable fishing gear, such as pelagic floats, cyalume light sticks, soft plastics and bait bags to reduce the threat from discarded fishing waste.	Reusable or biodegradable alternatives may be available for some common waste products.	Research	Strategy Initiatives 5 and 6, NSW Recreational Fishing Environmental Assessment and Fishery Management Strategy	DPI Fisheries	Recreational fishing stakeholders, Professional Fishermen's Association, OceanWatch Australia, Parks Australia
2.2e	Progress sustainable marine park and fisheries management that minimises marine debris and the carbon footprint, including minimising the use of plastic or harmful substances in management tools, assets, infrastructure and approved activities.	In supporting the community to implement sustainable practices, marine park management must equally strive for best-practice, for example sustainable alternatives for plastic fish measurers, lobster tag tails and plastic sediment and erosion control material, sustainable boat anti-fouling and pontoon infrastructure, energy efficiency etc.	Infrastructure		DPI Fisheries	DPIE – EES, Transport for NSW, Local Government, Parks Australia
2.3 Reduce diffuse and point source pollution.						
2.3a	Develop a map identifying areas in marine park catchments that require DPI Fisheries concurrence for development, so that potential impacts on marine park water quality can be assessed and mitigated.	Development in marine park catchments with the potential to impact water quality is not currently required to consider marine park values.	Rules	Environmental Planning Instruments, Coastal Management Program	DPI Fisheries	DPIE – Planning and Assessment, Local Government, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
2.3b	Undertake targeted education with development consent authorities (including staff and councillors) to support them to understand development approval requirements in relation to marine parks and opportunities to minimise impacts on marine park values.	Understanding of potential impacts of development on marine park values is often low.	Education	Fish Friendly Councils, Risk-based Framework for Waterway Health	DPI Fisheries	DPIE – EES, DPIE – Planning and Assessment, Local Government, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association
2.3c	Develop and implement best-practice water sensitive design standards for marine park catchments.	Best-practice water sensitive design is not commonly implemented in new developments.	Planning	Coastal Management Program, Fish Friendly Councils	DPIE – EES	DPI Fisheries, DPIE – Planning and Assessment, Local Government, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association
2.3d	Develop and implement an urban stormwater management plan for each urbanised subcatchment flowing into a marine park and install stormwater quality improvement devices to target identified litter hot spots where appropriate.	Urban stormwater impacts have been identified as a priority threat and remain a key concern for marine park stakeholders.	Planning	Coastal Management Program, NSW Marine Debris Threat and Risk Assessment, Fish Friendly Councils	Local Government	DPI Fisheries, DPIE – EES, DPIE – Crown Lands, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association
2.3e	Support development and implementation of best-practice water, nutrient, soil, vegetation, fish passage, floodplain, herbicide and pesticide management guidelines for key agricultural industries and public land managers in marine park catchments.	Some industries do not have best-practice guidelines that cover potential impacts to marine park water quality, or best-practice is not well implemented.	Education	Strategy Initiatives 1 and 2	DPI Agriculture & Fisheries	Local Land Services, Landcare NSW, NSW Farmers Association, DPIE – EES, DPIE Crown Lands, Forestry Corporation, DPIE – Water, NRAR, Agricultural industry organisations, OceanWatch Australia, Professional Fishermen's Association
2.3f	Support implementation of consistent local water quality monitoring programs to identify and prioritise local septic, sewage and point source pollution hot spots for enforcement or remediation action.	A range of local water quality monitoring programs are undertaken and can be coordinated to identify hot spots for action.	Research	Coastal Management Program, NSW Shellfish Program, BeachWatch program	DPIE – EES	NSW Environment Protection Authority, DPI Fisheries, Local Government, Local Land Services, NSW Food Authority, Transport for NSW, NSW Shellfish Committee, OceanWatch Australia, Professional Fishermen's Association

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
2.3g	Undertake research to understand the potential impact of chemical and endocrine stressors on ecological values.	There is growing concern about the potential impact of endocrine disrupting substances from sewage on marine species, habitats and ecosystems. Research has been undertaken in NSW to understand impacts on oysters, but broader impacts remain a knowledge gap.	Research	Coastal Management Program, NSW Shellfish Program	DPI Fisheries	DPIE – EES, NSW Environment Protection Authority, Local Government, NSW Food Authority, Research institutions, OceanWatch Australia, Professional Fishermen's Association
2.3h	Support local marine pollution prevention, preparedness, response and recovery, including risk assessment, planning, training, capacity building and remediation to minimise impact to marine park values.	Maritime vessel accidents do occasionally occur in marine parks and local stakeholders are keen to support response that prioritises protection of marine park values.	Planning	NSW State Waters Marine Oil and Chemical Spill Contingency Plan, Strategy Initiative 7	Transport for NSW	DPI Fisheries, DPIE – EES, Parks Australia, OceanWatch Australia, Professional Fishermen's Association
2.3i	Identify high priority dirt roads for sealing, sediment and erosion management and support implementation of best-practice forestry to reduce sediment runoff within marine park catchments.	Sedimentation from dirt roads and forestry practices has been identified by stakeholders as a threat to marine park values.	Infrastructure	Strategy Initiative 1, Coastal Management Program	Local Government	DPIE – EES, DPIE – NPWS, Local Land Services, DPI-Forestry, Forestry Corporation, DPI Fisheries, OceanWatch Australia, Professional Fishermen's Association
2.4 Minimise impact from sediment contamination.						
2.4a	Undertake research in locations at high risk due to historical use to understand the presence and potential impact of sediment contaminants.	The potential impact of sediment contaminants in high risk locations is often unknown.	Research	Coastal Management Program	DPIE – EES	DPI Fisheries, Local Government, DPIE – Crown Lands

ADDITIONAL LOCAL ACTIONS

CAPE BYRON MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
2.3 Reduce diffuse and point source pollution						
C2.3j	Identify and remediate sources of sewage contamination in the Brunswick River to improve water quality and support safe harvest of seafood.	The Brunswick River is closed to oyster harvest for human consumption due to sewage contamination, severely impacting the oyster industry.	Research	Strategy Initiative 1, NSW Shellfish Program	DPI Fisheries	Byron Shire Council, Local Land Services, DPIE – EES, NSW Environment Protection Authority, NSW Food Authority
C2.3k	Undertake current and flood plume mapping to understand the influence of the Richmond River catchment on Cape Byron Marine Park water quality.	There is community concern that Richmond River water quality may have a greater impact on marine values than catchments within the marine park.	Research	Strategy Initiative 1	DPIE – EES	DPI Fisheries

SOLITARY ISLANDS MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
2.3 Reduce diffuse and point source pollution						
S2.3j	Undertake research to understand the impact of elevated estuary nutrient levels and trace metals on nearshore marine environments.	Scientific research has demonstrated very high levels of nutrients and trace metals in some marine park estuaries, but the impact on nearshore marine environments is unknown.	Research	Strategy Initiative 1	DPI Fisheries	DPIE – EES, Parks Australia, OceanWatch Australia, Professional Fishermen's Association

PORT STEPHENS-GREAT LAKES MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
2.3 Reduce diffuse and point source pollution.						
P2.3j	Consider expanding the Karuah River Catchment Management Plan approach to all Port Stephens-Great Lakes Marine Park catchments.	Local stakeholders have identified the Karuah River Plan as an effective tool to improve local catchment water quality.	Planning	Coastal Management Program	Mid Coast Council, Port Stephens Council	Local Land Services, DPI Fisheries
2.4 Minimise impact from sediment contamination.						
P2.4b	Understand and mitigate the impacts of PFAS pollution on marine park values.	Per- and polyfluoroalkyl substances (PFAS) have been identified in Tilligerry Creek with impacts on consumption of seafood from the area.	Planning	Coastal Management Program	NSW Environment Protection Authority	DPIE – EES, Department of Defence, Port Stephens Council, NSW Food Authority, NSW Environmental Protection Authority, Local Land Services, DPI Fisheries

JERVIS BAY MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
2.4 Minimise impact from sediment contamination						
J2.4b	Understand and mitigate the impacts of PFAS pollution on marine park values.	Per- and polyfluoroalkyl substances (PFAS) have been identified in adjacent Commonwealth waters at the Jervis Bay Range Facility and HMAS Creswell.	Planning	Coastal Management Program	NSW Environment Protection Authority	DPIE – EES, Department of Defence, Shoalhaven City Council, NSW Food Authority, NSW Environmental Protection Authority, Local Land Services, DPI Fisheries

OBJECTIVE 3) To help understand, mitigate and adapt to the impacts of climate change on the NSW marine estate

The suite of actions delivering this objective is responding to threats in the climate change threat theme.

ACTIONS FOR IMPLEMENTATION ACROSS THE NSW MAINLAND MARINE PARK NETWORK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
3.1 Understand, mitigate and adapt to the impacts of climate change						
3.1a	Undertake a climate change risk assessment for each marine park and the NSW marine park network and identify priority research and adaptation actions and options to minimise risk.	Early planning is required to understand risk and respond.	Planning	Strategy Initiative 3	DPIE – EES	DPI Fisheries, Parks Australia, Heritage NSW, OceanWatch Australia, Professional Fishermen's Association
3.1b	Identify areas to provide representative protection to marine park ecosystems and biodiversity from human-induced stressors to increase adaptation and resilience of the NSW marine estate and Australian east coast to the impacts of climate change.	Spatial management can provide areas that are protected from cumulative, human-induced stressors to maximise resilience and increase adaptation to climate change stressors. The NSW marine park network has been identified as an important tool to support an Australian east coast resilience strategy.	Rules	Strategy Initiative 3, Saving our Species	DPI Fisheries	DPIE – EES, Parks Australia, Transport for NSW
3.1c	Plan for marine park habitat (including seaweed, seagrass, mangrove, saltmarsh, riparian zone, beach and mudflat, shellfish reef) migration or translocation under climate change scenarios.	Planning for habitat migration or translocation is required to ensure important marine park values are not squeezed out between rising sea levels and foreshore development.	Planning	Strategy Initiatives 2 & 3, Saving our Species	DPI Fisheries	DPIE – EES, Local Government, DPIE – Crown Lands, DPIE – Planning and Assessment, OceanWatch Australia, Professional Fishermen's Association
3.1d	Identify blue carbon opportunities within marine parks.	Conservation, restoration and protection of coastal and marine ecosystems in marine parks may present opportunities to sequester and store carbon, helping to mitigate climate change.	Planning	Strategy Initiatives 2 & 3, NPWS Climate Change Adaptation Strategy	DPIE – EES	DPI Fisheries, Parks Australia, Industry, OceanWatch Australia, Professional Fishermen's Association

OBJECTIVE 4) To partner with Aboriginal people for protection of Aboriginal cultural values and improved marine park management

The suite of actions delivering this objective is responding to threats in the Aboriginal culture threat theme.

ACTIONS FOR IMPLEMENTATION ACROSS THE NSW MAINLAND MARINE PARK NETWORK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
4.1 Improve access and opportunity for Aboriginal cultural values.						
4.1a	Support development and implementation of Aboriginal cultural resource use agreements, Sea Country plans or other planning tools in accordance with the aspirations of local Aboriginal people to conserve cultural values, facilitate cultural use and conserve significant sites.	Aboriginal cultural access, sites and economic opportunity have been impacted by government closures. There are many planning tools available to conserve and enhance Aboriginal cultural values for Sea Country. Preferred tools should be selected by local Aboriginal people according to their needs and aspirations.	Aboriginal culture	Strategy Initiative 4, Sea Country Plans, National Park Plans of Management, NSW Aboriginal Water Strategy, Our Place on Country – Aboriginal Outcomes Strategy 2020-2023	DPI Fisheries	Traditional Owners, Local Aboriginal Land Councils, Heritage NSW, DPIE – EES, DPIE – NPWS, Parks Australia
4.1b	Provide areas of protection for Aboriginal cultural sites or values.	Spatial management can map sites or areas of significant cultural value and provide protection from specific or cumulative threats.	Rules	Strategy Initiative 4	DPI Fisheries	Traditional Owners
4.1c	Support safe and sustainable Aboriginal cultural harvest of shellfish.	Food safety risks and rules have impacted Aboriginal harvest and culture.	Aboriginal culture	Strategy Initiative 4, Strategy Initiative 1 – Oyster Reef Restoration	DPI Fisheries	Traditional Owners, NSW Food Authority
4.1d	Support Aboriginal people to undertake marine wildlife monitoring and respond to marine wildlife strandings, entanglement and other events to engage Aboriginal people in marine wildlife management and ensure consideration of local cultural protocols.	Marine wildlife has cultural and totemic significance for Traditional Owners and Aboriginal people can be engaged to deliver marine wildlife event response.	Aboriginal culture	Strategy Initiatives 4 & 5	DPIE – NPWS DPI Fisheries	Traditional Owners, Local Government, DPIE – Crown Lands, Parks Australia
4.1e	Work with Traditional Owners to protect special Aboriginal cultural values and sites from the impacts of foreshore and riparian development, erosion, climate change, four wheel driving, domestic dogs and pedestrians.	Education, infrastructure, rules and spatial management can protect important sites from specific threats where and when needed.	Aboriginal culture	Sea Country Plans, Coastal Management Program, National Park Plans of Management	Traditional Owners	DPI Fisheries, Local Government, DPIE – Crown Lands, DPIE – NPWS

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
4.1f	Support new Aboriginal aquaculture and tourism businesses, career pathways and employment.	Marine parks may provide opportunities to nurture new Aboriginal marine business opportunities and employment.	Aboriginal culture	Strategy Initiative 4	DPI Fisheries	Traditional Owners, Local Aboriginal Land Councils, Destination North Coast, Parks Australia
4.2 Incorporate traditional Aboriginal knowledge in marine park management.						
4.2a	Embed traditional Aboriginal knowledge, wisdom and culture in marine park management, including through engagement, training and employment of Aboriginal people.	Incorporating Aboriginal knowledge in marine park management has been identified as a specific priority for the marine estate reforms.	Aboriginal culture	Strategy Initiative 4	DPI Fisheries	DPIE – EES, DPIE – Planning and Assessment, Transport for NSW, Heritage NSW, Traditional Owners, Local Aboriginal Land Councils, Parks Australia
4.2b	Support marine park staff and marine park advisory committees to undertake locally-relevant Aboriginal cultural awareness training.	Training for staff and marine park advisory committees is an important first step in incorporating Aboriginal cultural values into marine park management and decision-making.	Aboriginal culture	Strategy Initiative 4	DPI Fisheries	Traditional Owners, Parks Australia, Heritage NSW
4.2c	Work with Traditional Owners to identify traditional Aboriginal names for each marine park and include local Aboriginal language in marine park education material.	Traditional names and language are important Aboriginal cultural values to be conserved.	Aboriginal culture	Strategy Initiative 4	Traditional Owners	DPI Fisheries, Parks Australia, Heritage NSW
4.2d	Work with Aboriginal knowledge holders to increase community education, understanding and respect for Aboriginal cultural values for Sea Country and threats to those values.	Education can increase community understanding and respect for Aboriginal cultural values.	Aboriginal culture	Strategy Initiative 4	DPI Fisheries	Traditional Owners, Local Aboriginal Land Councils, Heritage NSW, DPIE – EES, Parks Australia, Local Land Services

ADDITIONAL LOCAL ACTIONS

SOLITARY ISLANDS MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
4.1 Improve access and opportunity for Aboriginal cultural values.						
S4.1g	Develop site management plans to protect significant Aboriginal cultural sites at Red Rock and Moonee Creek.	Significant sites are currently impacted by erosion, pedestrian access and interference.	Aboriginal culture	Strategy Initiative 4	Coffs Harbour & District Local Aboriginal Land Council	Traditional Owners, DPI Fisheries, Coffs Harbour City Council, Heritage NSW, DPIE – Crown Lands, DPIE – NPWS, Reflections Holiday Parks, Local Land Services Soil Conservation Service, Parks Australia

PORT STEPHENS-GREAT LAKES MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
4.1 Improve access and opportunity for Aboriginal cultural values						
P4.1g	Support finalisation and implementation of the Worimi Cultural Resource Use Agreement.	This has been identified as a joint priority by the Worimi Traditional Owners and DPI Fisheries to conserve local Aboriginal cultural values.	Aboriginal culture	Strategy Initiative 4	DPI Fisheries	Worimi Traditional Owners, Parks Australia

OBJECTIVE 5) To improve access and opportunity for enhanced social, cultural and economic values from marine parks

The suite of actions delivering this objective is responding to threats in the community access and opportunity threat theme.

ACTIONS FOR IMPLEMENTATION ACROSS THE NSW MAINLAND MARINE PARK NETWORK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.1 Improve access and opportunity for boating.						
5.1a	Work with local stakeholders to map and improve the network of formal boat and watercraft launching, fish cleaning, boat storage and boat maintenance facilities in marine parks to facilitate access for powered and unpowered watercraft and ensure facilities best meet local needs.	Boat launching facilities critically underpin many marine park uses and values but are subject to increasing congestion. Local stakeholders are not always given the opportunity to ensure their design meets local needs.	Infrastructure	Boating Now, NSW Maritime Infrastructure Plan, Coastal Management Program, National Park Plans of Management, Strategy Initiative 7, Commonwealth Underwater Cultural Heritage program	Transport for NSW	DPI Fisheries, Local Government, DPIE – Crown Lands, DPIE – NPWS, Regional Boating Advisory Groups, recreational fishing stakeholders, Heritage NSW, OceanWatch Australia, Professional Fishermen's Association
5.2 Improve access and opportunity for commercial fishing and aquaculture.						
5.2a	Map and maintain commercial fishing and aquaculture access points, including travel routes, boat ramps and beach access points.	Commercial fishing and aquaculture access points and travel routes have been eroded by government and private closures.	Planning	Boating Now, Coastal Management Program, National Park Plans of Management, Strategy Initiative 6	DPI Fisheries	Commercial fishing peak stakeholder and advisory groups, NSW Shellfish Committee, NSW Aquaculture Steering Committee, Local Government, DPIE – Crown Lands, DPIE – NPWS, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.2b	Enhance access and opportunity for commercial fishing practices where they have been identified as a low or minimal threat to habitat and threatened species.	This action involves review of existing rules that relate to specific commercial fishing methods at specific locations through the management rules process. Historical habitat protection zone rules have prohibited some commercial fishing practices that have not been identified as a priority threat to habitat. Commercial fisheries management has undergone significant reform since existing rules were put in place and is subject to different arrangements under the *Fisheries Management Act*. Most methods of commercial fishing are rated as a low or minimal threat to all types of habitat in the TARA. There may be evidence-based opportunities to enhance commercial fishing without adversely impacting environmental values.	Rules	Marine Stewardship Council's Standard for Sustainable Fisheries accreditation	DPI Fisheries	Commercial fishing peak stakeholder and advisory groups, DPIE – EES, Transport for NSW, OceanWatch Australia, Professional Fishermen's Association
5.2c	Identify and promote the value of the local commercial fishing industry, local aquaculture industry and opportunities to enjoy fresh local seafood.	Commercial fishing and aquaculture industries have significantly contributed to the development, culture and values of many regional areas in NSW. Fresh local seafood supports community health and wellbeing and local commercial fishing, aquaculture, seafood and tourism industries.	Education	Strategy Initiative 6	DPI Fisheries	NSW Shellfish Committee, NSW Aquaculture Steering Committee, OceanWatch Australia, Professional Fishermen's Association, Seafood industry and commercial fishing peak stakeholder and advisory groups, Local Fishermen's Co-operatives, NSW Farmers Association (Oyster Committee), Destination NSW, Parks Australia
5.2d	Support access to Priority Oyster Aquaculture Areas for oyster growers with consistent consent requirements that support best-practice.	Consistent consent requirements will resolve historical inconsistency and can support best-practice to protect habitat and water quality.	Rules	Oyster Industry Sustainable Aquaculture Strategy	DPI Fisheries	NSW Shellfish Committee, NSW Farmers Association (Oyster Committee)
5.2e	Use spatial management to promote the value of oyster lease areas to the community and support oyster growers to enhance environmental values.	Industry reports that special purpose zones have reduced damage to oyster infrastructure and oyster theft in some areas. Enhanced spatial management may provide opportunities for oyster growers to access some environmental stewardship programs available to terrestrial farmers.	Rules	Oyster Industry Sustainable Aquaculture Strategy, Land for Wildlife, Agricultural Stewardship Package	DPI Fisheries	NSW Shellfish Committee, NSW Farmers Association (Oyster Committee), Transport for NSW

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.2f	Explore opportunities for sustainable algae aquaculture in marine parks.	Algae aquaculture presents blue carbon opportunities; however, some marine park management rules currently prohibit algae production.	Rules	Marine Waters Sustainable Aquaculture Strategy	DPI Fisheries	NSW Aquaculture Steering Committee, DPIE – EES, Transport for NSW
5.2g	Undertake a risk assessment to inform development of a policy on commercial harvest of marine vegetation in NSW marine parks.	There is increasing interest in commercial collection of seaweed wrack and live seaweed. This activity is currently subject to multiple provisions of Fisheries and Marine estate legislation and approval pathways are unclear.	Planning		DPI Fisheries	
5.2h	Undertake a risk assessment to inform development of a policy on developmental commercial fisheries in marine parks.	There is currently not a consistent approach to consideration of developmental fisheries in marine parks, leading to confusion and frustration for proponents.	Planning		DPI Fisheries	Professional Fishermen's Association
5.3 Protect maritime heritage.						
5.3a	Identify, protect and promote maritime heritage assets, values and opportunities, including through site-specific planning, infrastructure (e.g. moorings, access management or underwater heritage trails), education and engagement (including the Wreckspotters and Gathering Information via Recreational and Technical (GIRT) community programs).	Awareness of maritime heritage assets is low and opportunities to protect and enjoy these values are missed.	Planning	Strategy Initiative 8, Commonwealth Underwater Cultural Heritage program, NSW Maritime Heritage program, GIRT, Wreckspotters	Heritage NSW	DPI Fisheries, GIRT, Transport for NSW, DPIE – NPWS, Parks Australia
5.4 Improve access and opportunity for outdoor recreation and enjoyment.						
5.4a	Enhance access and opportunity for outdoor recreation in and adjacent to marine parks, including kayaking, canoeing, snorkelling, scuba diving and walking facilities and infrastructure such as access points, steps, handrails, launch platforms, snorkel trails and artificial reefs.	Many forms of outdoor recreation are valued within marine parks and enhanced infrastructure can improve safe access, reduce user conflicts and enhance access opportunities. Any proposed structures would be in line with the purposes of marine parks and subject to environmental assessment processes.	Infrastructure	Coastal Management Program, Boating Now, National Park Plans of Management	DPI Fisheries	Local Government, DPIE – Crown Lands, DPIE – NPWS, Transport for NSW
5.4b	Enhance shore-based access and opportunity for wildlife appreciation, such as shore bird, sea bird, dolphin and whale watching, including through associated infrastructure.	Wildlife appreciation delivers many values to the community and enhanced infrastructure can improve safe access and opportunity.	Infrastructure	Coastal Management Program, National Park Plans of Management, Strategy Initiative 5	DPIE – EES	DPI Fisheries, Local Government, DPIE – NPWS, DPIE – Crown Lands, Transport for NSW

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.4c	Enhance access and opportunity for disabled and elderly people in marine parks.	Enhanced infrastructure can support all members of the community to enjoy marine park values.	Infrastructure	Coastal Management Program, Boating Now, National Park Plans of Management	DPI Fisheries	Local Government, DPIE – Crown Lands, DPIE – NPWS, Transport for NSW
5.5 Improve access and opportunity for recreational fishing (including spearfishing).						
5.5a	Support innovative structures and infrastructure to enhance recreational fishing opportunities, including artificial reefs and fishing platforms.	Innovative structures and infrastructure can enhance recreational fishing opportunities and offset areas set aside for ecological protection. Any proposed structures would be in line with the purposes of marine parks and subject to environmental assessment processes.	Infrastructure	Strategy Initiative 6, Fish for Life – Building a Healthy Fishing Future	DPI Fisheries	Recreational fishing stakeholders, Transport for NSW
5.5b	Work with recreational fishers to identify high value recreationally important species for each marine park and opportunities for marine parks to enhance those species, including by considering specific threats, fish habitat, spawning and life cycle needs, stocking and habitat rehabilitation.	Marine parks can provide unique opportunities to protect and enhance specific, high value recreationally important species.	Planning	NSW Recreational Fishing Environmental Assessment, Fish for Life – Building a Healthy Fishing Future, Strategy Initiative 6, Fish Stocking Program	DPI Fisheries	Recreational fishing stakeholders, Transport for NSW
5.5c	Enhance access and opportunity for recreational fishing (including spearfishing) practices where they have been identified as a low or minimal threat to habitat and threatened species.	This action involves review of existing rules that relate to specific recreational fishing methods at specific locations through the management rules process. Some existing rules to protect habitat or threatened species have prohibited some recreational fishing techniques that may not impact habitat or threatened species. Marine parks can also provide unique opportunities for high quality low or minimal risk recreational fishing experiences that may showcase best-practice recreational fishing (e.g. catch and release fishing, wilderness or kayak fishing areas, trophy waters that may have different bag and size or slot limits). Spearfishing was not identified as a high or moderate priority threat to environmental values in the TARA and is already constrained to a limited area by depth. All methods of recreational fishing are rated as a low or minimal threat to all types of habitat in the TARA. There may be evidence-based opportunities to enhance recreational fishing without adversely impacting environmental values.	Rules	NSW Recreational Fishing Environmental Assessment, Fish for Life – Building a Healthy Fishing Future	DPI Fisheries	Recreational fishing stakeholders, DPIE – EES, Transport for NSW

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.5d	Identify opportunities for recreational fishers to undertake citizen science to monitor change associated with enhancing recreational fishing experiences, innovative recreational fishing structures and infrastructure, management of recreationally important species and enhancing recreational fishing access.	Recreational fishers want to actively contribute to research and monitoring of any changed management to help ensure it is most effective.	Research	NSW Recreational Fishing Environmental Assessment, Fish for Life – Building a Healthy Fishing Future, NSW Game Fish Tagging Program, Research Angler Program, Strategy Initiative 6	DPI Fisheries	Recreational fishing stakeholders
5.5e	Undertake research to identify the social objectives, wellbeing, satisfaction, cultural values and economics of recreational fishing in marine parks and promote these values to enhance understanding between marine park users.	Recreational fishing is often perceived as a purely extractive value and the broader social health, wellbeing, relaxation, socialising, connecting to natural environment, cultural and economic values may be poorly understood. This misunderstanding may contribute to resource use conflict with other groups. Recreational fishers have also identified a need to investigate the social objectives, wellbeing and satisfaction of recreational fishers in marine parks to inform innovative strategies around maximum experiential yield and satisfaction harvest.	Research	Strategy Initiative 6	DPI Fisheries	Recreational fishing stakeholders
5.6 Provide safe opportunities that are free from conflict.						
5.6a	Assess resource use overcrowding and conflict issues and hotspots in each marine park and implement actions to balance conflicting values.	Areas of overcrowding and conflict between different uses and values must be properly understood so that actions can be carefully tailored to share and balance access, wellbeing and safety. Many potential management actions may be considered to balance conflicting values. Education, temporal management and spatial management represent just a few of many potential options.	Planning	Coastal Management Program, National Park Plans of Management, Maritime Safety Plan	DPI Fisheries	Transport for NSW, Local Government, DPIE – Crown Lands, DPIE – NPWS, OceanWatch Australia, Professional Fishermen's Association
5.6b	Support education programs to increase community understanding of beach and water safety (e.g. shark and jellyfish interactions, water quality, drowning, rock fishing and boating) and strategies to reduce risk.	Education can support the community to minimise the impact of adverse wildlife interactions, water quality and drowning on safety and wellbeing.	Education	SharkSmart education program, Coastal Management Program, Maritime Safety Plan	Local Government	DPI Fisheries, Surf Life Saving NSW, Transport for NSW

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.6c	Require marine park consent for organised fish feeding to allow consideration of risk to community safety, prohibit discard of fish cleaning waste in areas used for diving, snorkelling, swimming and surfing and prohibit organised shark attraction activities.	Community safety concerns for fish feeding and shark attraction activities in marine parks are high.	Rules		DPI Fisheries	Local Government
5.6d	Negotiate a local marine mammal carcass disposal agreement for each marine park that clearly outlines local procedures, responsibilities and cultural protocols to ensure an efficient response.	Several agencies share responsibility for marine mammals and beach safety and the cultural and totemic significance of marine mammal species for Traditional Owners is sometimes not well understood. This can lead to confusion and delays in marine mammal carcass disposal.	Partnerships		DPIE – EES	Local Government, DPIE – Crown Lands, Traditional Owners, DPI Fisheries, Transport for NSW, NSW Water Police, Surf Life Saving NSW
5.7 Improve tourism opportunities.						
5.7a	Identify priority tourism precincts, infrastructure and needs in each marine park.	Tourism is an important marine park value that can be enhanced in priority locations while minimising any impact on other values.	Planning	NSW Maritime Infrastructure Plan	DPI Fisheries	Local Government, DPIE – Crown Lands, DPIE – Planning and Assessment, DPIE – NPWS, Destination NSW, Transport for NSW
5.7b	Support marine park tourism operators and accommodation providers to promote marine park values and regional tourism opportunities.	Promotion of marine park values can enhance regional tourism opportunities.	Education		DPI Fisheries	Local Government, DPIE – Crown Lands, DPIE – NPWS, Destination NSW, Parks Australia
5.7c	Undertake a risk assessment to inform development of a policy on sustainable cruise ship visitation in NSW marine parks.	The cruise ship industry has identified opportunities to expand in Jervis Bay and cruise ships occasionally visit the waters of Batemans Bay. The cruise ship industry can make a valued contribution to regional economies, but it is important that activities do not have a negative impact on other marine park values.	Planning	NSW Cruise Development Plan	DPI Fisheries	Port Authority of NSW, Transport for NSW, DPI Fisheries, Shoalhaven City Council, Eurobodalla Shire Council, Destination NSW
5.8 Enhance bequest and intrinsic values.						
5.8a	Identify areas for protection of high conservation value to enhance bequest and intrinsic values.	High conservation areas are natural habitats which are of outstanding biodiversity or environmental value. Knowing that some areas are protected for future generations provides the broader community of NSW with bequest and intrinsic values, even if they do not personally visit these areas.	Rules		DPI Fisheries	DPIE – EES, Transport for NSW, DPIE – Planning and Assessment, Traditional Owners

ADDITIONAL LOCAL ACTIONS

CAPE BYRON MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.5 Improve access and opportunity for recreational fishing (including spearfishing).						
C5.5f	Explore opportunities to enhance access for artificial bait and fly fishing at the Mackerel Boulder.	Existing management rules prevent recreational fishing at the Mackerel Boulder for eight months of each year to protect threatened species and marine wildlife interactions. It may be possible to enhance access for some specific recreational fishing techniques that do not pose a threat to threatened species and marine wildlife.	Rules	Strategy Initiative 4	DPI Fisheries	Recreational fishing stakeholders, DPIE – EES

SOLITARY ISLANDS MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.2 Improve access and opportunity for commercial fishing and aquaculture.						
S5.2i	Undertake habitat mapping of marine soft sediments to inform evidence-based decision-making on the potential for access to these areas for minimal or low risk ocean prawn trawl fishing methods. Where mapping identifies habitats at minimal or low risk, consider the potential for additional ocean prawn trawl fishing access via general use zoning (or similar consistent zone type) across the marine park network.	Habitat mapping of soft sediments is a key knowledge gap. Ocean prawn trawl is a low or minimal risk fishery to certain habitat types and is currently managed inconsistently across the five mainland marine parks. This action seeks to undertake habitat mapping in a small area of the park to inform an evidence-based approach to management of access for this fishery.	Research		DPI Fisheries	Commercial fishing peak stakeholder and advisory groups
S5.2j	Promote the value of fresh local seafood by supporting seafood festivals and promoting local ocean haul activities during the seasonal mullet run.	Seafood festivals celebrate the value of fresh local seafood to community health, wellbeing and tourism. The seasonal mullet run presents an up close, interactive opportunity for the community to experience local, sustainable commercial fishing practices and culture.	Education		Professional Fishermen's Association	OceanWatch Australia, DPI Fisheries, Coffs Harbour City Council, Destination North Coast, Parks Australia

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.4 Improve access and opportunity for outdoor recreation and enjoyment.						
S5.4d	Install a safe access for shore-based snorkelling, scuba diving and dive training on the Coffs Harbour north wall adjacent to the western end of Muttonbird Island.	This area has long been identified by local stakeholders as a potential site to support access to high quality shore-based diving.	Infrastructure	Coastal Management Program	DPI Fisheries	Transport for NSW, Coffs Harbour City Council, DPIE – NPWS
5.5 Improve access and opportunity for recreational fishing (including spearfishing).						
S5.5f	Provide safe areas for children and beginners to spear fish.	With estuaries and the lee of all islands historically closed to spearfishing, there are limited safe areas for children and beginners to spear fish.	Rules		DPI Fisheries	Coffs Harbour Bluewater Freedivers, Spearfishing stakeholders, DPIE – EES, Transport for NSW

PORT STEPHENS-GREAT LAKES MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.2 Improve access and opportunity for commercial fishing and aquaculture.						
P5.2i	Promote the value of fresh local seafood by supporting the Love Seafood festival.	Seafood festivals celebrate the value of fresh local seafood to community health, wellbeing and tourism.	Education		Professional Fishermen's Association	OceanWatch Australia, DPI Fisheries, Parks Australia, Destination Port Stephens
5.4 Improve access and opportunity for outdoor recreation and enjoyment.						
P5.4d	Negotiate with relevant landholders to provide public access to the Pipeline shore-based dive site.	The Pipeline is renowned as one of the best shore-based dive sites in NSW, but public access has recently been lost due to private development.	Planning		DPI Fisheries	Port Stephens Council, DPIE – Crown Lands
P5.4e	Support development and implementation of the Tomaree Coastal Walk master plan to promote and enhance marine park values.	Development of this walk will provide additional opportunities to support marine park values including a variety of uses, education and tourism. Any activities will be subject to assessment and approval by the relevant land managers.	Planning		DPIE – NPWS	DPI Fisheries, DPIE – Crown Lands, Port Stephens Council, Destination Port Stephens

JERVIS BAY MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.5 Improve access and opportunity for recreational fishing (including spearfishing).						
J5.5f	Negotiate with Booderee National Park to allow transit of unloaded spear guns through the National Park to provide access to valued shore-based spearfishing sites in NSW marine park waters.	Historical access to shore-based spearfishing sites has been lost due to rules prohibiting transport of spear guns through Booderee National Park. The TARA did not identify spearfishing as a high or moderate threat to any marine park values.	Partnerships		DPI Fisheries	Booderee National Park (Parks Australia), Spearfishing stakeholders, Transport for NSW
5.6 Provide safe opportunities that are free from conflict.						
J5.6e	Undertake education programs to increase community understanding of seal behaviour and interactions and strategies to reduce risk.	Local community members have reported that seal interactions are increasing and may impact community safety and wellbeing.	Education	Strategy Initiative 5	DPIE – EES	DPI Fisheries

BATEMANS MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
5.2 Improve access and opportunity for commercial fishing and aquaculture.						
B5.2i	Undertake habitat mapping of marine soft sediments to inform evidence-based decision-making on the potential for access to these areas for minimal or low risk ocean prawn trawl fishing methods. Where mapping identifies habitats at minimal or low risk, consider the potential for additional ocean prawn trawl fishing access via general use zoning (or similar consistent zone type) across the marine park network.	Habitat mapping in marine soft sediments is a key knowledge gap. Ocean prawn trawl is a low or minimal risk fishery to certain habitat types and is currently managed inconsistently across the five mainland marine parks. This action seeks to undertake research in a small area to inform an evidence-based approach to management of access for this fishery.	Research		DPI Fisheries	Commercial fishing stakeholders
5.4 Improve access and opportunity for outdoor recreation and enjoyment.						
B5.4d	Create and promote a snorkel trail between Denhams Beach and Broulee Island.	Local community members have identified this opportunity to enhance marine park values.	Planning		DPI Fisheries	Batemans Chamber of Commerce, Eurobodalla Tourism, Transport for NSW
B5.4e	Provide safe, high quality, shore-based snorkel and dive opportunities.	Safe and high quality shore-based snorkel and dive opportunities provide important social and tourism values.	Rules		DPI Fisheries	Transport for NSW, Eurobodalla Tourism

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
B5.4f	Support development and implementation of the Murramarang South Coast Walk and Eurobodalla Spotted Gum Track to promote and enhance marine park values.	Development of these walks is under way by local stakeholders and will provide additional opportunities to support marine park values including a variety of uses, education and tourism. Any activities will be subject to assessment and approval by the relevant land managers (DPIE – NPWS and Eurobodalla Shire Council).	Planning		DPIE – NPWS Eurobodalla Shire Council	DPI Fisheries, DPIE – Crown Lands
5.6 Provide safe opportunities that are free from conflict.						
B5.6e	Undertake education programs to increase community understanding of seal behaviour and interactions and strategies to reduce risk.	Local community members have reported that seal interactions are increasing and may impact community safety and wellbeing.	Education	Strategy Initiative 5	DPIE – EES	DPI Fisheries

OBJECTIVE 6) To support evidence-based, inclusive and effective decision-making and marine park management

The suite of actions delivering this objective is responding to threats in the community engagement and governance threat theme.

ACTIONS FOR IMPLEMENTATION ACROSS THE NSW MAINLAND MARINE PARK NETWORK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
6.1 Improve knowledge to support evidence-based management.						
6.1a	Undertake a knowledge review, identify priority knowledge gaps required to conserve values and manage threats, and develop a living marine park network research prospectus that is continually updated to support evidence-based management.	Resources for research are limited and must be prioritised to answer key management questions.	Research	Marine Integrated Monitoring Program	DPI Fisheries	DPIE – EES, DPIE – Planning and Assessment, Transport for NSW, Parks Australia, Heritage NSW, OceanWatch Australia, Professional Fishermen's Association
6.1b	Identify opportunities for citizen science to fill priority knowledge gaps.	Citizen science actively engages the community and can play an important role in evidence-based management.	Research	Reef Life Survey	DPI Fisheries	DPIE – EES, Parks Australia, Heritage NSW, NSW Shellfish Committee, OceanWatch Australia, Professional Fishermen's Association, Underwater research groups
6.1c	Identify areas to provide sites for scientific research.	Areas of protection from other activities are valued as scientific reference sites to inform evidence-based management. Manipulative or destructive research is also sometimes required to answer priority knowledge gaps, but there are currently no undisturbed and controlled areas to support this research.	Rules		DPI Fisheries	DPIE – EES, Heritage NSW
6.1d	Develop a marine park network monitoring plan to ensure appropriate research, monitoring and metrics are in place to assess delivery of marine park management objectives across the network.	Research and monitoring is required to ensure marine park management is effective. This monitoring plan must assess environmental, social, cultural and economic values.	Research	Marine Integrated Monitoring Program, National MERI Framework for Australian Marine Parks	DPI Fisheries	DPIE – EES, DPIE – Planning and Assessment, Transport for NSW, Parks Australia, Heritage NSW, OceanWatch Australia, Professional Fishermen's Association

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
6.1e	Support social, cultural and economic scientific research, spatial mapping of values and consideration of traditional knowledge to better understand and conserve social, cultural and economic marine park values.	Lack of social, cultural and economic information has been identified as a threat to marine park values.	Research	Strategy Initiative 8, Coastal Management Program	DPI Fisheries	DPIE – EES, Parks Australia, Traditional Owners, Heritage NSW, Transport for NSW, Local Government, Heritage NSW, OceanWatch Australia, Professional Fishermen's Association
6.1f	Undertake a threat and risk assessment for maritime heritage values.	Maritime values cannot be conserved until priority threats to those values are understood.	Research	Strategy Initiative 8, Commonwealth Underwater Cultural Heritage program, NSW Maritime Heritage program, GIRT, Wreckspotters	Heritage NSW	DPI Fisheries, DPIE – EES, Parks Australia
6.1g	Develop a robust data system for marine park permitting to improve understanding of social, cultural and economic values and explore opportunities to streamline reporting across NSW and Commonwealth marine parks.	Marine park permitting can provide valuable social, cultural and economic value data to inform management. The ability to interrogate and analyse permit data is extremely limited by existing information systems. Permittee reporting data is currently requested, submitted, collated, stored and analysed inconsistently across marine parks. Permittees may be required to submit separate reports to DPI Fisheries and Parks Australia relating to the same activity.	Research	Strategy Initiative 9	DPI Fisheries	Parks Australia, Heritage NSW
6.1h	Improve communication of marine park research activities and their key findings to the community, including through publication of simple research summaries that are easy to understand.	Community awareness of research that is relevant to NSW marine parks is very low. Research is undertaken by many different organisations and findings are rarely presented in formats that are readily accessible or easy to understand by the broader community.	Education	Strategy Initiative 8	DPI Fisheries	DPIE – EES, Research institutions, Parks Australia, Heritage NSW, OceanWatch Australia, Professional Fishermen's Association
6.2 Improve education, stewardship and compliance.						
6.2a	Develop and implement a communication, education and engagement plan for the marine park network to increase community understanding and stewardship of marine park values and support voluntary compliance with rules, including identification of consistent actions across the mainland marine park network and local actions to address specific local issues and needs.	Resources for communication, education and engagement are limited and actions must be strategic and delivered consistently and efficiently across the marine park network where appropriate. Actions must go beyond awareness-raising to deliver stewardship, practice change and inclusive management.	Education	Strategy Initiative 8, NSW Marine Estate Education Strategy	DPI Fisheries	DPIE – EES, Transport for NSW, Parks Australia, OceanWatch Australia, Professional Fishermen's Association

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
6.2b	Identify areas to provide sites for education.	No-take areas that are protected from other activities are valued as reference sites for education. In other areas, collection of species is sometimes required to support field or laboratory education.	Education	NSW Marine Estate Education Strategy	DPI Fisheries	DPIE – EES, Transport for NSW, Parks Australia
6.2c	Develop and implement best-practice guidelines and case studies for common activities within marine parks to conserve values and manage threats.	Best-practice guidelines can support marine park users to minimise impacts on marine park values by striving for a higher standard than rules alone, for example existing best-practice guidelines for scuba diving to minimise impacts on corals or Greynurse Sharks and existing best-practice guidelines for catch and release recreational fishing to maximise recovery.	Education	Strategy Initiative 8, Oyster Industry Sustainable Aquaculture Strategy, Marine Waters Sustainable Aquaculture Strategy	DPI Fisheries	DPIE – EES, Parks Australia, NSW Shellfish Committee, NSW Aquaculture Steering Committee, OceanWatch Australia, Professional Fishermen's Association
6.2d	Streamline education actions to communicate *Fisheries Management Act* and *Marine Estate Management Act* requirements to ensure marine park users can receive all information relevant to their activity in one place.	Marine park users often have to refer to different sources of information to understand both fisheries and marine park rules that relate to the same activity.	Education	Strategy Initiative 9	DPI Fisheries	Parks Australia, OceanWatch Australia, Professional Fishermen's Association
6.2e	Develop a strategic, innovative and risk-based compliance strategy for the marine park network.	Lack of compliance has been identified as a priority threat. Compliance resources are limited and must be prioritised to where they can be most effective. This strategy will not be limited to compliance with marine estate legislation and will also include consideration of compliance relating to on-water, intertidal and catchment activities that impact marine park values.	Compliance		DPI Fisheries	Transport for NSW, NSW Water Police, Parks Australia
6.2f	Promote compliance outcomes to create an effective deterrence to illegal activity.	Compliance outcomes have not been well promoted to create a deterrence.	Compliance		DPI Fisheries	Parks Australia, Transport for NSW
6.2g	Collaborate with industry and stakeholders to investigate innovative technologies (including vessel monitoring systems) that can assist marine park users to comply with rules and assist with detection of offences (e.g. fixed cameras).	Innovative tools may support marine park users to comply with rules or may assist compliance staff to detect and prove offences.	Compliance		DPI Fisheries	DPIE – EES, Parks Australia, Transport for NSW

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
6.2h	Ensure the boundaries of any spatial management rules are easy to understand and comply with.	Some historical marine park zone boundaries have been difficult to understand and comply with. Use of yellow buoys has been easily confused with formal navigational marks.	Rules		DPI Fisheries	Parks Australia, Transport for NSW
6.2i	Build compliance partnerships to support enforcement of regulations in place to manage catchment threats to marine park values, including pollution, development, clearing and water sharing provisions.	Lack of compliance with catchment regulations has been identified as a priority threat to marine park values.	Compliance	Commonwealth Underwater Cultural Heritage program	DPI Fisheries	DPIE – EES, Local Government, DPIE – Water, NSW Environment Protection Authority, Heritage NSW, NRAR, Royal Australian Air Force
6.2j	Build efficient and complementary regulation and compliance partnerships for intertidal and on-water activities, including four wheel drives, dogs, heritage sites, pollution, boat speeds and marine mammal interaction.	Several agencies share responsibility for compliance in these areas, which has sometimes led to duplication, complexity and confusion.	Rules	Strategy Initiative 9, Commonwealth Underwater Cultural Heritage program	DPI Fisheries	DPIE – NPWS, Local Government, DPIE – Crown Lands, Transport for NSW, NSW Water Police, NRAR, Heritage NSW, DPIE – Water, Royal Australian Air Force
6.3 Improve community engagement and partnerships in marine park management.						
6.3a	Engage key stakeholders in marine park management by continuing to operate a marine park advisory committee for each marine park.	Marine park advisory committees continue to provide an important voice for local communities in marine park management.	Partnerships	Strategy Initiative 9	DPI Fisheries	DPIE – EES, DPIE – Planning and Assessment, Transport for NSW, Heritage NSW, OceanWatch Australia, Professional Fishermen's Association
6.3b	Include a scuba diving expertise area as standard for the membership of marine park advisory committees.	Scuba divers are highly engaged and active stakeholders for marine parks and it is important to engage them in marine park management. Scuba diving representation was historically included on marine park advisory committees but is not included in the current Marine Park Advisory Committee Handbook membership categories. All other key stakeholder groups have a membership category.	Partnerships	Strategy Initiative 9	DPI Fisheries	DPIE – EES, DPIE – Planning and Assessment, Transport for NSW
6.3c	Strengthen links between marine park advisory committees, government agencies, coastal management advisory committees (Local Government) and regional boating advisory groups (Transport for NSW).	Limited linkages currently exist between these groups, reducing the potential for enhanced awareness, understanding, complementary programs and collaborative opportunities for marine park management.	Partnerships	Strategy Initiative 9	DPI Fisheries	DPIE – EES, DPIE – Planning and Assessment, Transport for NSW, Local Government, DPIE – Crown Lands, DPIE – Water, Local Land Services, Heritage NSW, NSW Food Authority, Parks Australia

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
6.4 Reduce the regulatory burden.						
6.4a	Undertake a risk assessment to allow low impact activities to operate under a code of conduct or exempt and complying criteria rather than a marine park permit, including consideration of some education, research, tourism, filming, event and Aboriginal cultural fishing activities.	Many activities that are otherwise lawful and do not impact on marine park values currently require consent under marine estate legislation. Marine park permits add an administrative and regulatory burden in these cases, but do not offer any additional protection to marine park values.	Rules	Strategy Initiative 9	DPI Fisheries	DPIE – EES, DPIE – Planning and Assessment, Transport for NSW, Heritage NSW
6.4b	Investigate opportunities to streamline legislative approvals for estuarine works across government to reduce duplication, inefficiency and delays, without compromising the quality of assessment.	Estuarine works are currently subject to assessment under several pieces of legislation with similar criteria, presenting opportunities for efficiency gains and improved customer service.	Rules	Strategy Initiatives 2 and 9	DPI Fisheries	DPIE – EES, DPIE – Planning and Assessment, DPIE – Water, DPIE – Crown Lands, Local Government, NRAR, Heritage NSW, Transport for NSW
6.4c	Investigate opportunities to streamline fish habitat, water quality and marine park assessment, advice and consent processes under the *Fisheries Management Act* and *Marine Estate Management Act* to reduce duplication, inefficiency and delays without compromising the quality of assessment.	Activities with potential impact on fish habitat and water quality are currently subject to assessment under both fisheries and marine park legislation with similar criteria, presenting opportunities for efficiency gains and improved customer service.	Policy	Strategy Initiatives 2 and 9	DPI Fisheries	
6.4d	Ensure legislative definitions of marine park boundaries are easy to understand, clear and consistent across the network, particularly with references to tenure and mean high water.	Marine park boundaries have been defined differently but definitions could be aligned to reduce confusion. With the increasing popularity of drones, the need to define a marine park vertically (i.e. into the air and into the sea bed) has also been identified.	Rules	Strategy Initiative 9	DPI Fisheries	DPIE – Crown Lands, Transport for NSW

ADDITIONAL LOCAL ACTIONS

JERVIS BAY MARINE PARK

#	ACTION	SUPPORTING STATEMENT	MANAGEMENT PROGRAM	LINKS TO OTHER PROGRAMS	LEAD	PARTNERS
6.3 Improve community engagement and partnerships in marine park management.						
J6.3d	Develop a memorandum of understanding with the Australian Government to support complementary management arrangements for Commonwealth and NSW waters that protect and enhance marine park values.	The Jervis Bay Marine Park shares the waters of Jervis Bay with the Commonwealth, and defence has been identified as an important local value.	Partnerships		DPI Fisheries	Royal Australian Navy – HMAS Creswell, Parks Australia – Booderee National Park, Wreck Bay Community Council

Appendix A – Guiding policy and legislation

Legislation

OBJECTS OF THE *MARINE ESTATE MANAGEMENT ACT 2014*

Section 3 of the Act outlines the objectives of marine estate management in NSW. This includes:

- management consistent with the principles of ecologically sustainable development, including:
  - promoting a biologically diverse, healthy and productive marine estate
  - facilitating economic opportunities for the people of NSW, including regional communities
  - facilitating cultural, social and recreational use of the marine estate
  - maintaining ecosystem integrity
  - facilitating scientific research and education
- coordination of marine estate management across government
- providing for the declaration and management of marine parks and aquatic reserves

Policy

NSW MARINE ESTATE REFORMS

In 2013, the NSW Government embarked on a reform program for sustainable management of the NSW marine estate in direct response to the **NSW Government's Independent Scientific Audit of NSW Marine Parks**. Following this Audit, the NSW Government established a new legislative framework for management of the NSW marine estate and marine protected areas (marine parks and aquatic reserves) through the *Marine Estate Management Act 2014*. The **Marine Estate Management Authority** (the Authority) was established under this Act to support implementation of the reforms. The reforms identified a new approach to marine park management as a priority project for delivery.

MARINE PARKS AUDIT

The **Independent Scientific Audit of Marine Parks in NSW** was commissioned by the NSW Government in 2011. The Audit findings made 16 recommendations for the improved management of the NSW marine estate. **Key opportunities for improved marine park management identified in the NSW Government response to the Audit (2013) included:**

- incorporating threat and risk assessments into marine park planning and management

- developing ways of incorporating local Indigenous knowledge and expertise of land and sea management into the management of marine parks
- improving community engagement in marine park planning and management
- improving consideration of economic and social information in planning and decision-making
- a stronger focus on all aspects of marine park management to maximise values and address threats, rather than zoning alone
- a stronger emphasis on performance monitoring and assessment

MANAGING THE NSW MARINE ESTATE: PURPOSE, UNDERPINNING PRINCIPLES AND PRIORITY SETTING

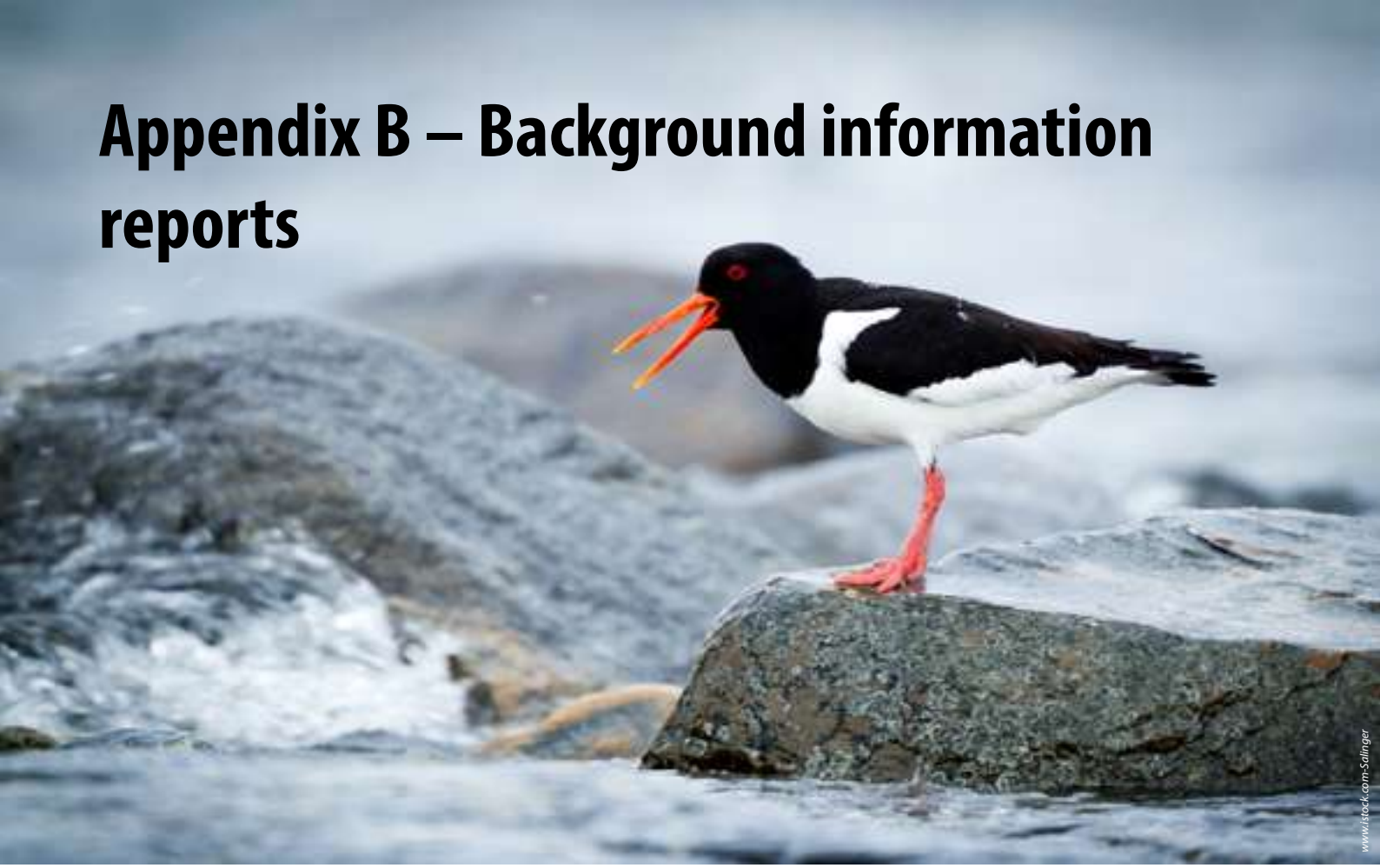
The Authority's **Managing the NSW Marine Estate: Purpose, Underpinning Principles and Priority Setting** sets 10 underpinning principles to guide marine estate decision-making.

1. Effective community engagement to identify and prioritise benefits and threats
2. Identification of priority actions will be based on threat and risk assessment
3. Values will be assigned to enable trade-off decisions between alternative uses of the Marine Estate
4. Best available information will be used in trade-off decisions, but judgement will still be required
5. The wellbeing of future generations will be considered
6. Existing access arrangements will be respected
7. The precautionary principle will be applied
8. Efficient and cost-effective management to achieve community outcomes
9. Management decisions will be transparent and adjust in response to new information
10. Management performance will be measured, monitored and reported and information pursued to fill critical knowledge gaps

NSW MARINE PROTECTED AREAS POLICY STATEMENT

The **NSW Marine Protected Areas Policy Statement** (2017) reaffirmed the NSW Government's commitment to maintaining the existing comprehensive network of marine protected areas in NSW and improving their management. The statement recognises the role of marine protected areas as an important management tool to conserve environmental, social, cultural and economic values and to address priority threats as part of a coordinated management approach. The statement commits to early and effective engagement with the community in marine park planning to better understand the costs, benefits and implications of any management decisions.

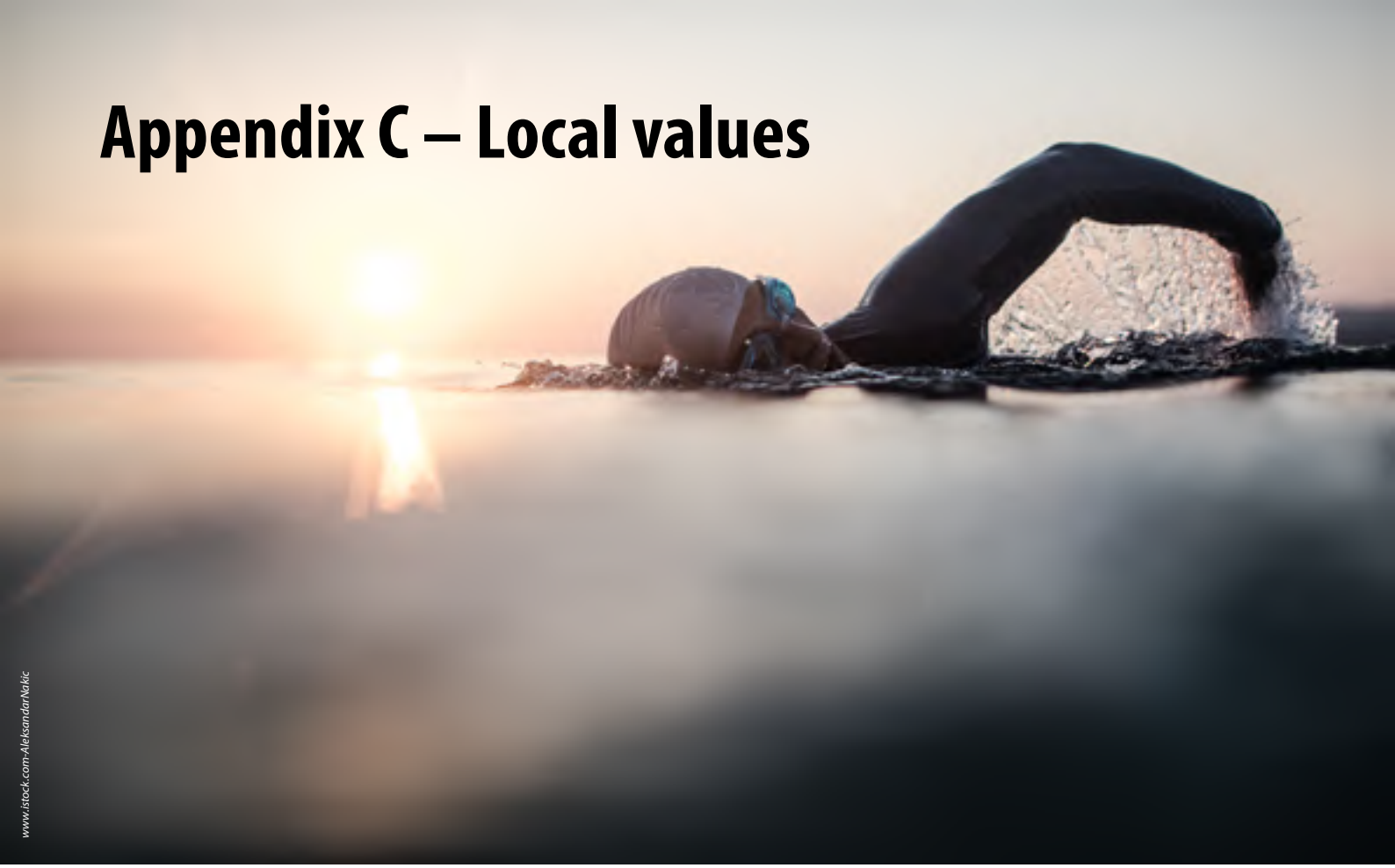
Appendix B – Background information reports



The following key background information reports informed development of this management plan:

- Report of the Independent Scientific Audit of Marine Parks in New South Wales
- Marine Estate Community Survey
- New South Wales Marine Estate Threat and Risk Assessment Report Final Report
- NSW Marine Estate Threat and Risk Assessment Background Environmental Information
- Social and economic background information report on the NSW marine estate
- Sea countries of New South Wales: a benefits and threats analysis of Aboriginal people's connections with the marine estate
- Batemans Marine Park Management Plan Pilot Stakeholder Consultation Outcomes Report
- Developing a management plan for Batemans Marine Park Summary of discussions & outcomes from Aboriginal community workshops
- Survey of values, perception of threats and attitudes to Batemans Marine Park
- Port Stephens-Great Lakes Marine Park Consultation Workshops Outcomes Report

Appendix C – Local values



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Cape Byron Marine Park

PROFILE

- Declared in 2002
- Approximately 40 km of oceanic coastline and 22 000 ha of the NSW marine estate
- Mostly marine, including less than 300 ha of estuarine waters
- Catchment area of approximately 28 000 ha

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Figure AC1 – Cape Byron Marine Park

CAPE BYRON MARINE PARK VALUES

Table AC1 – What the community values about Cape Byron Marine Park

CAPE BYRON MARINE PARK ENVIRONMENTAL VALUES	
Cape Byron Marine Park takes its name from, and includes, the most easterly point of mainland Australia, Cape Byron. The extended Cape protects the Byron Bay embayment from southerly swells providing refuge for an enormous array of marine life compared with adjacent coastal waters. Stakeholder feedback has highlighted many of the important environmental values provided by the marine park. These have been summarised below.	
Habitats	■ One of only two marine parks in NSW that encompass key areas of oceanographic upwelling that deliver nutrients to coastal ecosystems and support primary productivity. These upwellings are important for the health and productivity of marine ecosystems throughout NSW, which are generally nutrient-poor.
	■ The East Australian Current (EAC) intensifies before passing around Cape Byron sweeping warm tropical waters from the north to mix with cool temperate waters in the south.
	■ Encompasses a diverse range of habitats including estuarine communities, sandy beaches, rocky shores, rocky reefs, oyster reefs, deep reefs and soft sediment communities.
	■ Many threatened, protected species, commercially important and recreationally- important fish species migrate over large distances making use of numerous sites within the marine park.
	■ Julian Rocks (Nguthungulli) is the main island located approximately two kilometres offshore. It is a unique feature and supports a vast array of different habitats and species, including a range of different depth reefs which provide temperature refuges for fish from cold and warm conditions. This feature is likely to be valuable as a climate change refuge.
	■ Julian Rocks is home to a rich diversity of marine life including over 500 species of fish, 114 species of molluscs, 100 species of marine algae, and 30 species of corals. It is listed critical habitat for the critically endangered Greynurse Shark and has been identified as a key element of species recovery. It is an important site for Leopard Shark and Manta Ray and provides foraging habitat for turtles. Above the water, it is an important seabird nesting site.
	■ Other significant reef sites include Cocked Hat Rocks (The Sisters) and The Pinnacle, a complex geomorphic feature which BRUV surveys have identified as being of importance for Greynurse Shark, Black Rockcod and targeted species such as Mulloway and Snapper. Wreck sites within the marine park also provide important foraging habitat and shelter for turtles and fish.
	■ Shipwrecks structures can provide important habitat for marine species. There is recent evidence that wrecks act as aggregation sites for Greynurse Sharks in some areas.
	■ Three key estuaries that include coastal saltmarsh, mangrove and seagrass habitat and support endangered ecological communities of coastal saltmarsh and littoral rainforest. The Brunswick River (and tributaries), Belongil Creek and Tallow Creek provide important roosting and breeding areas for threatened shorebirds including the Pied Oystercatcher, Sooty Oystercatcher, Little Tern, Black Necked Stork and the critically endangered Beach Stone Curlew. Belongil and Tallow creeks are both ICOLLs.
	■ Deeper sediments in the marine park provide important habitat for spanner crab.
	■ Tallows, Seven Mile and Tyagarah beaches are used as breeding sites by Pied Oyster Catcher and critically endangered Little Tern.
	■ Lennox Boulder foreshore, Broken Head and Julian Rocks are key habitat for threatened Sooty Oyster Catcher and Osprey.
	■ The Bream Hole or Moat at Lennox Head, is a unique oceanic lagoon that supports over 180 species of invertebrate animals and patches of oceanic seagrass.
Species	■ Four vulnerable bird species Sooty Oystercatcher, Sooty Tern, Osprey and Grey Ternlet rely on habitats at Julian Rocks and Lennox Boulder for breeding, foraging and perching.
	■ The marine park provides important foraging habitat to threatened species of marine turtle including the endangered Loggerhead Turtle, and vulnerable Green Turtle and Hawksbill Turtle species. The marine park is also within the migratory path of the endangered Leatherback Turtle and there are recorded sightings of Flatback Turtle. Significantly, the Cape Byron Marine Park provides nesting ground for the Loggerhead Turtle as part of the South Western Pacific breeding stock, and Green Turtle in lower numbers.

CAPE BYRON MARINE PARK ENVIRONMENTAL VALUES

Species	■ Migrating Humpback Whales pass through the marine park each year with mothers and calves often resting within the marine park on their return migration south. Humpback Whales and Dwarf Minke whales are commonly sighted and Brydes Whales frequently feed close inshore as migrations of spawning fish move up the coast.
	■ Common Dolphins, Common Bottlenose Dolphins and Australian Humpback Dolphins are all found in the Cape Byron Marine Park. There are also occasional winter sightings of Killer Whale and a small number of Beaked-Whale sightings recorded.
	■ A resident Indo-pacific Bottle Nose Dolphin population is found within the embayment. Local populations of this species prefer to use the same site, with dependence on certain habitats and locations, this means that local populations may be quite separate from adjoining populations. Resident dolphins support a year round dolphin watching industry and are of particular cultural significance to the Traditional Owners, as they are the Arakwal women's totem.
	■ Threatened Greynurse Shark are present within the marine park with listed critical habitat at Julian Rocks.
	■ Important habitat for threatened Black Rockcod and the protected Giant Queensland Groper.
	■ Leopard Sharks and Manta Rays are two local iconic species of particular importance to divers, snorkelers, underwater photographers and the local industries which support these activities

CAPE BYRON MARINE PARK SOCIAL VALUES

Cape Byron Marine Park extends along the NSW coast from Brunswick Head to just south of Lennox Head. Adjacent to both the Byron and Ballina Local Government areas, the marine park waters play an important part in the lives of locals in the immediate area and beyond. The aspect of iconic Cape Byron provides protection from southerly wind and swell that benefits many social activities and values.

Stakeholder feedback has highlighted many of these important social values that are provided by the marine park. These have been summarised below.

- Byron Shire Council Community Strategic Plan 2028 identifies caring and protecting for the beautiful natural environment and managing waterways and the coast as key community aspirations. The first vision statement in the Plan is "In 2027 Ballina Shire will have pristine beaches and clean waterways that are home to a wide range of native flora and fauna."
- Beach going, including walking and running on the beach, is a very popular recreational activity for locals and visitors.
- Swimming is a very popular recreational activity undertaken by locals and visitors and is supported by several swimming clubs and competitions. The Byron Bay Winter Whales Ocean Swim is held annually and attracts several thousand swimmers to Byron Bay. The aspect of Cape Byron provides valued sheltered swimming opportunities at Main Beach, Clarkes Beach and The Pass.
- Local surf lifesaving clubs at Brunswick Heads, Byron Bay and Lennox Head provide patrolled areas for safe swimming and hold several annual events in the marine park.
- Surfing is a highly valued activity that provides important social values. There are several world class surf breaks, including the Lennox National Surfing Reserve, and a vibrant surf culture with five local surf clubs and organisations holding regular surfing competitions. The aspect of Cape Byron and close location to town provides special and accessible surfing opportunities that see Byron Bay arguably regarded as the premier surf destination in NSW.
- Motorised boat access is highly valued and provides opportunities for many social, cultural and economic activities. The Brunswick River has a boat harbour and is also the location of the primary public boat ramp. The boat channel at Lennox Head, The Pass and boating infrastructure in the Richmond River also provide valued boating access.
- The Brunswick River, its tributaries and other marine park waters are also valued for many non- motorised vessels, including kayaks, canoes and stand-up paddle boards. One sailing race is conducted annually. While originally providing for safe navigation, the breakwalls at the Brunswick River entrance are now valued for walking, sightseeing and recreational fishing.
- Recreational fishing, including spearfishing, are valued activities in the area. There are varied and quality recreational fishing opportunities ranging from inshore estuary beach and rock fishing to offshore deep-water reefs. Recreational fishing provides many important social values and benefits, including fitness, the health benefits of eating fresh seafood, education and schooling, wellbeing, relaxation, socialising, sense of community and enjoying and engaging with nature and natural beauty. Members of at least 27 recreational fishing clubs between Ballina and Tweed Heads value the waters for recreational fishing, with many clubs holding regular outings. Regular fishing competitions, with two held during 2019.
- Many community events are held annually, including surfing, surf lifesaving, swimming, fishing, outdoor recreation, community and charity events. These events are creative and diverse, ranging from surfing competitions and fun runs to charity events including a personal watercraft trek and a donut float.

CAPE BYRON MARINE PARK SOCIAL VALUES

- Valued primary and secondary education resource. Local primary, secondary and even some international schools visit the marine park for interactive marine science education. Ballina Coast High School's Marine Discovery and Resource Centre is accessed by many schools and uses the marine park and its programs. Lennox and Boulder beaches are valued for school science field trips.
- Valued tertiary education resource. The marine park is also valued for tertiary education, with Julian Rocks, the Brunswick River, Lennox Head, Broken Head and the smaller reefs off main Beach providing important sites for Southern Cross University and its renowned marine science programs. Sanctuary zones provide many sites which are valued as scientifically important, accessible and safe areas for marine education.
- Valued research opportunities throughout the marine park, particularly researchers from Southern Cross University, University of Queensland, Griffith University and other institutions for many years. Many sanctuary zones provide important and accessible scientific reference areas, the shallow, diverse and accessible waters of Julian Rocks are particularly valued for excellent research opportunities.
- Dolphin Research Australia conducts a significant body of dolphin research to inform management in Australia, and a large portion of the organisation's work is undertaken within Cape Byron Marine Park.
- Byron Underwater Research Group was formed following the declaration of the marine park and undertakes important citizen science.
- Valued for world class scuba diving and snorkelling, with Julian Rocks a particular draw.
- Prominent headlands such as Cape Byron and Lennox Headland of exceptional scenic value. Long sweeping beaches, protruding rocky shores, stunning volcanic landscape and clear turquoise waters exemplifies the natural beauty for which the area is internationally renowned. This scenery is highly valued for photography and filming.
- Cape Byron is recognised as the premier land-based whale watching platform on the NSW coast. Cape Byron, the marine park's headlands, ocean waters and estuaries provide valued opportunities for locals and visitors to enjoy biodiversity through watching dolphins, turtles, seabirds, shorebirds, sharks, rays and fish. High quality opportunities for self-guided shore-based marine wildlife watching, as well as commercial tour opportunities.
- Local community group Byron Bird Buddies is actively involved in shorebird protection and education.
- Commercial fishing provides social benefits through the supply of healthy fresh seafood.

CAPE BYRON MARINE PARK CULTURAL VALUES

The Bundjalung People of Byron Bay (Arakwal) have a strong connection to the Land and Sea Country of the Cape Byron Marine Park and have cared for this Country for thousands of years. In 2019, the Native Title rights and interests of the Bundjalung People of Byron Bay were formally recognised over some land and waters within the marine park, and over significant areas of coastal land adjoining the marine park.

Non-Aboriginal culture includes important marine industries and maritime heritage, shipping, fishing, aquaculture and whaling. There is also a considerable Australian cultural connection with the coast and water in this area.

Stakeholder feedback has highlighted many of the important cultural values provided by the marine park. These have been summarised below.

Aboriginal	■ A strong connection to Land and Sea Country for the Bundjalung People of Byron Bay (Arakwal) as a source of food, special sites, stories, cultural practices, totemic species and spiritual significance.
	■ Native Title determination for the Bundjalung People of Byron Bay (Arakwal). The claim area covers land from Broken Head to Brunswick Heads, including Australia's most easterly point at Cape Byron. The determination also covers a portion of Sea Country off the Tyagarah Nature Reserve, north of Byron Bay. In total, the claim covers an area of more than 800 hectares.
	■ Important social, cultural and economic opportunities for Aboriginal people.
	■ Many middens, burial sites, scarred trees, ceremonial bora rings and various open camping sites have been identified in the area.
	■ Adjacent to Arakwal National Park, a protected area co-managed by Traditional Owners following the finalisation of an Indigenous Land Use Agreement between the Traditional Owners and the NSW Government in 2001.

CAPE BYRON MARINE PARK CULTURAL VALUES

Aboriginal	■ Nguthungulli is a highly significant dreaming place for Bundjalung people and the Three Sisters is a declared Aboriginal place.
	■ Ambitions of the Bundjalung People of Byron Bay are to ensure that continued cultural knowledge, connection and use of Sea Country is maintained, and to work with government and wider community to realise these ambitions.
	■ Bundjalung of Byron Bay Aboriginal Corporation (Arakwal) is currently working closely with DPI Fisheries and the NSW Marine Estate Management Strategy on the management of Sea Country to reduce threats to Aboriginal cultural values.
	■ Dolphins and sea eagles are of particular cultural significance to the Traditional Owners as they are totemic species to the Arakwal people.
	■ This Land and Sea Country is significant for social, cultural and economic values for Traditional Owners and Aboriginal people.
Other	■ European settlement of the Cape Byron area commenced in the 1840s when the Brunswick River was opened to navigation.
	■ The Byron Bay Marine Park area has supported a number of marine industries including shipping, fishing, aquaculture and whaling.
	■ Cape Byron Lighthouse officially opened on 1 December 1901. It was and still is an important navigational aid for ships travelling the east coast of Australia, with the light visible approximately 27 nautical miles offshore.
	■ Surfing culture is an important cultural value and identity of the area.
	■ Commercial and recreational fishing in the Cape Byron area is multigenerational, with experience and techniques passed down through generations and embedded in local culture.
	■ Several shipwrecks lie in the shallow waters of the marine park, and along and possibly under its dunes and beaches. Many more were lost in the area with no visible structure remaining today.
	■ The SS Wollongbar is the most prominent shipwreck in the area. This ship grounded on a sand bar in unfavourable conditions on 14 May 1921. The remains of the hull and other relics lie off Belongil Beach.
	■ At least three wrecks were uncovered on Belongil Beach in 2013, and an unidentified wreck is located at Suffolk Park.
	■ Many historically known but unlocated ship and aircraft wrecks lie along this coastline along with the remains of historic maritime infrastructure, including the famous Byron Bay Pier.
	■ The Cape Byron Lighthouse is an important tourist attraction, and maritime heritage can support important education, recreation and tourism activities.
	■ Iconic Cape Byron is the most easterly point of mainland Australia and the first place to see the sunrise.
	■ Places of natural and cultural heritage worth keeping for the future may be listed on the Register of the National Estate. Broken Head Nature Reserve was registered in 1978 and the waters surrounding Julian Rocks were registered in 1997 based on the variety of fish species and threatened species they support.

CAPE BYRON MARINE PARK ECONOMIC VALUES

Cape Byron Marine Park is adjacent to the Byron Shire region on the far north coast of NSW. The region is famed for its rural beauty and beaches and is a well-known tourist destination, attracting over 1 million visitors annually. Key strengths underpinning the economy of the Northern Rivers region include its coastal, riverine and hinterland amenity.

Stakeholder feedback has highlighted many of the important economic values provided by the marine park. These have been summarised below.

- The tourism and hospitality industry is the largest employer in Byron Shire generating nearly one-quarter of all jobs. In recent years, the annual number of visitors to Byron Bay has been in excess of two million. Marine tourism is a major focus in the region which features clean water, world class surf breaks, a nationally renowned dive location, stunning beaches and opportunities for a wide range of water based activities. Visitor surveys have shown that 80% of visitors to Byron Bay seek nature-based experiences. Marine park waters and their rare and iconic marine species and wildlife are a key attraction for domestic and international visitors. All of the environmental, social, cultural and economic values described directly and indirectly support the local tourism industry.

CAPE BYRON MARINE PARK ECONOMIC VALUES

- Education and research opportunities within the marine park provide local economic value through jobs and tourism.
- Important commercial fishing industry that provides fresh local seafood to locals and visitors. Local fisheries include ocean trawl, ocean trap and line, ocean hauling and estuary general. These fisheries use a variety of fishing methods and gear to target key local species including King Prawns, Snapper and Mud Crabs.
- The 2016 University of Technology Sydney (UTS) Valuing Coastal Fisheries project found that the commercial fishing industry between Evans Head and Tweed Heads generates more than $23.6 million in revenue and over 223 full-time local jobs. This includes $11.87m and 95 jobs from the industry and the businesses that service it and a similar amount from the secondary processing, wholesale and retail sector.
- The fishing industry provides an important and valued product to local tourism and hospitality markets. The UTS project indicated that the vast majority (89%) of NSW residents expect to eat locally caught seafood when on holidays. Residents of the Far North Coast recognise the economic importance of the wild-catch industry to their region – 91% think it provides important employment opportunities, 87% believe it is an important industry for NSW. 86% of people believe that professional fishing plays an important part in tourism in their region through, for example, the supply of local seafood.
- Recreational fishing opportunities support local bait and tackle, charter fishing, boating and tourism industries. The waters of Cape Byron Marine Park supported two boat-based charter fishing operators and one land-based charter fishing operator in 2018/19. These operations made over 30 trips to sites in the marine park, servicing 50 clients. Across NSW in 2019–20, fishers spent an estimated $2138 million on recreational ($2117 million) and charter ($21.5 million) activities.
- Aquaculture is an integral part of the NSW economy and provides flow on effects to seafood, food, retail and tourism industries. There are currently 3 permits issued to businesses for aquaculture in the Cape Byron Marine Park. Aquaculture is permitted in nine hectares of the marine park and is currently undertaken in the Brunswick River.
- Aquaculture is particularly dependent on good water quality. Under the state's food safety regulations, the shellfish industry regularly monitors water quality in their harvest locations, assisting the community and government to identify ongoing water quality issues and address them.
- Julian Rocks (Nguthungulli) is an internationally renowned scuba diving location. As well as providing important social values, scuba diving and snorkelling delivers economic values to local scuba diving education, charter, retail and tourism industries. Four charter companies that operate at Julian Rocks made over 1,900 trips and took over 24 000 clients scuba diving and snorkelling in 2018/19.
- Many opportunities for kayaking and paddling with wildlife viewing a key attraction for commercial operations. Four businesses provided guided kayak and stand-up paddle board tours in Byron Bay and the Brunswick River in 2018/19, making over 1000 trips with over 27 000 clients.
- Abundant marine wildlife underpins a significant marine wildlife industry. In addition to kayaking operators, four wildlife charter boat operators provide scenic tours, whale and dolphin watching in ocean waters, and a fifth operator provides eco cruises on the Brunswick River. During 2018/19 the five tourism operators made over 1700 trips and took over 7600 clients to sites in the marine park. Bird watching is also a very popular activity that attracts many visitors to the area and supports tourism.
- Iconic natural features support increasing demand for commercial filming. In 2019, ten different filming operations provided content for advertisements, television, movies, still photography and wildlife documentaries.
- Private and commercial boating and yachting have economic value in their own right and also support a number of social and economic values in the area, including aquaculture, commercial fishing, recreational fishing, scuba diving, kayaking and all charter operators. Recreational boating and commercial vessel activities contribute an estimated $2.7 billion to the NSW economy and employ an estimated 8,000 people.
- Surfing is a major economic and tourism industry contributor for the area. Surveys indicate that over half of the 2.13 million visitors to Byron Bay in 2017 came seeking surf experiences. Nine surf schools took nearly 3600 trips and over 31 000 clients to various sites in the marine park in 2018/19. Home to Gromfest on Seven Mile Beach at Lennox Head, one Australia's most important junior surfing competitions.
- Beach horse riding is a popular tourism activity, with four companies making over 700 trips with 3770 clients to marine park beaches in 2018/19.
- Many commercial events that rely on marine park values also make a significant contribution to tourism, including an annual triathlon, surf festival, surfing competition.
- The marine park status provides economic value to commercial marine tourism operators in the area.
- All marine parks present opportunities to develop blue economy initiatives such as kelp propagation and cultivation, carbon credits accrued for habitats protected in marine parks and trialling of biodegradable oyster culture infrastructure and engineered solutions to coastal erosion that provide additional habitat.

Photo © Duncan Paterson

Solitary Islands Marine Park

PROFILE

- Declared in 1998, the oldest marine park in NSW
- Approximately 100 km of oceanic coastline and 72 000 ha of the NSW marine estate
- Approximately 71 000 ha of marine waters and 1000 ha of estuarine waters
- Catchment area of approximately 67 000 ha

Figure AC2 – Solitary Islands Marine Park

SOLITARY ISLANDS MARINE PARK VALUES

Table AC2 – What the community values about the Solitary Islands Marine Park

SOLITARY ISLANDS MARINE PARK ENVIRONMENTAL VALUES	
The Solitary Islands Marine Park is in an area of tropical and temperate mixing, where the warm waters of the East Australian Current meet with cool, nutrient rich currents from the south and adjacent shelf that up- well from the deep allowing tropical, subtropical and temperate marine communities to coexist in the same area with unusual arrangements of species and ecosystems. The five main Solitary Islands form the most iconic island group in NSW. The adjoining Commonwealth waters are designated as a Marine Park and include the Pimpernel Rock pinnacle reef. Stakeholder feedback has highlighted many of the important environmental values provided by the marine park. These have been summarised below.	
Habitats	■ Sandy beaches, intertidal rocky shores, subtidal rocky reefs, soft sediments and oyster reefs, including leaf oyster bed in Woolgoolga Lake.
	■ Biotic communities that form important habitats on reef and vary cross-shelf and with depth. Inshore reefs are dominated by kelp. This is replaced by coral-dominated communities further offshore above 25m depth. Below 25m depth are sponge- dominated communities. Below 50m, highly flexible gorgonian and seawhip communities cover deep flat reefs in places.
	■ Deep waters about 75m below the surface including reefs formed from ancient coastlines from previous ice ages when sea levels were much lower than present.
	■ Sedimentary habitats which vary greatly throughout the marine park from gravels to sands to muds. This includes coarse rounded gravel beds, a remnant of ancient river flats when sea levels were lower.
	■ Several estuarine lakes, creeks and rivers including a number of ICOLLs. The marine park adjoins a narrow coastal plain that has many small, often steep, discrete catchments.
	■ Coastal saltmarsh endangered ecological community.
	■ Seagrass communities.
	■ All Solitary Islands Marine Park estuaries include some mangroves, including all five mangrove species found in NSW, with two at the southern limit of their range. Low closed forest dominated by mangroves is a regionally significant vegetation type which is estimated to be 70% cleared across its range.
	■ The ecosystem processes at Wooli, Corindi and Sandon Rivers where low salinity levels and restricted tidal flow in the lower reaches creates important estuarine habitat.
Species	■ The subtropical SIMP is immediately upstream of one of the main separation points of the EAC from the mainland coast of Australia in a temperate-tropical transition zone. Related to the SIMPs geomorphology and oceanography, many species are currently at the southern extent of their occurrence and others are at the southern extent of their established adult self-sustaining population range in the SIMP including the most southern recorded locations for Flame Hawkfish, Spotted Hawkfish and Redspotted Shrimpgoby. Due to its location in an area of tropical and temperate mixing, the environmental values of the Solitary Islands Marine Park are likely to become more dynamic with the increasing effects of climate change on ocean currents and temperatures.
	■ Home to a unique array of marine plants and animals, including over 550 species of reef fish, 100 species of coral, 1000 species of mollusc, three species of sea snake, five shark and ray species, 30 marine mammal species and more than 120 coastal and marine bird species.
	■ Fish Soup at Northwest Rock has a diverse assemblage of fish species unlike any other verified by scientific surveys.
	■ North Solitary Island has the highest recorded density of host sea-anemones in the world and is an important stronghold of the endemic Broadband Anemonefish.
	■ Stronghold for the vulnerable Black Rockcod. Sites of particular value include Fish Soup at Northwest Rock, the northern end of South Solitary Island and Anemone Bay at North Solitary Island.
	■ Important habitat for critically endangered Greynurse Shark, including two aggregation sites at North and South Solitary Islands. Sites of particular value include the reef and gutters around Manta Arch at South Solitary Island, Anemone Bay at North Solitary Island, and E-gutters at Northwest Solitary Island.

SOLITARY ISLANDS MARINE PARK ENVIRONMENTAL VALUES

Species	■ Vulnerable White Sharks frequent the marine park.
	■ Critically endangered Marine Brown Alga *Nereia lophocladia*, is only found between Sawtell and Woolgoolga.
	■ Protected Estuary Cod, Giant Queensland Groper and Eastern Blue Devil Fish. Potato Cod protected in QLD.
	■ Extensive areas of hard and soft corals, providing food and refuge for at least 24 tropical butterflyfish species.
	■ During autumn and early winter, Australian giant cuttlefish and manta rays are observed in the SIMP, both are iconic to divers and spectacular to observe. Breeding behaviour and activity has been observed in Australian giant cuttlefish in the SIMP.
	■ Fish assemblages below 50m depth which are not found elsewhere in the marine park.
	■ Five species of marine turtles, with some species nesting. Green, Loggerhead and Hawksbill Turtles are found in the marine park all year round. Temperature influences the sex of turtles, with QLD nests producing mostly females and NSW nests producing mostly males. The marine park is expected to be a particularly important climate change refuge for marine turtles as hotter sand and water temperatures drive feminisation of the sex ratio.
	■ Endangered Little Terns, with a small community currently nesting annually at Wilsons Head; Station Creek; and the southern spit at Red Rock.
	■ Breeding sites for the endangered Pied Oystercatchers and the critically endangered Beach Stone Curlew which has been recorded breeding at Sandon River, Wooli River, Station Creek and Red Rock.
	■ The islands within the marine park are important shorebird and seabird breeding sites and foraging habitat including the Wedge-tailed Shearwater rookery on Muttonbird Island.
	■ Migrating whales including mothers and calves that rest within the marine park, including threatened Humpback Whales and Dwarf Minke Whales. Killer Whales and threatened Sperm Whales frequently seen.
	■ Indo Pacific Bottlenose Dolphins, Common Dolphins and Common Bottlenose Dolphins. Resident Indo Pacific Bottle Nose Dolphins prefer to use the same site, meaning that local populations may be quite separate from adjoining populations.

SOLITARY ISLANDS MARINE PARK SOCIAL VALUES

The Solitary Islands Marine Park extends along the NSW coast from the Sandon River mouth to the Coffs Harbour breakwater. It is the oldest marine park in NSW with considerable community ownership since it was first established as a marine reserve in 1991, driven by community interest. The designation was changed to a marine park in 1998 with rezoning completed in 2002. Current management rules have been in place for 18 years.

Stakeholder feedback has highlighted many of the important social values provided by the marine park. These have been summarised below.

- Untouched beauty and scenery and opportunities to enjoy panoramic ocean views and unique landscape features including prominent headlands and the five main Solitary Islands.
- Beach going, beach walking, beach driving and dog exercise. The Solitary Islands and Yuraygir Coastal Walks provide pedestrian access to the coast of the entire marine park for scenic views and walking.
- Continuing cultural practices for Aboriginal people and opportunities to learn about and appreciate Aboriginal culture.
- The cleanliness and health of the natural environment and waters.
- Key ocean boat accesses including the Coffs Harbour boat ramp, Coffs Harbour marina, Emerald Beach, Sandy Beach, Woolgoolga Main Beach, Arrawarra Headland, Wooli Wooli River, Minnie Water lagoon and Sandon River. Local boat ramp accesses in navigable estuaries.
- High quality kayaking, paddling, stand-up paddle boarding, dragon boat, surf ski and ocean outrigger opportunities. Marine park waters support many formal paddle clubs and competitions.

SOLITARY ISLANDS MARINE PARK SOCIAL VALUES

- Four active surf lifesaving clubs at Coffs Harbour, Woolgoolga, Red Rock-Corindi and Minnie Water-Wooli providing community training in fitness, swimming and surf safety including to children and international itinerant workers. Regular events and carnivals. Patrolled beaches for safe swimming at Park Beach, Woolgoolga Main Beach, Red Rock, Minnie Water Main Beach and Wooli Main Beach. Supported by additional Coffs Harbour City and Clarence Valley Council lifeguards in peak times at those beaches and with additional locations at Diggers Beach and Emerald Beach. Surfers also rescuing many swimmers when needed across the marine park each year.
- High quality opportunities to see and appreciate whales, dolphins, turtles, shorebirds, seabirds, sharks, rays and other fish from many vantage points on land and water.
- Prominent and accessible opportunities to see working commercial fishing and oyster aquaculture industries and enjoy fresh local seafood. Local oyster infrastructure and sites may also offer heritage interest and value.
- Recreational boating opportunities, regular yacht races conducted by the Coffs Harbour Yacht Club, iconic yachting events such as the Pittwater to Coffs Yacht Race.
- A renowned recreational fishing area supporting world class shore and boat-based recreational fishing opportunities from estuaries to offshore, with thousands of recreational fishers chasing prized species including Snapper, Kingfish, Mackerel and Mud Crabs. These waters support several local recreational fishing clubs who hold regular outings and fishing competitions including the annual Dave Irvine Memorial Snapper Classic, a lure only, catch and release competition.
- Broader social benefits associated with recreational fishing including, fitness and health, eating fresh seafood, education and schooling, wellbeing, relaxation, socialising, sense of community and enjoying and engaging with nature and natural beauty.
- World class spearfishing and freediving. One active spearfishing club that hosts the Australian Bluewater Freediving Classic, one of the premier spearfishing competitions on the Australian calendar and a pelagic-only competition that has been running for close to 25 years that adds points to NSW and national competitions.
- Marine education opportunities within the marine park. Numerous primary and secondary schools from the local area and across northern NSW include a visit to the marine park for marine science education.
- Southern Cross University (SCU) delivers tertiary education in marine science from its campus at the National Marine Science Centre in Coffs Harbour, and routinely studies marine park species and habitats in field and laboratory education. SCU is the highest ranked NSW university for fisheries and oceanography.
- Dolphin Marine Conservation Park and the National Marine Science Centre's Solitary Islands Aquarium both located in Coffs Harbour provide interactive school and community marine education experiences, with a focus on local marine park species.
- NPWS Discovery Program education activities including canoe tours in the estuaries, walks along the coast, Aboriginal cultural education at Arrawarra Fish Traps and seabird, whale and Aboriginal cultural education at Muttonbird Island.
- Woolgoolga pier sites and the Buster shipwreck at Woolgoolga present opportunities for maritime heritage education. Two Wreckspotters community groups have been established near the marine park, with volunteers trained to undertake heritage citizen science. Significant opportunities for maritime archaeological research.
- Research provides knowledge for evidence-based decision-making and marine park management and is also an important value in its own right. As an area of tropical and temperate mixing with special species assemblages, the marine park offers a unique and valued location for marine research. Many institutions conduct research annually, including SCU, the University of New South Wales, University of Queensland, University of Wollongong, Sydney Institute of Marine Science and Macquarie University. SCU's National Marine Science Centre and the University of New England's (UNE) Field Study Centre are adjacent to marine park waters. The UNE centre was established in the late 1960s and in the early 1970s conducted the first research into the marine park's important coral communities.
- Increasingly valued for climate change research due to its special tropical and temperate mixing, with early evidence of tropicalisation and East Australian Current impacts. Existing sanctuary zones are valued as scientific reference sites.
- Uniquely placed to support collaborative industry research, with the commercial fishing industry, maritime industry, DPI commercial fisheries management and research, and an important commercial fleet all based locally.
- The Solitary Islands Underwater Research Group has also undertaken many citizen science projects since 1985 that have provided great value to marine park and broader environmental management. Extensive fish and invertebrate surveys have been conducted by Reef Life Survey.
- Multiple word class scuba diving and snorkelling opportunities, with many reef fish, corals, sponge gardens, kelp forests, iconic species such as Greynurse Shark, manta rays, giant cuttlefish, marine turtles and maritime heritage from a number of wrecks in the marine park.
- Numerous high quality swimming opportunities in sheltered waters and surf.
- Coffs Harbour northern breakwater providing protection, access and walking opportunities.
- World class surfing opportunities. Several surfing competitions held each year. State and national competitions are often held at the world class longboard break at Arrawarra. Park Beach often hosts state and national competitions for junior surfers.

SOLITARY ISLANDS MARINE PARK SOCIAL VALUES

- Flat Top is a nationally renowned windsurfing and kite surfing destination, and often hosts state and national wave sailing championships.
- Major events including regattas and sea food festivals.
- Coastal running events, triathlons, decathlons, marathons and adventure races.
- Boating opportunities that support many other activities.
- The iconic scenery which provides film and photographic opportunities.

SOLITARY ISLANDS MARINE PARK CULTURAL VALUES

The Solitary Islands Marine Park has many Aboriginal and non-Aboriginal cultural and heritage values.

Aboriginal people from the Gumbaynggirr and Yaegl Nations have a strong connection to the Land and Sea Country of the Solitary Islands Marine Park and have cared for this Country for thousands of years. In 2017, the Yaegl People became the first People in NSW to have a Native Title claim determined over Sea Country.

Non-Aboriginal culture includes an important maritime and seafood industry, the final resting place for an estimated 14 ships and the considerable Australian cultural connection with the coast and water in this area.

Stakeholder feedback has identified the following important cultural values provided by the marine park.

Aboriginal	■ A strong connection to Land and Sea Country for the Gumbaynggirr and Yaegl Nations as a source of food, special sites, stories, cultural practices, totemic species and spiritual significance.
	■ Native Title determination for the Yaegl People. The claim includes the area from mean high water mark to 200 metres east of mean low water mark between Woody Head and Wooli, encompassing the northern area of the Solitary Islands Marine Park.
	■ Traditional ecological knowledge can offer important wisdom for marine park management.
	■ Coffs Harbour and District Local Aboriginal Land Council has developed a Land and Sea Country Plan that outlines aspirations and a strategic approach for the management of Gumbaynggirr Land and Sea Country.
	■ DPI Fisheries is working with both the Gumbaynggirr and Yaegl People to deliver Initiative 4 of the Marine Estate Management Strategy, Protecting the Aboriginal Cultural values of the marine estate.
	■ A number of land claims are pending under the *Aboriginal Land Rights Act 1983* on Crown land, including at Woolgoolga Lake and Moonee Creek.
	■ The Arrawarra fish traps are a particularly significant Gumbaynggirr Sea Country site. The ancient stone (muniim) fish traps are used by the Garby People. Fishing (birraangi) must be approved by the Garby Elders. The traps are used to catch a range of coastal fish (yamaarr). A significant midden at Moonee Creek has recently been dated at more than one thousand years old. Significant sites are also at Arrawarra Headland, Red Rock Headland and Pipe Clay Creek.
	■ Marine park special purpose zones have provided some protection to significant Aboriginal cultural values at Arrawarra and Pipe Clay Creek.
	■ This Land and Sea Country is significant for social, cultural and economic values for Traditional Owners and Aboriginal people.
Other	■ Final resting place for an estimated 14 ships offering significant maritime heritage value.
	■ The wreck of The Buster, a 310 tonne and 39 metre barquentine which arrived at Woolgoolga to load timber bound for New Zealand and ran ashore at the mouth of Woolgoolga Lake in 1893.
	■ The wreck of the Keilawarra, a 61-metre iron steam ship that sank near North Solitary Island in one of Australia's greatest maritime disasters in 1886. The Keilawarra was bound for Brisbane when it impacted with a smaller steamer, The Helen Nicoll and sank. While the wreck is outside of the marine park, graves of some victims are located onshore at Emerald Beach.
	■ Remains of various historic maritime infrastructure at Woolgoolga, including the windlass from the Buster, the Town Pier and a loading facility on the rock face at the south end of the Bay. Railway bridge pylons are located in Woolgoolga Lake from the railway that carried timber and goods to the Woolgoolga sawmill and jetty. Woolgoolga Lake was originally called Oyster Lake with the first oyster leases being granted in the late 1800s.

SOLITARY ISLANDS MARINE PARK CULTURAL VALUES

Other	■ The gantry that brought supplies and people to and from the South Solitary Island Lighthouse collapsed in the 2000s and is lying on the sea bed where it fell. Constructed in 1880, the iconic South Solitary Island Lighthouse is valued as one of only two lighthouse islands in NSW.
	■ Additional sites at Hearnes Lake (unidentified wreck), Coffs Harbour (pier and maritime infrastructure), Moonee Beach (Lady of Lorn wreck), and South Solitary Island (Wyong wreck) as well as many historically known but unlocated sites along the coast, in estuaries and at Sandon Harbour. Wrecks may currently be buried below the seabed, under beaches or under sand dunes (e.g. Hearnes Lake unidentified wreck) or inside river systems (e.g. Sandon River unidentified wreck).
	■ Shipwrecks can also support environmental values through sand accretion and beach stabilisation and by offering additional structure and habitat for marine species. This additional habitat may enhance recreational fishing opportunities. There is recent evidence that wrecks act as aggregation sites for Greynurse Shark in some areas.
	■ Many lives have been lost at sea in maritime and commercial fishing incidents.
	■ The maritime and seafood industries are an important part of local heritage.
	■ Australian culture has a strong, ongoing connection with the coast and an affinity with the water.

SOLITARY ISLANDS MARINE PARK ECONOMIC VALUES

The Solitary Islands Marine Park is adjacent to the Clarence Valley and Coffs Coast regions of NSW. The Clarence Valley's economy remains closely associated with its natural assets and strengths, including its coast and rivers. Key industries include tourism, commercial fishing, aquaculture, seafood and marine manufacturing.

Key natural strengths for the Coffs Coast's economy include coastal amenity, natural beauty, the numerous pristine beaches and islands along its coastline that are a draw card for residents and visitors, rivers, the Coffs Harbour jetty and foreshore area, Aboriginal heritage and its diverse workforce and cultures. Key industries include fishing and tourism.

Stakeholder feedback has identified the following important economic values that the marine park provides or supports.

- The Tourism sector is the second largest employer and is the leading sector in the Coffs Coast's $4 billion economy, contributing $498 million in Gross Value Added. Tourism has an important role across numerous sectors including recreation, accommodation and food, rental, real estate and retail trade. In the Clarence Valley, it is estimated that 13 to 16 per cent of total wages, jobs and output are supported by tourism. Both of these regions have identified their coast and rivers as key strengths underpinning the tourism industry. All of the environmental, social, cultural and economic values described directly and indirectly support the local tourism industry.
- Outstanding natural scenery, panoramic ocean views, prominent headlands and the five main Solitary Islands provide commercial photography and filming opportunities. Iconic images used in calendars, prints, display materials promote tourism and attract local and international visitors.
- Several Aboriginal cultural tourism opportunities including the award winning Wajaana Yaam Gumbaynggirr Adventure Tours which is often highlighted across NSW as a premium Aboriginal cultural tourism operation.
- Important commercial fishing industry that provides fresh local seafood to locals and visitors and supports a broader local seafood industry, including retail, wholesale and restaurants. Local fisheries include ocean trawl, ocean trap and line, ocean hauling, lobster and estuary general. These fisheries use a variety of fishing methods and gear to target key local species, including King Prawns, Snapper and Pearl Perch.
- The 2016 UTS Valuing Coastal Fisheries project found that the commercial fishing industry in the NSW Mid North Coast including Coffs Harbour, generates more than$38.5 million in revenue and over 360 full-time local jobs. This includes $19m, and 153 jobs, from the industry and the businesses that service it and a similar amount from the secondary processing, wholesale and retail sector.
- The commercial fishing industry in the Clarence, including the state's largest fleet of ocean prawn trawlers and many fishers who access the north of the marine park, generates more than $60 million in revenue and over 650 full-time local jobs. This includes $26m and 237 jobs from the industry and the businesses that service it and approximately $34m and 415 jobs from the secondary processing, wholesale and retail sector.

SOLITARY ISLANDS MARINE PARK ECONOMIC VALUES

- A large portion of commercial fishers are supported by the Coffs Harbour Fishermen's Co- operative which also offers retail and wholesale fresh local seafood. The NSW Professional Fisher's Association advocates for commercial fishers across NSW but is based in Coffs Harbour.
- Eating out is the most popular activity undertaken by domestic visitors to the Mid North Coast area and the fishing industry provides an important and valued product to local tourism and hospitality markets. The UTS project indicated that the vast majority (89%) of NSW residents expect to eat locally caught seafood when on holidays.
- Residents of the Mid North Coast recognise the economic importance of the commercial fishing industry to their region – the UTS project found that 89% think it provides important employment opportunities, 94% believe it is an important industry for NSW and 89% believe that it plays an important part in tourism in their region. The industry provides important tourism opportunities to see working commercial fishing and oyster aquaculture industries and enjoy fresh local seafood.
- Oyster growing is the only aquaculture currently conducted within the Solitary Islands Marine Park. All current oyster leases are located within the Wooli Wooli River. There are currently 3 permits issued for aquaculture. Aquaculture is an integral part of the NSW economy and provides flow on benefits to seafood processing, retail businesses and the tourism sector.
- Aquaculture is particularly dependent on good water quality. Under the state's food safety regulations, the shellfish industry regularly monitors water quality in their harvest locations, assisting the community and government to identify ongoing water quality issues and address them.
- Aquaculture research is conducted at the National Marine Science Centre.
- Local recreational fishing activities support local bait and tackle, charter fishing, boating and tourism industries. Seven businesses provide recreational fishing charters in the marine park. Across NSW in 2019-20, fishers spent an estimated $2138 million on recreational ($2117 million) and charter ($21.5 million) activities across the State.
- Currently 19 commercial charter boat businesses authorised to operate, providing significant local tourism opportunities. This includes the seven recreational fishing charters, as well as scenic tours, scuba diving, snorkelling, whale watching and one whale swim operation, with many operators diversifying services.
- At least five businesses primarily offer whale and dolphin watching tours.
- The majority of recreational scuba diving is conducted through one of the three commercial dive operators based at Coffs Harbour, Mullaway and Wooli. Many scuba diving customers are visitors to the area, providing important tourism value. These businesses support approximately 6000 scuba diving customers each year. Dive businesses promote encounters with marine turtles and iconic species such as Greynurse Shark. Shipwrecks also provide commercial dive opportunities.
- One personal watercraft hire business operates in Coffs Harbour and a boat hire business operates in Wooli.
- Private and commercial boating and yachting have economic value in their own right and also support a number of social and economic values in the area, including commercial fishing, recreational fishing, aquaculture, charter fishing, scuba diving, snorkelling, whale and dolphin watching and boat hire. Recreational boating and commercial vessel activities contribute an estimated $2.7 billion to the NSW economy and employ an estimated 8,000 people.
- The recreational and commercial boating and yachting fleet are supported by the Coffs Harbour Marina, Coffs Harbour Yacht Club, a marine chandlery and other maritime services based at the southern boundary of the marine park.
- Volunteer NSW Marine Rescue units servicing the boating community from Coffs Harbour, Woolgoolga, Wooli and Iluka Yamba. Local commercial fishing industry also routinely assisting with marine rescue. NSW Water Police and Transport for NSW Maritime vessels also based in Coffs Harbour provide emergency maritime services.
- Local maritime heritage supports important boat and shore-based tourism opportunities. Helicopter tours to South Solitary Island Lighthouse offer an iconic, high end tourism opportunity.
- Increasing number of kayaking and stand-up paddle schools and tour operators. Eight authorised paddling events or businesses operated in 2019.
- Six surfing school and board hire businesses currently operate, including one dedicated surf camp at Arrawarra.
- Surfing competitions, surf lifesaving carnivals, running events, triathlons, decathlons, marathons and adventure races are significant tourism events that attract many visitors.
- The significant local marine research and education facilities, SCU's National Marine Science Centre and its Solitary Islands Aquarium and Dolphin Marine Conservation Park attract hundreds of researchers and students to the area, all adding value to the local economy. Some research leads to industry or management efficiency savings or new economic opportunities, also contributing economic value.
- All marine parks present opportunities to develop blue economy initiatives such as kelp propagation and cultivation, carbon credits accrued for habitats protected in marine parks and trialling of biodegradable oyster culture infrastructure and engineered solutions to coastal erosion that provide additional habitat.


Photo © Scott Sloan

Port Stephens-Great Lakes Marine Park

PROFILE

- Declared in 2005
- Approximately 130 km of oceanic coastline and 98 000 ha of the NSW marine estate
- Approximately 73 000 ha of marine waters and 25 000 ha of estuarine waters
- Catchment area of approximately 414 000 ha

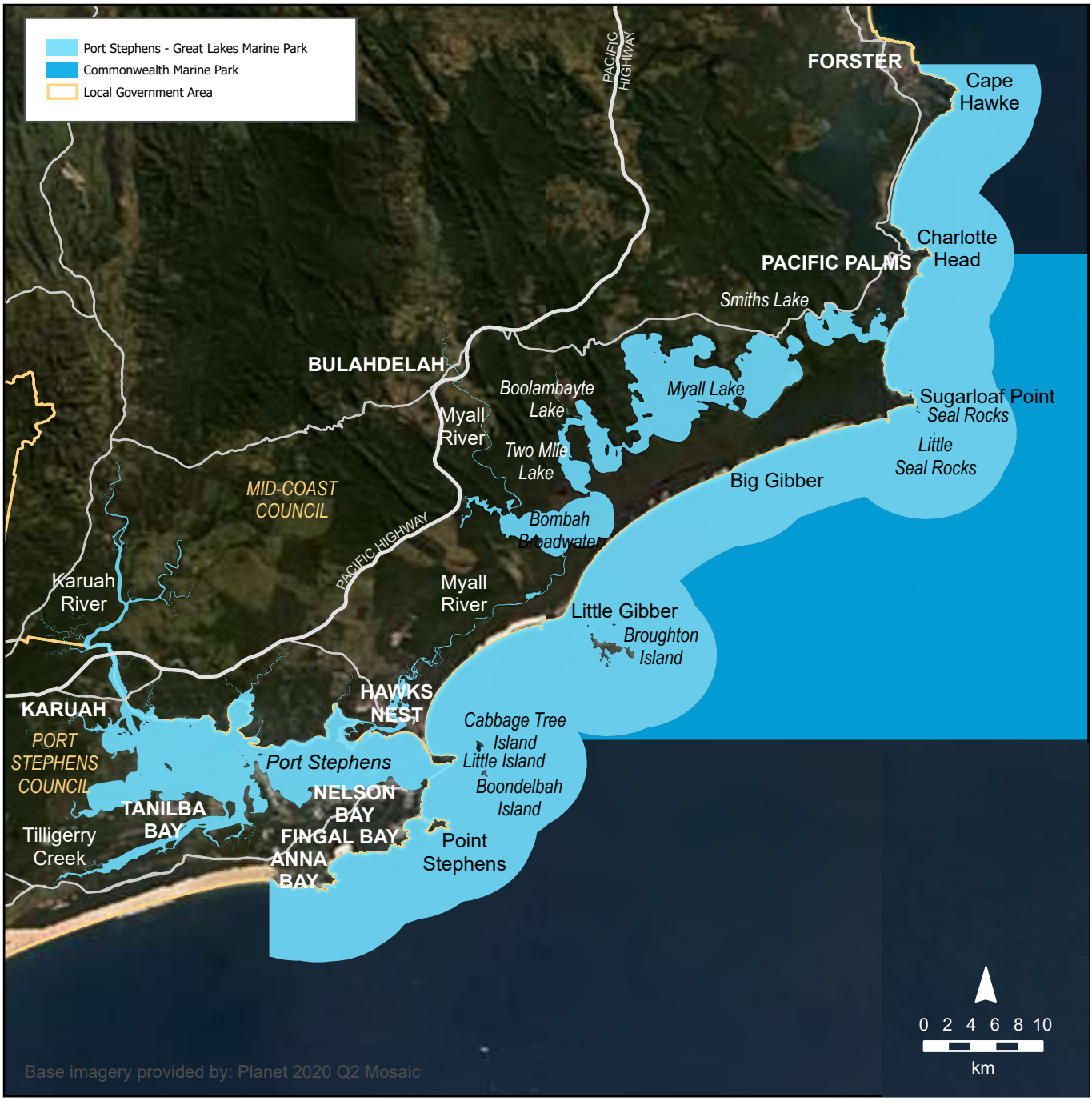

Figure AC3 – Port Stephens-Great Lakes Marine Park

PORT STEPHENS-GREAT LAKES MARINE PARK VALUES

Table AC3 – What the community values about Port Stephens-Great Lakes Marine Park

PORT STEPHENS-GREAT LAKES MARINE PARK ENVIRONMENTAL VALUES	
Port Stephens-Great Lakes Marine Park is the largest marine park in NSW covering an area of approximately 980km^2. The marine park encompasses a diverse range of habitats including intertidal and subtidal reefs, soft sediments, beaches, seagrass, mangroves, saltmarsh, offshore islands and open waters which all support distinct groups of plants and animals. The marine park was declared in 2005, however, the Fly Point Aquatic Reserve was established over 20 years earlier in 1983. The aquatic reserve now forms part of the Fly Point - Corrie Island sanctuary zone within the marine park. Stakeholder feedback has highlighted many of the important environmental values provided by the marine park. These have been summarised below.	
Habitats	■ Unique environment where tropical, subtropical and temperate marine fauna and flora coexist. Includes areas at least 100 metres deep and up to ten kilometres offshore supporting considerable diversity in flora and fauna.
	■ One of only two marine parks in NSW which includes areas of oceanographic upwelling. These areas deliver nutrients to coastal ecosystems and support primary productivity. These ocean processes are important for the health and productivity of marine ecosystems throughout NSW, which are generally nutrient-poor.
	■ Port Stephens has the greatest areas of saltmarsh, mangrove and Posidonia of any NSW estuary; Port Stephens has one of the few populations of Posidonia in NSW that is outside of an estuary at Broughton Island.
	■ Diverse estuarine habitats and species due to the presence of a tide dominated drowned river valley (Port Stephens), a brackish barrier lake ecosystem (Myall Lakes) and an intermittent coastal lagoon (Smiths Lake), dominated by seagrass, mangrove, aquatic macrophyte and saltmarsh habitats that provide important habitats for many species of fish, invertebrates, filamentous algae and birds. Deeper sections of these areas also contain unvegetated areas that often contain habitat for a different suite of species.
	■ Inside the estuarine Port there are extensive areas of sponge and soft coral habitats (including a threatened coral species) that are important for multiple species of marine life. Both inshore and offshore habitats such as sponges, seagrass, soft corals and kelp forests act as important nurseries for juvenile fish. Extensive areas of sea grass meadows within Port Stephens are likely to be a significant forage resource for resident Green Turtles.
	■ Myall Lakes Ramsar wetlands.
	■ Shallow reefs in the marine park are abundant with macroalgae and support a diversity of species including, sponges, sessile invertebrates and certain corals.
	■ Large areas of complex reef at depths of more than 20 metres support communities dominated by sponges and invertebrates including stalked ascidians (sea-squirts), sea-whips, hydrozoans and black coral.
	■ Hard corals including south-east endemic species *Pocillopora aliciae* are a prominent and important component of shallow reef habitats, especially for tropical fish species.
	■ Some of the best remaining natural oyster reef habitat in NSW.
Species	■ Over 800 species of fish have been recorded in the marine park. Many threatened, protected, commercially important and recreationally important fish species migrate over large distances making use of numerous sites within the marine park. Big and Little Seal Rocks have been found to have some of the highest fish diversity along the NSW coast and are very important sites for commercially and recreationally important species such as Snapper.
	■ The Bennetts Beach to Mungo Brush region is a known nursery area for vulnerable White Sharks, with the peak season for numbers occurring from August through to December.
	■ Three critical habitat sites and one aggregation site for the critically endangered Greynurse Shark. Critical habitat is at Big and Little Seal Rocks, Little Broughton Island and The Pinnacle. The aggregation site is at Broughton Island and incorporates Looking Glass, East Head and North Rock. Big and Little Seal Rock have been identified as being two of the most important Greynurse Shark aggregation sites on the east Australian coast.
	■ Forster Pinnacle and Big and Little Seal Rock sanctuary zones are important sites for the vulnerable Black Rockcod.
	■ Port Stephens has been identified as one of two important sites for endangered White's Seahorse. Inside Port Stephens are the most expansive sponge gardens found in any NSW estuary, particularly in the Nelson Bay region and the Fly Point sanctuary zone, which provide important seahorse habitat.

PORT STEPHENS-GREAT LAKES MARINE PARK ENVIRONMENTAL VALUES

Species	■ Sponge gardens also provide important habitat for nudibranch species (seaslugs), marine turtles and a huge variety of fishes.
	■ The area is the known northern most range of the protected Weedy Seadragon and Pot Belly Seahorse.
	■ An important site for protected Elegant Wrasse and Eastern Blue Devilfish.
	■ The Port Stephens estuary is one of only two sites in NSW where the endangered Cauliflower Soft Coral is known to occur in abundance.
	■ Cabbage Tree Island is an Area of Outstanding Biodiversity Value under the *Biodiversity Conservation Act 2016* as part of John Gould Nature Reserve. It is the primary breeding site for the endangered seabird Gould's Petrel. Gould's Petrel is located on four islands off Port Stephens: Cabbage Tree, Boodelbah, Broughton, Little Broughton. Only one of two known breeding locations in the world for the subspecies.
	■ Little Penguin breed on Cabbage Tree Island.
	■ The vulnerable Black Bittern, Sooty Tern, Sooty Oystercatcher, endangered Pied Oystercatcher and Little Tern, and critically endangered Beach Stone Curlew are all found within in the marine park.
	■ Green, Loggerhead and Hawksbill Turtles forage throughout the marine park with the Port Stephens estuary providing important habitats for Green and Loggerhead turtles. The marine park includes ocean beaches at the southern extent of recorded successful turtle nesting range, meaning this may become more important with climate change.
	■ Migrating Humpback and Southern Right Whales pass through the marine park on their northerly and southerly migrations. Mother and calf pairs have been recorded resting within the marine park including within the Port Stephens estuary. Given coastal topography and shape, there is often a narrowing and concentration of the Humpback Whale northern migratory corridor at both Fingal Head and Sugarloaf Point.
	■ There is a small concentration of Southern Right Whale mother and calf pair records from around Pacific Palms, Blueys Beach, Boomerang Beach and Elizabeth Beach, indicating it may be used as a nursery area.
	■ A resident Indo-pacific Bottle Nose Dolphin population is found within the area. Local populations of this species prefer to use the same site, with dependence on certain habitats and locations, this means that local populations may be quite separate from adjoining populations. Port Stephens has a relatively small population of inshore dolphins that is genetically differentiated from coastal dolphins. Port Stephens' dolphins are segregated in two socially structured communities: western and eastern harbour. Resident dolphins support a year round dolphin watching industry. Pods of Common Dolphins underpin a swim-with dolphins operation during summer months.

PORT STEPHENS-GREAT LAKES MARINE PARK SOCIAL VALUES

The Port Stephens-Great Lakes Marine Park extends along the NSW from Forster to Anna Bay. It is within an area of outstanding natural beauty with ancient volcanic islands and an accessible harbour over twice the size of Sydney's. There is a strong sense of community ownerships with residents stating that they feel proud of and care for the waters through active engagement in local management, particularly for Smiths Lake, Myall Lakes and Port Stephens.

Stakeholder feedback has highlighted many of the important social values provided by the marine park. These have been summarised below.

- Clean waters, visual amenity and the natural beauty of a significant natural coastline.
- Opportunities to see marine wildlife including whales, dolphins, seals, turtles, birds and sharks from the water and many vantage points on land. Popular land-based sites for whale watching include the Birubi and Fingal coastline, Seal Rocks, Cape Hawke, Tomaree Head ad Boat Harbour.
- Port Stephens is currently in the process of nomination as a World Heritage estuary and catchment because of its vast diversity of wildlife.
- Supports seafood events such as Karuah Timber and Oyster Festival, Port Stephens Love Seafood Festival and the Smiths Lake Seafood Festival. The Port Stephens Festival attracted 50 000 people in 2019.
- Boating opportunities that support many other activities.

PORT STEPHENS-GREAT LAKES MARINE PARK SOCIAL VALUES

- Large fleet of recreational boats used for fishing, sailing, general sightseeing and water sports. The waters of Port Stephens host the annual Sail Port Stephens regatta, a national event that contributes significantly to the local economy. Seven sailing clubs conduct events and training.
- Many private waterfront structures, including in the Myall River, Tea Gardens and North Arm Cove.
- Boat-based camping opportunities.
- Quality kayaking, stand-up paddle, surf ski and ocean outrigger opportunities.
- Premium recreational fishing opportunities from estuaries to near shore reefs and offshore islands. Valued by locals and thousands of recreational anglers for prized species including Marlin, Snapper, Mulloway, Kingfish and Dusky Flathead. These waters are home to 12 fishing clubs and several annual fishing competitions including the largest trailer-boat fishing competition in NSW which may host up to 400-500 hundred small vessels.
- Port Stephens is a major base for ocean and land-based game fishing and one of the few areas along the coast where it is possible to catch hard running fish such as Kingfish Cobia and Long Tail Tuna. It is home of the annual NSW Game Fishing Association Interclub State Championships, the Newcastle-Port Stephens Gamefish Club's annual Billfish Shootout Tournament and regularly hosts the Australian Bream Tournament. These events are some of the largest fishing tournaments in the southern hemisphere, and also generate significant local economic turnover.
- Areas such as Sunny Corner Fingal Island, Tomaree, Yaccabar Little Gibber, Seal rocks Lighthouse and ClayTracks hold historic and cultural value to the Australian sport fishing sector.
- Aside from the direct enjoyment associated with catching fish, recreational fishing provides many important social values and benefits, including fitness, the health benefits of eating fresh seafood, education and schooling, wellbeing, relaxation, socialising, sense of community and enjoying and engaging with nature and natural beauty. In 2019, the marine park supported 12 different fishing clubs. 11 regular fishing competitions are carried out each year, including the largest trailer-boat fishing competition in NSW.
- Valued for the diversity of nearshore reefs, smaller shore-based rocky coves and offshore islands that provide numerous accessible sites for spearfishing. Nearby spearfishing clubs have regular outings in Port Stephens and hold two major annual competitions within the park.
- Supports up to 24 sporting competitions each year, including adventure races and triathlons.
- More than 100 beaches in the marine park where people can swim. Accessible and affordable activity with a wide diversity of experiences from remote out of the way coves, long ocean beaches and beaches on the urban interface with car parking, shops, playgrounds and facilities. Several groups that meet to exercise and train for ocean swimming. Regular training and social swims are held at Shoal Bay and Nelson Bay.
- Six surf life saving clubs located at Birubi, One Mile Beach, Fingal Bay, Hawks Nest, Pacific Palms (Elizabeth Beach) and Cape Hawke that provide patrolled swimming areas.
- Numerous local, Hunter and Mid North Coast primary and high schools include a visit to the marine park for interactive marine science education. Several Australian universities access the marine park for tertiary education.
- Quality surfing, kite surfing and windsurfing opportunities. Two surfing competitions held each year and three surf schools operate. Two windsurfing events held each year.
- Valued for high quality scuba diving and snorkelling opportunities. High quality underwater photography opportunities due to the diversity of underwater life. Two of the sites within Port Stephens are rated as the best shore diving sites in NSW and the offshore islands including Broughton and Cabbage Tree islands are sought after diving destinations both nationally and internationally. Wrecks and other underwater heritage sites offer additional opportunities.
- Valued for scientific research opportunities. Since 2008, there have been over 140 scientific research studies conducted in the marine park. Research is routinely conducted by government agencies, universities, research organisations, environmental consultants, community groups, citizen scientists, recreational fishers and industry. The University of NSW has a Field Station at Smiths Lake.
- Citizen science including Operation Posidonia. The Combined Hunter Underwater Group (CHUG) also participate in social dive events, organised research and underwater marine debris initiatives and undertakes the quarterly Nelson Bay Sea Slug Census.
- Recreational fishers actively contribute to citizen science through donations of fish frames and otoliths and tagging of various species including Dusky Flathead, Mulloway, Snapper and Marlin.
- Many marine park sanctuary zones are particularly valued as education and scientific reference areas.
- Commercial fishing provides social benefits to those involved and others including through the supply of healthy fresh seafood. It also contributes to the character of marine park areas, provides flow on benefits that are social in nature.

PORT STEPHENS-GREAT LAKES MARINE PARK CULTURAL VALUES

The Port Stephens-Great Lakes Marine Park has many Aboriginal and non-Aboriginal cultural and heritage values.

The Worimi People have maintained a close and ongoing cultural connection with Land and Sea Country surrounding the marine park for many generations with Dreamtime stories telling of how Worimi People came from the sea, evolving from black dolphins to become the traditional people of this coastal area.

Non-Aboriginal culture includes an important maritime heritage and the considerable Australian cultural connection with the coast and water in this area.

Stakeholder feedback has identified the following important cultural values provided by the marine park.

Aboriginal	■ This Land and Sea Country is significant for social, cultural and economic values for Worimi Traditional Owners and Aboriginal people.
	■ Sea Country is at the centre of cultural society and is deeply intertwined in the cultural makeup, practices and history of the Worimi people.
	■ Traditional management of Sea shaped the development of traditional cultural standards and protocols for Sea Country interactions and ensured the continuation of spiritual connections.
	■ Many traditional Aboriginal sites located along the shoreline include ceremonial sites, burial sites, scar trees (canoe, fishing trees) and midden sites containing remnants of ancient Sea Country resources.
	■ Extensive traditional history of Sea Country resource use and activities by Worimi people. Sea Country is interconnected to culture, and continuation of culture is dependent on these interactions.
	■ The Worimi Traditional Owners have engaged with marine park management for many years to advise of cultural connections with Sea Country and aspirations for its continued use. The Garoowa Report (Sea Country Report) outlines connections and values of Sea Country in greater detail. Information booklets are available to explain traditional connections and values of Sea Country to the community.
	■ The 4200-hectare Worimi Conservation Lands is managed by the local Worimi Traditional Owners, in partnership with the NSW NPWS, and adjoins the marine park.
	■ BMP initiated the MEMS Initiative 4 sea ranger program that employs and trains local Aboriginal people to work on and connect with Sea Country.
Other	■ At least 187 shipwrecks in the area. Several local books and resources provide detailed information on local maritime heritage.
	■ Many lives have been lost at sea in maritime and commercial fishing incidents. Gravesites from remote wrecks may exist within the marine park boundaries in more isolated areas.
	■ Many wrecks may not be visible and may currently be buried below the seabed, under beaches, under sand dunes or inside river systems.
	■ Shipwrecks can also support environmental values through sand accretion and beach stabilisation and by offering additional structure and habitat for marine species. This additional habitat may enhance recreational fishing opportunities. There is recent evidence that wrecks act as aggregation sites for Greynurse Shark in some areas.
	■ The wrecks near Corrie Bay, Tea Gardens and other areas within the lakes present unique opportunities for nondiving education for students in shipwreck and maritime heritage, opportunities to enjoy wrecks in non-powered watercraft, and tourism opportunities.
	■ Cultural values associated with fishing and aquaculture. Local oyster infrastructure and sites is of cultural significance and may also offer some heritage value.

PORT STEPHENS-GREAT LAKES MARINE PARK ECONOMIC VALUES

The Port Stephens-Great Lakes Marine Park is adjacent to the Great Lakes and Hunter regions of NSW. The area is known for its incredible natural beauty, unique wildlife and strong community spirit. It is an important area for tourism and has a rapidly growing population base which supports a range of industries and businesses.

Stakeholder feedback has identified the following important economic values that the marine park provides or supports.

- Home to a valued oyster aquaculture industry. 47 permits are currently issued to businesses for aquaculture in the Port Stephens-Great Lakes Marine Park totally an area of 861 hectares. Port Stephens has the second highest oyster production of any estuary in NSW with a total production value of over $10.7 million dollars in 2018/19. This figure does not account for the flow on economic benefits to other sectors of the community, including maritime, seafood and tourism industries.
- Port Stephens has a number of land-based oyster and finfish hatcheries and nurseries. These facilities play a critical role in the development of the Sydney Rock Oyster breeding program and the Recreational Fishing Enhancement programs.
- Two offshore aquaculture leases, the DPI Marine Aquaculture Research Lease and a commercial finfish lease. Port Stephens Fisheries Institute adjoins the marine park and undertakes fisheries research projects for the state.
- Aquaculture is particularly dependent on good water quality. Under the state's food safety regulations, the shellfish industry regularly monitors water quality in their harvest locations, assisting the community and government to identify ongoing water quality issues and address them.
- Aquaculture businesses are supporting tourism initiatives with seafood trails, farmgate sales and estuary tours.
- Significant commercial fishing industry that provides fresh seafood to the local community and across NSW. Key fisheries include estuary general, lobster, ocean hauling, ocean trap and line and ocean trawl. Commercial Fishermen's Co-operative facilities operate at Nelson Bay, Tea Gardens and Bungwahl and support approximately 50 commercial fishers between Port Stephens and Smiths Lake. The commercial fishing industry provides flow on benefits to the seafood industry, retail and tourism.
- The 2016 UTS Valuing Coastal Fisheries project found that the commercial fishing industry in the Great Lakes-Hunter region between Newcastle and Taree generates more than $83 million in revenue and over 727 full-time local jobs. This includes $42m and 310 jobs from the industry and the businesses that service it and a similar amount from the secondary processing, wholesale and retail sector.
- Eating out is one of the most popular activities undertaken by domestic visitors to the area and the fishing industry provides an important and valued product to local tourism and hospitality markets. The UTS project indicated that the vast majority (89%) of NSW residents expect to eat locally caught seafood when on holidays.
- Residents of the Great Lakes-Hunter recognise the economic importance of the wild- catch industry to their region – of those surveyed as part of the UTS project 89% think it provides important employment opportunities, 90% believe it is an important industry for NSW and 87% believe that professional fishing plays an important part in tourism in their region.
- Valued recreational fishing opportunities support local bait and tackle, charter fishing, boating and tourism industries. Currently there are 16 fishing businesses providing charter fishing services within these waters. Some game fishing charter boats also annually relocate to Port Stephens for the various prominent game fishing tournaments. Licence fees for recreational fishing contribute to local facilities. In NSW in 2019-20, fishers spent an estimated $2138 million on recreational ($2117 million) and charter ($21.5 million) activities across the State.
- Private and commercial boating and yachting have economic value in their own right and also support a number of social and economic values in the area, including the oyster industry, commercial fishing, recreational fishing, charter fishing, scuba diving, snorkelling, whale and dolphin watching, boat and jet ski hire. Recreational boating and commercial vessel activities contribute an estimated $2.7 billion to the NSW economy and employ an estimated 8,000 people.
- There are two state owned regional ports at Nelson Bay and Tea Gardens. Four marinas inside Port Stephens provide servicing, shipwright and mechanical repairs, berthing, on- ground storage, fuelling and pump out facilities. Eight commercial operators provide marine infrastructure and salvage services, which include the installation and maintenance of private and commercial moorings, jetties, pontoons, ramps, salvage and specialised marine infrastructure.
- Considerable resources are available for maritime rescue and emergency services vessels, including Water Police, Transport for NSW – Maritime, and Marine Rescue NSW.
- Nelson Bay Regional Harbour, and associated maritime infrastructure and breakwater, accommodates restaurants, cafes, boat ramps and slipways. A seasonal inflatable splash park provides a different water experience near the Nelson Bay Marina.
- Six commercial charter boat operators provide general sightseeing tours around the Port, and there are two houseboat operators in the Myall Lakes. One sailing school for school students. Five commercial ferry and passenger transport service operators in the marine park and a vehicle ferry in Myall Lakes National Park.
- Formal paddle clubs, competitions, schools and tour operators, with 18 authorised paddling events or businesses.

PORT STEPHENS-GREAT LAKES MARINE PARK ECONOMIC VALUES

- Significant dolphin and whale watching industry, with several businesses and vessels providing valued opportunities to see whales and dolphins, and one dolphin swim-with business. Dolphin watching is limited to the area from Tomaree Head in the east to Soldiers Point in the west to Corrie Island in the north. Whale watching operations are primarily focused on the annual Humpback migration from April until November, but Southern Right Whale can also be seen including mothers nursing newborn calves. Whale operations commonly include a visit to the Cabbage Tree Island seal haul out site. Seabird and shorebird watching also makes an important contribution to local tourism.
- Local businesses offering scuba diving courses, dive charters, retail and gear hire from Nelson Bay, Forster and Newcastle. Commercial dive operators increasingly promote opportunities for encounters with Greynurse Sharks, seahorses and turtles. Wreck diving opportunities are also valued.
- Port Stephens is one of NSW leading regional destinations, attracting over 1.7 million domestic and international visitors in 2018/19 making 2.7 million overnight visits and injecting $620 million into the economy through visitor expenditure.
- Home of the Worimi people offering visitors many unique Aboriginal cultural tourism experiences.
- Many restaurants are valued for the visual amenity overlooking marine park waters. The natural beauty of the area supports commercial photography and film making.
- All of the social, cultural and economic values above directly and indirectly support the local tourism industry. Valued for its picturesque bays, family-friendly beaches and great fishing, the area has been a beloved family holiday destination which attracts generations of families primarily over the peak school holiday periods.
- All marine parks present opportunities to develop blue economy initiatives such as kelp propagation and cultivation, carbon credits accrued for habitats protected in marine parks and trialling of biodegradable oyster culture infrastructure and engineered solutions to coastal erosion that provide additional habitat.

Jervis Bay Marine Park

PROFILE

- Declared in 1998
- Approximately 60 km of oceanic coastline and 85 000 ha of the NSW marine estate
- Approximately 9500 ha of marine waters and 11 500 ha of estuarine waters
- Catchment area of approximately 34 000 ha

Figure AC4 – Jervis Bay Marine Park

JERVIS BAY MARINE PARK VALUES

Table AC4 – What the community values about Jervis Bay Marine Park

JERVIS BAY MARINE PARK ENVIRONMENTAL VALUES	
Jervis Bay Marine Park on the NSW South coast covers approximately 215 km² and spans over 100 km of coastline and adjacent oceanic, embayment and estuarine waters. It is influenced by the warm southward flowing East Australian Current, cool temperate currents flowing north and periodic flows of cold water from the Tasman Sea providing unique diversity of habitats and species. Stakeholder feedback has highlighted many of the important environmental values provided by the marine park. These have been summarised below.	
Habitats	■ The mixing of ocean currents in the area supports a diversity of unique habitats. The warm southward flowing East Australian Current, cool temperate currents flowing north and periodic flows of cold water from the Tasman Sea converge along this stretch of coast.
	■ Periodic upwelling of cold nutrient rich waters from the nearby Continental Shelf (8 nautical miles offshore) provides unique values.
	■ The heads of the bay extend directly into deep offshore waters providing direct access for deep offshore species to this inshore embayment environment, attracting iconic dive species such as Sunfish, whales and other deep-water species.
	■ Dramatic range of landforms provides for a variety of habitats including deep-water cliffs, exposed and sheltered sandy beaches, rock platforms, rocky reefs, soft sediments, small estuaries, oyster reef, kelp forests and algal beds. Tall cliffs dropping into deep coastal reefs.
	■ Reef habitats are extensive and shallow reef areas support abundant macroalgae, such as kelp. The region supports more than 230 species of algae. Marine park reef habitats are an excellent example of the Great Southern Reef.
	■ Scallop beds off the Honeymoon Bay Area are an important environmental value.
	■ Extensive estuarine wetlands of Carama and Moona Moona Creeks, Lake Wollumboola and Wowly Gully, which contain three threatened plant species: *Wilsonia backhousei, W. rotundifolia* and the grass *Distichlis distichophylla*, and coastal saltmarsh and swamp oak floodplain forest endangered ecological communities.
	■ Important seagrass beds at Hare Bay and coastal saltmarsh endangered ecological community in Currambene Creek.
	■ Saltmarsh habitats extend into Jervis Bay where the Moona Moona creek enters at Hare Bay.
Species	■ Diverse, small and cryptic fauna that plays a critical role in the food webs operating in the bay.
	■ Over 210 species of reef fish have been recorded, including rare, protected and threatened species and species that are at the limits of their range both to the north and south. Many species remain undescribed.
	■ Recorded visits by critically endangered Greynurse Shark, vulnerable White Shark, Sevengill Shark and Bull Shark, with some individuals on repeat occasions as seasonal visitors.
	■ Jervis Bay is one of only five sites in NSW where the cauliflower soft coral, *Dendronephthya australis* is known to occur, currently proposed for endangered listing.
	■ Shorebirds and seabird species are an important value in the area. There are nine threatened species of birds with habitat on the estuaries of Carama and Moona Moona Creeks – the endangered Pied Oystercatcher, vulnerable Great Knot, Greater Sand Plover, Lesser Sand Plover, Sooty Oystercatcher, Broad-Billed Sandpiper, Black-tailed Godwit, Sanderling and Terek Sandpiper. Jervis Bay is also a known area for the critically endangered Hooded Plover. Pied Oystercatchers have been known to breed in the marine park.
	■ Bowen Island penguin colony in the Commonwealth Booderee National Park is very significant in NSW with around 5,000 pairs.
	■ Important for a number of different Whale species which migrate through and also use the waters within the marine park boundary including Humpback and Southern Right Whale. There is an increased likelihood of observing large whale species, with seasonal aggregations of Sperm Whales and larger baleen species recorded within the marine park.

JERVIS BAY MARINE PARK ENVIRONMENTAL VALUES

Species	■ The south coast of NSW is recognised as a historical breeding and calving ground for endangered Southern Right Whale and is important for their recovery. Southern Right Whales calve in sheltered areas with shallow water and nurse their calves for an extended period before returning to Antarctica.
	■ Jervis Bay is an important resting area on the south bound migration for Humpback Whale mothers and calves. Mother and calf pairs are known to frequently enter the Bay and rest for hours to days.
	■ A resident Indo-pacific Bottle Nose Dolphin population is found within the area. Local populations of this species prefer to use the same site, with dependence on certain habitats and locations, this means that local populations may be quite separate from adjoining populations. Populations of other dolphin species, either resident offshore, migratory or transient, can be seen in the marine park. Resident dolphin populations support a year round dolphin watching industry.

JERVIS BAY MARINE PARK SOCIAL VALUES

The Jervis Bay Marine Park extends along the NSW coast from Kinghorn Point south to Sussex inlet. It includes most of the waters of Jervis Bay, with the remainder forming part of the Booderee National Park on Bherwerre Peninsula.

Stakeholder feedback has highlighted many of the important social values provided by the marine park. These have been summarised below.

- White sandy beaches, clear and calm turquoise waters that support many social values and recreational activities for locals and visitors. Hyams Beach is particularly valued for its white sand and appears on various lists of whitest sand in the world.
- Scenic beauty and views supporting photography and quiet enjoyment of nature and wildlife, including picnicking, walking and lookouts.
- Intrinsic and bequest values from knowing that the marine park provides protection for species and ecosystem processes within the broader marine estate.
- Opportunities to view and enjoy marine wildlife, including land-based whale sightings from spectacular vantage points offered from Cape St George and Point Perpendicular.
- Valued for shorebird and seabird watching.
- Clear and calm turquoise waters valued for safe swimming opportunities.
- High quality sea kayaking and stand-up paddle boarding, with several designated launching platforms within the park and a local dragon boat club. The clear sheltered waters are valued for sea kayaking. Kayaking opportunities to appreciate shipwrecks.
- Recreational boating opportunities that are important for many other values and activities, including fishing, spearfishing and scuba diving. Personal watercraft opportunities.
- A number of private waterfront structures, including in the Huskisson and Currambene Creek area.
- Three sailing clubs active in Jervis Bay during the sailing season, two of which have regular yacht or keelboat races. The catamaran sailing club has nationally and internationally successful members.
- Valued for premium recreational fishing opportunities from estuaries to offshore for both line and spearfishing. Prized species such as Snapper, Kingfish, Southern Calamari and Flathead.
- With the heads extending into deep-water offshore, Jervis Bay is renowned as one of Australia's top land-based game fishing locations, where it is possible to catch hard running fish such as Kingfish and Tuna from the rock ledges of the bay. The marine park includes the most consistent site in the world for landing a Black Marlin from land.
- The rock ledges on the northern side of Jervis Bay have significant historical and cultural value to the Australian sportfishing sector. Areas such as the Inner and Outer Tubes, The Ladders, Eve's Ravine, The Devil's Gorge, Drum & Drum Sticks, Big Beecroft, Little Beecroft and others along this rugged section of coast provided generations of anglers with opportunities to target key sportfish such as Marlin, Yellowfin Tuna, Kingfish and Snapper.
- Safe access point for offshore fishing. Jervis Bay is the second closest launch point to the continental shelf in NSW at eight nautical miles.

JERVIS BAY MARINE PARK SOCIAL VALUES

- A combination of organised tournaments and club-based competitions are staged within the park annually, and it is a fixture on the calendar for both the Southern Zone of the Australian Underwater Federation and Underwater Skindiving and Fisherman's Association spearfishing competitions.
- Aside from the direct enjoyment associated with catching fish, recreational fishing provides many important social values and benefits, including fitness, the health benefits of eating fresh seafood, wellbeing, relaxation, socialising, sense of community and enjoying natural beauty.
- Formal and informal learning opportunities, from curriculum-based school and university studies through to sailing and commercial seamanship courses. Local schools walk students to the shores of the marine park regularly to undertake studies and use the marine park in water quality, land and sea education. Several private schools have off- campus educational facilities nearby. Vincentia High School runs a maritime archaeology course for students.
- The local Marine Rescue NSW unit also offers boating safety education opportunities. DPI Fisheries conducts a regular marine park holiday program, which offers nature- based ranger tours and a Gone Fishing Day to learn about and celebrate recreational fishing. The shipwreck trail at the SS Merimbula near Currarong offers community.
- With the Australian Navy's Fleet Air Arm based at HMAS Albatross, Jervis Bay is the main training area of operation for the Navy and safe location to work up a wide range of vessels and staff on marine and air joint operations. The deep, wide and protected embayment provides a safe training and operating area, and the low density of boating activity allow exclusive use of very large areas of Jervis Bay when required.
- The Royal Australian Naval College, HMAS Creswell based at Jervis Bay contains the School of Survivability and Ship's Safety and also offers some naval aircraft training, regularly using the water for training exercises.
- Long history of scientific research in the area with the NSW Government undertaking early fisheries research studies in 1896.
- University of Wollongong, University of NSW, University of Sydney, Macquarie University, Australian National University, University of Canberra, Australian Defence Force Academy all use Jervis Bay for a wide range of teaching and research purposes. Other research organisations and partners include DPI Fisheries, CSIRO, the commercial fishing industry, OceanWatch and the Defence Science and Technology Group. Several active research projects under way at any time.
- Marine Mammal Research educates and encourages citizen science contributors to record dolphin and whale sightings. Other opportunities for citizen science and community volunteer projects, including Reef Life Survey.
- Home of DPI's Jervis Bay acoustic array, one of the largest acoustic arrays in Australia. This array enables a wide range of species to be monitored for residency or movement within and among habitats and management areas and is an important node in the Australian Integrated Marine Observing System acoustic tracking collaborative network. With over 60 sites covering rocky reefs, seagrass and soft sediments within the bay and estuaries and an acoustic gate across the entrance of Jervis Bay, this acoustic array has enabled the study of many species.
- Shipwreck fish research studies being undertaken by the Sydney Institute of Marine Science.
- World class boat and shore-based scuba diving and snorkelling. There are hundreds of identified scuba diving anchor sites within the marine park offering a myriad of diving and snorkelling environments, including shipwrecks. Dives offering easy access to iconic deep offshore species such as Sunfish. Valued sites around the Docks, Spider Cave, Green Patch Beach and Honeymoon Bay.
- World class surf opportunities in clean water, including reef breaks, point breaks and long sandy beaches with a variety of aspects to support surfing in a variety of conditions. Key locations include Windy Gully at Currarong Beach, Target Beach at Beecroft Peninsula, Caves Beach, Wreck Bay and the world-famous Aussie Pipe reef break at Blackrock, boasting what is referred to as 'one of the hollowest and most photogenic waves in Australia.' Valued for kite surfing and windsurfing opportunities.
- An active surf lifesaving nipper club focusing on developing water and safety skills in junior life savers.
- Valued for many sporting and community events, including a suite of triathlon and fitness challenge events with beach, paddle and swim activities. Some larger festivals over several days can attract over 6000 competitors. The Games from Down Under attract athletes from around Australia.
- Beach-based food and beverage events, the SeeChange Festival and the Jervis Bay Whale Festival. Local beaches valued as a wedding venue.
- Important marine search and rescue operations coordinated by the Australian Navy.

JERVIS BAY MARINE PARK CULTURAL VALUES

The Jervis Bay Marine Park has many Aboriginal and non-Aboriginal cultural and heritage values.

The Jerrinja People have had a strong connection to the Land and Sea Country of the Jervis Bay region. Land which was once occupied by Aboriginal people is now submerged under the waters of Jervis Bay Marine Park.

Non-Aboriginal culture includes maritime heritage and a number of submerged wreck sites throughout the marine park. There is also a considerable Australian cultural connection with the coast and water in this area.

Stakeholder feedback has identified the following important cultural values provided by the marine park.

Aboriginal	■ Strong connection to the Land and Sea Country of Jervis Bay as a source of food, cultural practices and spiritual significance for at least 6000 years.
	■ Numerous archaeological sites containing mostly stone artefacts, some shell artefacts, middens, bones, charcoal and hearthstones are present.
	■ Aboriginal placenames are prominent throughout the area, as are sites of spiritual significance, including the Drum and Drumsticks. Red Rock, Green Island, Kinghorn Point, Currumbene Creek, Beecroft and Bherwerre are extremely important places.
	■ Adjacent Commonwealth Booderee National park is co-managed by local Aboriginal people, who share their knowledge and traditional practices with visitors.
	■ By 1914, Aboriginal fishermen displaced by colonisation and land claims had settled at Wreck Bay, and in 1952 this land was gazetted as an Aboriginal Reserve. In 1986, the Wreck Bay Community was granted land rights over 403 hectares which has frontage to the marine park of today. Net fishing is an important focal point of the people of Wreck Bay.
	■ There are many sites of cultural significance through historical occupation, including Bilong, near Myola and Currambene Creek which has cultural significance for the Wandandian People. Jerrinja Aboriginal Land Council owns land adjacent to the marine park.
	■ The south coast is currently subject to a Native Title claim which includes all the waters within Jervis Bay Marine Park.
	■ This Land and Sea Country is significant for social, cultural and economic values for Traditional Owners and Aboriginal people.
Other	■ There are over a dozen visible and nonvisible shipwrecks within or adjacent to the Jervis Bay Marine Park. Significant wrecks include the SS Merimbula, SS Wandra, Corangamite and the wooden barque Summer Cloud.
	■ There are also a number of submerged aircraft wrecks such as the Fairly Firefly VX 381 and the Beaufort Bombers A9-268 and A9-27.
	■ Wreck Bay area in the southern open coastal region acted like a trap for ships sailing too close to shore. The locations of Summer Cloud Bay and Mary Bay are tributes to the names of ships that were wrecked there in the late 1800s. The Hive was wrecked in 1835 and has the significance of being the only known shipwrecked on mainland Australia while carrying convicts.
	■ The Maritime museum located at Huskisson provides a detailed insight into the local heritage and includes a small area where restoration of wooden vessels is undertaken. HMAS Creswell is the commissioned home of the Royal Australian Naval College and is renowned for its heritage dating back to 1913.
	■ Historic sites and places including the Point Perpendicular Lighthouse, Cape St George Lighthouse and Curtilage, and Christian's Minde, the first guest house between Port Hacking and Twofold Bay.
	■ Shipwrecks can also support environmental values through sand accretion and beach stabilisation and by offering additional structure and habitat for marine species.

JERVIS BAY MARINE PARK ECONOMIC VALUES

Jervis Bay Marine Park is adjacent to the Shoalhaven region of NSW. The coast and natural environments of this region have been identified as one of the key strengths underpinning the local economy, particularly the long and diverse coastline of the local government area.

Stakeholder feedback has identified the following important economic values that the marine park provides or supports.

- The natural amenity of the area is recognised as a strong attraction for new residents, holiday-makers and day trippers.
- As well as boating and yachting offering economic and tourism values in their own right, many of the activities that deliver important social and economic values rely on the boating and maritime industries, including defence, aquaculture, commercial fishing, recreational fishing, charter fishing, scuba diving, snorkelling, whale and dolphin watching and boat hire.
- Jervis Bay has been a key location for Australian Naval activities for many decades and has also been used by the Army and Royal Australian Air Force to lesser extents. A wide range of Defence activities are currently conducted within the Bay and surrounding areas. Naval facilities in the immediate region of Jervis Bay include Creswell, the Jervis Bay Range Facility airfield and the Beecroft Weapons Range. Within the Bay itself is an instrumented underwater range and two designated naval anchorages – Montagu Roadstead (including a permanent submarine mooring) and Darling Road. Jervis Bay and its Defence facilities are regularly used by small vessels based in Creswell and by aircraft from Albatross and ships and other units from Sydney. A Shallow Water Sound Range (SWSR) is located near Creswell. This range is used to measure the under way radiated noise signature of ships and submarines.
- One charter sailing business and three others provide boat hire services.
- Designated anchoring sites in deeper areas within Jervis Bay provide limited emergency temporary shelter for large cruise vessels escaping from rough ocean conditions.
- One passenger ferry service operates seasonally from Huskisson Wharf to Myola.
- A Marine Rescue NSW unit operates out of Jervis Bay providing marine search and rescue emergency services.
- Valued recreational fishing opportunities support local bait and tackle, charter fishing, boating and tourism industries. There is currently one charter fishing business active in the marine park. In NSW in 2019-20, fishers spent an estimated $2138 million on recreational ($2117 million) and charter ($21.5 million) activities across the State.
- The Jervis Bay Marine Park supports an important local commercial fishing industry. Commercial fisheries include estuary general, abalone, lobster, ocean hauling, ocean trap and line and ocean trawl. These fisheries use a variety of line, net and trap fishing gear to supply species such as Snapper and Whiting. The marine park's waters provide fresh seafood to wholesalers, retailers and restaurants throughout the Shoalhaven region as well as to the Sydney Fish Markets.
- The 2016 UTS Valuing Coastal Fisheries project found that the commercial fishing industry from Wollongong to Ulladulla generates more than $30 million in revenue and over 284 full-time local jobs. This includes $15m and 121 jobs from the industry and the businesses that service it and a similar amount from the secondary processing, wholesale and retail sector.
- Eating out is one of the most popular activities undertaken by domestic visitors to the Shoalhaven and Illawarra and the fishing industry provides an important and valued product to local tourism and hospitality markets. The UTS project indicated that the vast majority (89%) of NSW residents expect to eat locally caught seafood when on holidays.
- Residents of the Shoalhaven and Illawarra recognise the economic importance of the wild-catch industry to their region – 94% of those surveyed think it provides important employment opportunities, 95% believe it is an important industry for NSW and 86% of people believe that professional fishing plays an important part in tourism in their region.
- Highly suitable for shellfish aquaculture with excellent water quality and nutrient exchange. The bay is sheltered from most prevailing weather conditions, has a suitable depth profile and is well serviced by local infrastructure. The water in the bay is replenished by strong ocean currents every three days and is considered one of the best places in Australia to grow mussels.
- Three aquaculture leases are approved in Jervis Bay Marine Park primarily focused on Blue Mussel production but also approved for other native shellfish and algal species. These species feed on the naturally occurring plankton and other nutrients in the waters of Jervis Bay and do not rely on artificial feeds. Two 20-hectare leases are located southeast from Callala Beach, and one 10 hectare lease is located north of Orion Beach. Aquaculture is an integral part of the NSW economy and provides flow on benefits to seafood processing, retail businesses and the tourism sector.
- Water based aquaculture production is complemented by land-based seafood and algae processing facilities and the BlueBiotech algae hub.
- Kayaking industry, with five businesses currently providing kayaking and stand-up paddle board hire, lessons and eco-tours. Several adventure racing events are permitted annually with kayak legs in their course route.

JERVIS BAY MARINE PARK ECONOMIC VALUES

- The sheltered waters of the bay are valued for learner surfers and an established surf school offers lessons.
- Four scuba dive-related businesses operate within the marine park. Shipwrecks such as the SS Wandra provide interesting dive sites. Dive operators also promote a chance of encounters with resident Fur Seals in various locations.
- Two business operating in Jervis Bay with wildlife watching as a focus of charter sightseeing activities, and several others include it in conjunction with other charter activities. Commercial operators also promote whale watching trips and trips out to the seal haul out sites at Drum and Drumsticks. Some operators offer swim-with tours.
- Seabird and shorebird watching supports local tourism in the area.
- All of the environmental, social, cultural and economic values above directly and indirectly support the local tourism industry. In 2016, the tourism sector made up 10% of employment in the Shoalhaven region. A separate analysis of the tourism sector estimated value added of $277 million and 2748 full-time equivalent jobs, making it also one of the most significant sectors in the Shoalhaven regional economy. The Shoalhaven Regional Economic Development Strategy 2018-2022 has a key focus on endowed with a world class marine environment that appeals to residents and visitors. Shoalhaven City Council promotes a 100 beach challenge to find your perfect blend of sand and saltwater and its award winning 'Unspoilt' marketing campaign.
- All marine parks present opportunities to develop blue economy initiatives such as kelp propagation and cultivation, carbon credits accrued for habitats protected in marine parks and trialling of biodegradable oyster culture infrastructure and engineered solutions to coastal erosion that provide additional habitat.

Batemans Marine Park

PROFILE

- Declared in 2006
- Approximately 160 km of oceanic coastline and 85 000 ha of the NSW marine estate
- Approximately 73 500 ha of marine waters and 11 500 ha of estuarine waters
- Catchment area of approximately 590 000 ha

Figure AC5 – Batemans Marine Park

BATEMANS MARINE PARK VALUES

Table AC5 – What the community values about Batemans Marine Park

BATEMANS MARINE PARK ENVIRONMENTAL VALUES	
Batemans Marine Park is situated along the south coast of NSW and important for its large expanses of rocky reef and offshore islands which support a diverse range of habitats and species. Stakeholder feedback has highlighted many of the important environmental values provided by the marine park. These have been summarised below.	
Habitats	■ High diversity of habitat types including rocky reefs, oyster reefs, kelp beds, rocky shores, saltmarsh, seagrass beds, mangrove, small embayments, sandy beaches, soft sediments and rocky coves.
	■ Unique system of extensive and continuous rocky reef which extends to depths of over 40 metres. Deep reef systems occur off Barunguba (Montague Island), Potato Point, Tollgate Islands and Brush Island. The reef adjacent to Brush Island is characterised by steep slopes associated with reef walls and gutters providing exceptional habitat for sessile invertebrates and fish.
	■ There are several offshore islands including Barunguba (Montague Island), Brush, Snapper and the Tollgate Islands and over 20 smaller offshore islands. These islands provide habitat and refuge for a diversity of marine and avian fauna, including important seabird nesting sites for migratory and resident species. Islands such as Brush, Tollgates, Snapper and Barunguba are roosting and moulting sites for Little Penguin. The shore to 20 metre contour at Barunguba continues to demonstrate extraordinary biodiversity and species density.
	■ Barunguba is the largest offshore island in NSW and is on the International Union for Conservation of Nature (IUCN) Green List of Protected Areas for excellence in conservation management.
	■ Three large coastal rivers, Bhundoo (Clyde River), Moruya and Tuross, each with catchments in excess of 1,500 square kilometres.
	■ Wagonga Inlet at Narooma has some of the most intact and expansive beds of Posidonia seagrass in NSW including the Posidonia at Clyde River. The marine park incorporates some of the few populations of Posidonia outside of an estuary at the Tollgate Islands, Barlings Island and Broulee Island.
	■ Large number of estuaries, smaller ICOLLs and coastal wetlands. Estuarine habitats such as sea grasses, saltmarsh and mangroves provide important carbon sequestration areas, protection and enhancement of which will support climate change mitigation efforts. ICOLLs are common on the south coast with approximately 40% of the ICOLLs in NSW being between Shoalhaven Heads and the Victorian border. Coastal wetlands are afforded consideration and protection in the assessment of development.
	■ The Batemans Marine Park has four lakes listed as Sensitive Coastal Lakes under Schedule 1 of the State Environmental Planning Policy (Coastal Management) 2018. Durras, Brunderee, Tarourga and Brou Lake have been afforded additional protection and considerations when assessing development within the catchments.
	■ Marine algae, ICOLLs, rocky headlands, riparian vegetation, offshore islands and offshore bommies have been noted as of particular value to local stakeholders.
	■ Many threatened, protected, commercially important and recreationally important fish species migrate over large distances and make use of numerous sites within the marine park.
Species	■ Tollgate island and Barunguba (Montague Island) are critical habitat sites for the critically endangered Greynurse Shark. Greynurse Shark are recorded in the marine park year round and pupped individuals have been spotted by local divers at the Tollgate Islands.
	■ The only known location of the critically endangered Marine Slug *Smeagol hilaris* is within Batemans Marine Park at Merry Beach. This species is only found in permanent shaded areas just below the high tide level clinging to the underside of cobbles and gravel filled gutters.
	■ Endangered and protected species known to occur in the marine park include vulnerable Black Rockcod, protected Blue Devil Fish and Weedy Sea Dragon. The NSW state fish, the Blue Groper, is common at nearshore reefs where it can be easily observed by snorkelers.
	■ Green turtles are observed as far south as Montague island and are regularly observed in the estuaries of the Moruya and Clyde Rivers.
	■ Particularly important habitat for commercially important Abalone and Eastern Rock Lobster.
	■ Barunguba (Montague Island) has the only listed breeding colonies for the threatened Australian Fur Seal and the New Zealand Fur Seal in NSW. Narooma breakwall is a year round haul out location for multiple seals, predominantly New Zealand Fur Seals, but Australian Fur Seals have also been sighted.

BATEMANS MARINE PARK ENVIRONMENTAL VALUES

Species	■ The South Coast of NSW is recognised as a historical breeding and calving ground for Southern Right Whales and important for their recovery. Southern Right Whales calve in protected areas with shallow water and nurse their calves for an extended period before returning to Antarctica. They can stay in one area for several weeks and the south coast of NSW is where most of the mothers and calves are spotted resting in the shallow waters and bays. There have been a number of sightings of mother and calf pairs within Batemans Marine Park.
	■ Humpback whales pass through the marine park on their annual northerly migration and have been observed feeding in the marine park during their migration back south.
	■ Islands in the marine park support nesting migratory sea birds. Barunguba (Montague Island) is an internationally significant shore bird nesting site. Hooded Plovers are critically endangered and occur only on the NSW south coast, with only 18 recorded breeding pairs.
	■ New breeding site for vulnerable Gould's Petrel on Barunguba (Montague Island).
	■ Key endangered Pied Oystercatcher and Little Tern sites.
	■ 60 lake dependent bird species rely on Wallaga Lake.
	■ Barunguba (Montague Island) is the largest Little Penguin breeding area in NSW. Ninety species of seabirds can be found on Barunguba (Montague Island) and during spring, tens of thousands of seabirds nest on the island. Little penguin are also known to breed and moult on Tollgate Islands and Snapper Island.

BATEMANS MARINE PARK SOCIAL VALUES

Batemans Marine Park extends from the most northerly point of Murramarang Beach near Bawley Point to the southern side of Wallaga Lake entrance at Murunna Point. Held in high esteem by the many people living in and visiting the area, the marine park provides a wide range of experiences. Many visitors come to the area frequently and have been doing so for over 10 years.

Stakeholder feedback has highlighted many of the important social values provided by the marine park. These have been summarised below.

- Set apart as being uncrowded, laid-back, natural, undeveloped, unspoiled and clean. Local stakeholders have noted that environmental health supports human health and wellbeing, and that the marine environment is part of the reason why people visit and live on the south coast. The region's wilderness value has been identified as a key value with the natural environment and clean waters being identified as the most important environmental asset by park users.
- Coast and foreshore are important focal points for social interactions and wellbeing. Locals and visitors use beaches and foreshores for walking, exercising and mindful activities such as nature appreciation and wildlife viewing. The coast is also a meeting place for informal social and family events or spontaneous interactions between friends and social networks.
- Having access to the water, beach and foreshore is highly valued and is considered important for the social, physical and mental wellbeing of locals and visitors.
- Intrinsic and bequest values from knowing that a healthy marine environment and its rich biodiversity are protected for future generations.
- The natural scenic beauty of the area is valued for photography and painting.
- Valued for picnics, barbeques, walking, exercising, dog walking, camping, viewing from lookouts and platforms, wildlife viewing and appreciation. 41% of surveyed marine park users walk, exercise near the coast or sunbathe at least once per week. 32% of marine park users enjoy wildlife appreciation, including bird, dolphin or whale, at least once per week.
- Valued for many opportunities to see wildlife on land and on water, including seals, penguins, sharks and rays.
- Closest coast and beach areas to the city of Canberra and the surrounding area of the Australian Capital Territory. Having Australia's capital within 1.5 hours drive means the benefits of the marine park are also valued by a larger and more diverse population base than local residents alone, including many international diplomatic visitors.
- Valued for kayaking, stand-up paddle and surf ski racing in estuaries and offshore. Paddling activities were ranked as the sixth most popular activity for respondents to the Shoalhaven Coastal Management Program Scoping Study Survey for the Termeil/Bawley Point/Kioloa area.
- The marine park supports competitions, school sports and tour operators, with two authorised paddling events – Bay Challenge and George Bass Marathon. The Far South Coast Paddlers run monthly time trials over winter months in Tomaga River, Moruya River and Wagonga Inlet attracting up to 60 paddlers of all abilities and ages. The George Bass Marathon is the longest surf boat marathon in the world, starting in Batemans Bay and finishing in Eden. Held bi-annually, it attracts national and international crews and has been a fixture on the local summer sporting calendar for over 40 years.

BATEMANS MARINE PARK SOCIAL VALUES

- Boating opportunities and the use of personal watercraft are highly valued in the area and also essential in supporting many other activities, including recreational fishing, spearfishing, scuba diving, snorkelling, water skiing and sightseeing.
- There are active sailing clubs at Tuross Heads and Batemans Bay that run a number of events throughout the summer boating season.
- Marinas and anchorages within Batemans Bay, Moruya River and Wagonga Inlet, as well as offshore boat access from Bermagui Harbour, provide berths, moorings and access for recreational and commercial vessels. Batemans Bay is a major hub for boating activity with many visitors and part-time residents keeping boats in the area.
- Valued for multiple high quality recreational fishing opportunities due to the diversity of ocean, rocky shore, beach, estuarine, coastal lake habitats and proximity to the continental shelf. 13% of surveyed marine park users fish from the shore and 11% of marine park users fish from a boat at least once per week. The ocean waters adjacent to the marine park are recognised for providing quality gamefishing opportunities throughout the year. While within marine park waters recreational fishers target Kingfish, Snapper, Morwong, Redfish, Pigfish, Gummy Sharks and Tiger and Sand Flathead. The recreational Kingfish fishery at Barunguba (Montague Island) is particularly highly valued, with in excess of one hundred boats often seen fishing during peak periods.
- The many pristine estuaries provide opportunities for targeting popular species such as Mulloway, Bream, Flathead, Luderick, Flounder, Mullet and Garfish, as well as great spots for recreational prawning and Blue Swimmer Crabs. The rocky shores and beaches are popular for Salmon, Tailor, Flathead, Whiting, Bream and Mulloway.
- The region is home to over 25 recreational fishing clubs with regular events and competitions throughout the year. Installation of a recreational fishing reef is planned to enhance recreational fishing opportunities into the future.
- Aside from the direct enjoyment associated with catching fish, recreational fishing provides many important social values and benefits, including improving fitness and mental health fitness, nutritional benefits from the health benefits of eating fresh seafood, education and schooling benefits, wellbeing, relaxation, socialising, sense of community and enjoying natural beauty and engaging with nature.
- Valued for spearfishing with a diversity of nearshore reefs and smaller rocky coves providing accessible sites. Freedive opportunities to hand gather Lobsters and Abalone are highly valued.
- Valued surfing opportunities for beginners to experienced surfers from beaches to reef, point breaks and offshore bommies. 27% of surveyed marine park users have indicated they surf or swim at least once per week. Each of the five local high schools and two of the primary schools within the marine park area have school surfing programs. There are four board rider clubs operating from Broulee, Tuross, Dalmeny and Malua Bay with regular competitions.
- Valued for kite surfing, foiling and windsurfing.
- More than 100 beaches providing valued, accessible and affordable swimming opportunities. A wide diversity of experiences available to swimmers from remote out of the way coves, long ocean beaches and beaches on the urban interface with car parking, shops, playgrounds and facilities. There are several formal and informal groups that meet to exercise and train for swimming events in the ocean, particularly at Broulee, Caseys Beach and Dalmeny. Broulee hosts the annual "Bay to Breakers" ocean swim that regularly has over 200 entrants.
- Four surf lifesaving clubs located at Batemans Bay, Broulee, Moruya and Narooma provide patrolled beaches for safe swimming and surf safety education, particularly for children through the nipper program. The nipper program is extremely important in providing a safe introduction to the surf and ocean environment for children as young as 5 years old. Bermagui surf lifesaving club also supports safety activities within marine park waters from time to time. Moruya Surf Club has been in continual operation since 1932 and is the oldest club within the Batemans Marine Park area. Eurobodalla Shire Council supports additional patrols at these beaches during peak school holiday periods along with an additional five beaches at South Durras, Surf Beach, North Head, Tuross Head and Dalmeny.
- Valued for high quality scuba diving and snorkelling. 7% of surveyed marine park users scuba diving or snorkelling at least once per week. A number of sanctuary zones are valued for providing safe scuba diving and snorkelling opportunities where it is possible to observe diverse marine life. Barunguba (Montague Island) provides opportunities to snorkel with seals. A number of shipwrecks located within the Batemans Marine Park are popular dive sites, including the John Penn.
- Numerous local primary and high schools include a visit to the marine park to deliver interactive marine education supported by Eurobodalla Shire Council and local volunteers from the Nature Coast Marine Group. Barunguba (Montague Island) hosts school groups from across the state and interstate annually to learn about the marine environment and islands.
- Proximity to Canberra allows access for teaching and research activities by the University of Canberra and the Australian National University (ANU). The ANU has a field study centre at Kioloa that is also used by the University of Wollongong. The University of Wollongong has a small campus in Batemans Bay and a slightly larger campus in Bega that have limited courses. Several research projects are under way at any time.

BATEMANS MARINE PARK SOCIAL VALUES

- Marine science research and monitoring opportunities including long term monitoring of fish populations and benthic habitats undertaken by DPI Fisheries. The marine park has been targeted for high resolution mapping on the open coast with extensive towed video underwater operations to survey subtidal benthic assemblages.
- The marine park supports multiple research programs from institutions and universities across Australia including Macquarie University, the University of Wollongong, Charles Sturt University and the University of Tasmania on Barunguba (Montague Island) and other marine park islands to gain a better understanding of marine wildlife.
- Valued for citizen science opportunities, including by the Nature Coast Marine Group and Reef Life Survey. Local citizen scientists have reported new sightings of tropical fish species in Wagonga Inlet, providing valuable information for management. A Wreckspotters citizen science course is planned for the southern region of NSW in the near future and will provide a valuable opportunity for discovery and recording of maritime heritage sites.
- Commercial fishing provides social benefits to those involved and others including through the supply of healthy fresh seafood. It also contributes to the character of marine park areas and provides flow on benefits that are social in nature.
- Many marine park sanctuary zones are particularly valued as safe education and scientific reference areas.

BATEMANS MARINE PARK CULTURAL VALUES

Batemans Marine Park supports many Aboriginal and non-Aboriginal cultural values. The area is home to the Yuin people who have a strong connection to Land and Sea Country. The south coast is currently subject to a Native Title claim, which includes all the waters within Batemans Marine Park.

There is also a considerable Australian cultural connection with the coast and water in this area.

Stakeholder feedback has highlighted many of the important social values provided by the marine park. These have been summarised below.

Aboriginal	■ Home to the Yuin people who continue to fish and gather natural resources from the waters and shoreline of the Batemans Marine Park. The ocean is viewed as a provider and a source of identity for south coast Aboriginal people, who have always had a close relationship with the Land and Sea Country through culture, nature, land and water for many thousands of years. Land and Sea Country are connected as one. This was a way of life with the natural environment without environmental degradation, water pollution, habitat disturbance, pests and disease or climate change that was perfected from their lasting existence and caring for Land and Sea Country.
	■ A Native Title claim, which includes all the waters within Batemans Marine Park.
	■ There are a number of incomplete claims lodged under the *Aboriginal Land Rights Act 1983* for coastal Crown land adjacent to the marine park.
	■ Cultural practice has occurred on the south coast for thousands of years with the area having some of the most-dense coastal artefact sites in NSW. Large middens, natural and man-made fish traps and tools have been discovered. The Murramurrang Aboriginal area contains one of the largest and most important midden sites on the NSW coast.
	■ There are natural and anthropogenic fish traps at Bingie, Runnyford, Mystery Bay and North Head. These traps were still in use within living memory with the North Head natural pond still in use today by Aboriginal and non-Aboriginal people.
	■ Merrimans Island Aboriginal Place was the first Aboriginal Place gazetted in NSW, with extensive middens around the foreshore. The lake and surrounding area is of deep significance to Aboriginal people.
	■ Barlings Beach Aboriginal Place includes archaeological sites and is of high Aboriginal cultural value. Wallaga Lake, Barunguba Aboriginal Place, Ten Pelicans Lake Brou Aboriginal Place, Broulee Island, the Tomaga River, Tomakin, Mossy Point, Moruya River and headland and Cullendulla Creek are also sites with particularly Aboriginal cultural value.
	■ This Land and Sea Country is significant for social, cultural and economic values for Traditional Owners and Aboriginal people.
Other	■ Final resting place for an estimated 15 ships and valued for significant maritime heritage. Most visible are two marine boilers from the Monaro which was wrecked on Binge Bingie Point on 29 May 1879.
	■ The coastal suburb of Broulee was the original harbour for the district where ships anchored in the lee of Broulee Island. One ship, the John Penn can occasionally be seen when large storms wash away the extant tombolo.

BATEMANS MARINE PARK CULTURAL VALUES

Other	■ Another wreck, the Rover forms an important part of local folklore with the story being taught to children at the local primary school. The sporting houses at Broulee primary take their names from local wrecks or ships known to have frequented the harbour.
	■ A steam trawler working off Moruya was strafed with machine gun fire from a Japanese submarine during World War II. The small fishing trawler Dureenbee was attacked by twelve shells from Japanese submarine I-175's guns off Moruya on 3 August 1942. The abandoned boat drifted for a few days before becoming wrecked on a reef off Richmond Beach, just south of Durras.
	■ Shipwrecks can also support environmental values through sand accretion and beach stabilisation and by offering additional structure and habitat for marine species. This additional habitat may enhance recreational fishing opportunities. There is recent evidence that wrecks act as aggregation sites for Greynurse Shark in some areas.
	■ Offering protection and guidance to Maritime Vessels since 1881 and still working today is Montague (Barunguba) Island Lighthouse and light station. This is a Commonwealth registered Historic Heritage Site that is also listed on the NSW State Heritage Register. Highly significant as one of a collection of lighthouses which combine the natural values of a rugged coastal island with the cultural values of a prominent landmark and isolated outpost associated with the development of coastal shipping in the late 19th Century.
	■ Other significant areas of heritage value identified by local stakeholders include Moruya Pilots Station and Moruya Quarry, jetties, townships opened by sea, historical oyster farming, Tuross River gold mining, historical agricultural industries that relied on shipping, early settlements and shacks and historical fishing practices.

BATEMANS MARINE PARK ECONOMIC VALUES

Batemans Marine Park is adjacent to the South Coast region of NSW. The coast is identified in the Far South Coast Regional Economic Development Strategy as one of the "natural endowments" that provide the propulsive economic drivers of the local economy. The Strategy identified two key drivers for economic growth in the region: food production and tourism.

Stakeholder feedback has identified the following important economic values that the marine park provides or supports.

- Local industries include retail, food, accommodation and the increased turnover of essential goods during holiday periods. The Far South Coast Regional Economic Development Strategy identified that these key industries are dependent on the visitor economy which in turn, relies on the coast as the primary natural endowment.
- The existing and projected retirement population has been identified as an economic opportunity for the region. The most stable employment and economic growth has been realised in the health care sector as the population becomes more skewed towards the older age groups. Eurobodalla is the most aged population in NSW with most residents aged over 55.
- There are currently 66 permits issued to businesses for aquaculture in the Batemans Marine Park. Aquaculture is permitted in 407 hectares of the marine park.
- Oyster growing is primarily concentrated in three productive estuaries within the Batemans Marine Park: Clyde River (22 businesses), Wagonga Inlet (16 businesses) and Tuross Lake (14 businesses). Moruya River is expanding production with renewed investment in 12 businesses but is limited by space compared to the three main production estuaries. Tomaga River has one business and Wallaga Lake has one.
- The value of aquaculture alone in the Batemans Marine Park totalled in excess of $9.2 million in 2018-19. This figure does not account for the flow on economic benefits to other sectors of the community.
- Eurobodalla Shire Council is investing in an oyster hatchery at North Head Moruya which will expand the scope of the industry.
- Aquaculture businesses are also supporting tourism initiatives with seafood trails, farmgate sales and estuary tours.
- Aquaculture is particularly dependent on good water quality. Under the state's food safety regulations, the shellfish industry regularly monitors water quality in their harvest locations, assisting the community and government to identify ongoing water quality issues and address them.
- Commercial fisheries include estuary general, lobster, ocean hauling, ocean trap and line, abalone, lobster and urchin fisheries. These fisheries use a variety of line, net and trap fishing gear and hand gathering to target key species including Bream, Mullet, Luderick, Kingfish and School Prawns. Local stakeholders have identified fresh local seafood as an important value for the community that also provides a health benefit.

BATEMANS MARINE PARK ECONOMIC VALUES

- The 2016 UTS Valuing Coastal Fisheries project found that the commercial fishing industry in the Batemans Bay to Eden area generates more than $28 million in revenue and over 350 full-time local jobs. This includes $14m and 150 jobs from the industry and the businesses that service it, and a similar amount from the secondary processing, wholesale and retail sector.
- Eating out is one of the most popular activities undertaken by domestic visitors to the South Coast and the fishing industry provides an important and valued product to local tourism and hospitality markets. The UTS project indicated that the vast majority (89%) of NSW residents expect to eat locally caught seafood when on holidays.
- Residents of the South Coast recognise the economic importance of the wild-catch industry to their region - 90% of people surveyed as part of the UTS project think it provides important employment opportunities, 86% believe it is an important industry for NSW and 88% of people believe that professional fishing plays an important part in tourism in their region through, for example, the supply of local seafood.
- Valued recreational fishing opportunities support local bait and tackle, charter fishing, boating and tourism industries. There are several charter boats offering recreational fishing in Batemans Marine Park, with businesses in each port. In NSW in 2019-20, fishers spent an estimated $2138 million on recreational ($2117 million) and charter ($21.5 million) activities across the State.
- As well as boating and yachting offering economic and tourism values in their own right, many of the activities that deliver important social and economic values rely on the boating and maritime industries, including aquaculture, commercial fishing, recreational fishing, scuba diving, kayaking and all charter operators. Recreational boating, particularly the trailer-boat users, provides economic contribution to the community through retail sales, maintenance and fuel.
- There are marina facilities in Batemans Bay and Narooma that provide berths for larger boats and yachts. There are associated slipways that provide local employment and contribute to the economic activity of the local area.
- There are two state owned regional harbours at Batemans Bay and Narooma, providing berths and other facilities for boaters. There are clusters of domestic and commercial waterfront structures within the marine park, including along the Clyde River at Batemans Bay and further upstream, and at Tomakin.
- Marine search and rescue services are provided from the NSW Water Police and Marine Rescue NSW units based at Batemans Bay, Moruya and Narooma.
- Over a dozen charter vessel operators offer whale, dolphin or seal watching from Ulladulla to Bermagui, often diversifying with other services. Operators also offer penguin tours and snorkel with seal tours at Barunguba (Montague Island). Wagonga Inlet has a become popular tourist attraction in recent years where people approach, watch and sometimes feed seals and rays at fish cleaning stations.
- There are several kayak touring companies that operate in Batemans Marine Park. Some of these businesses offer a diversity of experiences within the park such as kayak hire, a cafe and stand-up paddle tours of local estuaries. Maritime heritage such as the Monaro shipwreck boilers at Moruya present opportunities for additional education and heritage value during kayak tours.
- Two dedicated scuba dive and snorkel charter business operates in Batemans Bay and Narooma, with a several other companies offering diving and snorkelling as part of mixed operations. In addition to valued ecosystems and biodiversity, several wrecks provide commercial scuba diving opportunities.
- Surf schools, rental and retail shops operate close to urban centres across the length of Batemans Marine Park. Broulee primary school engages local surf schools to deliver their school surfing program and lessons.
- All of the environmental, social, cultural and economic values above directly and indirectly support the local tourism industry. The visitor economy for Eurobodalla was valued in 2018/19 at approximately $317 million generated from a five-year annual average of 800 000 domestic and international visitors. The largest group of visitors arrive from the ACT and nearby areas, but visitors from Victoria, Sydney and Wollongong are a significant and increasing proportion of overall visitor numbers.
- Aside from health and construction, tourism is the most important income stream for the region. This economy is reliant on the coast and environmental amenity. A strong theme recurrent through all recent visitor surveys is a desire to be near an unspoiled, natural and clean environment.
- Nature-based tourism and experience-based visitor attractions are a key element of Eurobodalla Shire Council's evolving tourism strategy.
- Barunguba (Montague Island) has been awarded regional, state, national and international eco-tourism awards. In 1994, a study found the direct and indirect annual return from the Barunguba (Montague Island) Nature Reserve day and evening tour operations to be $1.4m.

Appendix D – Threat descriptions

TARA information describing priority threats

Table AD1 – TARA descriptions of priority regional TARA threats that apply at a marine park scale

LEGEND	
Activities and threats	Priority moderate and high risk TARA threats that apply in marine parks as identified through the process described in the 'Identifying threats for marine parks' section of this management plan.
Values identified by the TARA as at high or moderate risk from this threat	This information has been taken from the TARA and its appendices for relevant regional threats. TARA information will be updated through a comprehensive review process in future.
Summary of this threat from the TARA final report appendices	This information has been summarised from the TARA and its appendices for relevant regional threats. TARA information will be updated through a comprehensive review process in future.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Threat theme 1 – ecosystems, habitats and species		
Foreshore development	Estuaries: saltmarsh, mangroves, beaches and mudflats, threatened species Coastal and marine: beaches, threatened wildlife	Physical disturbance impacts through habitat loss, modification and degradation, often including removing and infilling of saltmarsh and mangrove areas. Changed wave patterns damage estuarine beach and mudflat habitat and alter grain size. Wildlife impacts including disturbance, marine debris, habitat loss and degradation.
Navigation & entrance management and modification, harbour maintenance, dredging etc.	Estuaries: waters, seagrass, beaches and mudflats, shallow soft sediments, planktonic assemblages, threatened aquatic species	Water pollution due to sediment re-suspension, turbidity and potential toxin release. Physical disturbance to seagrass and shallow soft sediments, and exposure of estuarine beaches and mudflats following estuary entrance dredging and modification
Estuary entrance modifications	Estuaries: waters, saltmarsh, mangroves, seagrass, beaches and mudflats, shallow soft sediments, planktonic assemblages, threatened species Coastal and marine: beaches, threatened wildlife.	Changes in tidal flow, patterns and prism causing changes in tidal height, residence times, volumes of freshwater, salinity, inundation and sedimentation. Changes from brackish to more marine, increased frequency of inundation and mangrove encroachment on saltmarsh areas. Changes in water quality and currents modify estuarine beach and shallow soft sediment habitats. Coastal lagoons, Posidonia and saltmarsh are particularly susceptible. Impacts on shorebirds and threatened species that nest near estuary entrances occur through habitat degradation, inundation and loss and reductions in prey availability. Physical disturbance impacts from dredging, mechanical openings and construction of walls can modify habitat and natural sand migration.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Beach nourishment and grooming	Estuaries: beaches and mudflats Coastal and marine: beaches.	Physical disturbance impacts from deposition of sediments, changed structure, removal of biota and removal of organic material which disrupts food webs.
Recreation and tourism - boating and boating infrastructure	Estuaries: waters, seagrass, beaches and mudflats, shallow soft sediments, threatened species	Water pollution from antifouling paints and fuel spills, particularly concentrated in marinas and mooring areas. Physical disturbance impacts from vessel traffic, bank erosion, propellers, anchoring, moorings, sediment re-suspension, shading from boats and jetties. Seagrass (particularly Posidonia), soft corals and sponges have a particularly low resilience to these impacts. Wildlife disturbance impacts from vessel strike and noise disturbance. Additional wildlife impacts from physical disturbance and marine debris.
Habitat (physical) disturbance	Social enjoyment, Aboriginal cultural heritage and use	Enjoyment impacts, highest for those that value direct interaction and enjoyment of biodiversity and wildlife, including snorkelers, divers and fishers. Also impacts for the broader community due to the high value placed on abundance of marine life. Loss of nursery areas of major concern to recreational fishers, commercial fishers and seafood consumers. Aboriginal cultural impacts from damage to places associated with cultural practices, food and spiritual connections and impacts to totemic species, particularly beach development.
Modified freshwater flows	Estuaries: waters, saltmarsh, seagrass, shallow soft sediments, planktonic assemblages, threatened species, mangroves Social participation and enjoyment, Aboriginal cultural heritage and use	Modified freshwater flows from extraction and artificial barriers to riverine and estuarine flow, including impacts from floodgates. Water pollution from acid sulphate soils. Changes to tidal flow, velocity and patterns changing the water table and inundation regimes. Modified flow regimes impacting threatened shorebird populations through degradation and loss of habitat, reductions in prey and loss of connectivity between habitat and prey areas. Social impacts on sense of community associated with perceptions and conflicts over artificial opening of ICOLLs. Impacts on consumption, recreational fishing and commercial fishing from water quality and habitat impacts on fish abundance, particularly following fish kills. Aboriginal cultural impacts to cultural practices, food and totemic species from negative effects on fish stocks.
Pests and diseases	Estuaries, coastal and marine: threatened wildlife Social participation and enjoyment, Aboriginal cultural heritage and use, viability of businesses	Wildlife disturbance impacts and decline of shorebirds from introduced pests such as foxes. Particularly significant impacts on the oyster aquaculture industry and seafood consumers, with a potential loss of trust in seafood impacting the aquaculture, commercial fishing, seafood and tourism industries and consumptive enjoyment. Aboriginal cultural impacts to cultural practices, food (particularly oysters and pipis) and totemic species.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Recreation and tourism - four wheel driving	Estuaries: saltmarsh, beaches and mudflats, threatened species Coastal and marine: beaches, threatened wildlife	Physical disturbance causing destruction and soil compaction, particularly in areas of saltmarsh around coastal lagoons. Physical and wildlife disturbance impacts on turtles, shorebirds and their habitat. Risk to endangered shorebirds at roost and feeding sites with impacts on breeding success and migration.
Passive recreational use	Estuaries: beaches and mudflats, threatened wildlife Coastal and marine: threatened wildlife	Physical disturbance causing destruction and soil compaction in areas of high recreational use. Wildlife disturbance impacts, particularly from domestic dog walking. Domestic dogs pose a particular risk to threatened shorebirds by impacting behaviour, breeding and causing direct mortalities. Wildlife impacts also from human disturbance associated with a range of recreational activities and marine debris.
Wildlife disturbance (shorebirds, turtles, whales) and impacts to ecological health by dog walkers, 4WD, marine vessels, etc.	Social enjoyment, Aboriginal cultural heritage and use	Reduced opportunity to enjoy shorebirds and turtles. Impact on intrinsic values, particularly due to high community value placed on marine life and particularly whales. Aboriginal cultural impact on totemic species and food sources, particularly pipis.
Charter activities – whale and dolphin watching	Estuaries, coastal and marine: threatened wildlife	Wildlife and physical disturbance impacts, including displacement from habitat areas and disturbance of life-history behaviours. Estuaries with high charter activity and populations of threatened species or resident dolphins at particular risk.
Oyster aquaculture	Estuaries: seagrass, threatened fish species	Physical disturbance impacts from propellers, sediment re-suspension and shading from boats and structures. Impacts on saltmarsh, and low resilience of seagrass to these impacts, particularly *Posidonia*.
Reductions in abundances of species and trophic levels from extraction	Social enjoyment, Aboriginal cultural heritage and use, indirect economic values, viability of businesses	Social enjoyment impacts highest for those that value direct interaction and enjoyment of biodiversity and fish, including snorkelers, divers and fishers. Impacts for the broader community due to the high value placed on abundance of marine life, including to intrinsic and bequest values. High threat to consumptive enjoyment for recreational and commercial fishers, and seafood consumers. Aboriginal cultural impacts to cultural practices, food and totemic species. Declining fish abundance likely to have significant economic impacts on recreational fishing, commercial fishing and tourism.
Excessive or illegal extraction of species	Aboriginal cultural heritage and use, viability of businesses	Impacts on Aboriginal cultural food sources, with flow on effects to cultural practices and spiritual connections. Pipis and Turban Snails have been noted as examples. Illegal abalone harvesting on the south coast has impacted the profitability of commercial fishers.
Recreational fishing – hand gathering	Estuaries, coastal and marine: fish assemblages	Reduction in abundances of species and trophic levels, particularly where nippers and school prawns are harvested at high levels at a local scale.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Recreational fishing – boat-based line and trap fishing	Estuaries: fish assemblages, threatened wildlife Coastal and marine: fish assemblages, threatened fish species	Reduction in abundances of species and trophic levels and bycatch impacts. Estuarine landings dominated by several species only. Incidental catch of species of conservation concern, including interaction with Greynurse Sharks, particularly juveniles and Black Rockcod. Wildlife disturbance, incidental catch of wildlife species of conservation concern, physical disturbance, marine debris and ghost fishing impacts, including incidental entanglement and hooking. Turtles particularly vulnerable to entanglement in pots and traps.
Recreational fishing – shore-based line and trap fishing	Estuaries: fish assemblages, threatened wildlife Coastal and marine: fish assemblages, threatened fish species,	Reduction in abundances of species and trophic levels and bycatch impacts. Estuarine landings dominated by several species only. Incidental catch of species of conservation concern, including interaction with Greynurse Sharks, particularly juveniles. Wildlife disturbance, physical disturbance and marine debris impacts, including incidental wildlife entanglement and hooking. Threatened shorebirds particularly at risk from disturbance.
Commercial fishing – Abalone	Coastal and marine: fish assemblages	Reduction in abundances of species and trophic levels.
Commercial fishing – Estuary General	Estuaries: fish assemblages, threatened fish species, threatened wildlife	Reduction in abundances of species and trophic levels and bycatch impacts. Physical disturbance impacts on Posidonia, saltmarsh and syngnathids. Incidental catch of species of conservation concern. Wildlife disturbance, marine debris and ghost fishing impacts, including wildlife entanglement.
Commercial fishing – Ocean Haul	Coastal and marine: beaches, fish assemblages	Physical disturbance impacts at a local scale. Reduction in abundances of species and trophic levels, with landings dominated by a number of pelagic species with high resilience.
Commercial fishing – Ocean Trap and Line	Coastal and marine: fish assemblages, threatened fish species, threatened wildlife species	Reduction in abundances of species and trophic levels. Incidental catch of species of conservation concern, including Greynurse Sharks and White Sharks. Wildlife disturbance, incidental catch, ghost fishing and marine debris impacts from trap, line and rope whale entanglements.
Commercial fishing – Ocean Trawl	Coastal and marine: deep soft sediments, fish assemblages, threatened species	Physical disturbance impacts on deep soft sediments and associated biota. Reduction in abundances of species and trophic levels, with landings dominated by one growth overfished, five fully fished and three undefined species. Also some bycatch impacts. Incidental catch of species of conservation concern, including interaction with syngnathids and Greynurse Sharks. Wildlife disturbance, incidental catch, ghost fishing and marine debris impacts from turtle and seal entanglements.
Commercial fishing – Sea Urchin and Turban Shells	Coastal and marine: fish assemblages	Reduction in abundances of species and trophic levels.
Shipping – large and small commercial	Estuaries: threatened wildlife species Coastal and marine: threatened wildlife species	Wildlife disturbance, physical disturbance and marine debris impacts, including from vessel strike and noise disturbance. Concentrated around main ports.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Threat theme 2 – water quality		
Clearing riparian and adjacent habitat including wetland drainage	Estuaries: waters, saltmarsh, seagrass, shallow soft sediments, subtidal reefs, planktonic assemblages, threatened species, mangroves, beaches and mudflats	Water pollution impacts from clearing and draining leading to sedimentation, nutrification, acid runoff and blackwater events after floods. Physical disturbance, changes to tidal flow velocity and patterns impacts from damage during removal and clearing, altering water tables and connectivity. Coastal lagoons and saltmarsh particularly susceptible. Wildlife disturbance impacts, including permanent loss of shorebird habitat from clearing and wetland drainage.
Stock grazing of riparian and marine vegetation	Estuaries: saltmarsh, mangroves, seagrass, threatened fish species	Physical disturbance, water pollution, turbidity and sedimentation, impacts from trampling, grazing and defecation.
Agricultural diffuse source runoff	Estuaries: waters, saltmarsh, mangroves, seagrass, beaches and mudflats, shallow soft sediments, planktonic assemblages, threatened species, rocky shores, subtidal reefs Social participation and enjoyment, Aboriginal cultural heritage and use, indirect and direct economic values, viability of businesses	Water pollution impacts from elevated nutrients, suspended sediments, toxic contaminants, turbidity and sedimentation. Water pollution and algal blooms linked to disease outbreaks and mortalities in marine mammals, turtles and birds. North coast sugar cane areas have been identified as particular hot spots. Social impacts from a loss of opportunities for recreational activities (particularly swimming and surfing) due to local blackwater events, and a loss of wellbeing and intrinsic value from concern over environmental decline. Impacts on consumptive enjoyment following blackwater and fish kill events. Aboriginal cultural impacts from damage to places associated with cultural practices, food and spiritual connections. Potentially severe impacts on commercial fishing, tourism and aquaculture from closures and fish kills.
Urban stormwater discharge	Estuaries: waters, saltmarsh, mangroves, seagrass, beaches and mudflats, shallow soft sediments, planktonic assemblages, threatened species Coastal and marine: beaches Social participation and enjoyment, Aboriginal cultural heritage and use, indirect and direct economic values, viability of businesses	Water pollution and marine debris impacts from toxic contaminants, elevated nutrients, suspended sediments, marine debris, microplastics and reduced salinities concentrated in areas of urban runoff. Seagrass (particularly Posidonia) and saltmarsh are particularly susceptible. Wildlife disturbance impacts including increases in disease and direct mortalities. Social impacts from deterrence, particularly from activities such as swimming and surfing, enjoyment of biodiversity and beauty, local activity closures and reduced seafood quality. Aboriginal cultural impacts from damage to places associated with cultural practices, food and spiritual connections. Potentially severe impacts on commercial fishing, tourism and aquaculture from closures and fish kills.
Water pollution on environmental values – litter, solid waste, marine debris and microplastics	Social participation and enjoyment, Aboriginal cultural heritage and use, indirect and direct economic values, viability of businesses	Social impacts on safety, health, relaxation and wellbeing, particularly concerns around glass and syringes. Impacts on consumptive enjoyment due to potential for fish to contain microplastics. Impacts on appeal, enjoyment and appreciation due to impacts on beauty and marine wildlife. Recreational fishing line and litter has been raised as a specific concern and may impact social licence. Aboriginal cultural impacts from damage to places associated with cultural practices, food and spiritual connections. Appeal and enjoyment impacts may have flow on impacts to demand for tourism and seafood, impacting tourism, aquaculture and commercial fishing businesses. Local government and community groups also incur expense to clean-up litter.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Sewage effluent and septic runoff	Estuaries: seagrass, beaches and mudflats, shallow soft sediments, planktonic assemblages, threatened fish species Social enjoyment, Aboriginal cultural heritage and use, viability of businesses	Water pollution, marine debris and microplastics impacts from elevated nutrients, sediments and toxic contaminants. Elevated risk from septic runoff compared to sewage. Sewage runoff carries microplastics. The NSW community has expressed high levels of concern about marine pollution, including loss of amenity, appeal and impacts on Aboriginal cultural heritage. Water pollution was identified as the greatest threat to local businesses and tourism.
Other water pollution/ contamination affecting human health and safety	Aboriginal cultural heritage and use	Aboriginal cultural impacts to significant sites, spiritual connections, cultural practices, food and totemic species.
Sediment contamination	Aboriginal cultural heritage and use	Aboriginal cultural impacts to significant sites, spiritual connections, cultural practices, food and totemic species.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Threat theme 3 – climate change		
Climate change stressors (sea level rise, altered storm/ cyclone activity, flooding, climate and sea temperature rise, altered ocean currents and nutrient inputs)	Estuaries: waters, saltmarsh, mangroves, seagrass, beaches and mud flats, shallow soft sediments, rocky shores, subtidal reefs, planktonic assemblages, threatened species Coastal and marine: waters, beaches, shallow soft sediments, deep soft sediments, rocky shores, shallow rocky reefs, planktonic assemblages, threatened species Social participation and enjoyment, Aboriginal cultural heritage and use, direct economic values, viability of businesses	Elevated temperatures and increased acidity impacting water quality and animals including echinoderms, molluscs, coccolithophores and pteropods. Saltmarsh and seagrass are particularly vulnerable. Acidity impact on other calcifying animals and Posidonia in particular, leading to impacts on food webs and trophic dynamics. Physical disturbance impacts from increased intensity of storm events re-suspending sediments and increasing catchment runoff, marine debris and nutrients, reducing water quality. Seagrass sensitive to flooding and decreased salinity (particularly Zostera). Seagrass, kelp beds, subtidal reefs and threatened wildlife sensitive to increased wave action and physical disturbance. Saltmarsh, mangrove, intertidal estuarine beach flats and rocky shores likely to be inundated and have limited opportunity to migrate landward. Ocean beaches will be inundated and some may have limited opportunity to migrate. Threats to survival of marine wildlife (including shorebirds and turtles) through changes to prey availability, habitat inundation, degradation and loss, disease, nest viability, migratory patterns, osmotic disruption and energy requirements. Increased strandings and injury are expected, as well as thermal shock in turtles. Increasing influence of warm, low-saline, nutrient-poor East Australian Current in northern NSW will change water column characteristics. Changes to primary production associated with increased intensity of the East Australian Current. Increased temperatures and associated reduction of nutrients will affect growth of macroalgae, causing impacts on shallow reef. Social health, safety and wellbeing impacts from loss of beach amenity through beach loss and beach hardening, increased frequency of dangerous storm events and flooding, and potential increase in abundance of jellyfish. Poor water quality and changes in abundance of fish and valued marine species due to temperature and ocean acidification is likely to have significant impacts on enjoyment, consumption, recreational fishing, commercial fishing, the seafood industry, aquaculture and tourism. Impacts to Aboriginal cultural practices, sites, food, totemic species and spiritual connections.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Threat theme 4 – community access and opportunity		
Limited or lack of access infrastructure to the marine estate	Social participation and enjoyment, Aboriginal cultural heritage and use, viability of businesses	Many social and economic values rely on boating and other infrastructure to access the marine estate, including recreational fishing, commercial fishing, charter boats, cruises, scuba diving, snorkelling, adventure sports and whale and dolphin watching. Vessel ownership in NSW is forecast to grow. Lack of access infrastructure may impact participation, enjoyment, consumptive values, Aboriginal cultural values and viability of businesses.
Loss of public access (either by private development or Government area closures)	Social participation and enjoyment, Aboriginal cultural heritage and use, indirect economic values, viability of businesses	Public ownership of the coast has been fiercely defended throughout Australia's history. Privatisation of the coast may impact participation and enjoyment, and this may be exacerbated with future proposals for foreshore hardening to protect private property at the expense of public beach amenity. Closures and marine protected areas may be beneficial or detrimental to community wellbeing depending on values. Closures may impact Aboriginal cultural practices, food, sites and spiritual connections. Closures may also impact intrinsic values, consumptive values, recreational fishing, commercial fishing, seafood and tourism. Significant stress, anxiety and mental health impacts have been noted for the commercial fishing industry.
Loss or decline of marine industries	Social participation and enjoyment, Aboriginal cultural heritage and use, viability of businesses	Marine industries deliver benefits including employment, income and the health benefits associated with seafood. Threats include loss of social licence, degradation of marine resources, competition with other resource users, regulation and external economic and social pressures. These concerns are greater in regional coastal areas where the community is more reliant on maritime industries and there may be fewer alternative employment opportunities. The commercial fishing and aquaculture industries may be particularly at risk. Fresh, local seafood is highly valued by regional communities. Decline in local seafood will have flow on impacts to a range of businesses, including regional tourism and the communities that depend on them. The loss of marine industries can also affect the social character of coastal towns.
Seafood contamination	Social enjoyment, Aboriginal cultural heritage and use	Seafood toxicity and contamination, including from poor water quality and disease, can impact consumptive enjoyment values, with associated impacts on recreational fishing, commercial fishing, the seafood industry, aquaculture and tourism. Aboriginal cultural impacts to cultural practices, food (particularly pipis, oysters and shellfish) and spiritual connections.
Conflict over resource access and use	Social participation, Aboriginal cultural heritage and use	Danger to swimmers from watercraft and powered vessels, conflict between recreational and commercial fishers, use of coastal land and restriction of public access, illegal camping, kite surfing, wakeboarding, personal water craft and tension between local communities and tourists have all been identified as particular areas of conflict that may impact safety, health and wellbeing. Commercial fishers, Asian, European and Pacific Island nationalities, and Aboriginal people have reported feeling socially isolated in relation to broader community perceptions of their fishing practices. There are concerns around discrimination towards Aboriginal people in relation to cultural fishing practices. Some other resource uses have impacted on Aboriginal culture.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Antisocial behaviour and unsafe practices	Social participation and enjoyment, Aboriginal cultural heritage and use	Behaviour reported to impact safety, health and wellbeing, enjoyment and consumption include loud or obnoxious behaviour, littering, drunkenness, illegal fishing and overfishing. Practices may have significant impacts on Aboriginal culture, particularly through damage to significant sites and impacting food sources.
Overcrowding / congestion	Social participation, Aboriginal cultural heritage and use	Overcrowding and congestion may further exacerbate the impacts of conflict, antisocial behaviour and unsafe practices. Reduced access and an increasing population may concentrate use. This may particularly result in significant impacts on Aboriginal culture, including sources of food, significant sites and spiritual connection.
Wildlife interactions (e.g. shark bite, jellyfish, boat striking a whale)	Social participation	Shark sightings or attack may impact safety, health and wellbeing or perceptions of safety leading to stress and reducing participation.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Threat theme 5 – community engagement and governance		
Inadequate social and economic information	Social participation and enjoyment, Aboriginal cultural heritage and use, indirect and direct economic values, viability of businesses	Key knowledge gaps around the different ways the community values the coast and how activities and management may impact those values. Particular gaps around cumulative impacts on community resilience, different perceptions of beauty and biodiversity, social and economic aspects of fisheries management, and views and aspirations of Aboriginal people. Information failure can lead to a range of environmental, social, cultural and economic impacts.
Lack of community awareness of the marine estate, associated threats and benefits, regulations and opportunities for participation	Social enjoyment, Aboriginal cultural heritage and use	Lack of awareness of the marine estate may impact social intrinsic values, and the extent to which people can appreciate and enjoy the benefits it provides, act sustainably and responsibly and understand management decisions. Lack of knowledge of Aboriginal values for the marine estate may lead to unintentional impacts on Aboriginal cultural values and a mismatch between Aboriginal and non-Aboriginal views.
Lack of compliance with regulations (by users) or lack of compliance effort (by agencies)	Social participation and enjoyment, Aboriginal cultural heritage and use, viability of businesses	A lack of compliance with social norms and regulations are both of concern to marine estate users. Marine estate users have been noted to have a high degree of concern about equity and justice, meaning illegal activity can cause anger, resentment, frustration and stress. Illegal behaviour can be used to make generalisations about particular sections of the community, leading to conflict between different cultural groups. Lack of compliance may impact social intrinsic, consumptive, Aboriginal cultural heritage, business and employment values, when habitats and fish stocks are impacted by illegal and unsustainable behaviour.

ACTIVITIES AND THREATS	VALUES IDENTIFIED BY THE TARA AS AT HIGH OR MODERATE RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM THE TARA FINAL REPORT APPENDICES
Lack of or ineffective community engagement or participation in governance	Aboriginal cultural heritage and use	Management decisions made without effective engagement of Aboriginal people may have significant cultural impacts and neglect traditional Aboriginal wisdom and knowledge.
Inadequate, inefficient regulation, over-regulation (agencies)	Social participation and enjoyment, Aboriginal cultural heritage and use, viability of businesses	Social health and wellbeing impacts from regulation which is developed without full consideration of the social, cultural, economic and environmental impacts it may have, with specific examples including commercial and Aboriginal cultural fishing regulations. This can result in increasing costs to access and use the marine estate and can particularly impact consumptive enjoyment and Aboriginal cultural heritage values. Increasing costs, regulation, multiple regulatory bodies and difficulty in obtaining licences and approvals impact commercial fishing, Aboriginal business and tourism business viability.

Additional local threats

Table AD2 – Descriptions of additional threats for marine parks identified through development of this management plan

ACTIVITIES AND THREATS	VALUES IDENTIFIED FROM AVAILABLE LOCAL EVIDENCE AS AT RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM AVAILABLE LOCAL EVIDENCE
Threat theme 1 – ecosystems, habitats and species		
Navigation & entrance management and modification, harbour maintenance, dredging etc.	Estuaries: waters, seagrass, beaches and mudflats, shallow soft sediments, planktonic assemblages, threatened aquatic species Viability of businesses	Available local evidence identified this TARA threat (summarised in Table AC1 above) as a risk to the commercial fishing industry in addition to cultural values.
Estuary entrance modifications	Estuaries: waters, saltmarsh, mangroves, seagrass, beaches and mudflats, shallow soft sediments, planktonic assemblages, threatened species Coastal and marine: beaches, threatened wildlife Viability of businesses	Available local evidence identified this TARA threat (summarised in Table AC1 above) as a risk to the commercial fishing industry in addition to cultural values.
Pests and diseases including invasive native Sea Urchin for the south region	Estuaries, coastal and marine: threatened wildlife Social participation and enjoyment, Aboriginal cultural heritage and use, viability of businesses	Available local evidence added invasive native Sea Urchins for Jervis Bay and Batemans marine parks as an additional element to this TARA threat (summarised in Table AC1 above). Local stakeholders are very concerned about the impact of Sea Urchin barrens on local environmental, social, cultural and economic values. Research has shown Sea Urchin barrens to be an important and stable ecological feature of the temperate rocky reefs of NSW at large spatial scales. However, little is known about links to climate change impacts, ecological interactions and the impact of barrens at finer spatial scales and below 15 metres of depth.

ACTIVITIES AND THREATS	VALUES IDENTIFIED FROM AVAILABLE LOCAL EVIDENCE AS AT RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM AVAILABLE LOCAL EVIDENCE
Charter activities – whale and dolphin watching and swim-with operations, seal watching and swim-with operations for south region	Estuaries, coastal and marine: threatened wildlife	Available local evidence added marine mammal swim-with operations for all marine parks and seal operations for Jervis Bay and Batemans marine parks as an additional element to this TARA threat (summarised in Table AC1 above). Commercial and recreational tourism values are increasing with numbers of Humpback Whales and seals. The number of commercial charter operations is increasing. Commercial swim-with operations are also becoming more popular, but their impact and ability to comply with distance-off regulations remains unknown. Existing distance-off regulations are complex and resources for enforcement are limited. The community is concerned about the cumulative impact of commercial and recreational interactions on marine mammals, including any indirect impact on feeding and breeding behaviour.
Light pollution affecting wildlife	Threatened wildlife species	Artificial light from foreshore development may interrupt nesting, roosting and breeding behaviours in marine turtles, seabirds and shorebirds. Refer to the **National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds** for more information.
Extreme events, including bushfire, drought, flood and east coast lows	Estuaries: waters, saltmarsh, mangroves, seagrass, beaches and mud flats, shallow soft sediments, rocky shores, subtidal reefs, planktonic assemblages, threatened species Coastal and marine: waters, beaches, shallow soft sediments, deep soft sediments, rocky shores, shallow rocky reefs, planktonic assemblages, threatened species Social participation and enjoyment, Aboriginal cultural heritage and use, indirect and direct economic values, viability of businesses	Extreme events can cause physical damage to species, habitats, ecosystems, heritage sites and the social, cultural and economic values that depend on them. Significant impacts to water quality. Impacts to hydrology and geomorphology. Social health, safety and wellbeing impacts. Severe economic and industry impacts. Impacts to Aboriginal cultural practices, sites, food, totemic species and spiritual connections. Predicted to increase with the impacts of climate change.
Defence activities	Estuarine, coastal and marine: waters, shallow soft sediments, deep soft sediments, shallow rocky reefs, threatened species.	Threats from Defence activities in the Jervis Bay Marine Park and adjacent waters may include anchoring by ships and submarines, submarine bottoming, boat movements in shallow water, beach landings, moorings, diving activities, use of marine sound signals, use of diver jackstays, maintenance of the Jervis Bay Sound Range and its connecting cable, laying and recovery of practice mines, laying and recovery of temporary cables, discharge of ballast water, accumulation of debris on the seafloor arising from activities such as parachute, drops and loss of solid materials from ships and boats, use of marine sound signals, potential for transfer of exotic marine organisms (via fouling of ship hulls, fittings and internal seawater systems, diving gear and mine warfare equipment), the accumulation in sediments and biota of the biocide component of antifouling paints, mine warfare activities, including the use of mine hunting sonar.

ACTIVITIES AND THREATS	VALUES IDENTIFIED FROM AVAILABLE LOCAL EVIDENCE AS AT RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM AVAILABLE LOCAL EVIDENCE
Threat theme 2 – water quality		
Clearing riparian and adjacent habitat including wetland drainage	Estuaries: waters, saltmarsh, seagrass, shallow soft sediments, subtidal reefs, planktonic assemblages, threatened species, mangroves, beaches and mudflats Viability of businesses	Available local evidence identified this TARA threat (summarised in Table AC1 above) as a risk to the commercial fishing industry in addition to cultural values.
Stock grazing of riparian and marine vegetation	Estuaries: saltmarsh, mangroves, seagrass, threatened fish species Viability of businesses	Available local evidence identified this TARA threat (summarised in Table AC1 above) as a risk to the commercial fishing industry in addition to cultural values.
Other water pollution/ contamination affecting human health and safety	Aboriginal cultural heritage and use, Social participation and enjoyment, indirect and direct economic values, viability of businesses	Available local evidence identified this TARA threat (summarised in Table AC1 above) as a risk to social and economic values in addition to cultural values.

ACTIVITIES AND THREATS	VALUES IDENTIFIED FROM AVAILABLE LOCAL EVIDENCE AS AT RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM AVAILABLE LOCAL EVIDENCE
Threat theme 4 – community access and opportunity		
Wildlife interactions (e.g. shark bite, jellyfish, boat striking a whale for the north region and seal interactions for the south region)	Social participation and enjoyment	Available local evidence for Jervis Bay and Batemans marine parks added seal interactions as an additional element to this TARA threat (summarised in Table AC1 above). Seal interactions are increasing and may impact safety, health and wellbeing or perceptions of safety. Increasing impacts on consumptive use in key seal areas.

ACTIVITIES AND THREATS	VALUES IDENTIFIED FROM AVAILABLE LOCAL EVIDENCE AS AT RISK FROM THIS THREAT	SUMMARY OF THIS THREAT FROM AVAILABLE LOCAL EVIDENCE
Threat theme 5 – community engagement and governance		
Lack of or ineffective community engagement or participation in governance	Aboriginal cultural heritage and use, Social participation and enjoyment, indirect and direct economic values, viability of businesses	Available local evidence identified this TARA threat (summarised in Table AC1 above) as a risk to social and economic values in addition to cultural values.