

THE DRAFT NSW MARINE ESTATE MANAGEMENT STRATEGY – HOW WILL IT BENEFIT THE COAST AND PEOPLE OF NSW?

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Abstract

Since March 2013 the NSW Marine Estate Management Authority has been progressing the implementation of the NSW marine estate reforms. A centre piece of these reforms is the preparation of a 10-year Marine Estate Management Strategy. A draft Strategy has been developed, informed by evidence from a comprehensive Marine Estate Community Survey of over 1,700 people in 2014 and a state-wide threat and risk assessment of the threats to the environmental assets and social, cultural and economic benefits derived from the State's estuaries and coastal waters; completed in mid-2017.

The draft Strategy, the first of its kind in NSW, aims to address the priority threats emerging from the threat and risk assessment in order to maximise the community benefits derived from the NSW marine estate – identified via the Community Survey. A detailed assessment of current management settings and assessment of management options has been undertaken to inform the management responses outlined in the draft Strategy. The draft Strategy has been developed in consultation with key State and local government authorities responsible for management of the NSW marine estate. Public engagement is underway to inform a final Strategy in 2018.

This paper provides an overview of the draft Strategy, its development and proposed management responses, including linkages with other key reform programs. The final Strategy will be underpinned by a Marine Integrated Monitoring Program which will monitor risk reduction of the priority threats and include key performance indicators to monitor the success of management responses over time. It will guide how the State's marine waters, coastline and estuaries (the marine estate) are managed for the next decade in order to achieve the Authority's vision of "a healthy coast and sea, managed for the greatest wellbeing of the community, now and into the future".

Overview

The 'marine estate' includes the coastline, estuaries and marine waters of NSW. It includes some of the most significant natural assets of the State: around one million hectares of estuary and ocean waters, more than 1,750 kilometres of coastline including a range of rocky foreshores and headlands, 826 beaches and approximately 6500 kilometres of estuarine foreshore along 185 estuaries and coastal lakes (Figure 1).

Almost six million people live within 50 kilometres of the NSW coastline, including the people of eleven coastal Aboriginal nations that are intimately connected to their Land and Sea Country. The marine estate brings a range of environmental, cultural, social and economic benefits to the NSW community. It offers the opportunity for activities such as diving, swimming and fishing, and it provides a livelihood for many, such as commercial fishing and tourism businesses. Millions of domestic and international visitors enjoy the marine estate, generating billions of dollars each year for NSW and the Australian economy.

The many different uses of the marine estate can sometimes come into direct conflict with each other, for example boating and swimming. Some activities can also present threats to the social, cultural and economic benefits or environmental assets of the marine estate with potential implications for the broader community. For example, much of the water runoff from cities, industries and agriculture along the coast ends up in estuaries and can lead to reduced water quality. Other threats, including rising sea temperatures, ocean acidification and invasive species also present longer-term concerns.

The NSW Government established the Marine Estate Management Authority (Authority) in 2012 to provide advice on policies, priorities and direction for the NSW marine estate. This was in response to the 2012 Independent Scientific Audit of Marine Parks in NSW (the Audit) that recommended the governance of the NSW marine estate be reorganised under one management structure (the Authority) and that an independent scientific committee be established. Additional recommendations included mechanisms to improve social, cultural and economic considerations in decision-making.

The Authority comprises an independent Chair, the Chair of the Marine Estate Expert Knowledge Panel (the Panel), which provides advice to the Authority, and the heads of the four agencies involved in managing the NSW marine estate: NSW Department of Primary Industries, NSW Department of Planning and Environment, NSW Office of Environment and Heritage, and Transport for NSW. The Authority provides advice to two Ministers: the Minister for Primary Industries and Minister for the Environment.

The NSW Government tasked the Authority to develop an overarching Strategy for the management of the marine estate, informed by a threat and risk assessment. The Authority has sought the advice of the Panel, whose members have economic, social and environmental expertise.

The Strategy is also a requirement of the *Marine Estate Management Act 2014*. The Act requires the Strategy to set out the vision and priorities for management of the marine estate. The Strategy has been developed following ten management principles (MEMA 2013) (Figure 2) and a five-step decision-making process (Figure 3), to achieve the Authority's vision for the NSW marine estate: '*a healthy coast and sea, managed for the greatest wellbeing of the community, now and into the future*'.



Figure 1. Map of the NSW marine estate.

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 decision 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.

Figure 2. The Authority's ten underpinning management principles (MEMA, 2013).

How the Strategy was developed

The Authority has applied its five-step decision-making process (MEMA 2013) in the development of the draft Strategy (Figure 3).

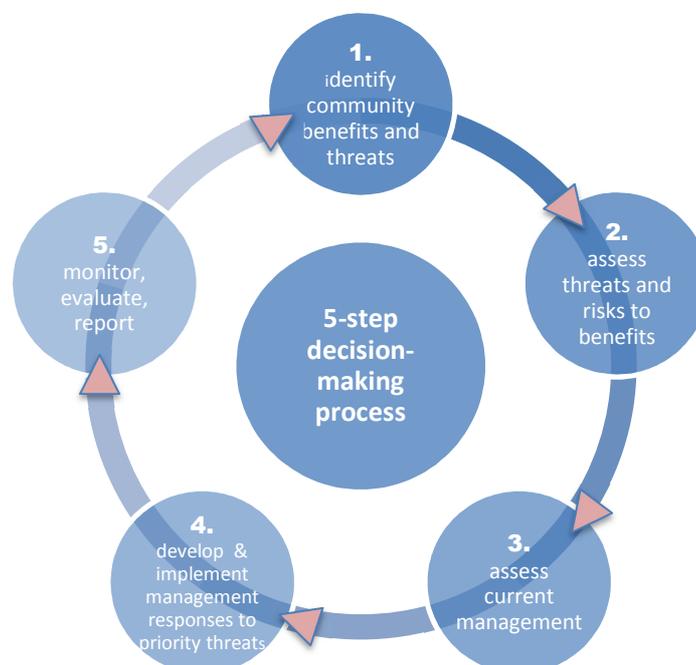


Figure 3. Five-step decision-making process.

Step 1 commenced in 2014, when the Authority undertook a comprehensive Marine Estate Community Survey of over 1,700 residents (Sweeney Research 2014; Fairfull et al 2014). The Authority also surveyed all coastal local government areas bordering the marine estate in 2014 to identify their key challenges for the NSW marine estate.

Step 2 involved an evidence-based statewide threat and risk assessment (statewide TARA) to identify the priority and cumulative threats and risks to the environmental assets and social, cultural and economic benefits derived from the NSW marine estate.

Steps 3 and 4 have involved assessing risk tolerance under current management to determine where further action is needed to reduce priority and cumulative threats and to enhance community benefits. Management options have been developed and assessed to determine those that are effective and cost-effective. These steps are explained further below.

Step 1

Community survey

In 2014, the Authority surveyed 1,700 NSW residents and visitors to identify the values and benefits the community derives from the marine estate (environmental, social, cultural and economic) and the threats to those values and benefits in the short and long-term. Respondents were also asked to identify potential management responses to address the threats. Through this survey (Sweeney Research 2014), we learned that the NSW community considers:

- the health of the marine estate to be a core value
- pollution of the marine estate is considered a major threat
- the marine estate is integral to the economic, social and cultural wellbeing of the community
- diversity and abundance of marine life and natural beauty of the marine estate are key economic values for nature-based and regional tourism.

The three highest priority threats to environmental assets identified by the community were littering and marine debris, oil and chemical spills and water pollution from sediment or runoff. Threats to social benefits included antisocial behaviour as well as the potential loss of appeal due to pollution or littering. Overcrowding, conflicting use, and lack of public access were also recognised as potential social threats. Perceived threats to economic viability were associated with water pollution, loss of natural areas, and increasing cost to access the marine estate.

Survey of coastal local government areas

The Authority also surveyed local governments along the coast to identify the top ten key challenges facing the marine estate over the next ten years. The results from 35 councils from across the coast were consistent with concerns raised in the Community Survey, and included:

- marine pollution (including marine debris, litter and microplastics)
- management of access to foreshores and waterways
- catchment management and diffuse water pollution
- coastal development

- climate change and coastal hazard management
- lack of resources to support local government manage the marine estate
- habitat and species protection and management
- loss of aquatic habitat
- managing access to natural resources
- community engagement and education capacity.

Statewide threat and risk assessment (Step 2-a)

A 'threat' is a broad activity, event or process that could put environmental assets and social, cultural and economic benefits of the marine estate at risk. A threat and risk assessment (TARA) framework was developed by the Authority in 2015 to guide how to identify and assess threats and their level of risk to the marine estate (MEMA 2015). The framework was developed by the Authority with advice from the Marine Estate Expert Knowledge Panel and is consistent with international risk assessment standards (AS/NZS ISO 31000:2009).

Threats to the NSW marine estate were recognised as a statewide priority (priority threats) if they were assigned a risk level of moderate or high in all three management regions through the statewide TARA (northern, central and southern regions – Figure 1). Consultation on the draft statewide TARA occurred from January to April 2017 and the final statewide TARA (WBM BMT 2017) informed the development of the draft Strategy. A community engagement report (MEMA 2017a) details how comments and evidence provided informed the final statewide TARA. A background report (MEMA 2017b), which reviews the scientific literature for threats to the environmental assets of the NSW marine estate, was also updated during this process and has been informed by over 1000 scientific reports or publications.

The statewide TARA identified the highest priority threats to the environmental assets of the marine estate (Table 1) were in relation to:

- urban and rural water pollution or runoff
- climate change (over a 20 year outlook)
- disturbance to habitat and species from estuarine entrance modification, harbour maintenance, foreshore development, wetland drainage and other works.

The highest priority threats to social, cultural and economic benefits (Table 2) were primarily associated with water pollution and a general lack of social, cultural and economic information, lack of compliance with regulations and lack of access to the marine estate.

The statewide TARA also identified five cumulative threats, which are threats from the combined effect of other threats and stressors:

- multiple threats to estuarine water quality
- climate change (over a 20 year outlook)
- multiple threats to Aboriginal cultural heritage
- multiple threats to marine wildlife
- multiple threats to fish assemblages.

Table 1. Statewide priority threats to ENVIRONMENTAL assets

Legend	e = estuaries	cm = coast and marine
	moderate risk	A mix of moderate and high risk levels in the three regions statewide
	moderate – high risk	
	high risk	

ENVIRONMENTAL	Clean waters	Estuarine & marine habitats, assemblages and associated biota											Threatened & protected species		
	Estuarine & ocean waters	Saltmarsh	Mangrove	Seagrass	Beaches & mudflats	Beaches	Shallow soft sediments	Deep soft sediments	Rocky shores	Shallow reefs	Deep reefs	Planktonic assemblages	Fish assemblages (harvest & bycatch)	Species and communities protected under FMA	Species protected under BCA
ACTIVITY/THREAT	ASSET														
1. Urban stormwater discharge	e	e	e	e	e	cm	e					e		e	e
2. Estuary entrance modifications	e	e	e	e	e	cm	e					e		e	e cm
3. Agricultural diffuse source runoff	e	e	e	e	e		e					e		e	e
4. Clearing riparian & adjacent habitat including wetland drainage	e	e					e					e		e	e
5. Climate change (over the next 20 years)		e								cm		e cm		e	e cm
6. Modified freshwater flows	e	e		e			e					e		e	e
7. Foreshore development		e	e		e	cm								e	e cm
8. Recreation & tourism boating & boating infrastructure	e			e	e		e							e	e
9. Navigation & entrance management & modification, including harbour maintenance	e			e	e		e					e		e	
10. Sewage effluent & septic runoff	e			e			e					e		e	
11. Stock grazing of riparian & marine vegetation in estuaries		e	e	e										e	
12. Four-wheel driving		e			e									e	e
13. Recreational fishing – boat-based												e		cm	

ENVIRONMENTAL	Clean waters	Estuarine & marine habitats, assemblages and associated biota											Threatened & protected species		
	Estuarine & ocean waters	Saltmarsh	Mangrove	Seagrass	Beaches & mudflats	Beaches	Shallow soft sediments	Deep soft sediments	Rocky shores	Shallow reefs	Deep reefs	Planktonic assemblages	Fish assemblages (harvest & bycatch)	Species and communities protected under FMA	Species protected under BCA
ACTIVITY/THREAT	ASSET														
line & trap fishing													cm		
14. Passive recreational use – swimming, surfing & dog walking					e										e cm
15. Recreational fishing – shore-based line & trap fishing													e cm		
16. Beach nourishment & grooming					e	cm									
17. Commercial fishing – ocean trawl								cm							
18. Commercial fishing – ocean trap & line														cm	
19. Commercial fishing – estuary general													e		
20. Deliberate introduction of pests & weeds															e cm
21. Shipping – small commercial vessels															cm
22. Oyster aquaculture				e										e	
23. Commercial fishing – ocean haul													cm		
24. Recreational fishing – hand gathering													cm		
25. Whale & dolphin watching															cm

Table 2. Statewide priority threats to **SOCIAL, CULTURAL and ECONOMIC** benefits

Legend	
	moderate risk
	high risk

SOCIAL , CULTURAL & ECONOMIC	Social benefits			Cultural benefits	Economic benefits			
	Participation – safety, health & wellbeing	Participation – socialising & sense of community	Enjoyment - biodiversity & beauty	Enjoyment – consumptive use	Cultural heritage & use	Indirect values	Viability of businesses	Direct values (individual enjoyment)
THREAT/STRESSOR	BENEFITS							
1. Water pollution on environmental values – urban stormwater discharge	Orange	Orange	Orange	Orange	Red	Orange	Orange	Orange
2. Water pollution on environmental values – agricultural diffuse source runoff	Orange	Orange	Orange	Orange	Red	Orange	Orange	Orange
3. Water pollution on environmental values – litter, waste, debris and microplastics	Orange	Orange	Orange	Orange	Red	Orange	Orange	Orange
4. Inadequate social and economic information	Orange	Orange	Orange	Orange	Red	Orange	Orange	Orange
5. Lack of compliance with regulations (users) or lack of compliance effort (agencies)	Orange	Orange	Orange	Orange	Red	Grey	Orange	Grey
6. Limited or lack of access infrastructure in the marine estate	Orange	Orange	Orange	Orange	Orange	Grey	Orange	Grey
7. Reductions in abundance of species and trophic levels	Grey	Grey	Orange	Red	Red	Orange	Orange	Grey
8. Antisocial behaviour and unsafe practices	Orange	Orange	Orange	Grey	Red	Grey	Grey	Grey
9. Climate change over the next 20 years	Grey	Grey	Orange	Orange	Red	Grey	Orange	Orange
10. Loss of public access	Orange	Grey	Grey	Orange	Red	Orange	Grey	Grey
11. Inadequate, inefficient regulation or overregulation	Orange	Grey	Grey	Orange	Red	Grey	Orange	Grey
12. Pests and disease	Orange	Grey	Grey	Orange	Orange	Grey	Orange	Grey
13. Sediment contamination	Grey	Grey	Grey	Grey	Red	Grey	Grey	Grey
14. Overcrowding and congestion	Orange	Orange	Grey	Grey	Orange	Grey	Grey	Grey

SOCIAL , CULTURAL & ECONOMIC		Social benefits				Cultural benefits	Economic benefits		
		Participation – safety, health & wellbeing	Participation – socialising & sense of community	Enjoyment - biodiversity & beauty	Enjoyment – consumptive use	Cultural heritage & use	Indirect values	Viability of businesses	Direct values (individual enjoyment)
THREAT/STRESSOR		BENEFITS							
15.	Conflict over resource use access	Orange	Orange			Red			
16.	Habitat disturbance			Orange	Orange	Red			
17.	Loss or decline in marine industries					Orange		Orange	
18.	Seafood contamination				Orange	Red			
19.	Modified hydrology, hydraulics and flow regimes		Orange		Orange	Orange			
20.	Water pollution of environmental values – septic runoff, point-source pollution and sewage overflows			Orange		Orange			
21.	Wildlife disturbance (shorebirds, turtles, whales) – e.g. by dog walkers, four-wheel drives, and vessels			Orange		Red			
22.	Lack of community awareness of the marine estate and associated threats and benefits			Orange		Red			
23.	Lack of, or ineffective community engagement or participation in, governance					Red			
24.	Other water pollution and contamination affecting human health and safety					Red			
25.	Excessive or illegal extraction					Orange			

Hawkesbury Shelf marine bioregion (Step 2-b)

In early 2016, the Authority released a discussion paper on eight suggested management initiatives to address the priority threats identified for the Hawkesbury Shelf marine bioregion (MEMA 2016a). Several initiatives, which respond to threats operating at both the bioregion and state scale, have been incorporated into the draft statewide Strategy. These initiatives address water quality, the restoration of aquatic habitats, litter and marine debris, research priorities, wildlife interactions, improving boating infrastructure and land use planning outcomes. A summary report details the community engagement findings on the suggested management initiatives for the Hawkesbury Shelf marine bioregion (MEMA 2017c).

Several initiatives that address bioregion-specific priorities are already progressing. These include reducing resource-use conflict in Pittwater and regional boating strategies for Lake Macquarie and Pittwater. These projects are led by the Department of Primary Industries and Transport for NSW respectively.

Proposed management initiatives

Eight management initiatives are proposed in the draft statewide Strategy to address the priority and cumulative threats. These initiatives summarise management objectives, benefits, threats, stressors and proposed management actions. Importantly, actions in one initiative are linked to actions in another, and so the initiatives operate collectively and not in isolation.

The management initiatives and their aims are:

1. *Improving water quality and reducing litter* – the statewide TARA identified water pollution as the number one threat to environmental assets and the social, cultural and economic benefits of the marine estate. This initiative will improve water quality and reduce marine litter by: working with local councils to improve the quality of stormwater; restoring coastal habitats to reduce water pollution caused by erosion and land degradation; extending the ‘Hey Tosser!’ litter campaign to focus on marine litter, and training compliance officers in best practice management of urban and rural sources of pollution.
2. *Sustainable coastal use and development for healthy habitats* – this initiative aims to protect coastal habitats and enhance the health of estuarine and coastal waterways by: improving coastal development assessment and best practice in coastal urban design; improving the resilience of coastal floodplains; supporting improvements to coastal infrastructure; reducing the complexity of approvals for works in intertidal habitats; improving protection of coastal environment assets and providing fish passage at priority coastal barriers.
3. *Planning for a changing climate* – this initiative will prepare for the impacts of a changing climate on the marine estate by: improving our understanding of ecological processes and biodiversity in the NSW marine estate, identifying areas of importance for the management and conservation of mangroves and saltmarsh, and supporting marine estate managers and coastal communities to carry out adaptation planning and decision making in response to projected impacts of climate change.

4. *Protecting the cultural values of the marine estate* – this initiative aims to increase Aboriginal participation in managing the cultural values of Sea Country and includes actions such as: building capacity for Aboriginal community involvement in marine estate governance; supporting economic development opportunities for Aboriginal businesses in marine parks; supporting increased involvement of local Aboriginal communities in Land and Sea Country management works, and facilitating Aboriginal communities to prepare Sea Country Plans.
5. *Reducing impacts on wildlife* – this initiative will better protect marine wildlife by: improving responses to marine wildlife incidents, like freeing whales from nets; helping the community report wildlife incidents; mapping species distributions and associated threats; expanding programs to prevent marine wildlife disease outbreaks, and reducing threats to wildlife caused by boating.
6. *Sustainable fishing and aquaculture* – this initiative will ensure fishing and aquaculture provides for sustainable use by: expanding observer programs to understand the effects of harvest and bycatch on species; revising fishery management strategies to include harvest strategies and ecological risk strategies; undertaking environmental assessment of recreational fishing and review of management rules; examining management options to protect species and habitat, and improving the social licence of fishing.
7. *Enabling safe and sustainable boating* – this initiative will balance the protection of coastal and marine habitats with access for safe and sustainable boating by: reducing impacts on seagrass and seeking solutions to growing demand for boat storage; running a pilot program to reduce water pollution at marinas; improving reporting of vessel collisions with wildlife; increasing awareness of threats to wildlife through education and compliance, and running an education campaign on recreational vessel cleaning to reduce water pollution.
8. *Improving governance and enhancing social and economic benefits* – this initiative will improve public access to the marine estate, reduce user conflicts and improve governance by: improving coordination and implementation of marine estate management programs; identifying and mapping current and future use of the marine estate; implementing school and community education awareness programs; providing incentives for improvements in sustainable tourism and recreational use of the marine estate, and establishing a marine integrated monitoring program.

Actions within the initiatives will deliver on several recommendations included in the Audit report (Beeton et al 2012), including recommendations to extend the Monitoring, Evaluation and Reporting (MER) system to include a greater focus on marine, estuarine and inshore environments as a priority (recommendation 5), continuing to improve fisheries management (recommendation 6), implementing a more strategic and cross-disciplinary approach to considering social impacts (recommendation 7), incorporating Aboriginal knowledge and expertise of land and sea management into the management of NSW marine parks and the marine estate (recommendation 10) and better integration of land-use planning regulations (recommendation 11).

Links with other reforms

This draft Strategy supports related NSW Government reform processes including:

Coastal reforms

The *Coastal Management Act 2016* provides the architecture for strategic management of coastal areas into the future. The Act replaces the *Coastal Protection Act 1979*. The new Act supports the objects of the *Marine Estate Management Act 2014* since the coastal zone forms part of the marine estate. Coastal management programs will provide for regional delivery of some of the actions in the management initiatives.

Aboriginal cultural heritage reforms

The NSW Government is developing new, stand-alone Aboriginal cultural heritage legislation that respects and protects Aboriginal cultural heritage while providing clear and consistent processes for economic and social development. Actions proposed as part of Initiative 4 aim to address threats to cultural heritage values in the marine estate and are likely to complement current reforms, in particular, proposals to improve the governance arrangements for managing Aboriginal cultural heritage and cultural fishing.

Commercial fisheries business adjustment program

The commercial fisheries Business Adjustment Program (BAP) has been developed in response to the 2012 *Independent Report into NSW Commercial Fisheries Policy, Management and Administration*. The three components of the BAP include structural adjustment, changes to governance processes, and consultation mechanisms.

The structural adjustment component of the BAP includes:

- share-linkage arrangements tailored to each share class that links shares to either catch or fishing effort
- providing \$16 million in assistance measures to help commercial fishers adjust their fishing businesses to be consistent with the new share linkage arrangements through the Adjustment Subsidy Program
- streamlining current fishing controls that impact fishing efficiency.

Initiative 6 will deliver several key actions relevant to commercial fishing reforms.

Cultural fishing reforms

The *NSW Fisheries Management Act 1994* was amended in 2009 to recognise Aboriginal cultural fishing and commit to its protection and promotion. Aboriginal cultural fishing is defined in the Act as “*fishing activities and practices carried out by Aboriginal persons for the purpose of satisfying their personal, domestic or communal needs, or for educational or ceremonial purposes or other traditional purposes, and which do not have a commercial purpose*”.

NSW Department of Primary Industries is currently considering management options, in consultation with the Aboriginal Fisheries Advisory Council, for protecting and promoting Aboriginal cultural fishing. The reforms link to Initiatives 4 and 6. The *Marine Estate Management Act 2014* also supports cultural uses of the NSW marine estate, including marine parks and aquatic reserves.

Climate Change Policy Framework and Strategic Plan

The NSW Climate Change Policy Framework outlines the NSW Government's long term objectives to achieve net-zero emissions by 2050. Between 2017 and 2022, the NSW Government will invest \$1.4 billion through the Climate Change Fund Strategic Plan to help meet long-term climate objectives.

This policy framework guides NSW Government programs, including the three action plans on clean energy, energy efficiency and climate change adaptation. Initiative 3 links to these climate change reforms and addresses key knowledge gaps relevant to the NSW marine estate.

Land management and biodiversity conservation reforms

The reforms provide for the protection of plants and animals, support ecologically sustainable development (including delivering a legislated biodiversity offset scheme), include prioritised and targeted investment, and aim to deliver a sustainable and productive agricultural sector.

Under the *Biodiversity Conservation Act 2016*, marine fauna will continue to be protected. The Biodiversity Conservation Regulation sets out provisions to help protect marine mammals, including the approach distances for any aircraft, vessels, unmanned aerial vehicles (e.g. drones) and other human interactions with marine mammals. The Regulation also prescribes the penalty notice amounts for offences related to marine mammals. These reforms are closely linked to Initiative 5 in reducing impacts on marine wildlife.

Crown land reforms

The *Crown Land Management Act 2016* and the *Crown Land Legislation Amendment Act 2017* support the management of the State's Crown estate. The Crown lands reform program specifically examines use and management of coastal Crown land to improve public benefits for current and future users. This reform is linked to Initiative 2 which proposes actions to prepare a policy for coastal Crown lands including submerged lands, reduce administrative burden and be more strategic when assessing estuarine foreshore structures such as jetties, boat ramps and bank protection works that span private and Crown land in the intertidal zone.

Regional Ports Strategy

Crown lands in the NSW Department of Industry is developing a comprehensive strategy to guide investment and operations of regional ports and associated infrastructure under its management, in the short and the long term. This reform program is linked to Initiatives 2 and 7 as they investigate ways to reduce the legacy impacts from existing port and estuary entrance infrastructure, improve fish habitat, provide opportunities to enhance recreational activities such as fishing and improve boating access to the marine estate.

NSW Boating Now

NSW Boating Now is a five-year boating infrastructure funding program that aims to support the delivery of new and improved boating facilities through effective partnerships with local councils and other organisations. The NSW Government's \$70 million funding program will support initiatives that enhance the boating experience by improving the overall capacity and amenity of boating infrastructure on NSW waterways. This program is referred to in Initiative 7.

Moorings review

There are more than 26,600 mooring sites managed by Roads and Maritime Services in NSW. The Moorings review program is designed to focus on improved regulation, administration and exploring new technologies and delivery mechanisms. The review seeks solutions for mooring demand and reducing the threat of physical disturbance to sensitive seagrass.

Better coordination among all agencies involved in mooring management, particularly supported by accurate seagrass mapping and accessible data, will be pursued to ensure effective delivery of environmentally friendly moorings across NSW. This project links to Initiatives 6, 7 and 8.

Implementation

The Authority will guide the implementation of the Strategy over the next ten years. An implementation plan will accompany the final Strategy. It will describe how the management actions will be carried out including timeframes, lead agencies and key performance indicators.

A monitoring program will evaluate the success of the management actions by tracking the progress of the Strategy against its key performance indicators. This program will guide adaptive management and monitor progress. It will include short, medium and longer term monitoring components and a citizen science component. The program will be reviewed after five years as part of a five-year marine estate health check, which will: assess if risk levels have changed; fill knowledge gaps for social, cultural and economic information; and address new or emerging threats not previously identified by the statewide TARA.

Conclusion

The NSW community values the clean waters, biodiversity and natural beauty of the NSW marine estate. These core values underpin a range of social, cultural and economic (community) benefits derived from the marine estate. A coordinated management approach, as proposed in this draft Strategy, that addresses the statewide priority and cumulative threats will ensure these core values are retained for future generations. Management actions that propose to reduce water pollution through better land management practices, improve the condition of coastal habitats and wetlands, reduce marine litter, decrease negative interactions with marine wildlife and address threats to fish populations will benefit the environment and people of NSW.

Community wellbeing will be enhanced through improved opportunities to participate in

the management of, or improved access to the marine estate. Management actions that enhance social and cultural practices and result in greater involvement of Aboriginal people in managing Sea Country are proposed. Economically the draft Strategy will address key knowledge gaps and improve government coordination and support for marine related industries that underpin economic growth, particularly through international and domestic trade, tourism and seafood related industries.

Over the next ten years the Authority will work closely and collaboratively with government, industry and the NSW community to implement the final Strategy which aims to deliver on the Authority's vision of a *healthy coast and sea, managed for the greatest wellbeing of the community, now and into the future.*

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