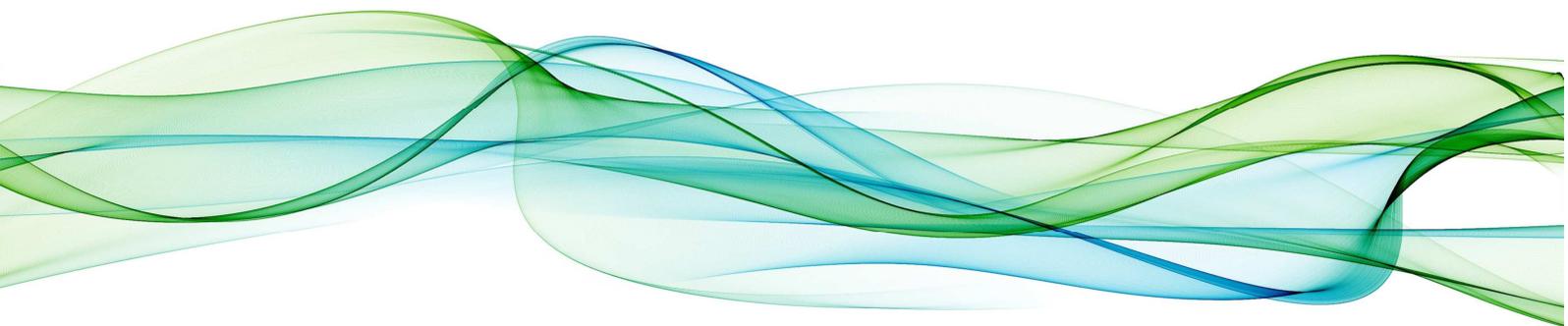




2018–2028

Marine Estate Management Strategy - Implementation Plan

MARINE ESTATE MANAGEMENT AUTHORITY



www.marine.nsw.gov.au

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Marine Estate Management Strategy – Implementation Plan 2018-2028

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Foreword



The *Marine Estate Management Strategy 2018–2028* (the Strategy) coordinates and streamlines the management of the 1,750 kilometres of coastline, 826 beaches and 185 estuaries in New South Wales (NSW). Developed with input from key stakeholders and the community, the Strategy outlines how we will care for our marine estate. It also describes the range of community benefits the marine estate will provide over the next ten years.

The Strategy is a requirement of the *Marine Estate Management Act 2014*. It aims to address the statewide priority threats to the environment as well as threats to community benefits we derive from the marine estate. It sets out nine initiatives and the actions needed to deliver improved, evidence-based management of our marine estate.

This first stage of the ten-year Strategy is supported by \$45.7 million of government funding to implement actions over the first two years of implementation (July 2018 to June 2020). In this Implementation Plan (the Plan), we outline how we will deliver the actions funded in Stage 1, the required timeframes and our partners in delivery, both government and non-government, who are critical to achieving our intended outcomes. We will continue to work closely with the NSW community to implement the actions described in this Plan and reduce the threats facing our marine estate.

We will evaluate the effectiveness of Stage 1 actions and adapt as necessary. In addition, a five-year health check will enable a comprehensive review of threats and risks and consider new evidence to inform ongoing management. The Marine Integrated Monitoring Program which will monitor, evaluate and report on progress, will facilitate this process. We will communicate our progress and achievements regularly, including in the Authority's annual report.

Together, the Strategy, this Plan and the Marine Integrated Monitoring Program are the cornerstone of the NSW Government's transparent and evidence-based management of the NSW marine estate.

a healthy coast and sea,
managed for the greatest wellbeing of the community,
now and into the future

Anthea Tinney
Acting Chair
Marine Estate Management Authority

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Introduction

Purpose of the Implementation Plan

This Plan outlines how we will deliver the first two years of the Strategy (Stage 1)

The NSW Government has allocated \$45.7 million in funding to deliver Stage 1, the first two years of the ten-year Strategy. This Plan identifies:

- which of the 53 actions in the Strategy will be delivered in Stage 1 (July 2018 to June 2020)
- who the lead agencies and partners are that will work together to deliver the actions
- when these actions will be delivered and where.

The Plan coordinates actions across the nine initiatives to ensure that the outcomes are cost-effective. For example, education and awareness management actions are included in several initiatives; therefore, a coordinated approach to education and communication campaigns, via **Initiative 8**, is planned to ensure efficiency and consistency across initiatives, as well as opportunities for good collaboration with our partners. The case studies in this Plan highlight the key Strategy deliverables.

All 53 actions are listed in this Plan, but details are included for only the actions that are underway in Stage 1. An evaluation of Stage 1 will inform how we plan for and implement Stage 2.

This Plan should be read in conjunction with the Strategy as they are intrinsically linked.

Measuring our success

The Marine Integrated Monitoring Program will measure, evaluate and report on progress towards identified outcomes for each of the nine initiatives so we can measure their success after ten years. It has three key purposes:

1. to monitor the condition and trend of environmental assets and community benefits against components of the vision to inform the five-year health check
2. to evaluate the effectiveness of the management initiatives and actions that aim to reduce priority threats and risks
3. fill knowledge gaps that were identified as part of the statewide Threat and Risk Assessment (TARA) process in 2017.

We will produce an annual report to give the NSW community a snapshot of what we are doing (the actions and their progress). We will also undertake a comprehensive, five-year health check. This health check will consider new evidence and other data to ascertain if the statewide priority threats identified in 2017 have changed, or if new threats have emerged. Management responses can then be applied as required.

Partnerships

The Strategy requires strong collaboration and partnerships with stakeholders involved in marine estate management, including:

- local government
- NSW Government agencies (including the four coastal Local Land Services)

- the general community
- peak industry groups and community-based organisations
- research providers.

Aboriginal involvement in the management of Sea Country and enhanced stewardship of the marine estate by the broader NSW community are both critical to the success of the Strategy. The independent Marine Estate Expert Knowledge Panel (the Panel) will provide their ecological, social and economic expertise in the ongoing implementation of Strategy actions.

Timeframe for delivery

This Plan refers in detail to actions that are funded in Stage 1 (July 2018 to June 2020). Many Stage 1 actions need more than two years to see results, so they will also be delivered into Stage 2. Actions that are not yet funded will be included in future stages over the ten-year life of the Strategy.

For each initiative, this Plan outlines which actions are included in Stage 1, which actions have already started in Stage 1 and are expected to continue into Stage 2 (pending funding), and which actions could start in Stage 2 (pending funding). To help identify which actions fall into which Stage, we have colour coded them as shown in Table 1; this colour-coding is used throughout this document.

Table 1. Inclusion of management actions in implementation stages

Timeframe funding	Stage 1 actions funded (2018-2020)	Stages 1 & 2 actions subject to future NSW Government funding (2020>)	Stage 2 actions subject to future NSW Government funding (2020>)
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Governance framework

The range of spatial scales, cost, complexity and risk in the Strategy results in the need for collaboration between government agencies and partners under a strong governance structure.

The Marine Estate Management Strategy Governance and Program Management Framework (framework) facilitates those relationships and tracks the Strategy's progress. It operates within the existing Marine Estate Management Authority (Authority) governance structure to ensure the Authority has program oversight.

The framework consists of three tiers. These closely reflect the structure of the Strategy.

- Tier 1—the Strategy
- Tier 2—each of the nine initiatives
- Tier 3—management actions and sub-actions.

Interagency working groups in each tier enhance cross-linkages and good communication across actions and initiatives. Membership of these groups is determined by the initiative or action lead to ensure membership is relevant and appropriate. There are also linkages with other related government reforms that have an influence on the delivery of the Strategy. Effective coordination with these related reforms is important.

The full governance structure is outlined in Table 2.

Links between the Marine Estate Management Strategy and coastal reforms

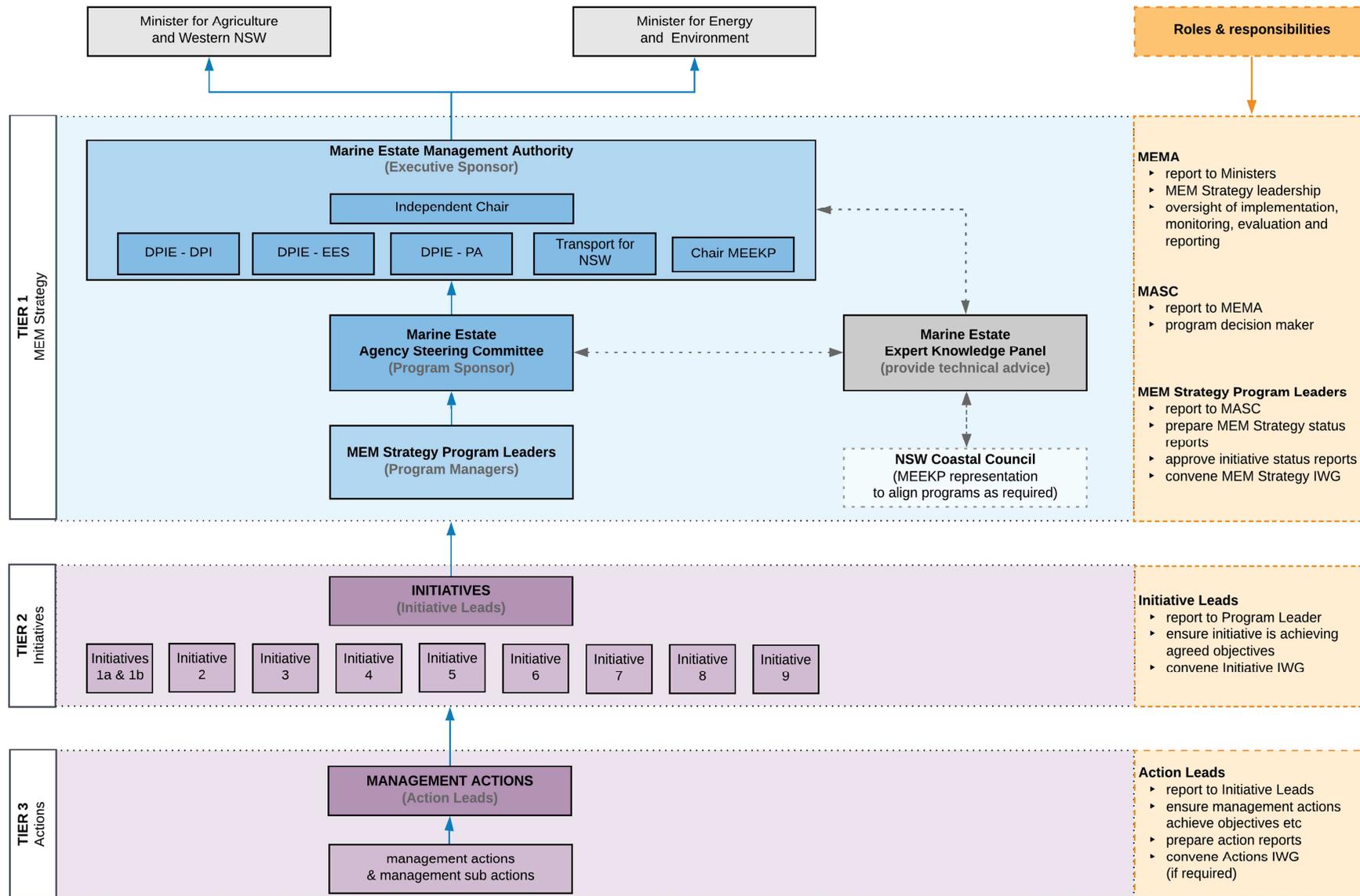
Many of the actions in the Strategy are also relevant to the coastal zone. They can be delivered through Coastal Management Programs (CMPs), or they complement their outputs. A CMP guides management of the coastal zone in a local government area. It identifies coastal management issues, the actions required to address these issues, and how and when those actions will be implemented.

This means that it is important for staff working on Strategy actions and coastal council programs to collaborate with each other.

For example, Initiative 1 of the Strategy includes actions to improve water quality. When councils develop a CMP for a coastal environment area, they also need to give effect to management objectives that include maintaining and improving water quality and estuary health.

The *Coastal Management Act 2016* (CM Act) establishes the coastal management framework and overarching objects for coastal management in NSW. It directly supports the objects of the *Marine Estate Management Act 2014*, as the coastal zone forms part of the marine estate.

Table 2. Marine Estate Management Strategy governance framework



Management initiatives

The section describes the actions under each of the nine initiatives in the Strategy, who is responsible for implementing them, and when they need to do it.

Collaboration is key: the lead agencies, organisations, research institutions and key stakeholders involved in delivering actions are listed in Table 3.

Table 3. Lead agencies and partners responsible for implementing the Marine Estate Management Strategy.

Abbreviation	Full name	Abbreviation	Full name
ALC	Aboriginal Land Councils	NGOs	Non-government organisations
AMSA	Australian Maritime Safety Authority	NPWS	National Parks and Wildlife Services
COM GOV	Commonwealth Government	NRAR	Natural Resource Access Regulator
Community	Community	NSWFA	NSW Farmers' Association
DNSW	Destination NSW	NSWSC	NSW Shellfish Committee
DPI	Department of Primary Industries	OW	Oceanwatch
DPI-F	Department of Primary Industries – Fisheries	OEH	Office of Environment and Heritage*
DPIE–EES	Department of Planning, Industry & Environment – Environment, Energy & Science	OLG	Office of Local Government
DPI-HP (CL)	Department of Planning, Industry & Environment – Housing & Property (Crown Lands)	Private	Private land owners
DPIE-PA	Department of Planning, Industry & Environment – Planning & Assessment	RMS	Roads and Maritime Services
DPIE-W	Department of Planning, Industry & Environment – Water	RDA	Regional Development Australia
EPA	Environment Protection Authority	SIMS	Sydney Institute of Marine Science
GSC	Greater Sydney Commission	SNSW	Stormwater NSW
Industry	Industry	SOS	<i>Saving Our Species</i> (DPIE – EES)
INSW	Infrastructure NSW	SW	Sydney Water
IPART	Independent Pricing & Regulatory Tribunal	TfNSW	Department of Transport
LGOV	Local government	TO	Traditional Owners
LLS	Local Land Services	UNI	Universities
MIA	Marine Industry Association	WNSW	Water NSW

* The agency previously known as the Office of Environment & Heritage is now established as Environment, Energy & Science under the Department of Planning, Industry & Environment (DPIE-EES).

Initiative 1

Improving water quality and reducing litter



Photo: 1. Ballina NSW, flood waters at the entrance of the Richmond River. Photo: Colin Cooksey ©

The problem/opportunity

Water pollution and litter are together a significant contributor to poor water quality in the marine estate. Water quality affects the health of habitats and wildlife as well as the vast social, cultural and economic benefits provided by the marine estate.

Steps to achieving our long-term outcomes

Initiative 1 aims to improve water quality and reduce the amount of litter in our waterways. This can take some time as complex natural systems like rivers, estuaries and coastal waters respond slowly to active management; it can take more than ten years for water quality and ecological health to improve. In Stage 1, we will start with organising roles and responsibilities around water quality management and on-ground actions as we build our capacity to achieve our longer-term outcomes. Funding for on-ground works—such as riverbank, wetland or oyster reef restoration—is allocated to priority sites that have been identified in collaboration between Local Land Services, local government and marine estate agencies.

A targeted campaign will seek to change the behaviour of those responsible for marine litter and raise awareness in the broader community of the impact of litter in the marine estate. We will work with local councils to identify the sources of pollutants to their waterways and best practice responses. We will work with agricultural landholders, urban planners and developers to improve awareness of best practice to reduce the impacts of their activities on water quality.

In time, we expect to see more ‘best practice’ in water quality and litter management as key industries and the community improve their compliance with regulations. We are also expecting more consistency and better coordination between the government agencies that can influence water quality.

Initiative objective

To improve water quality and reduce marine litter for the benefit of marine habitats, wildlife and the community.

Initiative long-term outcomes

- Improved water quality and waterway health in the marine estate in alignment with community values.
- Reduction in input of litter to the marine estate in alignment with community values.
- Maintained or improved biodiversity and marine habitats.

Management actions and sub-actions

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 1.1	Stage 1 & 2	Improve water quality in agricultural and urban catchments using a pilot-based implementation of the <i>Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land use Planning Decisions</i> .				<p><i>Risk-based framework</i> pilot programs.</p> <p>At the end of Stage 1, local councils in the pilot areas will have applied the <i>Risk-based Framework</i>, by:</p> <ul style="list-style-type: none"> • consulting with their local communities and determining how they value and use their waterways • identifying local water quality objectives needed to achieve the community's environmental values and uses • embedding the community's environmental values and uses into their Local Strategic Planning Statements, and checking their local planning instruments to strengthen provisions on achieving the values and uses • assessing the impacts of stormwater discharges on their waterways and investigating cost-effective water sensitive
1.1.1	Apply the <i>Risk-based Framework</i> in Narrabeen, Hawkesbury-Nepean, South Creek and Lake Illawarra as urban diffuse source water pollution pilots.	DPIE-EES	LGOV INSW EPA SW GSC DPIE-PA	Sydney, Illawarra		
1.1.2	Apply the <i>Risk-based Framework</i> in the Richmond River as an agricultural diffuse source water pollution pilot.	DPI	LGOV DPIE-EES	Northern region		

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
						<ul style="list-style-type: none"> urban design options to mitigate the impacts assessing optimal stormwater infrastructure solutions to help deliver healthy waterways, including protecting aquatic biodiversity investigating the options for and feasibility of applying the Risk-based Framework in a rural setting.
Action 1.2	Stage 1 & 2	<p>Improve the management of diffuse source water pollution by:</p> <ul style="list-style-type: none"> clarifying NSW Government and local government roles and responsibilities building capacity to implement the Risk-based Framework using mechanisms within existing policy, planning and legislative frameworks to improve outcomes improve minimum requirements for industry standards and ensure compliance with regulations and best practice through social research, education campaigns and compliance programs. 				<p>At the end of Stage 1, agencies will have investigated options to improve the management of diffuse water pollution. We will have:</p> <ul style="list-style-type: none"> clarified governance arrangements for managing diffuse source water pollution, including arrangements at the state, regional and local government scale reviewed the NSW Diffuse Source Water Pollution Strategy, and recommended to government the changes needed to effectively manage diffuse source water pollution reviewed the NSW Water Quality and River Flow Objectives for each catchment in coastal NSW to reflect contemporary values and expectations and, where appropriate, updated these objectives in consultation with the community strengthened provisions in the NSW planning system for achieving the NSW Water Quality and River Flow Objectives, through the Risk-based Framework consulted with key stakeholders, including the stormwater industry, water utilities,
1.2.1	Clarify, and if necessary, make recommendations regarding local and state government roles and responsibilities for NSW water quality management.		DPIE-EES	DPI DPIE-PA EPA SW OLG GSC TfNSW WNSW LLS DPIE-W	Statewide	
1.2.2	Implement findings from the review of the NSW Diffuse Source Water Pollution Strategy where appropriate.		DPIE-EES	DPI DPIE-PA EPA SW	Statewide	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
				OLG GSC TfNSW WNSW LLS DPIE-W		<p>peak urban development groups and local councils on their information needs to apply the Risk-based Framework and improve stormwater management in NSW</p> <ul style="list-style-type: none"> delivered key guidance material, tools and foundational datasets to support stakeholders and the community to implement the Risk-based Framework investigated options to address the complex approvals process for coastal floodplain drainage works and prepared proposed changes to legislative framework filled knowledge gaps and identified constraints and opportunities of coastal floodplain land use, infrastructure and resilience to future risks in priority catchments investigated opportunities for improved coastal vegetation community outcomes using private land conservation measures increased the capacity, knowledge and minimum standards of the construction industry, including local councils, to achieve improved water quality outcomes worked to better understand industry barriers to implementing improved land-use management practices and developed strategies and tools to address these barriers.
1.2.3		Strengthen provisions for improving the management of water quality in the NSW planning system by applying the <i>Risk-based Framework</i> .	DPIE-EES	DPIE-PA DPI WNSW LGOV GSC	Statewide	
1.2.4		Build capacity for stakeholders to implement the <i>Risk-based Framework</i> , through delivery of guidance materials, industry forums and an online portal.	DPIE-EES	LGOV DPI DPIE-PA EPA SW OLG GSC TfNSW WNSW LLS DPIE-W	Statewide	
1.2.5		Review NSW Water Quality and River Flow Objectives for each catchment in coastal NSW to reflect contemporary values and expectations and, where appropriate, update these objectives in consultation with the community to underpin the application of the <i>Risk-based Framework</i> .	DPIE-EES	LGOV LALC LLS EPA WNSW DPIE-W DPI	Statewide	
1.2.6		Establish a high-level government forum including representatives from all agencies with responsibility for water quality management to initiate implementation of these water quality	DPIE-EES	DPI DPIE-PA EPA SW OLG	Statewide	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
		actions.		GSC TfNSW WNSW LLS DPIE-W		
1.2.7		Improve floodplain infrastructure management by activating the drainage management plan provisions in the <i>Water Management Act 2000</i> (WMA) and resourcing plan development and compliance.	DPIE-W	DPI LGOV DPIE-EES	Statewide, but northern region focus in Stage 1	
1.2.8		Prioritise floodplain infrastructure management through floodplain audits.	DPI-F	LGOV. DPIE-EES DPIE-W	Tweed, Richmond, Clarence, Macleay, Hastings, Manning & Shoalhaven catchments	
1.2.9		Alignment, where possible, of policies and on-ground delivery opportunities for: aquatic and terrestrial development offset; and Private Land Conservation to ensure efficient and effective delivery and management that maximises ecologically meaningful outcomes.	DPI-F	DPIE-EES LLS Private	Statewide, but northern region focus in Stage 1	
1.2.10		Deliver education and technical training programs aimed at local councils, developers, Local Land Services, builders and contractors on water quality issues in the NSW marine estate.	DPI-F	DPIE-EES LGOV	Statewide	
1.2.11		Conduct social research into behaviour around what drives different agricultural industry groups	DPI Ag	LLS UNI	Northern region focused	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
		and communities to adopt change and how to influence the adoption of agricultural best-management practice for priority industries.		NSWFA Industry	in Stage 1. Blueberry, greenhouse vegetable and macadamia nut industry specific	
1.2.12		Develop and implement industry-focused education (behaviour change) tools that can address the impacts of land-use practices on the NSW marine estate.	DPI Ag	LLS NSWFA Industry	Northern region focused in Stage 1. Blueberry, greenhouse vegetable and macadamia nut industry specific	
1.2.13		Develop a set of approval conditions that improve the existing controls for erosion and sediment (ErSed) management at development sites during the construction phase.	DPIE-PA	DPI DPIE-EES LGOV Industry	Statewide	
Action 1.3	Stage 1 & 2	Facilitate and deliver on-ground activities that reduce diffuse source water pollution through investigation and provision of cost-effective funding programs and financial incentives.				
1.3.1		Oyster reef restoration through piloting techniques to install and increase areas of natural oyster reef that have historically been lost from many NSW estuaries. Research to increase our knowledge of the natural water filtering and habitat, biodiversity and productivity benefits provided by oyster reefs. Identify remnant oyster reefs and where reefs have been lost. Community engagement, involvement	DPI	Industry UNI NGOs	Port Stephens for works. Statewide for planning	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
		and planning for future restoration projects to prepare for the expansion of the on-ground works program in Stage 2.				<ul style="list-style-type: none"> • capacity building programs and education campaigns that help land managers reduce their impacts on water quality • research and monitoring programs for innovative new techniques in oyster reef restoration. • establish a research program that addresses knowledge gaps in nutrient use within intensive agriculture • better understand movement of nutrient and sediment within and from intensive agriculture by establishing a monitoring program.
1.3.2		Riparian vegetation improvements by planting native trees, shrubs and ground covers and fencing out stock from waterways. This will provide increased natural filtering of catchment-sourced pollutants, and it will reduce bank erosion. Improved riparian vegetation also provides numerous biodiversity benefits.	LLS	DPIE-EES LGOV DPI DPIE-W Private	Richmond, Manning, Karuah, Lake Illawarra, Shoalhaven, Minnamurra, Crooked River, Tuross, Tilba, Wagong, Meringo, Moruya, Tomaga, Wapeng, Wallaga, Pambula, Merimbula, Lake Curalo catchments	
1.3.3		Achieve improved agricultural practices in the blueberry, greenhouse vegetable and macadamia nut industries through activities that involve research and improve fertiliser use, water quality runoff, industry knowledge and barriers to implementation. Use demonstration farms to showcase the implementation of improved practices and their benefits. Provide assistance to industry to implement changes.	DPI	LLS Private Industry	Northern region focused in Stage 1. Blueberry, greenhouse vegetable and macadamia nut industry	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
1.3.4		Bank protection works to reduce sediment input into estuaries from eroding river banks. Where possible, innovative techniques using environmentally sensitive protection measures will be implemented.	LLS	DPI LGOV DPIE-W TfNSW	Richmond, Manning, Karuah, Shoalhaven, Wagonga, Tomaga, Wapengo. Bega, Nelsons, Pambula catchments	
1.3.5		Coastal wetland rehabilitation to reduce the risks of acid sulphate soil exposure and deoxygenation (blackwater) events in estuaries, and provide numerous habitat, biodiversity and productivity benefits. Achieved in priority areas by providing mechanisms for land-use change that facilitate reconnection to tidal flows or increased water retention.	DPI	LLS DPIE-EES UNI NPWS LGOV Private	Northern Region focus in Stage 1	
1.3.6		Road and track improvements, such as road surface sealing or stormwater runoff controls, to reduce sediment input into waterways from unsealed roads.	LLS	LGOV DPIE-W DPIE-EES NPWS Private	Richmond, Manning, Karuah, St Georges, Lake Conjola, Burill, Wagonga, Wapengo, Wallaga, Bermagui, Nelsons, Merimbula catchments	
Action	Stage 1	Implement a targeted marine litter campaign and establish a Marine Litter Working				At the end of Stage 1, we will deliver:

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
1.4		Group.				<ul style="list-style-type: none"> research that has identified marine litter priorities and informed the development of marine litter campaigns that raise awareness of the impact of litter on the marine estate, and change behaviours a targeted marine litter campaign across NSW, supported by targeted campaigns in local litter hotspots. Campaign materials are publicly available to support community and local government action research and information on the effects of marine debris, to inform the development of priority actions for reducing marine litter.
1.4.1		Deliver a targeted marine litter campaign.		EPA	Statewide	
1.4.2		Establish a Marine Litter Working Group composed of agency representatives and two academic experts to oversee research, monitoring, analysis and coordination of litter actions.		DPIE-EES	Statewide	
Action 1.5	Stage 1	Develop monitoring, reporting and performance indicators for water quality actions, and incorporate them and key knowledge gaps. This action is integrated into the Monitoring Program into the Monitoring Program.				At the end of Stage 1 we will have: <ul style="list-style-type: none"> developed indicators for monitoring water quality and ecosystem health commenced research and monitoring of water quality and ecosystem health in estuaries and focus catchments commenced reporting on water quality and estuary health results is occurring using a report card system.
1.5.1		Monitor and report on water quality and ecosystem health in estuaries and relevant catchments.	DPIE-EES	DPIE-EES DPI LGOV WNSW	Statewide	

Case study

A MULTI-PRONGED APPROACH TO IMPROVING WATERWAY HEALTH IN THE MIDCOAST COUNCIL LOCAL GOVERNMENT AREA

THE SITE

Locations in the MidCoast Council (Council) local government area including the Great Lakes (Myall, Smiths and Wallis Lakes) and the Manning River.

THE PROJECT

Over the last decade the MidCoast Council's water quality projects have been developed in partnership with State Government agencies, industry and the local community. The projects have used multiple approaches to address threats to water quality from urban and rural landscapes.

In urban settings, Council has implemented a risk-based approach to improving water quality. In the Great Lakes area, Council developed a Water Sensitive Design (WSD) Development Control Plan (DCP), which mandates water quality targets for new developments and re-development projects. Supporting tools and resources have also been developed, including design guidelines, example site plans, and fact sheets. Council has also constructed wetlands and raingardens to filter stormwater runoff and improve the quality of stormwater flowing into waterways.

In rural areas, Council has acquired more than 1,500 hectares of wetland for conservation and rehabilitation to reduce acid sulphate soil impacts and the risk of de-oxygenated 'blackwater' events, which impact water quality. Council also works to stabilise priority riverbanks to reduce erosion and sediment input. Council works with State government agencies to provide water quality report cards to inform the community on waterway health outcomes. These show improvements in water quality across a range of indicators over the last decade.

This case study provides an example of the sorts of improvements to water quality that can be expected by implementing actions in Initiative 1, as these aim to replicate this diverse and effective approach to addressing threats to water quality. The *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land Use Planning Decisions*, developed by the OEH and the EPA, is modelled on the approach taken in the Great Lakes region. Initiative 1 see the *Risk-based Framework* expanded to other parts of NSW, and its uptake will be supported by council capacity building activities, industry forums and resources such as practice notes.

Initiative 1 also provides increased investment in strategic on-ground works in the MidCoast Council local government area to reduce erosion, improve coastal wetlands and provide natural riparian vegetation buffers in prioritised areas extending the benefits initiated by Council. The on-ground works component of Initiative 1 will also be applied in other local government areas.

THE OUTCOMES

Based on the outcomes of this case study, we can expect to see the following benefits from the implementation of the *Risk-based Framework* and other initiative 1 actions:

- Water quality report cards show improvements in water quality across a range of indicators in local government areas that have adopted the *Risk-based Framework*.
- At monitoring sites near urban areas, waterway health is improved or maintained.
- Improved local planning instruments resulting in high quality WSD plans and designs in development applications and improved water quality outcomes.
- Improved land-use practices and natural resource management contributes to improved water quality from rural sources.

DELIVERED BY

OEH with support from MidCoast Council.

RELATED ACTIONS

Relates to sub-actions 1.1.1, 1.1.2, 1.2.3, 1.2.4, 1.2.5, 1.2.8, 1.3.2, 1.3.4 and 1.3.5.



Photo: 2. Rain garden. Photo: MidCoast Council.



Photo: 3. Constructed wetland. Photo MidCoast Council media release 2018.



Photo: 4. Big Swamp wetland rehabilitation, high tide Photo WRL / Imagecatcher

Initiative 2

Delivering healthy coastal habitats with sustainable use and development

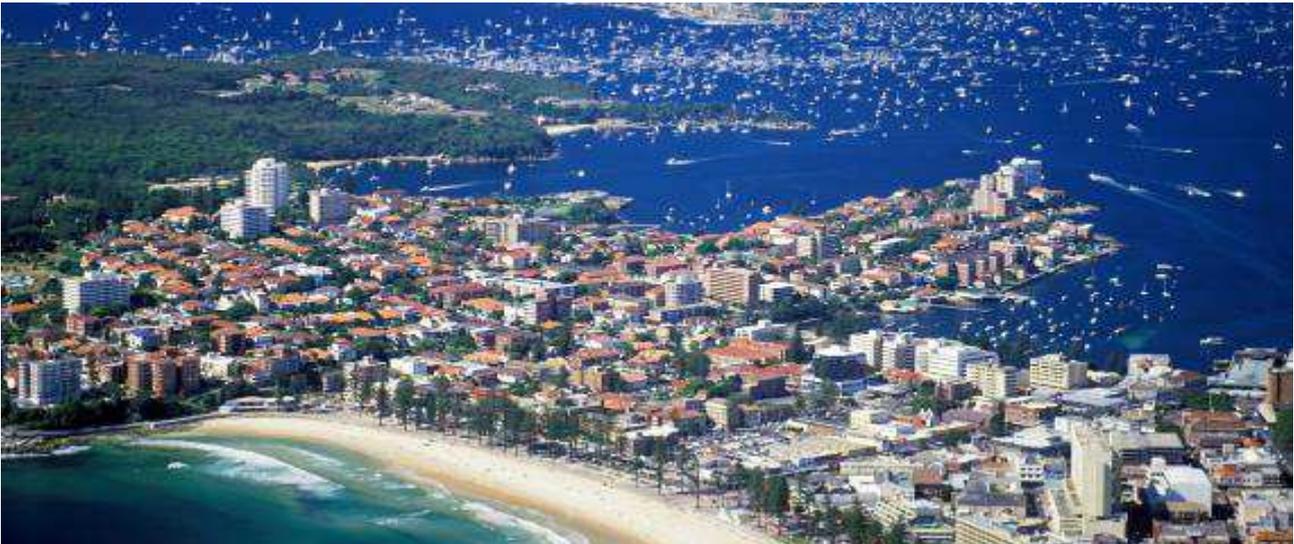


Photo: 5. Sydney aerial, coastal development. Photo: iStock.com/JohnCarnemolla ©

The problem/opportunity

Foreshore development, land use, and waterway infrastructure provide important social and economic benefits for NSW. If they are not managed and planned for appropriately, they can detract from these benefits and impact on marine estate habitats and species.

Steps to achieving our long-term outcomes

Initiative 2 coordinates the management of coastal habitats. To achieve this, we will:

- coordinate investment in established and innovative on-ground environmental activities and infrastructure management
- improve coordination across agencies to effectively manage coastal habitats
- increase stakeholder capacity and knowledge
- increase the uptake of best practice.

In the short term, we will work with agencies, management authorities and the community to improve their understanding of the threats and risks to sustainable coastal management in estuaries. We will also aim for better coordinated management, policy and approval frameworks.

In the intermediate term, we aim to see improved consistency, coordination and integration among responsible agencies so these factors are embedded in their routine processes. The result should be faster assessment and processing times as well as more certainty for stakeholders completing works in the coastal zone.

Ultimately, we are aiming for better coordination of management of coastal habitats and species in the marine estate and in alignment with community values. This includes better coordination of investment planning and infrastructure management.

Initiative objective

To protect coastal and marine habitats and associated species, and enhance the health of the marine estate by improving the design, quality and ongoing management of foreshore development, use and waterway infrastructure.

Initiative long-term outcomes

- Improved design and management of foreshore and coastal land use and development, balancing social and economic benefits of development with enhanced coastal and marine habitats.
- Maintained or improved biodiversity and marine habitats.

Management actions and sub-actions

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 2.1	Stage 1 & 2	Assess and manage cumulative and legacy impacts for estuary entrance modification and dredging.				At the end of Stage 1, we will have delivered: <ul style="list-style-type: none"> • an audit of commercial dredging activities undertaken on Crown land within estuaries and on ocean beaches • standard engineering drawings and work method statements for practical design features that can be incorporated into maintenance and upgrade works at existing training walls to maximise aquatic habitat and recreational values
2.1.1		Strategically dredging trained entrances to minimise the impact of interruptions to sand movement caused by entrance infrastructure, and deploying sand at nearby coastal erosion hot spots and sediment-deprived locations within estuaries.	DPIE-HP (CL)	DPIE-EES DPI-F TfNSW	Statewide	
2.1.2		Investigate, develop and foster the implementation of practical design features that can be incorporated into maintenance and upgrade works at existing training walls during maximise fish habitat and recreational values.	DPI-F	TfNSW DPIE-HP (CL)	Statewide	
2.1.3		Auditing commercial dredging in estuaries.	DPIE-HP (CL)	DPI-F	Statewide	
Action 2.2	Stage 1 & 2	Assess and manage cumulative and legacy impacts on foreshore development and land use change in the coastal zone.				<ul style="list-style-type: none"> • an update to the Coastal Design Guidelines for NSW (2003) to illustrate how an urban design approach can inform development
2.2.1		Reviewing and updating existing coastal design	DPIE-PA	DPIE-	Statewide	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
		guidelines to promote best-practice designs in coastal urban environments.		EES NRAR DPIE-W DPI-F	(coastal)	designs and layouts that are more sensitive to the unique natural and urban characteristics of coastal places in NSW, and to guide decision-making about legacy infrastructure in coastal areas.
2.2.2		Implementing policy changes to enable adequate assessment of, and response to, the impact of existing infrastructure that modifies freshwater flows or drains wetlands when rezoning or when land-use change is considered to remediate the legacy impacts of older infrastructure.	DPIE-PA	DPI DPIE-W DPIE- EES	Statewide (coastal)	
Action 2.3	Stage 1 & 2	Develop and implement a statewide policy for the management of coastal Crown lands (including submerged lands) in collaboration with local government Coastal Management Programs in priority areas.				<p>At the end of Stage 1, we will have delivered:</p> <ul style="list-style-type: none"> a statewide policy for the management of coastal Crown lands (including submerged lands) eight estuary-wide foreshore management strategies that reduce red tape for proposals consistent with the strategies two estuary-wide intertidal marine vegetation management strategies to improve management of the threats and risks that are: cumulative, take some time to become evident, and are remote from the activity three bank management strategies that reduce red tape for proposals and prioritise environmentally friendly approaches decisions made in accordance with the Coastal Management Program and planning framework to improved coordination in assessment and compliance
2.3.1		Develop estuary-wide strategies that reduce red tape and inform the assessment of foreshore structures strategies for private works spanning the intertidal foreshore (such as pontoons and boat ramps).	DPI-F	DPIE-W DPIE-HP (CL) TfNSW LGOV DPIE- EES	Richmond River, Clarence River, Hastings River, Macleay River	
2.3.2		Develop marine vegetation management strategies that maximise resilience, accommodate sea level rise (see Initiative 3), address key threats (clearing and drainage, cattle grazing, four-wheel drives on saltmarsh), facilitate rehabilitation opportunities (see Initiative 1), and reduce red tape for low impact works (e.g. mangrove trimming for safety traffic sight-lines).	DPI-F	DPIE- EES	Richmond River, Tweed River	
2.3.3		Investigate estuary-wide bank protection options to inform the assessment of bank protection work proposals (including beach nourishment and grooming) and facilitate rehabilitation opportunities (see Initiative 1).	DPI-F	DPIE-W DPIE-HP (CL) DPIE- EES LLS	North Coast	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
				LGOV		
Action 2.4	Stage 1 & 2	Re-establish resilient coastal floodplains and connectivity within coastal catchments.				<ul style="list-style-type: none"> a collaborative, multi-agency approach to coastal and floodplain management that provides for improved economic, social and environmental resilience across these landscapes fish passage works planned or completed at priority barriers in coastal rivers
2.4.1		Better aligning existing government policy and resourcing for coastal and floodplain habitat and drainage management.	DPI-F	DPIE-W DPIE-PA DPIE-HP (CL) DPIE-EES NRAR	Richmond	
2.4.2		Providing fish passage at priority weir and road crossing barrier sites in coastal catchments.	DPI-F	LGOV WNSW	North Coast	
Action 2.5	Stage 1 & 2	Undertake research and monitoring to address key knowledge gaps, such as techniques to minimise the impact of trained estuary entrances and methods for determining marine vegetation resilience, and assess the effectiveness of the management actions within this initiative. This action will be integrated into the Monitoring Program.				<ul style="list-style-type: none"> statewide assessment of stability and fragmentation of estuarine vegetation over time new methods for assessing condition of vegetation using remote sensing maps of pressures on estuarine habitats.
2.5.1		Estuarine macrophyte mapping to investigate area change and fragmentation.	DPI-F		Statewide	
2.5.2		Investigate remote sensing techniques for assessing condition and species composition of mangroves and saltmarshes.	DPI-F		Port Stephens, Hunter, North Coast	
2.5.3		Mapping of estuarine disturbances related to macrophytes.	DPI-F		Sydney & Central Coast	

Case study

MARINE VEGETATION STRATEGIES

THE SITE

Intertidal vegetation systems (mangroves and saltmarshes) in the Tweed and Richmond estuaries.

THE PROJECT

Direct impacts on intertidal vegetation systems are generally managed via existing controls. However, intertidal vegetation systems continue to be at risk from:

- impacts that can take some time to become evident
- impacts from activities away from the affected area
- cumulative impacts generally.

DPI Fisheries is developing intertidal marine vegetation strategies for estuaries that bring into perspective these issues and risks, while reducing red tape for low-risk works. The strategies foster agreed, ecologically significant, relevant and cost-effective rehabilitation works to improve system resilience.

Intertidal marine vegetation strategies will be developed for two estuaries: the Richmond River and the Tweed River. Site descriptors, values, threats and interests will be captured for marine vegetation units within each estuary. Multiple criteria will be used to categorise values for, and threats to, intertidal marine vegetation systems.

Some activities have impacts proportional to, or lower than, their benefits to the community. Examples include safety zones for existing airports and power lines, or minor works trimming mangroves adjacent to existing pathways.

Activities that threaten or diminish values, yet have few beneficiaries, will require stringent evaluation. This is especially when the impacts accrue to other stakeholders. To evaluate trade-offs, best available evidence will be used, and the collated information will support transparent decision making.

While the intertidal marine vegetation strategies can operate as stand-alone decision support tools, they will also contribute to council Coastal Management Programs and planning systems.

THE OUTCOMES

Marine vegetation strategies are a key step towards a more holistic management of our intertidal vegetation systems. They focus on increasing the resilience of these systems to maximise and maintain the values these systems provide to the community.

DELIVERED BY

DPI Fisheries with support from relevant local councils.

RELATED ACTIONS

Relates to sub-actions: 2.3.1, 2.3.2, 2.3.3 and 3.1.



Photo: 6. Multiple stresses to this intertidal system limit recruitment of juvenile mangroves while insect attack has resulted in dieback. This system is also vulnerable to ‘coastal squeeze’ with further sea level rise. Photo: Patrick Dwyer.



Photo: 7. Mosaic of health saltmarsh and distant mangroves and Casuarina. Some saltmarsh systems provide fisheries values up to \$25,000 / ha / year (Taylor et al. 2018¹). Photo: Patrick Dwyer.

¹ Taylor, M.D. Gaston, T.F., Raoult, V. 2018. The economic value of fisheries harvest supported by saltmarsh and mangrove productivity in two Australian estuaries. *Ecological Indicators* 84: 701–709

Initiative 3

Planning for climate change



Photo: 8. Coffs Harbour marina breakwall. Photo: iStock.com/Sunnypics-oz ©

The problem/opportunity

The effects of climate change are expected to increase over time. What is not always known is the likelihood and consequence of these effects. As a result, the effects of climate change are often not well planned for.

Steps to achieving our long-term outcomes

Initiative 3 aims to incorporate climate change impacts into adaptation planning, strategies and decision making.

In the short-term, we will monitor and report on the ongoing and likely effects of climate change in the NSW marine estate. The aim is to fill knowledge gaps in climate change impacts.

In the intermediate term, we aim to improve our knowledge of climate change impacts as well as increase the capacity of coastal and marine managers and communities to anticipate climatic impacts and provide improved access to new knowledge.

In the long term, our actions are designed to help us understand, adapt and increase resilience to help mitigate the impacts of climate change in the NSW marine estate.

Initiative objective

Understand, adapt and increase resilience, to help mitigate the impacts of climate change on the NSW marine estate.

Initiative long-term outcomes

Adaptation planning, strategies and decision making across the marine estate incorporates the likely future impacts of climate change.

Management actions and sub-actions

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we deliver
Action 3.1	Stage 1 & 2	Enhance mapping of estuarine communities (such as saltmarsh and mangroves) to identify those communities most at threat from sea level rise expected under climate change scenarios and use this information to model areas of land suitable for retreat and those that should be prioritised for protection. Apply this information in decision making.				<ul style="list-style-type: none"> maps indicating the vulnerability of tidal wetlands to sea level rise method for prioritising sites for potential future protection
3.1.1	Map the distribution and structure of mangroves and saltmarsh and adjacent foreshore structures in areas vulnerable to sea level rise.	DPI	DPIE-EES	Statewide		
Action 3.2	Stage 2	Provide support to coastal and marine managers to facilitate consistent application of the NSW and ACT Regional Climate Modelling (NARClIM) projections in marine management.				
Action 3.3	Stage 2	Build the knowledge and capacity of coastal and marine managers and the communities to increase resilience to climate change in the marine estate by facilitating strategic adaptation planning and management.				
Action 3.4	Stage 2	Investigate the impacts of climate change on Aboriginal cultural heritage values in the marine estate and implement strategies to reduce or adapt to this risk.				
Action 3.5	Stage 1 & 2	Research and monitor the effects of climate change on the marine estate to fill knowledge gaps and inform future management actions, focusing on marine biodiversity and coastal communities. This action will be integrated into the Marine Integrated Monitoring Program.				<ul style="list-style-type: none"> research and monitoring programs to fill knowledge gaps and assess the condition of key habitats within the marine estate

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we deliver
3.5.1		Monitoring of priority environmental assets at most risk from climate change stressors.	DPI	DPIE-EES	Statewide	<ul style="list-style-type: none"> increased capacity to identify signals of climate-driven species redistributions.
3.5.2		Citizen Science – Redmap, which uses the resources of citizen scientists to spot, log and map marine species that are uncommon along particular parts of our coast and may be indicative of climate driven shifts in their distribution.	DPI		Statewide	

Case study

STATEWIDE MONITORING OF SUBTIDAL MARINE HABITATS IN THE NSW MARINE ESTATE

THE PROJECT

Climate change is a priority threat to many ecological, economic, social and cultural values of the NSW marine estate. Rocky reef habitats have already experienced climate-related declines in key habitats, and this is threatening biodiversity and other ecosystem goods and services. There is considerable uncertainty in the rate and scale of future impacts: this project aims to monitor the resilience and condition of rocky reefs in the NSW marine estate to better inform management and conservation strategies.

THE OUTCOMES

This project will monitor the resilience and condition of rocky reefs in the NSW marine estate to detect impacts of climate change and inform management and conservation strategies. Monitoring will be combined with experimentation to determine drivers of change. The project allows marine estate management agencies to understand and predict climate mediated shifts in subtidal communities along the NSW coast and will fill knowledge gaps surrounding the risks to these habitats.

DELIVERED BY: DPI Fisheries Research Branch

RELATED ACTIONS

Relates to Action 3.5.1.



Photo: 9. Biodiverse Rocky Reef. Photo: Andrew Green.

Initiative 4

Protecting the Aboriginal cultural values of the marine estate



Photo: 10. Five Islands. Photo: John Spencer, NSW Department of Planning, Industry & Environment – Environment, Energy & Science ©

The problem/opportunity

There are high-risk threats that cumulatively affect Aboriginal cultural heritage associated with Sea Country. There are also significant knowledge gaps relating to cultural values. Aboriginal people and their cultural values are not yet appropriately represented or engaged in management of the marine estate.

Steps to achieving our long-term outcomes

Initiative 4 aims to increase the broader community's understanding of Aboriginal Sea Country values. It also aims to increase the economic opportunities and employment for Aboriginal people, as well as increase their ownership and active involvement in managing the marine estate.

The Aboriginal community is becoming more involved in marine estate natural resource management, tourism and the aquaculture and fishing sectors. Five Aboriginal staff are employed in DPI Fisheries, which will expedite many of the actions in Initiative 4, particularly in relation to research and monitoring programs and documentation of cultural values.

Through this initiative, we will see increased opportunities for Local Aboriginal Land Councils and other Aboriginal organisations in securing contracts and employment in the marine sector.

Initiative objective

Work with Aboriginal communities in the management of Sea Country to reduce threats and risks to Aboriginal cultural heritage.

Initiative long-term outcomes

- Improved Aboriginal satisfaction with Sea Country management.
- Aboriginal people derive greater economic benefit from the marine estate.
- The broader NSW community has a greater appreciation of the significance of Sea Country for Aboriginal people.

Management actions and sub-actions

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 4.1	Stage 1 & 2	Work with Aboriginal communities to evaluate current arrangements for Aboriginal involvement in Sea Country management and decision making, and establish and implement a framework to ensure the involvement of Aboriginal people is effective and appropriate.				<ul style="list-style-type: none"> • establishment of an effective Aboriginal engagement framework • employment opportunities for Aboriginal people within DPI
4.1.1	Establish a senior manager marine estate Aboriginal cultural position within DPI to lead activities under Initiative 4 in the Marine Estate Management Strategy.	DPI		Statewide		
4.1.2	Evaluate current arrangements for Aboriginal participation in marine estate management governance and planning.	DPI	DPIE-EES	Statewide		
4.1.3	Increase Aboriginal participation in marine estate	DPI	DPIE-EES	Statewide		

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
		management governance and planning.		TfNSW		
Action 4.2	Stage 2	Work with Aboriginal communities to identify the cultural values of Sea Country to improve the incorporation of values into decision making for the marine estate.				
Action 4.3	Stage 1 & 2	Increase Aboriginal participation in marine estate management, planning and monitoring through employment and training of Aboriginal people at a regional and local level.				<ul style="list-style-type: none"> capacity building, training and employment of Aboriginal people within community at a local and regional level
4.3.1	Conduct a Sea Country Ranger Program pilot on the South Coast that includes vessel training and qualifications, marine debris education and training, coastal weed identification, shorebird protection and Sea Country school education and cultural activities.	DPI	DPIE-EES TfNSW Local Aboriginal communities Local ALCs	Narooma and Jervis Bay regions		
4.3.2	Expand the pilot to the Central and Northern regions of NSW.	DPI	DPIE-EES TfNSW Local Aboriginal communities Local ALCs	Port Stephens Newcastle Byron Bay		
Action 4.4	Stage 1 & 2	Explore and assist Aboriginal people implement opportunities for economic development in the NSW marine estate and improved representation of Aboriginal cultural values in NSW marine parks.				<ul style="list-style-type: none"> support and facilitate the establishment of Aboriginal owned and operated businesses
4.4.1	Support Aboriginal cultural-tourism opportunities in southern NSW (pilot) via development of a business plan, lease of passenger vessel, training and marketing activities.	DPI	DPIE-EES	South Coast		
4.4.2	Expand the pilot to the Central and Northern regions of NSW.	DPI	DPIE-EES	Central and North Coast		

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 4.5	Stage 1 & 2	Integrate research and monitoring into the Monitoring Program to address key knowledge gaps and assess management effectiveness in reducing threats and risks to Aboriginal cultural heritage.				<ul style="list-style-type: none"> knowledge gaps identified and research and monitoring programs established to determine effectiveness of the Initiative.
4.5.1	Develop a research and monitoring program to address key knowledge gaps and assess management effectiveness.		DPI	DPIE-EES	Statewide	
4.5.2	Commence cultural research activities at the Buckenbowra fish trap site with Elders and community.		DPI	DPIE-EES Ulladulla ALC	Ulladulla	

Case study

ABORIGINAL VESSEL TRAINING AND LICENSING

THE SITE

Batemans Marine Park (Narooma) and Jervis Bay Marine Park (Huskisson).

THE PROJECT

The project delivers a vessel skills and qualifications training program for members of the South Coast Peoples.

In December 2018, a group of Aboriginal people from local south coast Aboriginal communities from Wollongong to Eden completed their training and mentoring in Huskisson to obtain recreational boat licences.

This was the first step to attaining their General Purpose Deckhand and then Coxswain certificates.

Of the 36 people who completed this initial training, 17 completed their General Purpose Deckhand qualifications at Huskisson in March 2019. Another 17 candidates will start General Purpose Deckhand training in Narooma in April 2020. A three-week Coxswains course is scheduled for November 2019. Three General Licence Training courses are scheduled for Newcastle, Port Stephens and Forster. The qualifications obtained by candidates have national recognition.

The training was documented in a short video to promote the success of the project and encourage participation from other Aboriginal communities along the NSW coast. It tells the story of the participants' aspirations to obtain skills and employment in fisheries, natural resource and tourism management sectors.

THE OUTCOMES

The project on the South Coast will be extended to other areas in NSW to broaden skills and build capacity for Aboriginal people to gain employment in marine industries.

DELIVERED BY

The training has been delivered by DPI marine park staff with assistance from DPI Fisheries, RMS, LLS and with the support of Narooma Marina Boat Hire and Huskisson Boat Hire. A fully Australian Maritime Safety Authority accredited Registered Training Organisation was contracted to deliver the General Purpose Deckhand training.

RELATED ACTIONS

Relates to Actions 4.3 and 4.4 and sub-action 4.4.1.



Photo: 11. General vessel training, Huskisson December 2018. Photo: Chris Sheedy.



Photo: 12. Recreational boat licence graduates Huskisson, December 2018. Photo: Chris Sheedy.

Initiative 5

Reducing impacts on threatened and protected species



Photo: 13. Green turtle. Photo: David Harasti, Department of Primary Industries ©

The problem/opportunity

Climate change and human activities on land and water are a cumulative threat to threatened and protected species of the marine estate.

Steps to achieving our long-term outcomes

In Initiative 5, we will reduce the cumulative threats to threatened and protected species. This will allow the continued social, cultural and economic benefits the community derives from the biodiversity of the marine estate.

This is a complex issue that will take time to understand. In Stage 1 of the Strategy, we will work with our staff and other stakeholders to better organise our responses to marine wildlife incidents. This includes expanding the NPWS *Elements* database so it can capture information about marine wildlife incidents from outside NPWS.

We will also develop targeted education and compliance campaigns. The aim is to improve awareness of threatened and protected species and compliance with regulations.

Finally, this Initiative will explore new and emerging technologies to better understand threats from bycatch and interactions with threatened and protected species. It also seeks to modify gear use to ameliorate those threats.

Initiative objective

To understand and mitigate threats to threatened and protected species in NSW.

Initiative long-term outcomes

Improved or maintained conservation status and health of targeted threatened and protected species in the wild.

Management actions and sub-actions

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 5.1	Stage 1 & 2	Improve strategic planning and coordination for threatened and protected species programs across NSW to address priority threats.				<ul style="list-style-type: none"> statewide framework to facilitate collaboration developed
5.1.1		Develop and implement a statewide framework to inform and coordinate new and current on-ground marine wildlife initiatives to ensure delivery on MEMA priorities.	DPIE-EES	DPI-F TfNSW Rescue and rehabilitation organisations Specialist Veterinarians EPA LGOV	Statewide	<ul style="list-style-type: none"> MEMA priorities are embedded into new and existing marine wildlife programs DPIE-EES and partners have identified operational efficiencies and reduced duplication of efforts
Action 5.2	Stage 1	Strengthen partnerships for marine threatened and protected species conservation response to ensure effective wildlife management.				<ul style="list-style-type: none"> interagency working groups established or integration into other initiative working groups addressing specific threats and stressors to marine wildlife
5.2.1		Establish interagency working groups to improve operational and regulatory response to wildlife issues.	DPIE-EES	DPI-F TfNSW	Statewide	<ul style="list-style-type: none"> procedural tools for marine wildlife events have been developed and training delivered
5.2.2		Develop and implement procedural documents, tools and training to support a consistent operational response to marine wildlife events	DPIE-EES	DPI-F Rescue and rehabilitation	Statewide	<ul style="list-style-type: none"> marine wildlife necropsy program has been expanded and training delivered to vets in conducting necropsies

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
		among government and stakeholders.		organisations TAFE		<ul style="list-style-type: none"> protocols for responding to events affecting culturally significant species to Aboriginal people have been developed
5.2.3		Strengthen shared interagency capability and partnerships for large whale disentanglement.	DPIE-EES	DPI	Statewide	
5.2.4		Support the rehabilitation sector to respond to marine wildlife events.	DPIE-EES	Rescue and rehabilitation organisations	Statewide	
5.2.5		Support an expanded necropsy program to assess trends in threats to marine wildlife.	DPIE-EES	Veterinarians Rescue and rehabilitation organisations	Statewide	
5.2.6		Establish a process for Aboriginal knowledge holders to participate in marine wildlife events with culturally significant species.	DPIE-EES	DPI-F ALC Traditional Owners	Statewide	
Action 5.3	Stage 1	Improve awareness of threats to threatened and protected species and compliance with regulations to reduce impacts through education campaigns, social research (see Initiative 8) and increased compliance.				
5.3.1		Develop and deliver education campaigns to increase community awareness of marine wildlife issues.	DPIE-EES	DPI-F	Statewide	
5.3.2		Develop and deliver compliance campaigns to reduce impacts on marine wildlife.	DPIE-EES	Industry	Statewide	
Action 5.4	Stage 1	Improve reporting and data sharing on marine threatened and protected species to support evidence-based decision making, including linking and enhancing existing databases, raising awareness of reporting pathways, actively analysing and communicating data more regularly, and integrating research and data into the Monitoring Program.				<ul style="list-style-type: none"> <i>Elements</i>, the database which captures information on marine wildlife incidents, is upgraded so that external partners can input data into it reporting tools to share data with other partners developed
5.4.1		Expand the scope of, and access to, the NSW DPIE-EES <i>Elements</i> database, and link with other existing databases, to improve reporting on	DPIE-EES	DPI-F veterinarians Rescue and	Statewide	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
		marine wildlife events.		rehabilitation organisations		
5.4.2		Deliver and manage the expanded <i>Elements</i> database, including communicating reporting pathways, managing data sources and analysing and reporting on data to stakeholders.	DPIE-EES	DPI-F veterinarians Rescue and rehabilitation organisations	Statewide	
Action 5.5	Stage 1	Expand existing observer programs, including the use of new technologies, into the commercial fishing moderate and high risk fisheries to better understand the threats associated with bycatch and interactions with threatened and protected species.				<ul style="list-style-type: none"> • a ten-year strategic observer-based research plan that will include a risk-based prioritisation process based upon multicriteria decision analysis to determine observer priorities • observer-based survey of NSW commercial estuarine trap fisheries delivered • observer-based survey of commercial line fishing delivered • an industry-run workshop (already held) identified ways to reduce impacts on threatened and protected species through potential gear modifications to trial • gear modifications for reducing large whale entanglement are under trial in a pilot • trial electronic monitoring system on a small number of commercial fishing vessels and evaluate efficacy of electronic monitoring for assessing a number of fishery monitoring issues.
5.5.1		Prioritise moderate- and high-risk fisheries and fisheries with large data gaps identified in the TARA that are a threat to threatened and protected species (bycatch or other interactions), and determine appropriate observation methods specific to each fishery (considering timeframes, seasonality, resourcing, capacity, urgency).	DPI-F	Industry DPIE-EES	Statewide	
5.5.2		Implement appropriate observer program for the Ocean Trap and Line fishery to determine interactions with threatened and protected species.	DPI-F	Industry DPIE-EES	Statewide	
5.5.3		Implement appropriate observer program for the Estuary General fishery to determine the threats to fish assemblages (harvest and bycatch).	DPI-F	Industry DPIE-EES	Statewide	
5.5.4		Develop and implement management responses to threats to threatened and protected species and species assemblages identified through the observer program (e.g. conduct a pilot program to trial gear modifications and technologies to reduce interactions, entanglements or bycatch in fishing gear).	DPI-F	Industry DPIE-EES	Statewide	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 5.6	Stage 2	Understand and reduce impacts of threatened and protected species habitat modification through mapping of key habitat areas, embedding rehabilitation and conservation actions in planning processes, and collaborating with land owners and the community to protect species and habitats.				
Action 5.7	Stage 2	Undertake a research program to address key knowledge gaps associated with cumulative threats to threatened and protected species and the effectiveness of management interventions. This action is integrated into the Monitoring Program.				

Case study

A NEW DATA SHARING PLATFORM TO MANAGE WILDLIFE INTERACTIONS

THE PROJECT

Wildlife interactions can include strandings, disentanglements, and haul-outs. They are managed by NPWS and many other organisations, such as Taronga, ORRCA, Australian Seabird Rescue, DPI Fisheries, NSW water Police, Dolphin Marine Conservation Park, local government and Sea World.

There is currently no shared platform for the organisations to record real-time information about these interactions. NPWS staff can access *Elements*, a database that captures information about wildlife interactions and incidents. This means that partner organisations have to report through other mechanisms and data are limited.

Action 5.4 aims to upgrade *Elements* to allow external organisations to use it for wildlife incident reporting. This will allow for better data to feed into mitigation strategies.

THE OUTCOMES

- Improved reporting and data sharing on marine wildlife threats to support evidence-based decision making.
- Shared access to information.
- Better disease and real-time identification of trends or unusual mortality including disease outbreaks.
- Better collation of necropsy information to provide better identification of threats.
- Increased operational efficiency of responses to events.
- Improved response times and outcomes in wildlife events, including large whale disentanglement.

DELIVERED BY

NPWS in partnership with DPI, Noggin, veterinarians and rescue and rehabilitation groups.

RELATED ACTIONS

Relates to Action 5.4.

Active Marine Wildlife Events

Elements ID	Name	Commenced	Animal Type	Species	Marine Event Category	Marine Event Status	NPWS Branch	Incident Controller
MAR20182013	Unknown Seal Species Haul Out at Shelly Beach on 25/11/2018	25/11/2018 16:49:18	Seal \ Sea Lion	Unknown Seal Species	Haul Out	Open	Greater Sydney	Ben KHAN
MAR20182006	Unknown Seal Species Haul Out at Gerroa headland on 10/11/2018	10/11/2018 08:56:50	Seal \ Sea Lion	Unknown Seal Species	Haul Out	Open	South Coast	
MAR20182003	Humpback Whale Carcass at Bogopa Head, Eurobodalla Shire on 06/11/2018	06/11/2018 13:19:18	Whale \ Dolphin \ Dugong	Humpback Whale (Megaptera novaeangliae)	Carcass	Open	South Coast	Chris HOWARD
MAR20182002	Humpback Whale Event at sea at Between Black Head and Forster on 02/11/2018	02/11/2018 18:10:00	Whale \ Dolphin \ Dugong	Humpback Whale (Megaptera novaeangliae)	Event at sea	Monitor	Hunter Central Coast	Susan CROCETTI
MAR20181990	New Zealand Fur-seal Haul Out at Cabbage Tree Bay Point on 16/10/2018	16/10/2018 09:21:13	Seal \ Sea Lion	New Zealand Fur-seal (Arctocephalus)	Haul Out	Open	Greater Sydney	Peter BERGMAN

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Previous Marine Wildlife Events (Past 6 months)

Elements ID	Name	Commenced	Finished	Animal Type	Marine Event Category	NPWS Branch	Incident Controller	Marine Event Status
MAR20182012	Striped Dolphin Stranding at Circuit Beach, Lilli Pilli on 24/11/2018	24/11/2018 14:28:03	29/11/2018 15:03:59	Whale \ Dolphin \ Dugong	Stranding	South Coast	Chris KEYZER	Closed
MAR20182011	Elegant Seasnake Undetermined / Other at Saltwater Beach - Southern side of Saltwater Point on 19/11/2018	19/11/2018 15:00:00	19/11/2018 18:00:00	Sea snake	Undetermined / Other		David POWER	Closed
MAR20182010	Unknown Bottlenose Dolphin Species	19/11/2018 14:25:24	20/11/2018 09:24:13	Whale \ Dolphin \ Dugong	Undetermined / Other	North Coast	Andy FAY	Closed

Photo: 14. Elements Database interface

Initiative 6

Ensuring sustainable fishing and aquaculture



Photo: 15. Coffs Harbour commercial fishing fleet. Photo: Nicola Johnstone, Department of Primary Industries.

The problem/opportunity

Sustainable fishing and aquaculture need to be provided for, but they also need to be managed to reduce major threats to the environmental assets of the marine estate. This Initiative will support significant social and economic benefits for the people of NSW, as well as cultural benefits to Aboriginal people.

Steps to achieving our long-term outcomes

Initiative 6 aims to improve the ecological sustainability and economic viability of all types of fishing and seafood harvesting activities in the marine estate. By the end of the ten-year Strategy, we will have developed harvest strategies, environmental assessments of recreational fishing, revised recreational fishing rules, new marine aquaculture ventures, and fishing and seafood related education and marketing campaigns.

In the short term we will:

- improve understanding among agencies and commercial and recreational fishers of the impacts of fishing and aquaculture on the marine estate
- develop best-practice guidelines and rules to ensure ecologically sustainable practices
- enhance opportunities for sustainable commercial and recreational fishing, aquaculture and the values they provide to the community.

An intermediate-term aim is for fishers to improve their self-compliance with rules and regulations. The Strategy also aims for an improved understanding of the rules and regulations for marine pest and disease management.

Initiative objective

To ensure fishing and aquaculture is managed in a way that is consistent with ecologically sustainable use while providing for the health, heritage and social benefits of fishing and seafood consumption.

Initiative long-term outcomes

- Improved ecological sustainability, economic viability and community wellbeing of fishing and aquaculture in the marine estate

Management actions and sub-actions

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 6.1	Stage 1 & 2	Introduce harvest strategies and evaluate ecological risk in partnership with stakeholders and shareholders to address threats to fish assemblages from harvest and bycatch that result in reductions in abundance of species and trophic levels.				<ul style="list-style-type: none"> a new policy for the development and implementation of harvest strategies in NSW two pilot harvest strategies the use of decision-making tools to determine triggers and management responses tested link with 6.5 to deliver data acquisition to inform pilot harvest strategies
6.1.1	Develop NSW Government policy for the development and implementation of harvest strategies in NSW.	DPI-F	Industry	Statewide		
6.1.2	Identify implementation priorities and develop harvest strategies.	DPI-F	Industry	Statewide		
6.1.3	Apply decision-making tools (e.g. Fishpath) when determining triggers and appropriate management responses.	DPI-F	Industry	Statewide		
6.1.4	Link commercial, recreational and cultural data acquisition to decision-support tools to inform harvest strategies and update data periodically (link with 6.5).	DPI-F	Industry	Statewide		
Action 6.2	Stage 1 & 2	Conduct an environmental assessment of recreational fishing, periodically review current rules and implement management actions to improve fish stocks and to address threats associated with harvest, bycatch and illegal sale of fish.				<ul style="list-style-type: none"> environmental assessment of recreational fishing review of recreational fishing rules education program developed, linking with
6.2.1	Conduct an environmental assessment of	DPI-F	Industry	Statewide		

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
		recreational fishing.				the Marine Estate Education Strategy (Initiative 8) to reduce marine litter
6.2.2		Review recreational fishing rules.	DPI-F	Industry	Statewide	
6.2.3		Work with industry to develop measures to reduce interactions with threatened and protected species (e.g. code of conduct), online reporting of interactions (linking with Initiatives 5 and 8).	DPI-F	Industry	Statewide	
6.2.4		Work with industry to develop projects (education, tangler bins etc.) to reduce marine litter. Links with Initiative 1 (propose recreational fishing industry representative to sit on marine litter working group established under Initiative 1).	DPI-F	Industry	Statewide	
Action 6.3	Stage 1	Explore opportunities for new marine aquaculture ventures.				<ul style="list-style-type: none"> Marine Waters Sustainable Aquaculture Strategy applications for new marine-based aquaculture proposals reviewed and assessed
6.3.1		Develop Marine Waters Sustainable Aquaculture Strategy.	DPI-F	Industry	Statewide	
Action 6.4	Stage 1 & 2	Apply best practice guidelines for seagrass protection in the NSW Oyster Industry Sustainable Aquaculture Strategy.				<ul style="list-style-type: none"> application of best practice guidelines documented applications for oyster aquaculture areas reviewed and assessed promotion of environmentally sustainable culture infrastructure for use around seagrass beds
6.4.1		Apply the strategy to protect seagrass through any new application for an oyster aquaculture area.	DPI-F	Industry	Statewide	
6.4.2		Adopt Environmental Management System (EMS) at the estuary level to highlight best practice around seagrass beds.	OW LLS	DPI-F	Statewide	
6.4.3		Promotion of environmentally sustainable culture infrastructure for use around seagrass beds.	DPI-F	OW LLS NSWFA	Statewide	
Action 6.5	Stage 1 & 2	Integrate various commercial, recreational and cultural fishing data and new research into the Marine Integrated Monitoring Program to address key knowledge gaps associated with harvest and bycatch.				<ul style="list-style-type: none"> data and services to support 6.1 Harvest Strategies and the Marine Integrated Monitoring Program
6.5.1		Support 6.1 Harvest Strategies and Marine Integrated	DPI-F	Industry	Statewide	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
		Monitoring Program.		UNI		
Action 6.6	Stage 1 & 2	Enhance fisheries with targeted fish stocking and other activities to improve fishing opportunities where appropriate.				<ul style="list-style-type: none"> marine fish stocking programs fishery enhancements
6.6.1		Identify appropriate location and species for fish stocking – including required assessment prior to any stocking.	DPI-F	Industry	Statewide	
6.6.2		Identify appropriate location for fishery enhancement and type of infrastructure. Prioritise and implement.	DPI-F	Industry	Statewide	
Action 6.7	Stage 1 & 2	Partner with the fishing and aquaculture sectors to deliver information and training to fishers in NSW to improve self-compliance, sustainable fishing practices and, develop economic opportunities.				<ul style="list-style-type: none"> training for seafood industry in partnership with Oceanwatch accreditation program for seafood industry cultural fishing training and employment opportunities
6.7.1		Develop information and training package in partnership with Oceanwatch and industry and assist in delivery.	DPI-F	OW industry NGOs	Statewide	
6.7.2		Investigate accreditation program for commercial fishers in NSW.	DPI-F	OW Industry NGOs	Statewide	
6.7.3		Investigate cultural fishing training and employment opportunities (links with Initiative 4).	DPI-F	OW Industry NGOs	Statewide	
Action 6.8	Stage 1 & 2	Work with fishing sectors and tourism authorities to investigate and implement opportunities to promote fishing and NSW wild caught seafood and build social licence. Links with Initiative 8.				<ul style="list-style-type: none"> communications and Engagement Plan developed for seafood industry events and opportunities facilitated to promote sustainable fishing and seafood.
6.8.1		Develop a communications and engagement plan and deliver on promotional opportunities with industry.	DPI-F	Industry DNSW NGOs	Statewide	
6.8.2		Facilitate events that promote sustainable aquaculture, fishing and locally caught seafood.	DPI-F	Industry DNSW NGOs	Statewide	
Action	Stage 2	Deliver advisory programs to the community to reduce the risk of spread of marine pest				

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
6.9		and diseases and enhance the understanding of everyone's general biosecurity duty so they act to minimise aquatic pest and disease risk.				

Case study

DEVELOPING A HARVEST STRATEGY FOR THE NSW ESTUARY GENERAL HAND-GATHERING FISHERY (OCEAN SPECIES)

THE SITE

Ocean beaches along the NSW coastline.

THE PROJECT

In February 2019, NSW DPI Fisheries in collaboration with CSIRO held a three-day workshop to trial an approach for harvest strategy development. It focused on the Estuary General Hand-Gathering Fishery (ocean species) as a case study.

Harvest strategies are a set of predetermined management actions: they aim to meet the objectives of a fishery. This approach provides greater certainty of sustainable development and greater confidence for stakeholders who rely on the resource. The harvest strategies are developed in consultation with stakeholders and involve a detailed examination of fishery operations and the methods used to monitor the health of the stock.

This is part of a transition in NSW to a harvest strategy approach. This is considered to be best practice for contemporary fisheries management.

The Estuary General Hand-Gathering Fishery (ocean species) provides an important test case for harvest strategy development in NSW). It includes multiple fishing sectors with different objectives as well as multiple species that differ in their biology. Sustainable management is further complicated by the great variation in catches among regions and years, which make it challenging to monitor the health of stocks through time.

The approach uses a decision support tool, FishPath, to guide 'bottom-up' development of harvest strategies in a transparent and objective way. FishPath provides an interactive platform for characterising a fishery and building a harvest strategy in a group setting, guided by an independent expert. The workshop involved a range of stakeholders, including commercial fishers, DPI Fisheries managers and scientists, the Professional Fishermen's Association, and a representative of the NSW Aboriginal Land Council.

THE OUTCOMES

The workshop identified the primary components that could be used in a harvest strategy for the Estuary General Hand-Gathering Fishery for pipis and beachworms, including methods for monitoring and assessing the health of the stocks, and the management options available. The outcomes of the workshop will be used to develop a harvest strategy for these species, in combination with further stakeholder engagement to define the objectives of relevant fishing sectors.

DELIVERED BY

NSW DPI Fisheries.

RELATED ACTIONS

Relates to sub-actions 6.1.2, 6.1.3 and 6.1.4.



Photo: 16. Pipis in the intertidal zone of an ocean beach. Photo: Daniel Johnson.



Photo: 17. hand-gathering of a beachworm in NSW. Photo: Rowan Chick.

Initiative 7

Enabling safe and sustainable boating



Photo: 18. Coffs Harbour boat harbour. Photo: [iStock.com/funky-data](https://www.iStock.com/funky-data) ©

The problem/opportunity

Boating activity will increase in the future. We need to accommodate this increase while managing the social, economic and environmental benefits of the marine estate.

Steps to achieving our long-term outcomes

This initiative aims to meet the demand for safe and sustainable boating access to our waterways. This will be achieved with a suite of discrete projects and ongoing business activities.

In the short term, the actions in this initiative will improve boating infrastructure. They will also increase community, government and industry awareness of the regulatory framework to support safe and sustainable boating.

In the intermediate term, we will build on these actions and refine them to continue education programs and achieve increased compliance with guidelines and regulations for safe and sustainable boating.

The aim is to improve opportunities and experiences for both recreational and commercial boating, while balancing social, economic, cultural and environmental values on NSW waterways.

Initiative objective

To balance protection of coastal and marine habitat and species with ongoing access and safe and sustainable boating.

Initiative long-term outcomes

Boating provides increased social and economic benefits for NSW communities while supporting sustainable social, economic, cultural and environmental benefits of the marine estate.

Management actions and sub-actions

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 7.1	Stage 1 & 2	Reduce the threats to seagrass from vessels through improved regulation, administration, education, new mooring technologies and delivery mechanisms.				<ul style="list-style-type: none"> standards to improve the safety and environmental outcomes from mooring apparatus. Accompanying the standards will be options for the adoption and enforcement of the standards, including options for increasing the use of EFMs a detailed review of opportunities to use novel mooring apparatus and novel mooring field design, including field trials targeted education programs to improve boaters understanding of how to protect seagrass
7.1.1		Establish a performance-based standard for Environmentally Friendly Moorings (EFM) and review policy and regulatory options for improving adoption and maintenance of EFM.	TfNSW	DPI-F Industry	Statewide	
7.1.2		Explore the utilisation of novel apparatus in mooring fields, including EFM.	TfNSW	DPI F Industry	Statewide	
7.1.3		Review material in the boat driver licence handbook, boat driver licence test, printed and online content related to moorings produced by the Transport maritime cluster to ensure appropriate messages to protect seagrass.	TfNSW	DPI-F Industry	Statewide	
Action 7.2	Stage 1 & 2	Establish a framework to manage increased mooring demand through the Moorings Review project.				<ul style="list-style-type: none"> improved customer access to moorings improved audit of moorings compliance programs focusing on ensuring mooring apparatus are kept in good condition, and the mooring licence
7.2.1		Review and modernise the strategy for mooring management and administration to improve access to moorings.	TfNSW	DPI-F	Statewide	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
7.2.2		Improve the strategy for audit of moorings and enforcement of mooring licence conditions.	TfNSW		Statewide	<ul style="list-style-type: none"> conditions are met enhanced spatial performance of mooring fields
7.2.3		Optimise mooring density in mooring fields to better meet demand.	TfNSW	DPI-F	Statewide	
Action 7.3	Stage 1 & 2	Manage boat-based contamination through the AMSA national framework and implement an education program in NSW to address the environmental impacts of water pollution from recreational vessel cleaning, antifouling and sewage pump out into waterways.				<ul style="list-style-type: none"> clarification of TfNSW's ARA status up-to-date information on marine pollution and the national framework for domestic commercial vessels through the Maritime Access Line undertaken the statutory review of the <i>Marine Pollution Act 2012</i> improved compliance programs for Domestic Commercial Vessels improved education programs for recreational boaters with a focus on environmental regulations
7.3.1		Review Roads and Maritime's Appropriate Regulatory Authority (ARA) status across all NSW navigable waters under section 86 of the <i>Protection of the Environment Operations (General) Regulation 2009</i> with a focus on pollution from vessels in marine parks.	TfNSW	DPIE-EES	Statewide	
7.3.2		Complete the statutory review of the <i>Marine Pollution Act 2012</i> . The Act protects the State's marine and coastal environment from pollution by oil and certain other marine pollutants discharged from ships. The Act implements the International Convention for the Prevention of Pollution from Ships (MARPOL) in NSW.	TfNSW	EPA Port Authority AMSA	Statewide	
7.3.3		Continue to enforce environmental standards and regulations among domestic commercial vessels and recreational vessels.	TfNSW		Statewide	
7.3.4		Continue to educate recreational boaters about compliance with environmental regulations.	TfNSW		Statewide	
Action 7.4	Stage 2	Partner with industry to investigate a pilot program at marinas in NSW to design and install sump drain run-off handling systems with sediment traps.				
Action 7.5	Stage 1 & 2	Reduce impacts of boating on wildlife through coordinated education, research, compliance, reporting and data sharing (links to Initiative 5, 8.1 and 9.4).				<ul style="list-style-type: none"> delivered in Initiative five (see action 5.3)

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 7.6	Stage 2	Integrate various research and monitoring into the Monitoring Program to address key knowledge gaps associated with shipping movements and interactions with threatened and protected species.				<ul style="list-style-type: none"> relevant research integrated into the Monitoring Program and knowledge gaps filled
Action 7.7	Stage 1 & 2	Continue improving environmentally sustainable boating, conflicting uses and waterway access to the marine estate through the NSW Boating Now program.				<ul style="list-style-type: none"> improved access to the marine estate through funding to deliver new and updated maritime infrastructure, including public boat ramps, trailer parking, pontoons, wharves etc. delivery of a four-year program of funding for the next phase of the Boating Now maritime infrastructure program
7.7.1	Facilitate and coordinate the delivery of boating infrastructure under the current round of Boating Now funding by December 2019.	TfNSW		Statewide		
7.7.2	Establish a new funding program to fund boating infrastructure after the current Boating Now program expires in December 2019.	TfNSW		Statewide		
Action 7.8	Stage 1 & 2	Deliver waterways infrastructure in accordance with the Maritime Safety Plan to enhance social, cultural and economic benefits through an interagency approach (also see 8.8).				<ul style="list-style-type: none"> deliver a new Maritime Infrastructure Plan to better coordinate the funding for maritime infrastructure by identifying key user groups and infrastructure needs, and by identifying key locations for infrastructure investment improved information about the location and state of navigation aids to assist planning and maintenance activities better identification of infrastructure to assist in emergency response revised charts with up-to-date navigation aid information the compliance camera trial is complete and has led to an open tender to secure a new five-year compliance camera system for declared waterways to address dangerous and non-compliant behaviour.
7.8.1	Collaborate with key stakeholders in development of an overarching strategy to support maritime infrastructure in priority areas in NSW.	TfNSW		Statewide		
7.8.2	Conduct an audit of navigation aids, recording their location, type and serviceability to ensure that necessary infrastructure is in place and is quickly able to be replaced if damaged.	TfNSW		Statewide		
7.8.3	Work with emergency services to assign boating infrastructure in priority waterways with unique identification markers that can be used in an emergency to allow for the fastest possible response.	TfNSW		Statewide		
7.8.4	Ensure all navigation aids are accurately mapped on charts, especially following major weather events.	TfNSW		Statewide		
7.8.5	Consider adding additional identification features or lighting for navigation aids to be better seen at	TfNSW		Statewide		

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
		night in high activity areas to facilitate better navigation and avoid collisions.				
7.8.6		Finalise the result of the maritime compliance camera trial, and consider an expansion of the camera network to address dangerous and non-compliant behaviour.	TfNSW		Port Hacking & Georges River	

Case study

BOHNOCK BOAT RAMP UPGRADE

THE SITE

Bohnock Boat Ramp, Bohnock – Manning River South Channel adjacent to the Manning Point Rd Bridge

THE PROJECT

This project aimed to upgrade the existing boat ramp to accommodate increased demand for access to the river, and improve safety and accessibility. It started in 2017 and was jointly funded by the MidCoast Council and TfNSW through the Boating Now program.

THE OUTCOMES

The project delivered the following items to meet growing demand at this popular boating location:

- widening and extension of the existing boat ramp
- installation of an on-ramp pontoon to improve vessel launch and retrieval and improve accessibility
- expansion and upgrade of the adjacent car-trailer parking.

DELIVERED BY

MidCoast Council, with support and funding from TfNSW and RMS.

RELATED ACTIONS

Relates to Action 7.7.



Photo: 19. Completed upgrade at Bohnock Boat Ramp, including the installation of a new on-ramp pontoon. Photo: MidCoast Council.

Initiative 8

Enhancing social, cultural and economic benefits



Photo: 20. River camping. Photo iStock.com/Ogdum ©

The problem/opportunity

There is a need to continue to build our understanding of the social, cultural and economic use and benefits, including intrinsic value, of the marine estate to better inform decision making. There is also a need for greater awareness and understanding among the community of the benefits of the marine estate and how their actions may affect these benefits.

Steps to achieving our long-term outcomes

This initiative aims to improve the social, cultural and economic benefits that the NSW community derives from the marine estate, increase stakeholder and community adoption of safe and sustainable use of the marine estate, and an awareness of its benefits. To do this, the Strategy will deliver over ten years: a marine estate education strategy; a marine integrated monitoring framework; social, cultural and economic research; digital mapping; valuation of human use activities and a blue-growth strategy.

In the short term, we will achieve this by improving stakeholder and community awareness of the benefits, threats, and management arrangements relevant to the marine estate and ways for them to participate in marine estate management.

In the intermediate term, we aim to see:

- increased stakeholder and community awareness of sustainable use of the marine estate
- social cultural, and economic values better incorporated into planning and management
- increased stakeholder and community participation in management
- improved information base on human dimensions of the marine estate relevant to management
- greater adoption of ecologically sustainable growth among marine industries.

Initiative objective

To improve the social, cultural and economic benefits that the NSW community derives from the marine estate by responding to priority threats.

Initiative long-term outcomes

Improved social, cultural and economic benefits of the marine estate that contribute to the wellbeing of the NSW stakeholders and community.

Increases stakeholder and community adoption of safe and sustainable use of the marine estate

Management actions and sub-actions

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 8.1	Stage 1 & 2	<p>Increase stakeholder and community awareness of marine estate values, management arrangements and promote safe and ecologically sustainable use of the marine estate by:</p> <ul style="list-style-type: none"> building on existing school and community education programs to encourage environmental stewardship, enhance self-compliance, and promote physical and mental health benefits associated with nature developing and promoting best practice guidance and codes of practice to reduce resource-use conflicts (also see 8.4) <p>developing online information resources and expansion of digital technologies.</p>				<ul style="list-style-type: none"> a comprehensive ten-year NSW Marine Estate Education Strategy that outlines actions and programs for delivering education across different groups that use the marine estate pilot key components of the education strategy at targeted locations including Connections to Coast: Marine Estate Champions Program and a curriculum-based marine estate schools program
8.1.1	Develop a NSW Marine Estate Education Strategy.	DPI	DPIE-EES DPIE-PA TfNSW NGOs NSW schools marine estate stakeholders	Statewid		
8.1.2	Involve the community in the design and implementation of key programs in the NSW Marine Estate Education Strategy.	DPI	marine estate stakeholders community	Coffs Harbour Clarence		
8.1.3	Pilot key programs in a variety of locations.	DPI	marine estate	Coffs Harbour		

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
				stakeholders community	Clarence	
8.1.4		Utilise a variety of professional expertise to finalise the NSW Marine Estate Education Strategy.	DPI	marine estate stakeholders Universities	Statewide	
Action 8.2	Stage 2	Improve awareness of, promote and identify threats to marine historic and non-Aboriginal cultural heritage to inform future management in the marine estate. This action is linked to Initiative 4.				
Action 8.3	Stage 1 & 2	Establish and deliver the Marine Integrated Monitoring Programs social, cultural and economic components, to: <ul style="list-style-type: none"> develop a shared understanding of the NSW community's attitudes, values, perceptions, experiences, knowledge, aspirations, patterns of use to support evidence based decision making and adaptive management communicate data and results publicly through appropriate information portals.				<ul style="list-style-type: none"> a framework and monitoring program capable of effectively measuring and detecting change in community wellbeing at local (LGA) and NSW statewide scales a Marine Integrated Monitoring Program framework across the NSW marine estate baseline information about human dimensions of the marine estate relevant to management targeted social research into key management issues, in particular for NSW marine parks
8.3.1	Conduct a long-term monitoring program to monitor social, cultural and economic benefits that were identified by the statewide Threat and Risk Assessment (TARA) as being under moderate, high or cumulative risk from natural and human activities, and fill identified knowledge gaps.	DPI	DPIE-EES DPIE-PA TfNSW LGOV Universities	Statewide		
8.3.2	Develop a Marine Integrated Monitoring Plan framework.	DPI	DPIE-EES DPIE-PA TfNSW Consultant	Statewide		
8.3.3	Conduct dedicated social research into key management issues in the marine estate to inform management.	DPI	DPIE-EES DPIE-PA TfNSW LGOV Universities	Statewide		

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 8.4	Stage 1 & 2	<p>Develop a baseline of current and future use of the marine estate, initially at a pilot scale, to support effective management, address resource-use conflicts and access to the marine estate by:</p> <ul style="list-style-type: none"> carrying out a comprehensive analysis of human uses, supporting infrastructure and facilities, activity trends, management issues spatially mapping on a public facing digital platform identifying hotspots and developing specific management responses to address issues in partnership with agencies and stakeholders linking outcomes to education and awareness programs to promote best practice. (see 8.1). <p>This action links with 8.5.</p>				<ul style="list-style-type: none"> a high-resolution, interactive spatial tool that displays a comprehensive map of human activities within pilot areas of the NSW Marine Estate. The tool will be accessible to managers to facilitate the identification of management, access and conflict issues, provide an evidence base to support planning and management decisions, and identify key knowledge gaps a public-facing, web-based information system to inform the broader community of human activities and access within pilot areas of the marine estate to increase stakeholder awareness and promote access.
8.4.1	Pilot a comprehensive, spatial mapping project of human use activities with results to be hosted within an integrated digital spatial mapping tool, to support marine planning prioritisation and management.	DPI	DPIE-EES DPIE-PA TfNSW LLS DNSW LGOV RDA	Newcastle, Port Stephens, Mid North Coast		
8.4.2	Develop a public-facing human use activities spatial management tool in pilot areas.	DPI	DPIE-EES DPIE-PA TfNSW LLS DNSW LGOV RDA	Newcastle, Port Stephens, Mid North Coast		
Action 8.5	Stage 2	Explore opportunities for innovative ecologically sustainable activities in the marine estate, based on the results of activity mapping in action 8.4, by developing a blue growth strategy.				

Case study

CONNECTIONS TO COAST: MARINE ESTATE CHAMPIONS PILOT STUDY

THE SITE

Coffs Harbour coastal region, located in the North Coast local government area.

THE PROJECT

The Coffs Coast region is a vibrant regional hub with a diverse community and many marine-based industries. Community leadership is vital to garnering support for the Strategy.

The Marine Estate Champions Program is one way for community leaders to become key knowledge holders of the Strategy so they can share their own inspirational 'Connections to Coast' stories with the broader community.

The aim is to identify community leaders and help them develop their skill sets through a series of workshops.

The first workshops will be held as part of the Marine Estate Champions pilot study. This will allow communities to identify their leaders. These workshops will build and strengthen relationships between community and Authority agencies, facilitate knowledge sharing and produce tangible aspirations and actions for the Marine Estate Champions pilot study.

A second facilitated community leader's workshop on effective networking will be held to ensure networks are utilised to their full potential. These workshops will give community leaders tools that they can use to work across a wide range of spheres and with other organisations to elicit broad community action in the marine estate.

Community leaders will also participate in the 'Connections to Coast' video project. This will use digital platforms to share stories about how different stakeholders use the coast, how they connect to it, and what their aspirations are for the future of the NSW marine estate. The aim is to encourage environmental stewardship. These stories will help the wider community understand the diversity of uses and to identify shared values.

Lessons learned from the pilot study will enhance the Marine Estate Champions tool kits to be rolled out across the NSW marine estate.

THE OUTCOMES

Key outcomes of the project will be improved awareness within the community of the diversity of use and benefits derived by different users from the marine estate; improved understanding of the nature and scale of social, cultural and economic benefits, use and value of the marine estate; and improved community stewardship of the marine estate.

DELIVERED BY

NSW DPI Fisheries

RELATED ACTIONS

Relates to sub-actions 4.1.3, 5.3.1, 6.2.4, 8.1.1.



Photo: 21. Muttonbird Island, Coffs Harbour. Photo: iStock.com/Olga Kashubin ©

Initiative 9

Delivering effective governance



Photo: 22. Coastal planning and development. Photo: iStock.com/helovi ©

The problem/opportunity

Complex governance arrangements and overlapping jurisdictions can lead to lack clarity of roles and responsibilities, inconsistencies, duplication and inappropriate regulation. Governance arrangements that are simpler and easier to understand will better support effective management of the marine estate and deliver social, cultural, economic and environmental benefits.

Steps to achieving our long-term outcomes

Initiative 9 aims to improve coordination, transparency, consistency and inclusiveness, leading to greater efficiency and effectiveness in managing the marine estate during the ten years of the Strategy. To do this, we will produce:

- a governance framework and catchment-scale governance pilot program
- stakeholder and community capacity building programs and education campaigns
- tools to support self-compliance
- compliance and research and monitoring programs.

In the short-term, we will clarify the responsibilities and accountabilities of responsible agencies, so we can improve our capacity to fulfil those roles. We will also focus on our consistency, coordination, and communications. This will allow agencies to work together more closely with each other and the community, so everyone can participate in marine estate management and decision making.

Simpler and clearer regulatory process will also lead to increased compliance with rules and regulations by landholder, community and businesses.

Initiative objective

To improve governance arrangements across the marine estate to support coordinated, transparent, inclusive and effective decision making.

Initiative long-term outcomes

- Improved coordination, transparency, consistency and inclusiveness of managing the marine estate.
- Improved efficiency and effectiveness in managing the marine estate.

Management actions and sub-actions

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
Action 9.1	Stage 1 & 2	<p>Improved coordination and integration across all levels of government (including cross-border and land–sea interface) by developing a governance framework piloted at a catchment scale (see Initiative 1) to:</p> <ul style="list-style-type: none"> • identify overlapping jurisdictional boundaries • clarify roles and responsibilities • align policies and programs • identify opportunities for: <ul style="list-style-type: none"> ○ data management and sharing ○ research, monitoring and mapping ○ compliance and reporting <p>communication and engagement.</p>				<ul style="list-style-type: none"> • a governance framework to improve coordination of management across the marine estate, clarifying roles and responsibilities and reducing inconsistencies and duplication • catchment-scale governance pilot program on the Richmond River to identify opportunities for improved governance arrangements across multiple local government areas and agencies leading to improved river health outcomes • stakeholder and community capacity building programs to enable greater awareness of and participation in management of the marine estate • research and monitoring programs to identify knowledge gaps and measure progress in meeting initiative objectives • education campaigns to increase awareness of the marine estate, its
9.1.1	Implementation of a governance structure and project management framework to support effective delivery of the Marine Estate Management Strategy.		DPI-F	DPIE-EES TfNSW DPIE-PA	Statewide	
9.1.2	To support the development of a catchment-scale governance pilot project on the Richmond River.		DPI-F	DPIE-EES Richmond catchment councils DPIE-W	North Region – Richmond River	

#	Timeframe	Management actions	Lead agency	Partners	Spatial extent	What we will deliver
				LLS		management, agencies roles and responsibilities, legislation, authorisation processes and self-compliance.
Action 9.2	Stage 1 & 2	Increased stakeholder and community participation by building capacity and awareness of coastal and marine management piloted at a catchment scale (see Initiative 1) and locally via marine park management planning pilots.				
9.2.1		To identify, categorise and spatially map stakeholder organisations and networks relevant to the NSW marine estate. This action will be delivered through 8.4.	DPI-F	DPIE-EES DPIE-PA TfNSW LLS LGOV	Statewide	
Action 9.3	Stage 1 & 2	Identify opportunities through the marine park management planning pilots to streamline regulatory instruments to: <ul style="list-style-type: none"> • address inconsistencies, reduce duplication of effort and reduce regulatory burden where appropriate • ensure these instruments are efficient, effective, transparent and proportionate • increase awareness of the authorisations process and requirements for the end user through education and online tools. 	DPI-F	DPIE-EES DPIE-PA TfNSW LLS DNSW RDA LGOV	Statewide	
Action 9.4	Stage 2	Improve coordination and effectiveness of compliance across government by: <ul style="list-style-type: none"> • investigating tools to support proactive compliance by users through use of new technologies and education programs (see Initiative 8) collaborate across multiple government agencies to coordinate enforcement, education and data sharing.				

Case study

CATCHMENT SCALE GOVERNANCE PILOT PROGRAM ON THE RICHMOND RIVER

THE SITE

Richmond River Catchment – Located in the Northern Rivers local Government area; including the Ballina Shire, Byron Shire, Lismore City, Kyogle Shire, and Richmond Valley Councils

THE PROJECT

The Richmond River is a vital environmental and community asset. It provides habitat for fish and birds and supports agriculture, fishing, recreational activities and tourism. It is a spiritual place for Aboriginal people, who have relied on its resources for tens of thousands of years.

The river's catchment encompasses five local government areas: the Councils of Kyogle, Richmond Valley, Lismore, Byron and Ballina. Rous County Council manages water, weed management and flood mitigation across part of these council areas.

There are many challenges resulting from the history of development and use. While the councils are committed to better catchment and estuary health outcomes for the Richmond River, there is no catchment-level governance or funding framework for the management of the river. This level of coordination is needed to mitigate the ongoing degradation of the river system and to improve environmental, economic and social opportunities for current and future generations.

The NSW Government, in collaboration with the local councils, have engaged a consultancy to develop a governance and funding framework for the Richmond River.

THE OUTCOMES

Stakeholders involved in the management of the Richmond River and its catchment will have participated in developing an agreed governance and funding structure.

DELIVERED BY

OEH and the Richmond catchment councils.

RELATED ACTIONS

Relates to sub-action 9.1.2.



Photo: 23. More than 40 stakeholders from across the catchment worked together to document the values of the catchment and identify the drivers of change. Photo: NSW Department of Planning, Industry & Environment – Environment, Energy & Science.