

Marine Estate Management Strategy triannual snapshot

Reporting period March 2022–June 2022

Marine Estate Management Authority

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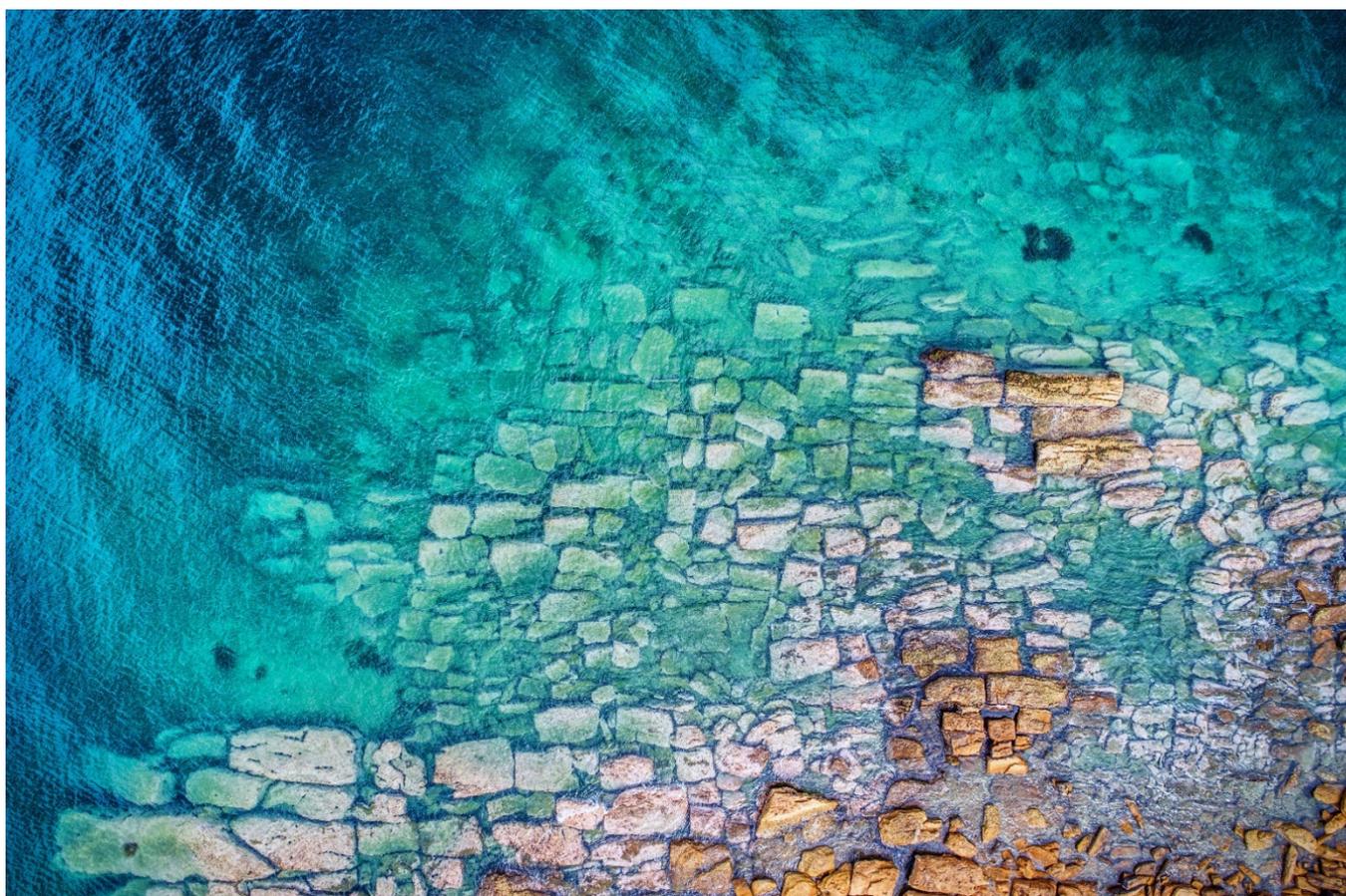
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Aboriginal people are the Traditional Owners of the NSW marine estate and have a continuing connection to their Land and Sea Country



Figure 1. © Bindarray Maagun (River Feast) by Gumbaynggirr artist Lavinnia Inglis

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Part A: Strategy snapshot

Purpose of this snapshot

The purpose of the snapshot report is to provide stakeholders and the community with regular updates on the implementation of the Marine Estate Management Strategy (Strategy). This snapshot includes updates on notable project highlights and informs stakeholders of key deliverables in the third trimester of Year 4 of the Strategy. Additionally, activities planned for the next reporting period (1 July 2022 – 31 October 2022) are highlighted in the ‘What’s next’ sections.

The Program moved from quarterly reporting to triannual reporting in 2021/22. For more updates follow us on [Instagram](#), visit the [Marine Estate website](#), or subscribe to the marine estate newsletter through the link [here](#). This snapshot should be read in conjunction with the [Strategy Implementation Plan 2021-2022](#).

Delivering long-term outcomes

The Strategy is a 10-year strategy, 2018-2028. The Strategy’s nine initiatives contribute to improving water quality, reducing marine litter, improving the health of coastal habitats, reducing threats to marine wildlife, ensuring sustainable foreshore development ensuring sustainable land use practices, planning for climate change, protecting Aboriginal cultural values of the marine estate delivering sustainable boating and fishing, enhancing social, cultural, and economic benefits, and delivering effective governance. Additionally, program management, monitoring, reporting, and evaluation is an overarching component of the Strategy to assure the community and stakeholders that the program is implemented and monitored effectively and in a coordinated, integrated and transparent way.

In June 2022, the NSW Government made a record investment to futureproof the NSW marine estate with a commitment of more than \$180 million for the final six years of the 10-year Marine Estate Management Strategy. This investment will help to improve water quality by reducing pollution, ensure our coastal habitats can thrive under the effects of climate change and increase Aboriginal people’s role in protecting cultural values and managing Sea Country. Long term funding will also ensure the NSW marine estate is resilient and managed sustainably for future generations.

Detailed information on the Marine Estate Management Strategy is available [online](#) and should be referred to when reading this document.

Program highlights this trimester

This trimester is the final reporting period for 2021-2022. There are over 100 projects this year and good progress has occurred throughout the Program despite the challenges presented by COVID-19, significant floods, and resourcing issues. In this triannual snapshot, we focus on some of the most notable achievements across the nine initiatives in the Strategy. A selection of highlights illustrating the breadth of work and accomplishments achieved during this period are in Table 1. Communications and engagement activities during the period are summarised in Appendix B.

Table 1. Key highlights during March 2022 - June 2022

Project	Project icon	Location	Progress
Risk-based framework for urban waterway health		Wianamatta-South Creek part of the Hawkesbury-	New legislated planning controls for managing stormwater to protect and restore waterways in the Wianamatta-South Creek released.

Project	Project icon	Location	Progress
		Nepean River system	
Oyster reef restoration research		Port Stephens	Completed Wagonga Inlet Living Shoreline (WILS) with partners Eurobodalla Shire Council and The Nature Conservancy. Approximately 1,700m ² of intertidal and 1000m ² subtidal oyster reef construction component completed by M&J Marine, including 7m ³ of recycled shell placed on 3 subtidal reefs. DPI-F pre-works monitoring completed.
Coastal Floodplain drainage management		Statewide	The ‘What We Heard’ report, which outlines challenges and potential solutions to the regulatory regime for coastal agricultural drainage infrastructure, was published in DPE Water’s Water Meetings Library and on the NSW Marine Estate website .
Climate change citizen science		Statewide	A report card for NSW was published on Redmap outlining climate-driven species redistributions in NSW waters. 656 observations made by 234 citizen scientists of marine species outside their historical distributions were collated, analysed and presented in the Redmap NSW report card. 23 marine species were found to be undergoing climate-induced distributional changes.
Sea Country rangers			Completion of the inaugural Aboriginal research scuba dive certification. Six Yuin divers completed 3 weeks of intense study and scuba diving training on the South Coast. Several Tweed /Byron Local Aboriginal Land Council (LALC) staff completed their open water scuba dive course and commenced monitoring the condition of the underwater habitat of the Cook Island Aquatic Reserve.
Ocean Trap and Line Fishery observer survey		Statewide	Completed field sampling program monitoring catches in the Ocean Trap and Line (OTL) fishery in the Central Bioregion. Summary of key findings of OTL observer program included: <ul style="list-style-type: none"> • A total of 279 fishing trips (~55,000 hook deployments) were monitored throughout the northern NSW Ocean Trap & Line Fishery; • Over the two years of the study only two incidences of bycatch were recorded with threatened, endangered, or protected sharks and both sharks were released alive; • Greater than 95% of the total observed catch was retained; and

Project	Project icon	Location	Progress
			<ul style="list-style-type: none"> Despite more than 4,200 seabirds observed around fishing vessels, only one incidence of seabird bycatch was recorded.
Fisheries enhancements		Central Coast Mid Coast	Minister Saunders announced that the Central Coast is the next region to receive an artificial reef. Community consultation and specialist consultant reports have been completed for Forster (Mid Coast) and Central Coast reefs.
Improved management of aquatic reserves and high value sites		Northern Beaches LGA	Day at the Bay festival was held to celebrate 20 th anniversary of the declaration of Cabbage Tree Bay Aquatic Reserve.

Part B: Initiative summaries

Initiative summaries include updates on notable project highlights from the reporting period as well as what is planned for the next reporting period. A full update on all projects is reported in the Strategy's Implementation Annual Report for the 2021-2022 financial year. For more information on the location of projects refer to the [Strategy Implementation Plan 2021-2022](#) or [Strategy project locations map](#) on the [marine estate website](#).

Initiative 1 – Improving water quality and reducing litter

Project summary

A wide range of projects are underway by several collaborating government agencies to improve water quality, reduce litter and manage diffuse water quality issues across urban and rural coastal catchments. In 2017, the statewide threat and risk assessment identified water pollution as the greatest threat to the marine estate.

Triannual progress and key highlights

Project	Project icon	Location	Progress
Risk-based framework for urban waterway health		Wianamatta-South Creek, part of the Hawkesbury-Nepean River system	<p>New legislated planning controls for managing stormwater to protect and restore waterways in the Wianamatta-South Creek released in the Western Sydney Aerotropolis Planning Package.</p> <p>Outputs of the pilot were used as the evidence base for the new regional approach to managing stormwater in the Western Sydney Aerotropolis. The approach, which will be delivered on ground by Sydney Water, is based on naturalised waterways, to provide amenity and liveability to local residents. For more information visit, Waterways to boost green spaces and cool the West.</p>
Review of the NSW Water Quality Objectives		Statewide	<p>Draft updated Water Quality Objectives developed for coastal NSW, ready for local and state government review.</p> <p>Invitations and information sent to local and state government representatives for a series of 14 workshops to raise awareness and seek feedback on the review and update of the NSW Water Quality Objectives.</p>
Fish friendly workshops for councils		Statewide	<p>Domestic Waterfront Structure Strategies video released to accompany the release of the Domestic Waterfront Structure Strategies for the Brunswick and Richmond Rivers.</p>
Oyster reef restoration research		Port Stephens	<p>Completed and released Port Stephens oyster reef project video and linked via QR code to Oyster Reef information signs erected at Tea Gardens, Karuah and Soldiers Point.</p> <p>Oyster reef cultural naming ceremony held at Karuah and traditional smoking ceremony conducted aboard a charter vessel, attended by about 60 local Aboriginal elders, project stakeholders and agency staff.</p>

Project	Project icon	Location	Progress
		Eurobodalla	Completed Wagonga Inlet Living Shoreline (WILS) with partners Eurobodalla Shire Council and The Nature Conservancy. Approximately 1,700m ² of intertidal and 1000m ² subtidal oyster reef construction component completed by M&J Marine, including 7m ³ of recycled shell placed on 3 subtidal reefs. DPI-F pre-works monitoring completed.
		Statewide	Mapping of remnant oyster reefs in Myall Lakes completed and now available on Fisheries spatial data portal . A total of 24 estuaries have or soon will have remnant oyster reef mapping data on the spatial portal.
Clean coastal catchments research		Coffs Harbour LGA	Presentation delivered on the management of substrate in blueberry at Protected Cropping Australia Conference , Coffs Harbour.
		Statewide	Published conference paper A study of seasonal leaf nitrogen in southern highbush blueberry grown as an evergreen crop in Australia in Acta Horticulture. (Volume 1333, pages 209-214).
		Ballina LGA Bega Eurobodalla LGAs	Soil erosion control research in macadamia orchards preliminary results completed. Fert\$mart farm-based workshop conducted in Bega with agronomists, consultants and delivery partners Dairy NSW, Bega Cheese and South East LLS to build capacity within industry stakeholders for improved nutrient management.
Riverbank stabilisation		Eurobodalla Ballina Midcoast LGAs	Several bank stabilisation structures have been completed this financial year and have stood up to more than one significant flood event. Completed installations are protecting over 1400m of riverbanks from erosion while also capturing sediment which is reducing sediment load in waterways and creating new mangrove habitat.
Estuarine water quality monitoring		Statewide	Statewide estuarine water quality monitoring, evaluation and reporting program completed. This year's sampling included the development of new indicators related to key threats to the marine estate, such as microplastic pollution and biodiversity assessments using eDNA.
Mapping outflow events		Statewide	Statewide 'landforms' layer and NSW Marine LiDAR webviewer called SeabedNSW provided online at DPEs Sharing and Enabling Environmental Data (SEED) portal - and launched by Minister Wendy Tuckerman at the NSW Coastal Conference, Kingscliff.
Land use pressures on the marine estate		Statewide	Peer reviewed journal paper on how maintenance of constructed wetlands alters stormwater treatment performance published.

What's next?

Work that is planned to occur in the following reporting period is highlighted below, although unexpected changes to scheduling can occur and will be communicated to affected stakeholders.

Project	Project icon	Location	Anticipated work
Risk-based framework for urban waterway health		Wianamatta-South Creek catchment	<p>NSW Government series of technical studies and technical guidance to provide evidence base for new stormwater and waterway health controls and support for achieving (compliance with) controls.</p> <p>Launch the new stormwater controls and technical guidance for Wianamatta-South Creek.</p>
Review of the NSW Water Quality Objectives		Statewide	Deliver pilot with co-funding from DPE-Water to derive cultural values of waterways in Greater Sydney, including a 'Walk on Country' and deliver a workshop with local Aboriginal Knowledge Holders to map the values (for inclusion in the update of the NSW Water Quality Objectives).
Coastal floodplain study		Clarence	Finalisation of collection of Clarence River floodgate survey data.
Oyster reef restoration		Eurobodalla	Formal training of citizen scientists to monitor wildlife recruitment and visitation at Wagonga Inlet oyster reef and living shoreline project.
Oyster reef restoration research		Port Stephens	Indigenous oral history research commenced with Aboriginal Elders invited to participate in the project and some interviews obtained. Milestone report provided to the Department.
Riparian vegetation improvements		Shoalhaven, Eurobodalla, Bega Valley	Complete on-ground works as agreed with landholders including approximately 7km of riverbanks protected by revegetation and 18km of riverbanks protected by new fencing.
Clean coastal catchment on-ground works		Coffs Harbour	Establishment of focus farm at Nambucca to demonstrate benefits of irrigation monitoring tools and improved best practice to reduce costs and reduce waste.
		Bega Valley Eurobodalla Kiama LGAs	Assist with the completion of irrigation redesigns on 4 farms to improve irrigation efficiency and reduce nutrient runoff.
Clean coastal catchments research		Eurobodalla Bega LGAs	Fert\$mart training programs continue to be rolled out by selected and trained agronomists/consultants registered with South East Local Land Services (SE LLS) across dairy farms in the Bega and

Project	Project icon	Location	Anticipated work
		Ballina LGA	Eurobodalla Local Government Areas (LGAs) with contributions from Bega Cheese and the Federal Government. Facilitate Clean Coastal Catchment (CCC) Research Update forum, targeting macadamia growers, agronomists and key industry stakeholders. The event will showcase CCC research and promote industry best management practices that will reduce fertiliser and sediment pollution, while enhancing production and profitability.
		Statewide	A CCC webinar will be broadcast in August 2022 looking at Groscale technology being adopted by berry growers to reduce water and fertiliser losses and improve crop management.
Riverbank stabilisation		Eurobodalla Midcoast LGAs	Stabilisation structures will be completed to protect a further 900m of riverbanks from erosion while also capturing sediment which is reducing sediment load in waterways and creating new mangrove habitat.
Coastal wetland rehabilitation		Shoalhaven	Installation of 2 floodgates by Soil Conservation Service at Scots Collage, Crookhaven River to control saltwater inundation into freshwater wetland.
Improving roads and tracks		North Coast	Deliver erosion and sediment control training for 13 North Coast Councils; Tweed, Byron, Kyogle, Tenterfield, Lismore, Ballina, Richmond Valley, Clarence Valley, Coffs Harbour, Bellingen, Nambucca, Kempsey, Port Macquarie-Hastings. Complete agreements to treat road erosion through sealing and drainage works at several locations.
Marine Debris Working Group		Statewide	Publicly release Marine Debris Threat and Risk Assessments documents.
Estuarine water quality monitoring		Statewide	Statewide estuary report card grades for 2021-22 summer sampling. Update to the NSW Estuary Water Quality Guideline Values report.

More information

More information on Initiative 1 projects is on the marine estate website [here](#).

Initiative 2 – Delivering healthy coastal habitats with sustainable use and development

Project summary

Initiative 2 seeks to improve coastal and marine habitats, and foreshore and waterway management, through various projects. A multiagency and local government collaborative approach is underway to better coordinate the prioritisation of rehabilitation works and funding, and strategies that facilitate streamlined approvals.

Initiative 2 projects reported sound progress this period leading to several positive outputs being delivered, however, many projects were affected directly or indirectly by severe floods and COVID 19, which affected staff and stakeholder availability

Triannual progress and key highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Commercial dredging audit		Statewide	The dredging audit is complete including meetings and engagement with local councils and stakeholders to review findings. A summary report is drafted, and communications plans are in place to share information with stakeholders following finalisation of the report.
		Statewide	The Coastal Crown Lands Guidelines have been reviewed internally by Crown Lands staff and partner agencies and feedback has been collated.
Domestic waterfront structure strategies		Ballina Lismore Richmond Valley Byron LGAs	<u>Richmond and Brunswick River domestic waterfront structure strategies</u> released, delivering a consistent management framework.
Estuary bank management strategies		Ballina Lismore Richmond Valley Byron Tweed Port Macquarie Hastings LGAs	Collaboration with government agencies and local councils resulted in the delivery of Light Detection and Ranging (LiDAR) data for 3D modelling of terrain in several estuaries which will improve management of riverbanks.
Coastal Floodplain drainage management		Statewide	The ‘What We Heard’ report, which outlines challenges and potential solutions to regulatory regime for coastal agricultural drainage infrastructure, was published in DPE <u>Water’s Water Meetings Library</u> and on the <u>NSW Marine Estate website</u> .
Mapping seagrass, mangrove and saltmarsh		Lake Macquarie	<u>Macrophyte maps released</u> for Lake Macquarie (1,247 ha of habitat mapped). <i>Posidonia</i> (seagrass) area has declined by 8% over the last 10 years.

Project	Project icon	Location	Progress
		Newcastle	<u>Macrophyte maps released</u> for Hunter River (2,615 ha of habitat mapped). Mangrove area is continuing to increase in the Hunter with a slight decline in mapped saltmarsh area since 2006.

What's next?

Work that is planned to occur in the following reporting period is highlighted below, although unexpected changes to scheduling can occur and will be communicated to affected stakeholders.

Project	Project icon	Location	Anticipated work
Commercial dredging audit		Statewide	Finalise Dredging Audit and publish summary report of Final Dredging Audit. Develop implementation plan and commence implementation.
Marine vegetation strategies		Ballina	Co-host the <u>Australian Mangrove and Saltmarsh Network conference</u> at Ballina and facilitate engagement and collaboration of researchers, managers, industry and community.
Reconnecting fish habitats		Byron	Johnstons Lane, Brunswick River: construction underway (removal of old causeway fish passage barrier, replacement with bridge).
		Liverpool	Liverpool Weir, Georges River: Design approved, and construction commenced - weather and flow dependent, to improve current fish passage design.
Subtidal reef monitoring		Greater Sydney	Completion of winter 2022 baited remote underwater video surveys in the Greater Sydney region. Collection of Remotely Operated Vehicle imagery in Greater Sydney Aquatic Reserves.
Reviewing jetty designs		Sutherland	Draft report on how jetty design features influencing the occurrence of seagrass in Port Hacking.
Threats to estuarine fish assemblages		Northern Beaches	Research report on cumulative effects to seagrass and fishes in Pittwater drafted.

More information

More information on Initiative 2 projects is on the marine estate web site [here](#).

Initiative 3 – Planning for climate change

Project summary

Initiative 3 aims to incorporate climate change impacts into adaptation planning, strategies and decision making. Progress is being made to 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. Improving our knowledge of climate change impacts contributes to increasing the capacity of coastal and marine managers and communities to anticipate climatic impacts.

Despite fieldwork being delayed due to COVID-19 and flooding impacts, climate change research and monitoring is progressing well.

Triannual progress and key highlights

Project	Project icon	Location	Progress
Climate change threats to seagrass, mangrove and saltmarsh		Statewide	<p>Paper describing <u>method used for first-pass vulnerability assessment</u> published in <i>Frontiers in Environmental Science</i>.</p> <p>Paper describing outcomes of Rodel <u>first-pass vulnerability assessment</u> submitted for publication to <i>Science of the Total Environment</i>.</p> <p>Maps showing potential mangrove and saltmarsh areas under three Sea Level Rise scenarios and 2 land use scenarios for 110 NSW estuaries published to NSW Government Environmental Data Portal <u>SEED</u>.</p>
Climate change citizen science		Statewide	<p>A report card for NSW was published on <u>Redmap</u> outlining climate-driven species redistributions in NSW waters.</p> <p>656 observations made by 234 citizen scientist of marine species outside their historical distributions were collated, analysed and presented in the Redmap NSW report card. 23 marine species were found to be undergoing climate-induced distributional changes.</p>
Climate change research		Statewide	Climate change research continuing including analyses, lab work and publication of climate adaptation in seagrass, kelp and a harvested snail.

What's next?

Work that is planned to occur in the following reporting period is highlighted below, although unexpected changes to scheduling can occur and will be communicated to affected stakeholders.

Project	Project icon	Location	Anticipated work
Climate change threats to mangrove and saltmarsh		Statewide	Finalise the second-pass statewide vulnerability assessment, which includes consideration of catchment inputs under climate change in addition to sea level rise addressed in the first-pass assessment. This will refine our identification of priority areas for adaptive management.

Project	Project icon	Location	Anticipated work
			Complete pilot development of numerical model for wetland response to sea level rise, which will be the first of a suite of management tools to explore the efficiency of several potential management actions.
Climate change adaptation		Statewide	A climate Change Adaptation Strategy has been released and estuarine and marine linkages will be considered as part of this broader work.
Climate change monitoring		Statewide	<p>The 2022 statewide monitoring program will be completed, documenting effects (if any) of climate change, floods and the Sydney marine heatwave on NSW habitats.</p> <p>A paper titled “Impacts of severe flooding on kelp health and recovery” will be presented at the Australian Marine Science Association conference in Cairns.</p>
Climate change citizen science		Statewide	<p>Manuscript using citizen science data to identify drivers of species range shifts within the NSW marine estate to be published in journal Communications Biology.</p> <p>Manuscript preparation detailing the methodology for determining species out-of-range observations using citizen science observations.</p> <p>Scoping and logistical planning for the installation of public educational signage regarding the effects of climate change on the NSW marine estate and details on how to contribute information through citizen science.</p> <p>Printing of 5,000 report card copies for distribution to key stakeholders and communication materials at events.</p> <p>Formal publication and communication about unique genetic diversity of kelp, threats posed to it by ocean warming and management implications.</p> <p>Preliminary analyses of the relative vulnerability of NSW marine parks to near-future ocean warming.</p>
Climate change research			<p>Formal publication and communication about unique genetic diversity of kelp, threats posed to it by ocean warming and management implications.</p> <p>Preliminary analyses of the relative vulnerability of NSW marine parks to near-future ocean warming.</p> <p>Project on resolving the role of kelp in the blue carbon cycle to be submitted to the Australian Research Council.</p>

More information

More information on Initiative 3 projects is on the marine estate web site [here](#).

Initiative 4 – Protecting the Aboriginal cultural values of the marine estate

Project summary

Initiative 4 aims to increase community understanding of Aboriginal Sea Country values, enhance economic opportunities and employment for Aboriginal people, as well as increase active involvement in managing the marine estate.

The focus of this period was to re-commence activities that had been postponed due to COVID-19 restrictions earlier in the year.

Triannual progress and key highlights

A breakdown of progress is outline below.

Project	Project icon	Location	Progress
Sea Country Rangers			<p>Wagonga Local Aboriginal Land Council (LALC) rangers continued participation in the NSW Environment Protection Authority (EPA) Container Deposit Scheme with DPI and Tangaroa Blue. The project captures data on overall litter in NSW, litter composition and profile of litter across site types including areas of high concern such as stormwater outlets in rivers and estuaries.</p> <p>Commenced Emigrant Creek revegetation project with Jali rangers assisting in weed removal and tree planting. This project demonstrates meaningful collaboration with North Coast Local Land Services and Big Scrub Regeneration Pty Ltd.</p> <p>Completion of the inaugural Aboriginal research scuba dive certification. Six Yuin divers completed 3 weeks of intense study and scuba diving training on the South Coast.</p> <p>Several Tweed /Byron Local Aboriginal Land Council (LALC) staff completed their open water scuba dive course and commenced monitoring the condition of the underwater habitat of the Cook Island Aquatic Reserve.</p> <p>Miimi Aboriginal Corporation employed Aboriginal rangers to deliver environmental monitoring in conjunction with Southern Cross University at 4 sampling sites around Bowraville as part of the Clean River, Clean Seas project.</p>
Cultural economic development		Eurobodalla Kiama Clarence Valley	<p>Supported several SMART Drumline traineeships to allow for an increase in capacity for the South Coast Aboriginal community.</p> <p>Yaegl trades assistant employed for 3 months as part of the Aboriginal training vessel tender awarded to Yamba Welding and Engineering.</p>
Climate change on culture		Coffs Harbour	<p>Collaborated with Traditional Owner representatives, NSW Heritage and EHG Coastal Management Program to identify options to remediate and protect Moonee Beach cultural site after coastal erosion, exacerbated by climate change, exposed burial remains.</p>

Project	Project icon	Location	Progress
			Discussions held about the most appropriate way to care for these remains and respond to climate driven events in the future.

What's next?

Work that is planned to occur in the following reporting period is highlighted below, although unexpected changes to scheduling can occur and will be communicated to affected stakeholders.

Project	Project icon	Location	Progress
Cultural Interpretations		Clarence Valley Port Stephens	Sea Country Education program will be delivered into Worimi and Yaegl communities. This program will follow on from the successful Yuin and Jerringa Sea Country education programs.
Sea Country Rangers		Coffs Harbour Kempsey Port Stephens	Woolgoolga Regional Park Estuary Weeds Project commences, a targeted weed control program to restore the condition of riparian habitat and improve the environmental values of the coastal and estuarine reserve. Engagement of the Darrunda Wajaarr Rangers, a small ranger team operated by the Coffs Harbour and District LALC who focus on environmental management to increase the conservation values of Gumbaynggirr Country. Shark Island re-vegetation works involving the Kempsey LALC ranger team. General Boat licence certification will commence for over 50 candidates from the Worimi, Forster, Karuah and Darkinjung communities.
Cultural economic development		Port Stephens	Port Stephens Tourism Certificate II will be delivered in July/August 2022. Port Stephens Coxswains Certificate II will be delivered in October 2022. This will be the fourth coxswains course delivered across the state with substantial success such as new marine tourism ventures and 2 successful SMART drumline tenders on the South Coast.
Cultural research and monitoring		Tweed Heads Clarence Valley Eurobodalla	Continue Cook Island underwater research and monitoring. Continue Sea Country Science with Yaegl, Coffs Harbour LALC and Joonga rangers who are employed to work with DPI scientists in the Baited Remote Underwater Video program (Solitary Islands and Batemans Marine Park) and DPE scientists in the offshore mapping of the Solitary Islands Marine Park.

More information

More information on Initiative 4 projects is on the marine estate web site [here](#).

Initiative 5 – Reducing impacts on threatened and protected species

Project summary

Initiative 5 is taking action to protect threatened and protected species in the marine estate by working with the community, partners, industry and government to share information and resources to respond to marine wildlife events, undertake monitoring programs and ensure people using the marine estate minimise interactions with threatened and protected marine species.

Triannual progress and key highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Planning to protect marine wildlife		Statewide	<p>NPWS Draft Operating Model and Prioritisation Procedures for marine wildlife response were finalised.</p> <p>A NPWS Marine Wildlife Duty Officer trial was completed to assist coordination of marine wildlife response operations.</p> <p>Emerging technologies, including underwater drones were trialled to assist in Large Whale Disentanglement operations.</p> <p>Planning, coordination and delivery of marine wildlife preparation days for NPWS staff and partner organisations.</p> <p>Development of cultural and environmental protocols for the management of large whale carcasses.</p>
Partnerships to protect marine wildlife		Statewide	<p>A Large Whale Disentanglement (LWD) training package based on the National Unit of Competency standard was developed and pilot training delivered to ~60 NPWS staff across North Coast, Greater Sydney, and South Coast. Training was also delivered to the Indigenous Ranger group, the Gamay Rangers, and participation by seven Partner Organisations.</p> <p>An MoU was signed with NSW Marine Rescue, for vessel support to assist marine wildlife rescue and event responses approved.</p> <p>Launch of 2022 Right Whale ID Program using Citizen Science to improve our understanding of the South East population.</p> <p>Finalisation of the Artificial Light at Night audit methodology was completed and a contractor engaged and field app developed and field tested for data capture.</p> <p>Footage of wild seals to be used in a range of communication products to increase public awareness around safe seal-human interactions.</p> <p>2022 NSW Coastal Conference MEMS presentation and Coastal Management Programs collateral developed for council staff.</p> <p>2022 Presentation at the Australian Veterinary Association conference.</p>

Project	Project icon	Location	Progress
Species habitat research		Statewide	<p>Development of capacity to assess the impact of biotoxins on sea turtle and seal health.</p> <p>Collaborate with University of NSW (UNSW) to research the impacts of the East Australian Current on Humpback Whale migratory pathways.</p> <p>Public engagement via radio segment on impacts of the East Australian Current on Humpback Whale Migration in NSW and stranding events.</p> <p>Collaborate with the Australian Registry for Wildlife Health and commence sample collection to start a health assessment of New Zealand (Long-nosed) fur seals in NSW. Received report from South Australian Research and Development Institute (SARDI) with desktop analysis and research recommendations for Swim with Seal programs at Montague Island to inform management actions.</p>
Ocean Trap and Line Fishery observer survey		Statewide	<p>Completed field sampling program monitoring catches in the Ocean Trap and Line (OTL) fishery in the Central Bioregion. <u>Summary of key findings of OTL observer program included:</u></p> <ul style="list-style-type: none"> • A total of 279 fishing trips (~55,000 hook deployments) were monitored throughout the northern NSW Ocean Trap & Line Fishery; • Over the two years of the study only two incidences of bycatch were recorded with threatened, endangered, or protected sharks and both sharks were released alive; • Greater than 95% of the total observed catch was retained; and • Despite more than 4,200 seabirds observed around fishing vessels, only one incidence of seabird bycatch was recorded.
Estuary General Fishery observer survey		Statewide	<p>Trained scientific observers continue to monitor catches in the Estuary General Meshnet Fishery.</p> <p>More than 60 fishing trips monitored across 8 estuaries in the last 4 months.</p> <p>Scientific paper <u>Fleet-wide acceptance of escape gaps and their utility for improving selectivity in south-eastern Australian <i>Portunus armatus</i> traps</u> accepted for publication Fisheries Management and Ecology.</p>
Strategies for mitigating species interactions		Clarence Hawkesbury Coffs Harbour	<p>20 observer trips were undertaken on vessels working to obtain information on the relative utility of the new Bycatch Reduction Devices (BRD).</p> <p>More than 10 of the described BRDs have been built and are being distributed to fishers.</p> <p>Several observer trips have been undertaken on vessels working offshore from Coffs Harbour to obtain information on the relative utility of the three new BRDs.</p>

Project	Project icon	Location	Progress
		Statewide	<p>13 permits issued to allow modifications to demersal fish trap gear to remove rope from the water column.</p> <p>Correlative spatial analysis completed overlaying fishing effort data with oceanographic and whale interaction</p> <p>Report on the results of gear trials completed during MEMS-funded work with the Professional Fishers Association and NSW DPI in 2021-2022.</p> <p>Scientific paper "Improving the performance of a generic fisheye as a secondary bycatch reduction device in south-eastern Australian penaeid trawls" submitted for publication.</p> <p>Whale mitigation workshop held in Ballina (spanner crab) to discuss mitigation options and to review the Code of Practice.</p> <p>The NSW Professional Fishers Association (PFA) released <u>several media documents</u> via social media and is instigating a survey among fishers to assess opinions on the BRDs.</p> <p>Released <u>BRD video</u> featuring commercial fishers (PFA).</p>

What's next?

Work that is planned to occur in the following reporting period is highlighted below, although unexpected changes to scheduling can occur and will be communicated to affected stakeholders.

Project	Project icon	Location	Anticipated work
Planning to protect marine wildlife		Statewide	<p>Release the NPWS Marine Wildlife Response Operating Model and Prioritisation Procedures.</p> <p>Continue to coordinate the NPWS Marine Wildlife Duty Officer system to assist with coordinating marine wildlife response operations.</p> <p>Coordinate Elements upgrades to facilitate reporting on Marine Wildlife Response Operating Model and Prioritisation Procedures relating to marine events.</p>
Partnerships to protect marine wildlife		Statewide	<p>Complete work required to obtain National Accreditation for Large Whale Disentanglement training.</p> <p>Finalise Gamay Ranger MoU (in collaboration with Greater Sydney Branch needs and wider Kamay Botany National Park requirements).</p> <p>Write project report for grants provided in June 2021 to support wildlife rescue and rehabilitation groups.</p> <p>Finalise seal sampling document with Australian Registry for Wildlife Health to improve sampling of pinniped carcasses.</p> <p>Finalise online training packages for external stakeholders in marine wildlife awareness, evaluation, and response.</p>

Project	Project icon	Location	Anticipated work
			<p>Report with recommendations on how priority locations in coastal National Parks can align with the National Light Pollution Guidelines for Wildlife.</p> <p>Development and delivery of marine species webinar to rehabilitation sector on seal evaluation.</p> <p>Publication of resources for all wildlife rehabilitation providers licensed for marine mammals, including Code of Practice, Training Standards and a Trainers Guide.</p>
Species habitat research		Statewide	<p>Work with University of NSW to research the impacts of the East Australian Current on Humpback Whale migratory pathways.</p> <p>Correlate biotoxin levels with morbidity in seals and turtles and refine ante-mortem sample collection to diagnose biotoxin exposure.</p>
		South Coast	<p>Use report from SARDI on Seal populations in NSW to identify knowledge gaps and start to design programs that will inform management actions.</p> <p>Conduct an audiogram on a stranded baleen whale to better understand the impacts of anthropogenic noise.</p>
Ocean Trap and Line Fishery observer survey		Central Coast	<p>Complete analyses of data collected during the Ocean Trap and Line observer program.</p>
Estuary General Fishery observer survey		Statewide	<p>Continue monitoring of the Estuary General Meshnet fishery.</p>
Ocean Trawl Fishery observer survey		Statewide	<p>Detailed analysis and reporting from Ocean Prawn Trawl observer program.</p> <p>Scientific paper "Spatio-temporal discarded Elasmobranch bycatch community structure: A model based multivariate investigation of the NSW Ocean Prawn Trawl" submitted for publication.</p>
Strategies for mitigating species interactions		Statewide	<p>Manuscript submitted for publication describing the correlative spatial analysis overlaying fishing effort data with oceanographic and whale interaction data.</p> <p>National Whale Mitigation workshop facilitated by OceanWatch Australia.</p> <p>Revised Code of Practice for NSW Ocean Trap & Line fishery (extended and endorsed by industry) - OceanWatch Australia</p> <p>Finalise report on East Coast Whale Entanglement Mitigation Project Phase 3 (2021-2022) - OceanWatch Australia.</p>

Project	Project icon	Location	Anticipated work
BRD workshop for commercial fishers.			

More information

More information on Initiative 5 projects is on the marine estate website [here](#).

Initiative 6 – Sustainable fishing and aquaculture

Project summary

This initiative aims to deliver viable recreational, Aboriginal and commercial fisheries now and into the future. Actions include enhancing fishing opportunities with fish stocking and installing artificial structures, ensuring best management practice through policy reviews and education programs, and exploring new business opportunities.

Initiative 6 projects have progressed according to the approved scope and outcomes and there were several substantial achievements across Initiative 6 during this reporting period. Despite project delays due to the impacts of COVID-19 restrictions, key planned deliverables and milestones across Initiative 6 were achieved during this period.

Triannual progress and key highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Harvest strategy research		Statewide	<p>Harvest strategy research and harvest strategy development team supported drafting of the Spanner Crab and Mulloway harvest strategies, integrating information from research projects with relevant Harvest Strategy Working Group outputs.</p> <p>Finalising methods for monitoring and assessing NSW fish stocks in harvest strategies using data on recreational fishing in collaboration with University of Tasmania (UTAS).</p> <p>Finalised the Ecological Risk Assessment (ERA) framework to deliver ERAs for priority fisheries, in support of harvest strategies.</p>
Recreational fishing environmental assessment		Statewide	<p>Delivered crab traps and nets to education officers statewide, and successfully ran a community pop-up exchange program with the aim of providing more environmentally friendly crab trap alternatives. Over 1000 old witches hat nets were exchanged for round crab traps and lift nets during events.</p> <p>The environmental risk assessment final report is undergoing final review.</p>
Fisheries enhancements		Central Coast Mid Coast Shoalhaven Central Coast, Port Macquarie-Hastings	<p>Minister Saunders announcement Central Coast as the next region to receive an artificial reef. Community consultation and specialist consultant reports completed for Forster and Central Coast reefs.</p> <p>Dusky flathead fingerlings produced at Narooma Aquaculture stocked into Lake Conjola (16,000), Burrill Lake (12,000) and St Georges Basin (14,000) during March 2022.</p> <p>Dusky flathead fingerlings produced at Port Stephens Fisheries Institute stocked into Lake Macquarie (23,200) and Camden Haven River (11,300) during March 2022.</p>

Project	Project icon	Location	Progress
		Bellingen	Yellowfin bream fingerlings produced at National Marine Science Centre stocked into Bellingen River (4,500) during April 2022.
Marine biosecurity awareness		Statewide	<p><u>Biofouling fact sheet</u> finalised and published on the website. Distributed 2,000 print copies across coastal NSW Fisheries offices, Marine Park offices and to OceanWatch Australia.</p> <p>Drafted and progressed social media tiles, updates for waterproof marine pest species ID cards.</p> <p>Video production and interactive poster development is underway.</p>
Eat more NSW seafood		Statewide	The 2021 <u>Eat More NSW Seafood Program</u> distributed \$206,267 to grantees at the end of this financial year across 10 NSW seafood businesses. This program aims to build the marketing and promotion capability within seafood business.

What's next?

Work that is planned to occur in the following reporting period is highlighted below, although unexpected changes to scheduling can occur and will be communicated to affected stakeholders.

Project	Project icon	Location	Anticipated work
Recreational fishing environment assessment		Statewide	<p>Continue distribution of responsible fishing gear.</p> <p>Commence the breakaway float campaign which involves the distribution of fishing floats and advisory in collaboration with the Fishcare Education Officers.</p> <p>Planning for a workshop on the risk assessment of the impacts to social and cultural benefits from recreational fishing in NSW (saltwater) to be held later this year.</p>
Marine aquaculture		Statewide	Three marine leases undergoing State Significant Development with the Department of Planning and Environment.
Oyster aquaculture business and environment		Statewide	Completed seagrass impact field investigations with PHD manuscript to be approved and published. Results indicate that longline oyster culture does not have a significant impact on <i>Posidonia australis</i> (seagrass) meadows.
Fisheries enhancements		Mid Coast Central Coast	Award contracts for construction of artificial reefs off Forster and Central Coast.

Project	Project icon	Location	Anticipated work
Marine biosecurity awareness		Statewide	<p>Further distribution of the <u>biofouling factsheet</u>.</p> <p>Engagement at the Sydney Boat Show.</p> <p>Investigate opportunities to deliver tailored newsletters to be distributed to key stakeholders via relevant clubs and associations.</p> <p>Follow up monitoring and evaluation based on social research outcomes to determine efficiency of uptake from stakeholders.</p>

More information

More information on Initiative 6 projects is on the marine estate web site [here](#).

Initiative 7 – Enabling safe and sustainable boating

Project summary

Projects are achieving safer and sustainable boating by developing new mooring technology to minimise seagrass impacts, improving infrastructure including boat ramps and navigational aids, and delivering education campaigns to reduce environmental impacts.

Initiative 7 continues to progress projects contributing to safe and sustainable boating.

Triannual progress and key highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Environmentally friendly moorings		Statewide	<p>Stage 1 of the CSIRO-Transport for NSW (TfNSW) Environmentally friendly moorings (EFM) project has been completed.</p> <p>Stage 2 commenced with recruitment for in-water trial of EFMs across 3 maritime regions.</p>
Mooring audits		Statewide	<p>TfNSW is continuing work on the Mooring Reform Program and will continue its new approach to the audit of current moorings to improve compliance with licence conditions.</p>
Mooring strategy		Statewide	<p>TfNSW is continuing work on the reduction of threats to seagrass caused by boating activities through the Mooring Reform Program.</p>
Marine Pollution responsibilities		Statewide	<p>Recreational and commercial vessel owners are being educated on garbage pollution regulations, and mandatory garbage pollution plaques (stickers) are being distributed.</p> <p>The Marine Pollution Act is being actively enforced throughout Maritime by Technical Compliance Officers and Boating Safety Officers.</p> <p>Discussions have been held and continue with key industry stakeholders to determine the magnitude of garbage production from the charter vessel industry.</p>
Boating now		Statewide	<p>19 of 69 Round 3 projects have been completed, 49 projects are underway.</p> <p>Registrations of Interest for Round 4 of NSW Boating Now have closed.</p>
Review of offshore anchoring		Wollongong	<p>Assessed the potential impacts of large ships anchoring on seabed habits offshore in Wollongong.</p> <p>Organised an anchoring workshop with various stakeholder groups.</p>

Project	Project icon	Location	Progress
			Completed statistical analysis on possible anchoring effects to seabed biodiversity.

What's next?

Work that is planned to occur in the following reporting period is highlighted below, although unexpected changes to scheduling can occur and will be communicated to affected stakeholders. The below list is not exhaustive.

Project	Project icon	Location	Anticipated work
Boating now		Statewide	Registration of Interest applicants will be invited to submit formal applications for Round 4 of NSW Boating Now.
Review of offshore anchoring		Wollongong	<p>Presentation of research findings by project partners, University of Wollongong (UOW) at the Australian Marine Sciences Association Conference 2022.</p> <p>Partners, UOW preparing a scientific paper on ecological effects of large ships anchoring on seafloor biodiversity.</p>

More information

More information on Initiative 7 projects is on the marine estate web site [here](#).

Initiative 8 – Enhancing social, cultural and economic benefits

Project summary

This initiative has a major education, research and monitoring component, working with institutions and government agencies to increase understanding of how we all use and value the marine estate, to maximise community benefits.

Initiative 8 has made significant progress during this period.

Triannual progress and key highlights

A breakdown of progress is outlined below

Project	Project icon	Location	Progress
Marine estate education Strategy		Statewide	Marine Estate Management Authority (Authority) endorsed the NSW Marine Estate Education Strategy.
Maritime heritage review		Coffs Harbour	Assisted NSW Heritage Office to recover sections of the Buster, the Woolgoolga shipwreck, that had been dislodged due to severe weather.
Social and cultural benefits monitoring and research		Statewide	<p>The NSW Coastal Residents, NSW Coastal Visitor and Youth (ages 14 – 17 years) community wellbeing reports being finalised.</p> <p>Innovative communication materials are being developed to accompany release of the reports.</p> <p>Delivery of the draft Connections to Sea Country report for Aboriginal people of coastal NSW.</p> <p>Agency staff and targeted stakeholder questionnaires developed.</p>
Economic benefits monitoring and research		Statewide	<p>Economic Contribution of the NSW Marine Estate 2018-2020 report endorsed by the Marine Estate Management Authority.</p> <p>A series of materials including an economic dashboard have been developed in collaboration with a consultant to support the release and communicate the findings of the report.</p>
Marine estate economic valuation		Statewide	A series of marine estate stakeholder meetings and interviews were conducted to understand how a Natural Capital Accounting approach can add value and support existing MEMS projects.

What's next?

Work that is planned to occur in the following reporting period is highlighted below, although unexpected changes to scheduling can occur and will be communicated to affected stakeholders.

Project	Project icon	Location	Anticipated work
Marine estate education Strategy		Statewide	Public release of the NSW Marine Estate Education Strategy.
Economic benefits monitoring and research		Statewide	Public release of the Economic Contribution report. Public release of supporting material with the Economic Contribution report including economic dashboard, video, economic map and infographic.

More information

More information on Initiative 8 is on the marine estate web site [here](#).

Initiative 9 – Delivering effective governance

Project summary

Initiative 9 has expanded its scope to include marine planning projects that are critical to the delivery of NSW Government commitments and community expectations for the delivery of holistic governance. The Initiative now embeds protected area planning and management for the five coastal mainland marine parks in NSW, aquatic reserve management, and compliance in the Greater Sydney region.

Overall delivery of Initiative 9 is proceeding well with significant achievements this period.

These projects are contributing to improved governance in the areas of marine parks, aquatic reserves, and compliance and across the marine estate as a whole.

Triannual progress and key highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Improved Marine Park Management Planning		NSW Marine Parks	<p>Public feedback of the Draft Management Plan for the NSW Mainland Marine Park Network was analysed and a summary of submissions report prepared.</p> <p>Aboriginal community engagement report was completed by Origin Communications.</p> <p>Response prepared and feedback considered to improve the Draft Network Management Plan for NSW Mainland Marine Parks.</p>
Improved management of aquatic reserves and high value sites		Statewide Northern Beaches LGA	<p>University of Wollongong social and ecological research on aquatic reserves draft report delivered.</p> <p>Day at the Bay festival held to celebrate 20th anniversary of the declaration of Cabbage Tree Bay Aquatic Reserve.</p> <p>Installation of marine life identification signs at Cabbage Tree Bay Aquatic Reserve and unveiling by Minister for the Environment and Heritage and Deputy Mayor of Northern Beaches Council at the Day at the Bay festival.</p>
Greater Sydney region compliance focusing on marine protected areas		Statewide	<p>Continued compliance operations (offences, seizures and inspections) across the Greater Sydney region.</p> <p>Sydney Harbour Force, 10-episode TV show for the Discovery channel network, was filmed. Episodes involving Fisheries staff in the marine estate working on shark tagging, and enforcement of recreational fishing, commercial trawling, and illegal fishing and poaching in Aquatic Reserves (Boat Harbour).</p>

What's next?

Work that is planned to occur in the following reporting period is highlighted below, although unexpected changes to scheduling can occur and will be communicated to affected stakeholders.

Project	Project icon	Location	Anticipated work
Improved Marine Park Management Planning		NSW Marine Parks	Submission of the final Management Plan for NSW Mainland Marine Parks, submissions reports and communications plan for approval.
Improved management of aquatic reserves and high value sites		Northern Beaches	Community festival to be held with northern Beaches Council. University of Wollongong social and ecological research on aquatic reserves research delivered.
Greater Sydney region compliance focusing on marine protected areas		Greater Sydney	Focus on invertebrates and fish taken illegally and the increasing numbers of hand collectors and fishers in the Greater Sydney region.

More information

More information on Initiative 9 is on the marine estate web site [here](#).

Part C: Additional program requirements

Program management, monitoring, reporting and evaluation

Project summary

At a strategic level there are several objectives that support the implementation of the Strategy, including continuous improvement of governance structures and the program management framework to ensure collaboration and coordination across all agencies, as well as planned monitoring, reporting and evaluation projects in place to measure success. Communication, engagement and Geographical Information Systems (GIS) support is also facilitated at this strategic level.

The [previous triannual report](#) and [2020-21 Marine Strategy Implementation Annual Report](#) are available on the marine estate website.

Triannual progress and key highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Strategy program management		Statewide	<p>\$31M/ annum over six years announced in June. Related communications drafted and released including webpage changes and news story published.</p> <p>Development of implementation plan and project management processes. Partner MoU's in development.</p> <p>Publication of MEMS Triannual snapshot report.</p>
Strategy education, communication, and stakeholder liaison		Statewide	<p>Independent review of MEMS communication and engagement completed. Report with recommendations for improvement received and being considered.</p>
Monitoring Program – program management		Statewide	<p>Technical reports outlining monitoring of community wellbeing and environmental condition are being finalised by MIMP Technical Working Groups.</p> <p>A MIMP data management strategy and data architecture are being developed and implemented.</p> <p>A MIMP reporting dashboard prototype is in development.</p> <p>Threat and risk assessment five-year review has commenced. Scoping and reviewing background information is underway, including for new/additional threats.</p>

What's next?

Work that is planned to occur in the following reporting period is highlighted below, although unexpected changes to scheduling can occur and will be communicated to affected stakeholders.

Project	Project icon	Location	Anticipated work
Strategy program management			Finalise program planning for 2022-2024, publish implementation plan, finalise partner MOUs.
Strategy education, communication, and stakeholder liaison		Statewide	Publish MEMS promotional videos which aims to increase awareness and support for the MEMS and showcase some of the key achievements to date.
Monitoring Program – program management		Statewide	<p>Continue compiling and updating relevant background information and additional scoping for the threat and risk assessment five year review.</p> <p>Finalise a MIMP reporting dashboard prototype that includes Threat and Risk Assessment information.</p> <p>Undertake a key knowledge gap analysis for the MIMP.</p>

More information

More information on Program management, monitoring, reporting, and evaluation is on the marine estate web site [here](#).

Appendix A – List of abbreviations

Abbreviation	Definition
Authority	Marine Estate Management Authority
COVID-19	Coronavirus
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DPI-Ag	Department of Primary industries – Agriculture
DPI-F	Department of Primary Industries – Fisheries
DPE-EHG	Department of Planning and Environment – Environment & Heritage Group
DPE-Lands	Department of Planning and Environment – Crown Lands
DPE-PA	Department of Planning and Environment – Planning and Assessment
DPE-Water	Department of Planning and Environment – Water
FSG	Fertiliser Stewardship Group
GIS	Geographic Information System
Knowledge Panel	Marine Estate Expert Knowledge Panel
LGA	Local Government Area
LLS	Local Land Services
MASC	Marine Estate Agency Steering Committee
MEAM	Marine Estate Activity Mapping
MEMS	Marine Estate Management Strategy
MIMP	Marine Integrated Monitoring Program
MoU	Memorandum of Understanding
NPWS	DPE-EHG: National Parks and Wildlife Service
NSW	New South Wales
RRWQMS	Richmond River Water Quality Monitoring Strategy
SEED	Sharing and Enabling Environmental Data
SEPP	State Environmental Planning Policy
Strategy	Marine Estate Management Strategy
TARA	threat and risk assessment
TfNSW	Transport for NSW
WRL	Water Research Laboratory
QLD	Queensland

Appendix B – Communication and engagement

Date	Stakeholder	Activity	Initiative	Communication and engagement
March				
	NSW community	Instagram	5	<u>Today is #worldwildlifeday</u>
	NSW community	Instagram	1	<u>Today is Clean Up Australia Day!</u>
	NSW community	Instagram	8	<u>Throwback Thursday: Check out this video of our history!</u>
	NSW community	Instagram	1	<u>Helping the Tuross River bounce back from Black Summer fires</u>
	NSW community	Instagram	2	<u>New techniques used to map estuarine habitats!</u>
	NSW community	Instagram	8	<u>Throwback Thursday: Did you know that just over 139 years ago [February 1883] the Canadian built ship Buster was forced aground on Woolgoolga Beach?</u>
	NSW community	Instagram	8	<u>Froth, froth everywhere!</u>
	NSW community	Instagram	2	<u>How to best protect our precious estuarine fish populations?</u>
	NSW community	Instagram	1	<u>Today, March 22, is World Water Day. The theme for this year's World Water Day is groundwater, a critically important but often forgotten resource, so we thought we'd share one of our projects working on keeping our groundwater (and surface water) clean. (CCC)</u>
	NSW community	Instagram	8	<u>Throwback Thursday: Then and now: Woolgoolga Jetty</u>
	NSW community	Instagram	1	<u>How to reduce litter entering the NSW marine estate.</u>
	NSW community	Instagram	1	<u>Did you know Sydney was built on a foundation of oysters?</u>
	NSW community	Instagram	1	<u>You're invited! Register now for our Clean Coastal Catchment Webinar April 8 Nitrogen Removal Bioreactors - what works and what can go wrong?</u>
	NSW community	Instagram	2	<u>It's a wrap.. The latest round of estuarine surveys have just been completed by the Marine Estate habitat mapping team for the Macleay River, South West Rocks, The Hastings River, Port Hacking and St Georges Basin.</u>
	NSW community	Instagram	8	<u>A big milestone today, we have reached 1000 followers.</u>

Date	Stakeholder	Activity	Initiative	Communication and engagement
	NSW community	Instagram	1	How much plastic are you consuming each week? Take the quiz.
	NSW community	News story	3	Keen eyes spot Bull Kelp on the NSW south coast
	NSW community	News story	8	New signage to protect Woolgoolga maritime heritage
	NSW community	News story	1	Check out the new Don't Be a Tosser! website
	NSW community	News story	1	Sydney's forgotten oyster reefs
	NSW community	Newsletter	All	Marine estate news March 2022
	NSW community	News story	2	Fish on screen
	NSW community	News story	5	New species recorded in Lord Howe Island Marine Park
April				
	NSW community	Instagram	8	Happy Monday! There is nothing like a sunset over an estuary to lift the spirits.
	NSW community	Instagram	8	Happy Monday! Check out this amazing beach side sunrise.
	NSW community	Instagram	4	Check out the artwork on one of the three custom-built media trailers soon to be seen at an event near you.
	NSW community	Instagram	8	You've got to be still to catch them! You can't help but love soldier crabs!
	NSW community	Instagram	8	Fancy a stroll? Did you know beach walking one of the most popular recreational activity in our NSW marine estate?
	NSW community	Instagram	8	Are you looking for new ways to teach Geography (HSIE) and Science in your classroom?
	NSW community	Instagram	2	Applying to install a jetty or pontoon on NSW estuaries just got simpler!
	NSW community	Instagram	5	Check out Steve 'Starlo' Starling's tips to help you strike the balance when fishing.
	NSW community	Instagram	5	Critically endangered Smeagol hilaris sea slugs back from the brink of extinction!
	NSW community	Instagram	2, 6	Recreational Fishing Havens stocked with Dusky Flathead
	NSW community	News Story	2	Applying to install jetties and pontoons on estuaries just got easier!
	NSW community	News story	9	What's my zone?
	NSW community	News story	4	Recreational Fishing Havens stocked with Dusky Flathead

Date	Stakeholder	Activity	Initiative	Communication and engagement
	NSW community	News story	5	<u>Fishing and conservation go hand in hand</u>
	NSW community	News story	8	<u>New primary school program</u>
	NSW community	News story	All	<u>Marine estate news April 2022</u>
	NSW community	News story	4	<u>Aboriginal artwork takes to the road</u>
May				
	NSW community	Instagram	8	<u>You know the surf is big when the spray is reaching the top of the headland!</u>
	NSW community	Instagram	8	<u>We're on the road to Narooma...</u>
	NSW community	Instagram	28	<u>Surfing Boomerang Beach near Forster With the heavy seas of March and April behind us, it is a great time to hit the surf and enjoy all the NSW marine estate has to offer?</u>
	NSW community	Instagram	1,8	<u>Come along and have a chat and learn about the NSW marine estate at the Narooma Oyster Festival.</u>
	NSW community	Instagram	1,8	<u>Thanks @naroomaoysterfest. What a pleasure it was to talk to you all yesterday.</u>
	NSW community	Instagram	8	<u>Feeling crabby? Looking for ways to get the youngsters out of the house?</u>
	NSW community	Instagram	4	<u>Smoke on the water. Local Worimi Elders conducted what is possibly the first ever traditional smoking ceremony on the water at the official naming of two new oyster reefs in the Port Stephens-Great Lakes Marine Park today.</u>
	NSW community	Instagram	5	<u>Happy World Migratory Bird Day!</u>
	NSW community	Instagram	8,2	<u>Did you know Estuary Stingrays have gourmet habits?</u>
	NSW community	Instagram	1	<u>Great day on Thursday with more than 35 local growers joining the Clean Coastal Catchments Farm Walk tour at Woolgoolga.</u>
	NSW community	Instagram	1	<u>How can local councils become more fish friendly?</u>
	NSW community	Instagram	4	<u>Training to work on Sea Country</u>
	NSW community	Instagram	5	<u>Marine Discovery Talk Success!</u>
	NSW community	Instagram	5	<u>So Cute!! Let's Shellebrate World Turtle Day today (May 23) by sharing a story showing the NSW TurtleWatch volunteers ensuring hatchling turtles safely reach the water after hatching on our beaches.</u>

Date	Stakeholder	Activity	Initiative	Communication and engagement
	NSW community	Instagram	1	<u>Nothing to see here - and that's the point! New Integrated Orchard Management techniques to reduce erosion in macadamia plantations have proven themselves after withstanding the NSW North Coast extreme rainfall event earlier this year.</u>
	NSW community	Instagram	1	<u>Three Olympic swimming pools! That's the estimated amount of water the recently restored oyster reef in Port Stephens is filtering every hour!</u>
	NSW community	Instagram	8,5	<u>Winter is coming...and so are the whales.</u>
	NSW community	Instagram	1	<u>Living shoreline project kicks off in Narooma</u>
	NSW community	Instagram	4	<u>Elders as Mentors program. Did you know boomerangs were traditionally made from mangrove wood by the Worimi people of the Port Stephens area?</u>
	NSW community	News story	5	<u>Searching for Smeagol</u>
	NSW community	News story	5	<u>Port Stephens residents invited to free Marine Discovery Talks</u>
	NSW community	News story	1	<u>Surviving the deluge</u>
	NSW community	News story	4	<u>Recreational Fishing Havens stocked with Dusky Flathead</u>
	NSW community	News story	1	<u>Councils embrace fish friendly approach</u>
	NSW community	News story	4	<u>Smoke on the water</u>
	NSW community	News story	2,9	<u>Narooma Oyster Festival 2022</u>
	NSW community	News story	All	<u>Marine estate news May 2022</u>
	NSW community	News story	9	<u>Year 4, trimester 2 progress report published</u>
June				
	NSW community	Instagram	8	<u>Ever wondered how far a nautical mile is? Let us explain..</u>
	NSW community	Instagram	5	<u>A whale shark off Sydney's Eastern suburbs. Really?</u>
	NSW community	Instagram	4	<u>This week (27 May to 3 June) was National Reconciliation Week.</u>
	NSW community	Instagram	1,2	June 5 World Environment Day 2022 Mirror, mirror on the wall, Who's the most environmental of them all? Ok, so it's not a competition.
	NSW community	Instagram	8	Happy Monday! <u>The golden glow of a new morning through</u>

Date	Stakeholder	Activity	Initiative	Communication and engagement
				pandanus fronds. When was the last time you enjoyed a sunrise over the beach in the NSW marine estate?
	NSW community	Instagram	1, 2	<u>Lots of sharing ways to better manage our coasts at the 29th NSW Coastal Conference last week in Kingscliff.</u>
	NSW community	Instagram	All	<u>The Marine Estate Management Strategy projects are progressing. This latest Marine Estate Management Strategy Triannual snapshot includes updates on:</u>
	NSW community	Instagram	4	<u>Brrr. What a thing to do on the coldest day of the year so far!</u> Six Yuin divers commenced their three-week Research Scuba Diver training at Narooma last week with temperatures reaching just 12 degrees on their first day...
	NSW community	Instagram	2,8	<u>Did you know that there are three main species of dolphin on the NSW coast?</u>
	NSW community	Instagram	4	<u>A little footage from the smoking ceremony held on the waters near Karauh in May to culturally name two newly restored oyster reefs.</u>
	NSW community	Instagram	1	<u>How much microplastic have you eaten today?</u>
	NSW community	Instagram	2	<u>The first stage of the landmark Wagonga Inlet Living Shoreline project is now underway with crews laying the foundations for the new oyster reef on site!</u>
	NSW community	Instagram	All	<u>Marine Estate Management Strategy gains \$180 million in funding</u>
	NSW community	Instagram	2	<u>Learn about how you can get involved in the new Wagonga Inlet Living Shoreline project this Sunday, Jun 26!</u>
	NSW community	Instagram	2,8	<u>Oversized and underweight: Five things you probably didn't know about Australian Pelicans (Pelecanus conspicillatus)...</u>
	NSW community	Instagram	2,3	<u>Big data for better understanding ocean outflows</u>
	NSW community	Instagram	All	<u>The June NSW Marine Estate Newsletter is out!</u>
	NSW community	News story	2	<u>Living shoreline project kicks off in Narooma</u>
	NSW community	News story	4	<u>Seafaring on Sea Country</u>
	NSW community	News story	1	<u>Growers share benefits of fertiliser recycling</u>
	NSW community	News story	All	<u>Record investment to future-proof NSW marine estate</u>
	NSW community	News story	9	<u>Young minds take in World Ocean Day Event at Narooma</u>

Date	Stakeholder	Activity	Initiative	Communication and engagement
	NSW community	News story	2	<u>Big data for better understanding ocean outflows</u>
	NSW community	News story	All	<u>MEMS well represented at NSW Coastal Conference 2022</u>
	NSW community	Newsletter	All	<u>Marine estate news June 2022</u>