



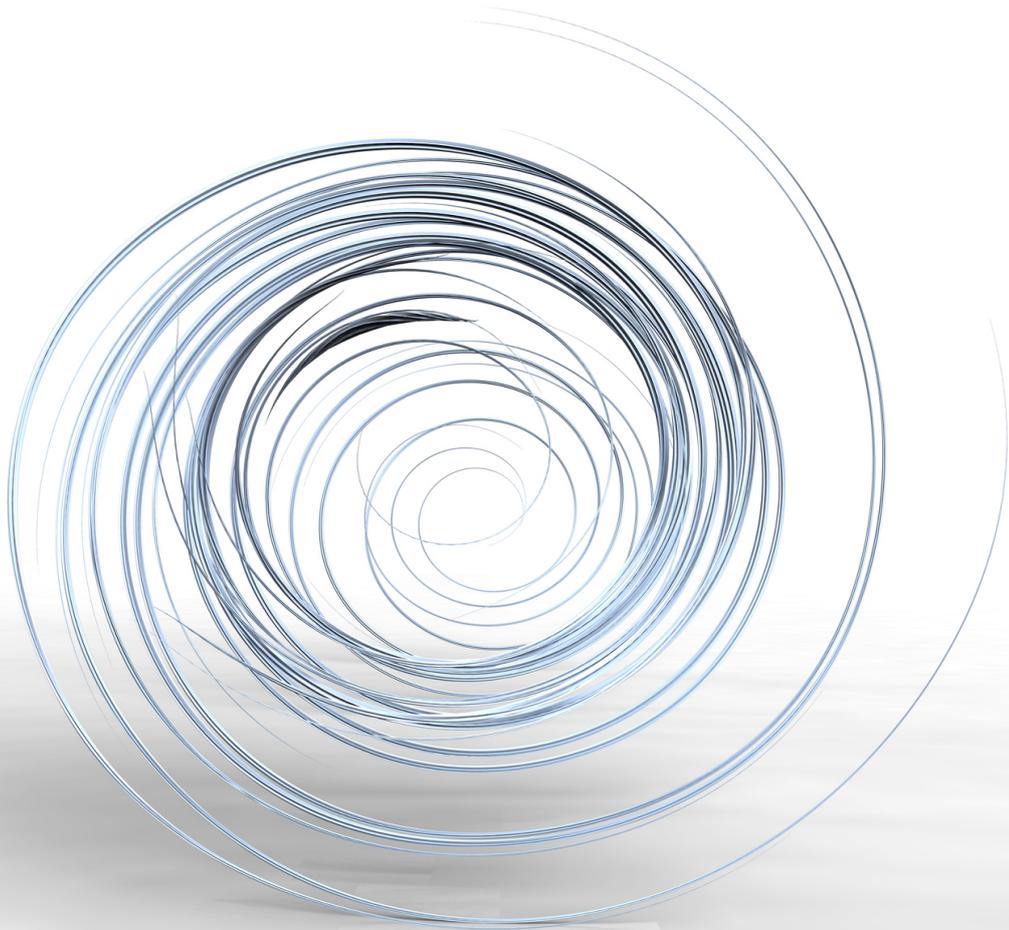
MARINE ESTATE MANAGEMENT STRATEGY

Quarterly snapshot

Reporting period – Year 3, Quarter 2

MARINE ESTATE MANAGEMENT AUTHORITY

INT21/7530



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



Image 1: Meeting place. Image: iStock.com-Kira_

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Part A: Strategy snapshot

Reporting period

Year	Quarter	From	To
3	2	1 October 2020	31 December 2020

Purpose of this snapshot

The purpose of this snapshot is to provide key stakeholders and the community with regular (quarterly) progress updates on the implementation of the Marine Estate Management Strategy (the Strategy). This snapshot includes updates on notable project highlights and informs stakeholders of planned deliverables in the second quarter, Year 3.

This snapshot should be read in conjunction with the [Strategy Implementation Plan](#) and the [Strategy Implementation Annual Report](#).

Delivering long term outcomes

The Strategy's nine initiatives contribute to delivering healthy waterways and coastal habitats, sustainable land use practices, as well as planning for climate change, protecting Aboriginal cultural values of the marine estate, reducing impacts on marine life, 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 provide assurance to the community and stakeholders that the program is implemented and monitored effectively and in a coordinated, integrated and transparent way.

Collectively, the initiative projects will improve water quality, reduce marine litter, improve the health of coastal habitats, reduce threats to marine wildlife, ensure sustainable foreshore development, sustainable fishing and aquaculture, promote safe and sustainable boating, prepare for climate change and protect the Aboriginal cultural values of the marine estate.

Some project names have changed from the previous quarter to better align with program and stakeholder understanding of the work. Additionally, some new projects have commenced in 2020/2021 and included in this report. Detailed information on the Marine Estate Management Strategy is available [online](#) and should be referred to when reading this document.

Program highlights this quarter

Of the 53 management actions contained in the Strategy, 46 are underway. Many of the management actions have multiple projects within them, which means over 100 projects of varying scale are currently active this quarter. The majority of these projects are in initiatives 1 and 2 as over half of Strategy funding is devoted to the highest priorities of improving water quality and ensuring sustainable use and development of our marine estate.

The highlights this quarter for each initiative are numerous; a selection of seven highlights illustrating the breadth of work and accomplishments achieved this quarter are below.

Project	Project icon	Highlights
Reviving culture		<p>Launched the South Coast Sea Country School Education program online.</p> <p>The program supports students to learn about Sea Country from traditional owners as well as using videos and classroom activities.</p>
Fish friendly workshops for councils		<p>Four fish friendly videos were published to assist local government to understand their obligations when working in waterways:</p> <ul style="list-style-type: none"> - Harming Marine Vegetation - Obstructing Fish Passage - An overview of the Fisheries Management Act, Permits and Orders - Dredging and Reclamation works
Partnerships to protect marine wildlife		<p>16 research and partnership workshops held with key universities, research bodies and NGO conservation groups to discuss research priorities and opportunities for collaboration.</p>
Fisheries enhancement		<p>Completed installation of the Tweed Offshore Artificial Reef which is part of a network of artificial reefs across the State that enhance fishing opportunities, by creating additional habitat for local aquatic organisms and fish.</p>
Mooring strategy		<p>Online private mooring map launched. The map provides a modernised and more streamlined service for boat owners to search and apply for a mooring.</p>
Greater Sydney region compliance focusing on marine protected areas		<p>Greater Metropolitan Mobile Squad Fisheries officers conducted more than 880 inspections with an observed compliance rate of 85%.</p> <p>A total of 215 offences have been reported by the officers in this quarter and the most common offences were possessing prohibited size fish, exceed possession limits and fail to pay fishing fee.</p>
Strategy education, communication and stakeholder liaison		<p>NSW Marine Estate Instagram channel launched to inform the community and stakeholders about the Strategy's success, provide program updates and relevant information.</p>

Part B: Initiative summaries

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

Initiative 1 – Improving water quality and reducing litter

Initiative 1 is split into two sections:

- **1a** reports on work led by Department of Planning Industry and Environment–Environment Energy and Science (DPIE-EES) primarily addressing water quality issues in the urban areas of the marine estate, and coordination of marine litter projects
- **1b** reports on the work led by Department of Primary Industries–Fisheries (DPI-Fisheries) which primarily focuses on improving diffuse source water quality in the regions, including on-ground works and coastal floodplain management.

The summary for Initiative 1 is split into 1a and 1b for reporting purposes.

1a – DPIE-Environment Energy and Science

Project summary

A wide range of projects are underway to improve water quality and reduce litter entering the marine estate. Water pollution was identified as the greatest threat to the marine estate and is a priority initiative under the Strategy.

Outcomes of the Risk-based Framework pilot projects are being reported by local councils and incorporated into Catchment Management Programs, Local Environment Plans as well as improving council processes. The reports will become technical publications to support uptake and build capacity on the Risk-based Framework more broadly. The marine litter campaign and marine debris threat and risk assessment have also made significant progress this quarter.

Quarterly progress and highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Risk-based framework for urban waterway health		Hornsby, Northern beaches, Wollongong and Shellharbour South Creek	Reports on the outcomes of the Risk-based Framework pilot projects have been provided by several councils. Risk-based Framework incorporated into planning for the Aerotropolis in the South Creek area, including the stormwater development controls and Sydney Water's Stormwater and Water Management Cycle Strategy.
Building capacity on the Risk-based framework		Statewide	Advisory committee established and outline of initial materials and tools required to build capacity on the Risk-based Framework drafted. Products will be designed to assist local councils to apply the framework.

Project	Project icon	Location	Progress
Review of the NSW Water Quality Objectives		Statewide	Online survey to identify how communities' value and use local waterways launched in mid-December. Data collected from the survey will inform the review of the NSW Water Quality Objectives.
Marine Debris Working Group		Statewide	The third and final stage of the marine debris threat and risk assessment which engages experts to provide professional input about the impacts of marine debris on environmental assets and social values is almost complete.

What's next?

Work that is planned to occur in the following quarter is reported 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		Statewide	Outputs and learnings from the pilots will be applied to the Risk-based Framework capacity building project. Local councils and other practitioners will continue to be involved through the projects advisory committee.
Marine litter campaign		Statewide	Launch the marine litter campaign.
Marine Debris Working Group		Statewide	Results from the marine debris threat and risk assessment compiled and final report completed by June 2021. Dedicated marine debris webpage established and information about the marine debris threat and risk assessment published.

1b – Department of Primary Industries-Fisheries

Project summary

A wide range of projects are underway to improve water quality and manage diffuse water quality issues across coastal areas draining to the marine estate. Water pollution was identified as the greatest threat to the marine estate and is a priority initiative under the Strategy.

Several on-ground works have been contracted and/or commenced in this quarter. This includes Local Land Services (LLS) on-ground monitoring to measure changes/benefits from on-ground works and maintenance works. Important communication material has been produced and distributed and more engagement is planned pending COVID-19 restrictions including fish friendly workshops for councils and local government engagement on coastal floodplain reports.

Quarterly progress and highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Coastal floodplain study		North coast	<p>First drafts of several coastal floodplain study reports reviewed internally. Planning stakeholder consultation needs with the contractor.</p> <p>Shared information on the project at the NSW Coastal Conference.</p>
Aquatic biodiversity offsets		Statewide	<p>A draft aquatic biodiversity offset policy has been reviewed internally. Comments are being reviewed and incorporated into an agency consultation program.</p> <p>An expert panel developing an updated economic valuation of aquatic habitats are finalising their draft report.</p> <p>The outcomes of this valuation process, including carbon sequestration values are being included in discussions on the development of the NSW Net Zero Plan Stage:2020-30.</p>
Fish friendly workshops for councils		<p>North coast</p> <p>Statewide</p>	<p>Completion of 50 work-site audits in Bellingen, Coffs Harbour and Kyogle Shire Council Local Government Areas.</p> <p>Drafting of Priority Best Practice Management Resource guidelines for local councils have commenced.</p> <p>Four fish friendly videos were published to assist local government to understand their obligations when working in waterways:</p> <ul style="list-style-type: none"> - Harming Marine Vegetation - Obstructing Fish Passage - An overview of the Fisheries Management Act, Permits and Orders - Dredging and Reclamation works

Project	Project icon	Location	Progress
Construction sediment management		Statewide	Consulted with partner agencies on problem definition and policy options. Discussion paper took on board 150 comments and the conditions are now being aligned with agency and related council feedback on proposed conditions. A coordinated external consultation process will occur prior to June 2021.
Oyster reef restoration		Port Stephens	Monitoring of Port Stephens pilot project continues to demonstrate excellent oyster recruitment, species biodiversity and abundance increases. Contracting for Stage 2 works completed, due to start in February 2021.
		Statewide	An international webinar attracted 140 participants. NSW oyster reef mapping video released and further mapping undertaken. Scientific papers on Baited Remote Underwater Videos (BRUVs) and eDNA for detecting assemblages with oyster reefs (with University of Newcastle) submitted for publication.
		South coast	Paddle and planning days on the South Coast held with local agency representatives to consider possible locations for future oyster reef restoration projects.
Riverbank vegetation improvements		Ballina, Midcoast LGAs, Shoalhaven, Bega Valley and Eurobodalla	North Coast LLS: Two contracts executed, and site action plan developed. Five of seven landholder agreements executed. Request for quote process almost completed for the monitoring component. South East LLS: Eight contracts signed with landholders and four in development. Works are underway at all sites with agreements and two have been completed (1.3 ha revegetation over 675m, 950 plants planted). Another five projects were completed from Stage 1, total of 7.4 ha of native vegetation being protected and enhanced and 3.1 ha of revegetation. The first round of monitoring has been undertaken with DPIE-EES. Hunter LLS: Two landholder contracts have been signed and works commenced. Six more projects are in development. Contract has been executed with University of Newcastle for monitoring component. Negotiations for maintenance component are underway. Riparian rehabilitation for Tilba Tilba video released.
Clean coastal catchments on-ground		Clarence Valley, Coffs Harbour, Bega Valley, Eurobodalla	North Coast LLS: Grant Guidelines were prepared and call for Expressions of Interest made. 57 applications were received for the project largely by berry growers in the Coffs Harbour and lower Clarence Valley LGA's.

Project	Project icon	Location	Progress
			South East LLS: Four projects have been signed with one more in development for landholders on both beef and dairy properties to undertake fencing of waterways and revegetation activities in the Pambula, Tuross, Tilba and Wagonga catchments.
Clean coastal catchments research		Lismore, Ballina, Coffs Harbour, Bega Valley	South Coast Dairy Industry consultation interviews, monitoring site selection and updated land-use mapping conducted.
Riverbank stabilisation		Ballina, Midcoast, Kiama, Eurobodalla	<p>North Coast LLS: Sites selected and necessary planning, permits and contracts executed.</p> <p>South East LLS: Two projects have draft agreements for bank and bed protection works with Kiama Council in the Minnamurra catchment and with a private landholder in the Wagonga Catchment.</p> <p>Hunter LLS: Sites have been selected, and scope of works under development with Soil Conservation Service and Northern Rivers Catchment Management.</p>
Improving roads and tracks		Ballina, Midcoast, Shoalhaven, Bega Valley	<p>North Coast LLS: Three sites shortlisted and prioritised with Ballina Shire Council. Funding deed drafted and executed. Works commenced on one site.</p> <p>South East LLS: Five sites identified for funding with two agreements signed.</p> <p>Hunter LLS: Sites prioritised with MidCoast Council and funding deed executed.</p>

What's next?

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

Project	Project icon	Location	Anticipated work
Coastal floodplain study		Tweed, Richmond, Clarence, Macleay, Hastings, Manning & Shoalhaven catchments	<p>All Coastal Floodplain Studies internally reviewed and updated, ready for local government and industry consultation.</p> <p>Contract to undertake engagement and communications activities finalised.</p>
Fish friendly workshops for councils		Statewide	<p>Three Fish Friendly workshops planned - subject to COVID 19 restrictions.</p> <p>Currently negotiating with Port Macquarie, Kempsey and Ballina Councils to recommence workshops in 2021.</p> <p>Letter sent to General Manager of Clarence Valley Council, Bellinger Shire Council, Coffs Harbour City</p>

Project	Project icon	Location	Anticipated work
			<p>Council and Kyogle Shire Council advising of output of worksite audits and Fish Friendly workshop.</p> <p>Progress Best Management Guidelines and video production.</p>
Oyster reef restoration		Port Stephens, South Coast	<p>Progress Stage 2 on-ground works in Port Stephens.</p> <p>Progress site selection, community engagement and planning for on-ground works on South Coast and Botany Bay in a new partnership with The Nature Conservancy.</p> <p>Shellfish Reef Restoration Planning and Implementation Guidelines on marine estate website.</p>
Riverbank vegetation improvements		Ballina, Midcoast, Shoalhaven, Eurobodalla, Bega Valley	<p>Contracts for on-ground works finalised and on-ground works continuing.</p> <p>Contracts negotiated and awarded to successful monitoring and maintenance service providers.</p>
Clean coast catchment on-ground		Coffs Harbour, Shoalhaven, Eurobodalla and Bega Valley	<p>NC LLS: Assess applicants and short list eligible candidates. Hort 360 (computer-based risk assessment tool for farm business operations) Interviews and irrigation system assessments conducted. Prepare projects for grant funding process.</p>
Clean coast catchment research		<p>Eurobodalla and Bega</p> <p>Coffs Harbour</p>	<p>Establish grazing monitoring site adjacent to Tilba Tilba Lake, South Coast, with DPIE-EES, and related irrigation system assessments.</p> <p>Pilot Fercare agronomist training workshop on north coast.</p> <p>Rainfall simulation study report produced.</p>
Riverbank stabilisation		Ballina, Manning, Kiama, Eurobodalla	<p>On-ground bank stabilisation works to commence in all three LLS regions.</p>
Coastal wetland rehabilitation		Tweed, Bellingen, Kempsey, Port Stephens, Shoalhaven	<p>Implement floodgate repair works at Tomago and Kalang. Co-fund projects in the Macleay. Progress project sites at Christies Creek and in Shoalhaven.</p>
Improving roads and tracks		Ballina, Midcoast, Shoalhaven, Bega Valley	<p>North Coast LLS - One of three sites completed and works commenced on second site.</p> <p>South East LLS - Finalise remaining agreements and commence works.</p> <p>Hunter LLS - Commence works.</p>

More information

More information on Initiative 1 projects are on the marine estate web site [here](#).

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

Project summary

Initiative 2 seeks to improve coastal and marine habitats as well as foreshore and waterway management through various projects. A multiagency and local government collaborative effort is underway to prioritise rehabilitation works and funding, while providing strategies that facilitate streamlined approvals.

Overall delivery is progressing well with some key strategies and guidelines developed and commencing or nearing consultation. This includes consultation with 11 Coastal Councils to discuss key issues with the current regulatory approval processes for Coastal Floodplain drainage management.

Significant seagrass, mangrove and saltmarsh mapping has been achieved through the Marine Vegetation Strategies, updated mapping completed for priority estuaries and the now automated process of mapping of artificial structures and disturbances. Work is also underway on analysing a large underwater video data set to produce maps of reef fish assemblages throughout the Greater Sydney region.

Quarterly progress and highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Coastal design guidelines review		Statewide	New draft Coastal Design Guidelines completed and internal and targeted external consultation underway.
Domestic waterfront structure strategies		Statewide	<p>Priority southern estuaries confirmed to be Lake Illawarra, Minnamurra, Werri Lagoon, Shoalhaven/Crookhaven, Currumbene Creek, St Georges Basin, Lake Conjola, Narrawallee Creek, Burrill Lake and the Clyde River.</p> <p>Other priority estuaries in the north confirmed as Evans River (Richmond Valley) and a review of 2008 Tweed River Estuary Strategy.</p> <p>Richmond River Strategy and template completed.</p>
Marine vegetation strategies		Bulli to Batemans Bay	Completed the biophysical analysis for Stage 2 estuaries (from Bulli to Batemans Bay) to indicate the potential sites for marine vegetation. This is the first of three degrees of investigation that contribute to the development of the modelling process that informs the marine vegetation strategy.
Estuary foreshore management strategies		Tweed and Byron Shire LGA	A draft Decision Support Tool and interactive web-based map categorising erosion severity, and best practice management practices along the foreshores of two priority estuaries - Tweed and Brunswick, have been developed.
		Statewide	A Bank Management Strategy template is in development.

Project	Project icon	Location	Progress
Coastal floodplain drainage management		Bryon, Lismore, Clarence, Port Stephens, Mid Coast, Maitland, Kempsey, Shoalhaven, Newcastle	Nine more local government consultation meetings held discussing floodplain regulatory issues. Interagency working group met three times to progress project internally.
Mapping seagrass, mangrove and saltmarsh		Statewide	Scientific paper on changes in seagrasses over the last 35 years submitted to the journal Estuarine Coastal and Shelf Science. Development and implementation of artificial intelligence techniques for mapping artificial structures and impacts to fish habitat.
Subtidal reef monitoring		Newcastle to Wollongong	Submitted a draft scientific paper - "Assessing habitat associations and multiple stressors on the distribution of pink snapper along Australia's most populated coastline" for internal review.

What's next?

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

Project	Project icon	Location	Anticipated work
Coastal design guidelines review		Statewide	Prepare guidelines and communications materials for exhibition and engagement with targeted councils.
Domestic waterfront structure strategies		Ballina, Lismore, Richmond Valley and Byron Bay	Richmond River estuary and Brunswick River estuary Domestic Waterfront Land Owners Consent Strategies published to the marine estate website.
Estuary foreshore management strategies		Statewide	Contract external consultant to undertake quality assurance and control testing of the Decision Support Tool.
Coastal floodplain drainage management		Tweed to Shoalhaven	Hold key industry meetings including with agriculture and fisheries stakeholders. Prepare a 'what we heard' summary report on local government and industry feedback and consultation.

Project	Project icon	Location	Anticipated work
Mapping seagrass, mangroves and saltmarsh		Mid Coast and South coast	Seagrass, mangroves and saltmarsh maps completed for Manning River, St Georges Basin, Bermagui.
Innovative technology research		Sydney	Artificial structures such as jetties, pontoons and boat ramps mapped for two Sydney estuaries.
Subtidal reef monitoring		Newcastle to Wollongong	Finalise of maps of reef fish assemblages across the Greater Sydney region.

More information

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

Initiative 3 – Planning for climate change

Project summary

Key projects underway are mapping vulnerable estuarine ecosystems and monitoring rocky reefs, to increase resilience and mitigate the effects of climate change.

Climate change monitoring continues with sampling and reporting project findings through peer reviewed research papers. Two new projects Climate change adaptation and Climate change citizen science will commence next quarter.

Quarterly progress and highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Climate change monitoring		Statewide	<p>Biota on rocky reefs along the state analysed. Examining addition of other vulnerable range retracting species for monitoring.</p> <p>Research paper on climate refugia for kelp published in Marine Environmental Research</p> <p>Internal DPI-Fisheries workshop on climate change held to target future research.</p>

What's next?

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

Project	Project icon	Location	Anticipated work
Climate change monitoring		Statewide	<p>A predictive model for kelp distributions along the NSW coast constructed to anticipate future change and examine distributional shifts due to climate change.</p> <p>Completion of third year of baseline monitoring of NSW reefs.</p>
		Port Macquarie	Snorkel surveys examining the northernmost populations of crayweed conducted to identify any climate change impacts.
Climate change citizen science		Statewide	Project planning completed to support citizen science observations of out of range species in NSW to the website REDMAP . Plans for a report card for NSW.

More information

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

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

Project summary

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

Engagement of local Aboriginal people and communities was a focus for this quarter. The launch of an online Sea Country Education Program will enable continued and more broader learning about Sea Country across the State. This adaptation of the program came about as a result of the enduring public health restrictions due to COVID-19.

Quarterly progress and highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Sea country rangers		North coast	Delivery of second Sea Country Custodians training with an additional 20 people from Bundjalung, Gumbaynggirr and Dunghutti nations trained in marine wildlife responses and events. An additional 20 people from the Yaegl nation successfully completed and acquired a general boat licence and safety training.
		South coast	Completed the Wallaga Lake Boardwalk which generated local employment and ensured traditional owners were engaged to protect this significant place to the Yuin people.
Reviving culture		Statewide	Launched the Sea Country School Education program online to enable primary school students and their schools to access the program remotely, especially during public health restrictions.
		South coast	A Sea Country culture and science camp was held at Mystery Bay with local Yuin people gathering to celebrate and share their culture and learn from marine scientists.

What's next?

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

Project	Project icon	Location	Anticipated work
Sea country rangers		Statewide	Sea Country Custodians video to be finalised and approved for publishing. Wallaga Lake Boardwalk video to be finalised and approved for publishing.

Project	Project icon	Location	Anticipated work
Elders as mentors		Statewide	Elders are a key source of knowledge and wisdom in Aboriginal cultures. Local Elders and cultural knowledge holders will mentor the five mainland marine parks to increase their understanding of local cultures to enhance the protection of Sea Country.
Pipi harvest		Statewide	Work with Aboriginal communities to implement testing of pipis to manage for food safety risks. This will allow for safe consumption and to ensure this cultural practice continues.

More information

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

Initiative 5 – Reducing impacts on threatened and protected species

Project summary

Taking action to protect threatened and protected species in the marine estate by working with the community, partners, industry and government partners 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.

Higher than normal marine wildlife strandings along the NSW coast these last two quarters has given focus to post mortem investigations and data collection. Turtle nesting commenced with six nests laid in NSW. Multiple partnership and research workshops were held, and shorebird training commenced for NSW central and north coasts.

Field based observations, historical observer and fishery data analysis to examine and understand ways to mitigate threats and risks to fish assemblages and threatened and protected species resulting from commercial fishing operations were conducted. Based on information gathered and analyses, project leads are working in collaboration with Professional Fishermen's Association (PFA) and Ocean Watch Australia testing and implementing measures to reduce impacts to fish assemblages and threatened and protected species. Seabird management plans delivered specifically to individual trawl vessels. Field trials conducted by participating commercial fishers to examine implementation of a new type of rope that could potentially reduce whale entanglements was completed with a workshop planned for next quarter to evaluate results and determine the next steps.

Quarterly progress and highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Planning to protect marine wildlife		Statewide	NPWS Marine Wildlife Management Manual in final stages of approval.
Partnerships to protect marine wildlife		Statewide	<p>Increased necropsy investigations to support identification of key and emerging threats.</p> <p>Development of initial treatment and care of sea turtles guidelines to complement the Code of Practice for injured and sick sea turtles.</p> <p>16 research and partnership workshops held with key universities, research bodies and conservation groups to discuss research priorities and opportunities for collaboration.</p> <p>Cultural values incorporated into several marine wildlife events along NSW coast including from Sydney and with the Worimi people, Dungutti people, Gumbaynggirr people and Arakwal people.</p>
Education to protect and conserve marine wildlife		North and central coast Sydney	<p>Shorebird training and support provided at seven sites; Gaagal Wanggaan National Park (NP), Urunga Island, Corrie Island, Smith Lake, Myall lakes NP, Worimi NP, Karagi Point.</p>

Project	Project icon	Location	Progress
			Community education and engagement opportunities explored cross agency for Posidonia seagrass and other threatened marine species at specific sites in Sydney's northern beaches.
Ocean Trap and Line Fishery observer survey		Tweed to Port Stephens	47 observed-sea days completed onboard participating commercial vessels from several northern NSW ports. To date, over 200 trips have been observed.
Estuary General Fishery observer survey		Northern and Central regions	Preliminary analyses of data collected during Stage 1 completed. A total of 397 fishing trips were observed across seven estuaries with a total of 12,330 trap lifts monitored for catches and 4,477 wildlife observation periods completed over two years. 47 commercial fishers voluntarily participated in the survey.
Ocean Trawl Fishery observer survey		Northern and Central regions	Manuscript submitted to peer reviewed scientific journal "Understanding discarding in trawl fisheries: A model based demersal case study with implications for mitigating and assessing impacts". This paper analyses observer data collected from the Ocean Prawn Trawl Fishery to understand the impact of environmental and vessel operational forces on discarding which may aid in its reduction via informed monitoring and management.
Strategies for mitigating species interactions		Mid-Coast, Port Stephens, Newcastle, Central Coast	In collaboration with Ocean Watch Australia a series of port meetings were held to facilitate the voluntary adoption of Seabird Management Plans (SMP) and distribute physical mitigation devices .

What's next?

Work that is planned to occur in the following quarter is reported 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	Commencement of contract to review rescue and large whale disentanglement training against new National Units of Competencies.
Partnerships to protect marine wildlife		Statewide Greater Sydney	Training and implementation of new Marine Wildlife Management Manual, including through a series of marine preparedness training days. Trial new seal identification, risk assessment, triage and initial first aid training with Taronga Conservation Society and priority staff. Finalise MoU with Marine Rescue NSW.

Project	Project icon	Location	Anticipated work
Education to protect and conserve marine wildlife		Greater Sydney	<p>Temporary seal approach distance signage distributed to Organisation for the Rescue and Research of Cetaceans in Australia (ORRCA). Trial seal approach distance signage with Transport for NSW and private pontoon leases.</p> <p>Manufacture and installation of interpretive products for Barrenjoey Headland pending stakeholder approval.</p>
Observer survey prioritisation		Statewide	Submitted final report for internal review "Prioritisation of the NSW Commercial fisheries scientific observer program - Future research priorities and effective sampling designs"
Ocean Trap and Line Fishery observer survey		Tweed to Newcastle	50 observed-sea days onboard participating commercial vessels from several northern NSW ports.
Estuary General Fishery observer survey		Northern and Central regions	Detailed analyses of data collected during stage 1 completed to describe the variables affecting bycatch from estuary general fisheries.
Ocean Trawl Fishery observer survey		Northern and Central regions	Detailed analyses of bycatch data collected from the program to address threats to fish assemblages (harvest and bycatch stressors).
Strategies for mitigating species interactions		Statewide	<p>Finalise analysis of historic NSW whale entanglements to examine potential variables resulting in entanglements.</p> <p>Present the results of field trials, the initial Whale Code of Practice, and further research topics identified by the East Coast Whale Entanglement Mitigation Project at a workshop facilitated by OceanWatch Australia.</p>

More information

More information on Initiative 5 projects are 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.

Research and knowledge gathering feature across several projects this quarter including for harvest strategies, socio-ecological research and marine estate benefits. Consultation and engagement was undertaken for the Draft NSW Fisheries Harvest Strategy and Policy Guidelines. Marine biosecurity awareness survey underway with feedback anticipated to inform recommendations for communications and behaviour change tools. Stock status summary reports for 2020/2021 were also released this quarter.

Quarterly progress and highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Harvest strategy development		Statewide	Draft NSW Fisheries Harvest Strategy Policy & Guidelines released for public consultation.
Harvest strategy research		Statewide	<p>Preliminary ecological risk assessment for by-product species of the Ocean Trawl Fishery completed and results presented to the Working Group.</p> <p>Completed a review of available data sources for recreational fisheries in NSW. In collaboration with researchers from University of Tasmania, some of these data sources have now been developed into performance indicators for key target species in NSW - yellowfin and black bream to be used in future harvest strategies for these species, and as a case study for developing such indicators for other fish stocks in NSW.</p>
Recreational fishing environment assessment		Statewide	<p>Two livestream "The Fishing Stream" events focussing on dusky flathead and responsible Summer family fishing delivered.</p> <p>New bag limit for cockles announced and commenced October 2020. Rules changes address overharvesting, community concerns and black marketing.</p>
Socio-ecological research		Statewide	University of Tasmania report that addresses the social dimensions and governance challenges of implementing integrated management relevant to managers of the NSW marine estate delivered. The report provides an evidence base for the NSW Marine Estate Management Strategy (Strategy) to refine current implementation approaches and, where necessary, invest in capacity building across the implementation teams. Report to be shared next quarter.

Project	Project icon	Location	Progress
Wild catch fish stocks		Statewide	<p>Stock status summary reports for 2020/2021 completed and published.</p> <p>External review of assessments completed with members of the Ocean Trap and Line Fishery and the Ocean Trawl Fishery.</p>
Fisheries enhancement		Tweed	Completed installation of the Tweed Offshore Artificial Reef .
Eat more NSW Seafood		Statewide	Collaboration between DPI-Fisheries and Seafood Industry Council developed the Eat more NSW Seafood 2021 grants program. A governance committee and program guidelines established.
Marine biosecurity awareness		Statewide	<p>Marine biosecurity awareness survey released December 2020. The survey targets small to medium sized recreational vessel owners, to better understand the current knowledge of biosecurity and the benefits and drivers to managing biofouling on small-medium sized recreational vessels.</p> <p>Targeted stakeholder interviews conducted for ~20 key groups to identify barriers, benefits and drivers to managing biofouling on small-medium sized recreational vessels.</p>

What's next?

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

Project	Project icon	Location	Anticipated work
Harvest strategy development		Statewide	<p>Review feedback from public consultation on the NSW Fisheries Harvest Strategy Policy and Guidelines.</p> <p>Call for Expressions of Interest in the Spanner Crab Harvest Strategy and Abalone Harvest Strategy Working Groups made and convene a selection committee to source members.</p>
Harvest strategy research		Statewide	<p>Progress development of ecological risk assessment for other ecological components of the Ocean Trawl Fishery and fill knowledge gaps for by-product species.</p> <p>Hold research workshops with NSW recreational fishers to understand fishing priorities, for consideration in future harvest strategies.</p> <p>Investigate performance indicators from NSW recreational fishing data to inform harvest strategy development for multi-sector fisheries.</p>

Project	Project icon	Location	Anticipated work
Marine biosecurity awareness		Statewide	Analyse statewide survey data and report findings, including recommendations for communications and behaviour change tools. Complete and analyse targeted stakeholder interviews.

More information

More information on Initiative 6 projects are 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.

Quarterly progress and highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Mooring strategy		Statewide	Online private mooring map launched to provide a modernised and more streamlined service for boat owners to search and apply for a mooring.
Marine pollution legislation		Statewide	The Marine Pollution Amendment (Review) Bill 2020 introduced in Parliament and passed in the Legislative Assembly on 11 November 2020.
Review of offshore anchoring		Central region – Wollongong	Peer reviewed paper reviewing the global the impacts of anchoring on marine life and seabed environments published in Marine Pollution Bulletin.

What's next?

Work that is planned to occur in the following quarter is reported 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
Recreational boater education		Statewide	Release the updated boating handbook to public.
Review of offshore anchoring		Greater Sydney region - Wollongong	Submission of an article on the effects of offshore anchoring on reef fishes.

More information

More information on Initiative 7 projects are 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.

Key pieces of work such as the Marine Estate Education Strategy will progress to targeted consultation in the next quarter and the coastal residents and visitors surveys have been finalised. The Sea Country (marine estate) survey gained conditional approval from Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) Ethics Committee and survey design has progressed with in-depth engagement with the internal Aboriginal Technical Working Group.

Quarterly progress and highlights

A breakdown of progress is outlined below

Project	Project icon	Location	Progress
Marine estate education strategy		Statewide	Draft Marine Estate Education Strategy approved for targeted consultation in February 2021.
Maritime heritage review		Coffs Harbour	Localised threat and risk assessment completed.
Community wellbeing framework		Statewide	Implementation of the coastal residents and visitor surveys. Final approval of the Sea Country (marine estate) survey.

What's next?

Work that is planned to occur in the following quarter is reported 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	Targeted consultation with stakeholders on the draft Marine Estate Education Strategy completed.
		Coffs Harbour	Marine Estate Agents pilot project plan finalised with internal working group.
Maritime heritage review		Coffs Harbour	Explore innovative ways of interpreting items and sites.

Project	Project icon	Location	Anticipated work
Community wellbeing framework		Statewide	Implementation of the coastal residents and visitor survey. Final approval of the Sea Country (marine estate) survey.
Capturing local ecological knowledge		Central coast	Commence pilot of a system for capturing local ecological knowledge to promote the value of using different knowledge systems for understanding and managing the marine estate.

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 changed its focus from high level program governance to governance at the project level, which is enabled by several new projects. This includes marine planning actions proposed in 2020/21 that are critical to the delivery of NSW Government commitments and community expectations for the delivery of improved marine park management planning for the five coastal marine parks in NSW, aquatic reserve management, and compliance in the Greater Sydney region.

Quarterly progress and highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Improving project governance		Statewide	<p>Relevant Strategy governance projects have now been identified and categorised using the outcomes for Initiative 9 from the Marine Integrated Monitoring Program framework.</p> <p>Approximately half of the projects identified aim to improve consistency, coordination and integration and/or efficiency and effectiveness in managing the marine estate. Most projects intend to deliver on more than one aspect of governance for improvement.</p>
Greater Sydney region compliance focusing on marine protected areas		Newcastle to Wollongong	<p>Greater Metropolitan Mobile Squad Fisheries officers conducted more than 880 inspections with an observed compliance rate of 85%.</p> <p>A total of 215 offences have been reported by the officers in this quarter comprised of 22 pending actions, 1 verbal caution, 109 written warnings and 83 penalty notices. Most significant offences were possessing prohibited size fish (49), exceed possession limits (44) and fail to pay fishing fee (42).</p> <p>A total of 8116 invertebrates and fish were seized including 3908 mixed shellfish, 3764 cockles, 103 turban snails and 78 sea urchins.</p>

What's next?

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

Project	Project icon	Location	Anticipated work
Improving project governance		Statewide	Review initiative program logic and engage a contractor to review and update to better align with the current and future projects to deliver effective governance in the NSW marine estate.
Improved management of aquatic reserves		Statewide	Engage consultant to develop a program logic for improving management of aquatic reserves.

Project	Project icon	Location	Anticipated work
and high value sites			
Better geographic information systems for the marine estate		Sydney	Continue remnant oyster reef mapping including for Botany Bay/Georges River.
Greater Sydney region compliance focusing on marine protected areas		Newcastle to Wollongong	Commence offshore compliance work in the 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 program level there are several objectives we are seeking to achieve, including implementing a governance structure and program management framework to support delivery of the Strategy statewide and provide MEMA agencies and staff with the tools and training to ensure robust governance and project management is coordinated, integrated and transparent.

In addition, we are seeking to improve communication, engagement, and education to increase community awareness of the marine estate and associated threats and benefits and enable effective community participation.

Other key work includes implementing a monitoring program to fill key knowledge gaps and facilitate centralised and efficient coordination, reporting and integration of environmental, social, cultural and economic data into the management of the NSW marine estate. This includes the development of an evaluation framework for the Authority, responsible agencies and relevant Ministers to assess and report on progress of the Strategy in meeting clearly defined outcomes, highlight successes and consider threats that may need further management intervention.

Quarterly progress and highlights

A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Strategy program management		Statewide	Ongoing project management support provided across all Strategy agencies. Published MEMS Implementation Annual Report 2019-2020 and MEMS quarterly snapshot for year 3 quarter 1 .
Strategy education, communication and stakeholder liaison		Statewide	NSW Marine Estate Instagram channel launched in January 2021 to regularly inform the community and stakeholders about the Strategy's success, provide program updates and relevant information. Delivered the December edition of the Strategy newsletter to over 1100 subscribers. 11 news stories released to inform internal stakeholders of Strategy projects and build support and collaboration.
Monitoring program – program management		Statewide	The baseline/formative evaluation of years one and two of the Strategy is underway and includes process and outcome evaluation components. Scoping is underway for a data management system and reporting.

What's next?

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

Project	Project icon	Location	Anticipated work
Strategy program management		Statewide	Complete data and information gathering for the baseline/formative evaluation of the Strategy.
Strategy education, communication and stakeholder liaison			<p>Continue to increase the audience and reach for NSW Marine Estate Instagram channel.</p> <p>Preparations for a major redesign of the NSW Marine Estate website to improve accessibility and functionality, in line with the NSW Government's Digital Design Standards.</p> <p>Continued development of project profiles, news stories and media releases.</p>
Monitoring program – program management		Statewide	Complete the baseline/formative evaluation of the Strategy. Continue development of a data management system and options for reporting.

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-Agriculture	Department of Primary industries – Agriculture
DPI-Fisheries	Department of Primary Industries – Fisheries
DPIE-EES	Department of Planning, Industry and Environment – Environment, Energy and Science
DPIE-Lands	Department of Planning, Industry and Environment – Crown Lands
DPIE-Planning	Department of Planning, Industry and Environment – Planning and Assessment
DPIE-Water	Department of Planning, Industry 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	DPIE- EES: 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

Abbreviation	Definition
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
October	NSW community	Media release	8	Maritime cash splash creates hundreds of jobs
	NSW community	Media release	1	Collaboration stopping waterway-polluting sediment at its sources
	NSW community	Marine news	2	Release of educational video for Greater Sydney Harbour Coastal Management Program
November	NSW community	Marine estate news	5	Saving soft coral
	NSW community	Marine estate news	4	New resource gives students a virtual experience of Sea Country
	NSW community	Marine estate news	4	Restoring Sea Country back to health
	Local councils	Marine estate news	1	Fish friendly council videos
	NSW community	Marine estate news	7	Charting a course to more sustainable boating and shipping
	Commercial and recreational fishers	Media release	6	Fishers given greater input into harvest strategies
	Land managers	Media	1	Grants available for horticulture to keep nutrients on-farm

Date	Stakeholder	Activity	Initiative	Communication and engagement
		release		
December	NSW community	Marine estate news	5	Hiding in plain sight
	NSW community	Marine estate news	5	NSW trawl fishers get on-board with seabird friendly practices
	NSW community	Marine estate news	1	Seahorse conservation project is a 'wild' success
	NSW community	Marine estate news	5	Understanding how our coastal communities' value and use local waterways in NSW
	NSW community	Marine estate newsletter	1	Marine estate newsletter