

Marine Estate Management Strategy Triannual Snapshot

Reporting period November 2022 - February 2023

Marine Estate Management Authority

April 2023



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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. Three canoes - artwork by Leanne Barford, Ulladulla Local Aboriginal Land Council ©

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Table of Contents

Part A: Strategy snapshot	4
<hr/>	
Purpose of this snapshot	4
Delivering long-term outcomes	4
Program highlights this trimester	4
Part B: Initiative summaries	7
<hr/>	
Initiative 1 – Improving water quality and reducing litter	7
Initiative 2 – Delivering healthy coastal habitats with sustainable use and development	10
Initiative 3 – Planning for climate change	12
Initiative 4 – Protecting the Aboriginal cultural values of the marine estate	15
Initiative 5 – Reducing impacts on threatened and protected species	18
Initiative 6 – Sustainable fishing and aquaculture	21
Initiative 7 – Enabling safe and sustainable boating	23
Initiative 8 – Enhancing social, cultural and economic benefits	25
Initiative 9 – Delivering effective governance	27
Part C: Additional program requirements	29
<hr/>	
Appendix A – List of abbreviations	32
Appendix B – Communication and engagement	33

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 second trimester of Year 5 of the Strategy. Additionally, activities planned for the next reporting period (1 March 2023–30 June 2023) are highlighted in the ‘What’s next’ sections.

For more updates follow us on [Instagram](#), visit the [Marine Estate website](#), or subscribe to the [Marine Estate Newsletter](#). This snapshot should be read in conjunction with the [Strategy Implementation Plan 2022-2024](#).

Delivering long-term outcomes

The Strategy is a 10-year strategy, 2018-2028. The Strategy’s 9 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 are overarching components of the Strategy, embedded to assure the community and stakeholders that the program is implemented and monitored effectively and in an integrated and transparent way.






In June 2022, the NSW Government made a record investment of over \$182 million for the final 6 years of the 10-year Strategy. This investment will help to improve water quality by reducing pollution, to ensure our coastal habitats can thrive under the effects of climate change and to increase Aboriginal people’s role in protecting cultural values and managing Sea Country. Long term funding also ensures 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 second reporting period for 2022/23. There are close to 100 projects this year and good progress has occurred throughout the Program. In this Snapshot, we focus on some of the most notable achievements across the 9 initiatives in the Strategy. A selection of highlights illustrating the extent of work and achievements during this period is in Table 1. Communications and engagement activities during the period are summarised in Appendix B.

Table 1. Key highlights during November 2022 – February 2023

Project	Project icon	Location	Progress
Risk-based framework for urban waterway health		Wainmatta-South Creek	The new Technical Water Sensitive Urban Design Guidelines for achieving new stormwater targets in Wianamatta-South Creek was published. Public release aligned with the Premier’s announcement of the first approval of state significant development in Aerotropolis.
Fish friendly workshops for councils		Statewide	DPI Fisheries released a new video guiding councils on best practice in erosion and sediment controls to reduce soil entering our waterways during construction works. The video is the seventh video in the Fish Friendly Council video series.
Reconnecting fish habitats		Port Stephens Byron Shire	Works are underway at 2 priority fish passage locations to improve access to a wider range of important feeding and spawning habitats for migratory fish. Both projects including a new bridge, and construction of a new weir gate structure and fishway are due to be completed this year. The previous installation of a fishway at the Kyogle Weir is good news for the Richmond River, it’s fish, and anglers on the river. Summer sampling revealed more than 12 different species of native fish using the fishway to access more than 1500 km of waterways upstream from the weir.
Climate change threats to mangrove and saltmarsh		Statewide	Building on the published outcomes of the Statewide first-pass assessment of mangrove and saltmarsh vulnerability to sea level rise, significant progress has been made in completing the second-pass assessment. This assessment includes consideration of water and sediment delivery to wetlands from the catchment under climate change. The hydrological modelling has been completed and the results are currently being analysed to incorporate into the vulnerability assessment.
Cultural economic development		South Coast	The development of 4 new South Coast cultural tourism business plans were supported, to assist aspirations for cultural tourism business growth, particularly in the education tourism sector. The tourism programs operate within the boundary of the marine estate on Yuin Country. These are in addition to 4 businesses previously supported.

Project	Project icon	Location	Progress
Partnerships to protect marine wildlife		Statewide	Training was provided to DPI Fisheries shark meshing contractors on the identification of animals that were released live following disentanglement from the shark nets. This will improve our understanding of post-release survivorship of these species and allow more accurate assessments of the impacts of by-catch on vulnerable species.
Fisheries enhancements		Coffs Harbour Ballina Lake Macquarie Georges River	Coffs Harbour and Ballina were announced as the next 2 regions to receive offshore artificial reefs in 2024/25. 2,100 dusky flathead were released into Lake Macquarie and 400 advanced sized mulloway released into the Georges River. This is a complementary project not funded by the Strategy.
Boating Now Program		Statewide	The NSW Boating Now Round 4 Formal Application has closed and is currently being assessed.
Marine Estate Education Strategy		Statewide	The NSW Marine Estate Education Strategy was publicly released. It guides a more efficient and co-ordinated approach across government agencies and with stakeholders to build community awareness and foster stewardship of the marine estate.
Greater Sydney Region compliance focusing on marine protected areas		Greater Sydney	A targeted operation in Southern Sydney led to the seizure of more than 8,000 cockles illegally collected and listed for sale on Facebook. This is a significant deterrent for others considering the illegal sale of fish and lead to increased compliance.
Strategy program management		Statewide	The Strategy Implementation Plan 2022-2024 was published. This outlines how approximately 100 projects are delivered with partners over the next 2 years.

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 Implementation Annual Report for the 2021-2022](#). For more information on the location of projects refer to the [Strategy Implementation Plan 2022-2024](#) or [Strategy project locations map](#) on the [marine estate website](#).






Initiative 1 – Improving water quality and reducing litter

Project summary

Notable progress occurred across diverse projects to improve water quality and reduce litter. This includes on-ground work agreements that will reduce sediment entering waterways. Innovative approaches are being investigated with participating industry stakeholders, and tools are being developed for councils and key natural resource managers. Achievements also include the public release of new [Technical Water Sensitive Urban Design Guidelines](#) for achieving new stormwater targets in Wianamatta-South Creek, Statewide monitoring to assess broadscale condition and trends in water quality of the marine estate for 2022-23, and commencement of the Greater Sydney Harbour estuary water quality monitoring program. This will provide a foundation for the design and implementation of a long-term monitoring program of the iconic Sydney Harbour. In addition, the marine debris threat and risk assessment has continued and a contractor has been engaged to use an expanded methodology to measure positive change to water quality as a result of large-scale riparian revegetation, road sealing and bank stabilisation.







Triannual progress and key highlights

Project	Project icon	Location	Progress
Risk-based framework for urban waterway health		Wainmatta-South Creek	The new Technical Water Sensitive Urban Design Guidelines for achieving new stormwater targets in Wianamatta-South Creek was published. Public release aligned with the Premier's announcement of the first approval of state significant development in Aerotropolis.
Risk-based framework for regional waterway health		Statewide	A contract was awarded to undertake an expanded methodology to measure positive change in the ecological health of Emigrant Creek near Ballina, as a result of large-scale riparian revegetation.
Fish friendly workshops for councils		Statewide	DPI Fisheries released a new video guiding councils on best practice in erosion and sediment controls to reduce soil entering our waterways during construction works. The video is the seventh video in the Fish Friendly Council video series.
Oyster reef restoration and research		Eurobodalla	The Wagonga Inlet Living Shoreline citizen science project with OzFish and the Nature Coast Marine Group is progressing well. A workshop was held and 21 volunteers were inducted. Discussions with Joonga dive teams are progressing, to engage them in future research diving activities.

Project	Project icon	Location	Progress
Riverbank stabilisation		Eurobodalla	130 metres of riverbank stabilisation has been completed in Eurobodalla. Revegetation and stock exclusion fencing will be completed next period.
Clean coastal catchments research		Ballina	Blueberry foliar survey results have been analysed. Results note that leaf nitrogen and phosphorus were above sufficiency levels, however, other leaf nutrients such as calcium were deficient. This provides evidence that the application of fertiliser as ammonium (the preferred form of nitrogen for blueberry plants) is suppressing calcium uptake. Calcium levels in fruit are important for berry shelf life and disease resistance.
Coastal wetland rehabilitation		Shoalhaven	Installation of 2 floodgates commenced at Scots College by Soil Conservation Service in the Crookhaven River to control tidal flushing and improve wetland health.
Estuarine water quality monitoring		Statewide	Statewide monitoring to assess broadscale condition and trends in water quality of the marine estate is 70% complete for 2022-23. The focus is on the central region (Taree to Wollongong), and includes major waterways such as the Hunter River and Hawkesbury River. It provides insight on cumulative benefit of Strategy actions across the marine estate.
		Greater Sydney	The Greater Sydney Harbour estuary water quality monitoring program is underway. This contributes to the development of the Coastal Management Program and provides a foundation for the design and implementation of a long-term monitoring program in the iconic Sydney Harbour.
Mapping outflow events		Statewide	Collected in-water optical data in the Clarence, Hawkesbury and Hunter rivers to link satellite data with flood water data. The data is publicly accessible on CSIRO Data Trawler. The optical data were then used to develop algorithms and run preliminary analyses on the NSW satellite archive in the DataCube for the three estuary entrances. A paper on optical properties and characteristics for the estuaries has been drafted. Initial work has commenced on using satellite data to estimate sediment flux over time for the three estuaries.

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
Building capacity on the Risk-based framework		Ballina Central Coast Greater Sydney Shoalhaven	Follow up workshops with trial councils to bring a real-life case study with them and work through the methodology. Feedback will be used to further develop the training materials for ongoing courses.
Fish friendly workshops for councils		Statewide	Complete workshops with 4 Councils on the NSW north coast and determine 2 champions from each Council to guide erosion and sediment control training.
Oyster reef restoration		Eurobodalla	Commence range testing and acoustic tagging and tracking study of Dusky Flathead and Yellowfin Bream (scale dependent on funding).
Clean coastal catchments research		Eurobodalla	Contribute to the Bodalla Fert\$mart workshop in June 2023 run by Dairy NSW which brings together key stakeholders, including local farmers, to discuss best management practices for managing nutrients on farms to save on costs and reduce impacts on waterways.
Marine debris research and management program		Statewide	Draft conceptual model of marine debris in NSW and scientific conference poster planned.
Estuarine water quality monitoring		Statewide	Estuary webpages on the NSW Environment website updated, including: <ul style="list-style-type: none"> • report card grades summarising ecosystem health from the 2021-22 sampling period • estuarine recreational water quality condition grades from the 2021 Beachwatch sampling program • updated contextual information on why different estuaries received different condition grades.

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.

Strong collaboration and engagement, and robust project management practices in place are leading to successful outcomes, including new strategies and policies, fish passage improvements, and data and information sharing to fill knowledge gaps.





Triannual progress and key highlights

Project	Project icon	Location	Progress
Commercial dredging best practice		Statewide	The Audit of Commercial Dredging and Extraction on Coastal Crown land has been finalised and high priority recommendations are being progressively implemented.
Domestic waterfront structure strategies		Shoalhaven LGA	Removal of 3 unsafe and unauthorised structures in St Georges Basin.
		Richmond LGA	The Evans River Domestic Waterfront Structure Strategy was published which will help maintain access to public waterfront areas, and identify and protect sensitive environmental areas.
Marine vegetation management strategies		Tweed	174 km ² assessed in the Tweed River estuary. 21 hotspots (5 km ²) were identified where there are opportunities for mangroves and saltmarsh to adapt and survive in future sea-level rise scenarios, with appropriate management strategies in place.
		Statewide	A University of Wollongong led collaborative Australian Research Council (ARC) Linkage Grant application was successful, involving DPI Fisheries, Department of Planning and Environment and Macquarie University. The project was developed in response to Black Summer bushfire impacts on mangrove wetlands. It aims to measure the distribution and severity of fire impact in mangrove and drained coastal wetlands as well as post-fire vegetation establishment and surface elevation trajectories, which are fundamental to the resilience of coastal wetlands.

Project	Project icon	Location	Progress
Reconnecting fish habitat		Port Stephens	Works are underway at 2 priority fish passage locations to improve access to a wider range of important feeding and spawning habitats for migratory fish. Both projects including a new bridge, and construction of a new weir gate structure and fishway are due to be completed this year.
		Byron Shire	The previous installation of a fishway at the Kyogle Weir is good news for the Richmond River, it's fish, and anglers on the river. Summer sampling revealed more than 12 different species of native fish using the fishway to access more than 1500 km of waterways upstream from the weir.
Reviewing jetty designs		Port Hacking	Fieldwork sampling in Port Hacking is completed. This investigated seagrass biomass near and under jetties. This is helping scientists to understand the relationship of jetties and the health of seagrass, which will lead to best practice recommendations for jetty design.

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
Coastal Design Guidelines Review		Statewide	Finalise the Coastal Design Guidelines. Following approval, they will be released to the public. The guidelines will promote best practice designs in coastal urban environments.
Marine vegetation strategies		Tweed	Completion of Tweed Marine Vegetation Strategy which will identify key locations for vegetation protection or enhancement, while also reducing administrative burden on land users to identify areas where low risk onground works can proceed.
Reconnecting fish habitat		Byron Shire	Complete the Johnstons Lane construction at the Brunswick River. The old causeway fish passage barrier removed and replaced with a bridge.
Subtidal reef monitoring		Greater Sydney Region	Commence the 2023 baited remote underwater video surveys in the Greater Sydney Region. These surveys will improve understanding of the health of reef habitats and correlations with human impacts based on the health of fish populations in these habitats.

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 understand and incorporate climate change impacts into adaptation planning, strategies and decision making. Progress is being made on monitoring and reporting on the effects of climate change on the NSW marine estate. Improving our knowledge of climate change impacts contributes to increasing the capacity of coastal and marine managers and communities to anticipate climatic impacts. Monitoring, research and citizen science continue to detect effects of climate change on the marine estate and inform adaptation strategies. Several presentations were given to communicate research findings and the Duck Creek site near Ballina was showcased at the Australian Saltmarsh and Mangrove Conference.

Projects expanded this period, including investigating potential Blue Carbon pilot sites and delivering particular actions under the NSW Blue Carbon Strategy 2022-2027. Data collected will contribute to a Statewide Climate Change Risk and Opportunity Assessment that will be delivered under the NSW Climate Change Adaptation Strategy. Marine content will be developed and included on the Adapt NSW website and on-ground marine adaptation projects will be facilitated.





Triannual progress and key highlights

Project	Project icon	Location	Progress
Climate change threats to mangrove and saltmarsh		Statewide	Building on the published outcomes of the Statewide first-pass assessment of mangrove and saltmarsh vulnerability to sea level rise, significant progress has been made in completing the second-pass assessment. This assessment includes consideration of water and sediment delivery to wetlands from the catchment under climate change. The hydrological modelling has been completed and the results are currently being analysed to incorporate into the vulnerability assessment.
Estuarine habitat monitoring and threat assessment		Statewide	<p>Over 640 hectares of estuarine macrophyte habitat mapped in the Tweed River, Cudgen Creek, Cudgera Creek and Mooball Creek. All new maps publicly available on the DPI Fisheries Estuarine Habitat Dashboard.</p> <p>Scientific papers were published regarding the impact of bushfires and roles of artificial structures and boat moorings in causing loss and fragmentation of Posidonia seagrass meadows in NSW estuaries.</p>

Project	Project icon	Location	Progress
Blue carbon demonstration on national parks land		Clarence Valley	<p>An Ecological Values Assessment and Hydrological Assessment of the Everlasting Swamp blue carbon demonstration site are underway. The hydrological assessment is modelling where water may flow under a hypothetical staged restoration approach, with the intent to inform detailed discussions with the community and potentially affected neighbouring landholders. These discussions will refine proposed restoration approaches and inform the development of a restoration plan.</p> <p>The Ecological Values Assessment will collect and evaluate ecological data at the site to help understand the environmental values at the site. The assessment will predict potential impacts to existing values and changes to the ecological character of the site under different restoration scenarios.</p> <p>Field work will be undertaken by DPI Fisheries and DPE Planning and Environment staff, with landholders, to get baseline data for the site upon which to measure change as the site is restored.</p>
Climate change research		Statewide	<p>Ocean warming predictions (near and long-term) at a fine spatial resolution off the coast of NSW using the latest global climate models is being applied to assess the relative vulnerability of NSW marine protected areas to future ocean warming.</p> <p>The manuscript Climate change threatens unique evolutionary diversity in Australian kelp refugia was published in high-impact journal <i>Scientific Reports</i>. The report identifies a subtropical deep-water golden kelp population with genetic diversity found nowhere else. This population is vulnerable to warming. Susceptibility of Tidal Pool Fish Assemblages to Climate Change was published in <i>Ecologies</i>.</p>
Informing the Climate Change Adaptation Strategy		Statewide	<p>A project proposal for facilitating climate adaptation in NSW marine parks has been developed. This project is designed to support on-ground marine adaptation.</p>
Climate change monitoring		Statewide	<p>Three peer reviewed papers were published, detailing research on climate change impacts on rockpool fish, the evolutionary history of kelp in Australia and the status of the threatened mollusc <i>Smaegol hillaris</i> (marine slug).</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	Progress
Climate change threats to mangrove and saltmarsh		Statewide	<p>Finalising the second-pass assessment for mangrove and saltmarsh vulnerability to sea level rise and climate change.</p> <p>Developing the estuary wetland eco-morphodynamic response model, which will be available to test managed wetland adaptation options. This model will integrate, for the first time in NSW, water, sediment delivery and vegetation changes under predicted projected climate change to gain a genuine understanding of how mangroves and saltmarsh will respond to climate change and management actions.</p>
Estuarine habitat monitoring and threat assessment			<p>Estuarine macrophyte habitat and disturbance maps will be finalised for the Hawkesbury River and Batemans Bay. Maps will be uploaded to the DPI Fisheries Estuarine Habitat Dashboard which shows changes in these blue carbon habitats and highlights areas of disturbance or habitat loss.</p>
Blue carbon demonstration on primary production land		Ballina LGA	<p>The Cultural Heritage Assessment Report for the Duck Creek site will be finalised.</p> <p>The Water Research Laboratory (WRL) hydrologic assessment for the Duck Creek site will be finalised.</p> <p>Oral history information for the Duck Creek site will be finalised.</p>
Informing the Climate Change Adaptation Strategy		Statewide	<p>The Sea Country content for the Adapt NSW website will be finalised, providing information and resources for managers including First Nations communities to support climate change adaptation in marine and coastal environments.</p> <p>The first 4 months of Facilitating Climate Adaptation in NSW marine parks project will be delivered, including a literature review and data collection to support the high-level climate change risk assessment for the marine park network, and a more detailed assessment for one identified marine park. Consultation with commence.</p>
Climate change citizen science		Statewide	<p>Installation of signage regarding the effects of climate change on the NSW marine estate and details on how the community can contribute information through citizen science.</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 this period was to commence several marine skills projects in the central region as well as continue to scope and confirm projects with communities in the southern and northern regions of the marine estate. Projects funded in previous years that were impacted by COVID were completed allowing for a greater focus on new or expanding projects. A key highlight this period was the development of several [engagement videos](#). These videos showcase several projects and include important testimonials from people engaged in the projects.

Triannual progress and key highlights



A breakdown of progress is outlined below.


Project	Project icon	Location	Progress
Aboriginal engagement		Port Stephens	The Port Stephens Fisheries Institute 50 year celebration held in November 2022 provided an opportunity to strengthen relationships with the local Aboriginal community.
Sea Country rangers		Kempsey	Cultural management and weed maintenance of Shark Island and the Macleay Bar commenced. Kempsey Local Aboriginal Land Council received funding to initiate weed control and bush restoration works. A crew participated in site works with a qualified bush regeneration contractor to develop and enhance their skills in land and Sea Country management. The project also conducted mapping and collected monitoring data. Site planning was undertaken to develop a natural resource plan of management for the area.
		Nambucca	The Clean Rivers Clean Seas marine debris clean up commenced. This project aims to expand upon the current program of monitoring the accumulation of debris in urbanised mangroves at 2 locations in the Nambucca River catchment. Active intervention occurred in the removal of flood-related debris from riverine and estuarine habitats and establishment of a baseline for assessing the stock of key intertidal bush food resources. Initiative 4 supports the employment of existing MiiMi Land and Sea Country Rangers to deliver the work.

Project	Project icon	Location	Progress
Cultural economic development		Statewide	Cultural economic development videos were published on the NSW marine estate website. This project will increase the number of people engaged in Aboriginal businesses in the marine estate. It assists Aboriginal people start and/or expand business and cultural tourism ventures across the marine estate such as commercial fishing and charter fishing.
		South Coast	The development of 4 new South Coast cultural tourism business plans were supported, to assist aspirations for cultural tourism business growth, particularly in the education tourism sector. The tourism programs operate within the boundary of the marine estate on Yuin Country. These are in addition to 4 businesses previously supported.

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
Reviving cultures		Byron Shire	Arakwal Camp, a 3-day family cultural camp, is scheduled which aims to educate youth through family orientated culture camps to promote the importance of culture, a healthy Sea Country, healthy living and social and emotional wellbeing. An important outcome will be the promotion of the protection of Aboriginal cultural values in the region. The exchange of cultural knowledge with DPI Fisheries will be a way forward to build on cultural understanding and form the foundations for ongoing positive relationships between DPI Fisheries and the Aboriginal community.
Cultural economic development		Tweed Heads	The northern region coxswains course will commence. This will run over 3 weeks. Fifteen community members from Coffs Harbour to Tweed Heads will participate in the course. DPI Fisheries will continue to assist the participants to gain sea time to complete both necessary components of the course.

Project	Project icon	Location	Progress
Cultural research and monitoring		South Coast	<p>Under the Joonga Urchin Removal project, Joonga scuba divers will work with DPI Fisheries scientists on a pilot sea urchin control project in the South Coast region.</p> <p>The Acoustic Mullet Surveys project will commence. This blends an important cultural practice (beach hauling for mullet) with high-tech science using acoustic tracking. It will provide an understanding of the connections of the community with mullet and the need to collaboratively manage and care for the resource. This project provides a unique opportunity to foster cultural and science engagement. It will also bring members of several coastal Aboriginal communities together (e.g., Wallaga Lake, La Perouse and a third yet to be determined) with Sea Country Rangers, university and Government marine biologists to study the movement patterns of schooling mullet.</p>

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 aims to understand and mitigate threats to threatened and protected species in NSW. This will help to improve or maintain conservation status and health of targeted threatened and protected species in the wild.

Capacity building for NSW National Parks and Wildlife Service (NPWS) staff is ongoing, with nationally accredited Large Whale Disentanglement training being added to the scope of NPWS's Registered Training Organisation. External partnerships are also being advanced, with updates to MOUs with NSW Marine Rescue and DPI Fisheries underway and partnerships with non-government agencies to improve sample collection from deceased marine fauna. Educational material such as management of turtle nests in cold climates, seal sample collection guidelines and videos demonstrating appropriate behaviour around seals and best practice handling and assessment of sea turtles have been developed. Artificial Light At Night (ALAN) audit report and sky glow report were reviewed and will be used to assess the impacts of anthropogenic light on marine fauna. Numerous projects were developed to improve our ability to assess the health, movement, and habitat use of marine megafauna species. This included commencing the development of a species distribution model for the critically endangered leatherback turtle, with predictive measures to quantify the potential risk between these animals and shark nets; improved scientific outcomes from marine fauna stranding events, through increased sample collection and analysis; and projects to improve understanding of habitat use for species that may be at risk from climate change and anthropogenic pollutants. DPI Fisheries have continued work to decrease interactions between non-target species and fishers gear, and have published 2 scientific papers, and developed new Seabird Management Plans for ocean trawl fisheries.

Triannual progress and key highlights






A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Partnerships to protect marine wildlife		Greater Sydney	<p>Training was provided to DPI Fisheries shark meshing contractors on the identification of animals that are released live following disentanglement from shark nets. This will improve understanding of post-release survivorship of these species and allow more accurate assessments of impacts of by-catch for vulnerable species.</p> <p>Arrangements with non-government agencies were formalised to increase the scientific data obtained from marine stranding events. This improves our understanding of the factors driving marine fauna stranding events.</p>

Project	Project icon	Location	Progress
Education to protect and conserve marine wildlife		Statewide	A series of educational videos for veterinarians, wildlife rehabilitators and the public were developed. These videos demonstrated best practice techniques for the handling and assessment of sea turtles, to improve animal welfare and rehabilitation outcomes, and normal seal behaviours to guide public interactions.
Improved reporting of interactions with marine wildlife		Statewide	Databases identifying key habitat and observations of beach nesting shorebirds were reviewed and uploaded into NSW BioNet (repository for biodiversity data products managed by the Department of Planning and Environment). This information will be available for environmental impact studies relevant to coastal development projects and will provide an additional layer of protection for these habitats and species.
Estuary general fishery observer survey		Statewide	<p>Analyses of observer data collected from Estuary General Meshnet fishery observer survey during 2022 completed. This will determine effective sample size for estimating discards of all commercial species and, total discards (commercial and bycatch).</p> <p>Analyses of data collected from observer-based survey of fisheries targeting mud crab and blue swimmer crab completed to estimate discards of all commercial species, total discards (commercial and bycatch), total threatened and protected species interactions and the precision of achieved sampling fractions completed.</p> <p>Detailed analyses of data collected from mud crab observer surveys completed to examine the effect of 'soak time', alongside the influence of several environmental variables on catch rate to inform future stock assessments.</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	The NPWS Marine Wildlife Response Operating Model and Prioritisation Procedures will be released. These will ensure that marine fauna events have the appropriate amount of resourcing and pre-event training to optimise safe work practices, animal welfare, conservation, cultural and scientific outcomes from marine fauna incidents.
Partnerships to protect marine wildlife		Statewide	The data collected from the Right Whale ID volunteer drone operator program, will be provided to the Federal government to inform the National Recovery Plan for this species. The data will also describe coastal areas that are biologically important for this species, so protective measures can be implemented to support long term recovery.
Education to protect and conserve marine wildlife		Statewide	An online education tool, called Marine Wildlife Matters, will be launched to engage school aged students. This tool is designed to present interactive content that will cover general marine fauna biology, anatomy, behaviour and current legislation to improve appropriate and sustainable engagement with the marine environment.
Estuary General fishery observer survey		Statewide	A scientific publication examining the elasmobranch bycatch from demersal trawling will be written and submitted for publication. This will provide an insight into the impacts of trawl fishing on non-target species and allow longitudinal trends to be assessed that may provide insight into elasmobranch population dynamics.
Species monitoring		Statewide	The impacts of anthropogenic pollutants on marine turtles will be assessed through a multi-lateral project examining contaminant levels and health impacts. The project will target compounds commonly used in intensive agriculture and will use sensitive and specific health assessment techniques.

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.

The projects within initiative 6 are progressing well. Harvest strategy development is progressing with the Spanner Crab Harvest Strategy released for public comment in December 2022.

Triannual progress and key highlights





A breakdown of progress is outlined below.

Project	Project icon	Location	Progress
Harvest strategy development		Statewide	The Line and Trap Fishery Harvest Strategy Working Group was appointed following a call for Expression of Interests. The Harvest Strategy Working Group is planning to commence meetings in April 2023.
Recreational fishing environmental assessment		Statewide	<p>Responsible Crab Fishing brochure was produced to promote responsible crab fishing and to reduce interactions with wildlife. This provides an educational guide with DIY instructions to adapt traditional crab gear to decrease bycatch and maintain successful catch rates. This is alongside the ongoing crab trap exchange program which has seen over 1000 old witches hat nets and rectangular traps exchanged for environmentally responsible round crab traps and lift nets. Recent events were held at Coffs Harbour, Sydney, Nowra and Mooney Mooney–Hawkesbury.</p> <p>Communication between external organisations specialising in marine debris reduction was established. Online training for Fishcare volunteers and education officers in marine debris collection and data processing on the Australian Marine Debris Initiative database was completed. Engaging with an external consultant about underwater clean ups to help target recreational fishing specific marine debris.</p>
Fisheries enhancements		Coffs Harbour Ballina	<p>Coffs Harbour and Ballina were announced as the next 2 regions to receive offshore artificial reefs in 2024/25.</p> <p>2,100 dusky flathead were stocked into Lake Macquarie and 400 advanced sized mulloway stocked into the Georges River. This is a complementary project not funded by the Strategy.</p>

Project	Project icon	Location	Progress
Eat more NSW seafood		Statewide	Eat More NSW Seafood Program 2023 was announced. This program is designed to build marketing and promotion capability within seafood businesses through small-scale (less than \$10,000) and large scale (\$10,000 to \$100,000) grants. The program will boost the value of the NSW seafood industry.

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
Recreational fishing environment assessment		Statewide	Cultural assessment background report finalised, and draft evidence table and draft risk table completed. Engagement process on the risk assessment of the impacts to cultural benefits from recreational fishing in NSW (saltwater) currently being organised for events during mid 2023.
Aquaculture socio-economic research		Statewide	Data collection, economic modelling and analyses will be used to inform and update information in the draft report on the estimated economic contribution of aquaculture activity in NSW for various aquaculture sectors that include molluscs (oysters and mussels), freshwater fish, crustaceans, invertebrates and algae. It will also look at the tourism opportunities that these aquaculture sectors provide. The fact sheet and final report on the economic benefit of aquaculture will be developed to identify the contributions of aquaculture sectors to the local government and estuary areas.
Fisheries enhancements		Forster	Specialist consultant reports prepared for Coffs Harbour and Ballina offshore artificial reef projects.
		Central Coast	Sea dumping permit approval received from the Commonwealth Government for Forster and Central Coast artificial reef projects. Fabrication of steel reef modules underway.
Fishing industry marine stewardship		Statewide	Develop a draft script and animations ready for review that aim to inform and educate stakeholders and the public on the importance of fisheries data, stock assessments, harvest strategies and sustainable fisheries.

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.

Triannual progress and key highlights

Project	Project icon	Location	Progress
Environmentally friendly moorings		Statewide	Stages 1 and 2 of the CSIRO-Transport for NSW (TfNSW) Environmentally Friendly Moorings (EFM) project have been completed. This has included a literature review, engineering due-diligence, consultation workshops, and recruitment of mooring owners for in-water trials of EFMs across 3 maritime regions. Stage 3 involves the in-water deployment of EFMs inspections and servicing and sea floor biodiversity and carbon sampling. Continued implementation of the Statewide 4 year project.
Mooring audits		Statewide	Mooring audits have been incorporated in business as usual practices, with each mooring being audited every 2 years, with high-risk moorings being the priority.
Vessel environmental standards		Statewide	The Marine Pollution Regulation (Regulation) review is ongoing.
Review of offshore anchoring		Statewide	A Research paper on the ecological effects of anchoring to temperate reef environments was published in the journal Science of the Total Environment.
Boating Now Program		Statewide	The NSW Boating Now Round 4 formal application has closed and are currently being assessed.

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
Vessel environmental standards		Statewide	Revision of the Marine Pollution Regulation in September 2023.
Boating Now Program		Statewide	Applications for Boating Now Round 4 will be collated, reviewed and assessed.
Review of offshore anchoring		Wollongong LGA	Project planning for recovery surveys around the established anchorages. Seeking acceptance to present this research at the 11th Indo-Pacific fish conference in Auckland.

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 reported sound progress during this period. The recent public release of the Marine Estate Education Strategy provides an essential foundation for improving community awareness of threats, benefits and safe and sustainable use of the marine estate. This will be complemented by communication materials on the results of 4 statewide community wellbeing surveys. Completion of these surveys also signifies a major advancement in our understanding of the human dimensions of the marine estate. They provide the first ever baseline data for long-term monitoring of the social and cultural benefits of the NSW marine estate, a novel component of the Marine Integrated Monitoring Program.

Triannual progress and key highlights

Project	Project icon	Location	Progress
Marine Estate Education Strategy		Statewide	The NSW Marine Estate Education Strategy was publicly released. It provides a foundation for a more efficient and co-ordinated approach across government agencies and stakeholders to build community awareness and foster stewardship of the marine estate.
Social and cultural benefits monitoring and research		Statewide	<p>The Community Wellbeing Framework Report was finalised. The report provides the overarching approach for long-term monitoring of social, cultural and economic benefits of the marine estate for the NSW Marine Integrated Monitoring Program.</p> <p>Communication materials to support 3 of the 4 community wellbeing survey technical reports (coastal residents, coastal visitors, and youth) were completed and endorsed by the Marine Estate Management Authority for public release.</p> <p>Draft communication materials were developed to support the release of the technical report for the Connections to Sea Country survey - Aboriginal people of coastal NSW.</p> <p>Fieldwork for the MEMA agency staff survey commenced. Survey results will inform the Strategy program evaluations.</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
Marine Estate Education Strategy		Statewide	The curriculum-based primary school Marine Estate Agents program will be finalised.
Social and cultural benefits monitoring and research		Statewide	<p>The NSW Marine Estate Community Wellbeing Survey Reports for coastal residents, coastal visitors and coastal youth, and associated communications materials will be publicly released.</p> <p>Communication materials to support the 'Connections to Sea Country - Aboriginal People of Coastal NSW' technical report will be finalised.</p> <p>The NSW Marine Estate Community Wellbeing Framework report will be publicly released.</p> <p>Fieldwork and data analysis for the MEMA agency staff survey will be complete.</p>
Values and activity mapping		TBC	The project plan for the values and activity mapping project will be finalised, and the pilot area for implementation confirmed.

More information



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

Initiative 9 – Delivering effective governance

Project summary



Initiative 9 projects continue to progress. Initiative 9 includes marine planning projects that are critical to the delivery of NSW Government commitments and community expectations for the delivery of holistic marine estate management. The Initiative now embeds protected area planning and management for the 6 marine parks in NSW, aquatic reserve management, and improved compliance service delivery associated with marine protected areas in the Greater Sydney Region. Initiative 9 continues to progress work to improve marine park management, increased knowledge about aquatic reserves and quality compliance operations in Greater Sydney.

Triannual progress and key highlights

Project	Project icon	Location	Progress
Improved Marine Protected Area Planning and Management		Greater Sydney (Northern Beaches)	This project sponsored the Northern Beaches Council's Ocean Festival including a festival day for North Harbour Aquatic Reserve's 40 th anniversary and an underwater photography competition promoting 5 aquatic reserves in the Northern Beaches LGA.
Greater Sydney region compliance focusing on marine protected areas		Greater Sydney	<p>Established and lead Operation Conus targeting illegal collection of intertidal invertebrates at Swansea Heads rock platform. The operation focused on increasing voluntary compliance through education, high visibility patrols and deterrents through compliance action. Several offences were detected and compliance has increased since the operation.</p> <p>A targeted investigation in Southern Sydney led to the seizure of more than 8,000 cockles illegally collected and listed for sale on Facebook. This is a significant deterrent for others considering illegal sale of fish and should lead to increased compliance.</p> <p>The 10th annual Operation Tubo Reef was held across aquatic reserves and intertidal protected areas within the Greater Sydney Region. The operation involved over 20 compliance officers interacting with 417 fishers over 3 days and found a 71% compliance rate. Despite 933 invertebrates (761 of these being cockles) being seized and returned to the marine protected waters where they were illegally collected, officers observed fewer invertebrates being illegally collected this year than in previous years.</p> <p>Participated in Operation Stingray targeting illegal fishing and collecting in Lake Illawarra.</p> <p>247 patrol hours in aquatic reserves and intertidal protected areas were conducted, and a total of 596 interactions with fishers occurred by the mobile squad. Of those interactions, the compliance rate of marine recreational fishers collecting was 62% and marine recreational fishers fishing was 87%.</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 Protected Area Planning and Management		Statewide	<p>Lord Howe Island Marine Park Management Plan – public release of literature reviews (environmental, social, cultural and economic).</p> <p>Complete the Identifying Environmental Assets, threats and management Actions for Aquatic Reserves project.</p> <p>Installation of interpretive signage at Cabbage Tree Bay Aquatic Reserve in partnership with Northern Beaches Council.</p>
Greater Sydney region compliance focusing on marine protected areas		Greater Sydney	<p>Conduct training for new Fisheries Officers, including in compliance for marine protected areas, aquatic reserves and intertidal protected areas in Greater Sydney.</p>

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 focus of the Marine Integrated Monitoring Program (MIMP) this period was on recruiting 3 new roles into the MIMP and building capacity, ensuring appropriate program management is in place. Work also progressed on scoping and progressing the Threat and Risk Assessment (TARA) 5-year review, and initiating data collation for the mid-term evaluation of the Strategy (outcomes monitoring). GIS support was provided to Strategy initiatives including developing, obtaining and publishing datasets, map production, spatial planning advice and spatial data analysis.

The education and stakeholder liaison team led the delivery of a range of marine estate engagement, education and communication programs, activities and projects to inform the community and enable engagement in marine estate initiatives. These included maintaining the website, writing and distributing the stakeholder e-newsletter and managing the marine estate Instagram. Work this period focused on developing the Marine Estate Management Strategy Communication and Stakeholder Engagement Framework and supporting documents in response to stakeholder feedback from the 2022 MEMS Communications & Engagement Review. The framework and supporting documents will guide ongoing communication and stakeholder engagement about the marine estate.

The [previous triannual report](#) and [2021-22 Marine Strategy Implementation Annual Report](#) is available on the marine estate website.



Triannual progress and key highlights


Project	Project icon	Location	Progress
Strategy program management		Statewide	<p>The Strategy Implementation Plan 2022-2024 was published. This outlines the delivery of around 100 projects with partners over the next 2 years.</p> <p>The Strategy Snapshot Report (July 2022-October 2022) was published. This provides a regular update to stakeholders and the community on the implementation of the Strategy.</p> <p>The EHG Strategy Communication and Engagement Implementation Plan was established to support delivery of the overarching Strategy Communication and Engagement Framework.</p>
Strategy education, communication, and stakeholder liaison		Statewide	<p>The Marine Estate Management Strategy Communication and Stakeholder Engagement Framework and supporting documents were completed. The Framework and supporting documents were developed in response to stakeholder feedback from the 2022 MEMS Communications and Engagement Review.</p>

Project	Project icon	Location	Progress
Better geographic information systems (GIS) for the marine estate		Statewide	<p>Mapbox training provided to staff to integrate webmaps on websites and apps. The training focused on how we can better integrate our mapping outputs to provide more accessible and mobile friendly content.</p> <p>Oyster reef mapping finalised and published to corporate data store GIS101. Delivery for Port Hacking, Corindi River and Moonee Creek. These will become available on the Fisheries Spatial Data Portal during the next period.</p> <p>Maps for signage and education material and repositioning of marker buoys at Shiprock Aquatic Reserve.</p>
Monitoring Program – program management		Statewide	<p>Technical reports outlining monitoring of community wellbeing and environmental conditions are being finalised by the MIMP Technical Working Groups.</p> <p>TARA 5-year review is facilitating an update of background information, including for new/additional threats. Scoping for the TARA 5-year review report is underway.</p> <p>Two new roles were recruited into the MIMP team, with a third imminent, to build capacity and ensure appropriate program management is in place.</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		Statewide	<p>Delivery of an Initiative Lead workshop to build capacity and develop cross agency relationships.</p> <p>Publish the Year 5 Trimester 2 Snapshot Report.</p> <p>Publish a 2018-2022 MEMS achievements infographic.</p>
Strategy education, communication, and stakeholder liaison		Statewide	<p>Endorsement of the Marine Estate Management Strategy Communication and Stakeholder Engagement Framework.</p> <p>Delivery of the Marine Estate Website Content and Navigation Improvement Project. This will enhance stakeholder experience when navigating the marine estate website.</p>

Project	Project icon	Location	Anticipated work
Monitoring Program –program management		Statewide	<p>Technical reports outlining monitoring of community wellbeing and environmental condition finalised by MIMP Technical Working Groups and released publicly.</p> <p>A MIMP database and support system (data entry, data repositories, data architecture, data workflows) implemented for MIMP data management and reporting.</p> <p>TARA 5-year review –updated background reports completed. Final TARA Review Report being finalised.</p> <p>Outcome monitoring data collated for the Integrated Monitoring and Evaluation Framework to inform the mid-term evaluation of the Strategy.</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
ARC	Australian Research Council
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
MEMA	Marine Estate Management Authority
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

Marine Estate Instagram - #nsw_marineestate

TOP POSTS VIA LIKES: November 2022 – March 2023



1. Brunswick River 1960 compared to 2020.

194 likes

[View post](#)



2. Rangers from Bowraville have been collecting and recycling oyster barrels.

100 likes

[View post](#)



3. How well do you know our marine coast?

97 likes

[View post](#)



4. NSW Barrens research summary (sea urchin).

94 likes

[View post](#)

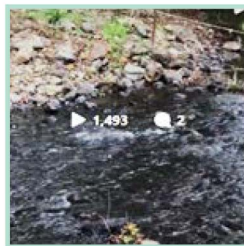
TOP VIDEO VIEWS: November 2022 – February 2023



1. Monitoring of the restored oyster reefs Port Stephens-Great Lakes Marine Park.

2,791 views

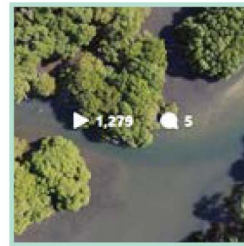
[View post](#)



2. Mullet swimming after causeway barrier removed on the Brunswick River

1,493 views

[View post](#)



3. NSW Estuarine Habitat dashboard

1,279 views

[View post](#)

STATISTICS

1,739 Instagram followers increased by **7%** compared to previous reporting period

54 Instagram posts and **20** Instagram stories were posted during this period, reaching **22,819** accounts.

Key Themes

(some themes are interrelated and will show in more than one theme)

Improving water quality and litter –**14**

Delivering healthy coastal habitats with sustainable use and development –**15**

Planning for climate change -**1**

Projecting the Aboriginal cultural values of the marine estate - **6**

Reducing impacts on threatened and protected species -**2**

Ensuring sustainable fishing and aquaculture -**6**

Enabling safe and sustainable boating -**1**

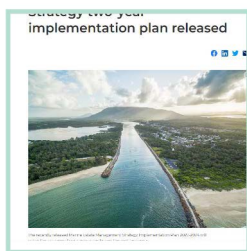
Enhancing social, cultural and economic benefits -**10**

Delivering effective governance –**2**

Marine estate newsletter - [Connect with us \(nsw.gov.au\)](https://www.nsw.gov.au)

Two newsletters were delivered during the reporting period –November/December and January

Top three stories: December 2022 Newsletter



1. Implementation plan released

57

[View post](#)



2. Results of oyster reef study

52

[View post](#)



3. Turning tide on plastic waste – recycling barrels from oyster leases at Bowraville

40

[View post](#)

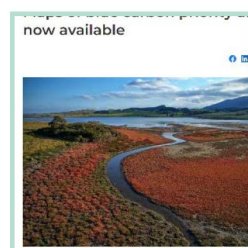
Top three stories: January 2023 Newsletter



1. Breakwater historical photo comparisons

90

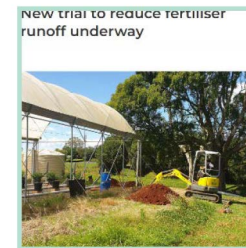
[View post](#)



2. Blue carbon priority maps available

43

[View post](#)



3. New trial to reduce fertiliser runoff

40

[View post](#)

Statistics

1,178 subscribers increased by **2.2%** compared to previous reporting period, July–October

Open rate is **64%** an increase of **20%** compared to previous reporting period, July–October

Click rate was **16%** decreased by **70%** compared to previous reporting period, July–October*

Overall, our audience **41%** of our subscribers are highly engaged and often open and click

*due to 2 e-newsletters compared to 3 in the previous quarter

Marine Estate Website

Top pages visited:

November 2022 – February 2023 remaining the same as the previous reporting period.

- 1** [Marine Estate Management Strategy, 2018–2028](#)
- 2** [New South Wales Marine Estate Threat and Risk Assessment Report](#)
- 3** [Knowledge centre and news section](#)

STATISTICS - November 2022 – February 2023

16,847 page views, a decrease of **2.5%** compared to previous reporting period, July–October

12,586 unique pageviews, a decrease of **11%**