

## Coastal Lagoons – Coastal Management Program

ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
<b>Option 1</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Develop and implement a monitoring and reporting program for the Central Coast Lagoons.	<p>A comprehensive estuary health monitoring program should be implemented, grounded in the key ecological indicators already monitored at the State level through the NSW Monitoring, Evaluation and Reporting (MER) Program. To ensure consistency and data comparability, the program should focus on the following core indicators:</p> <ul style="list-style-type: none"> <li>▪ Turbidity - to assess water clarity and sediment load;</li> <li>▪ Physical and chemical water quality parameters - including salinity, dissolved oxygen, pH, and temperature;</li> <li>▪ Estuarine Macrophytes - such as seagrasses, saltmarsh, and mangroves, with a focus on tracking distribution and change over time;</li> <li>▪ Macroalgae blooms - as an indicator of nutrient enrichment and ecosystem imbalance;</li> <li>▪ Riparian vegetation distribution and condition - as a key contributor to bank stability and estuarine habitat health; and</li> <li>▪ Bacterial indicators - including E. coli and other relevant pathogens, to assess recreational and ecological health risks</li> </ul> <p>To maximise efficiency and integration, the program should leverage and align with existing monitoring initiatives such as Beachwatch and Waterwatch, and actively explore opportunities to incorporate citizen science contributions and local volunteer groups into the sampling and data collection processes. This community-based approach not only expands monitoring capacity but also fosters local stewardship of the estuary.</p> <p>Monitoring results should be communicated regularly to the public through clear and accessible formats, such as annual water quality scorecards, interactive dashboards, and other online information platforms. Public reporting will support transparency, build community trust, and encourage ongoing community engagement in estuary health and management efforts.</p>	<p>Objective:</p> <p>Establish a long-term program to track and report on the health of the estuaries.</p> <p>Scope:</p> <p>The program will monitor key indicators like water clarity, salinity, oxygen levels, temperature, bacteria, and the condition of plants like seagrass, saltmarsh, and mangroves. It will align with State programs (e.g. MER, Beachwatch, Waterwatch) and involve local volunteers and citizen scientists in sampling.</p> <p>Benefits:</p> <p>This approach will improve data quality, build community awareness, and support better decision-making. Sharing results through easy-to-understand scorecards and dashboards will build trust and encourage public involvement in protecting the lagoons.</p>	Council	DEECCW	<p>CZMP - Carried Over and updated / revised CFG Workshop #1</p> <p>Updated with feedback from Workshop #2</p>
<b>Option 2</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Prepare an infrastructure vulnerability assessment for the Lagoons	<p>A comprehensive audit of coastal assets and infrastructure will be undertaken to assess their current condition, vulnerability to coastal hazards, and future adaptation needs. This audit will inform a structured approach to managing coastal infrastructure over the next 50–100 years, ensuring resilience to sea level rise, erosion, and extreme weather events. key components of this action include:</p> <ul style="list-style-type: none"> <li>▪ Auditing Coastal Assets: Conducting a detailed assessment of key coastal infrastructure, including seawalls, stormwater outlets, walkways, wastewater infrastructure, and public amenities. This will document asset condition, maintenance requirements, and exposure to coastal hazards.</li> <li>▪ Determining Adaptation Triggers: Identifying environmental and structural thresholds (e.g., erosion rates, inundation levels, structural degradation) that will signal when adaptation or intervention is required. These triggers will be based on climate change projections, historical trends, and asset vulnerability.</li> <li>▪ Developing a Long-Term Response Framework: Establishing a strategic framework for asset adaptation, including short-, medium-, and long-term management options such as maintenance, reinforcement, managed retreat, or realignment.</li> <li>▪ Prioritising Works: Developing a prioritised list of coastal asset management and adaptation works based on risk, urgency, and cost-effectiveness. These works will be incorporated into future Coastal</li> </ul>	<p>Objective:</p> <p>Assess the condition and future needs of coastal infrastructure to guide long-term adaptation and investment.</p> <p>Scope:</p> <p>Council will audit key public assets such as seawalls, stormwater outlets, and public amenities to assess their condition and exposure to hazards like erosion and sea level rise. The project will identify warning signs for when action is needed and develop a long-term plan to maintain, upgrade, or relocate at-risk assets. It will align with flood risk, asset, and land use planning frameworks.</p> <p>Benefits:</p> <p>This will ensure coastal infrastructure is well maintained, future-proofed, and resilient to climate</p>	Council	DCCEEW	<p>Council Engagement</p> <p>Updated with feedback from Workshop #2 and #3.</p>

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			<p>Management Programs (CMPs) to ensure funding and implementation align with broader coastal planning objectives.</p> <p>This plan would integrate with relevant flood risk management plans and infrastructure &amp; asset programs and consider all relevant planning horizons and climate change projections.</p> <p>This plan will be aligned with existing Flood Risk Management Plans, Asset Management Plans, and relevant state and local planning frameworks. It will ensure coastal infrastructure investment is risk-informed, future-focused, and resilient to long-term climate change impacts.</p>	change. It will help prioritise funding, reduce risk, and support long-term planning across the region.			
<b>Option 3</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Develop and implement a Community Education Program	<p>The action includes the design and implementation of a Community Education and Engagement Program to inform key stakeholders (internal and external) and the community about lagoon dynamics, threats to lagoon health and behaviours that can help to improve lagoon health. Key objectives would be to:</p> <ul style="list-style-type: none"> <li>Encourage a reduction in catchment pollution through stormwater runoff;</li> <li>Raise community awareness of natural lagoon processes, and the future impacts of climate change</li> <li>Change behaviour of both people living within catchments, and visitors to the lagoons.</li> </ul> <p>It would include the following components, or themes:</p> <ul style="list-style-type: none"> <li>Water quality and marine litter</li> <li>Riparian zone and foreshore management (focusing on foreshore residents) – including the appropriate use of pesticides/herbicides/weed control/rubbish removal</li> <li>Ecosystems of the estuary and biodiversity</li> <li>Aboriginal and European cultural heritage values of the estuary</li> <li>Coastal hazard risk (focusing on residents impacted by such hazards)</li> <li>The impacts of climate change on the lagoon systems</li> </ul> <p>The program can leverage off the existing community education material developed by the state government (DPIRD-Fisheries, DCCEEW, NPWS, TfNSW) and be implemented across the Lagoons by Council in a strategic and integrated manner.</p> <p>The program can also be extended to local schools, incorporating tailored educational resources that align with relevant stages of the NSW curriculum. This may include in-class workshops, field trips, and hands-on science activities linked to estuarine health, water quality, and cultural values. Partnering with local educators and schools will help embed lagoon knowledge early and foster the next generation of estuary stewards.</p> <p>In addition, the program will actively use social media platforms to share engaging, easy-to-understand content, such as short videos, infographics, interactive quizzes, and real-time updates on monitoring results or community events. Social media will serve as a key tool to boost visibility, increase community participation, and maintain momentum between on-ground engagement activities.</p> <p>This could also include broader education strategies such as painted signage on drains where rubbish directly travels into the lagoon as a community awareness reminder; and signs on Council bins (Take 3 for the Sea)</p>	<p>Objective: Raise awareness and change behaviours to improve lagoon health and resilience.</p> <p>Scope: Council will deliver a strategic education program to inform the community about lagoon dynamics, threats like pollution and climate change, and actions people can take to help. Topics include water quality, foreshore management, biodiversity, and cultural heritage. Delivery will include school programs, social media, signage, workshops, and collaboration with state agencies.</p> <p>Benefits: The program will boost understanding, reduce harmful behaviours (e.g. littering, chemical runoff), and build long-term community stewardship of the lagoons. It will also promote consistent messaging across the catchments and foster pride in these sensitive natural areas.</p>	Council	Education institutions, DCCEEW, DPIRD-Fisheries, NPWS	<p>Council Engagement CFG Workshop #1</p> <p>Updated with feedback from Workshop #2 and #3.</p> <p>Wamberal Group Submission</p> <p><i>Future Protection of Terrigal Lagoon</i> Submission</p>

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<b>Option 4</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Provide education and training opportunities for operational staff and other relevant council units in relation to lagoon management.	<p>Undertake an intensive engagement program for Council works staff to raise the profile of best practice erosion and sediment control, vegetation management and assist staff with new policies and procedures. The initiative will support the consistent implementation of environmental procedures and improve on-ground outcomes in sensitive coastal and estuarine areas. The program will aim to:</p> <ul style="list-style-type: none"> <li>Establish current levels of knowledge for Council and contractor staff undertaking infrastructure works within the catchment</li> <li>Identify the areas where awareness can be improved</li> <li>Follow up with regular (possibly annual) audits and knowledge assessments to monitor success and to ascertain when further training and awareness may be required.</li> </ul> <p>As part of this initiative, a Council Environmental Induction Manual could be developed and maintained, outlining essential environmental procedures, compliance obligations, and site management requirements for field staff. The manual will be supported by a formal environmental induction training module, delivered to all relevant new and existing staff and contractors working in sensitive catchment areas.</p> <p>Consideration will be given to establishing internal environmental champions or peer trainers to support sustained knowledge transfer, mentoring, and cultural change at the team level.</p>	<p>Objective: Improve environmental practices by building staff awareness and capability across Council's infrastructure and maintenance teams.</p> <p>Scope: An intensive training program will be rolled out to Council and contractor staff working in sensitive coastal and estuarine areas. It will assess current knowledge, identify gaps, and deliver targeted training on erosion control, vegetation management, and environmental procedures. An Environmental Induction Manual and training module will be developed, with regular audits to track progress. Environmental champions may also be appointed to support mentoring and cultural change.</p> <p>Benefits: This action will lift environmental standards across Council works, reduce harm to waterways, and ensure compliance with key procedures—leading to better long-term outcomes for lagoon health.</p>	Council		<p>CZMP - Carried Over and updated / revised</p> <p>Updated with feedback from Workshop #2 and #3.</p>
<b>Option 5</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Continue to support volunteer based rehabilitation initiatives such as landcare	<p>Continue to support volunteer based rehabilitation initiatives such as Landcare and Clean4shore. Support for such programs would be in the form of:</p> <ul style="list-style-type: none"> <li>Financial and logistical support for on ground works and activities</li> <li>Technical support and identification of priority sites and activities</li> <li>Promotion of activities through Council communications channels</li> <li>Utilising Council networks with existing businesses and chambers of commerce to actively promote corporate volunteering events and donations</li> <li>Providing administration assistance to support the establishment of new bush regeneration programs across the catchment</li> </ul> <p>In addition, engagement with existing groups and local environmental advocates will be a core part of this action. Council will liaise directly with these groups to understand their priorities, barriers, and support needs — ensuring that assistance is targeted, responsive, and genuinely helpful. Strengthening these relationships will be critical to fostering long-term community ownership and delivering place-based outcomes that reflect local knowledge and values.</p>	<p>Objective: Support and strengthen volunteer-led rehabilitation efforts that improve the health of local lagoon environments.</p> <p>Scope: Council will continue to assist groups such as Landcare and Clean4shore through funding, logistics, technical advice, and help with priority site selection. Council will also promote activities via communication channels and encourage local business involvement in corporate volunteering. A key focus will be building strong relationships with existing groups and local advocates by listening to their needs and providing targeted support.</p> <p>Benefits: This action will build long-term community ownership of rehabilitation efforts, increase on-ground outcomes, and ensure projects reflect local priorities, knowledge, and values.</p>	Council	NPWS	<p>CZMP - Carried Over and updated / revised CFG Workshop #1</p> <p>Updated with feedback from Workshop #2 and #3.</p>
<b>Option 6</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Develop Lagoon Water Quality Improvement Plan	<p>The Water Quality Improvement Plan (WQIP) for the lagoons will aim to enhance and protect the water quality of the lagoons and their catchment areas. The plan will outline the actions, responsibilities, and timelines for achieving sustainable water quality improvements.</p> <p>To ensure transparency and accountability, the plan will include the development of quantitative targets for both estuary ecosystem health and</p>	<p>Objective: Improve and protect lagoon water quality through a strategic, data-driven action plan.</p>	Council	DCCEEW	<p>Council Engagement A "rolled over" combination of numerous actions</p>

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			<p>human health (e.g. recreational water quality), drawing on relevant guidelines and site-specific data. Targets will align with ANZECC (2018) guideline values, NSW Water-Quality Objectives and NHMRC recreational water guidelines, providing a robust benchmark for ongoing monitoring and adaptive management.</p> <p>The WQIP will include:</p> <ul style="list-style-type: none"> <li>▪ Collation and review of existing water quality data, details on current point source loads to the estuaries, catchment land use data and existing environmental values/water quality objectives</li> <li>▪ Identify opportunities to collaborate with key stakeholders including commercial &amp; tourism operators</li> <li>▪ Catchment Audits: Undertake detailed audits of each sub-catchment across the Lagoons</li> <li>▪ Water Quality Assessment and Modelling: Comparisons to be made between actual water quality across the lagoons and the identified waterway objectives by way of an effects-based assessment. Where modelling tools are available, these tools will be applied at this stage to enhance the rigour of the assessments.</li> <li>▪ Management Options: Development of a suite of potential management responses, and evaluate the options based on cost effectiveness and risk treatment. This includes investigation of the use of constructed wetlands, sediment, and detention basins and other WSUD options to minimise the effect of freshwater and sediment inflows, with particular reference to areas of high biodiversity value around entrances to creeks. Consideration should be given to both current and future meteorological conditions.</li> <li>▪ Action Plan: Define the roles and responsibilities, costs, and timeframes for implementation of the action plan.</li> </ul> <p>The WQIP will support evidence-based decision-making and provide a performance framework to track progress toward improved water quality outcomes over time.</p>	<p>Scope:</p> <p>The WQIP will review existing water quality data, audit sub-catchments, assess pollution sources, and model environmental impacts. It will set science-based water quality targets and outline management actions like wetlands, WSUD features, and stakeholder collaboration. The plan will define clear roles, timelines, and costs for delivery.</p> <p>Benefits:</p> <p>The WQIP will provide a strong foundation for evidence-based decisions, track progress against health benchmarks, and support long-term improvement of water quality for both ecosystems and recreation.</p>			<p>form the CZMP CFG Workshop #1</p> <p>Updated with feedback from Workshop #2 and written submissions</p>
<b>Option 7</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Reduce sewage contamination of lagoons	<p>Collaborate with the Water &amp; Sewer (W&amp;S) department of Council to identify and prioritise upgrades or maintenance of key sewerage infrastructure. The focus will be on reducing contamination risks to receiving waters and improving long-term water quality outcomes for the lagoon systems.. This action includes:</p> <ul style="list-style-type: none"> <li>▪ Infrastructure Audits and Risk Assessment: Undertake comprehensive audits of critical sewerage infrastructure — including pump stations, sewer mains, and manholes — to assess their condition, identify high-risk failure points, and prioritise investment in upgrades or maintenance based on proximity to sensitive receiving waters and risk to human and ecosystem health</li> <li>▪ Targeted Investigations of Illegal Connections: In partnership with Council Water and Sewer department, , conduct targeted investigations to identify illegal or non-compliant sewer connections discharging wastewater to stormwater infrastructure or directly into lagoons. Develop and implement rectification strategies, including compliance notices and education.</li> <li>▪ On-Site Sewage Management (OSSM) Risk Reduction: Assess and mitigate the impact of OSSM systems — particularly in western catchment areas where these systems are more prevalent — through water quality monitoring, targeted compliance audits, and property owner education programs. Consider incentives or support mechanisms for system upgrades where appropriate.</li> </ul>	<p>Objective:</p> <p>Reduce the risk of sewage contamination entering lagoon systems and protect water quality and public health.</p> <p>Scope:</p> <p>Council will work with Water &amp; Sewer department of Council to assess the condition of key infrastructure like pump stations, sewer mains, and manholes. The project includes audits, identifying illegal connections, and addressing high-risk On-Site Sewage Management (OSSM) systems in western catchments. Education and compliance support will help property owners reduce risks. All findings will feed into future upgrade plans and asset management systems.</p> <p>Benefits:</p> <p>This action will lower the risk of pollution entering sensitive waterways, improve ecosystem and recreational water quality, and ensure Council's</p>	Council	EPA	<p>CZMP - Carried Over CFG Workshop #1</p> <p>Updated with feedback from Workshop #2 and #3.</p>



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			<ul style="list-style-type: none"> <li>Data Integration and Asset Management Alignment: Ensure findings from audits and investigations are integrated into Council's asset management, renewal, and upgrade programs.</li> </ul>	infrastructure planning is better aligned with environmental and community health goals.			
Option 8	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Wetland Refugia and Migration Study	<p>This study will assess the future viability of coastal wetland habitats within the lagoon systems in response to projected sea level rise. The primary objective is to forecast shifts in the extent and distribution of intertidal vegetation - such as saltmarsh, mangroves, and other important vegetation communities such as Swamp Oak Forest and Swamp Sclerophyll Forest - over coming decades.</p> <p>The study will make use of existing intertidal vegetation mapping, high quality topographic data, and long-term tidal &amp; lagoon water level data to develop existing and future (under sea level rise) mapping outputs.</p> <p>These inputs will inform the development of current and future spatial models of intertidal habitat extent under different sea level rise scenarios. The results will be used to:</p> <ul style="list-style-type: none"> <li>Identify areas at risk of coastal squeeze, where intertidal habitats may be trapped between rising water levels and fixed landward boundaries</li> <li>Highlight opportunities for wetland refugia, where landward migration of habitats is possible</li> <li>Assess implications for ecosystem services, such as habitat provision, nutrient cycling, and shoreline protection.</li> </ul> <p>The outputs of the technical assessment should be used to help inform land use and conservation planning by overlaying results with zoning and land tenure, helping to identify strategic areas for restoration, buffering, or managed realignment.</p> <p>Where possible, the study will engage with First Nations groups and local community stakeholders to incorporate cultural values and traditional knowledge relating to wetland areas</p>	<p>Objective:</p> <p>Assess how sea level rise may affect the future distribution and viability of coastal wetlands in the lagoons.</p> <p>Scope:</p> <p>This study will model changes in key vegetation types such as saltmarsh, mangroves, and Swamp Sclerophyll Forest using mapping, elevation, and tidal data. It will identify areas vulnerable to coastal squeeze, highlight zones suitable for wetland migration, and overlay results with land zoning to support planning.</p> <p>Benefits:</p> <p>Findings will help protect critical ecosystem services like habitat, nutrient cycling, and shoreline stability. The study will also guide restoration priorities and long-term conservation strategies. Engagement with First Nations groups and the community will ensure cultural knowledge is included in future wetland management.</p>	Council	DCCEEW	<p>Council Engagement A "rolled over" combination of numerous actions form the CZMP</p> <p>Updated with feedback from Workshop #2 and #3.</p>
Option 9	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Implement a wetland & riparian monitoring, management and restoration program	<p>This would include the development of an LGA wide wetland management strategy for Central Coast Council. The strategy will provide a coordinated framework for the protection, enhancement, and long-term management of wetlands across the study area.</p> <p>Upon completion of the strategy, this action would include implementation of wetland restoration works in priority locations across the CMP study area. Restoration activities may include:</p> <ul style="list-style-type: none"> <li>Reinstating natural hydrological regimes</li> <li>Revegetation with native wetland species</li> <li>Weed suppression through manual and mechanical techniques (with <b>avoidance of herbicide spraying</b> wherever possible)</li> <li>Buffer planting and foreshore rehabilitation</li> </ul> <p>This initiative aims to enhance ecosystem health, improve biodiversity, and bolster the resilience of the region's wetlands in the face of climate change and urbanisation.</p> <p>An important component of the wetland management strategy is monitoring. The monitoring program would utilise both physical on-ground monitoring techniques such as floristic surveys as well as remote sensing techniques looking at changes in the wetlands over time in response to climate change.</p>	<p>Objective:</p> <p>Create and deliver a coordinated plan to protect and restore wetlands across the Central Coast Council area.</p> <p>Scope:</p> <p>This strategy will guide wetland management across the catchment, followed by on-ground restoration at priority sites. Activities include restoring natural water flows, replanting native species, controlling weeds, and rehabilitating wetland buffers. A monitoring program will track changes using surveys and remote sensing, including monitoring around ICOLL entrance openings to inform policy.</p> <p>Benefits:</p> <p>This action will improve wetland health, increase biodiversity, and build resilience to climate change and urbanisation. Ongoing monitoring ensures</p>	Council	DCCEEW	<p>Council EngagementCZMP - Carried overCFG Workshop #1</p> <p>Updated with feedback from Workshop #2 and #3.</p>

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			This should also include monitoring before, during, and after ICOLL entrance opening (artificial and natural), where practical – to help inform future updates to the Entrance Management Policy.	adaptive, evidence-based management and helps guide future updates to the Entrance Management Policy.			
<b>Option 10</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Sedimentation Process and Management Investigation	<p>This action will begin by developing a contemporary understanding of sedimentation patterns and rates within the lagoons, with a particular focus on major tributaries that contribute to sediment inflows. This will leverage off historical work undertaken for the 2008 Estuary Process Study, and will involve a detailed sediment transport study - incorporating historical data, hydrodynamic modelling, and field assessments to determine deposition hotspots and rates of accumulation over time. This may include strategic surveys of the lagoons in potential sedimentation hot spot areas, where considered appropriate.</p> <p>Understanding these patterns is critical to identifying long-term trends, potential impacts on water quality, and risks to lagoon health, including habitat degradation and changes to water circulation. The study should also consider historical dredging and reclamation works across the study area and the local impacts that such works have had on sedimentation rates.</p> <p>In addition to quantifying sedimentation rates, the quality of accumulated sediment will be assessed to determine its composition and potential contaminants. This analysis will help identify any risks associated with nutrient loading, heavy metals, or other pollutants that may impact aquatic ecosystems. Based on these findings, management recommendations will be developed, outlining feasible strategies to mitigate excessive sedimentation, improve lagoon health, and enhance ecosystem resilience.</p> <p>One key outcome of this assessment will be determining whether dredging is a warranted and viable management option. Feasibility studies will consider environmental, economic, and logistical factors, ensuring that any intervention aligns with broader lagoon management objectives and minimizes ecological impacts.</p>	<p>Objective:</p> <p>Understand sedimentation processes in the lagoons to guide long-term management and protect ecosystem health.</p> <p>Scope:</p> <p>This study will analyse sediment build-up in key tributaries and lagoon areas by combining field surveys, historical data, and hydrodynamic modelling. It will assess sediment rates, composition, and contaminants (e.g. nutrients, heavy metals), and evaluate the impact of past dredging or reclamation works. The study will also explore whether dredging or other interventions are feasible and environmentally appropriate.</p> <p>Benefits:</p> <p>The results will support better water quality, protect sensitive habitats, and inform targeted actions to manage sedimentation and maintain lagoon health into the future.</p>	Council	DCCEEW	<p>CFG Workshop #1</p> <p>Updated with feedback from <i>Future Protection of Terrigal Lagoon</i> Submission</p> <p>Updated with feedback from Workshop #3</p>
<b>Option 11</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Introduction of "No Mow Zones" at targeted areas of public foreshore	<p>This includes the introduction of "No Mow Zones" at specific areas along the public foreshore. These zones are designated areas where mowing and other maintenance activities will be minimized or halted to promote natural vegetation growth and enhance the ecological health of the foreshore.</p> <p>This would be undertaken in combination with targeted planting of native riparian vegetation to accelerate vegetation recovery, improve habitat connectivity, and suppress invasive weeds.</p> <p>In addition, the program will include efforts to identify and address instances of encroachment by private landholders onto public foreshore land, ensuring public land boundaries are respected and the integrity of lagoon-edge habitats is maintained.</p>	<p>Objective:</p> <p>Enhance foreshore health by reducing mowing and encouraging natural vegetation growth.</p> <p>Scope:</p> <p>Designated "No Mow Zones" will be introduced along the public foreshore to allow native plants to regenerate. These zones will be supported by targeted planting of riparian species to improve habitat quality, control weeds, and strengthen ecological connections. Council will also investigate and address any private encroachment onto public land to protect sensitive lagoon-edge areas.</p> <p>Benefits:</p> <p>The action will improve biodiversity, reduce maintenance needs, and help restore natural</p>	Council		<p>CFG Workshop #1</p> <p>Updated with feedback from Workshop #2</p>

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				buffers that support water quality, habitat resilience, and foreshore stability.			
<b>Option 12</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Implement recommendations from the Gosford Creek and Lagoon Entrance Review (Salients 2019) where appropriate.	<p>Implement recommendations from the <i>Gosford Creek and Lagoon Entrance Review</i> (Salients 2019) where appropriate, including:</p> <ul style="list-style-type: none"> <li>Investigate possibility of incrementally raising the breakout levels, to enhance resilience to sea level rise and better protect threatened species and ecological communities</li> <li>Review of contemporary entrance management operations (triggers, methods, timing) to determine if any operational improvements are possible. Implementation should be flexible and adaptive, responding to ongoing monitoring, environmental conditions, and changing community flooding needs.</li> <li>Implement entrance clearance operations when appropriate with the view to redistribute sand within entrance compartments to improve access and mitigate coastal erosion risk.</li> </ul> <p>This approach recognises the dynamic nature of coastal lagoon systems and the need for responsive, evidence-based management that evolves over time.</p>	<p>Objective:</p> <p>Improve management of the lagoon entrances in response to changing coastal conditions and sea level rise.</p> <p>Scope:</p> <p>Council will implement selected actions from the 2019 Lagoon Entrance Review, including assessing ways to raise lagoon breakout levels to support ecological resilience, reviewing current entrance opening methods to ensure best practice, and redistributing sand to maintain access and reduce erosion. Management will be flexible and guided by ongoing monitoring and community needs.</p> <p>Benefits:</p> <p>This adaptive approach will reduce flood risk, support sensitive habitats, and maintain recreational and emergency access while preparing the system for long-term sea level rise.</p>	Council	DCCEEW	<p>Council Engagement</p> <p>Updated with feedback from Workshop #2</p> <p>Updated with feedback from <i>Future Protection of Terrigal Lagoon</i> Submission</p>
<b>Option 13</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Council continue to support research which improves understanding of lagoon processes, threats and anthropogenic impacts in order to develop improved management practices	<p>Continue to contribute to research where it has the potential to increase the understanding of ICOLL function including entrance processes (hydrodynamic and morphological), ecology and nutrient dynamics.</p> <p>Where feasible, Council should:</p> <ul style="list-style-type: none"> <li>Partner with universities and other research institutions to develop applied research projects that align with management priorities under the CMP</li> <li>Provide in-kind support for high-priority research initiatives</li> <li>Facilitate access to monitoring data and field sites</li> </ul> <p>Research supported under this initiative should prioritise:</p> <ul style="list-style-type: none"> <li>Understanding the biological, chemical, and physical functioning of the lagoons</li> <li>Investigating the impacts of urbanisation and development on biodiversity, water quality, and hydrological processes</li> <li>Establishing clear cause-and-effect relationships to inform management responses</li> <li>Addressing gaps in knowledge that directly relate to high-priority values and threats identified in the CMP</li> </ul> <p>Research outcomes will be integrated into CMP updates, monitoring frameworks, and on-ground actions, and shared with stakeholders through reports, forums, and other knowledge-sharing platforms.</p>	<p>Objective:</p> <p>Advance scientific knowledge of how Intermittently Closed and Open Lakes and Lagoons (ICOLLs) function to better guide management decisions.</p> <p>Scope:</p> <p>Council will partner with universities and research groups to support studies on lagoon entrance behaviour, water quality, ecology, hydrology, and the impacts of urban development and broader anthropogenic impacts. Support may include data sharing, field access, and in-kind assistance for researchers.</p> <p>Benefits:</p> <p>New research will fill key knowledge gaps, help identify cause-and-effect relationships, and improve responses to emerging threats. Outcomes will directly inform CMP actions, monitoring programs, and future updates — supporting evidence-based lagoon management.</p>	Council	Research Institutions	<p>CZMP - Carried Over and updated / revised</p> <p>Updated with feedback from Workshop #3</p>
<b>Option 14</b>	Wamberal Lagoon	Develop and implement a holistic Foreshore Master Plan for the	The Foreshore Landscape Masterplan will guide the rehabilitation of key habitats and enhance recreational access across the lagoon and its	<p>Objective:</p> <p>Create a comprehensive masterplan to guide the upgrade and rehabilitation of the Cockrone</p>	Council	NPWS	CZMP - Carried Over and updated / revised

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		Southern Foreshore of Wamberal Lagoon	<p>foreshore while balancing environmental, social, and economic needs. Key Objectives:</p> <ul style="list-style-type: none"> <li>Address uncontrolled access and encourage safe, sustainable recreation.</li> <li>Improve public amenities to enhance visitor experience.</li> <li>Protect and enhance wetland and lagoon vegetation for biodiversity.</li> <li>Manage bank erosion and foreshore stability.</li> </ul> <p>Community ideas for the development of the FMP include:</p> <ul style="list-style-type: none"> <li>Removal of frag rocks and old copper log car barriers along the full length of Remembrance Drive – replacement with better-suited car barriers that are in keeping with the natural environment, more aesthetically pleasing and take up less much-needed space for walkers</li> <li>Concrete slabs (from old boat sheds) could be utilised to make way for comfortable seating (made from recycled plastics for durability).</li> <li>Increased <i>Melaleuca quinquenervia</i> Paperbark trees, Casuarinas and Juncus sp (common rush) plantings along Remembrance Drive foreshore to assist erosion problems, foreshore protection and create more shade</li> <li>Ensuring Remembrance Drive is placed on the CCC's Resealing Program – not the Pot Hole Repair Program – in line with keeping the surrounding environment as natural as possible by avoiding concrete kerbs, gutters and footpaths</li> <li>Provision of a Shared Zone with reduced speed limits in Remembrance Drive to ensure safety</li> <li>Provision of a recycling bin near the picnic shed in Remembrance Drive</li> </ul>	<p>Lagoon foreshore and to improve access, protect habitat, and support community use.</p> <p>Scope:</p> <p>Develop a detailed masterplan that integrates recreational needs with environmental protection across the Remembrance Drive foreshore. This will include managing uncontrolled access, addressing erosion through native vegetation planting, and enhancing amenity through better pathways, seating, shared traffic zones, and improved signage and waste facilities. The plan will embed community input and explore sustainable design features. It will also assess long-term maintenance needs and align with Council's road and asset renewal programs.</p> <p>Benefits:</p> <p>A coordinated plan will ensure safe public access, improved biodiversity and foreshore resilience, and a more attractive and functional space for the local community.</p>			Updated with feedback from Workshop #2, and the CFG – Wamberal Lagoon written submission
Option 15	Terrigal Lagoon	Develop and implement a holistic Foreshore Master Plan for Terrigal Lagoon	<p>The Foreshore Landscape Masterplan will guide the rehabilitation of key habitats and enhance recreational access across the lagoon and its foreshore while balancing environmental, social, and economic needs. Key Objectives:</p> <ul style="list-style-type: none"> <li>Address uncontrolled access and encourage safe, sustainable recreation.</li> <li>Improve public amenities to enhance visitor experience – with a focus on local issues such as parking, access and amenities.</li> <li>Protect and enhance wetland and lagoon vegetation for biodiversity – including the significance of wildlife corridors across the lagoon foreshore and catchment(s). This includes the use of bollards or low high fencing to protect sensitive vegetation areas along the northern and eastern foreshores.</li> <li>Manage bank erosion and foreshore stability through vegetation planting and other nature based solutions.</li> </ul>	<p>Objective:</p> <p>Create a comprehensive masterplan to guide the rehabilitation of Terrigal Lagoon foreshore, and improve recreational access, while balancing environmental protection, community amenity, and local needs.</p> <p>Scope:</p> <p>The plan will address uncontrolled access and prioritise safe, sustainable use of the foreshore. It will enhance public amenities — including parking, pathways, seating, and signage — and identify opportunities to resolve access and safety concerns. A key focus will be protecting and restoring wetland vegetation and wildlife corridors through targeted planting and sensitive design. This includes installing bollards or low fencing to prevent trampling of native vegetation along the northern and eastern foreshores. The masterplan will also incorporate nature-based erosion control measures to improve bank stability and foreshore resilience.</p> <p>Benefits:</p> <p>A clear, community-informed plan will support biodiversity, reduce degradation, and deliver a</p>	Council		<p>CZMP - Carried Over and updated / revised</p> <p>Updated with feedback from Workshop #2 and #3.</p>



ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
				more accessible, functional, and attractive public space.			
<b>Option 16</b>	Avoca Lagoon	Green and Golden Bell Frog research and habitat restoration.	<p>Opportunities to enhance breeding habitat sites for the Green and Golden Bell Frog (GGBF) adjacent to Avoca Lagoon and within the broader catchment will be investigated, including the outcomes and recommendations of - and building on - the extensive body of existing research and studies already undertaken in this area. Key activities will include:</p> <ul style="list-style-type: none"> <li>Identifying suitable locations for the creation of dedicated breeding habitat, such as shallow freshwater ponds with appropriate water depth, hydroperiod, water quality, and shelter</li> <li>Enhancing existing wetlands by improving hydrology, vegetation structure, and connectivity to support GGBF breeding and foraging</li> <li>Establishing or strengthening buffer zones to minimise disturbance from urban development and reduce predation pressure</li> <li>Assessing the feasibility of water level control structures to help maintain optimal conditions during critical breeding periods</li> </ul> <p>These efforts will be aligned with broader wetland restoration and conservation initiatives in the Avoca Lagoon catchment to maximise ecological outcomes and ensure integrated management.</p> <p>Ongoing population monitoring will continue in collaboration with researchers, councils, and community groups. Seasonal surveys will be conducted to track breeding success, habitat use, and emerging threats.</p> <p>Ongoing population monitoring will continue in collaboration with researchers, Council staff, and local community groups. Citizen science initiatives will be actively encouraged, including training and support for volunteers to participate in frog call surveys, habitat assessments, and data collection. This community involvement will improve the spatial and temporal resolution of monitoring data, foster local stewardship, and build awareness of the GGBF's conservation needs.</p> <p>An adaptive management approach will be adopted, using monitoring results to refine conservation strategies. Findings will contribute to long-term conservation planning and inform future management decisions for Avoca Lagoon and surrounding wetland ecosystems.</p> <p>This Action will link to a similar action in the Hawkesbury-Nepean River System CMP – to ensure that GGBF management is focussed on the regional populations of the species.</p>	<p>Objective:</p> <p>Support the recovery of the threatened Green and Golden Bell Frog by enhancing breeding habitat in and around Avoca Lagoon.</p> <p>Scope:</p> <p>This action will identify and enhance suitable sites for frog breeding, such as shallow freshwater ponds and wetlands with the right vegetation, hydrology, and shelter. It will assess buffer zones to reduce urban disturbance, explore water level controls for breeding support, and align with broader wetland restoration. Ongoing monitoring — including community-led frog call surveys — will inform adaptive management.</p> <p>Benefits:</p> <p>Improved habitat and connectivity will help secure the regional GGBF population. Community involvement will boost stewardship, while coordinated efforts across catchments will ensure consistent, science-based conservation outcomes.</p>	Council	DPIRD Fisheries	<p>CZMP - Carried Over and updated / revised</p> <p>Updated with feedback from Workshop #2</p>
<b>Option 17</b>	Avoca Lagoon	Dredge hole rehabilitation feasibility investigation	<p>This would include a feasibility investigation into the rehabilitation of the Avoca lagoon dredge hole, with the goal of restoring a more stable and ecologically functional lagoon bed. The primary objectives of this investigation include:</p> <ul style="list-style-type: none"> <li>Undertaking a contemporary bathymetric survey, and assessing the current condition of the dredged hole and identifying areas that require rehabilitation.</li> <li>Reviewing historical dredging records and sediment transport processes to understand the original dredging impacts and natural infill trends.</li> </ul>	<p>Objective:</p> <p>Assess the feasibility of restoring the Avoca Lagoon dredge hole to improve ecological function and lagoon bed stability.</p> <p>Scope:</p> <p>This action involves a detailed study of the dredged area, including bathymetric surveys, review of historical dredging, sediment transport, and infill trends. It will evaluate suitable methods</p>	Council	DCCEEWDPIRD Fisheries	<p>CFG Workshop #1</p> <p>Updated with feedback from Workshop #3</p>

ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
			<ul style="list-style-type: none"> <li>Evaluating the potential methods for re-filling dredge holes to ensure a stable and even lagoon bed (including required equipment and associated costs).</li> <li>Investigating the environmental impact of bed modification works and re-filling activities on the lagoon's ecosystem - including hydrodynamics, benthic habitats, and water quality.</li> <li>Identifying suitable sediment sources for re-filling, including potential reuse of dredged material from Avoca Beach or other external sources.</li> <li>Developing a comprehensive plan for the rehabilitation process, including timelines, resource allocation, and potential challenges.</li> </ul> <p>This would also include engaging with stakeholders, including local communities and environmental experts, to gather input and ensure the proposed actions align with broader environmental and recreational goals</p>	<p>and materials for re-filling the hole and assess potential environmental impacts on habitats, water quality, and hydrodynamics. Suitable sediment sources — will also be identified. The study will include stakeholder engagement to align the design with community values and broader environmental goals.</p> <p>Benefits:</p> <p>Rehabilitation could improve habitat quality, support lagoon health, and reduce environmental risks while aligning with long-term management and recreation priorities.</p>			
Option 18	Avoca Lagoon	Develop and Implement an Algae Management Strategy for Avoca Lagoon	<p>This strategy should build on the findings of current Council-funded research into the drivers of algal growth in the lagoon and its role in the lake's nutrient budget. Algal harvesting is proposed to help manage the adverse effects of blooms, including reduced recreational amenity and post-bloom anoxic events that elevate biological oxygen demand. It is acknowledged that harvesting is a symptom management tool and will be complementary to long-term nutrient load reduction strategies identified in this CMP.</p> <p>However, any harvesting approach should also account for the ecological value of algal presence, which includes:</p> <ul style="list-style-type: none"> <li>Providing structure for colonization and habitat provision.</li> <li>Serving as a food source for water birds, particularly swans.</li> <li>Offering spawning grounds, shelter, and refuge from predators for juvenile fish species and benthic invertebrates.</li> </ul> <p>Targeted algal removal has been successfully implemented in Tuggerah Lake and Lake Illawarra, particularly for <i>Chaetomorpha linum</i> blooms. Current harvesting techniques include the use of floating harvesters in water depths greater than 0.5 metres and front-end loaders in shallower areas.</p> <p>Lagoon entrance management may also influence algal dynamics and should be integrated into future planning. Removal efforts should prioritise public-use foreshore areas where algal mats extend more than 20 metres from the water's edge—especially ahead of peak holiday periods—to preserve visual and recreational amenity.</p> <p>Council should develop a clear, evidence based policy to guide algal removal and disposal that adheres to ecological best practice, ensuring it is both effective and sensitive to the ecological integrity of the lagoon bed. his includes minimising disturbance to lagoon bed habitats, using appropriate dewatering and composting or reuse methods, and monitoring ecological outcomes to support adaptive management.</p> <p>Key elements of the strategy should include:</p> <ul style="list-style-type: none"> <li>Integration with catchment nutrient reduction efforts, recognising harvesting as a complementary symptom-management approach</li> <li>Clear prioritisation of high-use foreshore areas, especially before peak holiday periods</li> <li>Monitoring protocols to assess effectiveness (e.g. nutrient removal, community satisfaction) and detect unintended ecological impacts</li> <li>Community engagement and communications, to build understanding and support for the approach</li> </ul>	<p>Objective:</p> <p>Reduce the negative impacts of algal blooms in the lagoon while balancing their ecological role and improving community amenity.</p> <p>Scope:</p> <p>Council will build on existing research to guide targeted algal harvesting in areas most affected by large algal mats — especially public-use foreshores. The strategy will include the use of floating harvesters and shore-based methods, aligned with lagoon entrance and nutrient management planning. It will also consider ecological benefits of algae, such as habitat and food for birds and fish. A clear policy will guide removal and disposal, using best-practice methods to protect lagoon bed habitats. Monitoring and community communication will be key parts of the program.</p> <p>Benefits:</p> <p>This approach will help manage visual and recreational impacts of blooms while supporting long-term lagoon health and community support.</p>	Council	DPIRD Fisheries	<p>CZMP - Carried Over and updated / revised</p> <p>Updated with feedback from Workshop #2 and #3</p>

ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
Option 19	Avoca Lagoon	Develop and implement a holistic Foreshore Master Plan for Avoca Lagoon	<p>The Foreshore Landscape Masterplan will guide the rehabilitation of key habitats and enhance recreational access across the lagoon and its foreshore while balancing environmental, social, and economic needs. Key Objectives:</p> <ul style="list-style-type: none"> <li>Improve public amenities to enhance visitor experience - including the potential to install unpowered craft launch facilities (such as kayaks ramps) which can help mitigate bank erosion. This may include upgrade of safe waterway access at Heazlett Park.</li> <li>Consideration of overland drainage from the carpark and commercial area to the east of Heazlett Park.</li> <li>Improve public amenities to enhance visitor experience.</li> <li>Landscaping and green space design</li> <li>Protect and enhance wetland and lagoon vegetation for biodiversity. This may include succession planting to address die back of casuarinas link to management of COSS lands that are adjacent to lagoons</li> <li>Manage bank erosion and foreshore stability - specifically of the downstream estuary foreshores impacted by entrance instability.</li> </ul>	<p>Objective:</p> <p>Improve habitat condition, visitor access, and recreational infrastructure around the Avoca Lagoon foreshore - while supporting ecological values and foreshore resilience.</p> <p>Scope:</p> <p>This masterplan will guide upgrades to green space, access paths, and launching points for kayaks and other unpowered craft (e.g. Heazlett Park), helping manage bank erosion. It will assess and manage stormwater runoff from adjacent carparks, improve landscaping, and enhance public amenities. The plan will also prioritise planting and vegetation management, such as replacing ageing casuarinas and protecting key wetland areas — particularly near adjoining COSS lands. Management of erosion hotspots and foreshores affected by entrance instability will be a key focus.</p> <p>Benefits:</p> <p>A coordinated plan will improve environmental outcomes, increase recreation opportunities, and ensure safe and enjoyable access for the community.</p>	Council		<p>CZMP - Carried Over and updated / revised</p> <p>Updated with feedback from Workshop #2</p>
Option 20	Cockrone Lagoon	Develop and implement a holistic Foreshore Master Plan for Cockrone Lagoon	<p>The Foreshore Landscape Masterplan will guide the rehabilitation of key habitats and enhance recreational access across the lagoon and its foreshore while balancing environmental, social, and economic needs. Key Objectives:</p> <ul style="list-style-type: none"> <li>Improving safe access to (and along) the estuary foreshore. This includes upgrades of existing pedestrian accessways and walking tracks – and provisions to include all-abilities access to the foreshore where possible.</li> <li>This could also include installation of unpowered craft launch facilities (such as kayaks ramps) which can help mitigate bank erosion, as well as storage facilities such as racks for kayaks and other watercraft.</li> <li>Improve public amenities to enhance visitor experience – which may include restroom facilities at key locations, and the provision of bins and dog waste bags</li> <li>Landscaping and green space design</li> <li>Protect and enhance wetland and lagoon vegetation for biodiversity – this could include measures to help keep dogs out of protected wetland areas where appropriate.</li> <li>Maintenance of the southern foreshore rock revetment - in order to prolong its useful life.</li> </ul>	<p>Objective:</p> <p>Enhance access, recreational use, and environmental management along the Cockrone Lagoon foreshore.</p> <p>Scope:</p> <p>The plan will guide upgrades to walking tracks, foreshore access points, and recreational infrastructure. It will prioritise all-abilities access, install kayak launch points and storage facilities, and improve public amenities such as restrooms, bins, and dog waste stations. Landscaping will support aesthetics and biodiversity, including planting and measures to protect sensitive wetland areas from disturbance (e.g. by dogs). The plan will also include maintenance of the southern foreshore rock revetment to extend its life and ensure ongoing shoreline stability.</p> <p>Benefits:</p> <p>This plan will support safe and inclusive recreation, improve habitat condition, and ensure long-term resilience of the foreshore and associated infrastructure.</p>	Council		<p>CZMP - Carried Over and updated / revised</p> <p>Updated with feedback from Workshop #2 and #3</p>

ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
Option 21	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Engage First Nations teams where appropriate to undertake bush regeneration works including weeding and revegetation	<p>To enhance the involvement of First Nations peoples in the stewardship and management of the estuary systems and their catchment by building strong, collaborative partnerships with First Nations Ranger Groups and Bush Regeneration Teams. This approach aims to integrate traditional knowledge and contemporary conservation practices for sustainable environmental management. This would include:</p> <ul style="list-style-type: none"> <li>Identify key First Nations Ranger Groups and Bush Regeneration Teams that are active in the region. Initiate dialogues to understand their perspectives, goals, and areas of expertise.</li> <li>Engage teams where appropriate to undertake bush regeneration works including weeding and revegetation</li> <li>Provide training and capacity-building opportunities to First Nations Rangers and community members. This can include workshops on estuary management, ecological monitoring, and restoration techniques.</li> </ul> <p>Note that this action would not exclude non first nations bush regeneration companies from Council procurement processes</p>	<p>Objective:</p> <p>Support meaningful First Nations involvement in the care and management of estuarine and catchment environments.</p> <p>Scope:</p> <p>Work with local First Nations Ranger Groups and Bush Regeneration Teams to deliver weeding, planting, and land care activities. Build collaborative relationships that respect cultural knowledge and practices. Support participation through training and capacity-building programs in areas like ecological monitoring and estuary health. Partnerships will be pursued in a way that complements existing Council procurement processes and does not exclude non-First Nations contractors.</p> <p>Benefits:</p> <p>This action fosters cultural connection to Country, builds local capacity, and supports more holistic land management by blending traditional knowledge with contemporary environmental techniques.</p>	Council	First Nations Groups  NPWS  Heritage NSW	Engagement with First Nations Groups
Option 22	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Further develop and implement community education programs for awareness and appreciation of Indigenous cultural heritage	Develop and implement a program of Indigenous cultural education activities within the study area. The objective is to increase community awareness and appreciation of the Indigenous cultural heritage values of the estuary and Indigenous management practices around our coastal lagoons.	<p>Objective:</p> <p>Enhance community understanding and respect for the Indigenous cultural heritage of the estuary and surrounding lagoons.</p> <p>Scope:</p> <p>Develop and deliver a program of cultural education activities in partnership with local First Nations communities. This may include guided walks, on-Country learning sessions, storytelling, cultural workshops, and interpretive signage. Activities will highlight traditional knowledge, land management practices, and the ongoing cultural significance of the lagoons and their catchments.</p> <p>Benefits:</p> <p>This program will strengthen cultural awareness, promote inclusive community values, and support reconciliation. It also creates opportunities to embed Indigenous perspectives into the long-term care and management of coastal landscapes.</p>	Council	First Nations Groups  NPWS  Heritage NSW	Engagement with First Nations Groups



ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
<b>Option 23</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Support cultural education and awareness of estuary health issues for First Nations Groups	Provide funding and technical support for the development of a coordinated program of cultural education activities that are designed to enable local First Nations groups to further their understanding and awareness of key estuary health issues and associated management approaches. The objective of these activates are to increase First Nations participation in catchment and estuary management.	<p>Objective:</p> <p>Increase First Nations participation in estuary and catchment management by building awareness of estuary health issues and management approaches.</p> <p>Scope:</p> <p>Provide funding and technical support for local First Nations groups to design and deliver a program of cultural education activities. These may include workshops, field days, and on-Country sessions focused on key estuary health topics such as water quality, habitat protection, and climate change. Activities should be co-designed to reflect both cultural values and scientific knowledge.</p> <p>Benefits:</p> <p>This program will strengthen cultural understanding of lagoon health, build capacity for future collaboration, and support meaningful involvement of First Nations people in estuary stewardship and decision-making.</p>	Council	First Nations Groups, NPWS, Heritage NSW	Engagement with First Nations Groups
<b>Option 24</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Identify opportunities for, and undertake cultural land management practices, including cultural burning	Council should engage with local First Nations groups to identify opportunities for and undertake cultural practices (including cultural burning) across the lagoon catchments. This would involve the Council working closely with NPWS and local First Nations Groups to develop and implement appropriately.	<p>Objective:</p> <p>Support First Nations-led cultural practices to care for Country and strengthen connections to lagoon catchments.</p> <p>Scope:</p> <p>Council will engage with local First Nations groups to identify and implement cultural land management activities, such as cultural burning and other traditional practices. This will be done in close collaboration with the NSW National Parks and Wildlife Service (NPWS) to ensure cultural protocols, ecological objectives, and safety requirements are met.</p> <p>Benefits:</p> <p>The program will enhance the ecological health of lagoon catchments, support cultural revitalisation, and build stronger partnerships between Council, NPWS, and First Nations communities. It will also help integrate traditional knowledge into broader land and fire management approaches</p>	Council	First Nations Groups, NPWS, Heritage NSW	Engagement with First Nations Groups

ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
<b>Option 25</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Engage with local First Nations Groups to protect and preserve cultural heritage items across the coastal zone	<p>This action involves engaging with the relevant First Nations Groups to protect and preserve Aboriginal Cultural Heritage (ACH) items within the lagoon catchments. It is anticipated that there would be four main tasks for this action:</p> <ul style="list-style-type: none"> <li>▪ Consultation with the relevant First Nations Groups.</li> <li>▪ A literature review of existing ACH databases (such as AHIMS) and existing cultural heritage plans</li> <li>▪ An Aboriginal cultural heritage survey, which should include field work, and recording of cultural heritage sites (such as middens sites) and detailed documentation of findings.</li> <li>▪ The development and prioritisation of local, site specific management plans for protection and preservation of sites exposed to coastal hazard risk.</li> </ul>	<p>Objective:</p> <p>Identify, protect, and preserve Aboriginal Cultural Heritage (ACH) sites within the lagoon catchments in partnership with First Nations groups.</p> <p>Scope:</p> <p>Council will work with relevant First Nations representatives to undertake cultural heritage surveys, consult on priorities, and review existing databases (e.g. AHIMS) and cultural plans. The project will also include on-ground fieldwork to record and assess known and potential ACH sites, such as middens, and develop site-specific management strategies for areas at risk from erosion and coastal hazards.</p> <p>Benefits:</p> <p>The action supports cultural preservation, fosters respectful partnerships with Traditional Custodians, and ensures that ACH values are protected through evidence-based and locally endorsed management plans.</p>	Council	First Nations Groups, NPWS, Heritage NSW	Engagement with First Nations Groups
<b>Option 26</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Undertake a habitat assessment and develop a targeted management plan for flying-fox populations, with a focus on the Grey-headed Flying-fox ( <i>Pteropus poliocephalus</i> ).	<p>This action involves a detailed habitat assessment and the development of a targeted management plan for flying-fox populations, with a focus on the Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>). The goal is to improve ecological understanding, support species conservation, and guide land use and environmental planning in areas where flying-fox populations are known to occur or may be affected by future development or climate pressures.</p> <p>This action should include mapping of current roosting and foraging sites, assessment of habitat condition, and identification of potential areas for long-term habitat protection or enhancement—particularly where <i>Corymbia glauca</i> (C. glauca) forms a key part of the canopy.</p> <p>Ongoing monitoring of population trends and habitat use is essential to inform adaptive management responses, ensure protection of this threatened species, and guide planning for future urban and environmental pressures.</p> <p>The development of the plan should actively involve local residents and wildlife carers to understand local issues and values, and ensure the management approach balances conservation, amenity, and public expectations.</p>	<p>Objective:</p> <p>Protect and manage Grey-headed Flying-fox habitat to support species conservation and guide land use decisions.</p> <p>Scope:</p> <p>This action includes mapping current roosting and foraging sites, assessing habitat condition, and identifying areas for long-term habitat protection or enhancement—especially where <i>Corymbia glauca</i> forms part of the canopy. A management plan will be developed based on habitat data and population monitoring, with input from local residents and wildlife carers.</p> <p>Benefits:</p> <p>Improves understanding of flying-fox ecology, supports conservation of a threatened species, and informs future planning. It also helps manage potential conflicts between habitat protection and urban amenity by ensuring the plan reflects local values and expectations.</p>	Council	NPWS	CFG Workshop #2  Updated in Workshop #3

ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
<b>Option 27</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Introduce area-specific Development Control Plan (DCP) provisions for lakefront properties to strengthen foreshore protection through the development assessment (DA) process.	<p>Introduce tailored DCP provisions for lakefront properties to strengthen foreshore protection through the development assessment (DA) process. These provisions would help manage cumulative impacts on lagoon-edge environments while increasing resilience to climate change and long-term shoreline change.</p> <p>Key considerations should include:</p> <ul style="list-style-type: none"> <li>The establishment and maintenance of riparian vegetation buffers along private foreshore boundaries.</li> <li>Providing guidance for landholders on the selection and maintenance of native vegetation — with emphasis on species that are resilient to drought, inundation, and saltwater exposure.</li> <li>Consideration of future climate change impacts on foreshore vegetation.</li> </ul> <p>These controls would support improved water quality, bank stability, and habitat connectivity, and could be directly linked to broader riparian restoration efforts outlined in Options 11 and 15. Guidance should also be developed to assist landholders in selecting appropriate native species and maintaining vegetated buffers over time.</p>	<p><b>Objective:</b> Improve foreshore resilience and manage cumulative impacts through updated planning controls for lakefront properties.</p> <p><b>Scope:</b> Develop tailored Development Control Plan (DCP) provisions that require riparian vegetation buffers on private foreshore land. Provide guidance for landholders on selecting and maintaining native plants that can tolerate drought, flooding, and salt exposure. Climate change impacts on shoreline vegetation should also be considered.</p> <p><b>Benefits:</b> Helps protect water quality, stabilise shorelines, and support habitat connectivity. These controls align with broader restoration efforts (Options 11 and 15) and provide clarity to landholders on how to care for their foreshore areas while improving long-term environmental outcomes.</p>	Council		CFG Workshop #2  Updated in Workshop #3
<b>Option 28</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Install historic flood markers at key locations around the lagoons to indicate past flood heights.	<p>Install historic flood markers at key locations around the lagoons to indicate past flood heights. These markers will serve as a visual and educational tool to raise community awareness about flood risk and lagoon behaviour during extreme weather events.</p> <p>Locations should be selected for high visibility and accessibility - such as public reserves, walking paths, and accessways - and include interpretive signage to explain the date and cause of the recorded flood, its impacts, and how it relates to projected future risks under climate change.</p>	<p><b>Objective:</b> Enhance community understanding of flood risk and lagoon behaviour during extreme weather events.</p> <p><b>Scope:</b> Install flood markers at key public locations to show past flood heights. Each marker should include signage explaining when the flood occurred, what caused it, and the impact on the surrounding area. Signage should also highlight how these historic events relate to future flood risks from climate change.</p> <p><b>Benefits:</b> Provides a simple and visual way to increase awareness of flood risk, encourage community preparedness, and support future climate adaptation. Helps link past events with projected future changes, fostering a better public understanding of local hazards.</p>	Council		CFG Workshop #2
<b>Option 30</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Support Regional Invasive Predator Management with LLS	This option would involve Council liaising with NSW Local Land Services (LLS) to support coordinated management of invasive predators - particularly foxes, deer, and domestic and feral cats - across the catchments of the study area lagoons. This will include identifying priority areas for control, sharing data and observations, and aligning timing of on-ground efforts with broader catchment-wide programs. The aim is to reduce predation pressure on native fauna, particularly ground-nesting birds, frogs and other vulnerable lagoon-dependent species.	<p><b>Objective:</b> Reduce threats to native wildlife from invasive predators across lagoon catchments.</p> <p><b>Scope:</b> Council will work with NSW Local Land Services to support coordinated management and control of foxes, deer, and feral and domestic cats. This includes data sharing, timing alignment of control</p>	Council LLS		CFG Workshop #2  Updated in Workshop #3

ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
			<p>This Action should be undertaken in alignment with the Regional Strategic Pest Animal Management Plan 2024-2028 (NSW LLS), which states Councils responsibilities in this area include:</p> <ul style="list-style-type: none"> <li>Administer and enforce the <i>Companion Animals Act 1998</i>, including microchipping and registration</li> <li>Ensure all domestic cats are treated humanely and their welfare needs are met</li> <li>Promote responsible cat ownership, including desexing</li> <li>Respond to complaints about stray and nuisance domestic cats</li> <li>Impound and euthanise domestic cats that pose a threat to the public</li> </ul> <p>Encourage the local community and relevant land managers to report invasive fauna sightings using FeralScan , to improve regional data and inform more effective, targeted control efforts.</p>	<p>efforts, and identifying high-priority areas. Council will also promote responsible pet ownership, enforce companion animal laws, and support public reporting via FeralScan.</p> <p>Benefits:</p> <p>Improves protection for native fauna, including birds and frogs. Strengthens regional pest control efforts through collaboration. Builds community awareness and involvement in invasive species reporting and responsible pet ownership. Aligns with the Regional Strategic Pest Animal Management Plan 2024–2028.</p>			
<b>Option 31</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Develop a Community Monitoring Program for Lagoon Birdlife	<p>This option would involve Council developing a citizen science program to engage the community in monitoring important wetland bird species, including threatened and migratory shorebirds that rely on the lagoons for habitat. This program will aim to increase public awareness of the ecological significance of the lagoons, build local capacity to contribute to long-term data collection, and strengthen conservation outcomes through improved understanding of bird presence, habitat use, and seasonal patterns.</p> <p>Activities may include volunteer bird surveys, photo monitoring, training workshops, and partnerships with local birding groups, schools, and conservation organisations. Data collected will be shared with relevant agencies and used to inform ongoing lagoon management and habitat protection initiatives.</p> <p>The action would include engagement with relevant community groups, such as the Central Coast Birders, and well as Non-Government Organisations, such as Birding NSW.</p>	<p>Objective:</p> <p>Collect high-quality, locally relevant data on lagoon-dependent bird species to inform habitat management and conservation planning.</p> <p>Scope:</p> <p>Council will develop a citizen science program to monitor key bird species, involving activities like bird counts, photo surveys, training workshops, and school partnerships. The program will engage local groups such as Central Coast Birders and Birding NSW and share data with relevant agencies to support informed lagoon management.</p> <p>Benefits:</p> <p>Improves understanding of bird habitat use and seasonal patterns. Builds community skills and connection to the lagoons. Supports conservation of wetland birds and guides better habitat protection over time.</p>	Council	DCCEEW	CFG Workshop #2  Updated in Workshop #3
<b>Option 32</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Develop and execute a communications plan for Stage 5 of the CMP	<p>Develop a communications plan for the 10 year implementation phase of the CMP. This will include maintenance of the CMP Website to provide the community with the following information:</p> <ul style="list-style-type: none"> <li>The CMP background, and an overview of the NSW Coastal Management Framework.</li> <li>Key CMP information, including reports available for public consumption.</li> <li>The Status of CMP actions, with details of the actions and recent updates/progress.</li> <li>Outputs of the various monitoring programs undertaken as part of the CMP (including water quality monitoring)</li> <li>Links to relevant materials such as The NSW Coastal Management Framework, and the Marine Estate Management Strategy.</li> </ul> <p>This may also include the ongoing social media presence, mailing lists and newsletters publishing.</p>	<p>Objective:</p> <p>Ensure transparent, ongoing communication with the community throughout the 10-year implementation of the CMP.</p> <p>Scope:</p> <p>Prepare a communications plan that maintains and updates the CMP website with accessible information on the CMP's background, key documents, action status, and monitoring results (e.g. water quality). The plan should also include use of social media, newsletters, and mailing lists to share updates, promote engagement, and highlight progress.</p>	Council	DCCEEW	CFG Workshop #2  Updated in Workshop #3



ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
				<p>Benefits:</p> <p>Keeps the community informed, builds trust and support for coastal management actions, and promotes ongoing participation in CMP initiatives. Helps demonstrate accountability and fosters long-term stewardship.</p>			
Option 33	Avoca Lagoon	Trial Installation of Water Quality Autosampler in Avoca Lagoon Catchment	<p>Council will install and operate an automated water quality sampler in the Avoca Lagoon catchment for a 12-month trial period. The device will be programmed to collect water samples when it is not possible to collect them manually - such as during significant rainfall and stormwater runoff events. This allows for the capture of important data regarding the behaviour of the catchment (and nutrient concentrations including TN, TKN, NH<sub>3</sub>, NOx, TP and SRP) in response to rainfall events.</p> <p>The autosampler will be strategically located to align with existing research by the NSW Government and the University of Newcastle. This will ensure that the collected data complements broader scientific efforts to understand nutrient dynamics and sources within the catchment.</p> <p>The data collected will improve the evidence base for managing nutrient inputs into the lagoon, support modelling of catchment nutrient loads, and help identify key pollutant pathways. These insights will inform future management actions to improve water quality and reduce the risk of algal blooms and other ecological impacts. If the trial proves to be effective and value for money, the program may be extended to support long-term monitoring and adaptive management.</p>	<p>Objective:</p> <p>Improve understanding of nutrient loads and pollutant pathways during storm events to inform better lagoon water quality management.</p> <p>Scope:</p> <p>Council will trial an automatic water sampler for 12 months. It will collect samples during rain and stormwater runoff events, when it's hard to take samples by hand. The sampler will test for nutrients like nitrogen and phosphorus and will be placed to match ongoing research by the NSW Government and the University of Newcastle.</p> <p>Benefits:</p> <p>Provides detailed, event-based water quality data to support nutrient modelling and identify pollution hotspots. The trial will guide future investment in monitoring and inform actions to reduce algal blooms and improve lagoon health.</p>	Council	DCCEEW	CFG Workshop #2
Option 34	Wamberal Lagoon	Develop a Memorandums of Understanding (MoU) Between Central Coast Council and NPWS for Wamberal Lagoon Management	<p>Council would work with NSW National Parks and Wildlife Service (NPWS) to establish a Memorandum of Understanding (MoU) to clarify roles and responsibilities for managing Wamberal Lagoon. The MoU would promote coordinated implementation of best-practice actions under the Lagoon's Plan of Management, including ecological management, entrance works, pest control, and community engagement.</p> <p>The MoU will also formalise information and data sharing protocols, enabling more effective decision-making, aligned monitoring efforts, and improved responsiveness to emerging environmental and operational issues.</p>	<p>Objective:</p> <p>Promote coordinated and effective management of Wamberal Lagoon through a formal partnership between Council and NSW National Parks and Wildlife Service (NPWS).</p> <p>Scope:</p> <p>Council will work with NPWS to develop a Memorandum of Understanding (MoU) that sets out clear roles and responsibilities for the ongoing management of Wamberal Lagoon. The MoU will support joint implementation of the Lagoon's Plan of Management, including ecological management, entrance works, pest control, and community engagement activities. It will also formalise arrangements for regular communication and collaboration.</p> <p>Benefits:</p>	Council		CFG – Wamberal Lagoon Submission Updated in Workshop #3

ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
				The MoU will improve coordination across agencies, enabling more efficient implementation of best-practice actions. It will support aligned monitoring programs, consistent data sharing, and better decision-making in response to environmental and operational challenges.			
<b>Option 35</b>	Wamberal Lagoon	Fishing closure of Wamberal Lagoon	This option would involve NSW DPIRD Fisheries declaring a fishing closure for Wamberal Lagoon under Section 8 of the <i>Fisheries Management Act 1994</i> . This provision enables the prohibition or restriction of taking or possessing fish in a specified area to protect fish stocks, aquatic ecosystems, and sensitive habitats. A closure of this kind would support the ecological values of the lagoon - particularly its role as a bird sanctuary and nature reserve - by reducing disturbance, improving water quality, and enhancing habitat protection for vulnerable and migratory species.	<p>Objective</p> <p>Protect the ecological values of Wamberal Lagoon by reducing disturbance to sensitive habitats and species.</p> <p>Scope</p> <p>Work with NSW DPIRD Fisheries to seek a formal fishing closure for Wamberal Lagoon under Section 8 of the Fisheries Management Act 1994. This would prohibit or restrict fishing to protect fish stocks, improve water quality, and minimise human disturbance. The closure would support the lagoon's function as a bird sanctuary and sensitive coastal habitat.</p> <p>Benefits</p> <p>Strengthens long-term protection for aquatic ecosystems and migratory species. Helps reduce nutrient inputs and physical disturbance, supporting habitat health and aligning with Wamberal Lagoon's designation as a nature reserve.</p>	DPIRD Fisheries	Council NPWS	CFG – Wamberal Lagoon Submission
<b>Option 36</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Undertake Ecosystem Services Valuation for the Central Coast Lagoons	<p>The CMP recognises biodiversity and recreational values - but quantifying the economic benefits of lagoon ecosystem services (e.g. flood mitigation, carbon storage, water filtration, mental health, tourism) can build a stronger case for funding, policy alignment, and community buy-in.</p> <p>Engage with environmental economists and universities to quantify the value of ecosystem services provided by the lagoons. This includes tangible (e.g. flood buffering, avoided infrastructure damage) and intangible services (e.g. cultural and mental health benefits). Outputs could include spatial valuation maps and communication tools to support future investment decisions, grant applications, and planning instruments.</p> <p>The Action could also be rolled into Option 13, as a focus for academic research.</p>	<p>Objective</p> <p>Show the full value of lagoon ecosystems to help attract funding and guide decision-making.</p> <p>Scope</p> <p>Work with universities and environmental economists to measure the economic benefits of lagoon services like flood protection, clean water, carbon storage, recreation, and cultural values. The study will assess both physical (e.g. reduced flood damage) and social (e.g. mental wellbeing) benefits. Outputs may include maps and clear visuals to support grant applications, policy, and planning.</p> <p>Benefits</p> <p>Gives Council and the community a stronger case for protecting lagoons. Supports better funding, smarter policy choices, and greater community</p>	Council	DCCEEW	CFG Workshop #2 Updated in Workshop #3

ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
				support by making the value of lagoons easier to understand and communicate.			
<b>Option 37</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Assess and Manage Light and Noise Pollution Impacts on Lagoon Ecology	<p>Artificial light and noise from urban areas, roads, and recreational use can disturb wildlife, especially nocturnal and sensitive lagoon species like frogs, waterbirds, and bats. Light spill near roosting or breeding areas can alter behaviour, suppress breeding, and disrupt natural rhythms.</p> <p>This option would involve undertaking an audit of artificial lighting and noise sources across all lagoon foreshores and adjacent land uses. Identify high-sensitivity areas (e.g. frog breeding ponds, bird roosts, flying-fox camps), and develop guidelines or design interventions to minimise ecological impacts — such as low-glare, directional lighting, curfews, or vegetative buffers. Include a community education component to reduce light pollution on private land adjacent to ecologically sensitive zones.</p> <p>The Action could also be rolled into Option 13, as a focus for academic research.</p>	<p><b>Objective</b></p> <p>Minimise the ecological impacts of artificial light and noise on sensitive lagoon species, particularly frogs, waterbirds, and flying-foxes.</p> <p><b>Scope</b></p> <p>Undertake an audit of lighting and noise sources across lagoon foreshores and adjacent land. Identify ecologically sensitive areas (e.g. breeding ponds, roosts), and develop mitigation guidelines such as low-glare lighting, curfews, directional fittings, or vegetated buffers. Include a community education component to reduce light spill from nearby private land. This action could also be delivered in partnership with universities under broader research initiatives.</p> <p><b>Benefits</b></p> <p>Supports habitat protection, reduces wildlife disturbance, and builds community awareness of lagoon ecology. Provides an evidence base for better planning controls and contributes to improved biodiversity outcomes across the lagoon system.</p>	Council	DCCEEW DPIRD-Fisheries	CFG Workshop #2
<b>Option 38</b>	All Lagoons: Cockrone, Avoca, Terrigal, Wamberal	Assess and Address the Impact of Private Structures on Lagoon Foreshores	<p>In many of the lagoons, informal or legacy private jetties, boat ramps, paths or drains exist on public or riparian land, often contributing to bank erosion or weed spread. This is a common community concern.</p> <p>Undertake an audit of existing private and semi-private structures on or adjacent to lagoon foreshores. Identify unauthorised structures, assess impacts, and prioritise actions for removal, regularisation, or retrofitting with low-impact alternatives. Support with an education campaign on property boundaries, erosion, and bank stabilisation.</p>	<p><b>Objective</b></p> <p>Minimise ecological impacts and manage community concerns about private structures on lagoon foreshores.</p> <p><b>Scope</b></p> <p>Conduct an audit of private and semi-private structures (e.g. jetties, ramps, drains, paths) located on or near lagoon foreshores. Identify unauthorised or non-compliant structures, assess their environmental impacts, and prioritise appropriate actions — including removal, modification, or replacement with low-impact alternatives. Assess impacts on erosion, habitat, and public access.</p> <p><b>Benefits</b></p>	Council	DCCEEW DPIRD-Fisheries	CFG Workshop #2

ID	Locality	Action Name	Action Description	Simplified Description	Lead	Support	Source of Action
				Improves shoreline stability, reduces weed spread, and helps protect sensitive foreshore areas. Enhances public understanding through a community education campaign on erosion, property boundaries, and responsible waterfront use. Supports fair, transparent management of shared natural assets.			
Option 39	Avoca Lagoon	Investigate the Feasibility of Constructing a Water Treatment Wetland in the Southern Arm of Avoca Lagoon	<p>This action proposes to investigate the potential for constructing an in-lagoon water treatment wetland within the southern arm of Avoca Lagoon, particularly near the outfall of Bowtells Drain. Due to limited space within the upstream catchment for land-based water quality treatment, this action would assess the viability of using targeted sediment reworking and nearshore reclamation to establish wetland areas within the lagoon itself.</p> <p>.</p> <p>The feasibility study will assess the ecological, hydraulic, engineering, social, and economic considerations associated with establishing constructed wetland features within the lagoon. This may include the use of wetland “fingers” or extensions projecting perpendicular from the southern shoreline to:</p> <ul style="list-style-type: none"> <li>Enhance hydraulic complexity</li> <li>Promote sediment deposition</li> <li>Reduce wind-induced shear stress, a known driver of elevated turbidity in this are</li> </ul> <p>By altering local hydrodynamics and encouraging natural treatment processes, the intervention has potential to improve water clarity, reduce nutrient loads, and enhance the ecological function of the southern lagoon.</p> <p>Any future design and implementation would be subject to detailed environmental assessment, community consultation, and regulatory approvals</p>	<p>Objective</p> <p>Investigate the feasibility of an in-lagoon constructed wetland to improve water quality in southern Avoca Lagoon.</p> <p>Scope</p> <p>Assess the potential to rework shoreline sediments near Bowtells Drain to establish shallow wetland zones. The concept includes incorporating wetland “fingers” extending from the southern shoreline to increase hydraulic complexity, reduce wave and wind-driven shear, and promote sediment deposition. This is particularly important in this part of the lagoon, where turbidity is high and upstream treatment space is limited.</p> <p>Benefits</p> <p>Potential outcomes include improved water clarity, reduced nutrient loads, and enhanced ecological function. The feasibility study will consider ecological, hydraulic, engineering, and social factors. Any future implementation would require further design, approvals, and community engagement.</p>	Council	DCCEEW DPIRD-Fisheries	Council engagement and technical analysis  Updated in Workshop #3