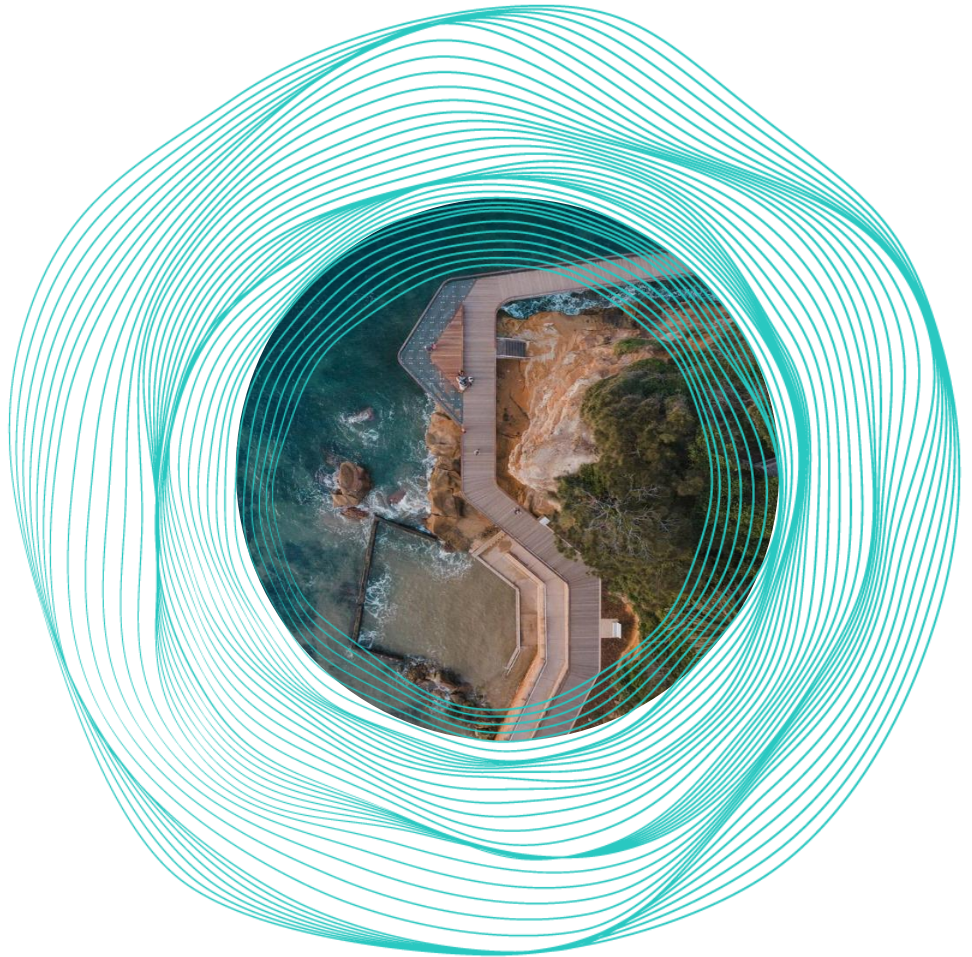


CENTRAL COAST COUNCIL

Central Coast Open Coast

CMP Stage 3 - Identify and Evaluate Options

Document no. Rev 0: 311015-00572-MA-REP-002_Rev0



13 December 2024

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Synopsis

This report is the Summary Report for Stage 3 of the Central Coast Open Coast Coastal Management Program. It documents the development and assessment of management actions for the CMP and stakeholder engagement undertaken to inform the development of the management actions.


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Acknowledgement of Country

"We acknowledge the Traditional Custodians of the land on which we live, work and play. We pay our respects to Darkinjung country, and Elders past and present. We recognise the continued connection to these lands and waterways and extend this acknowledgement to the homelands and stories of those who also call this place home. We recognise our future leaders and the shared responsibility to care for and protect our place and people."

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1. Introduction

1.1 Introduction

Central Coast Council (Council), with the assistance of the NSW Government, is preparing their Coastal Management Program (CMP) for the Open Coast. The future management of the Central Coast Open Coast is to be guided by a CMP as described under the NSW Coastal Management Framework and the *NSW Coastal Management Act 2016* (CM Act). The CMP aims to ensure the integrated and effective management of the coastal zone, considering environmental, social, and economic factors. Specifically, the CMP is a plan of management for Council, Public Authorities and land managers responsible for management of the coastal zone to:

- address coastal hazard risks;
- preserve cultural use and habitats;
- encourage sustainable development in the coastal zone (agricultural, economic and built);
- maintain and improve recreational amenity; and,
- adapt to emerging issues.

As per the process described in the NSW Coastal Management Manual, the CMP procedure is divided into five stages (Figure 1-1). Stage 1 of the CMP (Royal Haskoning DHV, 2021) was adopted by Council in August 2021. It included a review of relevant background information, a first pass risk assessment, data gap analysis and proposed a forward program for the CMP. Stage 2 (Bluecoast Consulting Engineers, 2023) assessed the coastal erosion, recession, inundation hazards, estuary hazards and coastal cliffs and geotechnical hazards. As part of Stage 2 a Recreational Use Study (Vision Environment, 2022) was undertaken to identify the coastal recreational activities occurring in the area and determine the adequacy of public amenities and infrastructure to accommodate for those activities now and into the future. Stage 3 of the process, the subject of this report, involves the identification and evaluation of management options based on the information gleaned in the previous two stages. This includes:

- identifying and collating information on management options;
- evaluating management actions, considering:
 - feasibility (is it an effective and sustainable way to treat the risks?);
 - viability (economic assessment); and,
 - acceptability to stakeholders.
- engaging public authorities about implications for their assets and responsibilities;
- evaluating mapping options and implication if a planning proposal is being prepared;
- identifying pathways and timing of actions; and,
- preparing a business plan for implementation.

This report has been prepared to achieve the requirements as outlined in the NSW Coastal Management Framework and satisfy Stage 3 of the CMP process.

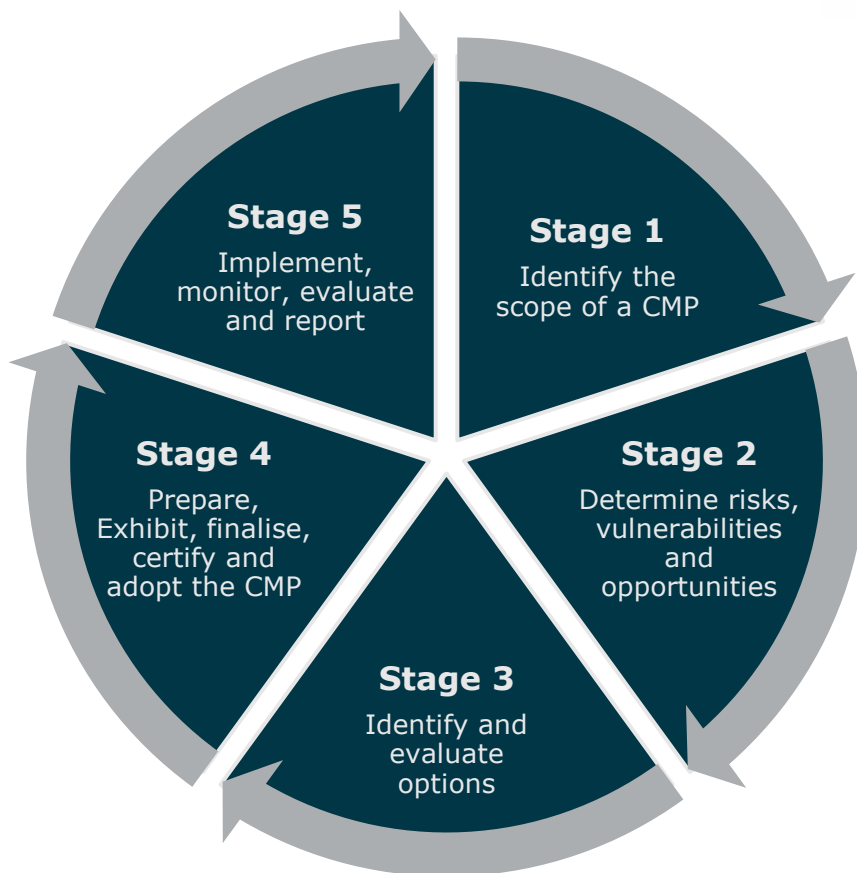


Figure 1-1: Stages in Preparing and Implementing a CMP

1.2 Stage 3 Method and Steps

Stage 3 involves identifying and evaluating management options to select preferred coastal management actions with a focus on achieving the objectives of the CM Act. As per the NSW Coastal Management Manual, there are four main steps in completing Stage 3 of the CMP process (Figure 1-2).

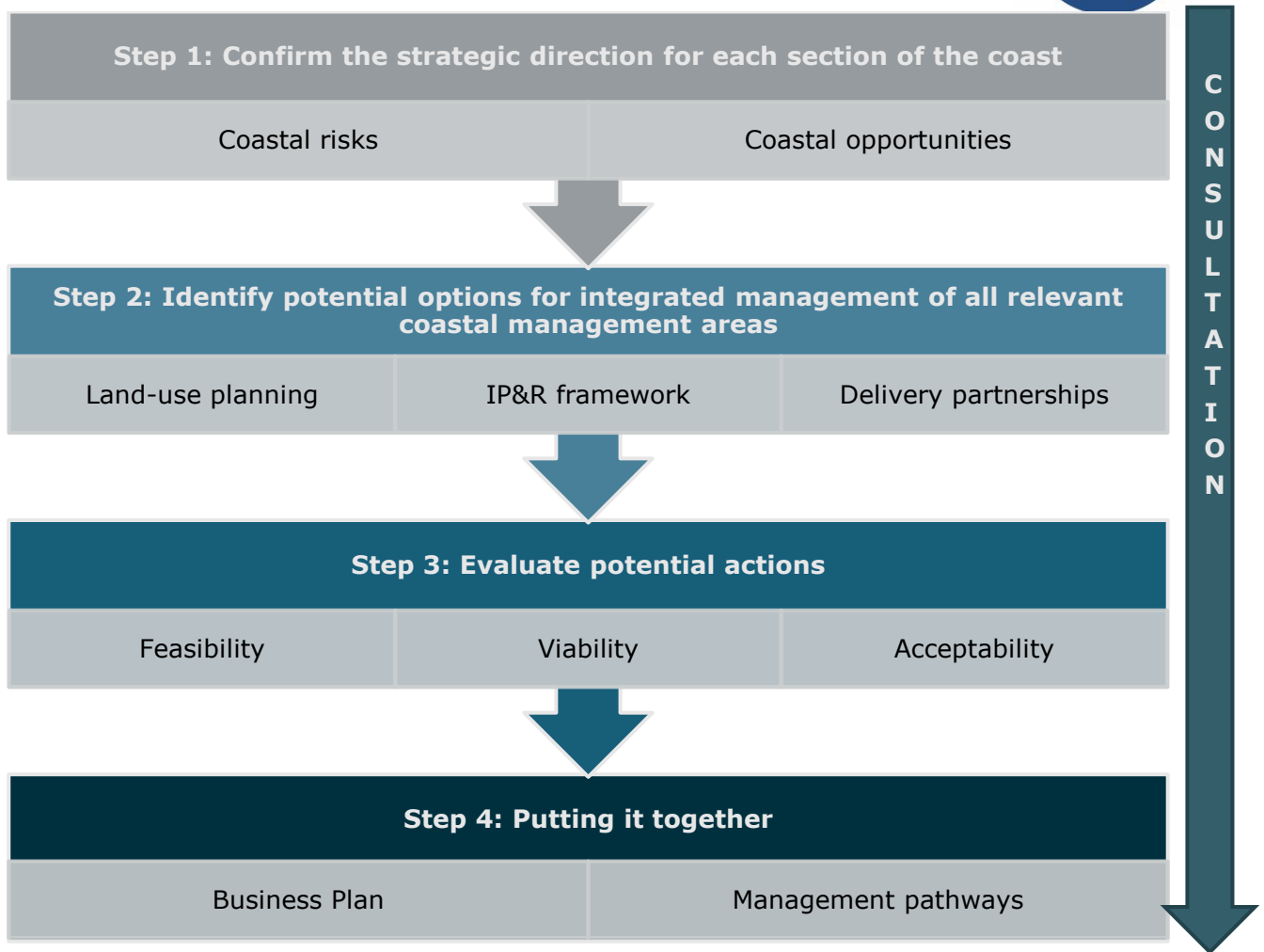


Figure 1-2: Four Main Steps in action identification and evaluation

Council has, and continues, to undertake a range of community engagement and consultation activities as part of developing the CMP, including further engagement undertaken as part of Stage 3.

1.3 Report Structure

The report has been structured as per the below.

- Section 2 provides an overview of the outcomes from Stages 1 and 2 in order to provide context for this body of work.
- Section 3 – provides detail on the community and stakeholder engagement that has been undertaken prior and during Stage 3.
- Sections 4 through to 6 provide a summary of the steps 1 to 4 as shown in Figure 1-2.

1.4 Study Area

The study area for the CMP includes the Central Coast open coast areas. In particular, the Study Area includes those areas mapped as Coastal Wetlands/Coastal Wetland Proximity Areas, Coastal Environment Areas and Coastal Use Areas under the *State Environment Planning Policy (Resilience and Hazards) 2021* (the SEPP).

The study area is shown in Figure 1-3.

The CM Act sets out mandatory requirements for the preparation of a CMP. Under S13 (b) of the CM Act, the CMP must “consider and promote the objects of (the) Act” and “give effect to the management objectives for the coastal management areas covered by the program”. The RH SEPP commenced on 1 March 2022. It supports implementation of the management objectives set out in the NSW CM Act. The hierarchy of coastal management areas as referred to in the CM Act and RH SEPP (Resilience and Hazards) are identified below, from highest to lowest priority:

- **coastal wetland and littoral rainforest area (CWLRA)** - areas which display the characteristics of coastal wetlands or littoral rainforests. Development controls for the mapped CWLRA aim to continue existing protection for these important ecological communities. Note that there are no mapped littoral rainforest areas within the CMP study areas. Areas within a 100 m buffer zone bordering coastal wetlands are mapped within the RH SEPP as Coastal Wetland Proximity Areas.
- **coastal vulnerability area (CVA)** - areas subject to coastal hazards such as coastal erosion and tidal inundation. Development controls for the CVA are concerned with managing risk to human life, infrastructure, and public and private property that may be impacted by coastal hazards and ensuring that legacy issues are not created for future generations to deal with. Note that the CVA for the coastal zone within the study area is yet to be determined.
- **coastal environment area (CEA)** - areas that are characterised by natural coastal features such as beaches, rock platforms, coastal lakes and lagoons and undeveloped headlands. Marine and estuarine waters are also included. Development controls for the CEA aim to protect and improve natural coastal features, coastal waters and environmental values for places such as beaches, dunes, surf zone and undeveloped headlands.
- **coastal use area (CUA)** - land adjacent to coastal waters, estuaries and coastal lakes and lagoons where impacts of development on the use and enjoyment of the beaches, foreshores, dunes, estuaries, coastal lakes and lagoons, and the ocean, need to be considered. Development controls for CUA are concerned with ensuring appropriate urban development for coastal areas, considering urban design issues such as the bulk, scale and size of proposed development, water sensitive urban design, and preventing adverse impacts on scenic qualities, visual amenity and Aboriginal cultural heritage.

Each of the above areas has outcome-oriented management objectives so that councils can apply appropriate management tools and development controls.

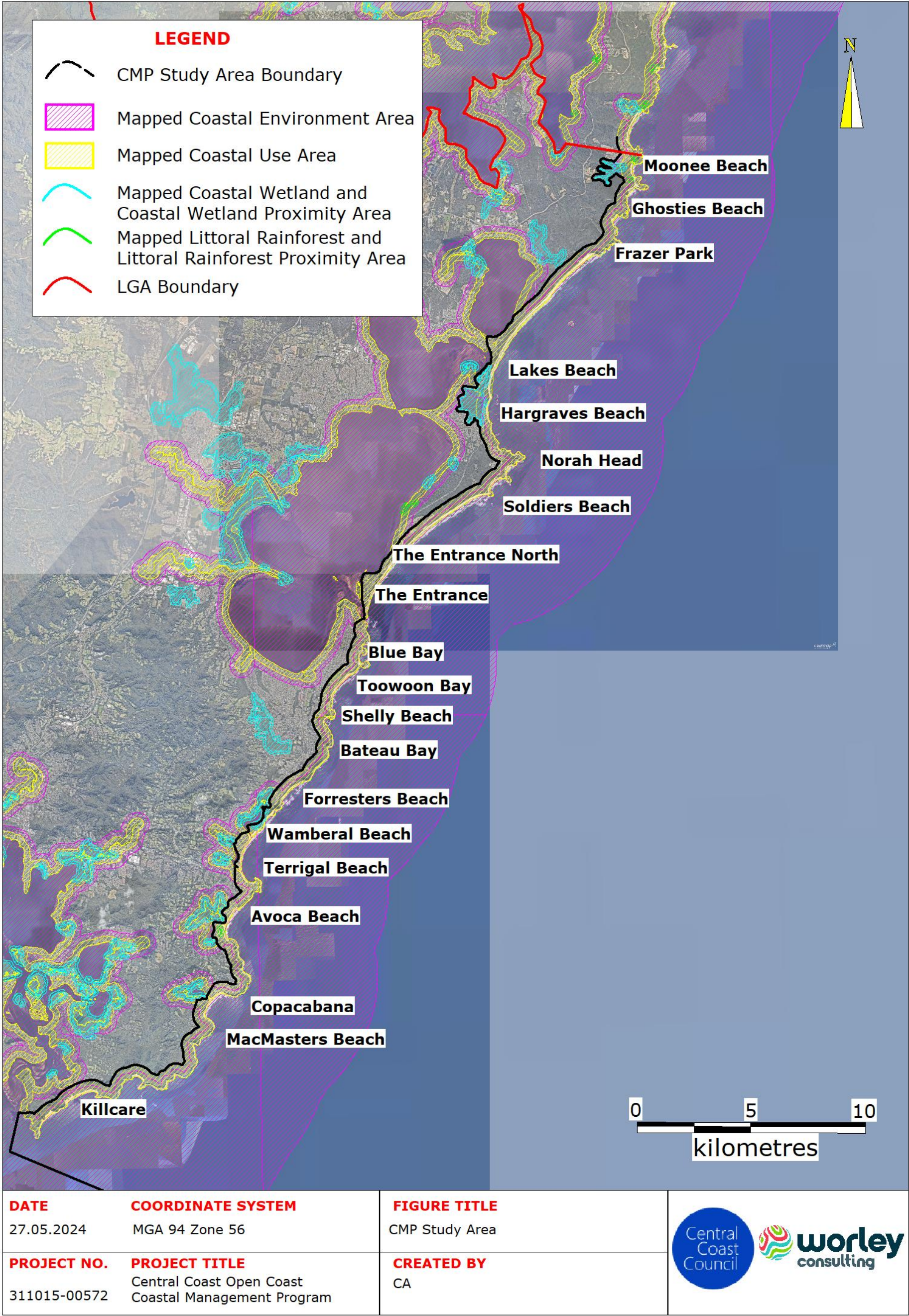


Figure 1-3: Central Coast Open Coast CMP Study Area

2. Works to Date

2.1 Background

The key issues for the Central Coast Open Coast have been identified through Stages 1 and 2 of the CMP process.

A considerable body of knowledge on coastal issues and potential solutions has been developed by both former Councils (Wyang and Gosford which now form Central Coast Council) and more recently Central Coast Council (Council). The relevant studies include:

- Gosford Beaches Coastal Zone Management Plan (2017) – certified
- Gosford Lagoons Coastal Zone Management Plan (2015)
- Wyong Coastal zone Management Plan (2011)
- Draft Wyong Coastal Zone Management Plan (2018)
- Stage 1 Scoping Study (2021)
- Recreational Use Study (2022)
- Central Coast Open Coast and Lagoons Coastal Hazard Assessment (2023) – draft
- Central Coast Council Biodiversity Strategy (2019)

The Scoping Study (Royal Haskoning DHV, 2021) was the first step in drawing together the Gosford Beaches Coastal Zone Management Plan (2017), the Wyong Coastal Zone Management Plan (2011), the Draft Wyong Coastal Zone Management Plan (2018), and the Gosford Lagoons Coastal Zone Management Plan (2015). The Scoping Study noted that the CZMPs do not carry equal status as only the Gosford Beaches Coastal Zone Management Plan (2017) had been certified under the *Coastal Protection Act 1979*. As part of the Scoping Study, an audit was undertaken by Council of the 320 recommended actions and strategies put forth in the adopted CZMPs listed above.

The Scoping Study documented a First Pass Risk Assessment to assist with identifying key management issues and threats requiring further assessment during Stage 2 of the development of the CMP for the Central Coast Open Coast. The Scoping Study documented the risk assessment and provided commentary on the existing levels of risk, identifying the issues of highest risk for the coastal zone. It also documented the environmental and physical context of the Central Coast coastal zone. For the Open Coast of the study area, the key risks and challenges identified from the first pass risk assessment were split into four impact areas; Public Safety, Infrastructure Damage, Environmental Risk and Public Amenity with specific threats and control measures detailed in within the Scoping Study document.

The key threats identified throughout the study area related to:

- Coastal Erosion and beach recession
- Coastal and tidal inundation/flooding
- Wave runup and overtopping
- Stormwater erosion and discharge
- Coastal Lagoon entrance dynamics

- Slope and cliff instability
- Water quality

As part of Stage 3 of the CMP, a Detailed Risk Assessment (Worley Consulting, 2024) was undertaken for the Central Coast Open Coast. The Risk Assessment categorises the main risks for the study area in terms of the Coastal Management Areas as referred to in the CM Act and RH SEPP, detailed in Section 1.4.

The Detailed Risk Assessment builds upon the first-pass risk assessment undertaken for the coastal zone as part of the Stage 1 Scoping Study (Royal Haskoning DHV, 2021), by identifying key issues and risks in greater detail.

From the Risk Assessment (Worley Consulting, 2024) and the outcome of the Stage 2 Coastal Hazard Assessment (Bluecoast Consulting Engineers, 2023), a suite of potential management actions has been developed and categorised in terms of the issues and particular locations which they relate to.

2.2 Factors considered in developing management actions

Through the implementation of the existing CZMPs, Council has recognised a number of factors for inclusion within the CMP. These include:

- The importance of having well defined and articulated actions in the implementation table, as action wording that is not clear can be interpreted in different ways.
- Implementation actions need to clearly tie in with the objectives of the CMP, be realistic and achievable within the life of the program.
- There are examples of existing CZMPs having a very high number of management actions, some of which are considered idealistic, unable to be achieved within the timeframe and / or program funding. Implementation of a robust action review and vetting process is considered important.
- In addition to a table of general actions for the whole area covered by the CMP, each location will benefit from a separate table of specific actions.
- The limitations of Council's existing coastal hazard maps are recognized, as is the Coastal Vulnerability Area mapped by the CM SEPP. Stage 2 has delivered changes in hazard lines and has included the hazards from tidal inundation which will be considered in developing the future management options.
- Recognising the uncertainty of funding from external sources, actions for significant/major work such as an engineered seawall should include a generic statement such as "implementation is subject to Council receiving financial assistance from the State Government or other sources".
- Cost estimates for actions (especially medium and long term actions) need to incorporate Consumer Price Index (CPI) rates, and would be subject to Council's available budget and resources.

As well as the documents listed above the Scoping Study provided a review of the Central Coast Regional Plan (2036) and Community Strategic Plan (CSP). The Regional Plan outlines 23 strategic directions intended to deliver the plans goals. Those directions relevant to the CMP are shown in Table 2-1.

Table 2-1: Central Coast Regional Plan 2036 Aligned Strategic Directions with Potential to Align with CMP

Direction 8:
<p>Direction 8: Recognise the cultural landscape of the Central Coast</p> <ul style="list-style-type: none"> • 8.1 Protect the Central Coast’s scenic amenity by planning for development that respects the distinct qualities of different places. • 8.2 Identify and protect heritage values to minimise the impact of urban growth and development, and to recognize its contribution to the character and landscape of the region. • 8.3 Complete cultural landscape mapping and implement the finding through appropriate local planning controls.
<p>Direction 10: Secure the productivity and capacity of resource lands</p> <ul style="list-style-type: none"> • 10.1 Plan for ongoing productive use of lands with regionally significant construction material resources in locations with established infrastructure and resource accessibility. • 10.2 Ensure that longer term extractive resources are not sterilized and minimise impacts on communities and the environment
<p>Direction 12: Protect and manage environmental values</p> <ul style="list-style-type: none"> • 12.1 Identify terrestrial and aquatic biodiversity values and protect areas of high environmental value to sustain the lifestyle, economic success and environmental health of the region. • 12.2 Identify and strengthen biodiversity corridors as places for priority biodiversity offsets. • 12.4 Strengthen the Coastal Open Space System by expanding its links and extending new corridors to balance growth in the north of the region and protect the network of natural areas across the region. • 12.5 Sensitively manage natural areas on the fringe of the urban areas and in the west of the region to mitigate land use incompatibility issues and provide important quality of life and tourism benefits for the region.
<p>Direction 13: Sustain water quality and security</p> <ul style="list-style-type: none"> • 13.1 Protect water catchment to sustain high quality and dependable water supplies across the region. • 13.2 Effectively manage surface and groundwater use in agricultural areas to support ecosystem function, food production and cater for the increasing demands of urban communities and industry. • 13.3 Incorporate water sensitive design into development that is likely to have an adverse impact on coastal water catchment, water quality and flows. • 13.4 Plan for the security of the region’s water supply. • 13.5 Implement catchment-based plans for the ongoing sustainable management and health of estuaries in the region. • 13.6 Apply neutral or beneficial water quality objectives to land use planning in surface and groundwater drinking catchment to minimise the effects of development on waterways including watercourses, wetlands, groundwater dependent ecosystems, riparian lands, estuaries, lakes, beach and marine waters. • 13.7 Plan new development to reduce the risk of introduction or spread of aquatic pests and diseases on fisheries and aquaculture industry practices.
<p>Direction 14: Protect the coast and manage natural hazards and climate change</p>

- 14.1 Manage the risks of climate change and improve the region's resilience to hazards such as flooding, coastal erosion, bushfire, mine subsidence and land contamination.
- 14.2 Review and update floodplain risk and coastal management programs to manage flood risk and protect the coast, particularly where urban growth is being investigated.
- 14.3 Incorporate new knowledge on regional climate projections and related cumulative impacts in local plans for new urban development.

Direction 17: Align land use and infrastructure planning

- 17.1 Align land use and infrastructure planning to maximise the use and capacity of existing infrastructure, and the efficiency of new infrastructure.

Direction 18: Create places that are inclusive, well-designed and offer attractive lifestyles

- 18.3 Enhance the amenity and attractiveness of existing places.

Council developed the Community Strategic Plan (CSP) "One – Central Coast" which provided an opportunity for Council to understand the aspirations and concerns of the Central Coast Community. "One – Central Coast" provides a 10-year plan that defines priorities of the community and provides a considered and evidence-based roadmap for the future of the Central Coast. "One – Central Coast" provides 17 overarching goals, each with four unique objectives, which the CMP will need to support. The relevant linkages between the CSP and future CMP are shown in Table 2-2 (Royal Haskoning DHV, 2021).

Table 2-2: Linkages Between the CSP and CMP

Linkages between the CMP and "One – Central Coast Community Strategic Plan 2018 – 2028	
A1 Work within our communities to connect people, build capacity and create local solutions and initiative	
A2 Celebrate and continue to create opportunities for inclusion where all people feel welcome and participate in community life	
A4 Enhance community safety within neighbourhoods, public spaces and places	
B4 Activate spaces and places to complement activity around town centres, foreshores, lakes and green spaces for families, community and visitors	
C1 Target economic development in growth areas and major centres and provide incentives to attract businesses to the Central Coast	
C2 Revitalise Gosford City Centre, Gosford Waterfront and town centres as key destinations and attractors for businesses, local residents, visitors and tourists	
C3 Facilitate economic development to increase local employment opportunities and provide a range of jobs for all residents	
C4 Promote and grow tourism that celebrates the natural and cultural assets of the Central Coast in a way that is accessible, sustainable and eco-friendly	
E1 Educate the community on the value and importance of natural areas and biodiversity and encourage community involvement in caring for our natural environment	
E2 Improve water quality for beaches, lakes and waterways including minimizing pollutants and preventing litter entering our waterways	
E3 Reduce littering, minimise waste to landfill and educate to strength positive environmental behaviours	

Linkages between the CMP and "One – Central Coast Community Strategic Plan 2018 – 2028

E4 Incorporate renewable energy and energy efficiency in future design and planning and ensure responsible use of water

F1 Protect our rich environmental heritage by conserving beach, waterways, bushland, wildlife corridors and inland areas and the diversity of local native species

F2 Promote greening and ensure the wellbeing of communities through the protection of local bushland, urban trees, tree canopies and expansion of the Coastal Open Space System (COSS)

F3 Improve enforcement for all types of environmental non-compliance including littering and illegal dumping and encourage excellence in industry practices to protect and enhance environmental health

F4 Address climate change and its impacts through collaborative strategic planning and responsible land management and consider targets and actions

G1 Build strong relationships and ensure our partners and community share the responsibilities and benefits of putting plans into practice

G2 Communicate openly and honestly with the community to build a relationship based on transparency, understanding, trust and respect

G3 Engage with the community in meaningful dialogue and demonstrate how community participation is being used to inform decisions

I1 Preserve local character and protect our drinking water catchments, heritage and rural areas by concentrating development along transport corridors and town centres east of the M1

I2 Ensure all new developments are well planned with good access to public transport, green space and community facilities and support active transport

I3 Ensure land use planning and development is sustainable and environmentally sound and considers the importance of local habitat, green corridors, energy efficiency and stormwater management

K3 Provide signage, public facilities, amenities and playgrounds to encourage usage and enjoyment of public areas

K4 Repair and maintain wharves, jetties, boat ramps and ocean baths to increase ease of access to and enjoyment of natural waterways and foreshores

In response to the projected impact from climate change, Council has developed a Climate Change Policy (2019). The Policy provides a framework for Council to progress its planning for climate change, providing a set of guiding principles and a framework to help with decision making. Key items in the Climate Change Policy that are relevant to the CMP development are:

Table 2-3: Climate Change Policy Strategic Principles Linking with the CMP

Climate Change Policy Strategic Principles

C4 Principle 1: Council endorse the Ecologically Sustainable Development values through integrating social, economic and environmental considerations into Council's decision making through the implementation of the four principles a) precautionary principles, b) inter-

Climate Change Policy Strategic Principles

generational equity, c) conservation of biological diversity and ecological integrity and d) improved valuation, pricing and incentive mechanism.

C5 Principle 2: Council implement a holistic approach to anticipate and adapt to climate change actions that comprise the time scales such as now and the future as well as the impacts of the complex interactions and interdependencies between the human and the environment systems.

C6 Principle 3: Council implement an evidence-based decision making to respond, to adapt and build resilience to Climate Change.

C8 Principle 5: Council implement a proactive approach and ensure continuity to better anticipate and adapt to complex challenges posed by the changing climate.

C9 Principle 6: Council implement a Place-based approach to enhance Council and community capacity for climate resilience that is context specific, knowledge based and collaborative.

Governance

(D2) Embed climate change planning within Council's Integrated Planning and Reporting Framework, namely the Community Strategic Plan, Delivery and Operational Plans and Council's Corporate Plan.

(D4) Develop Place Based Climate Change Action Plans in partnership with the community that establishes regional targets for mitigation and prioritises local adaptation planning (e.g. sea level rise, coastal hazards, disaster management).

Risk Management & Resilience Planning

(D6) Undertake ongoing monitoring and assessment of climate change risks and their impacts on ecological, social, economic and physical built forms systems based on best available science.

(D7) Incorporate climate change risks in strategic and infrastructure planning for the region to maximise local liveability through informed land use planning, development of planning controls and guidelines that facilitates regional urban growth, transport connectivity and utility services.

(D9) Undertake climate change risk assessment and incorporate risks and vulnerabilities to inform asset life cycle analysis for all new and existing infrastructure assets, to meet current and projected demands and develop relevant adaptation and mitigation strategies to ensure climate resilience.

(D10) Support initiatives and education programs to enhance the Central Coast community's understanding of and build resilience to climate change risks.

(D11) Develop strategies, plans and development controls to protect, conserve and work in partnerships with community and local agencies to enhance resilience of biodiversity across the Central Coast region.

Under the CM Act, the objectives and management actions developed as part of the CMP are required to be strategically aligned with the objectives and strategies outlined in the Community Strategic Plan. Those linkages have been provided above and have been aligned with the proposed management actions developed as part of Stage 3.

3. Community and Stakeholder Engagement

3.1 Overview

There has been significant community consultation undertaken across the Local Government Area (LGA) during development of the “One – Central Coast”, Community Strategic Plan 2018 – 2028 (Central Coast Council, 2022), with many objectives and actions having clear relevance to coast and catchment management. Similarly, there was significant community consultation undertaken during development of each of the existing CZMPs, however this engagement was primarily limited to within the relevant former local government areas.

Council have undertaken extensive community and stakeholder engagement throughout Stage 1, 2 and 3 of the CMP process which have informed the management actions presented in this report. The engagement activities undertaken for Stage 3 are detailed below.

3.2 Stage 1 and 2 Engagement

In Stage 1, Scoping Study, a comprehensive Community and Stakeholder Engagement Plan was prepared for the CMP. It was developed with reference to existing knowledge of interest, issues, concerns and opportunities for coastal management as cited by the community to date. It was designed to provide an overarching framework for subsequent community and stakeholder engagement activities to be undertaken as part of Stages 2 to 5 of CMP development.

Coastal Erosion events at Wamberal (July 2020) resulted in the establishment of the Wamberal Seawall Advisory Taskforce with area specific consultation undertaken. Results from phase one of the Community Consultation for Wamberal included:

- 4 community members attended physical drop-in sessions
- 15 questions posted on online Q&A board
- 24,000+ social media users reached
- 1,841 visits to Council website
- 15+ phone calls from interested stakeholders
- 8 people participated in virtual drop-in sessions
- 578 people completed Wamberal Beach Values and Uses Survey

Community Consultation LGA wide was and continues to be undertaken. The launch of a dedicated online *Our Coast, Our Waterways* consultation hub from April 2021 enabled community survey and raised awareness ahead of targeted community engagement undertaken as part of Stage 2. Consultation activities included:

- 3,918 visits to the Your Voice Our Coast project page;
- 1,168 survey responses received;
- Over 350 respondents have entered the focus group candidate pool;
- Over 220 stakeholder emails sent;
- 3 focus groups hosted with over 20 participants;
- 403 community members reached at pop up events; and,

- Over 500 postcards distributed.

Prior to the commencement of Stage 3, council undertook both stakeholder and community engagement during January/February 2024. This engagement comprised:

- Pop up sessions held throughout the LGA (Terrigal, Avoca, Toowoan Bay, The Entrance, Soldiers Beach and Killcare);
- Meetings with key stakeholders including state agencies and different divisions of Council;
- Communication materials to support engagement – Facebook notifications, emails;
- Online input for those unable to attend the pop-up sessions via the interactive maps on the Pinpoint website - <https://centralcoastcouncil.mysocialpinpoint.com/opencoastcmp#/>
- VIP drop-in sessions held at Copacabana and Toowoan Bay.

3.2.1 Social Values

During the consultation undertaken as part of Stages 1 and 2 of the CMP development a number of key issues, concerns and opportunities have been raised as requiring enhanced coastal management. These include, but are not limited to:

- Improvement of local amenities – including improved disability access at coastal locations; scooter racks, increased shade at benches and improved parking.
- Consideration of the creation of a Marine Park near Toowoan Bay and/or Terrigal Haven.
- Improvement and maintenance of water quality at beach locations.
- Improvement of rubbish collection and management across the coast to enhance amenity, reduce pollution and preserve water quality.
- Measures to prevent and manage erosion and coastal inundation in key areas such as Avoca, MacMasters and Copacabana Beach.
- Management of erosion and beach protection at Wamberal: the beach has required emergency protection works to be installed following storm events in 2016 and 2020, and investigations into the design of a terminal protection structure at Wamberal have been ongoing.
- Concerns about potential dredging of coastal areas.
- Management of tourism and recreation in a way that prevents overuse and congestion and protects local values and the environment.
- Concerns regarding intensifying land use on the coast from foreshore development, to impact to urban stormwater discharge.

3.2.2 Cultural Heritage Values

Across the Central Coast there are numerous areas of significant Aboriginal and non-Aboriginal heritage value to the wider community. First Nations people have been custodians of the Central Coast area for 60,000 years and there are thousands of registered sites of cultural significance on the Central Coast. It is noted that 'the Central Coast local government area is one of the largest and fastest growing Aboriginal communities in Australia. This population grew by 38% in the last Census reporting period' (Central Coast Council, 2023).

In recognition of this and the Central Coast Council's commitment to reconciliation and developing a shared future vision with First Nations people, the Council adopted a Central Coast Council First Nations Accord on 13 December 2022. As a part of this, an Aboriginal Advisory Committee has been established to support the incorporation of Aboriginal views and

sentiment into key Council activities. This Committee will be engaged in the CMP process via external agency meetings as representatives.

As per the Accord:

The Darkinjung Local Aboriginal Land Council is the largest non-government land holder on the Central Coast, giving them the ability to take care of their community and create programs that are meaningful (Central Coast Council, 2022).

At a regional level, the Barang Regional Alliance, consisting of seven Central Coast Aboriginal organisations, is the voice of the local First Nations Community. The organisations include: ara Barang Corporation, Gudjagang Ngara li-dhi Aboriginal Corporation, NAISDA, Ngaimpe Aboriginal Corporation – The Glen, Mingaletta Aboriginal Corporation, Yerin Eleanor Duncan Aboriginal Health Services Ltd and Darkinjung Local Aboriginal Land Council (Central Coast Council, 2022).

3.3 Stakeholders

Stakeholders are persons or groups who are affected by or who can affect the outcome of a project or program. Stakeholder identification and analysis is ongoing and those identified in stage 1 and 2 remain relevant to Stages 3, 4 and 5 of CMP development.

A summary of key stakeholders, their interests and tools and methods to engage and communicate with such stakeholders are presented in Table 3-1.

Table 3-1: Key stakeholders, interest and communication tools

Stakeholder groups	Interests	Communication tools and engagement methods
Central Coast Council – internal teams	<ul style="list-style-type: none"> Strong Coastal Management in Council and community values, aspirations and long-term vision Developing a CMP which is accepted by the community and maintains good relationships with the local community Protection of the environment, community and coastal way of life 	<ul style="list-style-type: none"> Meetings/Face-to face or MS Teams Email updates Reports and study updates
Relevant Ministers and Members of Parliament (State and Federal)	<ul style="list-style-type: none"> Being across the CMP development to inform local constituents, if required 	<ul style="list-style-type: none"> Formal letters and emails Council website Media releases as appropriate
State Government, including <ul style="list-style-type: none"> NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) NSW Coastal Council NSW Department of Planning, Housing and Infrastructure (DPHI) National Parks and Wildlife Services (NPWS) 	<ul style="list-style-type: none"> Involvement in CMP development and updates on progress as required Alignment with government regulations Coastal management, including management of coastal hazards and any changes to processes Maritime safety Boating infrastructure and facilities Environmental management- impacts and opportunities 	<ul style="list-style-type: none"> Meetings/Face-to face or MS Teams if required Formal letters Presentations Email updates Council website Public exhibition

Stakeholder groups	Interests	Communication tools and engagement methods
<ul style="list-style-type: none"> • Crown Lands • NSW Department of Primary Industry (DPI) – Fisheries • Infrastructure NSW • Heritage NSW • Transport for NSW (TfNSW) • NSW Local Land Services • NSW State Emergency Service (SES) • Marine Estate Management Authority • NSW Local Land Services 	<ul style="list-style-type: none"> • Crown land • Fisheries management and habitat conservation 	
<p>Local boating and fishing clubs, for example:</p> <ul style="list-style-type: none"> • Central Coast Game Fishing Club • Social Fishing Club • Central Coast Rock Fishing NSW 	<ul style="list-style-type: none"> • Maritime safety • Potential constraints and opportunities associated with water and fishing access and boating navigation • Protection of fishing areas and marine species • Involvement in and updates on CMP development 	<ul style="list-style-type: none"> • Council website • Social media updates • Email updates • Community information sessions • Facilitated workshops • Public exhibition • Interactive maps and online surveys
<p>Local community associations and groups, for example:</p> <ul style="list-style-type: none"> • Surf lifesaving clubs • Walking groups • Save our Sands 	<ul style="list-style-type: none"> • Involvement in and updates on CMP development • Management of coastal areas in a way that protects and enhances the local environment and community safety • Potential impacts and opportunities relating to the environment, coastal areas and hazards, ongoing access and use of coastal areas 	<ul style="list-style-type: none"> • Council website • Social media updates • Email updates • Community information sessions • Facilitated workshops • Public exhibition • Interactive maps and online surveys
<p>Local environment groups, including:</p> <ul style="list-style-type: none"> • Landcare groups • Bushcare groups • Coastcare groups • Dune care groups 	<ul style="list-style-type: none"> • Involvement in and updates on CMP development • Management of coastal areas in a way that protects and enhances the local environment and community safety • Potential impacts and opportunities relating to the environment, coastal hazards, access and use of coastal areas, cultural heritage, protection of flora and fauna- marine and terrestrial 	<ul style="list-style-type: none"> • Council website • Social media updates • Email updates • Community information sessions • Facilitated workshops • Public exhibition • Interactive maps and online surveys
<p>Aboriginal groups and stakeholders, including:</p> <ul style="list-style-type: none"> • Darkinjung Local Aboriginal Land Council • Aboriginal Advisory Committee 	<ul style="list-style-type: none"> • To improve, protect and foster the best interests of Aboriginal persons in the region • Protection of habitats, ecosystems, plant and animal species, landforms and cultural heritage sites of significance • Involvement in and updates on CMP development 	<ul style="list-style-type: none"> • Council website • Social media updates • Email updates • Community information sessions • Facilitated workshops

Stakeholder groups	Interests	Communication tools and engagement methods
<ul style="list-style-type: none"> Traditional owners Barang Regional Alliance 		<ul style="list-style-type: none"> Meetings Public exhibition Interactive maps and online surveys
Central Coast Community- including those who live and/or own properties in the LGA.	<ul style="list-style-type: none"> Involvement in and updates on CMP development Management of coastal areas in a way that protects and enhances the local environment and community safety Local benefits, opportunities and impacts from any changes to coastal management processes 	<ul style="list-style-type: none"> Council website Social media updates Email updates Community information sessions Facilitated workshops Meetings Public exhibition Interactive maps and online surveys
Local business and industry groups, including: <ul style="list-style-type: none"> Chamber of Commerce Tourism operators Recreational boating and surfing hire 	<ul style="list-style-type: none"> Involvement in and updates on CMP development Management of coastal areas in a way that protects and enhances the local environment and community safety Potential impacts and opportunities relating to the environment, coastal hazards, access and use of coastal areas, cultural heritage, protection of flora and fauna- marine and terrestrial Potential impacts and opportunities to local business operations and future development 	<ul style="list-style-type: none"> Council website Social media updates Email updates Community information sessions Facilitated workshops Meetings Public exhibition Interactive maps and online surveys
Police and Emergency Services: <ul style="list-style-type: none"> NSW Water Police Australian Border Force Ambulance Services NSW SES Fire Brigade Marine Rescue NSW 	<ul style="list-style-type: none"> Community and maritime safety Boating facilities and water access Management of natural and coastal hazards 	<ul style="list-style-type: none"> Council website Email updates Meetings Public exhibition Interactive maps and online surveys
Educational services, such as schools	<ul style="list-style-type: none"> Local benefits and opportunities as well as any potential impacts Future coastal management 	<ul style="list-style-type: none"> Council website Social media updates Email updates Community information sessions Facilitated workshops Meetings Public exhibition Interactive maps and online surveys
Media	<ul style="list-style-type: none"> Project updates and progress Potential impacts and opportunities 	<ul style="list-style-type: none"> Council website Media releases

3.4 Agency and Internal Stakeholder Engagement

Prior to the commencement of Stage 3 in November 2023, Council met with Agency stakeholders to obtain input to inform Stage 3 of the CMP.

Agencies involved included:

- Central Coast Council
- Darkinjung Local Aboriginal Land Council (DLALC)
- Department of Planning and Environment (DPE, now DCCEE)
- Department of Primary Industries Fisheries (DPI Fisheries)
- NSW Crown Lands
- Transport for NSW – Marine Infrastructure Delivery Office (MIDO)
- NSW State Emergency Services (SES)
- National Parks and Wildlife Service (NPWS).

In addition to the above, Council undertook eight internal unit sessions to assess particular issues of relevance to the CMP. The sessions covered the following topics:

- Leisure Beach Safety and Community Facilities
- Waste Services
- Community Development
- Environmental Compliance and Systems
- Flooding
- Environmental Management
- Development Assessment
- Water and Sewer Assets

3.4.1 Agency Stakeholder Issues

Key issues of relevance to the CMP raised during this engagement session included:

DLALC (Darkinjung): Issues raised on Darkinjung Land included illegal access (e.g., Soldiers, Pelican, Tuggerah beaches and Tooheys Rd and Lake Munmorah), unauthorised vehicles on the beach, illegal dumping asbestos/syringes which is all resource intensive to manage. Need for reliable (vandal proof) surveillance monitoring to capture issues above. Need for agencies to liaise with DLALC to coordinate controlled burnings/culture burning and ensure this is captured in the cooler months (Jun, July, Aug).

Crown Lands: Issues raised on Crown Land (CL) include coastal erosion with hotspots identified at North Entrance Hutton Road, Wamberal, Norah Head, MacMasters and Cabbage

Tree Harbour. Places like Mazlan Reserve require a holistic approach in effort to address public access and restrict people from areas of instability. Other issues include residual land parcels (difficulty locating owner/descendants), contaminated lands and unauthorised works.

Crown Lands would like to see emergency sub action plans developed and new developments to be consistent with the CMP and Plans of Management. Crown Lands advised the release of the new Coastal Crown Land Guidelines. CL would like to be advised of CMP actions which impact CL. In terms of management actions, CL advised the need to identify legacy assets such as rock pools.

MIDO: TfNSW noted any coastal project funding secured should align with Marine estate management strategy guidelines. It was noted that the NSW Maritime Infrastructure Plan is due for review. MIDO are receiving enquiries related to perceived impacts to the Entrance Beach associated with the groyne.

National Parks: Issues and feedback raised on National Park land include:

- Implications from land slippages (e.g., Wyrabalong, Forresters Beach) to adjacent land.
- Need to have a holistic approach to LIDAR/coastal hazard studies.
- Coastal erosion impacting Rushby St (Bateau Bay) threatening access ramp, viewing platform, stormwater, and sewer outfall, exposing asbestos.
- Bouddi National Park is experiencing risk to coastal infrastructure associated with storm debris from the Hawkesbury River. Material along the Hawkesbury is being trapped in the mangroves and redistributing in line with spring tides. There is a need to capture this material upstream.
- Ongoing issues with unauthorised access and safety.
- Ongoing issues with dogs in the parks. Need for education and stronger compliance.
- Ongoing issues with weeds.
- There is a need for a coordinated approach to fox control and shorebird/sea bird management.

NSW SES: The NSW SES are the lead agency for coastal erosion events if it's a result of storm activity not general long/short term erosion. The NSW SES advise the LEOCON what to do. Things NSW SES would like to see included in a CMP emergency sub-action plan to assist the agency include:

- Erosion hotspots identified and mapped out
- Identify hazards and vulnerable communities
- Identify agencies/staff personal and roles
- Identify communications available, how to reach people
- Identify egress and access locations for machinery

- Identify road closures likely required and areas of congestion, need to liaise with NSW Police to move people away (storm event observers)
- Identify priority evacuation areas based on at risk properties within a mapped polygon and not individual properties based on foundation type
- How illegal works taking place during an event will be managed. Specify what works homeowners can legally undertake pre/during/post storm event
- NSW SES will provide homeowners with a "return with caution" to return to properties following evacuation. May need to highlight/suggest (in sub – action plan or website) what owners may need to undertake following that order (e.g., engineering advice)
- It was noted that the Reconstruction Authority has replaced the Public Works Authority.

DPI Fisheries: There is a new bank erosion decision support tool now available.

Council mentioned the need for Surf Life Saving Club equipment to be available during the winter months and ensure emergency vehicle accessways are maintained in the event they are required for use.

This report will be provided to Agencies to gain feedback on the proposed management actions, which would then be updated for inclusion in the Draft CMP in Stage 4.

3.4.2 Council Stakeholder Issues

The following issues were raised by internal Council stakeholders for consideration in the CMP:

- Need for a whole of open coast cultural heritage assessment to be undertaken as a "pre-cultural" assessment.
- Need for a policy for headland slippages/areas of instability to warn the public of the risk, while avoiding the need for signage.
- Need for an LGA wide action item for reinstating beach access/emergency ways to secure funding following any storm event or related erosion.
- Need for development application assessments to specify that stormwater runoff cannot be discharged over the dunes which causes erosion, and any bushfire related clearing needs to ensure it does not impact on cliff instability areas.
- Minimum floor levels for flooding and coastal wave run up need to be addressed during development application assessment.
- Need to consider coastal processes for installation of stormwater devices in the coastal zone, leading to outfalls causing erosion or structure being undermined. Need to provide a set of recommendations/specifications from a coastal engineer as a useful guide.
- It is costly for Council to implement long term solutions and in the absence of offshore sand nourishment options, Council cannot place structures with extensive footprints (i.e., rock revetments) on the beach which require sand nourishment to offset.

- Unauthorised coastal protection works occurring across the entire LGA which are not adequately engineered or built to withstand coastal conditions and pose public safety risk and risk of material migrating onto public land/waters, website information and education is required to shine a light on this issue and in effort to control it.
- there is a need to update the coastal chapter in the Development Control Plan (DCP) and discuss required changes or issues that need to be addressed.

3.5 Stage 3 Community Engagement and Outcomes

3.5.1 Methods

During Stage 3, the engagement process aimed to inform, engage and obtain input from stakeholders and the wider community on coastal management actions and their viability and acceptability, including timing.

From December 2023 to March 2024, Council undertook the Stage 3 community consultation and engagement. This phase included:

- Project dedicated website [Your Voice Our Coast – Open Coast Coastal Management Program](#) with project background, FAQ's, links to studies and coastal staff contact email.
- Interactive [Social Pinpoint](#) page
- Six community pop up events
 - Terrigal Boadwalk 12th Jan
 - Avoca Beach SLSC 13th Jan
 - Toowoona Bay SLSC 19th Jan
 - Memorial Park The Entrance 27th Jan
 - Soldiers Beach SLSC 3rd Feb
 - Killcare Beach 10th Feb
- Two targeted community stakeholder sessions:
 - Copacabana SLSC 13th of Feb
 - Toowoona Bay SLSC 15th of Feb

A summary report on the outcomes of consultation for Stage 3 is provided in Appendix A.

3.5.2 Objectives of consultation

The purpose of the Stage 3 consultation for the CMP was to:

- Inform the community of the status of CMP development
- Hear from stakeholders and the community to identify issues in the coastal zone and how they would like to see issues managed
- Provide the community an opportunity to speak directly with project staff

- Report back to the community on the outcomes of community consultation and the next steps.

3.5.3 Community Engagement Outcomes

Community feedback from the six pop up sessions was entered into the Social PinPoint page. Key themes from the pop up and targeted sessions are listed in Table 3-2.

Table 3-2 Key themes from Stage 3 Engagement

Coastal Hazards	Pathways and Access	Ecological Environment	Building and Encroachment	Amenities
<ul style="list-style-type: none"> – Sand nourishment and vegetation preferred over hard protection – Guidance for homeowners to implement seawalls – Council to plant natives along the dunes, grow in nursery and make available for the public to access – Install training walls at North Entrance – Sand scraping after storm events – Improve stormwater outlets to reduce erosion – More communication pre/post hazards – Plant low lying vegetation species to maintain line of sight for patrolling members – Secure rock escarpments – Lifeguards to patrol all year round 	<ul style="list-style-type: none"> – Carparks to be remarked/reconfigured to ensure safety and maximum parking – More parking at all beaches, create overflow parking (multistorey parking) – Parking designated for patrol members – Install clear signage in parking lots and boat ramps and regulate non-conformances – Reduce speed limits near beaches – Develop inclusive coastal walks along beaches – Develop inclusive viewing platforms – Provide adequate signage around boat ramps and regulate it – Secure bike and scooter parking – Safe beach access for families – Increase sand volume for accessibility – Provide disabled beach access 	<ul style="list-style-type: none"> – Need for educational signage to encourage the community to protect/value the environment and recognise cultural significance – Improve accessibility of ecological data – Council to grow/supply native/endemic coastal vegetation. More dune care groups and better resourcing to support them. – Increase vegetation to improve water quality and retain sand – Stronger stance and regulation on environmental vandalism – Increase wildlife habitat, build environmental corridors for animals – Control shark fishing/remove shark nets/restore fish habitats – Sand nourishment to replenish beaches – GPT's on all beaches to reduce rubbish – Create/implement Bitou and Lantana eradication plan – Educate Nippers about dune vegetation and to stay off the dunes – Compliance and targeting removal of unauthorised accessways – Support and host citizen science events – education programs 	<ul style="list-style-type: none"> – Softer engineering techniques – Don't allow development along the coastline. Buildings to be removable – Cost a buy back scheme – Reduce development in high-risk locations – Develop engineering guidelines to guide coastal protection on all beaches – No rezoning for C2 to R2 – No high rises – No subdivisions on any sand dune – Active compliance program to enforce DCP rules – Active compliance on illegal works, encroachment and environmental vandalism – Sustainable development for new housing population i.e., green spaces/community infrastructure/educational facilities – Council to challenge seaward boundaries 	<ul style="list-style-type: none"> – Ensure all amenity blocks and beach showers are fit for purpose, meet user demand, are inclusive and use water saving devices – Better signage to locate amenities – Install after hours defib and CPR signage – Bins for recycling, soft plastics and dog poo – Bin and collection required all year round – Moveable bins to be placed on the beaches – Consultation prior to changing amenities – More kids parks and shading – More public tables and seating

4. Stage 3 – Step 1: Confirm Strategic Direction

4.1 Overview

As detailed in the Coastal Management Manual, a local vision statement that is consistent with the state's vision while reflecting the local context will assist communities to identify with their coast, encourage a sense of community ownership of the actions in the CMP and foster commitment to its preparation and implementation.

During Stage 1 of the CMP (Royal Haskoning DHV, 2021) Council developed a purpose, vision and objectives for the program. The vision and purpose are crucial in defining the strategic objectives. The strategic objectives then enable the establishment of specific more detailed objectives that provide a clear path towards fulfilling the strategic objectives.

4.2 Purpose

Aligned with the purpose of CMPs as set out by the CM Act, the purpose of the Central Coast CMP, as detailed in the Stage 1 Scoping Study, is to provide an integrated, adaptive and long-term strategy for the coordinated management of the open coastline of the Central Coast's coastal zone. The CMP will seek to assist the smart and coordinated management, and environmentally sustainable development, of the dynamic open coastline in order to protect the social, cultural, economic and environmental values, and identity of the region against current and future coastal hazards.

4.3 Vision

In keeping with the **"One – Central Coast"** developed during the Community Strategic Plan 2018 – 2028 a draft Vision was proposed to be further developed and refined in consultation with the local community and stakeholders during CMP development.

We are ONE Central Coast – A smart, green and liveable region with a shared sense of belonging and responsibility.

4.4 Objectives

The objectives of the Central Coast CMP are to manage the coastal environment in a manner that is consistent with the principles of Ecologically Sustainable Development (ESD) for the social, cultural and economic wellbeing of the people of the Central Coast. As such, the objectives as assigned in Stage 1, are:

- to protect and enhance natural processes and environmental values of the Central Coast open coast and lagoons;
- to support the social and cultural values of the Central Coast and maintain public access, amenity, use and safety;
- to acknowledge Aboriginal peoples' spiritual, social, customary and economic use of the Central Coast;

- to recognise the subject area as a vital economic zone and to support sustainable coastal economies;
- to facilitate ecologically sustainable development in the Central Coast and promote sustainable land use planning decision making;
- to mitigate current and future risks from coastal hazards, taking into account the effects of climate change;
- to recognize that the local and regional scale effects of coastal processes, and the inherently ambulatory and dynamic nature of the shoreline, may result in loss of coastal land to the sea (including estuaries and other arms of the sea) and to manage coastal use and development accordingly;
- to promote integrated and coordinated coastal planning, management and reporting;
- to encourage and promote plans and strategies to improve the resilience of coastal assets to the impacts of uncertain climate future including impacts of extreme events;
- to ensure co-ordination of the policies and activities of government and public authorities relating to the coastal zone and to facilitate the proper integration of their management activities;
- to support public participation in coastal management and planning for the Central Coast and greater public awareness, education and understanding of coastal processes and management actions;
- to facilitate the identification of land in the coastal zone for acquisition by public or local authorities in order to promote the protection, enhancement, maintenance and restoration of the environment of the coastal zone; and,
- to support the objects of the *Marine Estate Management Act 2014*.

Under the CM Act, the objectives and management actions developed as part of the CMP are required to be strategically aligned with the objectives and strategies outlined in the Community Strategic Plan. Those linkages have been provided in Section 2 and have been aligned with the proposed management actions developed as part of Stage 3.

In addition, the CM Act 14 (3) states that in preparing a coastal management program, a local council must—

- (a) consider and promote the objects of this Act, and
- (b) give effect to the management objectives for the coastal management areas covered by the program, and
- (c) consider the State and regional policies and plans prescribed by the regulations for the purposes of this section.

Specifically, the Specific Objectives of the CMP listed above were developed to align with the objects of the CM Act, which include:

- (a) to protect and enhance natural coastal processes and coastal environmental values including natural character, scenic value, biological diversity and ecosystem integrity and resilience*
- (b) to support the social and cultural values of the coastal zone and maintain public access, amenity, use and safety*

(c) to acknowledge Aboriginal peoples' spiritual, social, customary and economic use of the coastal zone

(d) to recognise the coastal zone as a vital economic zone and to support sustainable coastal economies

(e) to facilitate ecologically sustainable development in the coastal zone and promote sustainable land use planning decision-making

(f) to mitigate current and future risks from coastal hazards, taking into account the effects of climate change

(g) to recognise that the local and regional scale effects of coastal processes, and the inherently ambulatory and dynamic nature of the shoreline, may result in the loss of coastal land to the sea (including estuaries and other arms of the sea), and to manage coastal use and development accordingly

(h) to promote integrated and co-ordinated coastal planning, management and reporting

(i) to encourage and promote plans and strategies to improve the resilience of coastal assets to the impacts of an uncertain climate future including impacts of extreme storm events

(j) to ensure coordination of the policies and activities of government and public authorities relating to the coastal zone and to facilitate the proper integration of their management activities

(k) to support public participation in coastal management and planning and greater public awareness, education and understanding of coastal processes and management actions

(l) to facilitate the identification of land in the coastal zone for acquisition by public or local authorities to promote the protection, enhancement, maintenance and restoration of the environment of the coastal zone

(m) to support the objects of the Marine Estate Management Act 2014

5. Stage 3 – Step 2: Management Option Identification

5.1 Overview

As detailed in the CMP process, Stage 2 comprises identifying coastal management issues affecting the areas to which the CMP is to apply and identifying the coastal management actions required to address those issues in an integrated and strategic manner.

During Stage 3, Council identified the coastal management issues, including undertaking an analysis of risks, vulnerabilities, and opportunities in the local area. This was documented in the Detailed Risk Assessment report and Risk Register (Worley Consulting, 2024) undertaken as part of Stage 3.

There are five overarching strategies, as detailed in the NSW Coastal Management Manual, relevant to different levels of risk and attitudes to risk. The management options can be organised into the five broad strategies as depicted in Figure 5-1.



Figure 5-1: Five Strategic Approaches for Coastal Management

Management actions fall under overarching strategies above and within the following risk categories or management areas (Figure 5-2) as assigned by Council.



Figure 5-2: Risk Categories/Management Areas Adopted for the Central Coast CMP

The strategic approach adopted will be dependant of the level of risk. In some instances, a combination of approaches may be adopted, or may change with time as the circumstances change. The identification of management options has been undertaken with consideration of the strategic approaches detailed in Figure 5-1 and Figure 5-2, with a further summary provided below.

- **ALERT** – these may be responses implemented to monitor conditions in order to effectively communicate environmental changes to the community. These types of options are generally low cost and provide a valuable way of collecting data to improve knowledge and enable development of appropriate long-term options. This type of option will not mitigate against immediate risk.
 - low regrets responses to risk
 - natural defences
- **AVOID** – comprises proactive planning and minimising development in high/medium risk areas. This is a proactive approach to ensure only appropriate development is approved in areas identified as low-risk and minimises future pressure on the coastal zone. Avoid approach is particularly relevant for greenfield sites where planning controls can facilitate new development being sited in low-risk areas or outside coastal vulnerability area.
 - planning proposal
- **ACTIVE INTERVENTION** – this includes actions aimed at protecting assets in high-risk areas or ecosystems in poor health and may comprise remediation, rehabilitation or

implementation of capital works. They aim to mitigate current and future risks from coastal hazards.

- accommodate risk response
- coastal protection responses
- structural protection works
- design standards for coastal protection works
- **PLANNING FOR CHANGE** – planning a change to the location and/or extent of development and infrastructure in coastal vulnerability or coastal hazard areas. Staged approach in that once a predetermine threshold has been reached the strategy adopted may adjust from accommodation and protection to relocation or realignment.
- **EMERGENCY RESPONSE** – immediate action implemented during extreme coastal hazard events. It comprises a set of actions and responsibilities to be followed in an emergency. Required to address residual risk after all mitigation measures are implemented.

In addition, the following strategic outcomes aligned with the objectives of the CM Act have been considered in developing the management options:

- Community and Stakeholder Engagement
- Protecting, restoring and enhancing the natural environment of the coastal zone
- Protecting, enhancing and restoring the cultural heritage of the coastal zone
- Research and collaboration
- Mitigation and adaptation to current and future risks (including asset management)
- Emergency planning and response
- Recognising the coastal zone as a vital economic zone.

5.2 Option Identification

Council has historically identified and implemented extensive management options/actions for the LGA within the overarching strategies and categories as detailed in Figure 5-1 and Figure 5-2. At a high level, these actions have included the following:

- Various seawall and shoreline protection structures implemented throughout the LGA (e.g., Avoca)
- Protocols to repair accessways and beaches after storm erosion/damage – beach scraping etc.
- Terminal Protection Structure Design Requirements – Wamberal
- Ongoing monitoring – e.g. monitoring performance of existing rock structures, erosion monitoring, run up level monitoring, LiDAR surveys typically before and after storm events,
- Development controls – redevelopment requirements e.g., setbacks, floor levels, piled foundations
- Entrance management policies

- Landward relocation
- Investigations into beach nourishment
- Vegetation profiling and works
- Maintenance programs

During Stage 2, an updated coastal hazard assessment (Bluecoast Consulting Engineers, 2023) was undertaken to inform the assessment of the coastal risks used to develop the Detailed Risk Assessment and potential management actions to address the identified risks.

In addition, Council has undertaken an audit of all relevant previous studies, community engagement, technical expertise and actions (Wyong/Gosford CZMP actions). Actions were reviewed to determine their status, appropriateness and whether they could be carried over to this CMP.

With the risks and strategies taken into consideration, along with the Stage 3 Community and Stakeholder engagement outcomes, appropriate management options were developed to address overall LGA wide issues, and then more specific options for individual locations. The long list of options is provided in Appendix B.

Once refined, this list of actions was scored and assessed as detailed in Section 6.

6. Stage 3 – Step 3: Options Assessment

6.1 Overview

Following on from the identification of management options, the options needed to be assessed and subsequently prioritised. This assessment was completed to ensure the final Stage 4 program of management options are appropriate, achievable, and meet the objectives of the CM Act. A Multi Criteria Analysis (MCA) was implemented based on evaluating the feasibility, viability and acceptability of each potential option as depicted in Figure 6-1.

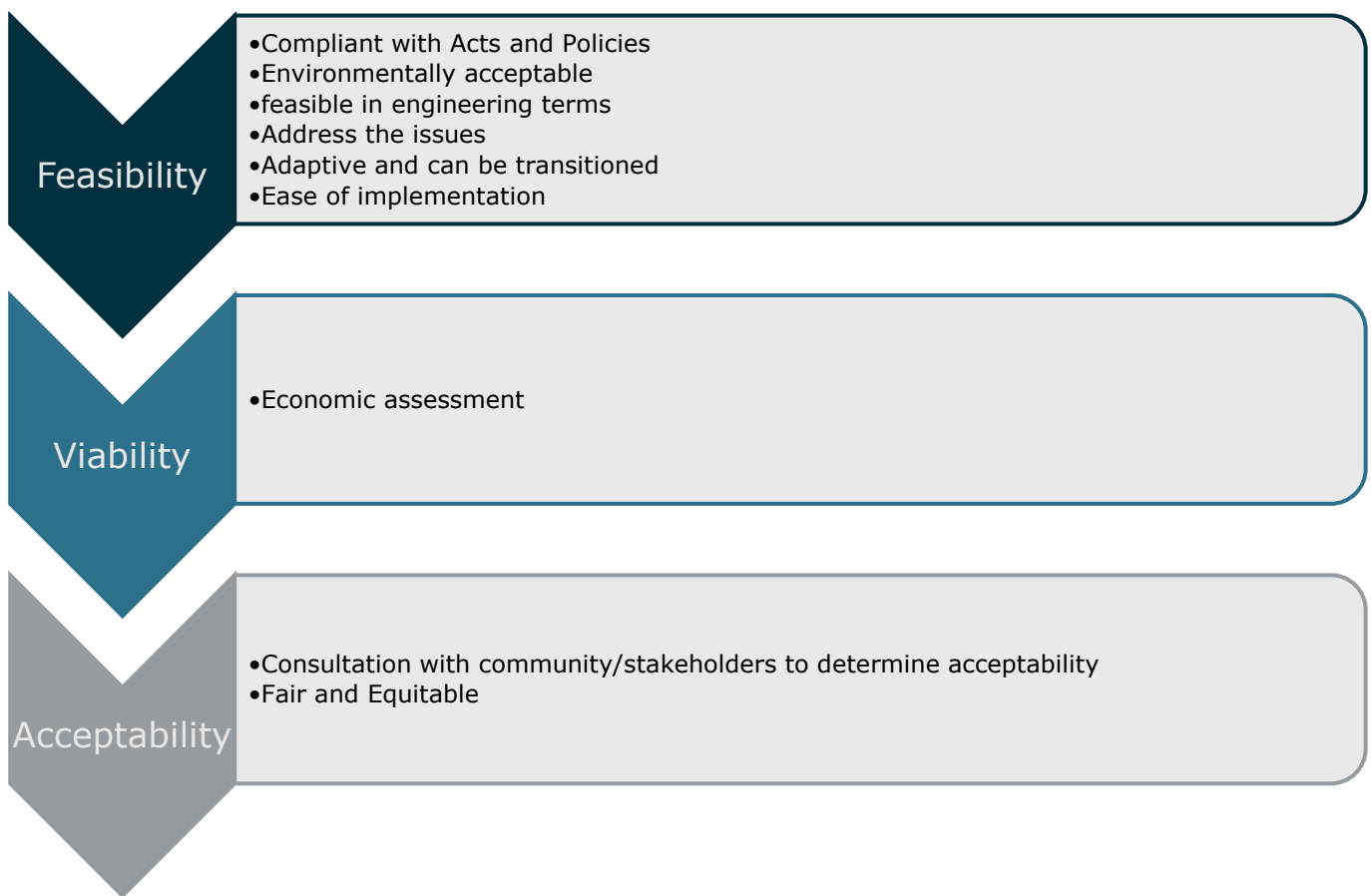


Figure 6-1: Criteria in Evaluating Management Options

6.2 Multi Criteria Analysis (MCA)

A detailed Multi Criteria Analysis (MCA) was undertaken across a broad range of evaluation criteria to assess the feasibility, viability and acceptability of the options as required by the Manual. In evaluating each of the identified options, the criteria based on Figure 6-1 were scored and weighted against the relative importance of each, with a higher overall weighted score representing a more favourable management option. This process was used to rank the options and determine those actions suitable to progress to Stage 4. Table 6-2 provides details of the criteria and definitions for scoring options. A score of 0 automatically rules out the action from further consideration.

The evaluation process was developed in conjunction with the Project Team which included expert representatives from Council and DCCEEW, with definitions, scores and weightings assigned, reviewed and agreed by all members of the Team.

6.2.1 Feasibility

As per the details provided in the NSW Coastal Management Manual, feasible coastal management actions are those which:

- are consistent with the objectives of the CM Act
- comply with statutory and policy requirements
- are environmentally acceptable and consistent with the principles of Ecologically Sustainable Development (ESD)
- are feasible in engineering terms i.e. can realistically be built
- can address identified issues
- are adaptive and can transition to alternative approaches
- are broadly able to be implemented
- are likely to contribute new knowledge about effective management.

The feasibility assessment has considered both social and environmental aspects as shown in Table 6-2 and has been undertaken in accordance with the above.

Feasibility scores were assigned against the following criteria:

- Impact on Safety – does the action improve safety?
- Approvals, Statutory and Policy Compliance - Is the action legal? Is it a "no-regrets" action or will it be complex to implement? Is it consistent with statutory approvals and current policy settings? Is it consistent with the objects of the CM Act?
- Impact on coastal processes – will the action enhance or disrupt the natural coastal and estuarine processes? This criterion was given a weighting of 2 to reflect its importance in defining the management action.
- Overall environmental benefit and ecological impact – will the action have an overall environmental benefit? Will the action improve the resilience of the Coastal Wetland Area, Coastal Environment Area? Is it ecologically sustainable?
- Effectiveness of Option - How effective is the action in reducing the risk or managing the issue? From the Stage 2 Risk assessment, would the action address the risk? e.g. would it reduce coastal risk/vulnerability? How well would the risk be addressed by the action? This criterion was given a weighting of 2 to reflect its importance in defining the management action.
- Scores for each individual option were added and multiplied by their weighting to derive an overall MCA score for each option.

Actions that were deemed to fail any of the above criteria were assigned a score of zero, which precluded them from being carried through to Stage 4.

6.2.2 Viability

The viability assessment was completed to identify the cost (implementation and maintenance) for the options being assessed. The scope and level of detail of the economic assessment was proportionate to the nature and scale of the coastal issues. Detailed Cost Benefit Analysis (CBA) has not been undertaken for options that are minor cost and/or benefits for a very limited number of parties. Coastal management actions operating over long timeframes with potentially larger direct and indirect costs/benefits warrant a CBA to determine whether the benefits outweigh the costs. From the Coastal Management Manual, Figure 6-2 provides guidance on the method used for selecting the appropriate level of economic assessment.

The primary purpose of the viability assessment was to determine:

- the cost of the option
- the distribution of costs and benefits
- proposed cost sharing arrangement and funding mechanisms
- whether the proposed management options are affordable and thus viable for progressing through to Stage 4.

For the Stage 3 assessment, an estimate of the capital and maintenance cost has been undertaken for each action, with the Viability score obtained from the capital cost plus the maintenance costs over the 10 year CMP planning period. The Viability score was assigned a weighting of 2 and scores were allocated against each of the options according to the following rules:

Table 6-1: Assignment of Viability scores against total capital and maintenance costs for each action

Score	Criteria for total capital outlay plus maintenance costs over 10 year timeframe
0.2	>\$5million and/or detailed CBA required
0.4	\$500k - \$5m
0.6	\$100k - \$500k
0.8	\$10k - \$100k
1	<\$10k

Complexity			
		Low	High
		<ul style="list-style-type: none"> Limited number of stakeholders Little or no quantitative data 	<ul style="list-style-type: none"> Disagreement or conflicting views among stakeholders Difficulty defining beneficiaries or apportioning costs Good quantitative data
Risks and impacts	Low	Simple economic assessment	Intermediate level assessment
	High	Intermediate level assessment	Detailed cost-benefit analysis
	<ul style="list-style-type: none"> Limited spatial scale Low risk and low impact 	These assessments ask similar questions as the more complex analysis, but use qualitative analysis and expert opinion rather than quantitative data.	These assessments ask the same questions as the more complex analysis, but may use detailed costings.
	<ul style="list-style-type: none"> Addressing high or extreme risks An option involves major investments 	Monte Carlo modelling or significant social analysis may not be necessary, but some detailed costing e.g. for maintenance, is required.	This may involve a systematic comparison of all foreseeable costs and benefits and the probability that they will arise over the planning period.

Figure 6-2: Matrix of risk and complexity for selecting the level of economic assessment

6.2.3 Acceptability

Acceptability is the final step in selecting which of the actions were to be included in the CMP. This step involves consulting with the community and stakeholders to determine the acceptability of the actions as well as assessing whether the action improves social and cultural values of the coastal use area. The actions have been directly informed by issues and suggestions raised during the Stage 3 community and stakeholder engagement, which fed into the Detailed Risk Assessment.

Support for the actions from the community and Agency stakeholders will be gauged during Stage 4, which will include public exhibition of the draft CMP and community engagement sessions which will provide an opportunity for the community to better understand and formally comment on the draft management actions.

Scores were assigned for how well the action addresses Social Values of the coastal zone. Social values include aspects such as education initiatives, improvement in scientific/traditional knowledge, recreational amenity, visual amenity and natural character. Actions which do not provide any benefit to social values, and/or may have negative impact were assigned the lowest score against this criterion. Actions which provide substantial benefit to social values were assigned the highest scores. Actions which have a demonstrable negative social impact were assigned a score of zero, which excludes the action from being carried forward to Stage 4.

Table 6-2: Criteria and Definitions for Scoring Options

		Reflects relative Importance of criterion		Any score of zero will automatically rule-out this action as being not feasible.						
		Definition - Score 1-5	Weighting	Definitions	0	0.2	0.4	0.6	0.8	1
Economic	Total estimated cost (implementation & maintenance)	Initial cost outlay plus maintenance cost over 10 years of option. Lower cost = 1, higher cost = 0.2	2	To assign score against actual cost ranges		>\$5million and/or detailed CBA required	\$500k - \$5m	\$100k - \$500k	\$10k - \$100k	<\$10k
Social	Impact on Safety	Does the action improve safety? 1 = yes, 0.2 = no	1	Captures concerns re coastal use area	Action would likely compromise public safety.	No improvement in safety	Action would provide only minor improvement in safety	Action would provide minor to moderate improvement in safety	Action would provide moderate to substantial improvement in safety	Action would provide substantial improvement safety
	Approvals, Statutory and Policy Compliance	How complex are the approvals for the action, will it take a long time to implement? 1 = simple to implement and can be done now, 0.2 = complex approvals required with multiple agencies involved and difficult to implement	1	Is the action legal? Is it a "no-regrets" action or will it be complex to implement? Is it consistent with statutory approvals and current policy settings? Is it consistent with the objects of the Coastal Management Act?	Action is not currently legal, and no legal approvals pathway exists for its implementation.	Potentially inconsistent/ lengthy approvals required with detailed environmental assessments necessary		Largely consistent with existing approvals/policy.		Action fully consistent with statutory and policy settings, or with existing approvals in place
Environment	Impact on coastal processes	Will the action cause a significant disruption to coastal processes? 1 = no, 0.2 = yes	2	Are we enhancing or disrupting the natural coastal processes?	Action is likely to interfere with the natural coastal processes leading to unforeseen or negative outcomes across the area	Action is likely to interfere with the natural coastal processes and is likely to cause a negative impact	Action may interfere with the natural coastal processes and may cause a negative impact	Action may interfere with the local coastal processes by design but is not likely to cause a negative impact	Action is not likely to interfere with the natural coastal processes	Action is likely to enhance or restore the natural coastal processes
	Overall environmental benefit and Ecological Impact	Will the action have an overall environmental benefit? 1 = yes, 0.2 = no	1	Are we improving the resilience of the Coastal Wetland Area, Coastal Environment Area? Is it ecologically sustainable?	Action is likely to have a demonstrated or irreversible negative impact on resilience of the Coastal Wetland Area, Coastal Environment Area.	Action is likely to cause a localised or reversible negative impact on Coastal Wetlands and/or Coastal Environment Area	Action may cause a negative impact on the Coastal Environment or Coastal Wetland areas	Action is not expected to cause a positive or negative impact on the Coastal Environment or Coastal Wetland areas	Action is likely to provide a minor to moderate benefit to the Coastal Environment or Coastal Wetland Areas	Action is likely to provide a substantial benefit to the Coastal Environment and Coastal Wetland Areas
	Effectiveness of Option	How effective is the action in reducing the risk or managing the issue? 1 = very effective, 0.2 = not effective	2	From Risk assessment, would the action address the risk? E.g. would it reduce coastal risk/vulnerability? How well would the risk be addressed by the action?	Action would increase identified risk	Action would only provide minimal reduction in identified risk	Action would provide minor benefits in reducing the identified risk	Action would provide minor to moderate reduction in identified risk	Action would provide moderate to substantial reduction in risk	Action would provide substantial, measurable reduction in identified risk
Social	Social Impact	Does the action enhance the social and cultural values of the coastal zone? 1 = yes, 0 = no	1	Social values e.g. education initiatives, improve scientific and/or traditional knowledge, recreational amenity, visual amenity and natural character	Action would have a negative cultural and social impact	Action does not provide any benefit to social values of the coast, and may have a negative impact, or may not be acceptable to stakeholders		Action provides moderate benefit to social values of the coast		Action provides substantial benefit to social values of the coast, and has a high degree of support from the community



6.3 Option Assessment Outcomes

The draft management actions have been assessed against the Feasibility, Viability and Acceptability criteria as described above, which has allowed for the actions to be assigned a total score out of 10, ranked, and therefore prioritised for inclusion in Stage 4.

A summary list of each Action, issue addressed, score out of 10, rank, timeframe for implementation, Lead Agency and Supporting Agency is provided in Table 6-3 for both LGA-wide and location-specific actions.

A long list of actions is included in Appendix B, which includes the following information:

- Action ID
- Action category
- Location
- Issue or risk addressed by the action
- Action and detailed Action Description
- Viability, Feasibility and Acceptability Assessment scoring against each of the assessment criteria for each action
- Overall weighted score and rank
- Timeframe for implementation (short term defined as 1 – 5 years, medium term defined as 5 – 10 years, long term defined as > 10 years)
- Lead Agency
- Supporting Agencies.

Actions which scored less than 5 out of 10 were considered to be not suitable to be carried forward to Stage 4. A total of 37 actions have been considered for inclusion in Stage 4 of the CMP.

Table 6-3 Proposed Management Actions and Ranking

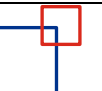
ID	Category	Location	Issue	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Lead Agency	Support Agencies
CW-S01	Access & Safety	LGA-wide	Increased erosion/scour associated with stormwater assets. Stormwater assets impacted by coastal inundation	Monitoring and improvement of coastal stormwater outlets	The inspection of all coastal stormwater outlets to identify those at risk from coastal hazards and opportunities where upgrades can be implemented or retrofitted in order to protect assets, reduce erosion from stormwater scour and/or improve public safety. These locations would also be regularly monitored to assess performance and improvements.	7.2	24	Short	Council	
CW-S02	Access & Safety	LGA-wide	Risk to public safety due to wave run up, wave overtopping, cliff instability, rockfalls and coastal erosion	Develop and implement an integrated coastal processes and hazards education and awareness program	The development and implementation of an integrated education program focused on improving community understanding of local coastal hazards, processes and related topics, such as water quality, marine ecology and marine litter, to promote the safe and sustainable use of our coast. This action should include an update to and installation of new coastal hazard and educational signage and the ongoing monitoring of locations that pose a high risk to public safety.	8	11	Short	Council	
CW-S03	Access & Safety	LGA-wide	Informal private access and use damaging vegetation and impacting on recreational amenity for the public	Develop and implement coastal compliance procedures	The procedures would improve public safety and environmental outcomes at our beaches by outlining the actions, processes and responsibilities concerning compliance enforcement and the management of encroachment, illegal dumping, unapproved structures, unlawful activities and vegetation clearing. It will include a review of planning controls and resourcing, provide guidance to homeowners for "steps to remediation", make it easier for the public to "report an issue" and cover signage and monitoring aspects.	8.6	6	Short	Council	Crown Lands, Fisheries, Environmental Protection Authority, NSW Police, National Parks, Local Aboriginal Land Services
CW-S04	Access & Safety	LGA-wide	Inaccessible beach accessways impacted by coastal erosion Damage to dunes and safety concerns due to generation of informal/unauthorised beach accessways Safety concerns regarding exposure and mobilisation of buried remnants of historic foreshore protection works Injury to beach users caused by structures mobilising during storm events Dune instability/steep dune scarp impacted by coastal erosion Damage to coastal recreational assets from storm events	Review and implement updated Beach Maintenance Program	Council's Beach Maintenance Program would be reviewed and implemented to improve public beach access, amenity and safety. The action would include prioritisation and upgrades to beach accessways in line with the Recreational Use Study and Council's Disability Inclusion Action Plan. The program would outline the management of post-storm beach access and safety, where small-scale works such as beach scraping for amenity purposes may be undertaken and beach and dune fencing. It will also include an audit on beach maintenance operations to maximise inhouse efficiencies to ensure that the necessary plant and equipment is available to effectively implement the program.	7	27	Short	Council	
CW-S05	Access & Safety	LGA-wide	Limited or out-dated information available on key indicators of coastal hazards and coastal dynamics	Develop and implement a Coastal Monitoring Program	The coastal monitoring program would use progressive monitoring techniques to collect essential information about coastal processes and hazards to improve the management of our beaches. It would include beach surveys to monitor changes in sand volumes, risk exposure, dune condition and beach amenity. The data collected would allow annual Beach Health Reports to be developed and better inform future coastal hazard studies and investigations. Beach usage should be included	6.8	29	Short	Council	DCCEEW

ID	Category	Location	Issue	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Lead Agency	Support Agencies
					in the monitoring to better understand current demand and locations requiring further investment in the future.					
CW-S06	Access & Safety	LGA-wide	Coastal hazards impacting viability of existing and future infrastructure long term, need for long-term coastal adaptation planning	Investigate and develop a Coastal Hazard Adaptation Strategy for affected coastal communities	Develop a Coastal Hazard Adaptation Strategy that will consider future risk to our community from coastal hazards and investigate adaptation measures and pathways to support and enhance the resilience of our coastal communities.	6.8	29	Long	Council	DCCEEW
CW-S07	Access & Safety	LGA-wide	Coastal erosion threatening coastlines and infrastructure	Investigate feasibility and responsibilities of long-term sand nourishment licences	Investigate the feasibility, process and responsibilities of long-term sand nourishment licences and work with the State Reconstruction Authority to support their actions on offshore sand nourishment in the State Disaster Mitigation Plan (SDMP)s.	5.6	36	Long	Council	Reconstruction Authority
CW-S08	Access & Safety	LGA-wide	Inconsistent standards of SLSC's patrol towers along the coast. Unable to provide sufficient public services.	Prioritise and upgrade beach life guard patrol towers and ancillary structures	This action would involve undertaking an audit of beach life guard patrol towers and ancillary structures to ensure their adequacy, performance and safety from coastal hazards. Necessary upgrades and improvements required would be prioritised and implemented to ensure required functions continue to be performed.	8.4	7	Medium	Council	
SB02	Access & Safety	Pebbly Beach	Safety hazard due to unfenced cliffline at southern carpark of Soldiers Beach	Investigate options to improve public safety at Soldiers Point headland	Undertake an assessment of public safety at the Soldiers Point headland overlooking Pebbly Beach and investigate options to manage the risks associated from the exposed cliff and instability.	7.8	16	Medium	Council	NPWS
CW-A01	Amenities	LGA-wide	Aging or incompatible coastal recreation amenity infrastructure not compliant with engineering standards or industry best practice	Coastal recreation assets and infrastructure renewal program	This action involves the review, prioritisation and delivery of coastal recreation assets, public amenities and infrastructure upgrades and investigations to support and enhance beach visitation and recreational opportunities, now and into the future, guided by the recommendations from the Recreational Use Study.	7.8	14	Short	Council	
CW-A02	Amenities	LGA-wide	Lack of guidance for implementing and assessing coastal protection works	Develop and implement Coastal Engineering Design Requirements	The Coastal Engineering Design Requirements will help to achieve a more a sustainable and resilient coastline by clarifying expectations to designers, engineers and architects concerning coastal development. It will outline key design principles to ensure that development is appropriately designed for coastal hazards, addresses coastal processes, considers public safety and mitigates environmental impacts.	8	11	Short	Council	
CW-A03	Amenities	LGA-wide	Insufficient waste facilities and collection at coastal locations impacting amenity	Review waste collection assets and servicing in coastal public spaces	Work with internal business units and service providers to review the adequacy of waste collection assets and servicing along the coast. The review would be focused on ensuring that infrastructure and assets are sufficient to meet current demands, seasonal and event variations and opportunities for improvement to reduce the environmental and amenity impacts from marine litter and debris. This action should also include the management of post-storm and flood debris.	7.2	23	Medium	Council	

ID	Category	Location	Issue	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Lead Agency	Support Agencies
CW-H01	Coastal Hazard	LGA-wide	Need for stronger planning controls to manage development in the coastal zone in relation to coastal hazards	Review and update coastal development planning controls and undertake Planning Proposal to adopt Coastal Vulnerability Area	The review, update and implementation of new coastal hazard planning controls within the Development Control Plan, based on the latest available coastal hazard study and information, will ensure a consistent and best-practice approach to protecting the environment and communities from coastal hazards. Council will also prepare and submit a Planning Proposal to adopt a Coastal Vulnerability Area (CVA).	9.6	1	Medium	Council	DCCEEW
CW-H02	Coastal Hazard	LGA-wide	Legacy coastal emergency works on beaches which no longer serve purpose, causing detrimental impacts or timeframe expired.	Identify the extent, nature and condition of existing coastal emergency works	This investigation will identify and document existing emergency, legacy and unauthorised coastal protection works, including the type of works, extent, condition and the risk they pose to public safety and coastal processes. This information will allow these works to be strategically managed, decommissioned, remediated or modified as necessary and at the appropriate time.	8	11	Medium	Council	
CT01	Coastal Hazard	Cabbage Tree	Structural integrity/slope stability	Design and construct Stage 2 of the Cabbage Tree Harbour toe drainage structure	Design and construct Stage 2 of the toe drainage structure at Cabbage Tree Harbour to further reduce the incidence of landslip and improve beach safety. The works were originally constructed with a 15 year design life and Stage 2 is required to add an additional layer and increase the crest height to ensure adequacy for future coastal conditions.	6.4	34	Long	Council	DCCEEW
MM01	Coastal Hazard	MacMasters	Coastal erosion impacting Marine Parade	Complete coastal risk and options assessment for Marine Parade at MacMasters Beach	This action will involve completing a local detailed coastal hazard assessment to better understand the erosion and recession risk at this location. The updated information will be used to inform an options assessment which would investigate the most appropriate long-term adaptive management approach.	7.4	22	Long	Council	DCCEEW, Crown Lands
EN01	Coastal Hazard	LGA wide	Unknown impacts associated with legacy landfill sites or other contamination that be become exposed following erosion.	Monitor and manage risk of contamination from closed landfill sites	Monitoring and management of legacy closed landfill sites within the coastal hazard area to reduce the risk of contamination during severe weather events.	7.2	24	Medium	Council	
EB01	Coastal Hazard	The Entrance	Structural integrity	Review the structural integrity and extent of the foreshore embankment protecting Marine Parade, The Entrance	Review the structural integrity and extent of the foreshore embankment stabilising Marine Parade that extends north from The Entrance Surf Life Saving Club. Following construction of the groyne on The Entrance Beach by State Government, the structure has been increasingly exposed and impacted. Undertake upgrades, extensions or replacement as required. This action may incorporate outcomes from MIDO's review into the existing rock groyne.	6.6	33	Short	Council	TfNSW, Crown Lands
WB01	Coastal Hazard	Wamberal Beach	Coastal erosion threatening private properties and public infrastructure	Incorporate Wamberal Beach engineering design requirements (EDR) in Council's Coastal Development Control Plan (DCP)	Include the Wamberal Beach EDR's in Council's DCP to ensure all development applications for the Wamberal Beach coastal protection works are in accordance with the guidelines.	8.2	8	Short	Council	DCCEEW
WB02	Coastal Hazard	Wamberal Beach	Coastal erosion impacting Planning Ministerial Corporation land at Wamberal	Implement whole of embayment terminal protection solution for	Council and the NSW Government to work together to implement whole of embayment terminal protection solution for Wamberal	7.6	19	Short	Council	DCCEEW



ID	Category	Location	Issue	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Lead Agency	Support Agencies
				Wamberal Beach public owned lands in accordance with the Engineering Design Requirements	Beach public owned lands in accordance with the Engineering Design Requirements.					
A01	Coastal Hazard	Avoca	Flat beach profile, no protection from wave overtopping	Undertake a detailed wave overtopping and inundation assessment for high risk locations	Undertake a detailed wave overtopping and inundation assessment at high risk locations identified in the coastal hazard study to improve public safety and better inform coastal planning. The detailed assessment should include analysis of the current and future risk, as well as the consideration of options for managing the risk to public and private assets and public safety. Short term management options may include updating local planning controls and/or soft engineering strategies	7.4	21	Short	Council	DCCEEW
EB02	Coastal Hazard	The Entrance	Depletion of sand along southern side of The Entrance channel and undermining of seawall	Investigation and management of adverse groyne impacts	Collaborate and support the Marine Infrastructure Delivery Office in the investigation of options, including removal, and management all adverse impacts caused by the construction of the rock groyne at The Entrance beach that was initially installed with the context of a short-term 10-year trial.	8	10	Medium	TfNSW (MIDO)	
T02	Coastal Hazard	Terrigal (The Haven)	Structural Integrity of seawall at The Haven	Options study for replacement of aging seawall at The Haven	Undertake an options study to assess feasible foreshore masterplans and design options for the upgrade, or replacement, of the sandstone block seawall at The Haven and surrounding area, with reference to recommendations of the engineering review of the existing structure.	7.8	16	Medium	Council	Crown Lands
CW-C01	Community & Social	LGA-wide	Need for community and agency representation to support decision making	Continue the role of a coastal, estuary and floodplain management Advisory Committee	Continue to support the role of an Advisory Committee responsible for providing advice and input on the sustainable management of our coastal, estuarine and flood liable areas.	9.2	2	Short	Council	
CW-C02	Community & Social	LGA-wide	Lack of detailed cultural and heritage assessments across the LGA. Need for Aboriginal Heritage Impact Permits in areas affected by coastal erosion.	Work with First Nation groups and stakeholders to evaluate arrangements for undertaking beach maintenance operations	Collaborate with First Nation groups and stakeholders to evaluate beach maintenance operations to ensure their appropriateness for works in sensitive areas. This action will include update of protocols to be followed in the event Aboriginal sites or heritage is discovered and/or threatened by erosion during storms, information to be communicated through interpretive signage along the coast and obtaining Aboriginal Heritage Impact Permits where they may be required to support essential works for public safety and access, such as post-storm management of beach accessways.	6.8	29	Medium	Council	LALC
CW-C03	Community & Social	LGA-wide	Unapproved memorial sites	Management of unapproved memorials in public coastal spaces	Work with internal business units to review the appropriateness and/or removal of unapproved memorials installed in public coastal spaces on Council land or Council managed Crown Land.	6.8	29	Medium	Council	
CW-C04	Community & Social	LGA-wide	Community awareness of coastal hazards and issues	Update and maintain Council's website to improve awareness and make information on coastal processes,	Update Council's website to provide accessible information relating to coastal processes, hazards, coastal management issues, educational resources, coastal projects and coastal data. Website to be regularly reviewed and updated as appropriate to ensure	7.8	14	Short	Council	



ID	Category	Location	Issue	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Lead Agency	Support Agencies
				hazards and issues more accessible	relevancy and accuracy of information as new information is obtained or new coastal management issues emerge.					
CW-C05	Community & Social	LGA-wide	Community awareness of cultural issues and practices, lack of understanding of traditional knowledge for managing the coast	Knowledge sharing and protection of cultural heritage	Engage and collaborate with local First Nations groups to share cultural knowledge, understand their concerns and priorities and identify opportunities to acknowledge and protect and preserve cultural heritage sites and values from coastal hazards.	8.8	3	Medium	Council	LALC
CW-D01	Development	LGA-wide	Need for geotechnical information to inform planning decisions	Develop and maintain a coastal geotechnical database	Develop and maintain an internal database of coastal geotechnical information to better understand the underlying geology of the region and inform coastal management and planning decisions. It will involve the collation of all available geotechnical data along our coast from all available sources and include geotechnical and structural constraints. Information to be provided to NSW SES for consideration for use in emergency management.	7	28	Medium	Council	DCCEEW
CW-D02	Development	LGA-wide	Geotechnical investigation	Conduct geotechnical investigations to improve understanding of underlying geology along the coast	Complete a gap analysis to identify where additional or contemporary geotechnical information is required to support improved management, emergency response and planning decisions and conduct investigations as required.	5	37	Medium	Council	DCCEEW
CW-D03	Development	LGA-wide	Infrastructure at risk	Develop a coastal assets at risk register and update asset management program	This action involves auditing coastal assets and infrastructure to inform development of a register identifying those at risk of coastal hazards, now and into the future. This information would be integrated with Council's asset management program to ensure effective maintenance, management and planning of coastal assets to improve amenity, resilience and community safety.	7.6	19	Short	Council	Crown Lands
CW-D04	Development	LGA-wide	Rock/ocean pools maintenance and accessibility	Improve accessibility of coastal and foreshore areas	As guided by Council's Disability Inclusion Action Plan, this action involves continuing to improve the accessibility and inclusiveness of our beaches and foreshore areas, such as investigating and implementing access upgrades and ensuring that new infrastructure projects consider and incorporate universal design principles.	6.2	35	Medium	Council	Crown Lands
CW-D05	Development	LGA-wide	Lack of awareness of property owners for properties affected by coastal hazards	Review coastal hazard notations and planning certificates	As new coastal hazard mapping and information becomes available, planning certificates should be regularly reviewed to ensure properties potentially affected by coastal hazards contain an appropriate notation.	7.8	16	Medium	Council	DCCEEW
CW-E01	Ecological Environment	LGA-wide	Reduced water quality from urban catchments, leading to reduced water quality in open coast receiving waters	Review and implement Council's coastal water quality monitoring program	Council's existing coastal water quality monitoring program will be reviewed, updated and implemented to continue protecting and enhancing the water quality along our coastline. The program will be expanded to include the monitoring of ocean wastewater and stormwater outfalls, improved education	8.8	3	Short	Council	

ID	Category	Location	Issue	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Lead Agency	Support Agencies
					and awareness initiatives and public accessibility to water quality information.					
CW-E02	Ecological Environment	LGA-wide	<p>Invasive weeds and pests reducing the diversity and abundance of native species.</p> <p>Lack of guidance for appropriate planting in the coastal zone.</p> <p>Lack of guidance for appropriate fencing/dune stabilisation controls in the coastal zone.</p> <p>Illegal vegetation clearing.</p>	Develop and implement a Coastal Vegetation Strategy	This action would involve surveying coastal and dune vegetation to inform the development of a Coastal Vegetation Strategy aimed at supporting and enhancing coastal resilience, ecosystem integrity, beach amenity and conservation outcomes. The strategy will guide the on-ground management to achieve these outcomes and involve elements such as the management of priority weed species, dune stabilisation and planting, tree restoration and succession planting, education opportunities for the public and community groups and remediation actions required in instances of illegal clearing.	8.8	3	Short	Council	
T01	Ecological Environment	Terrigal, Toowoan, Copacabana	Would like to see the area from The Anchor to Terrigal beach made into a Marine Park same as what is at Nelson Bay. (Pinpoint)	Undertake and support research projects and citizen science initiatives aimed at enhancing and conserving marine biodiversity, science, recreation and education	Collaborate and support agencies, organisations and community groups undertaking projects or research aimed at enhancing and conserving marine biodiversity, science, recreation and education. This may include initiatives such as shark management, threatened species management, marine protected areas or citizen science projects, such as CoastSnap.	7.2	24	Long	DPI-Fisheries	Council, Crown Lands
SB01	Ecological Environment	Soldiers Beach	Dune blowout at southern carpark	Undertake dune management works at the southern carpark of Soldiers Beach	Undertake works aimed at reducing the volume of wind transported sand into the carpark, including the installation of dune forming fencing, dune revegetation and upgrade/replacement of the dune retaining wall. Also investigate whether the vehicle access from the southern slip rail is still required following completion of the new vehicle access ramp.	8.2	8	Medium	Council	

7. Stage 3 to Stage 4: Putting it Together

7.1 Overview

The next step in the CMP process considers how the proposed coastal management actions will be implemented over time, within an adaptive pathway that includes thresholds and triggers for change.

A draft business plan is to be developed, which demonstrates viable funding mechanisms for implementing proposed CMP actions that are consistent with council's Integrated Planning and Reporting (IP&R) framework.

7.2 Timing for Implementation

The management actions have been designed to be implemented within the 10 year timespan of the CMP, with long-term actions defined that will carry over to subsequent iterations of the CMP at the end of the 10-year cycle.

The timeframes defined against each action within the CMP are:

- Short-term actions – designed to be implemented within 1 – 5 years
- Medium-term actions – designed to be fully implemented within 5 – 10 years i.e. within the 10-year planning period of the CMP
- Long-term actions – designed to be initiated within the 10-year planning period of the CMP, but which would take longer than 10 years to fully implement and would likely carry over to the next iteration of the CMP.

7.3 Business Plan

A business plan for the implementation of the management actions will be included in Stage 4 of the CMP. This will outline the full cost of the program, cost-sharing arrangements, funding and financing mechanisms and scheduling of implementation.

Approximate costs and potential funding sources including capital works and ongoing maintenance obligations, as well as implementation timeframes for each action are provided in the long list of actions in Appendix B.

7.4 On to Stage 4

Stage 4 will involve the development of the draft and final CMP document.

The purpose of Stage 4 is to prepare, exhibit, adopt and submit the CMP to the Minister for Local Government for certification.

The CMP must be prepared in accordance with the requirements of the CM Act 2016 (Sections 15, 16, 17, 18 and 19) and associated Mandatory Requirements identified in Part A of the Coastal Management Manual 2018.

The Draft CMP will include the following elements:

- A snapshot of the issues as determined through the supporting studies and stakeholder engagement carried out during Stages 2 and 3
- Actions to be implemented, their costs and distribution of costs and benefits
- A business plan outlining the timeframe, responsible and supporting agencies, timing and costs for each action
- A Coastal Zone Emergency Action Subplan (CZEAS)
- A clear statement of proposed management actions and how actions are to be implemented, including maps and high-level conceptual details of the management actions.

The Draft CMP will be placed on public exhibition, with comment invited from stakeholders, including the general public, on the CMP prior to finalisation.

Following public exhibition, a final CMP and CZEAS will be prepared that incorporates any necessary amendments as a result of submissions by the general community or public authorities.

8. References

Bluecoast Consulting Engineers. (2023). *Open Coast and Coastal Lagoons Coastal Hazard Assessment*.

Central Coast Council. (2022). *Revised Community Strategic Plan 2018 - 2028*.

McPherson, A. H. (2015). *Australian Coastal Sediment Compartments*. Retrieved from Geoscience Australia: . <http://dx.doi.org/10.4225/25/56171AF00B6C5>

Royal Haskoning DHV. (2021). *Central Coast Open Coast and Lagoons CMP Stage 1 Scoping Study*.

Vision Environment. (2022). *Central Coast Recreational Use Study Stage 1: Open Coast and Lagoons*.

Worley Consulting. (2024). *Central Coast Open Coast Coastal Management Program, Detailed Risk Assessment*. Sydney.

Appendix A. Stage 3 Community Engagement

Summary Report and Outcomes

Open Coast Coastal Management Program Stage Three Community Consultation

CONSULTATION REPORT

March 2024



Executive Summary

Coastal Management Programs (CMP) set the long-term strategy for the management of our coastal environments including our lakes, lagoons, estuaries, beaches and their associated catchments. CMP's are prepared by local councils in accordance with the NSW Government Coastal Management Framework.

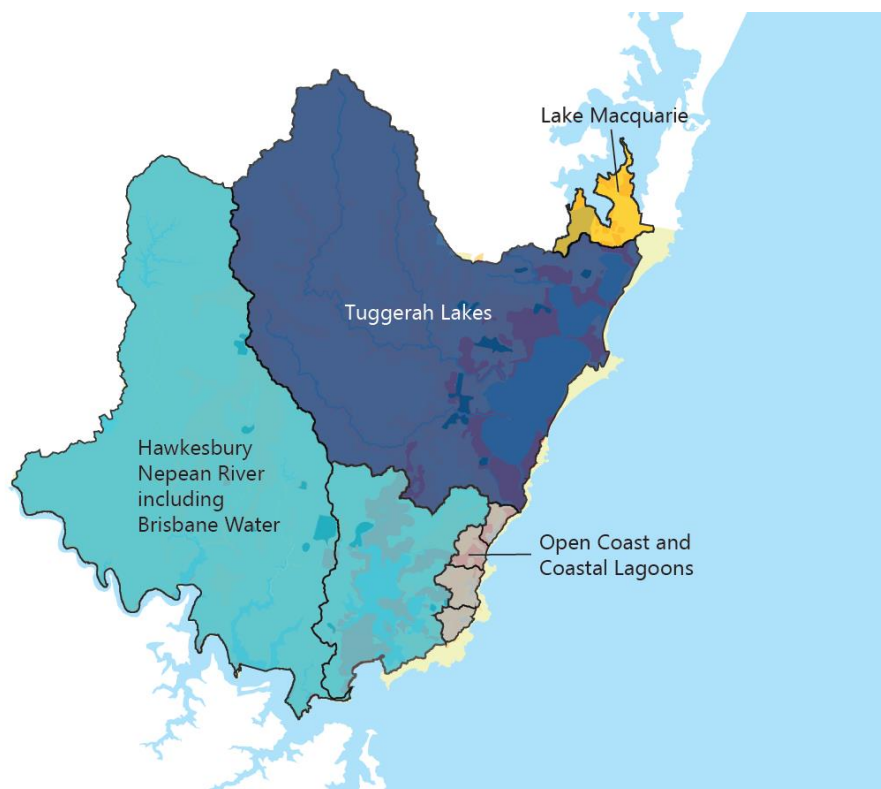


Figure 1 CCC Coastal Management Programs

The Open Coast Coastal Management Program (OCCMP) is one of 5 coastal management programs being developed by Central Coast Council (CCC) (Figure 1.). The study area includes beaches from Killcare to Budgewoi in the north (Figures 2 and 3).

The OCCMP provides strategic guidance to the management of our beaches to ensure that issues are dealt with in an integrated and coordinated way. It is developed in collaboration with the community and other key stakeholders to ensure that community values are reflected, build a shared sense of direction and facilitate mutual responsibility and collective action.

Spatial Extent for Open Coast CMP

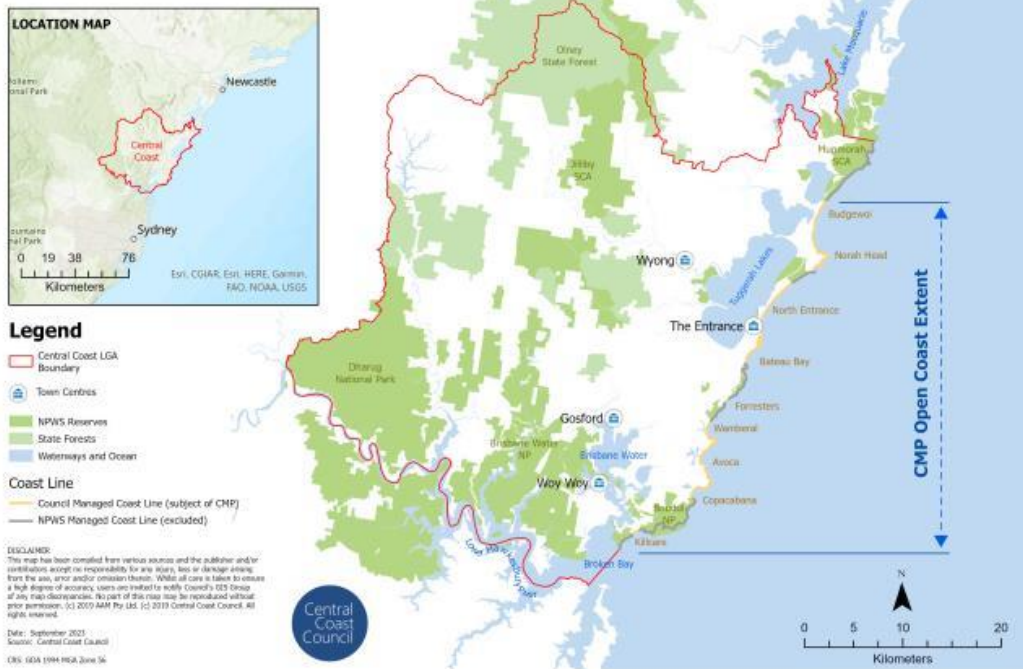


Figure 2 Spatial Extent for Open Coast CMP



Figure 3 Buffer Extent for Open Coast CMP

The [NSW Coastal Management Manual](#) sets out the process for the development and implementation of CMPs. The manual has two parts:

Part A: Introduction and mandatory requirements for a coastal management program

Part B: Guidance for preparing and implementing a coastal management program

- Stage 1: Identify the scope of the CMP
- Stage 2: Determine risks, vulnerabilities and opportunities
- Stage 3: Identify and evaluate options
- Stage 4: Prepare, exhibit, finalise, certify and adopt the CMP
- Stage 5: Implement, monitor, evaluate and report

Stage 1 is now complete. Outcomes of this body of work is summarised in the [Stage 1 Scoping Study Report](#). Community consultation undertaken as part of Stage 1 included a Values and Uses Survey which focused on:

- the management of waterways
- use of waterways
- views on waterways
- obtaining a demographic profile of survey participants.

Survey results are summarised in the [Our Coast, Our Waterways Survey Report](#)

Knowledge gaps identified in Stage 1 informed technical studies required for Stage 2 which included:

Social and Recreational Use Study to understand the recreational use, recreational infrastructure and connectivity along our coastline and provide a comprehensive series of recommendations for consideration in the development of the new Coastal Management Program.

Coastal Hazard Definition Study is a comprehensive study of the regional and local coastal processes operating on the Central Coast coastline. Analysis of the Central Coast's coastal sand budget and geomorphology defining coastal hazards affecting the Central Coast coastline. The report provides an understanding of the nature and extent of risks to public safety, built assets, coastal land, cultural heritage/features, ecosystem health and recreational amenity from coastal hazards for current and future risks.

This consultation report summarises engagement undertaken as part of Stage 3.

Introduction

From the December 4th 2023 to March 14th 2024 Council undertook the Stage 3 community consultation and engagement. This phase included:

- Project dedicated website [Your Voice Our Coast – Open Coast Coastal Management Program](#) with project background, FAQ's, links to studies and coastal staff contact email.
- Interactive [Social Pinpoint](#) page



- Six community pop up events
 - Terrigal Boadwalk 12th Jan
 - Avoca Beach SLSC 13th Jan
 - Toowoona Bay SLSC 19th Jan
 - Memorial Park The Entrance 27th Jan
 - Soldiers Beach SLSC 3rd Feb
 - Killcare Beach 10th Feb
- Two targeted community stakeholder sessions:
 - Copacabana SLSC 13th of Feb
 - Toowoona Bay SLSC 15th of Feb
- Eight Council internal unit sessions
 - Leisure Beach Safety and Community Facilities
 - Waste Services
 - Community Development
 - Environmental Compliance and Systems
 - Flooding
 - Environmental Management
 - Development Assessment
 - Water and Sewer Assets

Objectives of consultation

The purpose of the Stage two consultation for the OCCMP was to:

- Inform the community of the status of CMP development
- Hear from stakeholders and the community to identify issues in the coastal zone and how they would like to see issues managed
- Provide the community an opportunity to speak directly with project staff
- Report back to the community on the outcomes of community consultation and the next steps.

What we heard

Community feedback from the six pop up sessions was entered into the Social PinPoint page. Feedback from the targeted engagement sessions (Appendix 2) and Internal Session (Appendix 3) are attached.

Key themes from the pop up and targeted sessions are listed below:

Coastal Hazards:

- Sand nourishment and vegetation preferred over hard protection
- Guidance for homeowners to implement seawalls
- Council to plant natives along the dunes, grow in nursery and make available for the public to access
- Install training walls at North Entrance
- Sand scraping after storm events
- Improve stormwater outlets to reduce erosion
- More communication pre/post hazards
- Plant low lying vegetation species to maintain line of sight for patrolling members
- Secure rock escarpments
- Lifeguards to patrol all year round

Pathways and Access:

- Carparks to be remarked/reconfigured to ensure safety and maximum parking
- More parking at all beaches, create overflow parking (multistorey parking)
- Parking designated for patrol members
- Install clear signage in parking lots and boat ramps and regulate non-conformances
- Reduce speed limits near beaches
- Develop inclusive coastal walks along beaches
- Develop inclusive viewing platforms
- Provide adequate signage around boat ramps and regulate it
- Secure bike and scooter parking
- Safe beach access for families
- Increase sand volume for accessibility
- Provide disabled beach access

Ecological Environment:

- Need for educational signage to encourage the community to protect/value the environment and recognise cultural significance
- Improve accessibility of ecological data
- Council to grow/supply native/endemic coastal vegetation. More dune care groups and better resourcing to support them.
- Increase vegetation to improve water quality and retain sand
- Stronger stance and regulation on environmental vandalism
- Increase wildlife habitat, build environmental corridors for animals
- Control shark fishing/remove shark nets/restore fish habitats
- Sand nourishment to replenish beaches
- GPT's on all beaches to reduce rubbish
- Create/implement Bitu and Lantana eradication plan
- Educate Nippers about dune vegetation and to stay off the dunes
- Compliance and targeting removal of unauthorised accessways
- Support and host citizen science events – education programs

Building and Encroachment:



- Softer engineering techniques
- Don't allow development along the coastline. Buildings to be removable
- Cost a buy back scheme
- Reduce development in high-risk locations
- Develop engineering guidelines to guide coastal protection on all beaches
- No rezoning for C2 to R2
- No high rises
- No subdivisions on any sand dune
- Active compliance program to enforce DCP rules
- Active compliance on illegal works, encroachment and environmental vandalism
- Sustainable development for new housing population ie, green spaces/community infrastructure/educational facilities
- Council to challenge seaward boundaries

Amenities:

- Ensure all amenity blocks and beach showers are fit for purpose, meet user demand, are inclusive and use water saving devices
- Better signage to locate amenities
- Install after hours defib and CPR signage
- Bins for recycling, soft plastics and dog poo
- Bin and collection required all year round
- Moveable bins to be placed on the beaches
- Consultation prior to changing amenities
- More kids parks and shading
- More public tables and seating

Open Coast – Coastal Management Program



ACKNOWLEDGEMENT OF COUNTRY

We acknowledge the
Traditional Custodians
of the land on which
we live, work and play.

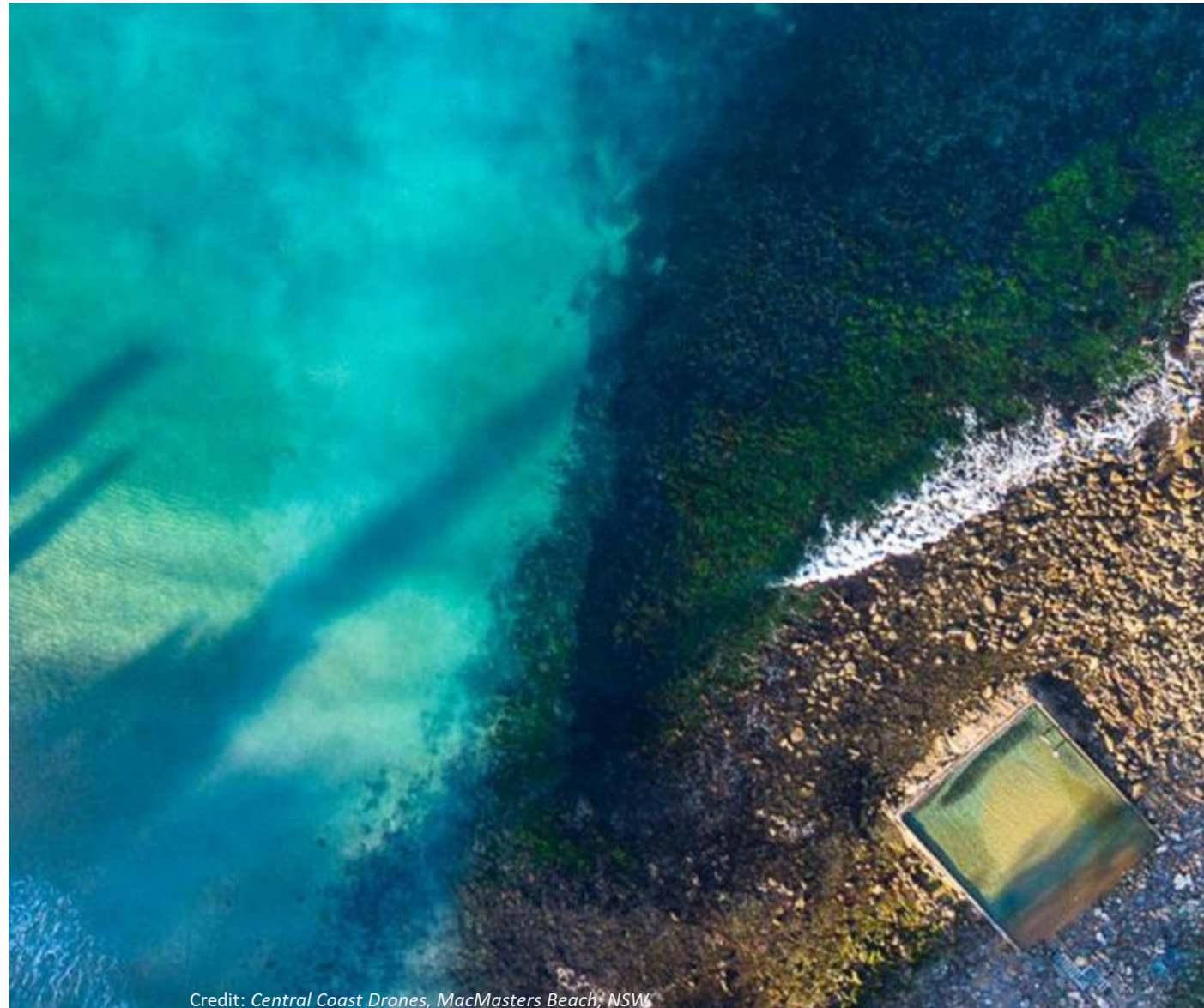
We pay our respects to Elders, past, present
and emerging and recognise their continued
connection to these lands and waterways.

We acknowledge our shared responsibility to
care for and protect our place and people.



Agenda

- 5:00pm - Session 1:
 - Housekeeping & Intros
 - Coastal Management Programs
 - Menti
- 6:00pm – Coffee & Desert
- World Café breakout sessions
- 7:00pm – Final actions, Finish



Credit: Central Coast Drones, MacMasters Beach, NSW

Catchments to Coast Team

Ben Fullagar - Section Manager C2C

Ashley Kelly - Snr Science Communicator

Toan Dam - Snr Coastal Planning Officer

Casey Johnston - Snr Coastal Management Officer

Melanie James - Estuary Management Officer

Jenna Markwick - Estuary Management Officer

Sachi See-Tonkins – Estuary Projects Officer

Ben Cuerel – Estuary Management Officer

Old Coastal Management Programs



WorleyParsons

resources & energy

EcoNomics

GOSFORD CITY COUNCIL

Gosford Beaches Coastal Zone Management Plan

301015-03417 – 003

3 April 2017

Infrastructure

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North Sydney NSW 2060
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www.worleyparsons.com
ABN 61 001 279 812

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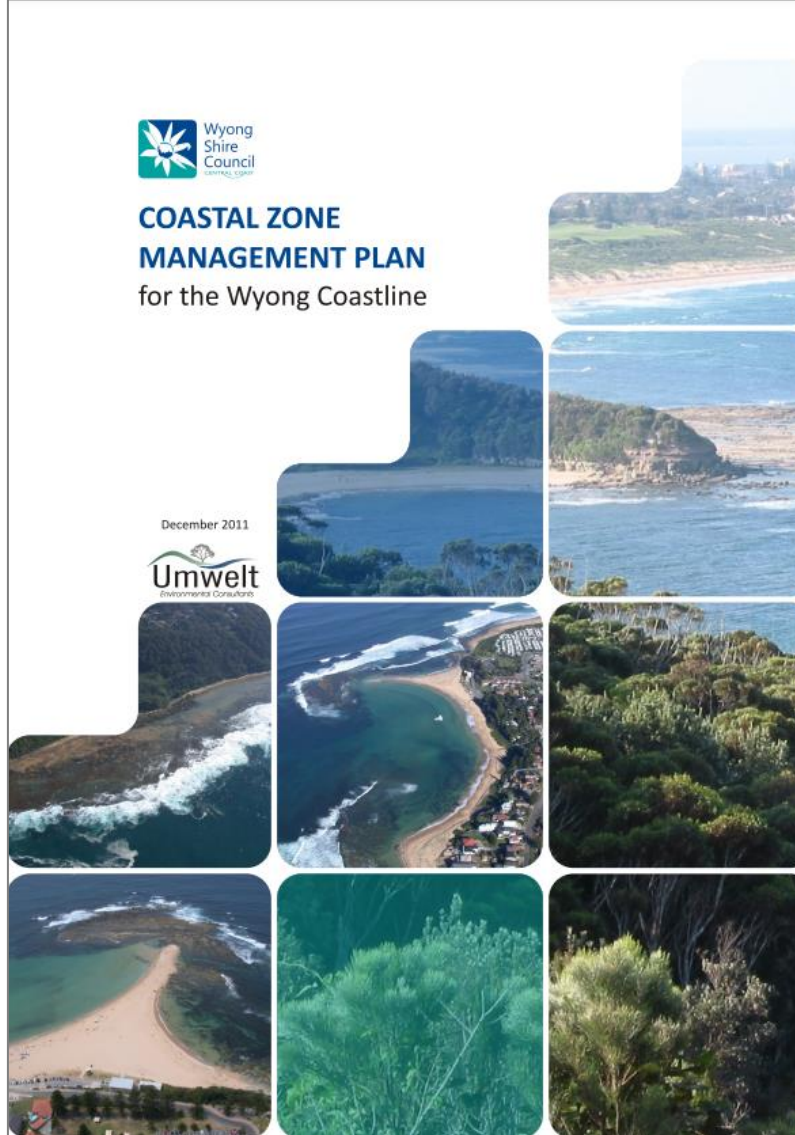


Wyong
Shire
Council

COASTAL ZONE MANAGEMENT PLAN for the Wyong Coastline

December 2011

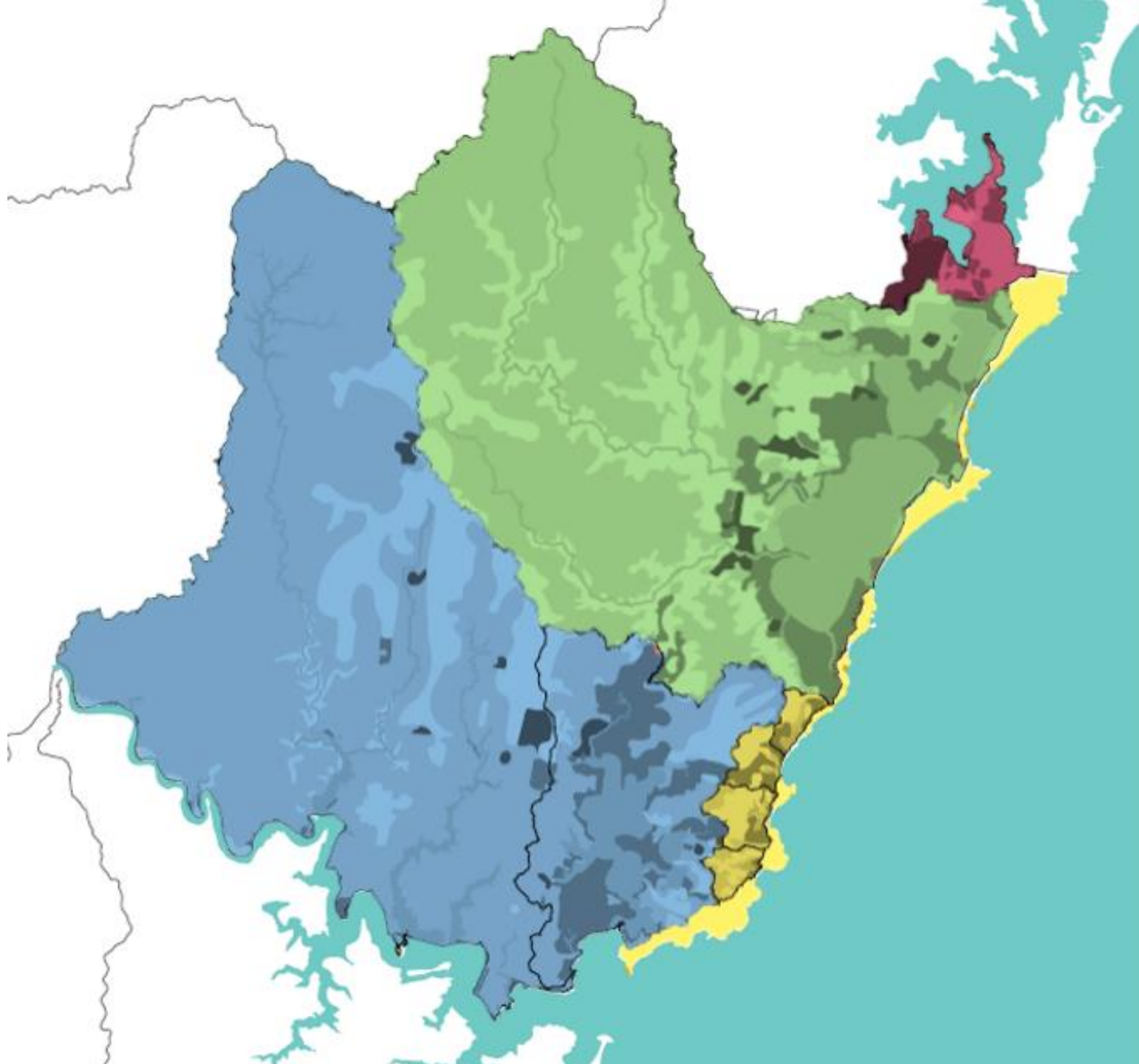
Umwelt
Development Consultants



- Legislative requirement under CM Act 2016
- Sets out the long-term strategy for the coordinated management of our coastline
- Identifies management issues and the actions required to address them
- Provides timeframes for implementation, costs and funding mechanisms.

Central Coast CMP Zones

- Lake Macquarie
- Tuggerah Lakes
- Coastal Lagoons
 - Open Coast
 - Hawkesbury
Nepean River



Open Coast CMP

Spatial Extent for Open Coast CMP



Legend

- Central Coast LGA Boundary
- Town Centres
- NPWS Reserves
- State Forests
- Waterways and Ocean

Coast Line

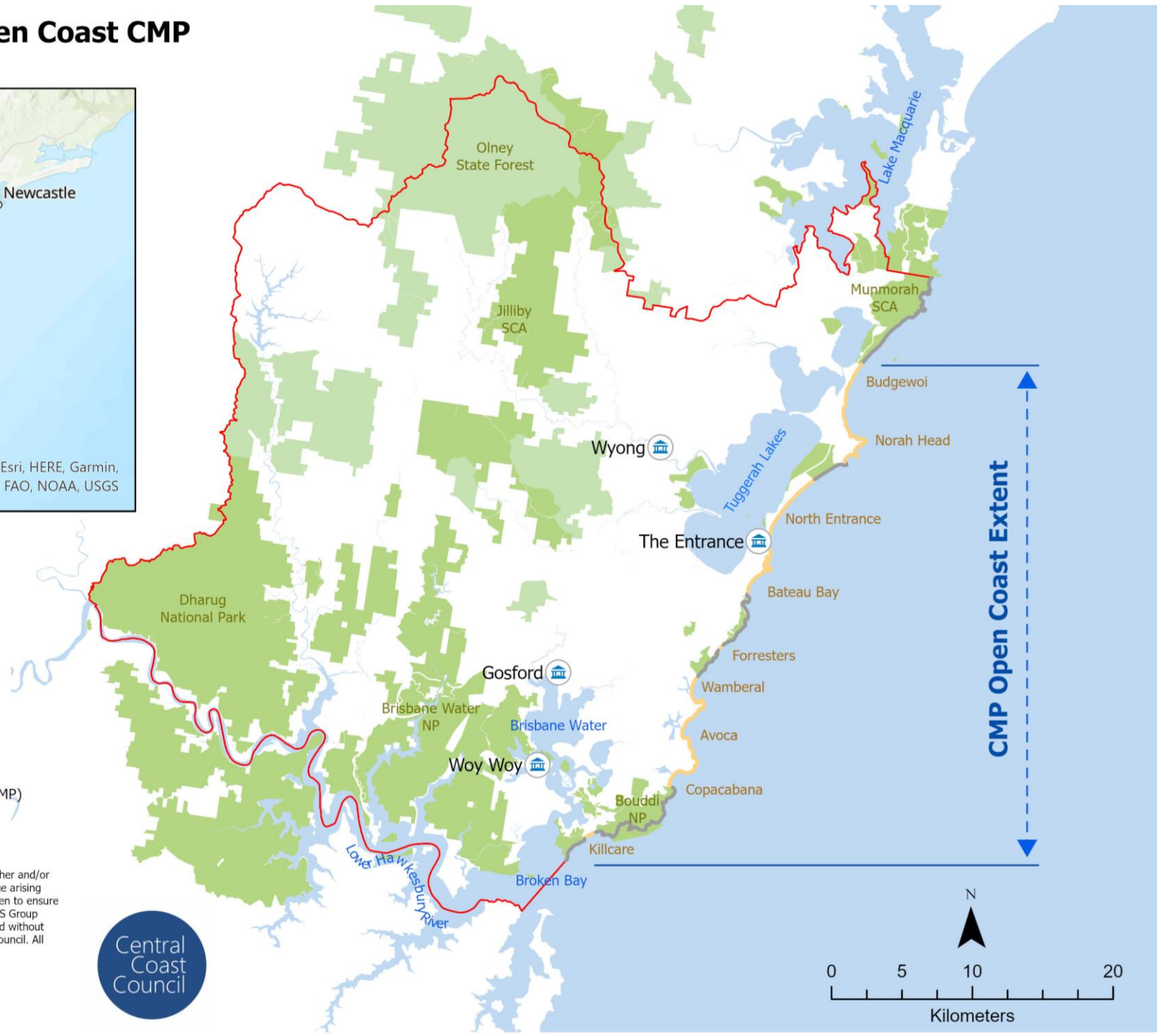
- Council Managed Coast Line (subject of CMP)
- NPWS Managed Coast Line (excluded)

DISCLAIMER

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Date: September 2023
Source: Central Coast Council

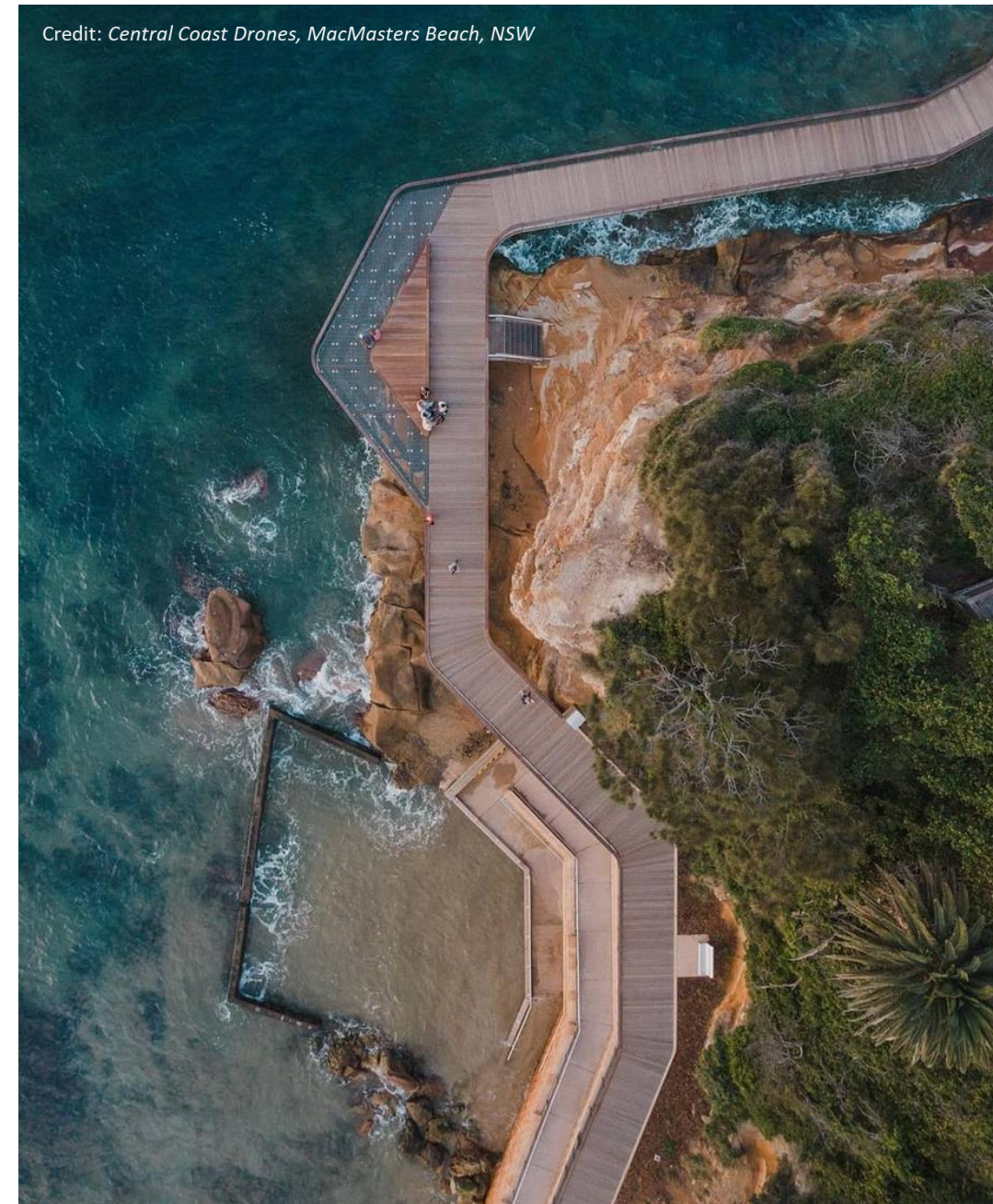
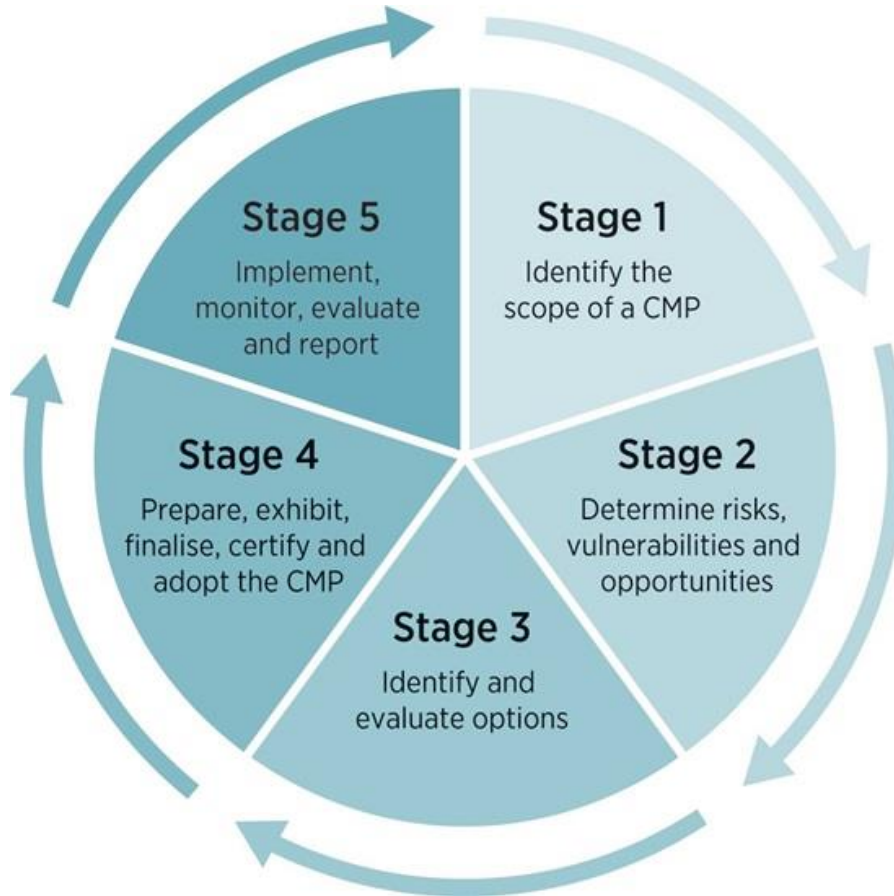
CRS: GDA 1994 MGA Zone 56



CMP Stages

Once certified
Council must
implement
actions

Certification =
**2:1 grant
funding**



Credit: Central Coast Drones, MacMasters Beach, NSW

Coastal Hazard Study

- Approx **33km** of sandy beaches with **15** individual beach compartments, **22km** of rocky coastlines and headlands, **4** coastal lagoons (Cockrone, Avoca, Terrigal, and Wamberal)
- Comprehensive study of the regional and local coastal process
- Coastal erosion and recession study with probabilistic methodology
- Geotechnical hazard study & coastal cliff/slope stability
- Coastal inundation assessment
- Entrance instability, tidal inundation, foreshore erosion and inundation for four coastal lagoons
- **New set of hazard maps**



Gosford Coastal Hazard Lines 2016

- ✓ — zRFC - 2014
- ✓ — zRFC - 2050
- ✓ — zRFC - 2100
- ✓ — zSA - 2014
- ✓ — zSA - 2050
- ✓ — zSA - 2100



Social and Recreational Activities Assessment

The SRA provides a baseline understanding of recreational use and determines adequacy of the infrastructure that supports those activities.

All coastal paths were identified and mapped, including both shared-use and walking paths. Through this exercise, recommendations could be made to improve amenities and connectivity and accessibility along the coastline.



Examples of actions in a CMP



WorleyParsons

resources & energy

EcoNomics

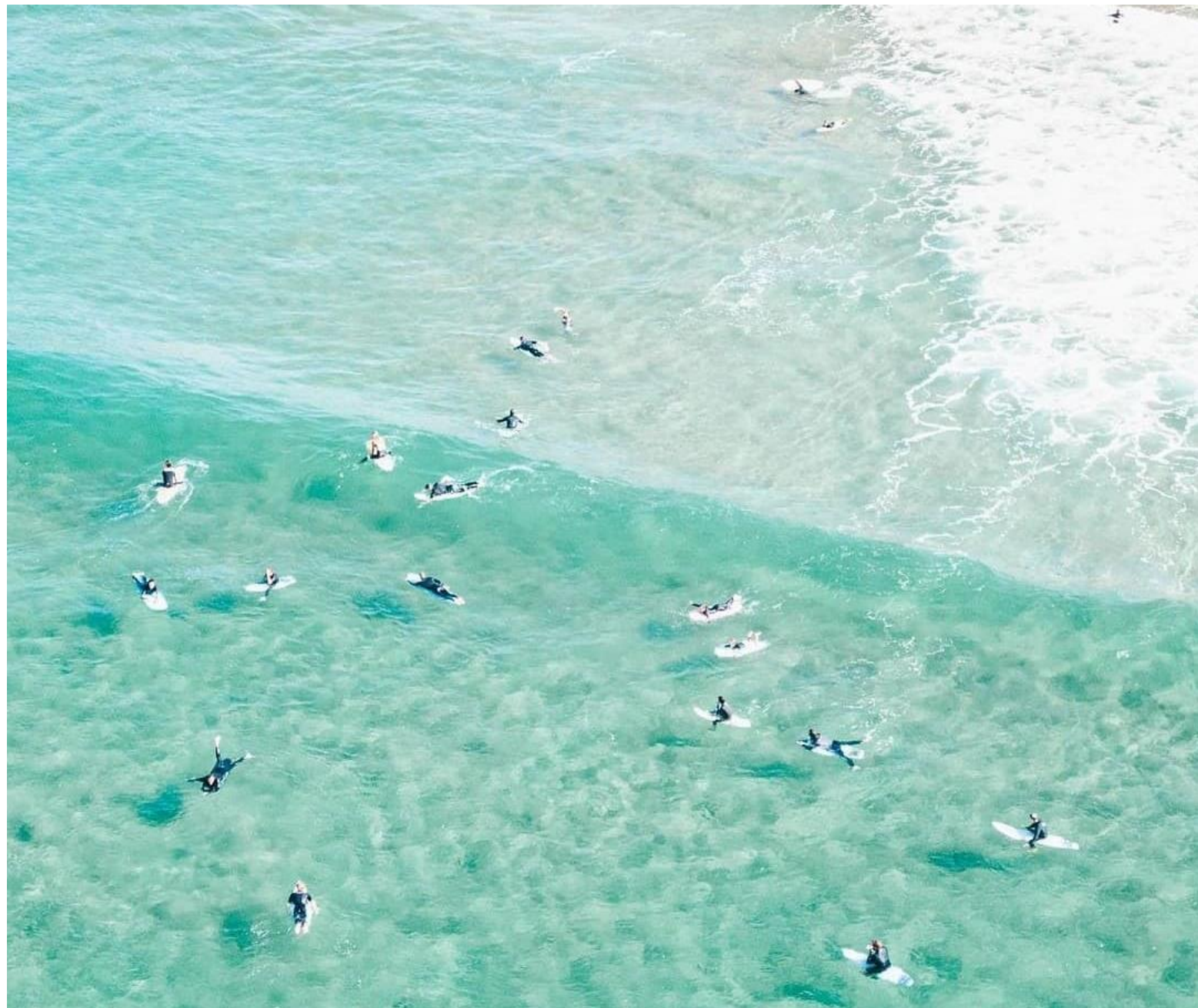
**GOSFORD CITY COUNCIL
GOSFORD BEACHES
COASTAL ZONE MANAGEMENT PLAN**

Hazard/Issue Addressed	Management Action	Description	Responsibility	Timetable for adoption (short, medium, long term)	Cost	Source of Funding
Inundation due to wave	information onto Council's website for access by property owners	property owners			existing available information	
	Pa14 Beach scraping and dune management to maintain crest level of dune above wave runup level	<ul style="list-style-type: none"> Sand could be scraped across the beach from the shore line up to the carpark, or along the beach from the large sand supply available at western end of beach adjacent to training wall. Dune vegetation to be maintained and enhanced to assist in stabilising dune. 	Council	As required after storms, linked to action Pa4	Cost for initial environmental assessment/approvals \$9,000 - \$12,000 (Year 1) then cost of works as required. Included in Action Pa4.	Council, State Government
	Pa15 Continue and enhance dune vegetation management - Assist/encourage community groups with dune management actions including Dunecare/Bushcare	<ul style="list-style-type: none"> Dune vegetation to be maintained and enhanced to assist in stabilising dune Action would be integrated into LGA-wide dune management strategy 	Council	Ongoing	\$20,000 to \$30,000 initially then maintenance cost	Council, State Government
	Pa16 Undertake survey of	<ul style="list-style-type: none"> Undertake survey of existing floor 	Council to undertake	Medium Term	\$10,000 survey cost.	Private

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Open Coast CMP Timeline Overview

- Coastal Hazard Assessment: Feb 2024
- Stage 3 Consultation: Jan/Feb 2024
- Options Assessment Report: Mar 2024
- Draft CMP: Apr 2024
- Stage 4 Consultation & Exhibition: Apr 2024
- Finalise CMP and Submission: Jun 2024



Issues/conflicts in the coastal zone

- **Encroachment**
- **Compliance**



Issues/conflicts in the coastal zone

- **Coastal erosion**
- **Legacy issues**
- **Development assessment**
- **Sea Level Rise & shoreline recession**



Issues/conflicts in the coastal zone

- **Unapproved works**



Issues/conflicts in the coastal zone

- **Poor water quality**
- **Contamination**
- **Pollution**



Issues/conflicts in the coastal zone

- **Infrastructure vs coastal processes**
- **Cultural heritage**
- **Availability of geotechnical information**
- **Coastal engineering specs**



Issues/conflicts in the coastal zone

- **Pressure on recreation activities and infrastructure supporting it**
- **Population growth**



Issues/conflicts in the coastal zone

- **Lack of connectivity**
- **Lack of accessible and inclusive pathways/beach accessways**



Issues/conflicts in the coastal zone

- **Asset ownership**
- **Land ownership**

Roads
Open Space
Bushfire and Flood Risk
Management
Catchments to Coast
CCC Managed
Crown
Fisheries



Menti.com

Code: 1939 8117



World Café Breakout Sessions

Solutions focused management action items

1. **Ecological environment** – water quality, plants, animals
2. **Access & Safety** – accessibility, storm debris, pathways, parking
3. **Coastal hazards** – coastal erosion, steep sand dunes,
coastal protection, sea level rise
4. **Amenities** – facilities, waste, signage
5. **Development & encroachment** – urbanisation, illegal structures

Thank you!



How you can get involved

Have your say

- www.yourvoiceourcoast.com/waterways
- [Central Coast Open Coast CMP | Social Pinpoint \(mysocialpinpoint.com\)](http://Central Coast Open Coast CMP | Social Pinpoint (mysocialpinpoint.com))

Join Central Coast Council's Environmental Volunteer Program
environmentalvolunteering@centralcoast.nsw.gov.au

Join a Waterwatch group

Volunteer with the Community Environment Network

Sign up to Habitat for Wildlife



Appendix B. Proposed Management Actions

Detailed Multicriteria Assessment

						Viability Economic	Social		Feasibility Environmental		Acceptability		Short = 1 - 5yr; Medium = 5yr - 10yr; Long = >10yr				
						2	1	1	2	1	2	1					
ID	Category	Location	Issue	Action Name	Action Description	Total estimated cost (implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Social Impact	Weighted Total Score	Rank	Timeframe	Lead Agency	Support Agencies
CW-S01	Access & Safety	LGA-wide	Increased erosion/scour associated with stormwater assets. Stormwater assets impacted by coastal inundation	Monitoring and improvement of coastal stormwater outlets	The inspection of all coastal stormwater outlets to identify those at risk from coastal hazards and opportunities where upgrades can be implemented or retrofitted in order to protect assets, reduce erosion from stormwater scour and/or improve public safety. These locations would also be regularly monitored to assess performance and improvements.	0.4	0.8	1	0.6	0.8	1	0.6	7.2	24	Short	Council	
CW-S02	Access & Safety	LGA-wide	Risk to public safety due to wave run up, wave overtopping, cliff instability, rockfalls and coastal erosion	Develop and implement an integrated coastal processes and hazards education and awareness program	The development and implementation of an integrated education program focused on improving community understanding of local coastal hazards, processes and related topics, such as water quality, marine ecology and marine litter, to promote the safe and sustainable use of our coast. This action should include an update to and installation of new coastal hazard and educational signage and the ongoing monitoring of locations that pose a high risk to public safety.	0.6	1	1	0.8	0.6	0.8	1	8	11	Short	Council	
CW-S03	Access & Safety	LGA-wide	Informal private access and use damaging vegetation and impacting on recreational amenity for the public	Develop and implement coastal compliance procedures	The procedures would improve public safety and environmental outcomes at our beaches by outlining the actions, processes and responsibilities concerning compliance enforcement and the management of encroachment, illegal dumping, unapproved structures, unlawful activities and vegetation clearing. It will include a review of planning controls and resourcing, provide guidance to homeowners for "steps to remediation", make it easier for the public to "report an issue" and cover signage and monitoring aspects.	0.4	0.8	1	1	1	1	1	8.6	6	Short	Council	Crown Lands, Fisheries, Environmental Protection Authority, NSW Police, National Parks, Local Aboriginal Land Services
CW-S04	Access & Safety	LGA-wide	Inaccessible beach accessways impacted by coastal erosion Damage to dunes and safety concerns due to generation of informal/unauthorised beach accessways Safety concerns regarding exposure and mobilisation of buried remnants of historic foreshore protection works Injury to beach users caused by structures mobilising during storm events Dune instability/steep dune scarp impacted by coastal erosion Damage to coastal recreational assets from storm events	Review and implement updated Beach Maintenance Program	Council's Beach Maintenance Program would be reviewed and implemented to improve public beach access, amenity and safety. The action would include prioritisation and upgrades to beach accessways in line with the Recreational Use Study and Council's Disability Inclusion Action Plan. The program would outline the management of post-storm beach access and safety, where small-scale works such as beach scraping for amenity purposes may be undertaken and beach and dune fencing. It will also include an audit on beach maintenance operations to maximise inhouse efficiencies to ensure that the necessary plant and equipment is available to effectively implement the program.	0.4	0.8	1	0.6	0.6	0.8	1	7	27	Short	Council	
CW-S05	Access & Safety	LGA-wide	Limited or out-dated information available on key indicators of coastal hazards and coastal dynamics	Develop and implement a Coastal Monitoring Program	The coastal monitoring program would use progressive monitoring techniques to collect essential information about coastal processes and hazards to improve the management of our beaches. It would include beach surveys to monitor changes in sand volumes, risk exposure, dune condition and beach amenity. The data collected would allow annual Beach Health Reports to be developed and better inform future coastal hazard studies and investigations. Beach usage should be included in the monitoring to better understand current demand and locations requiring further investment in the future.	0.6	0.6	1	0.8	0.6	0.6	0.6	6.8	29	Short	Council	DCCEEW
CW-S06	Access & Safety	LGA-wide	Coastal hazards impacting viability of existing and future infrastructure long term, need for long-term coastal adaptation planning	Investigate and develop a Coastal Hazard Adaptation Strategy for affected coastal communities	Develop a Coastal Hazard Adaptation Strategy that will consider future risk to our community from coastal hazards and investigate adaptation measures and pathways to support and enhance the resilience of our coastal communities.	0.6	0.6	1	0.8	0.6	0.6	0.6	6.8	29	Long	Council	DCCEEW
CW-S07	Access & Safety	LGA-wide	Coastal erosion threatening coastlines and infrastructure	Investigate feasibility and responsibilities of long-term sand nourishment licences	Investigate the feasibility, process and responsibilities of long-term sand nourishment licences and work with the State Reconstruction Authority to support their actions on offshore sand nourishment in the State Disaster Mitigation Plan (SDMP).	0.6	0.2	1	0.8	0.6	0.2	0.6	5.6	36	Long	Council	Reconstruction Authority
CW-S08	Access & Safety	LGA-wide	Inconsistent standards of SLSC's patrol towers along the coast. Unable to provide sufficient public services.	Prioritise and upgrade beach life guard patrol towers and ancillary structures	This action would involve undertaking an audit of beach life guard patrol towers and ancillary structures to ensure their adequacy, performance and safety from coastal hazards. Necessary upgrades and improvements required would be prioritised and implemented to ensure required functions continue to be performed.	0.6	1	1	0.8	0.6	1	1	8.4	7	Medium	Council	
SB02	Access & Safety	Pebbly Beach	Safety hazard due to unfenced cliffline at southern carpark of Soldiers Beach	Investigate options to improve public safety at Soldiers Point headland	Undertake an assessment of public safety at the Soldiers Point headland overlooking Pebbly Beach and investigate options to manage the risks associated from the exposed cliff and instability.	0.8	1	0.8	0.6	0.6	1	0.6	7.8	16	Medium	Council	NPWS
CW-A01	Amenities	LGA-wide	Aging or incompatible coastal recreation amenity infrastructure not compliant with engineering standards or industry best practice	Coastal recreation assets and infrastructure renewal program	This action involves the review, prioritisation and delivery of coastal recreation assets, public amenities and infrastructure upgrades and investigations to support and enhance beach visitation and recreational opportunities, now and into the future, guided by the recommendations from the Recreational Use Study.	0.4	1	1	0.8	0.8	0.8	1	7.8	14	Short	Council	
CW-A02	Amenities	LGA-wide	Lack of guidance for implementing and assessing coastal protection works	Develop and implement Coastal Engineering Design Requirements	The Coastal Engineering Design Requirements will help to achieve a more sustainable and resilient coastline by clarifying expectations to designers, engineers and architects concerning coastal development. It will outline key design principles to ensure that development is appropriately designed for coastal hazards, addresses coastal processes, considers public safety and mitigates environmental impacts.	0.8	0.8	0.6	0.6	0.8	1	1	8	11	Short	Council	
CW-A03	Amenities	LGA-wide	Insufficient waste facilities and collection at coastal locations impacting amenity	Review waste collection assets and servicing in coastal public spaces	Work with internal business units and service providers to review the adequacy of waste collection assets and servicing along the coast. The review would be focused on ensuring that infrastructure and assets are sufficient to meet current demands, seasonal and event variations and opportunities for improvement to reduce the environmental and amenity impacts from marine litter and debris. This action should also include the management of post-storm and flood debris.	0.8	0.6	1	0.8	0.6	0.4	1	7.2	23	Medium	Council	
CW-H01	Coastal Hazard	LGA-wide	Need for stronger planning controls to manage development in the coastal zone in relation to coastal hazards	Review and update coastal development planning controls and undertake Planning Proposal to adopt Coastal Vulnerability Area	The review, update and implementation of new coastal hazard planning controls within the Development Control Plan, based on the latest available coastal hazard study and information, will ensure a consistent and best-practice approach to protecting the environment and communities from coastal hazards. Council will also prepare and submit a Planning Proposal to adopt a Coastal Vulnerability Area (CVA).	0.8	1	1	1	1	1	1	9.6	1	Medium	Council	DCCEEW
CW-H02	Coastal Hazard	LGA-wide	Legacy coastal emergency works on beaches which no longer serve purpose, causing detrimental impacts or timeframe expired.	Identify the extent, nature and condition of existing coastal emergency works	This investigation will identify and document existing emergency, legacy and unauthorised coastal protection works, including the type of works, extent, condition and the risk they pose to public safety and coastal processes. This information will allow these works to be strategically managed, decommissioned, remediated or modified as necessary and at the appropriate time.	0.4	0.8	0.6	1	0.8	1	1	8	11	Medium	Council	
CT01	Coastal Hazard	Cabbage Tree	Structural integrity/slope stability	Design and construct Stage 2 of the Cabbage Tree Harbour toe drainage structure	Design and construct Stage 2 of the toe drainage structure at Cabbage Tree Harbour to further reduce the incidence of landslip and improve beach safety. The works were originally constructed with a 15 year design life and Stage 2 is required to add an additional layer and increase the crest height to ensure adequacy for future coastal conditions.	0.4	0.8	1	0.6	0.4	0.8	0.6	6.4	34	Long	Council	DCCEEW
MM01	Coastal Hazard	MacMasters	Coastal erosion impacting Marine Parade	Complete coastal risk and options assessment for Marine Parade at MacMasters Beach	This action will involve completing a local detailed coastal hazard assessment to better understand the erosion and recession risk at this location. The updated information will be used to inform an options assessment which would investigate the most appropriate long-term adaptive management approach.	0.4	1	0.6	0.8	0.8	1	0.6	7.4	22	Long	Council	DCCEEW, Crown Lands
EN01	Coastal Hazard	LGA wide	Unknown impacts associated with legacy landfill sites or other contamination that be become exposed following erosion.	Monitor and manage risk of contamination from closed landfill sites	Monitoring and management of legacy closed landfill sites within the coastal hazard area to reduce the risk of contamination during severe weather events.	0.4	0.8	1	0.6	0.8	0.8	1	7.2	24	Medium	Council	
EB01	Coastal Hazard	The Entrance	Structural integrity	Review the structural integrity and extent of the foreshore embankment protecting Marine Parade, The Entrance	Review the structural integrity and extent of the foreshore embankment stabilising Marine Parade that extends north from The Entrance Surf Life Saving Club. Following construction of the groyne on The Entrance Beach by State Government, the structure has been increasingly exposed and impacted. Undertake upgrades, extensions or replacement as required. This action may incorporate outcomes from MIDO's review into the existing rock groyne.	0.2	1	1	0.6	0.8	0.8	0.6	6.6	33	Short	Council	TNSW, Crown Lands

						Viability Economic	Feasibility Social		Environmental		Acceptability						
						2	1	1	2	1	2	1					
ID	Category	Location	Issue	Action Name	Action Description	Total estimated cost (implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Social Impact	Weighted Total Score	Rank	Timeframe	Lead Agency	Support Agencies
WB01	Coastal Hazard	Wamberal Beach	Coastal erosion threatening private properties and public infrastructure	Incorporate Wamberal Beach engineering design requirements (EDR) in Council's Coastal Development Control Plan (DCP)	Include the Wamberal Beach EDR's in Council's DCP to ensure all development applications for the Wamberal Beach coastal protection works are in accordance with the guidelines.	0.8	1	0.8	0.8	0.6	1	0.6	8.2	8	Short	Council	DCCEEW
WB02	Coastal Hazard	Wamberal Beach	Coastal erosion impacting Planning Ministerial Corporation land at Wamberal	Implement whole of embayment terminal protection solution for Wamberal Beach public owned lands in accordance with the Engineering Design Requirements	Council and the NSW Government to work together to implement whole of embayment terminal protection solution for Wamberal Beach public owned lands in accordance with the Engineering Design Requirements.	0.6	1	0.6	0.8	0.6	1	0.6	7.6	19	Short	Council	DCCEEW
A01	Coastal Hazard	Avoca	Flat beach profile, no protection from wave overtopping	Undertake a detailed wave overtopping and inundation assessment for high risk locations	Undertake a detailed wave overtopping and inundation assessment at high risk locations identified in the coastal hazard study to improve public safety and better inform coastal planning. The detailed assessment should include analysis of the current and future risk, as well as the consideration of options for managing the risk to public and private assets and public safety. Short term management options may include updating local planning controls and/or soft engineering strategies	0.8	1	0.8	0.6	0.6	0.8	0.6	7.4	21	Short	Council	DCCEEW
EB02	Coastal Hazard	The Entrance	Depletion of sand along southern side of The Entrance channel and undermining of seawall	Investigation and management of adverse groyne impacts	Collaborate and support the Marine Infrastructure Delivery Office in the investigation of options, including removal, and management all adverse impacts caused by the construction of the rock groyne at The Entrance beach that was initially installed with the context of a short-term 10-year trial.	0.8	1	0.6	0.8	0.8	0.8	0.8	8	10	Medium	TfNSW (MIDO)	
T02	Coastal Hazard	Terrigal (The Haven)	Structural Integrity of seawall at The Haven	Options study for replacement of aging seawall at The Haven	Undertake an options study to assess feasible foreshore masterplans and design options for the upgrade, or replacement, of the sandstone block seawall at The Haven and surrounding area, with reference to recommendations of the engineering review of the existing structure.	0.6	1	0.6	0.8	0.8	1	0.6	7.8	16	Medium	Council	Crown Lands
CW-C01	Community & Social	LGA-wide	Need for community and agency representation to support decision making	Continue the role of a coastal, estuary and floodplain management Advisory Committee	Continue to support the role of an Advisory Committee responsible for providing advice and input on the sustainable management of our coastal, estuarine and flood liable areas.	1	1	1	0.8	0.6	1	1	9.2	2	Short	Council	
CW-C02	Community & Social	LGA-wide	Lack of detailed cultural and heritage assessments across the LGA. Need for Aboriginal Heritage Impact Permits in areas affected by coastal erosion.	Work with First Nation groups and stakeholders to evaluate arrangements for undertaking beach maintenance operations	Collaborate with First Nation groups and stakeholders to evaluate beach maintenance operations to ensure their appropriateness for works in sensitive areas. This action will include update of protocols to be followed in the event Aboriginal sites or heritage is discovered and/or threatened by erosion during storms, information to be communicated through interpretive signage along the coast and obtaining Aboriginal Heritage Impact Permits where they may be required to support essential works for public safety and access, such as post-storm management of beach accessways.	0.6	0.6	1	0.8	0.6	0.6	0.6	6.8	29	Medium	Council	LALC
CW-C03	Community & Social	LGA-wide	Unapproved memorial sites	Management of unapproved memorials in public coastal spaces	Work with internal business units to review the appropriateness and/or removal of unapproved memorials installed in public coastal spaces on Council land or Council managed Crown Land.	0.8	0.6	1	0.8	0.6	0.4	0.6	6.8	29	Medium	Council	
CW-C04	Community & Social	LGA-wide	Community awareness of coastal hazards and issues	Update and maintain Council's website to improve awareness and make information on coastal processes, hazards and issues more accessible	Update Council's website to provide accessible information relating to coastal processes, hazards, coastal management issues, educational resources, coastal projects and coastal data. Website to be regularly reviewed and updated as appropriate to ensure relevancy and accuracy of information as new information is obtained or new coastal management issues emerge.	0.6	0.8	0.8	0.8	0.8	0.8	1	7.8	14	Short	Council	
CW-C05	Community & Social	LGA-wide	Community awareness of cultural issues and practices, lack of understanding of traditional knowledge for managing the coast	Knowledge sharing and protection of cultural heritage	Engage and collaborate with local First Nations groups to share cultural knowledge, understand their concerns and priorities and identify opportunities to acknowledge and protect and preserve cultural heritage sites and values from coastal hazards.	0.8	0.6	1	1	1	0.8	1	8.8	3	Medium	Council	LALC
CW-D01	Development	LGA-wide	Need for geotechnical information to inform planning decisions	Develop and maintain a coastal geotechnical database	Develop and maintain an internal database of coastal geotechnical information to better understand the underlying geology of the region and inform coastal management and planning decisions. It will involve the collation of all available geotechnical data along our coast from all available sources and include geotechnical and structural constraints. Information to be provided to NSW SES for consideration for use in emergency management.	0.6	0.6	0.8	0.8	0.6	0.8	0.6	7	28	Medium	Council	DCCEEW
CW-D02	Development	LGA-wide	Geotechnical investigation	Conduct geotechnical investigations to improve understanding of underlying geology along the coast	Complete a gap analysis to identify where additional or contemporary geotechnical information is required to support improved management, emergency response and planning decisions and conduct investigations as required.	0.4	0.4	1	0.8	0.6	0.2	0.2	5	37	Medium	Council	DCCEEW
CW-D03	Development	LGA-wide	Infrastructure at risk	Develop a coastal assets at risk register and update asset management program	This action involves auditing coastal assets and infrastructure to inform development of a register identifying those at risk of coastal hazards, now and into the future. This information would be integrated with Council's asset management program to ensure effective maintenance, management and planning of coastal assets to improve amenity, resilience and community safety.	0.6	1	1	0.8	0.6	0.8	0.6	7.6	19	Short	Council	Crown Lands
CW-D04	Development	LGA-wide	Rock/ocean pools maintenance and accessibility	Improve accessibility of coastal and foreshore areas	As guided by Council's Disability Inclusion Action Plan, this action involves continuing to improve the accessibility and inclusiveness of our beaches and foreshore areas, such as investigating and implementing access upgrades and ensuring that new infrastructure projects consider and incorporate universal design principles.	0.4	0.8	0.6	0.4	0.6	0.8	1	6.2	35	Medium	Council	Crown Lands
CW-D05	Development	LGA-wide	Lack of awareness of property owners for properties affected by coastal hazards	Review coastal hazard notations and planning certificates	As new coastal hazard mapping and information becomes available, planning certificates should be regularly reviewed to ensure properties potentially affected by coastal hazards contain an appropriate notation.	0.8	0.8	0.8	0.6	0.8	1	0.6	7.8	16	Medium	Council	DCCEEW
CW-E01	Ecological Environment	LGA-wide	Reduced water quality from urban catchments, leading to reduced water quality in open coast receiving waters	Review and implement Council's coastal water quality monitoring program	Council's existing coastal water quality monitoring program will be reviewed, updated and implemented to continue protecting and enhancing the water quality along our coastline. The program will be expanded to include the monitoring of ocean wastewater and stormwater outfalls, improved education and awareness initiatives and public accessibility to water quality information.	0.6	1	1	1	1	0.8	1	8.8	3	Short	Council	
CW-E02	Ecological Environment	LGA-wide	Invasive weeds and pests reducing the diversity and abundance of native species. Lack of guidance for appropriate planting in the coastal zone. Lack of guidance for appropriate fencing/dune stabilisation controls in the coastal zone. Illegal vegetation clearing.	Develop and implement a Coastal Vegetation Strategy	This action would involve surveying coastal and dune vegetation to inform the development of a Coastal Vegetation Strategy aimed at supporting and enhancing coastal resilience, ecosystem integrity, beach amenity and conservation outcomes. The strategy will guide the on-ground management to achieve these outcomes and involve elements such as the management of priority weed species, dune stabilisation and planting, tree restoration and succession planting, education opportunities for the public and community groups and remediation actions required in instances of illegal clearing.	0.6	0.6	1	1	1	1	1	8.8	3	Short	Council	
T01	Ecological Environment	Terrigal, Toowoan, Copacabana	Would like to see the area from The Anchor to Terrigal beach made into a Marine Park same as what is at Nelson Bay (Pinpoint)	Undertake and support research projects and citizen science initiatives aimed at enhancing and conserving marine biodiversity, science, recreation and education	Collaborate and support agencies, organisations and community groups undertaking projects or research aimed at enhancing and conserving marine biodiversity, science, recreation and education. This may include initiatives such as shark management, threatened species management, marine protected areas or citizen science projects, such as CoastSnap.	0.6	0.6	0.6	0.6	1	1	0.6	7.2	24	Long	DPI-Fisheries	Council, Crown Lands
SB01	Ecological Environment	Soldiers Beach	Dune blowout at southern carpark	Undertake dune management works at the southern carpark of Soldiers Beach	Undertake works aimed at reducing the volume of wind transported sand into the carpark, including the installation of dune forming fencing, dune revegetation and upgrade/replacement of the dune retaining wall. Also investigate whether the vehicle access from the southern slip rail is still required following completion of the new vehicle access ramp.	0.8	0.6	1	1	0.8	0.8	0.6	8.2	8	Medium	Council	

Short = 1 - 5yr. Medium = 5yr - 10yr. Long = >10yr