



MIDCOAST
council

COASTAL SCOPING STUDY

2020



Document Control Sheet

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Synopsis: A report outlining MidCoast Council's whole of coast scoping study, which, as directed by the Coastal Management Act (2016), sets the forward program for council to deliver Coastal Management Programs. This forward program also highlights current gaps in knowledge and how to fill these gaps by identifying high level threats to the coast and assessing these risks.		

Versions

Title	Version	Date	Status
Coastal Scoping Study – MidCoast Council	1	17 January 2020	Submitted to DPIE for review
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1 Scoping Study Purpose, Aim & Objectives

As directed by the Coastal Management Act 2016 (CM Act) [<https://www.legislation.nsw.gov.au/#/view/act/2016/20>] scoping studies set the forward program to be able to deliver Coastal Management Programs. This forward program highlights current gaps in knowledge and how to fill these gaps by identifying high level threats to the coast and assessing these risks.

The MCC Coast Scoping Study has been developed according to the requirements of the DPIE Scoping Study Assessment Tool, as well as the mandatory requirements of the Coastal Management Manual (DPIE, 2018) (refer to Appendix H).

1.1 Why this Coastal Scoping Study?

To ensure continuity along the ~192km of MidCoast Council's coast line, it was determined that one scoping study be generated to direct the development of required coastal management programs. This approach allows a review of sediment compartment at a larger scale (initially primary, then secondary and tertiary), to first understand regional processes, and then identifying more local issues, as directed by the CM Act 2016.

1.2 Scoping Study Aim

This document aims to:

- Identify gaps in current knowledge by outlining the context of the coastal region
- Identify high level threats to the MidCoast LGA coast line
- Identify required coastal management programs and their boundaries
- Set the forward plan to implement the required Coastal Management Programs and identified actions for the MidCoast Council LGA
- Inform Council's Delivery Program / Operational Plan (DPOP) framework for coastal management

1.3 Scoping Study Objective

The objective of this document is to provide a basis and rationale for the identification of required Coastal Management Program/s within the coastal region of the MidCoast LGA. In addition to identifying and prioritising the order of required Coastal Management Programs and their high priority actions.

1.4 Council's Coastal Vision

Supporting the coastal region of MidCoast Council (MCC) as a liveable environment, by understanding and managing for changing coastal processes and climate.

1.5 Council's Coastal Aims

To complement the CM Act objectives, MCC have reflected on 'Why' we are involved in Coastal Management and set our own broad aims to assist and guide the development of Coastal Management Program/s. These aims have been expressed as a way to make a positive difference for the coast through the work MCC does:

- Managing the interaction of people and the coast to ensure the coast is a place to enjoy: it's a place of naturalness; contemplation; and of wild places, in order to deliver a positive legacy for future generations.

- Striving to develop a culture of respect for the coast
- Delivering coastal management with a positive influence across the LGA

1.6 Council's Coastal Objectives

To further support and help achieve the overarching aims, a series of key objectives have been made to not only guide the Coastal Management Program (CMP) process with more detail, but further align CMP aims with those of the *Coastal Management Act 2016*, the *SEPP (Coastal Management) 2018*, and MCC community strategic plan.

These objectives include:

- Protect and enhance natural coastal processes, and coastal environmental values, as well as recognise the local and regional scale effects of coastal processes (e.g. compartment dynamics).
- Support the social and cultural values, and acknowledge Aboriginal Peoples' use of the Mid-North NSW Coast.
- Recognise the coast as a vital economic zone, and encourage ecologically sustainable development/ sustainable land use planning decision-making within this region.
- Promote an integrated and co-ordinated approach to coastal planning, management and reporting, which includes mitigation plans that not only account for current risks but also future risks from coastal hazards and associated effects from our changing climate.
- Support public participation in coastal management and planning as well as greater education in coastal science, data, processes and management actions/ options.
- Support the objectives of both the *Coastal Management Act 2016*, and the *Marine Estate Management Act 2014*, and enhance/ verify the mapping done as part of the *SEPP (Coastal Management) 2018* (e.g. confirm the mapped 'Coastal management areas' for the region covered by this CMP).

1.7 Background

In accordance with section 55G of the *Coastal Protection Act 1979*, several Coastal Zone Management Plan (CZMP) were created, certified and gazetted for the MidCoast region. These include:

- Jimmys Beach CZMP – March 2016
- Great Lakes CZMP – August 2016
- Manning Valley CZMP – January 2018

The CM Act 2016 recognises these CZMP, and directs that these existing CZMPs are converted into CMP/s. This scoping study sets out the forward plan on how to meet this legislative direction.

During a meeting between MCC and the former Office of Environment & Heritage (now the Department of Planning, Industry and Environment – DPIE) on 22 June 2016, it was agreed that the draft *Greater Taree Coastal Zone Management Plan November 2015* could be modified to permit certification. The proposed modifications to the draft plan included the separation of the Old Bar - Manning Point area from the plan to allow the less sensitive sections of the Greater Taree CZMP to be certified. At this meeting, it was agreed that the Old Bar - Manning Point area would be addressed in a separate CMP, fulfilling *Coastal Management Act 2016* requirements. At its Ordinary Meeting of 26 October 2016, Council resolved to support this action. This action permitted the certification of the

Manning Valley CZMP Jan 2018 (generated from the draft *Greater Taree Coastal Zone Management Plan November 2015*).

At a meeting held during the 2016 NSW Coastal Conference, Minister Stokes (former Minister for the Environment) endorsed the approach of MCC to establish a multi-disciplinary working group, drawing membership from Council, DPIE - Biodiversity and Conservation, - Lands, and National Parks and Wildlife Service (NPWS) staff, in addition to independent coastal scientists. The main purpose of the working group was to drive the formulation of the CMP for the Old Bar - Manning Point area within the Crowdy - Black Head coastal compartment. This group will now be tasked with review and direction of this scoping study.

2 Strategic Context of Coastal Scoping Study

Beaches, headlands, littoral rainforests, dunes, creeks and estuaries are all key assets of the MidCoast coastline. Locals and visitors alike flock to these places to enjoy swimming, walking, surfing and many other recreational and relaxation activities. Our beaches vary from urbanised environments like Blackhead, Diamond, Forster and Pacific Palms, to long strips of natural coastline like Harrington, Crowdy Bay, Nine Mile and Treachery / Yagon extending down to Hawks Nest.

Our beaches are the heart of the coastal villages which have their own unique beach cultures and local economies with the impressive coastline as the natural backdrop. The interaction of waves, winds, tides and sea levels on our coast is extremely complex. During storms these interactions can impact on beach users and landowners. Storm waves and tides may cause erosion and the loss of land, while wave over-wash can inundate land and assets behind the beach. The frequency and intensity of these coastal hazards are expected to increase in the future and therefore our exposure to coastal risk is also expected to increase.

Community assets which include a mix of built, natural and recreational assets such as access tracks, car parks, nature reserves, important habitat, roads, stormwater outlets, sewer and water services are at risk of being impacted by coastal hazards, in some places even private land and houses are at risk.

The NSW Government has identified some 15 open coast hazard sites along NSW coastline where the impact of coastal hazards and the risk to assets is particularly high. Two of those open coast hazard sites are located within the MidCoast Region – these include Jimmys Beach near Hawks Nest and Old Bar / Manning Point Beaches, near Taree.

2.1 Area Covered

This whole of coast scoping study will address the entire coastal strip within the MCC LGA, which is illustrated in Figures 1 and 2. The Area of interest (AOI) will cover from the average low tide water mark to roughly 2km inland. The AOI will identify the established sediment compartments (see Appendix A for more information) of the NSW coast line, also shown in Figures 1 and 2. The MidCoast LGA is within two Primary sediment compartments; the Mid North Coast, and Port Stephens compartments, as well as six secondary sediment compartments (Fig 1). These sediment compartments will assist how the whole of coast will be managed through Coastal Management Programs.

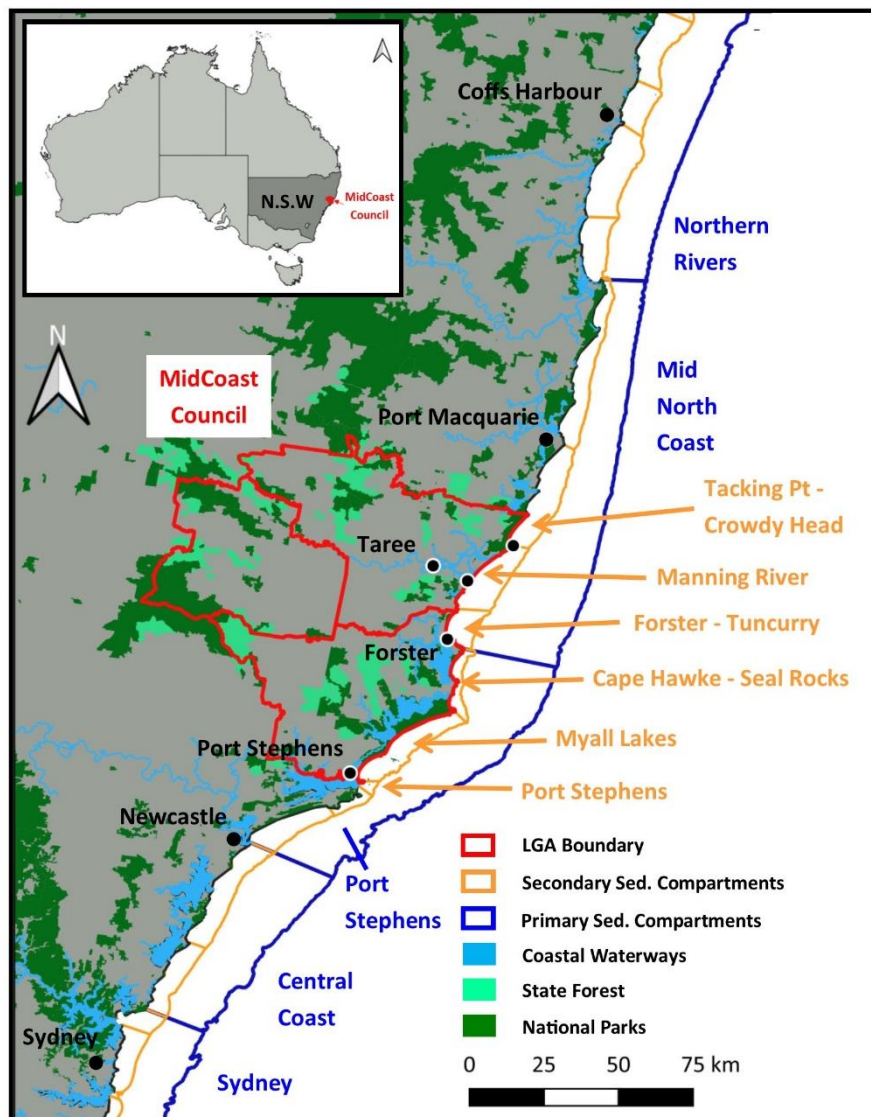


Figure 1 - MidCoast Council LGA, Primary, and Secondary Sediment compartments of the NSW coast

MCC has six secondary sediment compartments forming part of its LGA, and Figure 2 highlights these. Starting from the north, these compartments include: The Tacking Point – Crowdy Head, Manning river, Forster – Tuncurry, Cape Hawke – Seal Rocks, Myall Lakes, and Port Stephens secondary sediment compartment. Figure 2, not only shows these compartments, but it also summarises all the key beaches contained within each compartment. Overall there are approximately 40 beaches within the MidCoast LGA.

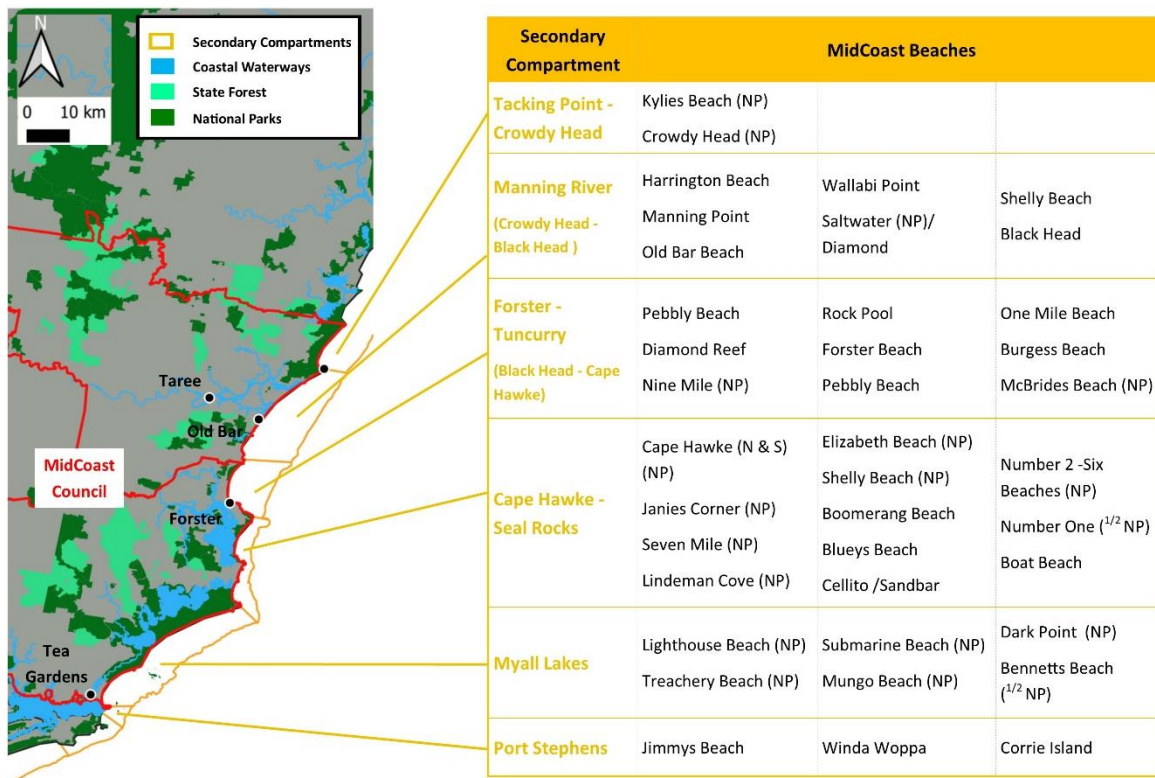


Figure 2 – MidCoast LGA Secondary sediment compartments, and key MCC beaches within each compartment (Note NP = National Park managed beach, partially or complete).

2.2 Social and Economic Context

The MCC area incorporates 196 towns, villages and localities across a region of 10,052 square kilometres. This region is comprised of a number of main population centres including Taree, Forster / Tuncurry, Tea Gardens / Hawks Nest, Gloucester, Wingham, Hallidays Point and Old Bar. In addition, there are a number of small towns and villages within the region, each exhibiting their own unique character. MidCoast has a population of approximately 92,000 people living in 39,000 households with the bulk of these people residing on the coast (211s Consulting, 2016). It is projected that the MidCoast population will increase by 33.6% to 121,408 people by 2036 (211s Consulting, 2016).

The area is popular for recreational and Nature & Adventure based tourism, with the large majority of visitation focused on the coastal areas. Over 25% of the MidCoast economy is directly or indirectly supported by tourism. With over 1.86 million tourists delivering AUS \$570.4 million in annual revenue. Indicative figures project a 250% growth in tourism visitation to the MidCoast region to 4.65 million tourists by 2030 (211s Consulting, 2016).

The MidCoast region was originally home to the Biripi and Worimi Aboriginal people. The Biripi people inhabited the area between Tuncurry, Taree and Gloucester; and the Worimi people occupied the land between Barrington Tops and Forster in the north and Maitland and the Hunter River in the south.

2.3 Environmental Context

The coastal zone extends from the continental shelf, inland to the extent of the Quaternary sediments, which can be kilometres inland. The underlying geology and geomorphology (the lithosphere) are the main structural features of the coastal zone, while the dominant processes influencing the coastal zone include; the atmosphere (regional climate), the hydrosphere (or ocean), the biosphere (including the flora and fauna), and more increasingly human activity (Thom 1973; Short 1993; Nordstrom 2013).

The NSW coast is tectonically stable and can be divided into four natural provinces, based on the rock types found at the coast; these include two fold belts (New England and Lachlan), and two sedimentary basins of late Palaeozoic – Mesozoic age (Clarence-Moreton and Sydney). The geology provides the framework that influenced the evolution of the coast. South of Coffs Harbour to Newcastle (the region that the MCC resides), the New England Fold Belt geology exerted contrasting controls on the development of the coast. The diverse lithologies of varying hardness have produced a transverse structure to the coastline, where the northern section of the belt contains hard Palaeozoic metamorphic rock units, and the southern section, more moderate Palaeozoic metamorphic units. (Doyle 2019) (see Appendix B for more information).

The MidCoast region has an embayed coast where rocky cliff headlands alternate with bays that have been infilled to differing degrees with late Pleistocene and Holocene sediment (Roy et al., 1980). The nature and size of successive embayments vary along the coast, with beach and dune sands forming barrier complexes of varying dimensions each fronted by an active beach and foredune (Thom, 1984). The NSW coast is dominated by east-southeasterly swells, with a mean H_o of 1.6 m ($T = 10$ s), a microtidal spring tidal range of 1.6 m and a neap range of 0.7 m (Mortlock and Goodwin, 2015; Phillips et al., 2017). The beaches are highly dynamic but intermediate beach types predominate with nearshore bars and frequent rip currents responding to ambient wave conditions (Fig. 1) (Short, 1993; Harley et al., 2011). The foredunes are not so dynamic, but major storms reach the dune base and cause substantial scarping and erosion (Doyle and Woodroffe, 2018).

The MidCoast region experiences a wide variety of conditions, resulting in a range of habitat types including mangrove forests, seagrass, coastal wetlands, saltmarsh, and aquatic species such as Australian bass (*Macquaria novemaculeata*). There are a range of coastal wetland types present which may be freshwater, brackish or saline. These wetlands along with littoral rainforest are protected under reformed State planning policies in the current *Coastal Management Act* 2016. Locations of coastal wetlands (SEPP 2018 mapping), and littoral rainforests (as identified as coastal environment area within the SEPP 2018 mapping) are illustrated in Figures 3 to 7. These maps have been separated into the secondary sediment compartments contained within the MCC LGA, and also illustrate the Coastal Environment and Coastal Use areas, as defined by the SEPP 2018 mapping.

Estuarine lagoons, mangrove and saltmarsh swamps, coastal floodplain forest, swamps and lagoons, exists along the coast line. Several creeks and large open bodies of saline or brackish water with a relatively narrow intermittent connection to the sea, which operate as an Intermittently Closed and Open Lakes and Lagoon (ICOLL) are found along the coast. A second type of coastal wetland, mangrove and saltmarsh swamps occur in extensive areas throughout the lower and middle estuarine areas subject to tidal flooding, which support mangrove and saltmarsh vegetation. Non-tidal basins also occur on estuarine sediments adjacent to mangrove and saltmarsh areas, as well as any mudflats and small creeks which occur within or adjacent to swamps. Other coastal wetlands present in the study region include coastal floodplain forest or wetland dominated by forest located on the sandy sediments on the lower reaches of coastal floodplains and coastal floodplain swamps and lagoons

which include shallow marshes and meadows, as well as deeper ponds and billabongs which have large areas of open water.

See Appendix B for a more detailed description of the MidCoast Coastal environment context. This appendix provides more detailed insights into the coastal geology, form, geomorphology, and processes occurring within and around the MidCoast region, as well as documenting the storm history for the NSW coast.

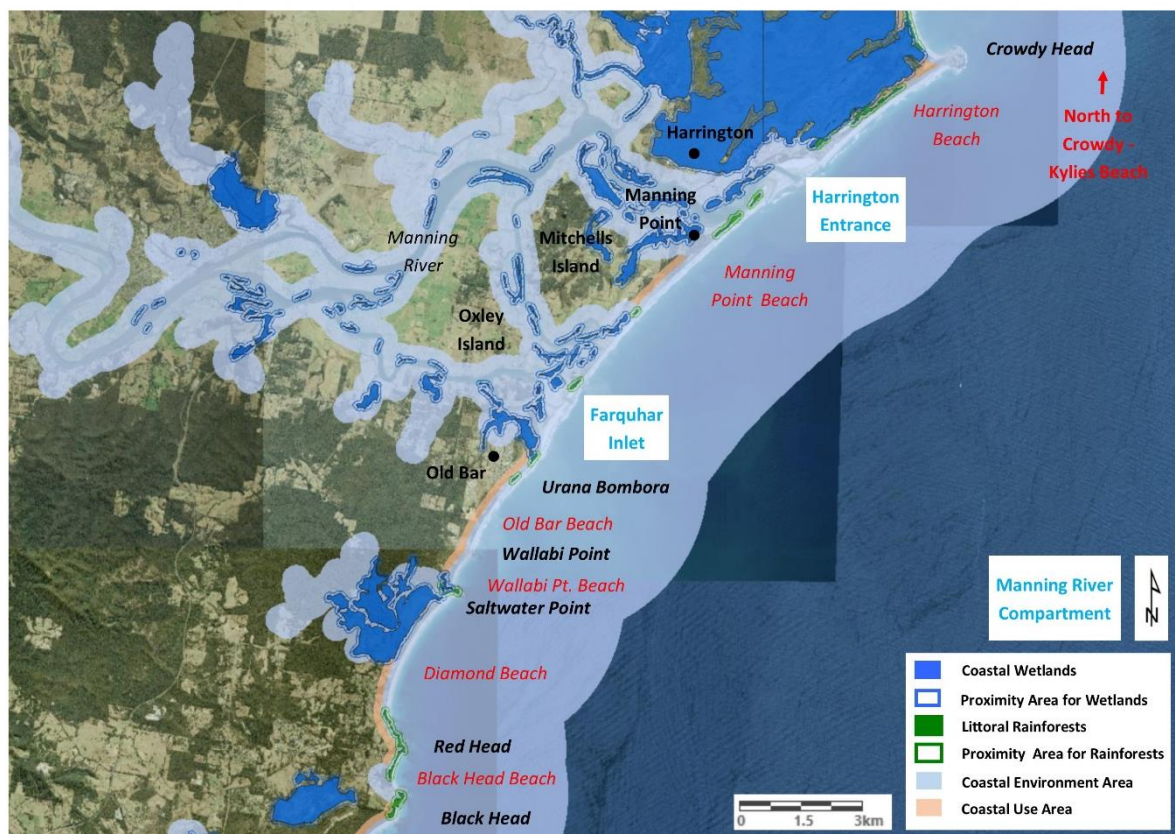


Figure 3. Littoral Rainforest, Coastal Wetlands, and key features within the Manning River sediment compartment, northern boundary of the MCC region (amended from DPIE SEPP mapping, 2018: http://webmap.environment.nsw.gov.au/PlanningHtml5Viewer/?viewer=SEPP_CoastalManagement).

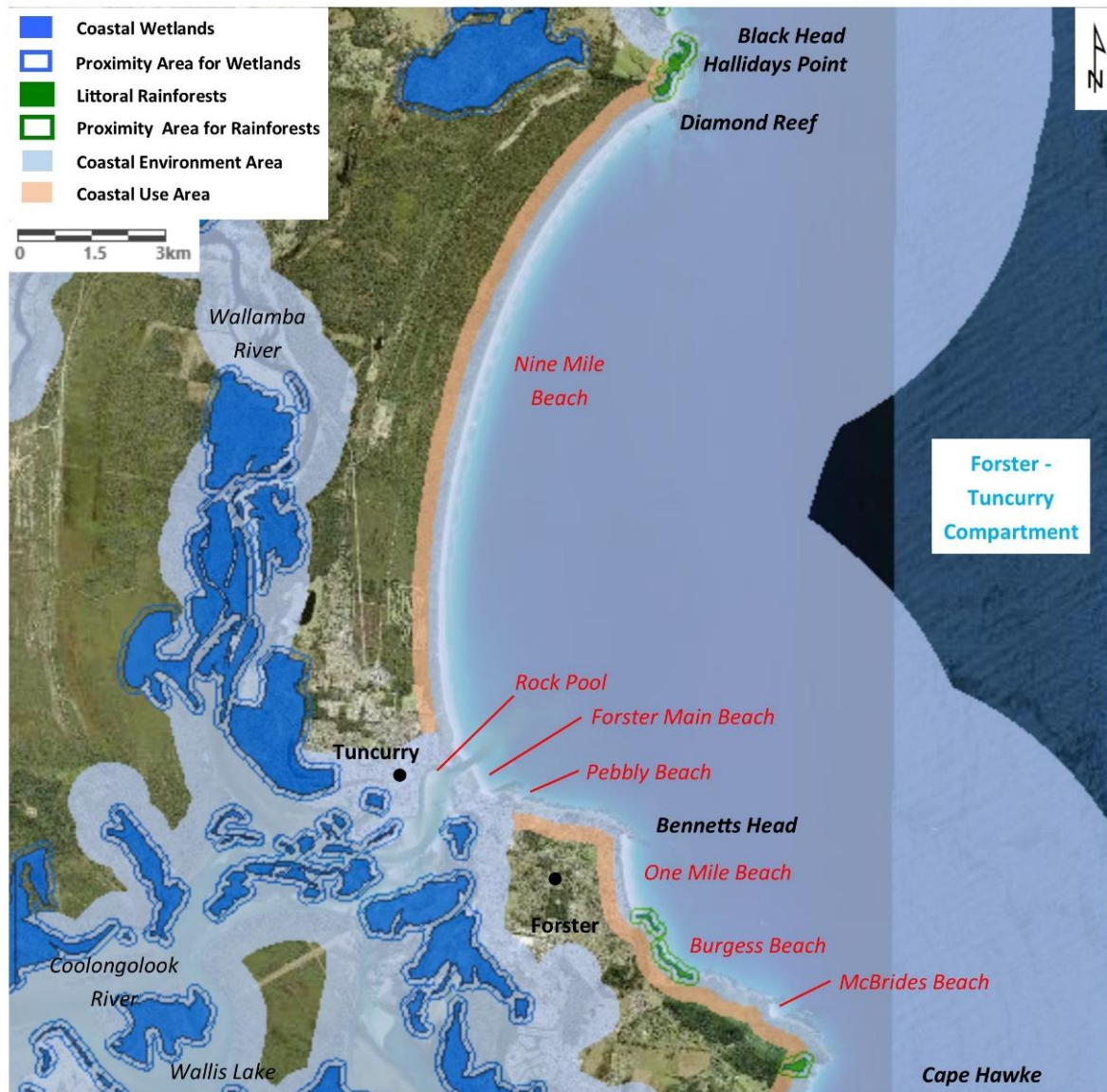


Figure 4. Littoral Rainforest, Coastal Wetlands, and key features within the Forster - Tuncurry sediment compartment within the MCC region (DPIE SEPP mapping, 2018).



Figure 5. Littoral Rainforest, Coastal Wetlands, and key features within the Cape Hawke - Seal Rocks sediment compartment within the MCC region (DPIE SEPP mapping, 2018).

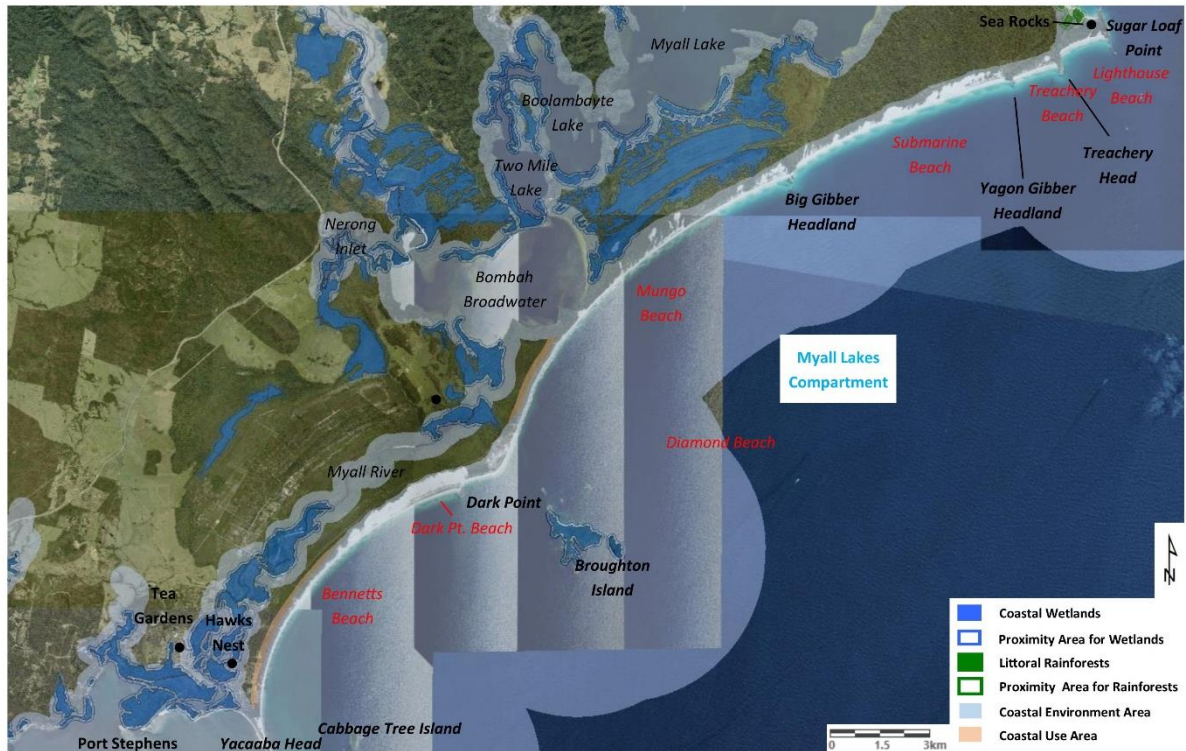


Figure 6. Littoral Rainforest, Coastal Wetlands, and key features within the Myall Lakes sediment compartment, within the MCC region (DPIE SEPP mapping, 2018).

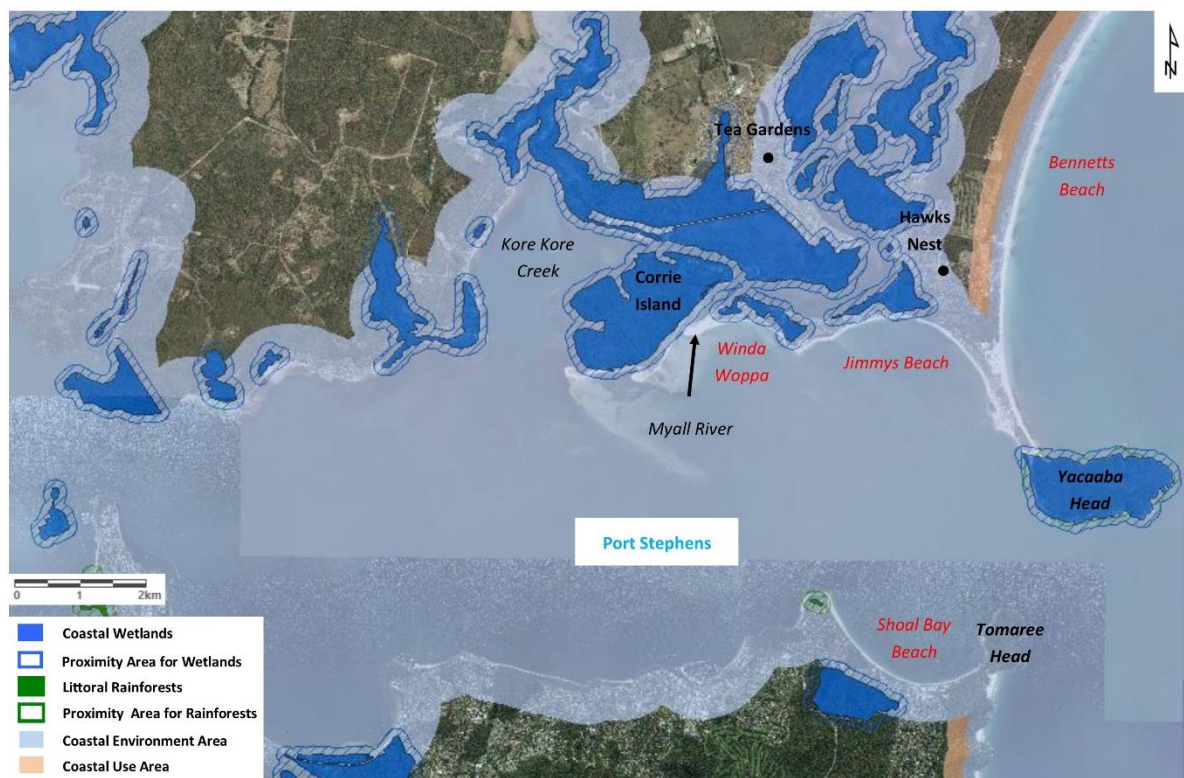


Figure 7. Littoral Rainforest, Coastal Wetlands, and key features within the Port Stephens sediment compartment, southern boundary of the MCC region (DPIE SEPP mapping, 2018).

2.4 Legal and Planning Context

The primary piece of legislation guiding the development of the whole of coastal scoping study and subsequent CMP/s is the *Coastal Management Act 2016*, including provisions within the *State Environmental Planning Policy (Coastal Management) 2018*, with a focus on *Division 1 Coastal wetlands and littoral rainforests areas* and *Division 3 Coastal environment area*. Closely aligned and integrated within the Scoping Study is the *Marine Estate Management Act 2014*, particularly in relation to water quality impacts on the estuary and wider marine environment.

Additional layers of State and Commonwealth legislation relevant to the whole of Coast Scoping include the following:

- *Local Government Act 1993*
- *Environmental Planning and Assessment Act 1979*
- *Biodiversity Conservation Act 2016*
- *Water Management Act 2000*
- *Crown Lands Act 1989*
- *National Parks and Wildlife Act 1974*
- *Local Land Services Act 2013*
- *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*
- *Fisheries Management Act 1994*
- *Environment Planning and Assessment Act 1979*
- *Protection of the Environment Operations Act 1997*
- *Rural Fires Act 1997*
- *Environment Protection and Biodiversity Conservation Act 1999* and *Environment Protection and Biodiversity Conservation Regulations 2000*

MCC is presently functioning under multiple Local Environment Plans (LEPs) as a legacy of merger into one Council on 12 May 2016. Of particular note is the Greater Taree Local Environment Plan (LEP) 2010 and the Great Lakes LEP 2014 [<https://www.midcoast.nsw.gov.au/Plan-Build/Stage-2-Rules-and-Regulations/Planning-Rules>]

MCC is currently working to integrate all former LEP's into one, including associated Development Control Plans (DCP's). The preparation of the scoping study and subsequent CMP/s are scheduled in parallel to this process, thus enabling the CMP process to inform LEP and DCP development as appropriate. Furthermore, both will be guided and integrated within MCC's Integrated Planning & Reporting Framework.

Governance arrangements and relationship to other public authorities is discussed within the Engagement Strategy and Section 3 (Roles and responsibilities) (see Appendices C and D), as well as opportunities to use key enablers/ influencers for coastal management.

During 2019, a local residents group challenged the Great Lakes CZMP 2016 via a Judicial Review through the Land and Environment Court. On the 23rd December 2019, the Justice presiding over the case dismissed the application. Council will now continue to follow the path set by the CM Act 2016 to convert the certified and gazetted CZMP into a CMP.

2.5 Planning Proposal – Coastal Management Areas

The following Coastal Management Areas as defined in Part 2 (5) of the *Coastal Management Act 2016* are confirmed to occur within the study area

- Coastal wetlands and littoral rainforest (CMA 1)
- Coastal environment area (CMA 3)
- Coastal use area (CMA 4).

MCC intends to define **two** Coastal Vulnerability Areas; Jimmys Beach and Old Bar – Manning Point Beaches. This will be justified using Geophysical probabilistic hazard modelling, historic photogrammetric and LiDAR elevation data, as well as current/ future monitoring campaigns. In addition, these sites have previously been classified as coastal erosion hot spots by the former NSW OEH. Figures 3 - 7 illustrate the current Coastal Management Areas within the MCC LGA, Figures 3 and 7 in particular, show the location of the two proposed coastal vulnerability zones (Jimmys Beach and Old Bar – Manning Point). A planning proposal will not be done as part of this CMP process, direction and advice will be given to MCC strategic planning team to undertake this work.

3 Partnerships, Roles, Responsibilities and Community Engagement

3.1 Public Authorities

The coastal zone is owned and/or managed by a number of different government agencies, private individuals, and other organisations, and the CM Act (and other relevant legislation) has established clear roles and responsibilities for these authorities for the management of the NSW coastal zone. Key agencies or entities include: The Minister for the Environment, Minister for Planning, NSW Coastal Council, DPIE - Environment, Energy and Science – Coast and Estuaries; - Regions, Industry, Agriculture and Resources - Department of Primary Industries Fisheries, and; - Crown Lands; and the National Parks and Wildlife Service (NPWS). An outline of the Roles & Responsibilities of each agency/ entity is located in greater detail in Appendix C.

3.2 Enablers

In addition to the above Public authorities, there are several proactive community groups that help enable and assist with coastal management for MidCoast study region. The key groups include (but are not limited to):

- Old Bar Beach Sand Replenishment Group
- Manning Point Concerned Citizens Group
- Boomerang and Blueys Residence Group
- Winda Woopa Association
- Jimmys Beach Progress Association
- Bushcare/ Coastcare
- Birdwatchers
- Aquaculture Industry
- MCC CMP Community Reference Group (formal) (see Appendix C)

3.3 Barriers

Barriers within MCC and the community may constrain or add complexity to the CMP/s development and implementation. For example, there are community barriers to participation in natural resource management; poor collaboration across levels of government; inefficient funding cycles. In order to overcome the complexity of the differing roles, jurisdictional boundaries and competing values of these stakeholder groups, issues first need to be identified. Similarly, there are barriers within MCC whereby staff and Councillors have competing values and priorities that may influence their interest and influence upon the CMP development and implementation.

3.4 Opportunities to overcome barriers (Community Engagement)

A critical component to an effective CMP is community understanding of the complexity of the issue/s and the available economically feasible options. The community and stakeholder engagement strategy (Appendix D), and a Media / Communications Strategy (Appendix E) will underpin the development of the CMP and provide for greater community participation in the process. Through the development of the CMP, the community will be engaged through a series of workshops and educational programs. These will predominately be face to face sessions, which will be run jointly by Council and a contracted community engagement specialist. The CMP will seek community comment on proposed management solutions, via the mandatory Public Exhibition period. Community engagement provides opportunity and ways in which the MCC CMP project team can overcome the above mentioned barriers.

Under legislation, NSW Councils are required to develop a Community Strategic Plan to create a whole of community vision so that council and the community are all working in the same direction. The plan also provides a way for MCC to be accountable to the community and the NSW Government by reporting annually on how implementation is progressing. The development of CMP/s is directed by the *MidCoast 2030 Community Strategic Plan* (<https://www.midcoast.nsw.gov.au/Council/Works-and-Projects/Council-Projects/Developing-MidCoast-2030-Shared-Vision-Shared-Responsibility>).

All NSW Councils are required by legislation to comply with the NSW Integrated Planning and Reporting Framework requirements. Priority actions as directed by certified and gazetted CMP/s will be incorporated into and reported on via MCC's four year Delivery Program and annual Operation Plan. These plans meet / comply with the legislated Integrated Planning & Reporting Framework (<https://www.midcoast.nsw.gov.au/Council/Plans-and-reports>).

In addition to the Community Strategic Plan, MCC has formed a multi-disciplinary Working Group, or the "Coastal Working Group". Membership of the Working Group will consist of key staff from MCC, NSW DPIE -: Coast and Estuaries; Biodiversity and Conservation; Crown Lands, NPWS, and; Department of Primary Industries Fisheries, as well as independent coastal scientists and university academics (for more information see Appendix C, Table C1).

Further, the Project Manager will coordinate the internal MCC Coastal Management Group (MCC-CMG). This internal Council group will establish lines of communication between Council directorates with responsibility for management of the coastal areas of the expanded LGA. Membership will be drawn from Strategic Planning, Natural Systems, Community Spaces and Design & Investigation Engineering. Additional members may include, GIS, Communications and Finance. The MCC-CMG will ensure that all MCC CMPs have consistent cross directorate buy in, adequate budgets for studies and plans. Further, the MCC-CMG will address other projects occurring along the ~192km's of coast within the MCC LGA.

4 Previous and / or adjoining (current) coastal plans

There are currently three certified and gazetted coastal zone management plans (CZMP) within the MidCoast LGA, these include: The Jimmys Beach CZMP 2016, Great Lakes CZMP 2016 and Manning Valley CZMP 2018. MCC are in the process of developing the Manning River Estuary CMP, which aspires to protect and improve the ecological health of the Manning Estuary, and in doing so support the social, cultural and economic values of the region. (See Appendix F for details on these plans)

5 Key Management Issues of the Scoping Study

5.1 First Pass Risk Assessment – hazard definitions

The coast has been identified to be under threat from multiple hazards. This whole of coast scoping study has utilised the seven hazards outlined in Section 4(1) of the CM Act 2016 to guide the assessment of risk to the MidCoast LGA coastline.

The hazards as per section 4 (1) of CM Act are:

- Beach erosion
- Shoreline recession
- Coastal lake or watercourse entrance instability
- Coastal inundation
- Coastal cliff or slope instability
- Tidal inundation
- Erosion and inundation of foreshore caused by tidal waters and the action of waves including the interaction of those waters with catchment floodwaters

For the purposes of this scoping study the seven coastal hazards have been defined in Table 1.

Table 1. Coastal Hazard definitions

Coastal Hazard (section 4(1) CM Act 2016)	Definition as per this scoping study
Beach erosion	Beach erosion is the loss of beach sediment/sand from the system. Beach erosion is generally a rapid onset hazard, it occurs quickly, generally over periods of days to weeks; via storm surge, changing water levels and wave impacts (Geoscience Australia, 2019). Beach erosion can be indicated by cliffing of the backshore/ upper beach, truncation of the dune vegetation, or exposure of remnant beachrock /gravels (Woodroffe, 2003). Erosion is part of a natural response of beaches, and generally most have the ability to recover from this style of hazard. The eroded sands are typically returned to the shore, and the beach is rebuilt, through natural recovery via clam weather waves. Threat to beach amenity, access, infrastructure in proximity to the shoreline, recreational activities, dune vegetation.
Shoreline Recession	Shoreline recession refers to the progressive landward shift of the average long-term position of the coastline (0 m AHD). Recession is different to beach erosion, it is a longer-term process, and occurs over many years, decades, or centuries. The two main causes of shoreline recession are: - Underlying recession: caused by the cumulative long term loss of sand from the beach sediment compartment over time, and - Sea level rise recession: caused by a shift in the equilibrium position of the beach gradually moving landward and upward as mean sea level increases (Coghlan <i>et al.</i>, 2017). There is no natural recovery from this event, the land is lost. Threat to infrastructure in proximity to the shoreline.
Coastal lake or watercourse entrance instability	Coastal lake or watercourse entrance (inlet to the ocean) instability refers to the inherent variability of the inlet position through time, or where there is a lack of consistency / pattern to the operation of the inlet. For example, while some inlet channels are relative stable through time and are held up by natural geomorphic or manmade features (i.e. rocky headlands/ outcrops /trained), others have historically broken through beach berms at various positions along a coastline (Coghlan <i>et al.</i>, 2017). • Natural entrances (dominated by sand berms, i.e. Intermittently closed and open lake or lagoon (ICOLL)) tend to move spatially along the beach in response to tides, waves, currents, sediment movement and freshwater flooding. These interactions and the ever changing nature of these factors can also cause entrances to close up and/ or re-open. This is seen as a natural process. Threat to access, recreational activities, dune vegetation, shorebird nesting sites, infrastructure in proximity to the shoreline and inland estuary flooding. • Modified entrances (training / break wall) are fixed in position, but are still influenced by tides, waves, currents, sediment movement and freshwater flooding. These interactions could cause entrances to silt up, direct coastal processes into the adjoining water body, under mind associated structures (training / break walls), and exacerbate downdrift beach erosion. Threat to navigational boating, commercial boating, flows within coastal lakes or waterbodies, infrastructure in proximity to the shoreline and inland estuary flooding.
Coastal inundation	Coastal inundation is the flooding of coastal management areas (as identified by the CM SEPP 2018) by ocean waters. This is typically caused by elevated ocean water levels combined with extreme waves impacting the coast (especially those associated with storm events, storm surge, freshwater flooding and wave impact). These hazards are typically short term events with waters receding to normal conditions. This hazard further exacerbates beach erosion, shoreline recession, coastal lake or water body entrance instability, coastal cliff or slope instability. Threat to beach amenity, access, recreational activities, infrastructure in proximity, vegetation, shorebird habitat, rising groundwater levels and inland estuary flooding.

Coastal Hazard (section 4(1) CM Act 2016)	Definition as per this scoping study
Coastal cliff or slope instability	Cliff or slope instability hazards refer to the possible structural weaknesses / failure in dune scarps, indurated sediment, bedrock and rocky headlands. This may then impact the zone of reduced foundation of any coastal infrastructure within the instability area. Long term (i.e. dune scarps) to no (i.e. rocky headland) recovery from this event. Threat to beach amenity, access, recreational activities, vegetation, to infrastructure in proximity of shoreline (zone of reduced foundation).
Tidal inundation	Tidal inundation is the extent to which coastal management areas (as identified by the CM SEPP 2018) are flooded by regular tide events / cycles (e.g. Spring High Tide, High Tides) without taking into account any other additional elevating components (i.e. coastal inundation). It represents the level of nuisance flooding / inundation that can be expected in low-lying coastal areas from tidal events (Coghlan <i>et al.</i>, 2017). These events are typically short term, with tide waters' receding to normal levels on completion of its cycle (high to low). This hazard also exacerbates beach erosion, shoreline recession, coastal lake or water body entrance instability, coastal cliff or slope instability. Threat to beach amenity, access, recreational activities, infrastructure in proximity, vegetation, shorebird habitat, rising groundwater levels and inland estuary flooding.
Climate Change impacts	Climate change is likely to exacerbate coastal hazards in many regions due to the adjustment, and in some cases amplification of coastal processes especially in terms of future exposure to these hazards (20, 50 and 100 years' timeframe/s) (NSW Government, 2019). It has been found that the following 3 climate change influencing factors are most significant to NSW coastal processes and hazards (BMT WBM 2015): - Sea Level Rise (SLR) - Changes in wave climate (WC) - Changes in coastal storm occurrence and severity (inc. storm surges) (SOS). It is expected that increases in sea level will exacerbate shoreline recession and coastal/ tidal inundation hazards of the region. The magnitude of the recession varies, but typical values along exposed NSW beaches are predicted to be 50-100m every 1m rise in mean sea level. (BMT WBM 2015). Wave climate changes includes changes to wave direction and size, and under climate change scenarios these modifications are generally less well understood (Bega Valley Shire Council, 2017). Storm impacts are generally associated with storm surge, which is the elevated ocean levels experienced during coastal storm events. Changes to coastal storms could potentially alter the extent, occurrence and severity of erosion experienced along NSW beaches during extreme events.
Erosion and inundation of foreshore caused by tidal waters and the action of waves including the interaction of those waters with catchment floodwaters	This hazard refers to the combination of beach erosion, shoreline recession, entrance instability, coastal / tidal inundation, and cliff / slope instability, in addition to the predicted Climate Change Impacts to them all (including the implication / exacerbation of future exposure to these hazards over time [i.e. 20, 50, 100 year's timeframes]. (NSW Government, 2019). Threat to beach amenity, access, recreational activities, infrastructure in proximity, vegetation, shorebird habitat, rising groundwater levels, navigational boating, commercial boating, flows within coastal lakes or waterbodies, riverbank / lake edges.

5.2 First Pass Risk Assessment – methodology

As per Section 1.8.2 of the NSW Coastal Management Manual, MCC undertook a high-level first pass risk assessment for the coastal environment contained within the LGA. This risk assessment first utilised the Marine Estate Management Strategy (MEMS) state-wide Threat and Risk Assessment (TARA), to identify key threats and risks impacting upon the environmental, social, cultural and economic assets for the NSW marine estate. Ranked priority threats for the north region of the NSW state (see Tables 3-5 and 4-3 within BMT WBM, 2017) were assessed for suitability and applicability to the MidCoast coastal environment. This involved splitting MCCs coastal assets into Environmental, Social/Economic, Cultural and Built Environment categories, and then evaluating them using the Council approved risk matrix (see MCC website for the risk management policy and framework documents [Appendix C of the framework] - <https://www.midcoast.nsw.gov.au/Council/Policies-Library/Risk-Management-Policy-and-Framework>), and against the seven coastal hazard definitions (CM Act 2016) as outlined in Section 5.1 (and Table 1). This was done to identify risk to life and public safety of assets currently exposed to coastal hazards, as well as those exposed to possible future hazards (over the 20, 50 and 100 year timeframe/s) (NSW Government 2019; Circular 19-006: <https://www.planning.nsw.gov.au/Policy-and-Legislation/Planning-System-Circulars>). Gaps in our knowledge, required investigations, and potential controls identified in previous CZMPs were listed for each threat and asset. Once this evaluation was complete, the top threats (all those rated extreme) were compiled and placed in order of inherent risk rating. These top risks were then summarised into Table 2, which therefore highlight the key threats and gaps for the MidCoast coastal environment, and will guide the future plan of the MCC CMP.

5.3 First Pass Risk Assessment – results

The detailed first pass risk assessment for the MCC Coastal Environment can be found in Appendix G. This matrix details the type of asset assessed, specific asset names and the threat/ risk rating. The matrix identifies potential controls, additional investigations required or the gaps in our knowledge. Table 2 and Table 3 summarise the most extreme risks facing the MCC coastal environment, and the most critical gaps in our knowledge. Priority threats are those that received a risk rating of extreme in the assessment.

For the environmental assets the top threats/ risks are; coastal urban development, estuary entrance modifications, progressive landward shift of the shoreline, loss of dune vegetation/ littoral rainforest, loss of sand from the hind dune environment and climate change (sea level rise) (see Table 2).

For Social/ cultural and the built environment the top risks/ threats to those assets are; climate change (sea level rise; altered storms activity, climate and sea temperature rise; altered ocean currents), resource use conflict, and progressive landward shift of the shoreline (see Table 3).

The results of this risk assessment will be used to guide the forward plan of CMP/s (i.e. gaps and controls), and help MCC form effective management plans into the future (CMP stages 2-5).

Table 2. Ranked priority (extreme) threats/ risks for Environmental Assets within the MidCoast region

Priority Threats / Risks	Gaps/ Controls / Investigations
Coastal urban development (coastal squeeze) R030A, R030B – <i>Saltmarsh Habitat</i>	* Review regional climate change modelling * Update Habitat Mapping * Investigation into habitat accommodation space, using coastal monitoring program data * Continue water quality monitoring of each estuary (report cards) * Planting and/ or maintaining riparian vegetation * Soil conservation and flow manipulation * Review water quality improvement plans * Review Catchment mgmt. plans * Support Manning River Estuary CMP * Review Sediment and erosion control plans
Estuary entrance modifications R020A, R020B, R042A, R042B – <i>Estuarine waters and Seagrass Habitats</i>	* Review of previous literature / plans/ reports on trained estuaries (incl. CBAs) * Support new studies into trained inlet impacts on the wider estuarine environment * Support new studies into safety of public recreational activities at identified locations * Support new studies into tidal prism regimes under climate change/ coastal hazard scenarios * Review the physical structure and integrity of the existing engineered breakwalls (PoM) * Review and update REFs (as required) * Continue water quality monitoring of each estuary (report cards) * Continue seagrass monitoring program / mapping * Investigation into habitat accommodation space
Progressive landward shift of shoreline R008A, R013A – <i>Foredune and Hind dune Habitat</i>	* Off shore sediment sampling, to inform regional sediment pathway / sediment budget investigations * Off shore sea bed mapping, to inform regional sediment pathway / sediment budget investigations * Sand scraping / nourishment * Geophysical probabilistic hazard modelling * dune fencing and wind traps * dune management plan (inc. re-vegetation programs) * Investigation into habitat accommodation space, using coastal monitoring program data See, gaps/ controls listed above (coastal urban development), as well as Appendix G for specific controls and gaps.

Priority Threats / Risks	Gaps/ Controls / Investigations
Loss of dune vegetation and littoral rainforest R010A, R015A – <i>Foredune and Hind dune Habitat</i>	See, gaps/ controls listed above (coastal urban development), as well as Appendix G for specific controls and gaps.
Loss of sand from the hind dune systems R012A – <i>Hind dunes (inc. littoral rainforest) Habitat</i>	See ,gaps/ controls listed above (progressive landward shift of shoreline), as well as Appendix G for specific controls and gaps.
Climate change (20 years) – Sea level rise R029A – <i>Saltmarsh Habitat</i>	* Appropriate treatment and disposal of stormwater, agricultural, industrial, and sewage effluent See, gaps/ controls listed above (coastal urban development), as well as Appendix G for specific controls and gaps.

Table 3. Ranked priority (extreme) threats/ risks for Social/ Cultural and Build Environment Assets within the MidCoast region

Priority Threats / Risks	Gaps/ Controls / Investigations
Climate change stressors 20/ 50 years - Sea level rise - Altered storm activity - Climate and sea temperature rise - Altered ocean currents and nutrient inputs Resource use conflict - Conflict over resource access and use - Anti-social behaviour & unsafe practices R054A – <i>Cultural heritage and use of coast environment</i>	* Review / Update Cultural Heritage Mapping * Review / Implement Cultural Heritage Responsibilities (inc. Land Claims) * Develop Cultural Heritage Impact Plan/s See, gaps/ controls listed above (progressive landward shift of shoreline – Table 2), as well as Appendix G for specific controls and gaps.
Progressive landward shift of shoreline R058A, R058B – <i>Infrastructure - Private</i>	* Review geophysical probabilistic hazard modelling to identify properties at risk * Review MCC housing strategy * Develop MidCoast wide coast LEP / DCP * Develop an emergency action plan for properties at risk, supported by relevant clauses within the Local Government Act 1993 See, gaps/ controls listed above (progressive landward shift of shoreline – Table 2), as well as Appendix G for specific controls and gaps.
Progressive landward shift of shoreline R060A, R060B – <i>Infrastructure - Public</i>	* Develop a MidCoast wide stormwater infrastructure plan * Develop a MidCoast wide sewage treatment plant management plan. * Develop a MidCoast wide water management plan * Liaise with electricity supplier - plan of management for electricity services See, gaps/ controls listed above (progressive landward shift of shoreline – Table 2), as well as Appendix G for specific controls and gaps.

5.4 Knowledge Gaps and direction for Stage 2

This section summarises the findings of this scoping study and identifies the actions required to fill the information gaps identified in the risk assessment / gap analysis (see Table 2 and 3). The key gaps have been further prioritised, based on immediate actions required, or identified in existing certified CZMP action lists.

Key actions required to help alleviate environmental threats (and fill knowledge gaps) include:

- Geophysical probabilistic hazard modelling for key coastal environments
- Sand scraping and / or nourishment for key coastal environments
- Investigation into coastal habitat accommodation space / migration areas
- Support MCC flood studies (e.g. Manning River Flood Risk Mgmt. Study and Plan)
- Support new studies into trained inlet impacts on the wider estuarine environment
- Support new studies into tidal prism regimes under climate change/ coastal hazard scenarios
- Conduct / support offshore sediment sampling, to inform regional sediment pathway / sediment budget investigations
- Support studies into soil conservation and flow manipulation (i.e. stormwater/ dams/ farming), especially those impacts saltmarsh habitats
- Appropriate treatment and disposal of stormwater, agricultural, industrial, and sewage effluent

Key actions required to help alleviate social/cultural and built environment threats (and fill knowledge gaps) include:

- Review / Implement Cultural Heritage Responsibilities (including Land Claims)
- Develop Cultural Heritage Impact Plans for key coastal environments
- Develop MidCoast wide coastal LEP / DCP
- Develop an emergency action plan for properties at risk, supported by relevant clauses within the Local Government Act 1993
- Develop a MidCoast wide stormwater infrastructure plan
- Develop a MidCoast wide sewage treatment plant management plan
- Develop a MidCoast wide sewer and drinking water infrastructure management plan
- Liaise with electricity supplier - plan of management for electricity services
- Review the physical structure and integrity of the existing engineered break walls

6 Forward Plan and Program

The forward program summarises the findings of this scoping study and identifies the actions required to fill the information gaps identified in the gap analysis and risk assessment (See Appendix G – Risk assessment). For here on, MCC will be generating two CMPs, one specifically for Old Bar - Manning Point (as currently it has no certified and gazetted CZMP), and another for the rest of the open coast (see Figure 8). Table 4 summaries the forward plan for the two key CMPs currently being developed by MCC. Table 5 summaries the Business case for these 2 CMPs, particularly highlighting where funding has been received and where funding will be required in the future. The third CMP (i.e. MCC Open Coast V2) will be a future program that will combine the completed Old Bar – Manning Point CMP and the Open coast CMP, it is envisaged that this CMP should be eligible for fast-tracked through the CMP progress.

Activities in the gap analysis that were identified as immediate (and extreme) have been included as a key activity in the forward plan and the source of funding was also identified. High priority information gaps have also been included and these will be addressed during Stage 2 using funding sourced from DPIE Coastal and Estuary Grants Program or other funding programs. In the event that these are not able to be funded during Stage 2, they will become priority actions for funding during plan implementation (Stage 5) (see Tables 4 and 5 for further information).

6.1 CMP Timeline

Tasks	2019		2020		2021		2022		2023		2024		2025	
	Jan - June	July - Dec	Jan - June	July - Dec	Jan - June	July - Dec	Jan - June	July - Dec	Jan - June	July - Dec	Jan - June	July - Dec	Jan - June	July - Dec
Old Bar – Manning Point	■	■	■	■										
MCC Open Coast V1			■	■	■	■	■	■						
MCC Open Coast V2											■	■	■	■

Figure 8. MCC CMP timeline, 2019 - 2025

Table 4. Studies/ Actions, locations, key responsibilities, timeframe, cost and funding options proposed for Stage 2 and Forward Plans of MCC CMPs. Studies/ Actions coloured **green** refer to environmental actions, **blue** refer to social/ cultural actions, and **grey** refer to built environment themed actions.

Future Studies / Actions	Key Location/s	Responsibility /Partners / Enablers	Time frame	Indicative cost	Funding options
Stage 2 - Determine the risks, vulnerabilities and opportunities					
Geophysical (GPR & Borehole) probabilistic hazard modelling	Old Bar - Manning Point;	MCC with assistance from consultant (BMT)	Sep 2018 - Feb 2020	\$134K	MCC and DPIE Coast & Estuary Grants
Support MCC flood studies (e.g. Manning River FRMSP)	Manning River Estuary	MCC with assistance from consultant	March 2018- March 2020	N/A	N/A
Geophysical probabilistic hazard modelling	Jimmys Beach; Blueys Beach; Boomerang Beach; Seal Rocks	MCC with assistance from consultant (BMT)	June - Dec 2020	\$150K per site	MCC and DPIE Coast & Estuary Grants
Sub-compartment Sediment dynamics study (inc. trial nourishment)	Old Bar - Manning Point; Jimmys Beach; Blueys; Boomerang Beach; Seal Rocks	MCC with assistance from DPIE	June 2020 – Dec 2021	\$12 m ³ . m ⁻¹	MCC and DPIE Coast & Estuary Grants
Beach monitoring program (incl. habitat accommodation space)	Old Bar - Manning Point; Jimmys Beach; Blueys; Boomerang Beach; Seal Rocks	MCC	June 2020 – Dec 2025	\$55K per site, per year	MCC and DPIE Coast & Estuary Grants
Support new studies into trained inlet impacts on the wider estuarine environment	All major estuaries/ rivers within the CMP study area (Manning; Wallis; Smiths; Port Stephens)	DPIE / Crown Lands / universities (MCC in partnership)	Min 24 months per site	\$300K +	DPIE science unit/ DPIE Coast & Estuary Grants / Aust. Research Council (ARC) Industry linkage grant
Support new studies into tidal prism regimes under climate change/ coastal hazard scenarios	All estuaries within the CMP study area	DPIE / consultants / universities (MCC in partnership)	Ongoing	N/A	DPIE science unit/ DPIE Coast & Estuary Grants / Aust. Research Council (ARC) Industry linkage grant

Future Studies / Actions	Key Location/s	Responsibility /Partners / Enablers	Time frame	Indicative cost	Funding options
Support offshore sediment sampling, to inform regional sediment pathway / sediment budget investigations	Whole of MCC coast	DPIE / universities (MCC in partnership)	Ongoing	N/A	DPIE science unit/ DPIE Coast & Estuary Grants / Aust. Research Council (ARC) Industry linkage grant
Conducting studies into soil conservation and flow manipulation (i.e. stormwater/ dams/ farming)	Identified estuaries with saltmarsh present within the CMP study area	MCC partnering with DPIE / LLS	12 months per catchment	\$250K per catchment	DPIE science unit/ DPIE Coast & Estuary Grants / Aust. Research Council (ARC) Industry linkage grant
Appropriate treatment and disposal of stormwater, agricultural, and industrial effluent	Identified catchments within the CMP study area	MCC/ DPIE/ LLS	Ongoing	TBC	MCC and DPIE Coast & Estuary Grants
Appropriate treatment and disposal of sewage effluent	Identified catchments within the CMP study area	MCC	Ongoing	TBC	MCC and DPIE Coast & Estuary Grants
Develop / Implement / Review Cultural Heritage responsibilities/ plans (Inc. land claims and cultural heritage sites)	Identified locations within the CMP study area	MCC with assistance from consultant	6 months per site	\$20-50k per report	MCC and identified grant scheme
Develop and Adopt MidCoast wide coastal LEP / DCP	Whole of MCC CMP study area	MCC	12 months	N/A	MCC
Develop an emergency action plan for infrastructure at risk from coastal hazards	Prioritised locations within the CMP study area (beginning with Old Bar - Manning Point; Jimmys Beaches)	MCC	6 months per site	N/A	MCC
Develop a MidCoast wide stormwater infrastructure plan	Old Bar - Manning Point CMP	MCC	March 2020 - March 2021	TBC	MCC and identified grant scheme

Future Studies / Actions	Key Location/s	Responsibility /Partners / Enablers	Time frame	Indicative cost	Funding options
Develop a MidCoast wide stormwater infrastructure plan	Whole of MCC CMP study area, commencing with prioritised locations	MCC	12 months per plan	TBC	MCC and identified grant scheme
Develop a MidCoast wide sewage treatment plant management plan	Old Bar - Manning Point CMP	MCC	March 2020 - March 2021	TBC	MCC and identified grant scheme
Develop a MidCoast wide sewage treatment plant management plan	Whole of MCC CMP study area, commencing with prioritised locations	MCC	TBC	TBC	MCC and identified grant scheme
Develop a MidCoast wide sewer and drinking water infrastructure management plan	Old Bar - Manning Point CMP	MCC	March 2020 - March 2021	TBC	MCC and identified grant scheme
Develop a MidCoast wide sewer and drinking water infrastructure management plan	Whole of MCC CMP study area , commencing with prioritised locations	MCC	12 months per plan	TBC	MCC and identified grant scheme
Develop a plan of management for electricity services	Old Bar - Manning Point CMP	Essential Energy. (MCC in partnership)	March 2020 - March 2021	TBC	Essential Energy
Develop a plan of management for electricity services	Whole of MCC CMP study area , commencing with prioritised locations	Essential Energy. (MCC in partnership)	12 months	TBC	Essential Energy
Review the physical structure and integrity of the existing break walls	Harrington break wall; Forster-Tuncurry break walls	Ports Authority (Crown Lands)	June 2020 – Dec 20121	TBC	N/A
Stage 3 – Identify and evaluate options					
Management Options Assessment / Prioritisation – Old Bar - Manning Point CMP	Old Bar – Manning Point	MCC with assistance from CMP technical working group	Feb 2020 – June 2020	\$50k	MCC and DPIE Coast & Estuary Grants

Future Studies / Actions	Key Location/s	Responsibility /Partners / Enablers	Time frame	Indicative cost	Funding options
Cost-benefit analysis – Old Bar - Manning Point CMP	Old Bar – Manning Point	Consultant	Feb 2020 – June 2020	\$100 - 150k	MCC and DPIE Coast & Estuary Grants
Management Options Assessment / Prioritisation – Open Coast CMP	Identified locations within the CMP study area	MCC with assistance from consultant	June 2020 – June 2021	\$50k per site	MCC and DPIE Coast & Estuary Grants
Cost-benefit analysis – Open Coast CMP	Identified locations within the CMP study area	Consultant	June 2020 – June 2021	\$100 - 150k per CBA	MCC and DPIE Coast & Estuary Grants
Community & Stakeholder Engagement – Old Bar - Manning Point	Old Bar – Manning Point	MCC with assistance from consultant	Feb 2020 – June 2020	\$100k	MCC and DPIE Coast & Estuary Grants
Community & Stakeholder Engagement – Open Coast CMP	Identified locations within the CMP study area	MCC with assistance from consultant	June 2020 – June 2021	\$100k	MCC and DPIE Coast & Estuary Grants
Stage 4 – Prepare, exhibit, finalise, certify and adopt CMPs					
Prepare, exhibit and finalise Old Bar - Manning Point CMP	Old Bar – Manning Point	MCC with assistance from consultant	June 2020 - Nov 2020	\$50k	MCC and DPIE Coast & Estuary Grants
Certify and gazette CMP	Old Bar – Manning Point	DPIE / NSW Coastal Council / Minister / MCC	TBC	N/A	DPIE
Prepare, exhibit and finalise Open Coast CMP	Identified locations within the CMP study area	MCC	June 2021 – Dec 2021	\$70K	MCC and DPIE Coast & Estuary Grants
Certify and gazette CMP	Whole of Coast	DPIE / NSW Coastal Council / Minister / MCC	TBC	N/A	DPIE
Stage 5 – Implement, monitor, evaluate and report					
Implement, monitor, evaluate and report – Old Bar - Manning Point CMP	Old Bar – Manning Point	TBC	2022 - 2024	TBC	DPIE Coast & Estuary Grants

Future Studies / Actions	Key Location/s	Responsibility /Partners / Enablers	Time frame	Indicative cost	Funding options
Implement, monitor, evaluate and report – Open Coast CMP	Identified locations within the CMP study area	TBC	2022 - 2024	TBC	DPIE Coast & Estuary Grants
Community & Stakeholder Engagement – Old Bar - Manning Point CMP	Old Bar – Manning Point	TBC	2022 - 2024	TBC	MCC, DPIE Coast & Estuary Grants
Community & Stakeholder Engagement – Open Coast CMP	Identified locations within the CMP study area	TBC	2022 - 2024	TBC	MCC, DPIE Coast & Estuary Grants

6.2 CMP Business case

Table 5. CMP Business Case, identifying actions proposed for MCC CMPs, indicative cost for each, and whether funding has been sourced for them or not. Studies/ Actions coloured **green** refer to environmental actions, **blue** refer to social/ cultural actions, and **grey** refer to built environment themed actions.

Future Studies / Actions	Indicative cost	Funding status
Old Bar – Manning Point CMP		
Stage 2 - Determine the risks, vulnerabilities and opportunities		
Geophysical (GPR & Borehole) probabilistic hazard modelling	\$134K	Funding received
Support MCC flood studies (i.e. Manning River FRMSP)	\$150k	Funding received
Sub-compartment Sediment dynamics study (inc. trial nourishment)	\$12 m ³ . m ⁻¹	Funding required
Beach monitoring program (incl. habitat accommodation space)	\$55K per site, per year	Funding required
Support new studies into trained inlet impacts on estuarine environments (inc. Farquhar)	\$300K +	Funding required
Support offshore sediment sampling, to inform regional sediment pathway / sediment budget investigations	N/A	Funding required
Feasibility study of stormwater mitigation techniques including on ground trials (Appropriate treatment and disposal of stormwater, agricultural, and industrial effluent)	TBC	Funding required
Feasibility study of sewerage mitigation techniques including on ground trials (Appropriate treatment and disposal of sewage effluent)	TBC	Funding required
Develop / Implement / Review Cultural Heritage responsibilities/ plans (Inc. land claims and cultural heritage sites)	\$20-50k per report	Funding required
Develop an emergency action plan for infrastructure at risk from coastal hazards	TBC	MCC
Develop a Stormwater Infrastructure plan for Old Bar- Manning Point (Develop a MidCoast wide stormwater infrastructure plan)	\$40-100k per plan	Funding required
Develop a sewage treatment plant management plan for Old Bar- Manning Point (Develop a MidCoast wide sewage treatment plant management plan)	TBC	Funding required

Future Studies / Actions	Indicative cost	Funding status
Develop a sewer and drinking water infrastructure management plan for Old Bar – Manning Point (Develop a MidCoast wide sewer and drinking water infrastructure management plan)	TBC	Funding required
Develop a plan of management for electricity services	TBC	Essential Energy
Stage 3 – Identify and evaluate options		
Management Options Assessment / Prioritisation – Old Bar - Manning Point CMP	\$50k	Funding received
Cost-benefit analysis – Old Bar - Manning Point CMP	\$100 – 150k	Funding required
Community & Stakeholder Engagement – Old Bar - Manning Point	\$100k	Funding received
Stage 4 – Prepare, exhibit, finalise, certify and adopt CMPs		
Prepare, exhibit and finalise the Old Bar - Manning Point CMP	\$50k	Funding received
Certify and gazette CMP	N/A	MCC / DPIE
Stage 5 – Implement, monitor, evaluate and report		
Implement, monitor, evaluate and report – Old Bar - Manning Point CMP	TBC	Funding required
Community & Stakeholder Engagement – Old Bar - Manning Point CMP	TBC	Funding required

Future Studies / Actions	Indicative cost	Funding status
Open Coast CMP		
Stage 2 - Determine the risks, vulnerabilities and opportunities		
Support MCC Flood Studies	\$60-150k per site	Funding required
Geophysical probabilistic hazard modelling (esp. Jimmys, Blueys, Boomerang, Seal Rocks)	\$150k per site	Funding required
Sub-compartment Sediment dynamics study (inc. trial nourishment) (esp. Jimmys, Blueys, Boomerang Seal Rocks)	\$10 m ³ . m ⁻¹	Funding required
Beach monitoring program (esp. Jimmys, Blueys, Boomerang, Seal Rocks)	\$55K per site, per year	Funding required
Support new studies into trained inlet impacts on estuarine environments	\$300K +	Funding required
Support new studies into tidal prism regimes under climate change/ coastal hazard scenarios	N/A	Funding required
Support offshore sediment sampling, to inform regional sediment pathway / sediment budget investigations	N/A	DPIE (Science unit)
Conducting studies into soil conservation and flow manipulation	\$250K per catchment	Funding required
Feasibility study of stormwater mitigation techniques including on ground trials (Appropriate treatment and disposal of stormwater, agricultural, and industrial effluent)	TBC	Funding required
Feasibility study of sewerage mitigation techniques including on ground trials (Appropriate treatment and disposal of sewage effluent)	TBC	Funding required
Develop / Implement / Review Cultural Heritage responsibilities/ plans (Inc. land claims and cultural heritage sites)	\$20-50k per report	Funding required
Develop and Adopt MidCoast wide coastal LEP / DCP	N/A	MCC
Develop an emergency action plan for infrastructure at risk from coastal hazards	TBC	MCC
Develop a MidCoast wide stormwater infrastructure plan	\$40-100k per plan	Funding required
Develop a MidCoast wide sewage treatment plant management plan	TBC	Funding required
Develop a MidCoast wide sewer and drinking water infrastructure management plan	TBC	Funding required
Develop a plan of management for electricity services	TBC	Essential Energy
Review the physical structure and integrity of the existing break walls	TBC	Funding required

Future Studies / Actions	Indicative cost	Funding status
Stage 3 – Identify and evaluate options		
Management Options Assessment / Prioritisation – Open Coast CMP	\$50k per site	Funding required
Cost-benefit analysis – Open Coast CMP	\$100 - 150k per CBA	Funding required
Community & Stakeholder Engagement – Open Coast CMP	\$100k	Funding required
Stage 4 – Prepare, exhibit, finalise, certify and adopt CMP		
Prepare, exhibit and finalise Open Coast CMP	\$70K	Funding required
Certify and gazette CMP	N/A	Funding required
Stage 5 – Implement, monitor, evaluate and report		
Implement, monitor, evaluate and report – Open Coast CMP	TBC	Funding required
Community & Stakeholder Engagement – Open Coast CMP	TBC	Funding required

7 References

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8 Appendices

8.1 Appendix A – Coastal Sediment Compartments

A coastal sediment compartment is a section of coast within which similar processes operate, and they are generally bounded by broad scale structural features that often impede on alongshore transport of sediment (Davies 1974; Thom *et al.* 2018). A compartment approach to investigating coastal systems has been used in a number of countries, including the USA (Komar 1996), UK (Bray *et al.* 1995) and Australia (Kinsela *et al.* 2017; Thom *et al.* 2018), to improve coastal management at a range of spatial scales, through better understanding of sediment mobility and transport within and between different compartments. Sediment compartments therefore enable the better estimation or quantification of the sources, pathways and sinks of sediments for any region of coast. Understanding these sources and sinks is important, as they can then help determine the sediment budget of that compartment. Adopting a sediment budget approach aims to quantify gains and losses of sand within a coastal sector (such as a compartment) (Woodroffe *et al.* 2012 – Fig. 10).

In an attempt to achieve a consistent approach to understanding coastal processes and change, Geoscience Australia coordinated the development of a hierarchical division of the Australian coastline into three types of compartment, each based on their spatial scale (Thom 2015; Thom *et al.* 2018) (Fig. A1). Figure A1 and the following sub-sections indicates the hierarchical classification adopted in NSW:

8.1.1 Primary compartments

Primary compartments are sections of coast that are bounded by major, usually distinctive, geologic structural features, such as rocky headlands or major changes in orientation of the coast (both described above) (see Fig. A1).

8.1.2 Secondary compartments

Secondary compartments are based on sub-divisions within the primary compartments. They are also formed by structural elements within which there may be sediment exchange (usually identified at scales between 1: 100,000 and 1: 25,000). An emphasis was placed on the secondary scale, with over 350 compartments identified around the continent (Thom *et al.* 2018).

8.1.3 Tertiary compartments

Tertiary compartments are based on sub-divisions within secondary compartments, commonly at obstructions (i.e. headlands). This level of compartment can be as small as an individual beach, and may act as a self-contained sediment compartment, or be linked to adjoining compartments. They typically occur at scales less than 1: 25,000 (Thom *et al.* 2018) (Fig. A1).

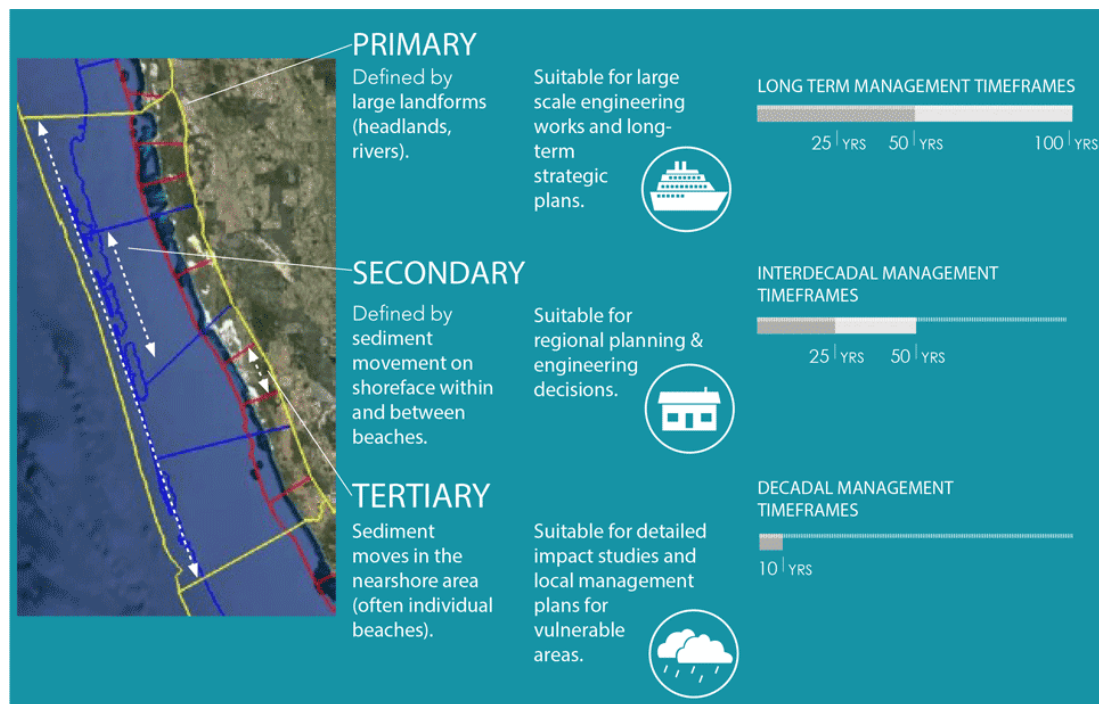


Figure A1. Hierarchical division of Australia's coastal compartments: Primary, secondary, and tertiary (from Thom 2015).

Furthermore, there many tertiary compartments found within the six MidCoast secondary compartments (see Figure 2), and determining and mapping these regions will form a key aim of this Coastal Management Plan. Making use of recent seabed mapping, marine LiDAR, and GIS data provided by DPIE, the MidCoast Sediment compartments will be investigated in greater detail than done previously. It is important to understand and map the compartments at the tertiary level, because it has been shown that this scale is most useful to analyse active geomorphic processes that move sand into, along, and out of, a section of coast (Thom *et al.*, 2018). Basically, there is a “store” of sediment within a tertiary compartment, which comprises landform units such as beaches, barriers and dunes, and these can become mobilised under varying processes or conditions (Thom *et al.* 2018). Tertiary compartments can be further categorised into one of two types; ‘closed’ or ‘leaky’ compartments (illustrated in Figure A2). The latter are mainly found in the northern part of NSW, where longshore sand transport is considered the dominant factor contributing to compartment sand budgets and shoreline changes. Sand leakage often occurs around headlands in northern NSW during storm or high wave conditions, known as headland sand bypassing (Fig. A2) (Woodroffe 2003). Closed compartments occur primarily within the central to southern parts of NSW, with limited or zero leakage of sand around the highly prominent headlands (Thom *et al.* 2018). These embayed compartments have very limited alongshore exchanges of sediment, but can exchange sand on-offshore, particularly during high energy conditions where megarips are prevalent (Fig. 5). Megarips are large-scale topographically controlled rips (e.g. occurring at headlands or man-made structures, such as a groyne) that can drain large amounts of sand from the embayment (Short 2010). Megarip formation seems to be the prominent process contributing to sand leakage in central to southern NSW, because sand is transported further offshore and to greater depths, it has more chance of

leaving the closed system and contributing to alongshore sand movement; headland-rip leakage (which will be discussed further in subsequent sections) (Short 2010a; Goodwin *et al.* 2016).

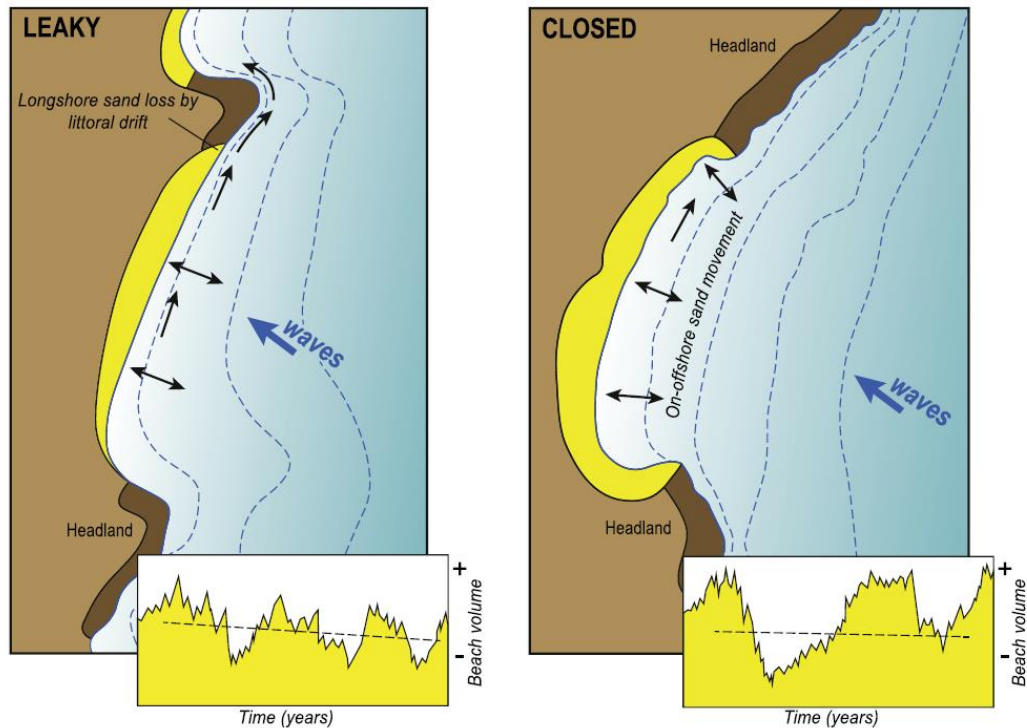


Figure A2. The concept of 'leaky' and 'closed' sediment compartments, expanding on the descriptions of Thom (1989). Black arrows indicate sediment pathways, and the compartments displayed are typical examples of the tertiary scale. Inset graphs indicate typical beach volume variations for each compartment type (from Thom *et al.* 2018).

8.2 Appendix B – Environmental Context continued

The coastal zone extends from the continental shelf, inland to the extent of the Quaternary sediments, which can be kilometres inland. The underlying geology and geomorphology (the lithosphere; Section 4.2.1) are the main structural features of the coastal zone (Section 4.2.2), while the dominant processes influencing the coastal zone include; the atmosphere (regional climate), the hydrosphere (or ocean), the biosphere (including the flora and fauna), and more increasingly human activity (see section 4.2.3 and onwards) (Thom 1973; Short 1993; Nordstrom 2013).

8.2.1 Mid-north coast Geology

The NSW coast is tectonically stable and can be divided into four natural provinces, based on the rock types found at the coast; these include two fold belts (New England and Lachlan), and two sedimentary basins of late Palaeozoic – Mesozoic age (Clarence-Moreton and Sydney). The geology provides the framework that influenced the evolution of the coast, including the forces controlling the lineation of the continental margin and the basic structural and lithologic patterns of the hinterland (Roy and Thom 1981).

South of Coffs Harbour to Newcastle (i.e. the MCC region), the New England Fold Belt geology exerted contrasting controls on the development of the coast. The diverse lithologies of varying hardness have produced a transverse structure to the coastline, where the northern section of the belt contains hard Palaeozoic metamorphic rock units, and the southern section, more moderate Palaeozoic metamorphic units. Table B1 and Figure B1 both illustrate the influence this geology has on coastal embayments along the NSW coast.

Table B1. NSW geological provinces with their main structural units on the coast and the regional relationships between lithologies, structural fabric, coastal relief, river size and the nature of the embayments in which Quaternary sediments have accumulated (from Chapman *et al.*, 1982; Doyle *et al.*, 2019).

Geological Province	Geology	Geographic Region	Structural Elements	Coast Relief	River Size	Coastal Embayment Type
Clarence Moreton	Soft Mesozoic sediment	Far North	Parallel to coastline orientation	Low	Very Large	Large and broad
New England Fold Belt	Hard Palaeozoic metamorphic	Mid-north	Transverse to coastline orientation	Moderate	Very small	Small and narrow
	Mod. Hard Palaeozoic metamorphic	Central			Medium	Moderately large and broad
Sydney Basin	Soft Triassic and Permian Jointed Hard Hawksbury Sandstone	South	Transverse to coastline orientation	Low	Large	Large narrow incised valleys, plus large to small estuaries
	Soft Triassic and Permian	South		Low to moderate	Medium to small	
Lachlan Fold Belt	Hard Palaeozoic metamorphic and igneous	Far South	Parallel to coastline orientation	High	Small	Small and narrow

8.2.2 Coastal Form and Geomorphology

Generally, the embayed NSW coast can be divided into two main categories; the ‘subdued’ north coast (transition zone between Coffs Harbour and Newcastle), and the ‘rugged’ south (south of transition zone) (Langford-Smith and Thom, 1969). The ‘subdued’ section of the coast, refers to areas of low relief, embayments are broad and headlands are relatively less obvious. The ‘rugged’ section (predominantly the southern section) refers to areas that have a hilly hinterland directly behind the coast, more prominent headlands and bays/embayments are generally small (Roy and Thom 1981; Chapman *et al.* 1982). The varying coastal relief and embayment types along the NSW coast can, therefore, directly be attributed to the differing geology, as well as the subsequent fluvial erosion that has occurred along NSW in the past (predominantly during the Cainozoic).

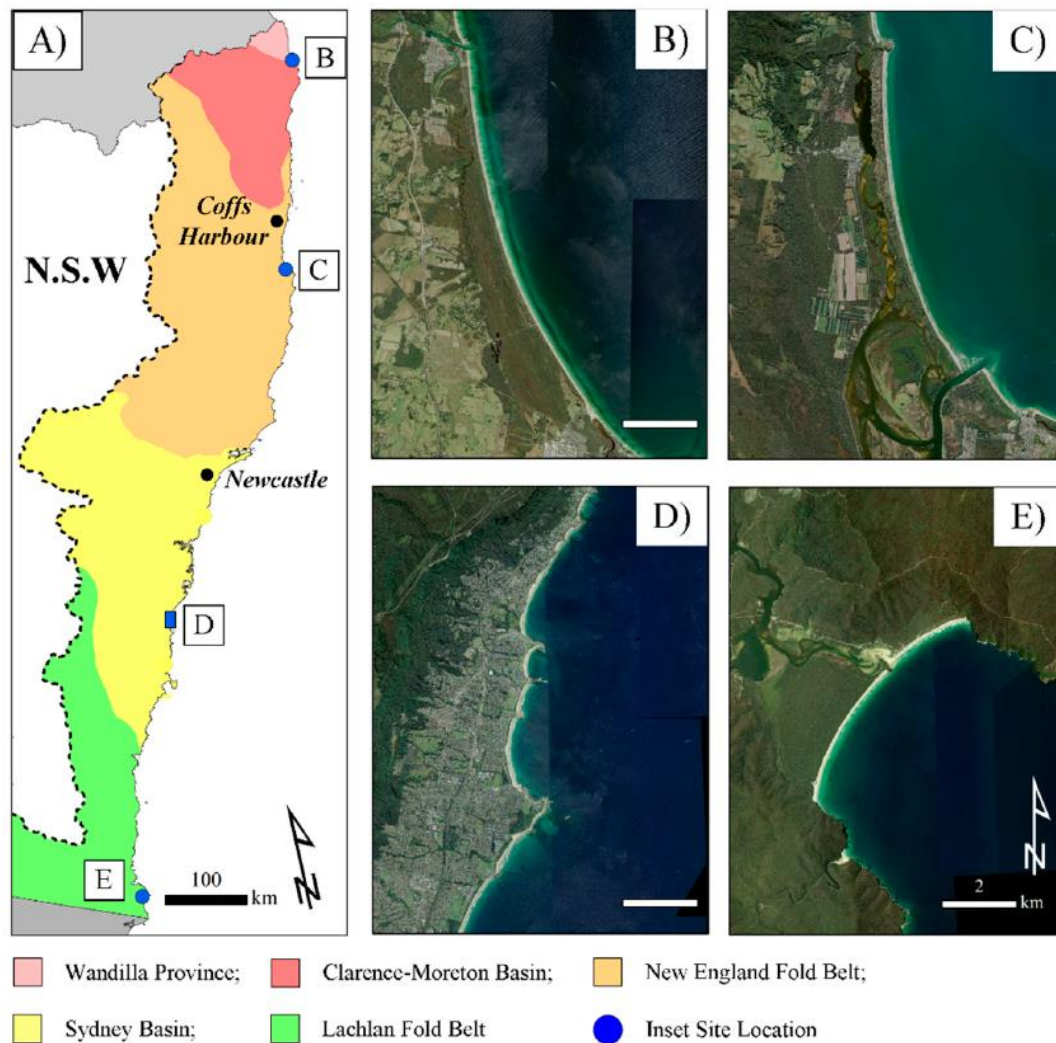


Figure B1. The major geological provinces of eastern NSW (A) and the location of each sample embayment type (B-E). Aerial view of (B) Brunswick Heads (Byron LGA), (C) Stuart Point (Kempsey), (D) North Wollongong area (Wollongong), and (E) Wonboyn Beach (Bega Valley) (from Doyle, 2018) (Data Source: © LPI, 2014).

In the central regions of NSW (where MidCoast resides), the variable lithology and hardness (hard to moderate), as well as the perpendicular structure of the New England Fold Belt, and less fluvial input, has resulted in slower erosion rates than the far north over geologic timescales. This has helped create smaller and more narrow valleys that trend towards the coast, which thereby interrupt the line of the coastline. Further south in the Fold belt, between Coffs Harbour and Port Stephens (i.e. MidCoast LGA), fluvial inputs increase, with moderate sized rivers reaching the coast. This increases valley erosion and aided in the formation of more moderate to broad sized valleys and coastal plains, Stuart Point beach is a good example of this type of embayment (Fig. B1. C) (average beach size is 2.4 km) (Short, 1993).

8.2.3 Coastal Processes

The NSW coast is dominated by east-southeasterly swells, with a mean H_o of 1.6 m ($T = 10$ s), a microtidal spring tidal range of 1.6 m, and a neap range of 0.7 m (Mortlock and Goodwin 2015; Phillips *et al.* 2017). The beaches are highly dynamic but intermediate beach types predominate with nearshore bars and frequent rip currents responding to ambient wave conditions (Short 1993; Harley *et al.* 2011). The dunes are not particularly dynamic, but major storms occasionally reach the dune base and cause substantial scarping and erosion.

In terms of climate, maximum temperatures range from 22-23 °C, whereas minimum temperatures range between 13-15 °C (Doyle, 2018). Rainfall varies latitudinally in NSW, with two seasonal patterns. In the north half of the state, rainfall is predominantly seasonal with a slight summer maximum due to the influence of tropical monsoons and east coast low pressure systems (Clarke 1989b; Short 1993). Winds are also particularly important climatic processes as they are what transports sand from the beach landwards (e.g. into the foredunes). In the north of the state, ESE – E – SE winds are predominantly responsible for sand drift and potentially dune development. In the central regions of the state, SSE – S winds become more predominant, while in the south, ENE winds are important for sand transport. For the MidCoast region, NE winds are particularly important for sand transport, as shown in Figure B2, which illustrates geomorphically significant wind systems influencing all of the NSW coastline.

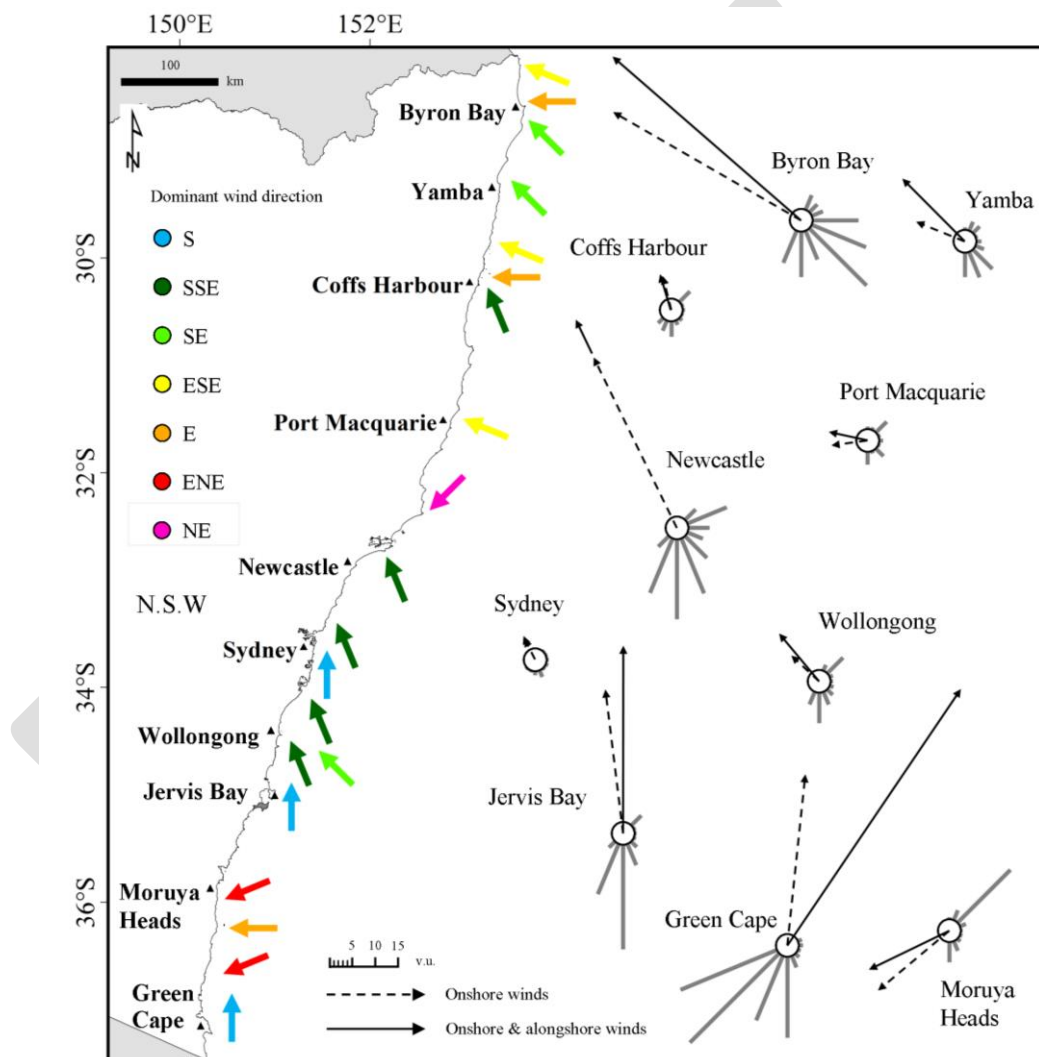


Figure B2. Geomorphically significant wind systems impacting coastal NSW Triangle symbols represent most of the major wind stations used to calculate potential of sand transport (resultant drift potential - RDP) and resultant drift direction (RDD). Coloured arrows represent the dominant wind direction influencing sediment transport in that coastal region. On the right are sand roses for selected study sites, using all available historic wind data of the labelled station. Onshore wind RDP (measured in vector units, v.u.) and RDD are indicated by the dashed arrow, alongshore plus onshore winds are indicated by the continuous solid arrows. Arrows indicate the RDP and RDD sand may move to, while grey bars indicate the drift potentials from the nine key wind directions for each weather station (those deemed onshore and alongshore/ oblique) (from Doyle, 2018) (Data source: © BoM, Commonwealth of Australia (2018)). [Significant storm events in NSW](#)

The NSW coast is generally subject to a moderate wave climate, which is periodically impacted by larger wave events that originate from offshore storm systems. Such events, especially when coinciding with high water levels/ tides, may cause coastal inundation, beach erosion, damage to property/ marine structures, and pose a great risk to public safety (Shand *et al.*, 2011). Cross-shore sediment transport can occur over relatively short time scales during and after coastal storm erosion events. Offshore transport occurs typically over hours or days as the beach profile flattens to dissipate storm waves further offshore. Beach widths can be reduced by 20-30 m, in a matter of hours, during significant erosion events along NSW open coast beaches as a result of isolated storms and/or storm clusters (a series of storms) (Couriel, 2017).

After a series of intense and damaging storm events in 1974, a network of wave buoys was established along the NSW coast (by the then Department of Public Works). Data from these buoys is now collected by Manly Hydraulics Laboratory (MHL), and is available for storm analysis. Table B2 summarises the wave data collected by the buoys closest to the Old Bar - Manning Point study region, those being Crowdy Head and Coffs Harbour. Table B2 lists the 18 largest recorded events for the region, and as displayed, the largest events (in terms of Peak wave height; H_{sig} (m)) occurred in 1978, 1989 and 1995 (Table B2). The table also summarises the duration and type of storm (see Table B3 for more information), Peak wave height (H_{sig}) (m), Maximum wave height (H_{max}) (m), peak period (T_p) (sec), mean wave height (H_{sig}) (m), wave direction (for some locations), and the buoy that recorded the data.

Table B2. NSW coastal storm event history (1974 – 2019), summarising the largest storm events detected at major wave buoys along the NSW coast (esp. those near the Old Bar Manning Point study region, e.g. Crowdy Head and Coffs Harbour) (from Shand *et al.*, 2011).

Peak Date	Duration (Hours)	Type	Peak H_{sig} (m)	H_{max} (m)	Peak T_p (s)	Mean H_{sig} (m)	Wave Direction	Buoy *
26/05/1974	96	SSL	6.2		12.8	4.1	ESE	PK
13/06/1974	318	SSL	5		14.2	3.2	S	PK
01/06/1978	90	ETL	6.9	11.5	11.5	3.9	ESE	BOT
09/07/1985	25	ETL	6.6	9.7	11.1	4.0	N/A	CHR
09/02/1988	93	ITL	6.5	10.4	15.1	3.7	N/A	CHD
22/06/1989	299	ETL	7.4	13.5	11.1	3.3	N/A	CHR
07/03/1990	84	TC	6.3	12.9	12.2	3.9	N/A	CHD
29/05/1990	70	ETL	6.7	9.3	12.2	3.4	N/A	CHD
13/10/1990	103	CL	6.4	9.7	15.1	3.5	N/A	CHD
04/03/1995	206	TC	7.4	11.0	13.5	3.7	N/A	CHD
11/05/1997	225	ETL	6.3	10.6	15.1	2.9	N/A	CHD
23/04/1999	110	SSL	6.5	10.4	15.1	3.7	N/A	CHD
15/07/1999	104	ETL	6.8	11.2	12.2	4.2	N/A	CHD
29/07/2001	35	ETL	6.3	9.3	15.1	3.4	N/A	CHD
30/06/2002	98	SSL	6.3	11.2	15.1	3.9	N/A	CHD
09/06/2007	491	ETL	6.9	14.1	10.8	3.2	SE	SYD
22/05/2009	200	ETL	6.5	10.2	12.2	3.5	N/A	CHR
05/06/2016	72	ETL	6.6	13.3	12.1	N/A	E - ENE	CHD

* PK = Port Kembla; CHD = Crowdy Head; CHR = Coffs Harbour; BOT = Botany Bay; SYD = Sydney

Table B3 summarises and describes the key storm types impacting the Old Bar – Manning Point coastal region.

Table B3. Storm type definitions (from Shand *et al.*, 2011).

Abbreviation	Full Name	Description
ETL	Easterly Trough Low	Cyclonic depressions generated primarily along the central NSW coast between 25 and 40° latitude
CL	Continental Low	Storms originating in Western Australia off the Great Australian Bight and moving overland, often re-intensifying upon crossing the east coast
STL	Southern Tasman Low	Major lows in the southern ocean south of 38°
SSL	Southern Secondary Low	Form in association with STL as a secondary cut off low in the Tasman sea
ITL	Inland Trough Low	Originate in the quasi-permanent low pressure trough over inland OLD, their movement to the east coast is often associated with STL
TC	Tropical Low	Low pressure systems forming in the Coral Sea but not reaching the low pressure intensity of a named tropical cyclone

Maximum rates of beach recovery, typically occurring immediately after the erosional storm event, were identified as ranging from 0.35 to 0.68 m/day for 10 storm events between 2004 and 2013 (Phillips *et al.*, 2015). However, following the June 2016 storm recovery rates of over 1 m/day were observed. In contrast, the evidence suggests that following the severe 1974 storm it took up to a decade for the beach at Collaroy/ Narrabeen to fully return to its pre storm width (inc. dune recovery).

8.3 Appendix C – Roles and Responsibilities

The CM Act (and other relevant legislation) has already established clear roles and responsibilities for local councils, government authorities and Ministers, for the management of the NSW coastal zone. The MidCoast region is no different, and table C1 outlines these roles and responsibilities for different entities in managing the MCC coastline.

Table C1. Roles and responsibilities for different entities connected to managing the MidCoast Council coastline.

Agency / Entity	Roles and responsibilities
MidCoast Council	- Prepare a CMP in accordance with the CM Act and CM Manual - Prepare Local Environment Plans (LEP), which guide sustainable planning decisions, and guide accurate mapping of the coastal management areas for the LGA - Responsible for the maintenance and management of all divested Crown and Council owned foreshore reserves - Identify cost and cost sharing arrangement for implementing management actions - Implement the CMP through their IP&R program - Monitor and report on implementation of the CMP - Assess certain development proposals within the coastal zone, and be a consent authority in certain circumstances - Develop plans and take action in relation to multiple aspects of sustainable management of foreshore areas, including stormwater, wastewater, vegetation management, weed management, public access and recreation facilities - Provide support for community groups such as Landcare/ Bushcare
Minister for the Environment	- Administers the CM Act - Gazettes the manual - May direct a local council to prepare a CMP under the CM Act - May certify, or refuse to certify, a CMP - Appoints the NSW Coastal Council - May direct the NSW Coastal Council to undertake a performance audit of CMP implementation - May direct a review of the CM Act - Tables reports from the NSW Coastal Council in Parliament - May prepare a CMP under certain circumstances
Minister for Planning	- Issues section 9.1 directions under the EP&A Act - Recommends the making or amendment of the CM SEPP including maps of the coastal management areas - May make LEPs that amend coastal management area maps in the CM SEPP
NSW Coastal Council	- Provides independent and expert advice to the Minister - Oversees the effectiveness of coastal management in NSW - Provides advice to councils and public authorities if requested by the Minister - Provides advice on compliance by councils with the management objectives and the manual when preparing a CMP

	- Conducts performance audits of the implementation of local council CMPs and identifies opportunities for local council capacity building - Reports to the Minister about the outcomes of audits and makes recommendations on appropriate remedial actions
Department of Planning, Industry and Environment - Environment, Energy and Science – Coast and Estuaries	- Supports the Minister administering the CM Act - Prepares and updates the manual and any supporting material - Is a point of contact for local councils or public authorities when preparing and implementing a CMP - Provides advice on preparation and implementation of a CMP - Provides technical and financial support to implement coastal management in NSW - Provides advice to the Minister administering the CM Act
Department of Planning, Industry and Environment - Regions, Industry, Agriculture and Resources - Department of Primary Industries Fisheries	- Administers the <i>Fisheries Management Act 1994</i> - The objectives of this Act are to conserve, develop and share the fisheries resources of the State for the benefit of present and future generations - Under the Act a permit is required before dredging or reclamation is carried out, or to cut, remove, damage, or destroy mangroves, sea grasses and any other marine vegetation.
Department of Planning, Industry and Environment – Crown Lands.	- Crown Lands is responsible for approximately half of NSW land and manages some of the most iconic and diverse public land through the Crown reserve system - The department provides land access for community, commercial and recreational purposes and ensures our land is sustained for future use - The department manages leases and licenses enabling the use of Crown land across the state for a range of commercial, agricultural, industrial, community, residential and private uses. The department also manages the development, marketing and sale of Crown lands not required for public purposes - The department investigates and assesses Aboriginal land claims across the state under the NSW Aboriginal Land Rights Act 1983. The Crown estate is managed in accordance with Commonwealth Native Title legislation - Crown Lands are responsible for the management of land below the mean high tide and the ocean floor. It is necessary to consult with the Department and obtain the relevant approvals before undertaking use or development of submerged or foreshore Crown land
Marine Estate Management Authority	- In NSW, marine parks are declared and managed under the <i>Marine Estate Management Act 2014</i> (MEMA) - Marine Parks help to conserve marine biodiversity within the NSW marine estate, while at the same time providing for many other activities, such as diving, boating, fishing and tourism - Marine Estate has released a marine strategy that responds to the priority threats identified by the 'NSW Marine Estate Threat

	and Risk Assessment Final Report'. The strategy includes 9 interlinked initiatives: ✓ Improving water quality and reducing litter ✓ Delivering healthy coastal habitats with sustainable use and development ✓ Planning for Climate Change ✓ Protecting the Aboriginal cultural values of the marine estate ✓ Reducing impacts on threatened and protected species ✓ Ensuring sustainable fishing and aquaculture ✓ Enabling safe and sustainable boating ✓ Enhancing social, cultural and economic benefits ✓ Delivering effective governance
Transport for NSW – Maritime	- Responsible for NSW Waterway management, including the provision of recreational and commercial boating safety regulation, enforcement and education - Grant management for the recreational boating infrastructure program, boating infrastructure emergency repair pool and boat trailer parking and storage initiative - Maritime Property management - Installation and maintenance of marine aids to navigation across NSW waterways - Survey and spatial support for the Maritime and Maritime Property - Management of aquatic events and insurance of aquatic licences - Issuance of boating licences and allocation of boat moorings - Investigation of maritime incidents - Concurrence is required from Transport for NSW – Maritime before a Waterfront Licence (domestic wharves, jetties etc.) will be issued by Crown Lands.
Local Land Services	- The role of Hunter Local Land Services is to help support the future of agriculture and the environment in the Hunter Region, which includes MidCoast Council. The Hunter Local Strategic Plan 2016-21 prioritises and directs customer services, partnerships and investment across the region.
National Parks and Wildlife Services (NPWS)	- The NPWS has statutory responsibility for the management of national parks and reserves in NSW. This network of protected areas incorporates approx. 48% of the NSW coastline, making NPWS one of the largest managers of coastal resources in the state. NPWS has the functional responsibility for liaising with reserve managers, other NSW Government agencies, LGAs and the community on a range of coastal matters/initiatives including the development of strategic documents and proposed coastal protection measures such as CMP/s. NPWS is a key stakeholder in the development and implementation of the CMP.

	- NPWS is particularly interested in how proposed coastal development and activities may impact on: ✓ Threatened flora and fauna species and ecological communities; ✓ Marine mammals and rescue operations; ✓ European and Aboriginal cultural heritage; ✓ Community and visitor use of coastal reserves; ✓ Coastal landscape protection (e.g. beaches, foreshores and headlands); and ✓ Use, maintenance and provision of coastal infrastructure.
MCC Coastal Working Group	- The "Coastal Working Group" convenes regularly to guide MCC CMP/s ensuring they are prepared in accordance with the requirements of the CM Act, 2016, the CM SEPP 2018, the NSW Coastal Management Manual, and most current scientific findings/ literature. - The role of the Working group, as set by its Terms of Reference is to: ✓ provide input into the development of consultancy briefs and assist in the engagement of suitable consulting firms to undertake the requisite studies for the CMP; ✓ review documentation and studies to ensure that the CMP is developed in line with government guidance material and site specific objectives; ✓ progress the Cost-Benefit Analysis (CBA) and scenario testing to develop the cost apportionment for any favoured management measure; and ✓ engage an expert panel where specialist information is required to develop options; ✓ provide input into the development of a community engagement consultancy brief and assist the appointed consultant to undertake tasks outlined within the agreed engagement strategy; ✓ in consultation with the appointed community engagement consultant, develop the management messaging and ensure that this messaging is appropriately delivered to the community.
MCC CMP Community Reference Group	- Community Reference Group for the Old Bar Manning Point Coastal Management Program was established by a resolution of MidCoast Council on 11th September 2019. - This community reference group will guide the development of the OB MP CMP Stages 2 – 4. - A community reference group will be established to guide the development of a whole of Coast CMP Stages 2 – 4, to coincide with planned timeframe outlined in section 6.1.

8.4 Appendix D – MCC Community Engagement Plan – Coastal Management Program

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Community Engagement Plan – Coastal Management Program

Version: 1 Date: 18/12/2019

Council mission: We deliver benefits for our community in a way that adds value and builds trust.

Please note this document will be updated and changed where necessary, throughout the engagement process, as to ensure the desired outcome is achieved.

Lead officer: Andrew Staniland

Engagement Officer: xxxx

Context

The MidCoast coastline is a complex and beautiful part of our LGA. Each of our highly valued beaches have individual characteristics that need to be considered while maintaining continuity along the ~192km of coast. The effective management of the coast is integral to support the coastal region of MidCoast Council (MCC) as a liveable environment, by understanding and managing for changing coastal processes and climate.

To complement the CM Act 2016 objectives, Council have reflected on 'Why' we are involved in Coastal Management and set our own broad aims to assist and guide the development of Coastal Management Program/s for MidCoast Council. These aims have been expressed as a way to make a positive difference for the coast through the work Council does:

- Managing the interaction of people and the coast to ensure the coast is a place to enjoy: it's a place of naturalness; contemplation; and of wild places, in order to deliver a positive legacy for future generations.
- Striving to develop a culture of respect for the coast
- Delivering coastal management with a positive influence across the LGA

Scope of project

As directed by the Coastal Management Act 2016 (CM Act) [<https://www.legislation.nsw.gov.au/#/view/act/2016/20>] Council are to develop and implement Coastal Management Programs. Through 5 differing Stages, the CMP will identify current gaps in knowledge and how to fill these gaps by identifying high level threats to the coast and assessing these risks. The CMP will develop and evaluate the feasibility of management options. Prioritisation of management options. Undertake community consultation on prioritised management options. Following public exhibition, the CMP will be adopted and certified. The final stage is the implementation of the identified management options.

Influence

Non-negotiable elements	Reason
Coastal Management Act 2016	Legislative responsibility

Purpose of engagement:

- Support public participation in coastal management and planning (and planning proposal when required) as well as greater education in coastal science, data, processes and management actions/ options

Objectives of engagement

- To understand and acknowledge the social and cultural values, including Aboriginal Peoples' use of the Mid-North NSW Coast
- To recognise the coast as a vital economic zone, and encourage ecologically sustainable development/ sustainable land use planning decision-making within this region
- To ensure the community has an understanding of coastal process and coastal hazards
- To ensure the community participates towards the development of management options for our coast

Linkage of project to [MidCoast 2030 and DPOP](#)

MidCoast 2030

Links to the MidCoast 2030 vision – *“We strive to be recognised as a place of unique environmental and cultural significance. Our strong community connection, coupled with our innovative development and growing economy, builds the quality of life we value”.*

- We value our unique, diverse and culturally rich communities
- We value a connected community
- We value our environment
- We value our thriving and growing economy
- We value strong leadership and shared vision

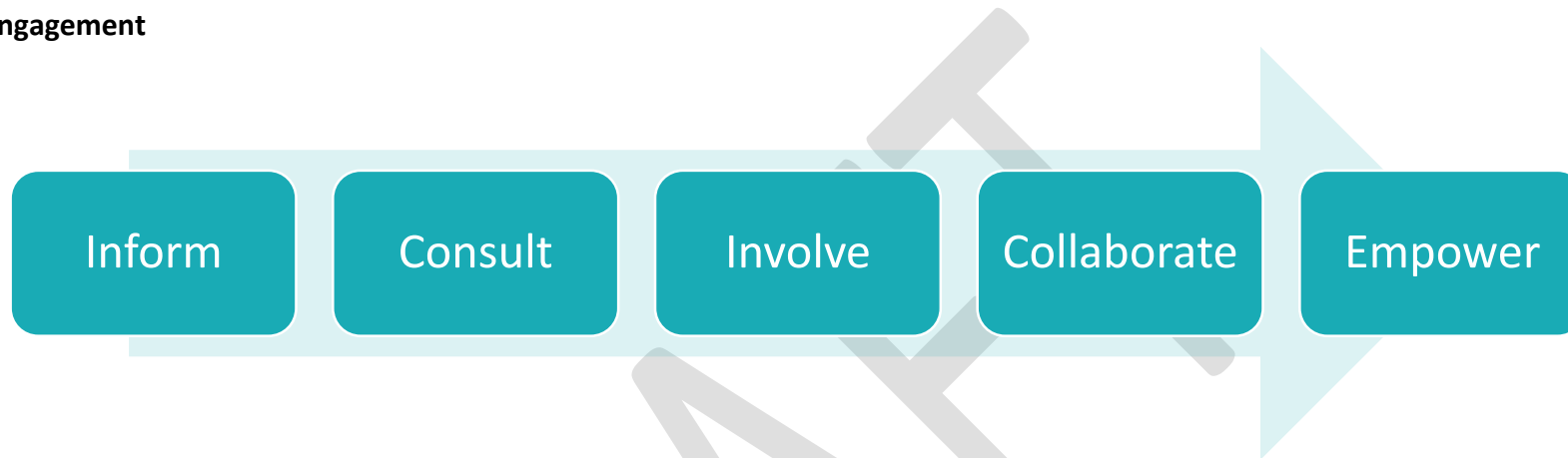
Delivery Program

- 7.2.2 - Develop and implement a strategic response to climate change risk along the MidCoast LGA coastline.

Operational plan

- 7.2.2 - Complete preparation of a Coastal Management Program for the Old Bar Manning Point coastal compartment.

Level of engagement



The proposed levels of the engagement are:

- Involve - To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.
- Collaborate - To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.

Stakeholders and communities of interest

Stakeholder	Interest in the project	Level of engagement
Community Reference Groups	Interested in coastal management and how the coastal hazards and potential management solutions could impact or influence their area of interest.	Involve / Collaborate
Sand Replenishment Group/s		
Progress Associations		
Residents Groups / Associations		
Recreational Fishing Groups		
Birdwatching Groups		
Business & Chambers of Commerce		
4WD Groups		
Landcare / Coastcare Groups		
Surf Life Saving Clubs		
Department of Planning Industry and Environment	Assist the development of management options and supply advise on technical aspects of the CMP.	Collaborate
National Parks and Wildlife		
Transport NSW		
MidCoast Council departments		

Secondary Stakeholders

- Media
- Social Media

Engagement Approach

Timing	Activity / tools	Level	Purpose	Details
CMP Stage 1 Scoping Study		Inform	Advise / educate identified group on: Coastal Management Act 2016 • MEMS and TARA • Coastal Management Program • CMP guidelines • Identified Risks / Issues • Knowledge Gaps • Forward Plan	• Scoping Study document • CM Act 2016 • CMP Guidelines / Stages of CMP • Maps to show extent of area of Interest
CMP Stage 2 Scientific Studies to fill knowledge gaps	Community Reference Group. Identified community group/s Website / media release	Inform / Involve	Advise / educate identified group on: • Coastal process • Coastal hazards • Sea Level Rise projections • Probabilistic Hazard Mapping • Flood Studies • Relevant scientific studies	• Details on coastal process / hazards • Consultants to provide presentations to identified groups • Clear maps • Multiple meetings to explain scientific detail
CMP Stage 3 Management Options		Involve / Collaborate	Work with identified group to • Establish and evaluate feasibility including coast of management options • Prioritise management options	• Community Engagement consultant • Social Scientist • Details on management options • CBA • Stage 2 Studies / learnings

Engagement Approach (cont)

Timing	Activity / tools	Level	Purpose	Details
CMP Stage 4 Prepare / Exhibit CMP	Community Reference Group. Identified community group/s	Involve	Advise and request response on CMP through: • Formal Public Exhibition process • Community engagement sessions	• Community Engagement consultant • Drop in sessions for community • Council website & offices to permit people to view document
CMP Stage 5 Implement CMP		Involve	Work with community / identified group to: • Support implementation of prioritised management option	• Council website & social media • Drop in sessions for community

Key Messages

- Acknowledge that a highly valued area/s are vulnerable to coastal process / hazards
- Long term management is required to deal with issues faced
- Collaborative effort requiring a multi-disciplinary approach

Communication channels

Method	Deadlines	Details
Media release – all local media (newspaper, radio, TV, community newsletters), or targeted sub-segment	2 weeks	Consistent with communications plan
Media Briefings – TV/radio	1 day	
Social Media – videos	4 weeks	
Council website	2 weeks	
Local community newsletters / direct mail (targeted)	1 week	

Risks

Issue	Likelihood	Mitigation measures
Communities expectation exceeds the scope of the project	Moderate / High	- Ensure that the scope of works is clearly defined at the start of the engagement and is communicated as part of key messages. - Clearly outline areas where potential changes can be made within the scope of works
Lack of engagement due to a sense of distrust in Council, lack of interest or connection to the outcome	High	- Ensure that the community area aware of the engagement process and can access comprehensive information on the project (where applicable). - Ensure the community are informed of the scope of project and how the feedback will be used to influence the final project. - Ensure that participants are informed of the outcomes of decision and how their feedback influenced this. - For larger or highly contentious projects ensure the values and principles of engagement are clearly communicated
Sense of frustration with Council due to issues outside of the scope of the project	High	- Operational issues will be lodged as customer service requests - Other issues will be noted and can be fed into the DPOP and Local Community Planning process, which can be progressed at a later date with the community

Risks (cont)

Issue	Likelihood	Mitigation measures
Expectation set regarding level of engagement for similar future projects	Moderate	• Ensure the purpose of engagement is clearly communicated as part of key messages • Ensure that level of engagement is appropriate to the level of impact to stakeholders
Overall engagement of stakeholders/community is low	Low	• Locality specific engagement needs to be measured relative to the surrounding population. • Key messages need to clearly outline the intent of the process and clearly set expectations for outcome. • Communication activities will be tailored to the communities of interest • Targeted engagement will be conducted with key stakeholders to ensure those with an interest in project have an opportunity to have a say.
Where options are provided, none are preferred by stakeholders	Moderate	• Key messages need to clearly outline the intent of the process and clearly set expectations for outcome
Frustration with Council for spending staff resources/money on engagement	Low	• Key messages need to clearly outline the intent of the process and clearly set expectations for outcome • Scale of engagement, kept relative to the impact of the outcome
Participants is not representative of demographics profile	Moderate	• Basic demographic information will be collected at all engagement activities. Where gaps in representation are identified, additional engagement will be undertaken to target those groups. • Engagement activities will be designed to be inclusive.

Risks (cont)

Issue	Likelihood	Mitigation measures
Participants express that they don't feel heard	Moderate	• Participatory engagement methods will be used to ensure participants feel heard, their input is meaningful and they have fun throughout the engagement process. • Engagement activities have been tailored to ensure that affected community members have opportunity to provide input. • All input from each engagement activity will be recorded and made available to the community, along with how it has influenced the outcome. • Participatory engagement methods will be used to ensure participants feel heard, their input is meaningful and they have fun throughout the engagement process. • All input from each engagement activity will be recorded and made available to the community, along with how it has influenced the outcome.
Community members feel outrage regarding the potential outcomes of the decision	Moderate	• Potential users affected will be engaged early in the process and educated on the detail of the project. • Concerns raised will be addressed in a FAQ and update regularly throughout engagement process, as new questions arise • Key messaging focuses on the positive outcomes of the project • Messaging includes current usage numbers to give evidence for need for change • Potential users affected will be engaged early in the process and educated on the detail of the project. • Feedback will be provided to all participants on process. • For large projects key principles and values of engagement will be clearly articulated.

Budget

- Community Engagement Consultant – grant funded (include in CMP development grant applications)
- Social Scientist – partner with University or grant funded (include in CMP development grant applications)
- Coastal Management Coordinator – Council funded
- Community Engagement / Media Team – Council funded

What will be better because we engaged well?

- Community will feel informed/involved throughout the project and understand the decision making process and the complex coastal science, which will contribute to building greater trust between MidCoast Council and the community
- Build the reputation of Council in conducting meaningful and transparent engagement and be more likely to engagement in the future
- Outcome of the decision will reflect the communities needs and desires
- Community will have a deeper understanding of coastal process and hazards
- Community will feel a sense of involvement and built relationship with Council
- Community will feel a greater connection to place

How will participants know that their input has been valued (closing the loop)

- Engagement process will encourage face to face communication / education on complex issues
- Engagement process will encourage focused groups to work with Council and Agency towards management solution/s
- Engagement activities will be documented, using both photos, plans and reports produced throughout engagement and made available online (Facebook and website)
- Participants involved in the engagement process will be kept informed at various stages of engagement and the project construction via email and website
- Participants will be given the option to provide contact details to keep informed via email the summary of engagement/Engagement Outcomes Report as well as the outcome of the decision

Evaluation measures

- Specific measures developed are based on engagement objectives
- Participants express that they felt heard
- Participants understand how their input influenced the final decision
- Follow up survey provided to participants who provide contact details, once works is completed

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8.5 Appendix E – MCC Media / Communications Strategy

MEDIA / COMMUNICATIONS STRATEGY

Project Name	Coastal Management Plan (CMP) • Old Bar / Manning Point • Whole Coast	Date:	16 January 2020
Department / Section	Planning and Natural Systems	Date Comm's Required	Ongoing
Project Owner	Andrew Staniland. Coastal Management Coordinator.		
Approval required	Gerard Tuckerman. Manager Natural Systems.		
Media Expert / Liaison	Meagan Cooper. Senior Communications Officer.		

Issue / Opportunity

As directed by the Coastal Management Act 2016 (CM Act) [<https://www.legislation.nsw.gov.au/#/view/act/2016/20>] Council is required to develop and implement Coastal Management Programs. There are 5 stages in the development of a CMP. With the aim that the CMP identifies current gaps in knowledge and how to fill these gaps by identifying high level threats to the coast and assessing these risks, then implementing management options / solutions for these identified high level risk areas.

Background

In accordance with section 55G of the Coastal Protection Act 1979, several Coastal Zone Management Plan (CZMP) were created, certified and gazetted. These being:

- Jimmys Beach CZMP – March 2016
- Great Lakes CZMP – August 2016
- Manning Valley CZMP – January 2018

The Coastal Management Act 2016 recognises these CZMP, and directs that existing CZMPs are converted into CMPs. To ensure continuity along the ~192km of MidCoast Council's coast line, it is envisaged that one CMP for the open coast be developed. However, to reach this goal, it has been determined that two CMPs are to be developed. These being the Old Bar Manning Point CMP (by Dec 2020) and the Open Coast CMP (by Dec 2021) With the review of these to be converted to a single Open Coast CMP by 2025.

During a meeting between MidCoast Council (Council) and the former Office of Environment & Heritage (now the Department of Planning, Industry and Environment – DPIE) on 22 June 2016, it was agreed that the draft *Greater Taree Coastal Zone Management Plan November 2015* could be modified to permit certification. The proposed modifications to the draft plan included the separation of the Old Bar - Manning Point area from the plan to allow the less sensitive sections of the Greater Taree CZMP to be certified. At this meeting, it was agreed that the Old Bar - Manning Point area would be addressed in a separate Coastal Management Program (CMP), fulfilling *Coastal Management Act 2016* requirements. At its Ordinary Meeting of 26 October 2016, Council resolved to support this action. This action permitted the certification of the Manning Valley CZMP Jan 2018 (generated from the draft *Greater Taree Coastal Zone Management Plan November 2015*).

Media Aims / Objectives

Aim:

- Inform audiences of Council working in the coastal space
- Build capacity and trust that council knows what its talking about
- Council not alone, other departments / organisations / specialists are helping
- Encourage community to get involved - especially following notice of community engagement events
- Educate community on the complexities coastal processes
- Provide updates on potential erosion events (predicted storms)
- Provide update on erosion post storm event
- Explain / educate on management options as developed by the Coastal Management Plan (CMP)

Objectives:

- To build trust with our community by proactively ensuring our target market/s are well-informed, in a timely manner
- To be first to the market and maintain control of outbound messaging
- To ensure Council is the first point of call for news and information relating to local coastal management / coastal issues
- Encourage community to participate in the conversation about coastal management.
- To deliver a positive impact for the Council brand, by demonstrating credibility, professionalism, a collaborative approach, flexibility, and public concern.

Timing and outcomes

1. Immediate communication outlining current status, timings and funding around delivery of short-term approaches. Managing expectations, and underpinned with longer term strategy / planning and realistic outcomes.
2. Longer term strategy: Ongoing communication maintaining dialogue with key stakeholders* and keeping the local and broader communities updated. Managing expectations around realistic timings and realistic outcomes.

Target Audience/s

**Note: Specific stakeholders will be managed in isolation of this communications plan. These include identified community groups or individuals, members of the Coastal Management Group (internal) and members of the External Working Group (external), and State Government representatives (see engagement plan).*

Primary Target/s:

- Businesses, residents and property-owners in identified coastal areas. They may own property located in the coastal zone and therefore directly impacted, nearby property owners (sympathisers), or regular users of the beach (walking, swimming, 4WD'ing etc.).
- Managers / Committees of public facilities e.g. Surf Club's and Public Schools, whose interest is driven through potential impact on ability to maintain service to the community.
- Businesses in coastal areas, whose interest is driven through future appeal of their local areas in attracting both residents and visitors.
- Community members who view this as their local beach, though they do not live in the immediate area

Secondary Target/s:

- Property-owners in other coastal towns and villages throughout the MidCoast region, interested in the approach and its effectiveness in protecting our coastal assets at specific beaches.
- Property-owners across the MidCoast region, who may be infrequent users of the beaches, and/or who may take an active interest in Council's funding of any coastal management activity that potentially diverts funding away from their own area/s.

Additional Target/s:

- Coastal Professionals and other organisations / Councils interested in the approach MidCoast Council will / is taking on managing the coast (could extend to national or even international market).
- Universities and schools looking to this location to support their curriculum.
- Community groups / organisations outside the MidCoast Council area, who are focusing on coastal matters

Approved definitions / wording

Aim to ensure that all releases use consistent wording to convey the message. It is anticipated that a range of key messages will be required for the project. As such, it is expected that this section will be continually built upon.

Approved wording	To be used in reference to
Coastal Management Program (CMP)	Long term plan for the management of coastal areas, as directed by the <i>Coastal Management Act 2016</i> .
Long term management plan, currently being developed. The final report will give direction to the future management of coastal areas, such as the Old Bar and Manning Point coastal zone.	Coastal Management Program (CMP)
Rapid loss of beach sand. It's a natural process.	Beach erosion
Natural movement of sand (via wind and waves) back onto the beach, following an erosion event. Slow process that may take months / years	Beach accretion / prograding beach
A vulnerable area that is actively eroding	Old Bar Beach Manning Point Beach Jimmys Beach
Long term management required to deal with issues faced	No fix to erosion problems
Mechanical movement of sand to build a beach profile.	Beach Nourishment
Collaborative effort requiring a multi-disciplinary approach	Council (internal) Coastal Management Group External Coastal Management Working Group Multi agency partnerships
Coastal Management Working Group	External organisations partnered with Council to focus on the development of the Coastal CMP/s. Includes the Department of Primary Industry and Environment (DPIE), Department of Industry Lands (DoI Lands), MidCoast Council (Council) and independent coastal scientists

Approved wording	To be used in reference to
Interim measures that could be implemented on the beach to create a buffer against coastal processes. These measures are expected to be sacrificed in storm / erosion events. These options are designed to be eroded, instead of existing dunes. If implemented the measures may only be done on a limited number of occasions. These measures are to manage a situation in the short to medium term this area.	Short term buying time options such as sand scraping
Coastal Processes	Storm events, erosions, wave run up, inundation, sea level rise etc.
Coastal zone	2km inland from the high tide mark includes coastal creek / wetlands
More added here	

COMMUNICATIONS STRATEGY

First to market

Through proactive and timely outgoing communications, ensure we maintain consistent messaging, with correct information. Will require Coastal Management Group to maintain close relationships with key stakeholders to prevent outgoing communications not originating from Council. This includes members of Community Reference Groups, Community Groups, Councillors, Members for Parliament and external agencies partnered with Council. Established internal process will ensure that all incoming media enquiries and requests for information are directed in a planned and agreed manner, via the media team to the Project Owner.

Educational

Provide technical information in easy-to-understand language, so target markets understand our messaging and can respond in an informed way. For example, education on government policy, coastal management terms and techniques, coastal processes, and roles / responsibilities of Council and other agencies. Establish an easy-to-find / use web “hub” as an educational resource that also provides links to more specific information (e.g. our “layman’s overview” of NSW Government Coastal Management Act / policy, complete with links to web sites with the specific information. Envisaged this will be a dedicated page on Council's web site.

Credibility

Explain and reinforce our robust approach which is underpinned by experience, collaboration, and concern for our local communities. Demonstrate flexibility and willingness to listen to community and other stakeholders. Reacting / reporting on weather events in a timely manner. Consistently use Project Owner as spokesperson / subject expert, unless issue requires response from a Director / GM.

Transparency

Adopt a realistic and practical voice, accurately describing the current situation and clearly detailing timings and potential future outcomes. Maintain a rational (technical) tone balanced by a need for empathy (versus emotion). Use Project Owner as spokesperson / subject expert, and provide the opportunity for two-way dialogue where possible*. A call-to-action using a poll, survey or “tell us what you think” are simple ways to invite feedback, acting as a way to measure engagement at the same time.

** See Community Engagement strategy for additional information.*

IDENTIFIED RISKS

Risk	Mitigation
Delays caused by external agencies could reflect badly on MCC.	Clear and regular reinforcement of roles, responsibilities and timings. Direct communication with key stakeholders (see engagement strategy)
Funding for “buying time” initiatives not forthcoming from State Government.	Do not announce / promote works until funding is secure.
Misconstrued outcomes	Avoid language such as “solution”, “fix” or “permanent” Communicate the reality (and complexity) directly and openly
Existing cynicism by stakeholders / community regarding Council	Promote internal expertise. Consistently use Project Owner as spokesperson / subject expert, unless issue requires response from a Director / GM Promote the engagement of external / independent resources as contracted
Over-promise, under-deliver	Set and maintain realistic expectations. Proactively acknowledge unforeseen hurdles, explain why there was a change in the project. Openly promote delivery milestones (e.g. grant funding) Consistently use Project Owner as spokesperson / subject expert, unless issue requires response from a Director / GM
Speculation and / or discussion around funding divides communities (local and MCC-wide)	Maintain a rational and unbiased stance in all communications Clearly explain different funding models and where / why they originated Be proactive and frequent in providing updated information Use case-studies from other locations to demonstrate a range of workable funding scenarios Clearly explain the time difference between grant funding announcement to the project starting on ground (as these are normally months apart) Note: see Community Engagement strategy

COMMUNICATION TOOLS

- Media release – all local media (newspaper, radio, TV, community newsletters), or targeted sub-segment
- Media briefings
- Pre-records / Live interviews with TV / Radio
- Video (scripted and created internally)
- Local community newsletters (targeted)
- Council website – news, CM Hub (to be set-up), home-page click-through, “subscribe” function
- Social media – Council FB and Twitter
- Weekly newspaper advertising – Manning River Times, Wingham Chronicle, Great Lakes Advocate, Gloucester Advocate
- Weekly radio segment – 2RE and Great Lakes FM
- Email blasts – database TBC
- Localised collateral – eg. flyers in letterboxes, posters in businesses, articles for use in school or club newsletters

Responsibilities and sign off.

Acknowledging the short timeframes and deadlines associated with dealing with the media, and noting the demands on Directors and Managers, the response time for sign off on media releases may not always be efficient. As such, the following structure shall be followed for media releases in relation to this project.

- All media to be developed to a final draft stage by Council's Communications Officer and the Project Owner.
- Final draft and sign off by the Manager Natural Systems (with notice to Director of Planning following sign off, as required).
- Final draft and sign off by the Director of Planning for media relating to contentious issues as identified by Project Owner and Manager Natural Systems.
- All signed off media releases distributed to media contacts by the Communications Officer.

Media responses / requests for comment or interview

All requests for additional media response / interview (TV / radio) either following media release distribution or storm / erosion event are to be given high priority. The following structure shall be followed for additional media response in relation to this project.

- All requests for additional media interviews to be sent to Communications Officer / Media Team.
- Communications Officer / Media Team to arrange with Project Owner / Director / GM (depending on severity of the issue) to undertake TV / radio interview (media delegation required).
- Project Owner / Director / GM to undertake media response as a matter of priority

8.6 Appendix F – Previous and / or adjoining coastal plans

8.6.1 Manning River Estuary CMP

The Manning River Estuary Coastal Management Program (Manning River ECMP) aspires to protect and improve the ecological health of the Manning Estuary, and in doing so support the social, cultural and economic values of the region. The Manning River estuary covers an area of approximately 32.3km², comprising a set of complex inter-connecting channels approximately 115km in length, and drains an extensive catchment in the order of 8,420km². The primary objectives of the Manning River ECMP are:

- a) To maintain and improve water quality and the health of the Manning River Estuary.
- b) To reduce threats to and improve the resilience of the Manning River Estuary, including response to climate change.
- c) To protect and enhance natural processes and environmental values including natural character, biological diversity and ecosystem integrity of the Manning River Estuary.
- d) To protect, restore and rehabilitate coastal wetlands within the Manning River Catchment, including their biological diversity and ecosystem integrity.
- e) To improve the resilience of coastal wetlands to the impacts of climate change, including opportunities for ecosystem migration.

The Manning River ECMP draws on previous studies of the Manning Estuary that were undertaken in 1990, 1997 and 2009 respectively (NSW Department of Public Works and Services, 1990 cited in Patterson Britton and Partners, 2009; Webb, McKeown and Associates, 1997; Patterson Britton and Partners, 2009), after which the Manning River Estuary Management Plan was completed in 2009 (Patterson Britton and Partners, 2009). In 2014 a review of the Plan was undertaken and an updated Implementation Schedule developed. The original plan and review focussed on the immediate estuary and surrounding areas primarily in the floodplain zone within the former Greater Taree City Council. The Manning Catchment is predominantly within the LGA of MCC, thus enabling wider consideration of threats to the estuary including diffuse runoff from catchments outside the LGA. The Lower Manning River Drainage Remediation Plan was completed in 2016; which assessed 15 floodplain sub-catchments of the Manning River estuary for the amelioration of the effects of acidic runoff on estuarine values. This Plan forms a significant component of the risk assessment and gap analysis within the Manning River ECMP Scoping Study and will be important to guide the development of long term management actions.

8.6.2 Jimmys Beach CZMP 2016

Jimmys Beach Coastal Hazard Definition Study was completed by SMEC Australia Pty Ltd in October 2013 and was subsequently adopted by Council for use in the revision of the Coastal Risk Planning Area map contained in the then Draft LEP 2013. The hazard study provided information on the magnitude and projected probability of erosion and recession hazards along Jimmys Beach and Winda Woppa based on an assumption of unconstrained recession in response to projected sea level rise.

The Coastal Zone Management Process for Jimmys Beach was commenced in October 2013. The process has progressed through several iterations of community engagement, Council and state agency input to arrive at the final certified and gazetted state.

Following the review of the coastal processes, community input, risks and costings, potential management options were prioritised and a management strategy recommended. Recommended actions include:

- a) Further Investigation and Monitoring

- b) Development Controls
- c) Beach Renourishment (Short Term)
- d) On-Demand Renourishment System (Long Term)
- e) Stormwater Management/Water Quality
- f) Emergency Planning
- g) Education
- h) Access Management
- i) Dune/Natural Area Management
- j) Compliance Issues
- k) Foreshore Facilities

Of the above actions renourishment was found to be the most cost effective in the medium to long term. Renourishment offers a means to effectively stall long term recession and offset episodic erosion events whilst still preserving the amenity of the beach. If sea level rise continues to impact coastal systems as projected the frequency or rate of renourishment will need to increase to match foreshore adjustment.

Significantly, establishment of a sand transfer system using either Winda Woppa Spit or Yacaaba sources will greatly decrease the cost/m³ from that applying to truck haulage and placement. In addition, gradual, on-demand renourishment will allow the restoration of a more resilient beach profile characterised by a wide, gently sloping intertidal zone as well as incipient and primary dunes. This more stable profile will dramatically reduce the amount of sand needed for replenishment following future storm events, further saving annual costs.

8.6.3 Great Lakes CZMP 2016

This Coastal Plan covers the open coastline from Black Head at the northern end of Nine Mile Beach to Yacaaba Head at the southern end of Bennetts Beach. The developed beaches have been given particular focus, including Tuncurry (Nine Mile Beach), Forster Main, One Mile, Seven Mile, Elizabeth, Boomerang, Blueys, Sandbar Beach, Seal Rocks Number One, Seal Rocks Boat and Bennetts beaches.

For major public assets such as stormwater pipes or roads, the costly and disruptive impacts of coastal risks need to be avoided. A key action in this Coastal Plan is flagging the assets at risk, selecting how that risk will be managed, and factoring this into the cost of replacing the asset. Action to protect the asset (e.g. relocation or redesign) can be taken when the asset is due to be replaced. The Coastal Plan also outlines a 'trigger point' to warn if a coastal risk begins to threatens an asset before it is due to be replaced.

In one or two locations in Great Lakes, the present day risk to private property and major public assets (roads, stormwater, sewers) requires more decisive action in the short term. There are generally two approaches, both of which have positive and negative impacts. The approaches are either to:

- "accept" the impact and loss of land, and shift or remove assets so that the beach can retreat, retaining a sandy beach; or
- "protect" the asset at risk, with beach nourishment, seawalls or other structures. These actions can be extremely costly, and use of hard structures like seawalls can reduce the width and amenity of the beach.

8.6.4 Manning Valley CZMP 2018

During a meeting between MCC (Council) and DPIE on 22 June 2016, it was agreed that the draft Greater Taree Coastal Zone Management Plan November 2015 (Greater Taree CZMP) could be modified to permit certification. The proposed modifications to the draft plan included the separation of the Old Bar / Manning Point area from the plan to allow the less sensitive sections of the Greater Taree CZMP to be certified. At this meeting, it was agreed that the Old Bar / Manning Point area would be addressed in a separate Coastal Management Program (CMP), fulfilling Coastal Management Act 2016 requirements. At its Ordinary Meeting of 26 October 2016, Council resolved to support this action.

On 17 April 2018, OEH advised that the Manning Valley CZMP January 2018 had been certified in accordance with section 55G of the Coastal Protection Act 1979. This plan was published in the NSW Government Gazette on the 24th August 2018. The Manning Valley Coastal Zone Management Plan will help guide the future management of and investment of identified beaches in the northern section of Mid-Coast Council. The Plan will remain in force until such time as it is subsequently revised or repealed. The Manning Valley CZMP covers the area between Black Head in the south to Crowdy Bay / Diamond Head in the north, excluding the beach of Old Bar and Manning Point. The CZMP is focussed on actions over the next 5 – 10 years to manage presently known risks and improve our ability to manage future risks. Actions range from monitoring the response of beach during storm events and enhancing dune vegetation, through to identifying assets that can be repaired, replaced, relocated or removed, should they be impacted by coastal processes in the future. Assets include paths, parks, carparks, viewing platforms, picnic tables and other minor community facilities.

8.6.5 Summary of other relevant plans / reports for MCC LGA

Plan / report	Brief description of plan / report
Draft MidCoast Housing Strategy, 2019	Currently on public exhibition, this strategy identifies the opportunities and constraints within the housing market now, and housing needs of the future. It outlines a 20-year vision for Council's directions (with a particular section dedicated to the Old Bar region) to facilitate the delivery of residential housing needs. It identifies the future needs of specific localities, the needs of particular housing sectors, and the needs of the growing MidCoast community. The outcomes of this strategy will inform the development of a new MidCoast Local Environment Plan (LEP), and a Development Control Plan (DCP) – Council's key land use planning frameworks for the future.
Erosion Analysis of the Manning Sediment Compartment (Pre-Release), 2017	This study involved undertaking a review of previous studies/ literature and available data, development of a conceptual quantitative coastal process model for the Manning Valley sediment compartment, review of past and ongoing practises, and recommendations for short-term and long-term actions to better manage the observed beach erosion.
Manning Region Development Control Plan. Part D Environmental Requirements. 26 July 2017	This part identifies land subject to development constraints within areas identified as having risks and hazards associated with coastal processes. Section D1.3 specifically relates to Old Bar and Manning Point. The objectives are to ensure that development is designed and located in response to potential coastal hazards and does not adversely impact neighbouring properties or public lands. The part highlights the importance that landowners accept that this risk could mean the eventual removal of these structures from the land. (visit https://www.midcoast.nsw.gov.au/Plan-Build/Stage-2-Rules-and-Regulations/Planning-Rules for additional detail on the DCP)

Plan / report	Brief description of plan / report
Lower Manning River Drainage Remediation Action Plan, 2016	A multi-criteria priority assessment (developed by Glamore et al., 2014) was applied to the lower Manning River floodplain, to rank the flood mitigation drains and larger drainage of the sub-catchment to create actions plans for existing acid sulphate soil (ASS) issues. This was completed by systematically linking floodplain characteristics, with estuarine characteristics, to prioritise where future resources are best targeted for the management of ASS found within the catchment. The predicted impacts of climate change (esp. sea level rise) was also taken into account, to address potential issues that may arise in the next 30 – 80 years (2050 and 2100).
MidCoast Water's Integrated Water Cycle Management Strategy, 2015	Our Water Our Future is MidCoast Water's Integrated Water Cycle Management strategy. It sets out the direction for the sustainable management of water and sewer services in our area over the next 30 years. It aims to: Continue MidCoast's commitment to water saving through the Water Smart Rebate Program, with particular attention to our business and institutional customers; continue to provide safe drinking water in line with the Australian Drinking Water Guidelines, overseen by NSW Health; Increase water security for the Bulahdelah, Gloucester and Stroud water supply schemes by constructing off-river water storage; Increase water security for the Manning water supply scheme by completing the Nabiac Inland Dune Aquifer water supply scheme, an alternative supply to the Manning River, sourced from groundwater; Investigate and implement one of the two long term water supply augmentation options for the Manning water supply scheme – either new off river storage dam at the Peg Leg Creek site or supplementing our water supply with purified recycled water through an Indirect Potable Reuse scheme; Continue to operate our recycled water schemes on farmland and public open space in a sustainable manner and increase the volume of effluent that is reused; Reduce stormwater infiltration into our sewerage systems, and; Provide sewer services to currently unserved small villages, pending government support and subsidy.
Greater Taree City Council Climate Change Risk Assessment and Adaptation Plan, 2010	Climate change poses a number of challenges for the former Greater Taree City Council. The climate change risk assessment identified 47 risks to the Council's objectives and areas of operation including 19 risks to infrastructure and assets, seven to environmental management and protection, five to community services (including emergency management), four to land use planning, four to economic development and eight to corporate services. Of the 47 identified risks, 24 are rated "High" or "Extreme" in the short or medium terms and, as such, have been identified as „priority risks" for the purpose of adaptation planning. It is apparent that the Council will need to implement additional measures if these risks are to be effectively addressed.
Greater Taree Local Environmental Plan 2010	This Plan aims to make local environmental planning provisions for land in Greater Taree City in accordance with the relevant standard environmental planning instrument under section 33A of the Act. In particular, the LEP aims to encourage the proper management, development and conservation of natural and human made resources (including natural areas, forests, coastal areas, water, groundwater dependent ecosystems, agricultural land, extractive resources, towns, villages, and cultural amenities) for the purpose of promoting the social and economic welfare of the community, protecting ecological and cultural heritage and achieving a better environment, while to minimising the exposure of development to natural hazards and natural risks. (visit https://www.legislation.nsw.gov.au/#/view/EPI/2010/287 for additional detail on the LEP).

8.7 Appendix G – MCC First Pass Risk Assessment

See accompanying excel spreadsheet file – “MCC_FirstPassRiskAss_Jan2020”.

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8.8 Appendix H – Addressing the Mandatory Requirements and Essential Elements

The MCC Coast Scoping Study has been developed according to the requirements of the DPIE Scoping Study Assessment Tool, as well as the mandatory requirements of the Coastal Management Manual (DPIE, 2018).

Task 1: Determine the strategic context of Coastal Management	Addressed in CMP
Environmental Context - The document provides an overview of the environmental context, including physical features / coastal processes	Section 2.3, and Appendix B
sediment compartment / estuary catchment	Section 2.1, and Appendix A
habitat condition / extent	Section 2.3
significant storm or environmentally significant events since most recent study / coastal plan	Appendix B (Sub-section 8.2.4)
Social Context - The document provides an overview of the social context including a description of: community demographics / population projections (<i>Mandatory Requirement 12</i>)	Section 2.2
seasonal fluxes	
cultural context / Aboriginal cultural heritage and use	
social values	
projected use of coastal land for infrastructure, housing, commercial, recreational and conservation purposes (<i>Mandatory Requirement 12</i>).	
Economic Context - The document describes the economic context including coastal related tourism, industries and aquaculture	Section 2.2
Legal / Planning Context – The document provides an overview of legislation, land tenure and Environmental Planning Instruments	Section 2.4
public authority roles	Section 3.1, and Appendix C
any coastal management legal challenges	Section 2.4
existence of a previous Coastal / Estuary Plan	Section 4, and Appendix F
other strategic / planning documents (such as CSP)	Section 2.4, and Appendix F
the strategic direction established for the coast through planning documents	Section 4, Appendix F (Sub-section 8.6.5)
Barriers - The document identifies barriers including political, governance or capacity.	Section 3.3
Opportunities to overcome these are discussed.	Section 3.4

Enablers – The document describes enablers for coastal management and identifies opportunities to utilise these.	Section 3.2, and Appendix C
Sensitivity and Tolerance – The document provides a discussion of sensitivity, tolerance and vulnerability of the community and natural /built assets and cultural values to coastal hazards and threats	Section 5, and Appendix G
Task 2: Establish the purpose, vision and objectives	Addressed in CMP
Vision statement – The vision reflects the local context while remaining consistent with the states overarching vision of managing the coastal environment in a manner consistent with the principles of ESD for the social, cultural and economic well-being of the people of NSW.	Section 1
Objectives – Objectives are	Section 1 (esp. section 1.6)
• consistent with the 13 objects of the Coastal Management Act	
• consistent with management objectives in the SEPP	
• in alignment with the community strategic plan	
• realistic	
• measurable	
• positive	
Task 3: Identify the scope of the CMP inc. key management issues / areas	Addressed in CMP
Issues - The document provides a list of key issues for consideration in the CMP (<i>Mandatory Requirement 3</i>)	Section 5
First pass risk assessment – The risk assessment process:	Section 5, and Appendix G
• includes tailored likelihood and consequence scales that are valid, transparent and applicable to environmental, social and economic consequences	Section 5.3, and Appendix G
• utilises information provided through regional scale assessments such as TARA, framework for water quality and hazard mapping where locally specific information is not available	
• determines and assesses coastal risks, vulnerabilities and opportunities (including without limitation risks to environmental, social and economic values and benefits) (<i>Mandatory Requirement 6</i>); and	Section 5, and Appendix G
• considers pathways and planning timeframes from now, 20 years, 50 years and 100 years and beyond (where appropriate) (<i>Mandatory Requirements 2 and 12</i>)	Section 5, and Appendix G
• demonstrates consideration of a range of future scenarios including rare or potentially catastrophic events (<i>Mandatory Requirement 12</i>)	Section 5, and Appendix G
• presents the results in a clear manner	
Assessment of adequacy of existing information – The document discusses the adequacy of information available for hazards and threats to inform future stages including:	Section 5, and Appendix G
• available hazard mapping and suitability cognisant of the risk levels	
• level of uncertainty for high priority risks	

location and integrity of coastal protection works (if available) and social values	
coastal and catchment processes	
climate change	
other threats to environmental and social values	
Coastal Management Areas –The document maps coastal management areas	Section 2.3
assesses the suitability of management areas to address identified high priority issues	Section 2.5
identifies where modifications to boundaries may be sort through a planning proposal?	
CMP spatial extent –The document demonstrates that: Provides rationale for selecting the proposed CMP area is appropriate and whether it applies to all or part of the coastal zone (<i>Mandatory Requirement 4</i>)	Section 1.1, Section 2.1, and Appendix A
consideration has been given to sediment compartment and catchment boundaries	
the benefits and drivers for larger spatial areas been have considered	
Task 4: Review the current coastal management arrangements	Addressed in CMP
Existing Management Plans - The document includes: details of previous coastal management related plans	Section 5, and Appendix G
an audit of implementation	
outcomes for actions implemented against intended indicators	
analysis of implementation barriers for outstanding actions	
learnings from implementation process	
analysis of coastal emergency response or impacts where a storm event has occurred during the implementation phase	
details of monitoring undertaken	Section 3.4
commentary of integration with IP&R	
Task 5: Identify roles and responsibilities	Addressed in CMP
Responsibilities for CMP development. The document nominates a lead applicant for CMP development	Section 6.1 (esp. Table 4)
provides evidence of adequate engagement with other public authorities	Section 3.1, 3.4, Appendix C, and Appendix D
describes a governance structure that will facilitate collaboration (This may include a description of any intended advisory groups, MoUs etc.)	

Task 6: Determine where action is required	Addressed in CMP
Prioritised list of risks - The document includes a prioritised list of risks including those resulting from coastal hazards and those related to other threats to coastal values	Section 5, and Appendix G
Knowledge Gaps - The document provides an appropriate prioritised list of knowledge gaps to be filled in later stages	Section 5 (esp. Section 5.4), 6.1 (Table 4) and Appendix G
Determine where action will be required in stage 2 – The document recommends appropriate further studies for stage 2	
Task 7: Prepare a community and stakeholder engagement strategy	Addressed in CMP
Who - The community and stakeholder engagement strategy identifies: - the broad community, industry and internal and external public authority stakeholder groups to be engaged in developing a CMP - the level of participation for each group (using IAP2 Spectrum or similar)	Section 3.4, and Appendices C, D, and E
How – The community and stakeholder engagement strategy identifies: - a range of proposed strategies for engagement to reach the target audience - pathways to engage with aboriginal people and communities - specific stakeholder consultation required to align with the preparation of a planning proposal - how the community and stakeholder engagement strategy will be evaluated	
What - The community and stakeholder engagement strategy describes: - the aims and key messages for community and stakeholder engagement - specific mapping required to align with the preparation of a planning proposal - how the community will be consulted in the preparation of a planning proposal - how stakeholders will be consulted in the preparation of a coastal zone emergency action subplan (where CVA is to be mapped) (<i>Mandatory Requirement 5</i>)	
When – The community and stakeholder engagement strategy: - indicates timing for key engagement activities - considers specific stakeholder consultation required to align with the preparation of a planning proposal	
Task 8: Prepare a preliminary business case	Addressed in CMP
Business case – The scoping Study outlines: components required to develop a CMP including costs, responsibilities and indicative timeframes	Section 3.4, and Section 6
the benefits of preparing a CMP as proposed	
the risks associated with preparing and not preparing the CMP	
- fit with the IP&R framework - support from relevant public authorities for the process proposed	

Task 9: Develop a forward program	Addressed in CMP
Timeframes – are realistic around CMP development such as grant acquisition, consultation, review and exhibition	Section 6
Planning Proposal (PP)– - Will a PP be prepared to amend council’s Local Environmental Plan (LEP) to include updated boundaries for any coastal management area? - Where a PP is proposed, it is this integrated with the proposed CMP preparation time frame? (<i>Mandatory Requirement 5</i>)	Section 2.5
Task 10: Documentation	Addressed in CMP
Is the document <i>largely in accordance</i> with Part B stage 1 of the NSW Coastal Management Manual?	Sections 1 - 6, and Appendices A- G.

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