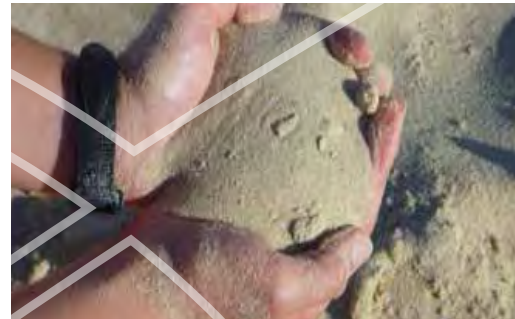


“Where will our knowledge take you?”



Kempsey Coastal Zone Management Plan

October 2016

Document Control Sheet

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<p>Synopsis: This Kempsey Coastal Zone Management Plan has been prepared in accordance with the NSW Guidelines for Preparing coastal Zone Management Plans.</p>		

REVISION/CHECKING HISTORY

Revision Number	Date	Checked by	Issued by
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1		VPR	MF
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3 For Certification		MF	MF

DISTRIBUTION

Destination	Revision										
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Executive Summary

This Coastal Zone Management Plan (CZMP) has been prepared through the NSW Coastal Management Framework.

It is underpinned by a technical assessment of coastal processes and related hazards for the Kempsey Coast (BMT WBM 2013) and an assessment of risks, values and options presented in the Kempsey Coastline Coastal Zone Management Study (BMT WBM 2014).

Audience

The audience for this Coastal Zone Management Plan is the local community, Kempsey Shire Council (KSC) and the NSW Office of Environment and Heritage (OEH). Other stakeholders, including relevant government agencies and organisations, community groups and the general public, may also refer to this document in respect to their role in management of the coast.

Context

This CZMP has been developed for Kempsey Shire Council with financial support from the NSW Government's Coastal Management Program in accordance with the specifications of the *Coastal Protection Act 1979*. It complies with the requirements of the NSW Coastal Policy 1997, and the NSW Government's Guidelines for Preparation of Coastal Zone Management Plans.

The coastal zone of the Kempsey Local Government Area (LGA) extends from just north of Point Plomer in the south (including Big Hill) to just north of Middle Head in the north (including Middle Head Beach). The study area includes offshore marine areas as well as land features such as beaches, dunes, headlands and bluffs. The study area extends inside estuaries and coastal entrances as far as applicable to determining coastal processes and hazards extents. Within this area, 60% of the coastline is managed by National Parks and Wildlife Service. A Risk Management Approach was used to prioritise issues associated with coastal hazards across three time frames (present day, 2050 and 2100). Community use and access opportunities have also been incorporated.

Contents

The CZMP includes 19 Actions to be undertaken (primarily by KSC) over the next 5-10 years. The cost of these recommended actions, over and above existing budgets is estimated at \$160,000, over the five year period. In addition to this there is around \$300,000 worth of flood management studies recommended to be addressed through the NSW Government flood Management Program. All management actions to be outlined in the CZMP will be potentially eligible for funding from a range of sources including the States Coastal Program. An Emergency Action Plan (EAP) is included as Appendix B

Legislative Framework

Under Section 733 of the *Local Government Act 1993*, councils are taken to have acted in 'good faith' and thus receive an exemption from liability for land affected by coastal hazards where their actions substantially accord with the principles contained in the specified manual, in this case being the CZMP Guidelines. How this CZMP addresses the Principles for Coastal Management and the minimum requirements for preparing CZMPs outlined in Appendix A.

Section 55G of the Coastal Protection Act calls for submission of CZMP's to the Minister for Environment for certification. Before certifying the CZMP, the Minister may refer the plan to the Coastal Panel for advice.

Certifications

During the certification process for the Kempsey CZMP the Minister sought the Coastal Panels advice on the submitted Draft CZMP and recommended minor revision. These revisions have been included within this CZMP.

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1 Introduction

The coastline is dynamic and exposed to ongoing changes as the natural Coastal Processes including waves, tides and storms reshape it. Coastal processes fall into the definition of hazards where they impact upon built assets or valued natural areas. Sea level rise will continue to exacerbate these hazards. Fortunately, much of Kempsey's shores are undeveloped, with the exception of low key recreational facilities, while the majority of the coastal zone is retained in public ownership within National Parks and Crown Reserves. This controlled land tenure largely affords the ability to maintain unique natural values and provides greater resilience to coastal processes and the impacts of ongoing sea level rise.

The prevailing coastal processes together with the underlying geology shape the Kempsey coastline. The regional geology determines the orientation of the coastline, the width and slope of the continental shelf, the type and location of headlands, reefs and other structures and the sediment size and type. Coastal processes are considered a hazard where they impact upon human developments or values. The processes considered within this CZMP include:

- Waves
- Storm history
- Tides
- Elevated water levels
- Longshore sediment transport
- Implications of breakwaters, headlands, etc
- Rip currents
- Storm based erosion and accretion cycles
- Wind blown sand transport
- Coastal creeks and rivers
- Historical sand mining
- Dune management
- Flood mitigation works, and
- Climate change impacts.

Detailed analysis of these processes and the resulting hazards are presented in BMT WBM (2013) (refer to 1.1).

The current report is the third and final report prepared on behalf of Kempsey Shire Council. The reports are prepared under the state government Coastal Zone Management Program, in accordance with the Guidelines for preparing Coastal Zone Management Plans (OEH, 2013).

The present document is designed to be succinct and practical to enable implementation of the recommended management actions. For more detailed understanding of the coastal hazards and

management considerations and decision making processes, it is suggested that the earlier documents are reviewed.

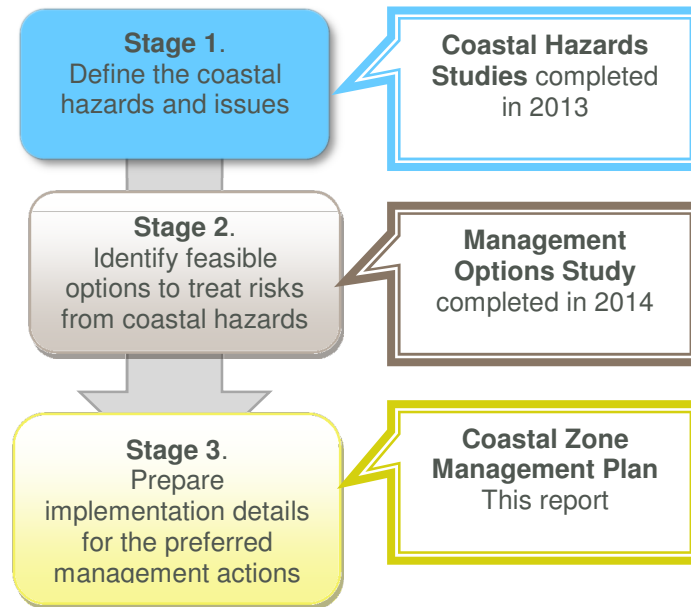


Figure 1-1 Stages to preparing a Coastal Zone Management Plan in NSW

1.1 Kempsey Coastal Processes and Hazard Definition Study

The first report, Kempsey Coastal Processes and Hazard Definition Study (BMT WBM, 2013) examines the coastal processes and hazards affecting Kempsey Shire and presents hazard maps. The hazard maps show the likely extent of hazard impacts for the present day, 2050 and 2100 timeframes. The maps show areas likely to be impacted by coastal erosion as lines. Anything seaward of the line is at risk of being damaged by a severe coastal storm (or series of storms) for that given timeframe. Another series of maps within the hazard study show shaded areas likely to be temporarily inundated with seawater in a severe coastal storms for the given time period. Much of this shaded area is likely to be similar to the low lying areas susceptible to flooding.

The CPHDS show large areas of low lying land with a likelihood of coastal inundation across all three time zones. Many of these areas would also be susceptible to catchment based flooding. Most of the identified risks to property and built assets in relation to erosion and recession are not expected to materialise for at least fifty years in the Kempsey Local Government Area.

1.2 Kempsey Coastal Zone Management Study

The second study, Kempsey Coastal Management Study (2014) outlines a number of community and environmental values within the coastal hazard areas. Together with economic considerations (such as costs of built assets), these community and environmental values are used to identify and prioritise the present day and future risks to valued aspects of the coastline. It uses a risk based approach that accounts for the uncertainty associated with predicting future hazards and applying

Introduction

values to non-built assets. The document includes a prioritised summary list by precinct (or coastal suburb) of all the assets included in the hazard zones and recommends options to address these.

The assets within the hazard zones include:

- Council Infrastructure (including wastewater network, stormwater, public amenities and carparks)
- Residential houses (many hundreds within the coastal inundation areas, none at risk of coastal erosion for the present day, but up to 24 by 2100)
- Endangered ecological communities
- The highly valued sandy beach

The options include a range of approaches, such as: planning and development controls, monitoring, physical works, dune rehabilitation works, further investigations, environmental management and referrals to more appropriate management programs. Where short term community use and access issues were raised through the consultation process, these were also considered and recommendations made.

A cost benefit assessment was undertaken, and 18 management actions are recommended to be undertaken over the next 5-10 years.

1.3 Meeting legislative requirements

Current requirements for Coastal Zone Management Plans (CZMPs) are set out in the *Coastal Protection Act 1979* and the supporting *Guidelines for Preparing Coastal Zone Management Plans* (OEH 2013) (the CZMP guidelines).

The minimum requirements for the preparation of CZMPs have been satisfied by this Kempsey Coastal Zone Management Plan as outlined in Appendix A.

1.4 Community voice

Community Consultation is an important component of developing a CZMP. In particular community and stakeholder consultation was essential for understanding the consequences of coastal hazards and other threats upon the built and natural assets of the Kempsey coastline. Community and stakeholder consultation was also an important method for understanding the status and adequacy of beach access and public amenity arrangements. Community involvement will be an important factor in the success of this CZMPs implementation.

The consultation to date has involved:

- Publication of a Project Web Site
- Media Release
- Community Survey
- Two Community Meetings
- Direct correspondence

Introduction

Outcomes of the community consultation are discussed in the CZMS (BMT WBM 2014). The draft CZMP was placed on public exhibition.

The process of managing coastal hazard risks will be an iterative one and will involve more information and also more difficult decisions moving into the future. For many of the highly valued beach areas, the best long term option may be to allow for natural retreat, which will require planned loss of land behind the beaches. New opportunities may also become available in the future through changes to legislation and practices regarding offshore sand sources and beach nourishment. These potential changes to regulatory management regimes is one of the reasons for periodic review and updating of the CZMP (every 5 – 10 years).

1.5 Objectives

The overarching aim for the CZMP are to provide practical and affordable actions to improve community use and facilities of the coastal zone, and to plan and initiate actions that protect values and build resilience to existing and future coastal hazards. While it is expected that the CZMP will be reviewed and updated periodically (every 5-10 years), the longer-term directions established by the current coastal zone management process will be maintained and supported in the future.

Specific objectives for the CZMP are:

- Preserving the natural and rugged character of the Kempsey Coastline,
- Recognising and accommodating natural coastal processes and hazards, including sea level rise in the management of the coastal zone,
- Protecting the natural attributes of beaches, dunes and undeveloped headlands, permitting only minor development for essential public purposes,
- Managing and reducing the risks to existing development and values,
- Preparing to manage future risks to existing development and values, and
- Providing safe access within the coastal zone to the community and visitors.

1.6 Integration with Councils Operating Plan

Kempsey Shire Council (KSC) has adopted a Delivery Plan setting out the services and activities that it intends to achieve over a four year period. The Operating Plan sets out the individual projects and activities that need to be carried out for the following twelve month period. This CZMP has been designed to integrate directly with the KSC Operating Plan.

KSC has a history of integrating its Estuary Management Plans within councils Operating Plan. While this has not always been a requirement of the Coastal Protection Act 1979 (CPA), the NSW Office of Environment and Heritage (OEH) has indicated that through the Stage 2 reforms there will be a transition to incorporating coastal zone management planning within the local government Integrated Planning and Reporting framework (IPR). The approach is designed to mainstream coastal management into councils' overall service delivery and asset management planning responsibilities. For this reason, options have been categorised according to the related goal from the Kempsey Council Operating Plan (KSC 2014).

1.7 Integration with other Government Organisations and Stakeholders

Consultation with other Government Agencies has been an important component in developing this CZMP. In particular, Section 55C of the CPA states that a CZMP must not contain proposed actions or activities to be carried out by any public authority or relating to any land or other assets owned or managed by a public authority, unless the public authority has agreed to the inclusion of those proposed actions or activities in the plan. In this regard, each of the recommended options were discussed in a stakeholder workshop to gauge any possible issues. Formal written agreement for specific actions were sought to support the submission of the CZMP to the Minister.

1.8 Emergency Action Plan

An Emergency Action Plan (EAP) has been formulated to guide the immediate actions undertaken in the event of severe storm damage to the coastal zone. The EAP will inform the provision and coordination of emergency services in the event of a severe and damaging coastal storm.

The EAP is intended to be integrated into Councils Disaster Plan (DISPLAN). The EAP is included as Appendix B.

1.9 Certification

Minor adjustments to the Draft Kempsey CZMP relative to Management Actions 5, 9 & 18 as well as inclusion of Management Action 19 have resulted from the Certification process.

2 Actions for Implementation

In preparing this document, a strong focus has been maintained on preparing a practical and realistic program of activities to be achieved within the next 5 years. Consideration has also been given to including realistic maintenance and monitoring costs over that period.

The actions have been grouped according to the corresponding goal under Kempsey Councils Operating Plan (KSC 2014). Maps have also been produced for key locations to show geographically specific actions.

2.1 Responsibilities

KSC are primarily responsible for the implementation of this CZMP. Success of the implementation however will be highly dependent on support from the local community and other government agencies. Appropriate land tenure arrangements and relevant authorisations will be sought (by any works proponent) from Public Land Managers for CZMP actions in or on Public Land. Boundaries of Public Land will be identified by Survey where CZMP actions are considered or proposed in, or adjacent to Public Land. Responsibilities for each action are given in the implementation tables (refer to Table 2-2 to Table 2-5)

2.2 Time frames

The designed life of this CZMP is 5-10 years. This is really the maximum period that can be planned for in the coastal hazard local government context. After this period of time, key influencing factors will have changed, including:

- Understanding of coastal hazards
- magnitude of sea level rise projections
- Community values and aspirations
- Government regulations
- Technology and approaches
- Funding opportunities

Each of the eighteen actions has a suggested initiation date within the next 5 years. In reality, external forces may inhibit this timeline, such as available Council resources and funding grant success. Opportunities to implement actions ahead of schedule may also arise. A summary schedule of implementation and performance monitoring is included in Section 4.3.

2.3 List of Actions related to KSC Operating Plan (2014) Goals

Actions related to KSC Operating Plan (2014) CAD-01-04 Technical Engineering Management

- Action 1 (Table 2-2) Identify and document the risk (low to high), type of hazard (erosion or inundation) and timeframes for impact (immediate, 2050, 2100) for all coastal assets in

Council's Asset Management Plan. Account for such coastal risks when prioritising asset maintenance and replacement

Actions relating to KSC Operating Plan (2014) HD-04-03 Planning for a Sustainable Future

- Action 3 (Table 2-3) Ensure an appropriate allowance for sea level rise and coastal inundation are incorporated into design and planning standards in the Kempsey DCP(e.g. floor heights)
- Action 4 (Table 2-3) Require redevelopment / renovations to be located as far landward within the hazard zone as practical
- Action 5 (Table 2-3) Apply development controls and setbacks to set aside land for future protection works (on freehold land)
- Action 6 (Table 2-3) Introduce planning controls on undeveloped land in future hazard zones
- Action 7 (Table 2-3) Conduct education activities to inform the community about coastal risks and intended future actions – to build community acceptance and resilience for managing future impacts
- Action 8 (Table 2-3) Continue to support dune care / revegetation programs at locations where vegetation is degraded, limited or overcome by weeds.
- Action 9 (Table 2-3) Monitor Storm impacts for all Coastal areas, establish a formal beach profile monitoring program for Hat Head.
- Action 10 (Table 2-3) Undertake an updated flood assessment for Killick Creek / Korogoro Creek and Saltwater Creek and Lagoon under the State Floodplain Management Program.
- Action 11 (Table 2-3) Investigate options for addressing foreshore erosion issues as required. Initial priority is along the rock works near South West Rocks Surf club.
- Action 15 (Table 2-3) Evaluate the suitability of 4WD access at all beaches and restrict access in sensitive locations (e.g. shorebird breeding areas, where saltmarsh is present, in the vicinity of important Aboriginal places), update and distribute an information pack for use of recreational vehicles on beaches
- Action 13 (Table 2-3) Develop a forum or Prepare and adopt a Memorandum of Understanding (MoU) between Council, Crown Lands and National Parks covering the coordination of management for the intertidal zone and dunes (with Council, DoL and NP officers to have authority to undertake compliance actions)
- Action 16 (Table 2-3) Support the use of a flow and transport model for the Macleay Sands Aquifer and available new data sets to assess impacts of sea level rise (and climate change) to 2100
- Action 17 (Table 2-3) Update and reviewing the Lower Macleay Flood Risk Management Strategy for all villages downstream of Frederickton including ocean outlets (incorporating impacts of sea level rise and future erosion and recession). This action is linked to Action 10.

Actions relating to KSC Operating Plan (2014) HD-04-04 Manage and Remediate the Estuary Ecosystems

Actions relating to KSC Operating Plan (2014) HD-04-04 Manage and Remediate the Estuary Ecosystems

- Action 2 (Table 2-4) Prepare and implement a wetland management plan that incorporates provision for responding to future sea level rise. This should include ground-truthing the available wetland mapping, and investigate options for impact mitigation and resilience building
- Action 14 (Table 2-4) Support actions to provide formalised access points at sensitive locations to restrict impacts to saltmarsh (e.g. on the north and south sides of the Macleay River)
- Action 19 (Table 2-4) Facilitate discussion with Lands and stakeholders to review current management arrangements and existing maintenance dredging activities for Back Creek

Actions relating to KSC Operating Plan (2014) SOD-04-02 – Provide Access

- Action 12 (Table 2-5) Investigate, design and construct access to Grassy Head Beach
- Action 18 (Table 2-5) Evaluate and review community uses and access to beaches and other council Landscapes.

2.4 Map Interpretation

Maps showing the actions that apply at a regional scale to the entire local government area are shown in Figure 2-1 to Figure 2-4. The numbers on the maps refer to the relevant action numbers. Some actions relate to the entire coastline and some are specific to certain beaches. Further details on each of the actions are provided in the implementation tables (Table 2-2 to Table 2-5).

Table 2-1 Cross reference for Actions and Implementation Tables

Ref #	Action	Relevant Implementation Table
1	Identify and document the risk (low to high), type of hazard (erosion or inundation) and timeframes for impact (immediate, 2050, 2100) for all coastal assets in Council’s Asset Management Plan. Account for such coastal risks when prioritising asset maintenance and replacement	Table 2-2
2	Prepare and implement a wetland management plan that incorporates provision for responding to future sea level rise. This should include ground truthing the available wetland mapping, and investigate options for impact mitigation and resilience building	Table 2-4
3	Ensure an appropriate allowance for sea level rise and coastal inundation are incorporated into design and planning standards in the Kempsey DCP(e.g. floor heights)	Table 2-3
4	Require redevelopment / renovations to be located as far landward within the hazard zone as practical	Table 2-3

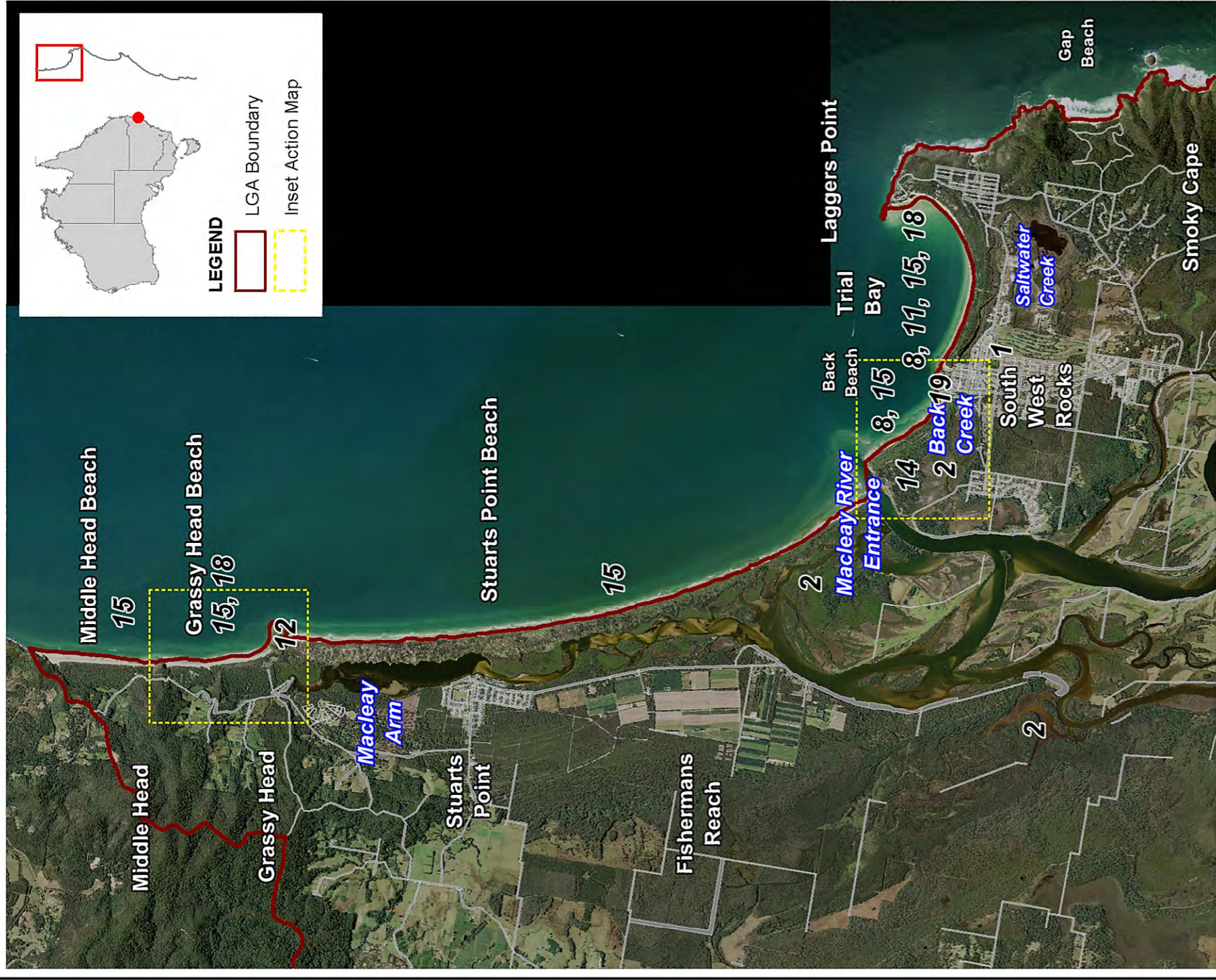
Ref #	Action	Relevant Implementation Table
5	Apply development controls and setbacks to set aside land for future protection works (on freehold land)	Table 2-3
6	Introduce planning controls on undeveloped land in future hazard zones	Table 2-3
7	Conduct education activities to inform the community about coastal risks and intended future actions – to build community acceptance and resilience for managing future impacts	Table 2-3
8	Continue to support dune care / revegetation programs at locations where vegetation is degraded, limited or overcome by weeds.	Table 2-3
9	Monitor Storm impacts on all coastal areas, establish a formal beach profile monitoring program for Hat Head	Table 2-3
10	Undertake an updated flood assessment for Killick Creek / Korogoro Creek and Saltwater Creek and Lagoon under the State Floodplain Management Program.	Table 2-3
11	Investigate options for addressing foreshore erosion issues as required. Initial priority is along the rock works near South West Rocks Surf club.	Table 2-3
12	Investigate, design and construct access to Grassy Head Beach	Table 2-5
13	Develop a forum or Prepare and adopt a Memorandum of Understanding (MoU) between Council, Crown Lands and National Parks covering the coordination of management for the intertidal zone and dunes (with Council, DoL and NP officers to have authority to undertake compliance actions)	Table 2-3
14	Support actions to provide formalised access points at sensitive locations to restrict impacts to saltmarsh (e.g. on the north and south sides of the Macleay River)	Table 2-4
15	Evaluate the suitability of 4WD access at all beaches and restrict access in sensitive locations (e.g. shorebird breeding areas, where saltmarsh is present, in the vicinity of important Aboriginal places), update and distribute an information pack for use of recreational vehicles on beaches	Table 2-3
16	Support the use of a flow and transport model for the Macleay Sands Aquifer and available new data sets to assess impacts of sea level rise (and climate change) to 2100	Table 2-3
17	Update and reviewing the Lower Macleay Flood Risk Management Strategy for all villages downstream of Frederickton including ocean outlets (incorporating impacts of sea level rise and future erosion and recession)	Table 2-3

Ref #	Action	Relevant Implementation Table
18	Evaluate and review community uses and access to beaches and other Council landscapes.	Table 2-5
19	Facilitate discussion with Lands and stakeholders to review current management arrangements and existing maintenance dredging activities for Back Creek	Table 2-4

Many of the action apply across the entire LGA as they relate to broad scale considerations, such as development planning and assessment, wetland management or infrastructure planning. Other actions are specific to particular locations, where they address local access or amenity issues. Precinct mapping for beach specific actions are shown following the implementation tables in Figure 2-5 to Figure 2-8.

Council is currently in the process of implementing the Horseshoe Bay Foreshore Plan of Management (POM). This is discussed in more detail in Section 4 of the Coastal Management Study (BMT WBM 2014). The POM can be viewed at the following link: <http://www.kempsey.nsw.gov.au/development/plan-of-management-horseshoe-bay-reserve/index.html>

A schedule for implementation for the CZMP is included in Table 4-1



Title:

**Kempsey CZMP Actions:
Middle Head Beach to Smoky Cape**

Figure:

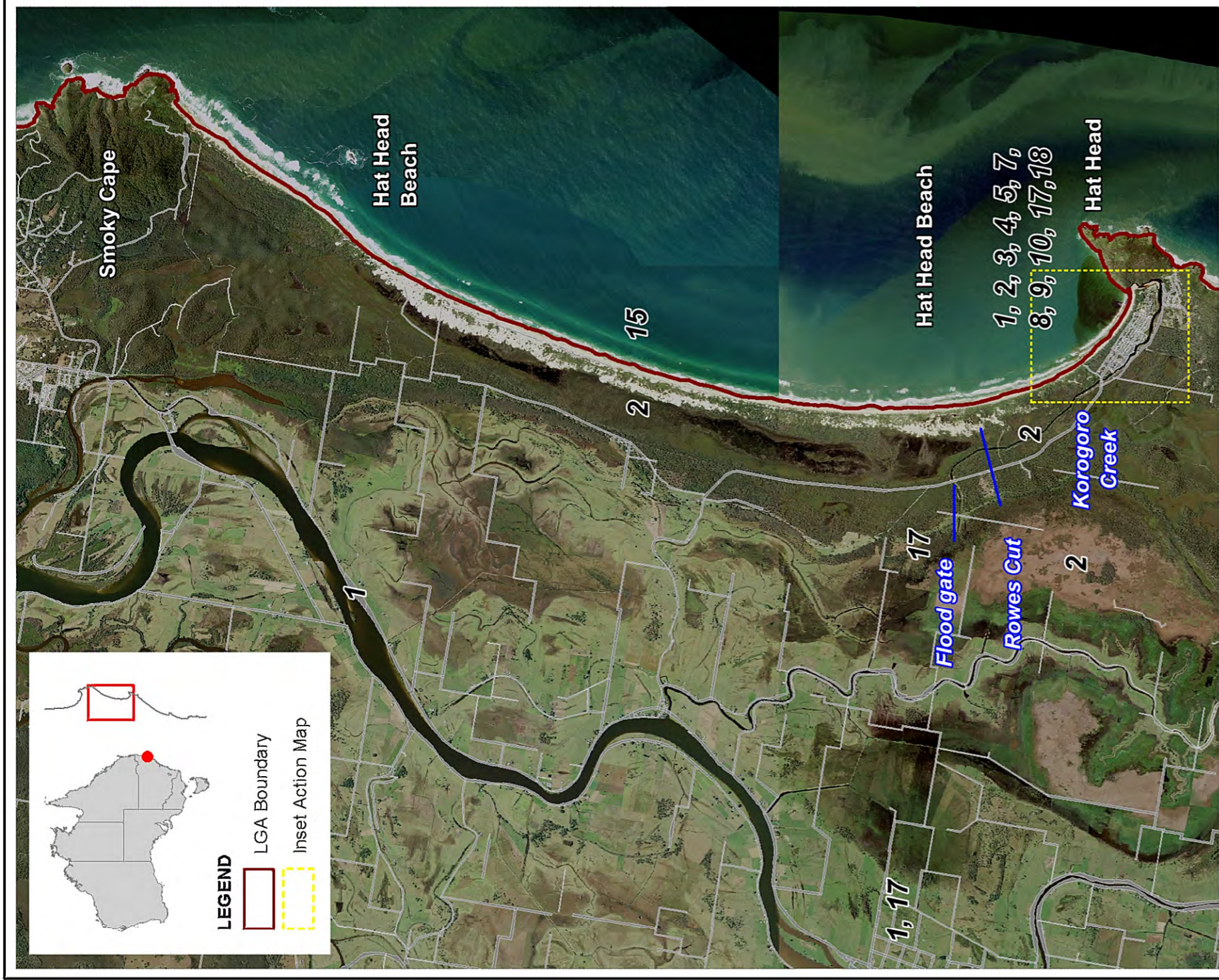
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Title:

**Kempsey CZMP Actions:
Smoky Cape to Hat Head**

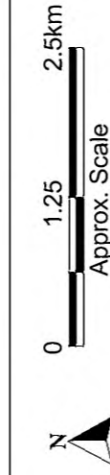
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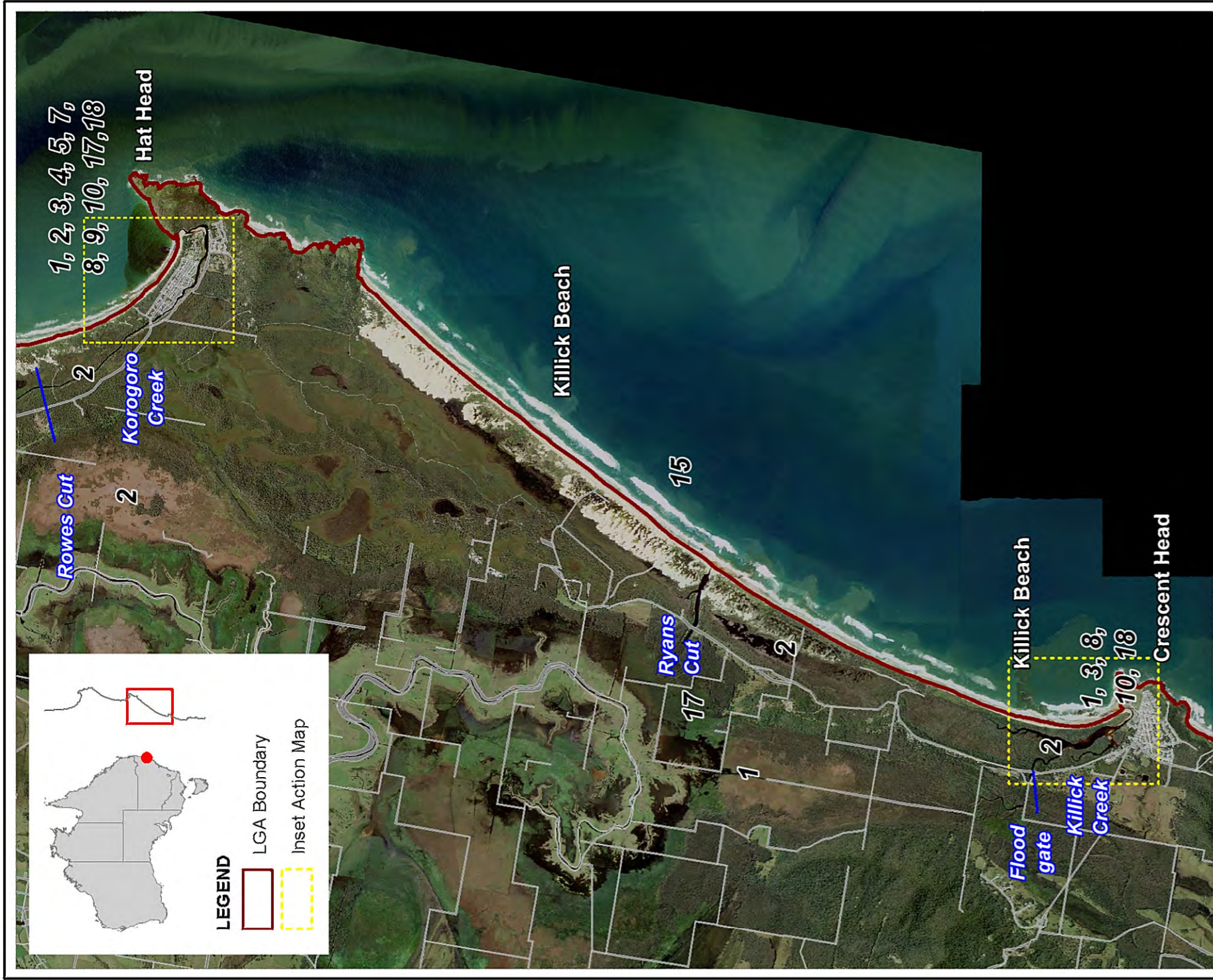
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LEGEND

-  LGA Boundary
-  Inset Action Map

Title:

**Kempsey CZMP Actions:
Hat Head to Crescent Head**

Figure:

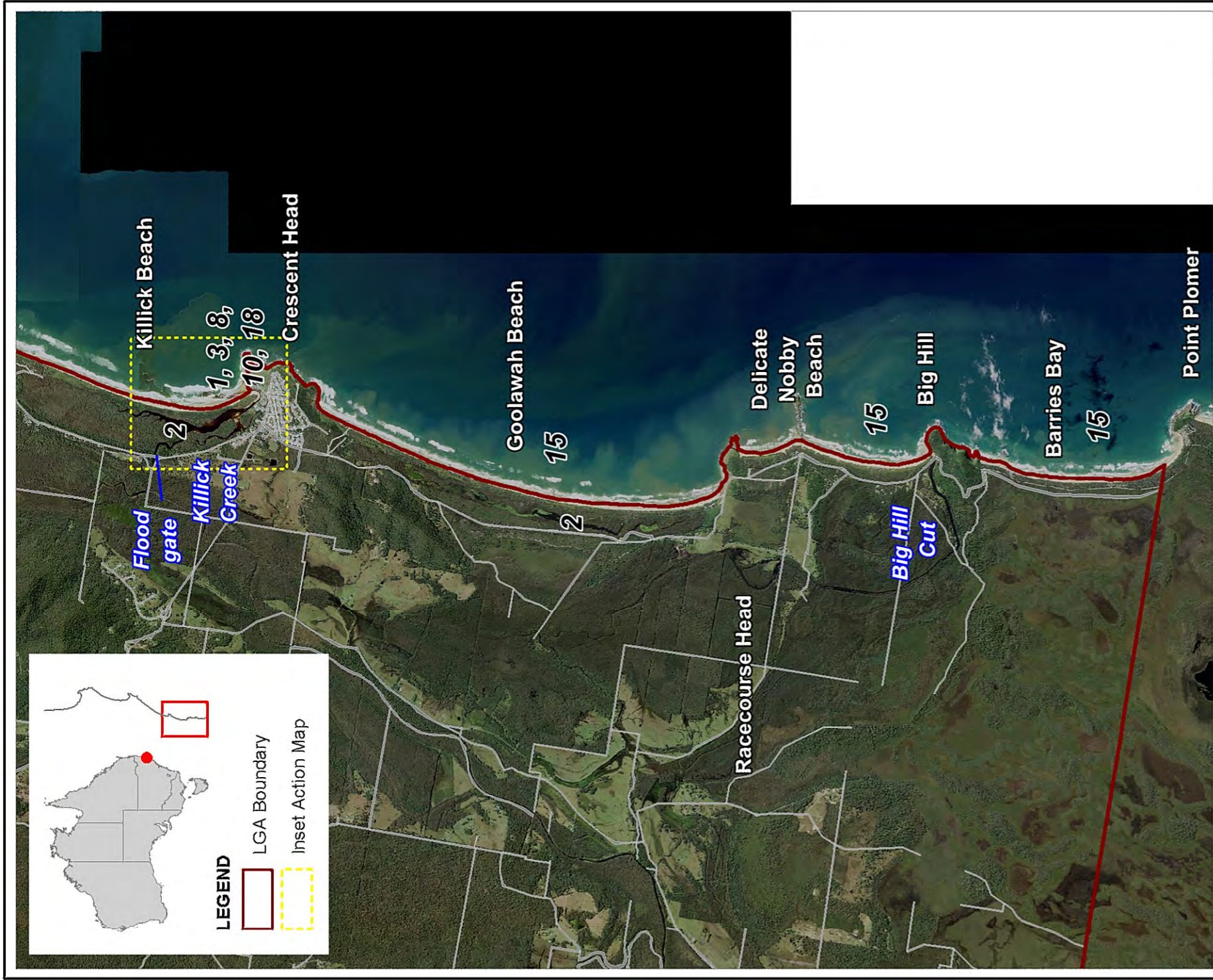
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Title:

**Kempsey CZMP Actions:
Crescent Head to Point Plomer**

Figure:

2-4

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Actions for Implementation

Table 2-2 Actions related to KSC Operating Plan (2014) CAD-01-04 Technical Engineering Management

Action #	Asset	Action	Where?	Brief	Who?	Resources	When?	Monitoring / Evaluation / Performance Indicator
1	All Council Assets: Water/ wastewater infrastructure , roads etc	Identify and document the risk (low to high), type of hazard (erosion or inundation) and timeframes for impact (immediate, 2050, 2100) for all coastal assets in Council's Asset Management Plan. Account for such coastal risks when prioritising asset maintenance and replacement	Shire Wide	<p>Review and update Council's Asset Management System to include the likelihood and timeframe for coastal hazard impact, and type of impact (i.e. erosion or inundation) for Council owned assets.</p> <p>GIS layers have been provided to Council to facilitate this. Updates to the Asset Management Plan would include details relating to infrastructure planning, design construction, and maintenance implications of the coastal hazard impacts, and the manner in which all public assets should be designed and constructed to adequately consider whole of life cycle costs.</p> <p>Prioritisation and maintenance scheduling of asset management programs should then be reconsidered based on the timeframe and type of hazard exposure.</p> <p>Identify the assets at high / extreme risk in the immediate time frame:</p> <p>Investigate site constraints for relocation as a first option, then consider: redesign to replace assets in existing location; ability to use a relocatable structure; or accept loss of the asset ('manage to fail').</p>	KSC – advise other agencies where assets are identified in mapping	Within staff time	Immediate 2015 /2016	Coastal Hazards actively considered in design of new and retrofit of existing infrastructure and assets across Council by 2017

Actions for Implementation

Table 2-3 Actions relating to KSC Operating Plan (2014) HD-04-03 Planning for a Sustainable Future

Action #	Asset	Action	Where?	Brief	Who?	Resources	When?	Monitoring / Evaluation / Performance Indicator
3	Residential land	Ensure an appropriate allowance for sea level rise and coastal inundation are incorporated into design and planning standards in the Kempsey DCP (e.g. floor heights)	Shire Wide within immediate, 2050 and 2100 hazard zones	<p>Determination of flood planning areas must consider the interaction of catchment and coastal flooding and requires the selection of peak flood levels and flow velocities from an envelope of scenarios such as:</p> <ul style="list-style-type: none"> Estimated 1%AEP ocean flooding with 5% catchment flooding with coincident peaks Estimated 5%AEP ocean flooding with 1% catchment flooding with coincident peaks Neap cycle with 1% AEP catchment flooding with coincident peaks <p>These scenarios assume that initial water levels within the tidal waterway are based on peak tides or the height of controlling entrance outlet and provide an envelope of peak levels to estimate the 1% AEP flood impacts.</p>	KSC	Within staff time	Immediate 2015 / 2016	Sea level rise and ocean inundation incorporated into planning
4	Residential land / Public land	Require redevelopment / renovations to be located as far landward within the hazard zone as practical	Shire Wide within immediate, 2050 and 2100 hazard zones	<p>Develop a Coastal Hazards Chapter in the KSC DCP which aims to manage future development or re-development of existing land at risk from coastal hazards.</p> <p>This DCP chapter may provide guidance, specific development standards, prescriptive controls or performance criteria to reduce the level of coastal risk. It is recommended that the criteria specified within the DCP be applicable to the development type and level of risk to that land.</p>	KSC	Within staff time	Immediate 2015-2016	Coastal hazards included in DA process in accordance with Coastal Hazards chapter
5	Residential land / Public Land	Apply development controls and setbacks to set aside land for future protection works (on	Shire Wide within immediate, 2050 and 2100 hazard zones	<p>Specific criteria include: Setbacks for development; Use of temporary, sacrificial or re-locatable structures only permitted seaward of the setback limit; Foundations piled to the Stable Foundation Zone; and Trigger based approvals, which provide development consent until an event based trigger is reached (after which removal/relocation of the structure and rehabilitation of the land is required).</p>	KSC	Within staff time	Immediate 2015-2016	Coastal hazards included in DA process in accordance with Coastal Hazards chapter

Actions for Implementation

Action #	Asset	Action	Where?	Brief	Who?	Resources	When?	Monitoring / Evaluation / Performance Indicator
		freehold land)						
6	Residential land / Public Land	Introduce planning controls on undeveloped land in future hazard zones	Shire Wide within hazard zones	For at risk caravan parks such as Hat Head avoid fixed footing cabins in future hazard areas, set new powered sites landward of present day hazard zones and include coastal hazards in long term business planning. Under long term lease arrangements require Reserve Plans of Management to consider findings of this the CZMS and CZMP when considering management options	KSC	Within staff time	Immedia te 2015-2016	Coastal hazards included in DA process in accordance with Coastal Hazards chapter
7	All	Conduct education activities to inform the community about coastal risks and intended future actions – to build community acceptance and resilience for managing future impacts	Shire Wide, with a focus on areas where hard decisions will need to be made in the future (i.e. Hat Head)	Prepare and implement an ongoing community education program to inform the community about coastal risks. Education now will assist the community to understand how Council may need to respond to coastal hazards now and in the future, and prepare the community to accept and implement future actions. Education regarding coastal risks and intended management responses should be repeated frequently (e.g. 1 – 2 yearly), with the program incorporating improved information as it becomes available. In particular, it will be valuable to provide ongoing feedback regarding the changing nature (worsening, lessening) of the different risks.	KSC	Allow \$10,000	2015 and again in 2017	Discussion and dissemination of information regarding CZMP. Upload FAQ factsheet and information regarding future management of Hat Head.
8	All Beaches	Continue to support dune care / revegetation programs	Shire Wide	Work with existing and/or establish new formal dune care programs, to undertake dune rehabilitation and weed removal across the LGA, including priority beach locations. Assist in securing grants	KSC	\$20,000-\$40,000 over 1-2 years	Ongoing	Successful applications for grants
9	Several	Monitor Storm impacts on all coastal areas. Establish formal beach	Hat Head	The monitoring strategy is outlined in section 4.5 The beach profile monitoring should be augmented with OEH or other state agency LiDAR data collection runs and aerial photography. The survey profiles can be used to	KSC, OEH	Allow \$1,000 per year for surveys	Immedia te 2015	Compilation of data regarding the monitoring strategy.

Actions for Implementation

Action #	Asset	Action	Where?	Brief	Who?	Resources	When?	Monitoring / Evaluation / Performance Indicator
		profile monitoring program for Hat Head		extract topographic information from both datasets, for comparison with the land based surveys. When the CZMP is reviewed in 5-10 years, a thorough assessment and analysis of available data should be undertaken. Council will work closely with OEH to develop tailored, cost effective monitoring strategies to meet these objectives.				
10	All	Undertake an updated flood assessment for Killick Creek / Korogoro Creek and Saltwater Creek and Lagoon under the State Floodplain Management Program.	Crescent Head, Hat Head	This action involves the following steps: <ul style="list-style-type: none"> Conduct a Flood Study assessment for the combined impact of catchment flooding and oceanic water level events and sea level (i.e. benchmarks adopted by Council); Use the outcomes of the combined flood modelling to amend the Floodplain Risk Management Plan mapping and flood planning levels for development in the LEP and DCP; and Apply development controls to the Flood Planning Area based upon existing Flood Risk Precinct development controls, or new controls prepared for the individual catchment (i.e. through the Floodplain Risk Management Plan process). <p>In the interim, consider coastal inundation impacts for development applications made within the immediate coastal inundation risk zone, as identified in this CZMP.</p>	KSC, OEH	To be addressed through the flood management program (indicative costs up to \$200,000)	2017	Flood zones mapped and integrated into development planning and assessment
11	South West Rocks access, beach, public space	Investigate options for addressing foreshore erosion issues as required. Initial priority is along the rock works near	South West Rocks	Key issues to be considered: <ul style="list-style-type: none"> Reuse of existing boulders Tenure Design and response to coastal processes including saltwater creek entrance processes Emergency access 	KSC, Crown Lands	Allow \$10,000 for investigations / design. Construction costs up to \$30,000	2017	Tenure confirmed and forward plan by 2017. Construction works undertaken or issue otherwise addressed by

Actions for Implementation

Action #	Asset	Action	Where?	Brief	Who?	Resources	When?	Monitoring / Evaluation / Performance Indicator
		South West Rocks Surf club.						2019.
15	Beach Ecology, cultural significance	Evaluate the suitability of 4WD access at all beaches and restrict access in sensitive locations (e.g. shorebird breeding areas, where saltmarsh is present, in the vicinity of important Aboriginal places), update and distribute an information pack for use of recreational vehicles on beaches	Shire Wide	<p>The updated information pack should include improved environmental guidance, for example</p> <ul style="list-style-type: none"> The vehicle is not to be driven above the high tide mark, except when travelling to and from the beach at the designated public 4wd access point only. The vehicle is not to be driven within 10 metres of any part of the vegetated dune, except when travelling to and from the beach at the designated public 4wd access point only. Vehicles are not permitted on frontal dunes or foreshore areas other than the designated beach access. Vehicles must be driven on and off the beach at the designated public 4wd access point only. Vehicles are not to park on the beach within 20 metres of the access point or along the vehicle access track. Maps of sensitive locations 	KSC in consultation with neighbouring Councils	Allow \$10,000 for new brochure design and printing. Allow \$15,000 for investigations into appropriate "no go" zones.	2017	New brochures prepared and distributed by 2018
13	Beaches / Dunes	Develop a forum or Prepare and adopt a Memorandum of Understanding	All	A regular forum to address cross jurisdiction coastal zone management issues and to ensure these are addressed in a consistent and cooperative manner to reduce duplication and improve coordination and cooperation toward shared objectives. This forum could be used to rationalise signage and facilitate consistent and clear messages to the public regarding issues such as:	KSC in partnership with Crown Lands, and National	Within existing budgets (allow \$5,000 per year for catering and supporting	2016	Regular forums by 2016. Shared objectives and joint initiatives enacted by 2018.

Actions for Implementation

Action #	Asset	Action	Where?	Brief	Who?	Resources	When?	Monitoring / Evaluation / Performance Indicator
		(MoU) between Council, Crown Lands and National Parks covering the coordination of management for the intertidal zone and dunes (with Council, DoL and NP officers to have authority to undertake compliance actions)		<ul style="list-style-type: none"> • 4WD access, • dog off leash areas, • horse riding rules. <p>Other considerations that would benefit from a coordinated approach include:</p> <ul style="list-style-type: none"> • pedestrian access, • tourism regulations (including surf school regulation), • flood mitigation and management of associated infrastructure, • car parking • weed management, • conflicts between the users of the National Park camping ground and the public boat ramp that provides relatively safe access to the ocean, • management of red tide and shearwater bird “wrecks” 	Parks (Forestry?)	materials)		
16	Coastal Dune Aquifers	Support the use of a flow and transport model for the Macleay Sands Aquifer and available new data sets to assess impacts of sea level rise (and climate change) to 2100	Water supply in Kempsey	<p>The coastal dune aquifers in the Kempsey LGA provide potable water supply for all the towns and villages along the coast, and also support important groundwater dependent ecosystems.</p> <p>This option involves supporting and keeping abreast of work being undertaken by the National Water Commission to better understand the likely implications of sea level rise on Kempsey’s water supply.</p> <p>Where appropriate, new information should be incorporated into Council operations. In particular, decisions should consider the potential for cumulative impacts on the vulnerable aquifer and related ecosystems.</p> <p>Where new information is available, consider implications for primary production and Groundwater dependent ecosystems.</p>	KSC in support of the National Water Commission	Within existing budgets	Immediate and ongoing	Inclusion of results and recommendations in state of the environment reporting and infrastructure reporting and planning processes.

Actions for Implementation

Action #	Asset	Action	Where?	Brief	Who?	Resources	When?	Monitoring / Evaluation / Performance Indicator
17	All	Update and reviewing the Lower Macleay Flood Risk Management Strategy for all villages downstream of Frederickton including ocean outlets (incorporating impacts of sea level rise and future erosion and recession)	Flood mitigation infrastructure	Checking that arrangements are in place to ensure flood mitigation structures (such as Rowes Cut) and their management are formerly identified and acknowledged within Plans of Management of National Parks if deemed appropriate by flood study. This action is linked to action 10.	KSC, OEH	To be addressed through the flood management program (indicative costs up to \$100,000)	2017-2019	Adopted flood risk management strategy by 2019

Actions for Implementation

Table 2-4 Actions relating to KSC Operating Plan (2014) HD-04-04 Manage and Remediate the Estuary Ecosystems

Action #	Asset	Action	Where?	Brief	Who?	Resources	When?	Monitoring / Evaluation / Performance Indicator
2	Coastal Wetlands	Prepare and implement a wetland management plan that incorporates provision for responding to future sea level rise. This should include sea level rise mapping / ground-truthing the available wetland mapping, and investigate options for impact mitigation and resilience building	Land mapped as potential EEC, updated SEPP 14 wetland mapping undertaken by Peter Nelson	This will contribute to the improvement of biodiversity health within the LGA and reduce the risk of declining biodiversity of wetland communities. Along with sea level rise, the Biodiversity Strategy will also consider underlying wetland dynamics and the range of pressures upon wetlands, including urban impacts, changes in drainage patterns, disruption to the estuarine processes and changes in land use on or adjacent to the wetland. Natural cycles of development and decline also need to be acknowledged. Any consideration of sea level rise needs to incorporate Lidar data and vertical buffers to ensure buffers and migration pathways are possible. Prioritise areas for rehabilitation and protection.	KSC	Within existing budgets	2016-2017	Completed biodiversity strategy including consideration of sea level rise impacts on coastal wetlands. Accurate mapping of wetland areas, vulnerability assessments and actions underway by 2018.
14	Saltmarsh	Support actions to provide	South West Rocks	This work is already happening to some extent. Improve saltmarsh health and resilience by rationalising the occurrences of superfluous / ad	KSC in association with RMS	Allow \$30,000	Ongoing	Formalised access with minimal

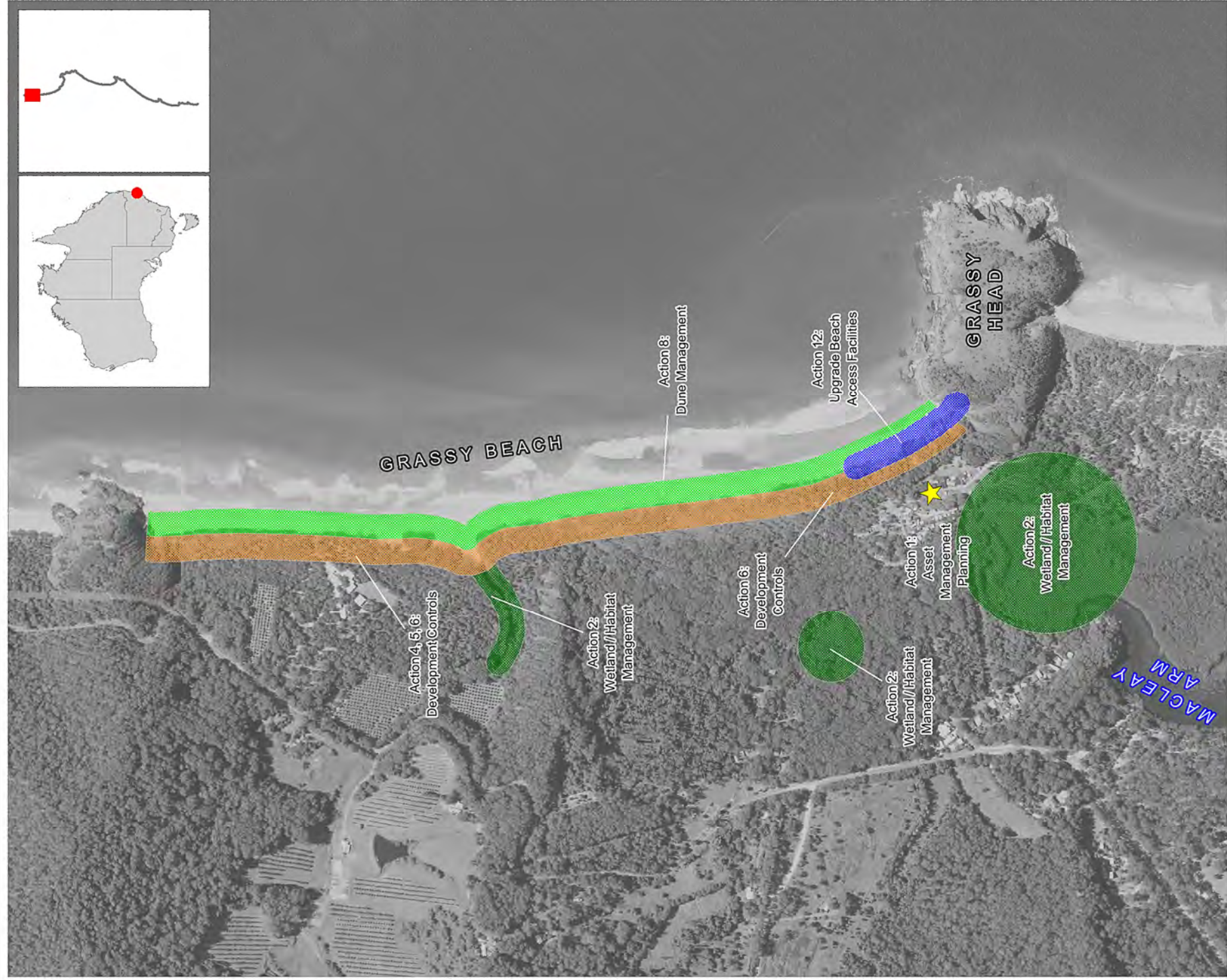
Actions for Implementation

Action #	Asset	Action	Where?	Brief	Who?	Resources	When?	Monitoring / Evaluation / Performance Indicator
		formalised access points at sensitive locations to restrict impacts to saltmarsh (e.g. on the north and south sides of the Macleay River)		hoc access points and constructing / improving and maintaining adequate ground cover and fencing. Maintain appropriate and adequate emergency vehicle access. When managing saltmarsh areas, give consideration to future migration pathways.				saltmarsh impacts on South side of Macleay River Entrance by 2017.
19	Marine Sand, navigability, water quality	Facilitate discussion with DPI Lands and stakeholders to review current management arrangements and existing maintenance dredging activities for Back Creek with a view to improved outcomes	Back Creek	Current arrangements for the dredging of Back Creek are not informed by requirements for navigation, water quality considerations and opportunities to maintain marine sand within the active coastal system. This action involves discussions between Council, Lands and OEH with a view of improving the range of possible outcomes from dredging operations.	KSC in association with DPI Lands	Within existing budgets	2018	Signed agreement and prioritisation for works with appropriate community communication by 2020.

Actions for Implementation

Table 2-5 Actions relating to KSC Operating Plan (2014) SOD-04-02 – Provide Access

Action #	Asset	Action	Where?	Brief	Who?	Resources	When?	Monitoring / Evaluation / Performance Indicator
12	Grassy Head beach access	Investigate, design and construct access to Grassy Head Beach	Grassy Head	Investigate, design and construct an improved access way to Grassy Head Beach from the public car park. Include community consultation and input to the design and location. Consider issues such as: <ul style="list-style-type: none"> impacts to dunes and dune vegetation large groups visit and during peak holiday times. Preservation of the existing character including rugged undeveloped nature of the coastline. 	KSC and OEH with extensive input and involvement of the local community	Investigations and design \$5,000. Works and maintenance over the life of this plan up to \$30,000.	2015-2016 for investigation and design. Works in 2017	Completed works by end of 2018.
18	Access and amenity to all beach and coastal landscapes	Evaluate and review community uses and access.	All	Options to consider include: <ul style="list-style-type: none"> Reconcile and refine beach access. For example, areas like Hat Head may have too many beach access points. A lesser number of access points may be maintained to a higher standard with less impact on dunes and dune vegetation. Rationalise signs Formalise and limit 4WD access points Investigate and upgrade beach and coastal landscape access location as required and when resources are available <p>Ensure existing POM's are considered and are consistent with this Kempsey CZMP</p>	KSC in partnership with OEH, and Crown Lands	Access and amenity prioritisation within existing budgets.	Agreed access and amenity priorities by 2019	Signed agreement and prioritisation for works with appropriate community communication by 2020.



Title:

Kempsey CZMP Actions Grassy Head

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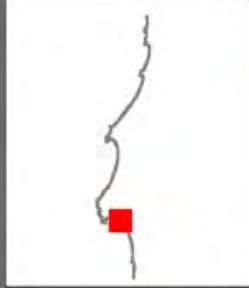
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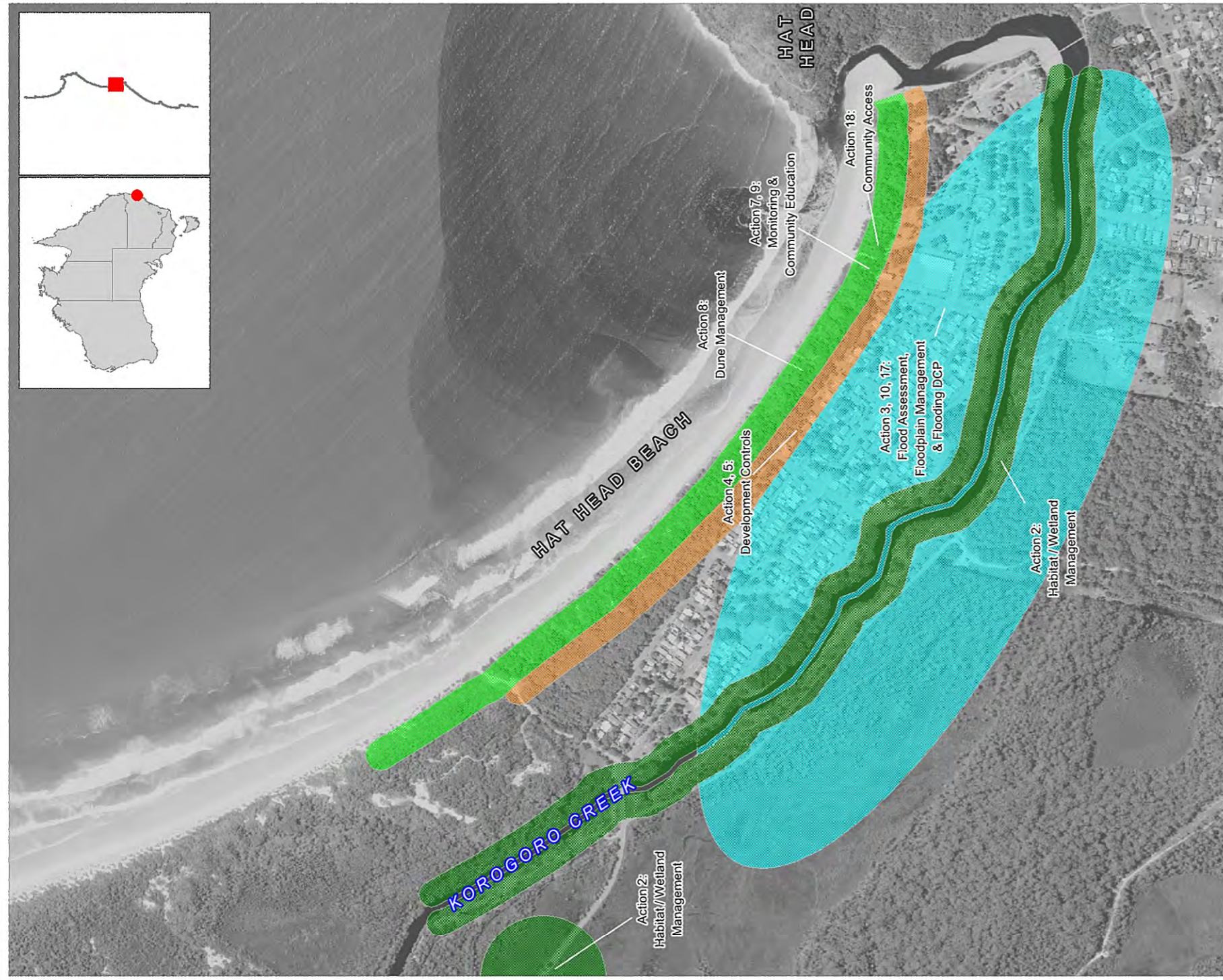
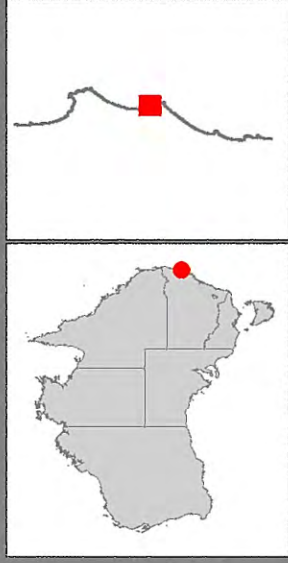
Kempsey CZMP Actions South West Rocks

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Kempsey CZMP Actions Hat Head

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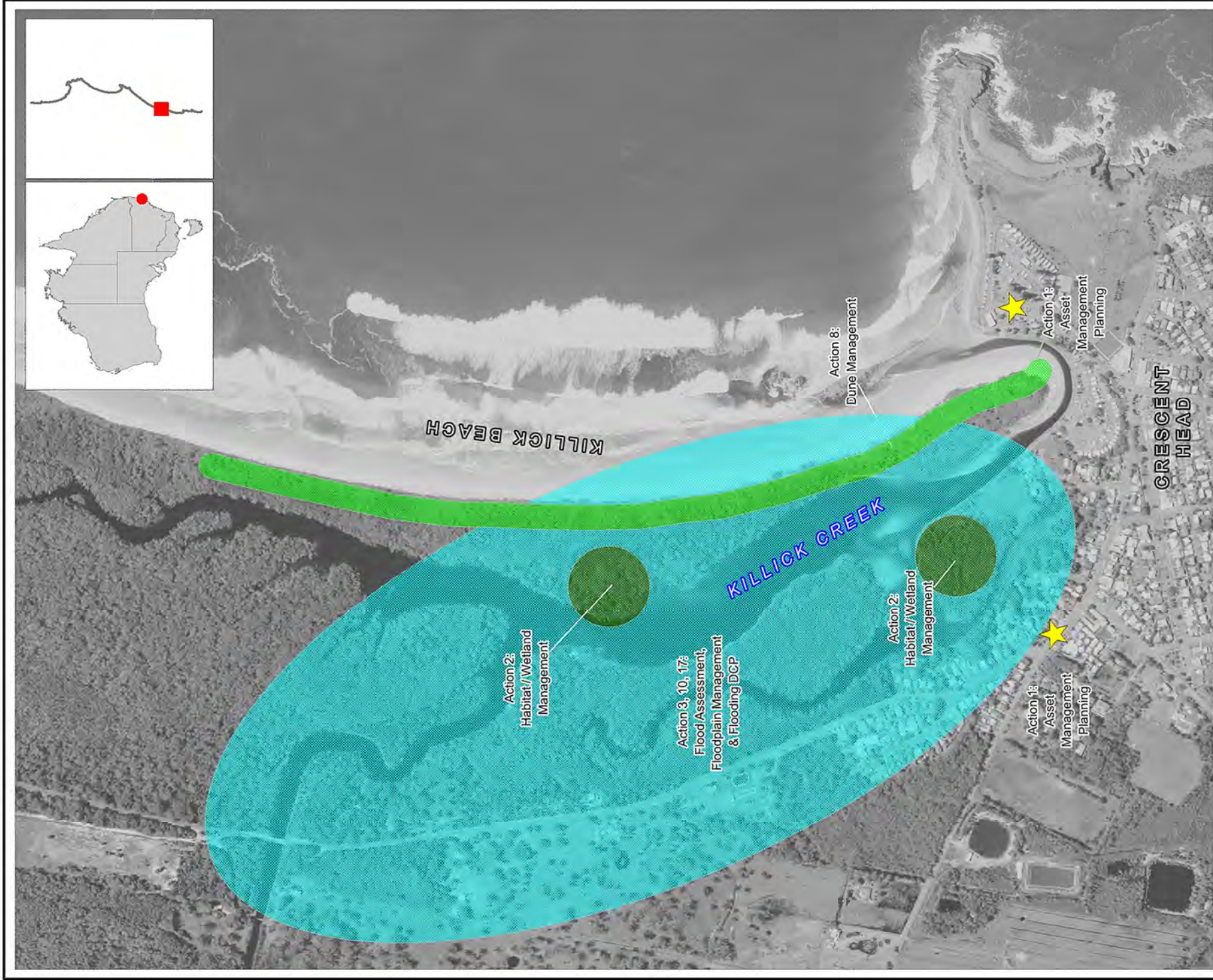
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Title:

Kempsey CZMP Actions Crescent Head

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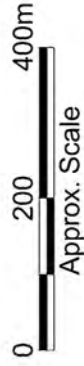
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3 Pathway to Managing Future Risk

It is apparent from the risk assessment that some intolerable risks are not expected to eventuate until 2050 or 2100. In this case, implementing a management action now, particularly where the option is difficult or costly, may be premature and cannot account for the uncertainty of when or to what extent the hazard may actually eventuate in the future. This is particularly the case for Hat Head.

While a decision regarding future intent is necessary at the present timeframe for intolerable risks, the action may not require implementation at present. For existing assets that may not be at risk until well into the future, like houses along Bay Street in Hat Head, it is not necessary to act at present, and *monitoring* to track hazard events may be all that is necessary for now. Other actions to build the resilience of the beach are also useful, for example, enhancing *dune vegetation* to capture sand that may otherwise be blown off the beach. The dune vegetation holds the sand to become a sacrificial buffer when storm erosion occurs.

It is also important that planning and development controls are in place so that the risk profile is not increased.

Minor assets at risk can be easily repaired, replaced or relocated, should they be undermined by erosion. This is the case for beach access stairs and paths, parks, carparks, picnic tables and other minor community facilities. The present day management action is to accept the impact and flag the potential hazard in Councils Asset Management Plan, so that new replacement facilities are not put in the same at risk location. In the future, however, a choice will need to be made to protect or sacrifice the larger scale assets at risk.

Options to “protect” the beach include seawalls, beach nourishment, groynes and artificial reefs. Of these, only beach nourishment will preserve the sandy beach and its associated amenity, environmental and scenic values. Beach nourishment involves placing new sand on the beach, and this has to be repeated over time, especially after storms. Council should continue to explore possible sand nourishment sources.. Seawalls, groynes and artificial reefs are also very expensive and will irreversibly alter the beach and surrounds. Where a beach experiences erosion over a long time, the beach in front of the seawall will be lost to the ocean.

Options for addressing coastal erosion risks to private houses are expensive and there are no readily available funding sources to address these. The state government is currently undertaking Stage 2 Coastal Reforms and the NSW Minister of the Environment (Robert Stokes) has recently indicated an announcement regarding future funding arrangements will be made in the near future. Early indications are that where private property is being protected, particularly where this is at the cost of the natural sandy beach, there will be a strong focus on private home owners funding seawalls. This is complicated in areas like Bay Street Hat Head where the road is seaward of private property. A summary of costs and benefits for the longer term options at Hat Head is presented in Table 3-1. A conceptual pathway for Coastal Hazard management for Hat Head is presented in Figure 3-1

Table 3-1 Cost Benefit Summary for Longer Term Options in Hat Head

Option	Negatives	Positives	Indicative costs for Hat Head (in 2014 dollars)
<p>Seawall – A rock wall along the dunes of the beach</p>	<p>Loss of sandy beach in front of the wall – there is no beach – loss of amenity</p> <p>Expensive capital outlay (\$ millions) plus needs ongoing maintenance and re-designed due to sea level rise</p> <p>In cases where private property is protected, some may consider it unfair to spend public money to protect private property</p> <p>Cannot be built in sections (individual properties) because beach erodes next to seawall. Wall must be built along lengths/major segments of beach</p>	<p>Hold shoreline in current position (i.e. the land behind the beach is protected at the sacrifice of the beach)</p>	<p>\$15 million</p>
<p>Beach Nourishment - Putting sand on the beach from land-based or marine sources (estuary or offshore)</p>	<p>Very expensive option (e.g. \$1- 2 million for first episode, \$1 million for ongoing episodes)</p> <p>Needs to be continually repeated (ie every 5-10 yrs now, may be once a year by 2100)</p> <p>Sand sources of a suitable quality and quantity are not readily available, this may change in the future if offshore sourcing is allowed.</p>	<p>Retains a sandy beach in current position</p> <p>Largely retains beach amenity</p>	<p>\$2-\$3 million dollars per episode with 2-5 per 10 years</p>
<p>Relocating Bay Street (assuming sewer line and water line only service repurchased properties)</p>	<p>A suitable alternative location must exist</p> <p>Private landholders must pay for the relocation of private buildings, which may not yet need replacement due to wear and tear</p>	<p>The sandy beach is retained because it can recede naturally.</p> <p>The relocation can mean a brand new building / road / facility in replacement of an old one</p>	<p>\$4 million (\$440 per metre)</p>

Option	Negatives	Positives	Indicative costs for Hat Head (in 2014 dollars)
<p>Compulsory / voluntary acquisition</p>	<p>The public (Council/State Govt) must fund full purchase price up-front.</p> <p>Coastal property can be very expensive, particularly where they have ocean views, are large blocks/houses, apartment blocks etc.</p> <p>Some may consider it unfair to spend public funds on private property.</p> <p>Many freehold coastal land owners will never accept the arrangement voluntarily – preference to protect freehold land</p>	<p>Private property owners are adequately compensated</p> <p>The public retains a sandy beach and gains public land</p>	<p>\$24 million</p>

2014 - 20??

20??

21??

(almost certainly after 2050)

(almost certainly between 2050 and 2100)

Period of acceptable risk

Risk approaching unacceptability

One (or a combination) of the following

ACTIONS

Update Asset Management Plan to record risks-when upgrading infrastructure, design and maintain with consideration of expected future coastal hazards

Monitor to determine if trigger point is being approached or exceeded

Dune rehabilitation in hazard areas

Explore feasibility of implementing a levy tied to increasing value of asset in hazard zone (i.e. enhancing property size)

ACTIONS

- Impose new planning and development controls -
- Develop Response Plan for preferred option
1. Confirm and communicate risk
 2. Investigate (e.g geotech study)
 3. Consult on risk and adaptation options
 4. Determine preferred option based on consultation
 5. Implement plan

PREFERRED OPTIONS AND ASSOCIATED ACTIONS

Secure funding and approvals, buy back houses, decommission road and demolish houses (allow 15 years)

Design nourishment regime, gain development consent, secure funding and sand source and nourish beach (allow 10 years), ongoing monitoring and nourishment

Design protection works, gain development consent, secure funding and design seawall (allow 10 years), ongoing seawall maintenance and monitoring

Do Nothing

Risk Reduced to Acceptable Risk Level
Development Sacrificed / Sandy Beach allowed to recede

Acceptable Risk Level
Ongoing Sand Nourishment

Acceptable Risk Level
Development Protected by Seawall

Risk Realised
Assets impacted / lost

Planning Trigger Point:
Erosion scarp measures 25m from Bay Street

Implementation Trigger Point: Response Plan for preferred option

***Key to costs and benefits**

Amenity Environment Dollars Social Longevity

Green indicates net benefit, Orange indicates net costs

Note: Sea Level rise beyond 2100 is not considered in this assessment

Figure 3-1 Hat Head Forward Plan

4 Monitoring, Evaluation and Review

The Kempsey CZMP requires evaluation and reporting regarding the success of its implementation, and thus the success of managing existing and future coastal risks. Where implementation performance is sub-optimal, contingencies should be employed to remedy the situation.

4.1 Internal communication and implementation audit

The importance of internal communications cannot be over emphasised in the success or otherwise of implementation of CZMPs. To support the integration of this CZMP with Councils day to day operations, it is recommended that 12 months after the CZMP is adopted, key Council Staff responsible for its implementation, in partnership with the regional OEH Coastal representative undertake an internal workshop to gauge knowledge and adoption of the CZMPs recommendations and actions. A refresher of the CZMP contents should be provided.

4.2 Integrating with Operating Plan Reporting Framework

Reporting on implementation of the CZMP will be integrated with the reporting on Councils Delivery Program progress. Council will report on the progress of the Delivery Program through:

- Key performance indicators will be measured every four years prior to the completion of each Council term.
- Other performance indicators for each goal will measure both outcomes and outputs, with milestones set for each priority or action. These performance indicators and milestones are reviewed during the year to ensure service delivery meets our goals and to improve evaluation of priorities and actions.
- An annual review of the total Delivery Program and the adoption of the next year's Operational Plan in June each year.

4.3 Implementation Schedule and Primary Performance Indicators

The first set of performance measures should ascertain whether the strategies are actually being implemented, or not, in accordance with the timeframe and triggers designated in the Implementation Tables above (refer to Section 2). As such, the primary performance measures are simply a measure of action initiation. The implementation schedule and primary performance indicators are summarised in Table 4-1.

Specific questions to be answered as part of an evaluation process are:

- What strategies have actually been implemented (regardless of outcome – see Secondary Performance Measure)?; and
- What strategies are outstanding, and should have been implemented within this nominated timeframe / trigger?

If it is determined that the strategies are not being implemented in accordance with the nominated timeframe, then one or both of the following contingencies should be adopted:

- Determine the cause for the delay in implementation. If delays are funding based, then seek alternative sources of funding. If delays are resource-based, seek additional assistance from stakeholder agencies and / or consider using an external consultancy to coordinate implementation of the action(s); and
- Modify and update the CZMP to reflect a timeframe for implementation that is more achievable. The revised Plan would need to be endorsed by all relevant stakeholders and agencies responsible for implementation.

4.4 Secondary Performance Indicators and Plan Review

This level of review would be recommended after 5 years. The second set of performance measures are aimed at measuring the overall outcomes of the Plan in terms of actually managing and reducing the risks to the community associated with existing and future coastal hazards. That is, 'how has the Plan made a difference? Has the level of risk been reduced?'

The main mechanism for gauging whether the overall outcomes of the Plan have been achieved, or not, is to re-evaluate the risks through a follow-up risk reassessment process. As for the first risk assessment, consideration will need to be given to all relevant mechanisms in place that assist with managing future risks and increasing Council's and the community's resilience to a changing climate and associated coastline responses (including erosion, recession and coastal inundation).

There are two specific questions to be answered here:

- Has the level of risk changed? (including for those risks in this plan that are currently assessed as low); and
- Have the identified intolerable risks been adequately managed / mitigated? (i.e., has the level of risk been reduced to a tolerable level through management?).

If, after a reasonable period of time it is determined that the risks have not been adequately managed / mitigated (or indeed, new intolerable risks have arisen), then the following contingencies should be adopted:

- Carry out a formal review of the implemented management strategies, identifying possible avenues for increasing the effectiveness of the strategy in managing the risks along the coastline (including new risks);
- Commence implementation of additional management strategies that may assist in meeting the objectives of the Coastal Zone Management Plan (possibly 'fast-tracking' some longer term strategies as necessary);
- Reconsider the objectives of the risk management. For example, accommodating future changes may no longer be feasible and an alternative approach of abandonment and planned retreat may be necessary. Any such changes to the Plan would need to be endorsed by the stakeholders and relevant government agencies, as well as the public.

Monitoring, Evaluation and Review

Table 4-1 Schedule of Action Implementation and corresponding Primary Performance Indicators

Year	Action	Primary Performance Indicator
2015	<ul style="list-style-type: none"> Initiate Action 1: Identify and document risk from Coastal Hazards to Asset Management Plan Initiate Action 3,4,5,6: Changes to Kempsey DCP, including addition of Coastal Hazards Chapter Initiate Action 7: Community education activities Continue Action 8: Support dune care and revegetation programs Initiate Action 9: Monitor Storm Impacts on Hat Head Initiate Action 12: Investigate, design and construct access to Grassy Head Beach Initiate Action 16: Continue to support research on the Macleay Sands Aquifer and integrate new outcomes in SOE reporting and infrastructure planning Continue Action 14: Support activities to provide formalised access points 	
2016	<ul style="list-style-type: none"> Complete Action 1: Identify and document risk from Coastal Hazards to Asset Management Plan Continue Action 3,4,5,6: Changes to Kempsey DCP, including addition of Coastal Hazards Chapter Continue Action 8: Support dune care and revegetation programs Continue Action 9: Monitor Storm Impacts on Hat Head Initiate Action 11: Investigate options for addressing erosion issues along rock works near South West Rocks Surf Club Continue Action 12: Investigate, design and construct access to Grassy Head Beach Initiate Action 13: Develop a mechanism for cross jurisdictional coastal zone management issues across government agencies Continue Action 17: Support research on the Macleay Sands Aquifer and integrate new outcomes in SOE reporting and infrastructure planning Initiate Action 2: Wetland Management Plan with regard to future sea level rise as part of the Biodiversity strategy 	<ul style="list-style-type: none"> Undertake an internal workshop to gauge knowledge and adoption of the CZMPs recommendations and actions across key Council disciplines. Action 9: Hat Head monitoring being undertaken according to strategy
2017	<ul style="list-style-type: none"> Continue Action 3,4,5,6: Changes to Kempsey DCP, including addition of Coastal Hazards Chapter Repeat Action 7: Community Education Activities 	<ul style="list-style-type: none"> Action 1: Coastal Hazards actively / routinely considered in design of new and retrofit of existing

Monitoring, Evaluation and Review

Year	Action	Primary Performance Indicator
	<ul style="list-style-type: none"> • Continue Action 8: Support dune care and revegetation programs • Continue Action 9: Monitor Storm Impacts on Hat Head • Initiate Action 10 updated flood assessment for Killick Creek and Korogoro Creek • Initiate Action 16: Evaluate the suitability of 4WD access at all beaches and restrict access in sensitive locations • Action 13: Continue to operate a forum for cross jurisdictional coastal zone management issues across government agencies • Continue Action 16: Support research on the Macleay Sands Aquifer and integrate new outcomes in SOE reporting and infrastructure planning • Initiate Action 17: Update and review the Lower Macleay Flood Risk Management strategy • Continue Action 2: Wetland Management Plan with regard to future sea level rise as part of the Biodiversity strategy 	<p>infrastructure and assets</p> <ul style="list-style-type: none"> • Action 11: Tenure Confirmed and forward plan established for South West Rocks • Action 13: Regular forums with shared objectives
2018	<ul style="list-style-type: none"> • Continue Action 8: Support dune care and revegetation programs • Continue Action 9: Monitor Storm Impacts on Hat Head • Continue Action 10 updated flood assessment for Killick Creek and Korogoro Creek • Action 13: Continue to operate a forum for cross jurisdictional coastal zone management issues across government agencies • Action 17: Continue to update and review of the Lower Macleay Flood Risk Management strategy • Implement Action 2: Wetland Management Plan with regard to future sea level rise as part of the Biodiversity strategy • Initiate Action 18: Evaluate and review community uses and access • Initiate Action 19: Facilitate discussion with Lands and stakeholders to review current management arrangements and existing maintenance dredging activities for Back Creek 	<ul style="list-style-type: none"> • Action 3,4,5,6: Coastal Hazards considered in DA process in accordance with Coastal Hazards Chapter • Action 15: New brochures regarding 4WD on beaches prepared and disseminated • Action 13: Joint initiatives underway • Action 16: Research on the Macleay Sands Aquifer integrated in SOE reporting and infrastructure planning • Action 2: Wetland Management Plan with regard to future sea level rise as part of the Biodiversity strategy adopted and beginning to be implemented. • Action 12: Grassy Head Beach access constructed

Monitoring, Evaluation and Review

Year	Action	Primary Performance Indicator
2019	<ul style="list-style-type: none"> • Repeat Action 7: Community Education Activities • Continue Action 8: Support dune care and revegetation programs • Continue Action 9: Monitor Storm Impacts on Hat Head • Action 13: Continue to operate a forum for cross jurisdictional coastal zone management issues across government agencies • Continue to implement Action 2: Wetland Management Plan with regard to future sea level rise as part of the Biodiversity strategy 	<ul style="list-style-type: none"> • Action 10: Discussions underway • Action 10 New Flood Zones mapped and integrated into planning and development assessment for Killick Creek and Korogoro Creek • Action 11: Construction works undertaken or issue otherwise addressed in accordance with action plan. • Action 17: Adopted revised Lower Macleay Flood Risk Management strategy

4.5 Monitoring of Coastal Erosion at Hat Head

A recommended approach to monitoring at Hat Head is shown in Figure 4-1. The approach has been designed to ensure that gross patterns of coastal erosion are tracked over the life of this CZMP, whilst being mindful of Councils limited resources.

4.5.1 Monitoring Specifics

Survey profiles should be established at regular intervals (~100 m) along key sections of the beach and in front of significant assets (e.g. roads, houses). The profiles must run perpendicular to the beach/shoreline with regular survey points measured to the waterline (refer to TASMARC Survey Instructions – Levelling (2012) for example guidance). Preferably, profile measurements should coincide with the existing photogrammetry profiles at Hat Head.

- For asset monitoring (e.g. roads) the survey profile data should be used to calculate the distance between the erosion escarpment and the asset. Monitoring of triggers at specific assets should be immediately analysed upon collection of beach survey data, to determine if and when a trigger is reached.
- The beach profile monitoring should be augmented with OEH or other state agency LiDAR data collection runs and aerial photography. The survey profiles can be used to extract topographic information from both datasets, for comparison with the land based surveys.
- When the CZMP is reviewed in 5-10 years, a thorough assessment and analysis of available data should be undertaken.

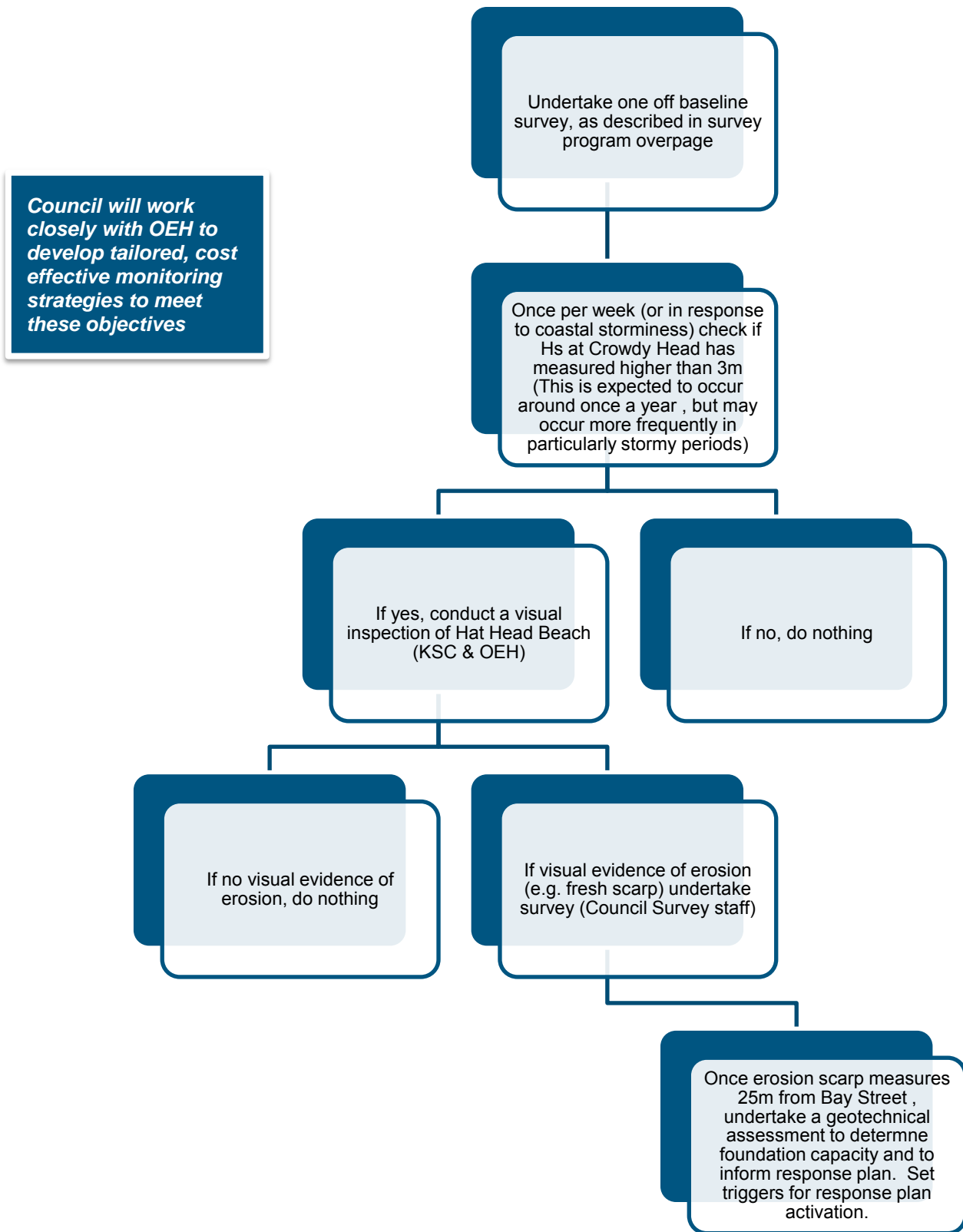


Figure 4-1 Monitoring Recommendations for Hat Head

5 References

BMT WBM (2013) Kempsey Coastal Processes and Hazard Definition Study

BMT WBM (2014) Kempsey Coastal Zone Management Study

Kempsey Council (2014) Operating Plan 2013-2014

OEH (2013) Guidelines for Preparing coastal zone Management Plans

Appendix A Legislative and Statutory Requirements

A.1 Coastal Management Principles

The CZMP Guidelines specify the requirements for preparing a CZMP in accordance with the Coastal Protection Act 1979, including requirements additional to those specified in the Act.

Under Section 733 of the *Local Government Act 1993*, Councils are taken to have acted in 'good faith' and thus receive an exemption from liability for land affected by coastal hazards where their actions substantially accord with the principles contained in the specified manual, in this case being the CZMP Guidelines. As a quick reference guide, Table 5-1 outlines each of the relevant principles and how they have been addressed by the Kempsey CZMs. Further details on the technical process undertaken in developing this CZMP can be found in the preceding Coastal Processes and Hazard Definition Study (BMT WBM, 2013).

Table 5-1 Addressing the Coastal Management Principles

	Coastal Management Principles	Addressed by this document
Principle 1	Consider the objects of the <i>Coastal Protection Act 1979</i> and the goals, objectives and principles of the NSW Coastal Policy 1997	These have been considered throughout the preparation of the CZMS and CZMP and in particular were applied to the options assessment.
Principle 2	Optimise links between plans relating to the management of the coastal zone	By using a risk-based approach, existing controls within existing plans are reviewed and incorporated into the analysis of risk, and also used as starting point for developing risk treatments (i.e. management options). For details on the risk based approach, please refer to the CZMS.
Principle 3	Involve the community in decision-making and make coastal information publicly available.	Comprehensive community consultation has been undertaken throughout the development of this plan. Please refer to Section 1.4
Principle 4	Base decisions on the best available information and reasonable practise; acknowledge the interrelationship between catchment, estuarine and coastal processes; adopt a continuous improvement management approach.	The Coastal Processes and Hazard Definition Study describes coastal processes and interactions along the Kempsey Coastline. It identifies and maps the potential extent of coastal hazards for the current year, 2050 and 2100 timeframes. The properties and infrastructure within each hazard area are mapped. Refer to BMT WBM 2013 for further information.
Principle 5	The priority for public expenditure is public benefit; public expenditure should cost effectively achieve the best practical long-term outcomes	Cost benefit analysis for management options has recognised the public benefit as priority for management options
Principle 6	Adopt a risk management approach to managing risks to public safety and assets; adopt a risk management hierarchy involving avoiding risk where feasible and mitigation where risks cannot be reasonably avoided; adopt interim actions to manage high risks while long-term options are implemented	This plan has been prepared using the ISO 31000:2009 International Standard Risk Management Principles and Guidelines. The risk based approach is an internationally recognised framework for management because it incorporates the best available information and its uncertainty. The adopted Risk Management Framework intrinsically requires ongoing monitoring of risks and review and tailoring of risk treatments

	Coastal Management Principles	Addressed by this document
		(management options).
Principle 7	Adopt an adaptive risk management approach if risks are expected to increase over time, or to accommodate uncertainty in risk predictions	The Risk Management approach is an internationally accepted standard that intrinsically incorporates both the known and possible frequency and consequence of a threat, thereby incorporating the uncertainty in the occurrence of risks / threats.
Principle 8	Maintain the condition of high value coastal ecosystems; rehabilitate priority degraded coastal ecosystems	Ability of a management option to provide environmental protection or benefit has formed part of cost benefit analysis of options.
Principle 9	Maintain and improve safe public access to beaches and headlands consistent with the goals of the NSW Coastal Policy	This is addressed directly in the CZMS. Safe public access is included in a number of actions in this CZMP. Refer to Section 2
Principle 10	Support recreational activities consistent with the goals of the NSW Coastal Policy	This is addressed directly in the CZMS. Safe public access is included in a number of actions in this CZMP. Refer to Section 2

The CZMP Guidelines specify the use of a risk based approach for preparing a CZMP and actions for managing coastal hazards. A risk based approach has therefore been applied to the preparation of this study.

A.2 Minimum Requirements

Current requirements for Coastal Zone Management Plans (CZMPs) are set out in Part 55C of the *Coastal Protection Act 1979* and the supporting *Guidelines for Preparing Coastal Zone Management Plans* (OEH 2013) (the CZMP guidelines).

The minimum requirements for the preparation of CZMPs have been satisfied by Kempsey CZMP as outlined in Table 5-2

Table 5-2 Minimum Requirements for preparing CZMPs

Requirement	Addressed in through Kempsey CZMP
CZMP Minimum Requirements	
A description of how the relevant Coastal Management Principles have been considered in preparing the plan	Refer to Table 5-1
A description of the community and stakeholder consultation process, the key issues raised and how they have been considered	Refer to Section 1.4. Community consultation and input is also discussed in the CZMS (BMT WBM, 2014)
A description of how the proposed management options were identified, the process followed to evaluate management options, and the outcomes of the process	Refer to CZMS (BMT WBM, 2014)
Proposed management actions over the CZMP's implementation period in a prioritised	Refer to Section 2 and 3

Requirement	Addressed in through Kempsey CZMP
<p>implementation schedule which contains:</p> <ul style="list-style-type: none"> • proposed funding arrangements for all actions, including any private sector funding • actions to be implemented through other statutory plans and processes • actions to be carried out by a public authority or relating to land or other assets it owns or manages, where the authority has agreed to these actions (section 55C(2)(b) of the <i>Coastal Protection Act 1979</i>). • proposed actions to monitor and report to the community on the plan's implementation, and a review timetable 	
<p>Prepared using a process that includes:</p> <ul style="list-style-type: none"> • evaluating potential management options by considering social, economic and environmental factors, to identify realistic and affordable actions • consulting with the local community and other relevant stakeholders. The minimum consultation requirement is to publicly exhibit a draft plan for not less than 21 days, with notice of the exhibition arrangements included in a local newspaper (section 55E of the <i>Coastal Protection Act 1979</i>) • considering all submissions made during the consultation period. The draft plan may be amended as a result of these submissions (section 55F of the <i>Coastal Protection Act 1979</i>). 	<p>Refer to CZMS BMT WBM 2014.</p>
<p>CZMPs are to achieve a reasonable balance between any potentially conflicting uses of the coastal zone</p>	<p>This CZMP has sought to manage all high priority risks along the Kempsey coastline with a key focus on a balance between environmental, social and economic values.</p>

Requirement	Addressed in through Kempsey CZMP
	This has been achieved through adopting a risk based approach, where consequence is defined in terms of social, economic and environmental outcomes and by using a multicriteria assessment as outlined in the CZMS (BMT WBM (2015).

Appendix B Emergency Action Plan



Kempsey Coastal Erosion Emergency Action Subplan – Final Report

Reference:
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Kempsey Coastal Erosion Emergency Action Subplan – Final Report

Prepared for: Kempsey Shire Council

Prepared by: BMT WBM Pty Ltd (Member of the BMT group of companies)

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	Client Reference:	
<p>Synopsis: This Kempsey Coastal Erosion Emergency Action Subplan forms an Appendix to the Kempsey Coastal Zone Management Plan. This subplan outlines actions to be performed before, during and after an erosion emergency event and the roles and responsibilities for coastal emergencies.</p>		

REVISION/CHECKING HISTORY

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1	August 2014	LJK	MF
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DISTRIBUTION

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Acronyms

CP Act	<i>Coastal Protection Act 1979</i>
KSC	Kempsey Shire Council
EASP	Coastal Erosion Emergency Action Sub-plan
LEMC	Local Emergency Management Committee
LEMO	Local Emergency Management Officer
LEOCON	Local Emergency Operations Controller
OEH	Office of Environment and Heritage
SERM	State Emergency and Rescue Management
SERMA	<i>State Emergency and Rescue Management Act</i>

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1 Introduction

1.1 Coastal Zone Management Planning

The process for managing coastal hazards and coastal risks along the New South Wales coast is through the preparation of Coastal Zone Management Plans. Through the development and subsequent implementation of these plans, the coastal hazards are identified and, as appropriate, the risks are addressed through a range of planning, design and protection measures. The need for unplanned protection works to manage coastal erosion is reduced and the risk to life and property managed. In this way, the likelihood and consequence of emergencies resulting from erosion during storm events is minimised (as is consistent with the risk management approach including prevention and mitigation measures detailed in the Local Disaster Plan). The residual risks to properties, assets and life until such time as the key elements of the plan have been adopted or as a result of potential unforeseen outcomes or storm severity are covered by this Coastal Erosion Emergency Action Subplan (Coastal Erosion EASP).

The Coastal Erosion EASP is a required component of the preparation of a Coastal Zone Management Plan (CZMP) as set out in the NSW *Coastal Protection Act 1979* (the CP Act). Section 55C(1)(b) of the CP Act states a CZMP must provide for ‘*emergency actions carried out during periods of beach erosion, including the carrying out of related works, such as works for the protection of property affected or likely to be affected by beach erosion, where beach erosion occurs through storm activity or an extreme or irregular event*’. Section 4 of the CP Act states that the part of a CZMP that deals with the matters specified in Section 55C(1)(b) is an emergency action subplan (OEH 2011, page 1).

1.2 The Role of the Coastal Erosion Emergency Action Sub-plan

“The emergency action sub-plan forms an integral component of a CZMP. It outlines a council’s intended response to a coastal erosion emergency and explains ways in which and where beachfront property owners can place emergency coastal protection works according to the Coastal Protection Act 1979 (CPA),”

*“Section 55C(2)(a) of the CP Act requires that CZMPs **must not** include matters dealt with in any plan made under the State Emergency and Rescue Management Act 1989 (SERMA) in relation to emergency responses.” (OEH 2011, page 1).*

The roles and responsibilities of government agencies, councils and other relevant organisations during severe storm events (including events that cause erosion) are detailed in Section 2.19 of the NSW State Storm Plan (SES, 2013)..

1.3 Extent of the Coastal Emergency Action Sub-plan

The OEH Guide (2011) advises that *“The minimum area to be covered by an emergency action sub-plan would be either:*

- *any area defined by a direction from the Minister according to Section 55B of the CP Act; or*
- *all beachfront margins where erosion is likely to threaten public and private infrastructure or assets.*

Introduction

The sub-plan may also cover areas of the coastline accessed or utilised by the general public where there is an identified threat posed by erosion, e.g. walking tracks through coastal parkland.”

No direction has been issued under Section 55B for the Kempsey Local Government Area (LGA) coastal zone. The extent of this CEEAS is, therefore defined as the coastal margins of the ocean beaches and headlands within the LGA boundaries, extending from Point Plomer (including Big Hill) in the south to Middle Head (including Middle Head Beach) in the north.

1.4 Minimum Requirements for Emergency Action Sub-plans

The Coastal Erosion EASP must be consistent with and not duplicate or contradict any plans prepared under the *State Emergency and Rescue Management Act 1989 (SERM Act)*. The relationship between these two planning frameworks is indicated in Table 1 which has been adapted from OEH, 2011 (page 14).

Table 1-1 Contents of CEEAS and SERM Act plans (adapted from OEH, 2011)

Coastal Erosion EASPs	SERM Act Plans
Any coastal protection works or other actions to be carried out by council when coastal erosion is imminent or occurring, or in recovering from coastal erosion.	Actions in relation to the prevention of, preparation for, response to and recovery from emergencies, excluding permanent or temporary coastal protections works.
Any additional; requirements for landowner placement of temporary coastal protection works beyond those in the <i>Coastal Protection Act 1979</i> (e.g. constraints on access and the location of works)*	Actions are consistent with the NSW State Disaster Plan and the State Storm Subplan.

IMPORTANT NOTE* *No locations for temporary coastal protection works in accordance with the CP Act and the Code of Practice associated with temporary works are currently identified in the Kempsey LGA. Council will need to review the revised Code of Practice with future revisions. Should there be permissible locations for landowners to place temporary protection works in Kempsey LGA, this Coastal Erosion EASP will need to be updated after direct consultation with the identified landowners.*

The minimum requirements for a Coastal Erosion Emergency Action Subplan are set out in the NSW Government Guideline (OEH, 2011) which reflects the requirements expressed in the CP Act. These are:

- describing intended emergency actions to be carried out during periods of beach erosion, such as coastal protection works for property or asset protection, other than matters dealt with in any plan made under the *State Emergency and Rescue Management Act 1989* relating to emergency response (sections 55C(1)(b) and (g) of the CP Act 1979); and
- describing any site-specific requirements for landowner emergency coastal protection works describing the consultation carried out with the owners of land affected by a subplan.

2 Emergency Planning and Responsibility Hierarchy

2.1 Response Operations by the NSW State Emergency Service

There is a clear hierarchy in planning and responsibility that applies to emergency management in NSW, including those emergencies resulting from a storm or disaster as defined at clause 6.1.3 of the NSW State Storm Plan (September, 2013).

The various roles and responsibilities are defined in the NSW Storm Plan and within the Local Disaster Plan (DISPLAN) for the Kempsey Shire, February 2007. Responsibilities for various hazards relating to the open coast are as follows:

- The combat agency for Flood / Storm / Tsunami Hazards is defined in the DISPLAN in Section 8 (Page 21) to be the NSW State Emergency Service (SES), with reference to also be given to the local Flood Plans;
- As the lead combat agency, response operations by the NSW State Emergency Services will begin on the receipt of an Australian Government Bureau of Meteorology (BoM) watch or warning (e.g. Severe Thunderstorm Warning, Tropical Cyclone Watch), or following impact of a storm not covered by a formal warning;
- The NSW SES Region and Local Controllers are responsible for ensuring, as detailed in SES region and Local Flood Plans, that the residents of the region and local areas are aware of the flood, tsunami or severe storm threat and how to protect themselves against it;
- Although NSW SES is the combat agency for storms, they are not responsible for commanding, controlling and conducting physical mitigation works (clause 2.2.32 of the NSW State Storm Plan (September 2013)), which is the responsibility of Council;
- The Local Emergency Operations Controller (LEOCON) or the responsible combat agency can activate response arrangements detailed in the DISPLAN.

Therefore, the DISPLAN informs this Coastal Erosion Emergency Action Subplan (i.e. the Coastal Erosion EASP is a subplan to the DISPLAN).

The role of Council in a storm emergency is to command, control and conduct physical mitigation works that may be requested by the SES to assist with the emergency relief or to activities (including protection works) to protect assets under local Government Council control. Where any proposed protection works to manage coastal erosion emergency events require development approval, Council must only undertake such works during an emergency where the consent has been obtained in advance. Where the works are exempt (such as minor works or emergency works to protect a road or stormwater system under SEPP (Infrastructure) 2007), Council must first undertake an assessment to determine that the works will not result in a significant adverse environmental impact. Before undertaking any works, Council must also confirm that the works proposed are in accordance with the currently gazetted or adopted Coastal Zone Management Plan. *Note: there are no protection works proposed for emergency management purposes under this Coastal Erosion EASP that require development consent.*

Following the emergency, Council is involved in the remediation of damage or hazards and the reinstatement of the dunes, beaches and accessways in an appropriate and safe manner. This will include works of varying priorities and timeframes in accordance with usual Council maintenance procedures.

2.2 Other Coastal Erosion Emergency Response Operations

Where a coastal erosion emergency arises from storm events other than those outlined in Section 2.1, the responsibility to manage rests with Council. Such an event could arise, for example, from a period of high tides and large swell which result in substantial erosion to the back of the beach. For these conditions, it is likely that the resulting erosion would be substantially less than that which would result from a severe declared storm event (unless such an event was to occur immediately following a severe storm event).

It is not possible to determine a trigger for such an occurrence, and therefore, the determination to invoke this Coastal Erosion EASP (in this case by Council) would need to be based on monitoring of the beach state (and assessment by Council officers). In such a case, the Coastal Erosion EASP would be implemented following a request from the designated Council Officer.

2.3 Assets and Development at Threat

The extent of coastal hazards within the Kempsey LGA coastal zone is defined in the Kempsey Coastal Processes and Hazards Definition Study (BMT WBM, 2013). This study maps the landward extent of erosion hazards that may be anticipated for various planning timeframes. Specifically, the landward extent of erosion hazards for the immediate planning horizon are defined in maps included in Appendix B and Appendix D of BMT WBM (2013) and form the basis for defining the extent of the erosion hazard at present.

Within the Kempsey LGA coastal zone the extent of beach erosion at present is typically restricted to the sandy beach, incipient dunes and foredune crest of the beaches. Significant encroachments of the storm erosion extent threatening existing development are limited to township of Hat Head. At this location, development and areas that may be impacted during an erosion emergency generally consist of the:

- southernmost end of Hat Head Beach (including sand dunes);
- Bay Street and defined beach access paths under the control of Council;
- beach vehicle access under care and control of Council;
- Hat Head Surf Club;
- sewerage (pipeline) infrastructure; and
- low-lying parts of Hat Head National Park which include coastal foredune vegetation and estuarine wetland habitat areas.

These exist within an area of known high hazard and are either designed to accommodate the erosion events, or are temporarily affected by erosion, limiting their use by the community (such as beaches and access ways). In each case the opportunity to protect the asset prior to an erosion

event is low and the risk to life during an event is low. Similarly, the opportunity to undertake emergency works during an event is low and the preferred approach is to identify impacts, assess and repair the asset following the event. In most instances this becomes a routine maintenance role.

The landward extent of the erosion hazard as considered in this Coastal Erosion EASP may increase into the future as sea level rises. The impacts on the future revisions of the Coastal Erosion EASP should take this into account at each plan review.

3 Emergency Responses

3.1 Communication

3.1.1 Storm Emergency

Where coastal erosion is anticipated as a result of a watch or warning issued by the BoM, the responsibility for communicating the potential hazards defaults to the SES as the combat agency.. Activation of the DISPLAN would trigger this Coastal Erosion EASP. Council would assist in the provision of information on the current state of beaches as well as potential for impacts on beach access. Internally, Council staff with relevant responsibilities should be placed on standby and commence monitoring the impacts. As described in Section 2.19 of the SES (2013), Local Surf Life Saving Clubs (SLSC) should be contacted with a view to distribute advice contained in the Bureau's weather warnings to people on Surf Life Saving patrolled beaches when dangerous surf conditions are predicted and to close patrolled beach water areas when dangerous conditions caused by storms occur.

As the emergency progresses Council is required to continue monitoring these areas and updating information through the LEOCON as appropriate. Where specific hazards are resulting in damage, Council will provide this information to the SES and for distribution through the media or directly to community as appropriate.

Following the emergency, Council is responsible for advising the current state of beaches and recreation areas in the Council area (when/if they are re-opened for the public). Where residual hazards remain to be addressed, Council should take appropriate action to convey this to local communities including the use of closures, signage and the release of media bulletins via the SES.

3.1.2 Non Storm Erosion Emergency

Where the emergency does not trigger the State Storm Plan or DISPLAN, Council is responsible for initially monitoring the potential progress of erosion and subsequently implementing this Coastal Erosion EASP. The roles and responsibilities of Council in communicating the emergency to the community remain the same except that information needs to be provided by Council directly through the media rather than through the SES as outlined in Section 3.1.1 above.

3.2 Landowner Initiated Actions

Property owners within the immediate erosion hazard line (if present), are permitted to submit development applications to install permanent protection works, provided such works are consistent with the adopted Kempsey CZMP.

Where property owners wish to install permanent protection works (either prior to or during a coastal erosion emergency):

- they must submit a development application for the works;
- they must have a valid approval;

- they must comply with all conditions of consent applying to that approval, before proceeding with the works; and
- Any illegal works placed by a property owner may result in prosecution of the person and removal of the works.

A property owner may be able to undertake minor works to minimise damage to their property and/or dwelling where such works do not require development approval and do not result in adverse impacts. The types of things permitted without consent are unlikely to provide significant protection from any coastal erosion that is occurring but may limit consequent damage, for example: sealing of the space at the bottom of a doorway to limit water entry, repair/replacement of damaged windows, cladding or roofing, clearing of drains, pumping of ponded water, removal of objects from proximity to an escarpment (such as fences, sheds, furniture), etc.

The owner of a property has the right to undertake a wide variety of activities/maintenance in relation to their property which may or may not result from damage during a storm event and which, generally are of a minor nature. As with all activities there is a common law obligation not to cause a nuisance to neighbours or damage to adjacent properties. Generally those works resulting in structural alterations to a building (including demolition or removal), or significant construction (such as a retaining wall or underpinning a structure) or significant earthworks (excavation or placement of fill) would require prior development/building approval.

Temporary coastal protection works are only permitted under the CP Act at locations listed in Schedule 1 of the Code of Practice accompanying the CP Act, none of which exist in Kempsey LGA. Schedule 1 of the Code of Practice accompanying the CP Act was revised in April 2013, in line with the recent amendments to CP Act implemented by the *Coastal Protection Amendment Act 2012*. As part of that revision, the following main changes were made:

- updating the authorised locations where temporary works can be placed to reflect all areas where properties are currently known to be at risk from erosion;
- removal of safety requirements, as landowners should manage safety risks to meet the requirements under the NSW Work Health and Safety Act 2011;
- increasing the allowable height of the works from 1.5 to 2.2 metres;
- allowing temporary works to be placed in front of any existing works (previously prohibited);
- relaxing the specifications for the sand used in sandbags; and
- requiring all sandbags to have a volume of 0.75 cubic metres when filled and to be made from geotextile fabric (no longer allowing smaller woven polypropylene bags), as the smaller bags previously permitted may be too readily damaged and become dangerous.

There are no properties within the immediate erosion hazard lines for the Kempsey LGA and therefore landowner initiated actions are not likely to be required. However, Council is advised to update this Coastal Erosion EASP in consultation with relevant landowners if the erosion hazard increases and/or if any further changes to the code of practice occur in the future.

3.3 Council Actions Prior to a Coastal Erosion Emergency

The following activities would be undertaken by Council prior to the emergency:

- Contribute to community storm education initiatives, and assist the NSW SES with community awareness programs to ensure people in locations potentially threatened by coastal erosion understand the threat and its management;
- Provide NSW SES with copies of coastal hazard studies and management plans to assist with emergency planning and intelligence development;
- Where the likelihood of an emergency event is identified (e.g. Storm warnings or damaging wave warnings from the BoM), the local Lifeguards (or appropriate council representative) will inform the local Surf Life Saving Clubs. The Council Lifeguards and / or the local SLSCs will then take the appropriate action in terms of closing the beaches and/or access roads;
- Where difficulties/damage are known to exist on beach accessways and these are likely to be exacerbated by storm erosion, then Council at their discretion may close those walkways and place appropriate signage;
- Commence monitoring the effects of the erosion on assets and development potentially at threat; and
- As appropriate, the Council Coastal Erosion EASP controller (CEEASP Controller) will initiate the Coastal Erosion EASP.

3.4 Council Actions During a Coastal Emergency

The following activities would be undertaken by Council during the emergency:

- Subject to the availability of adequate resources, assist NSW SES with reconnaissance to identify storm damage; traffic management on Council managed roads; resources (e.g. plant, equipment and personnel); and removal of tree and other debris from Council managed road and public land during clean-up operations;
- Distribute advice contained in weather warnings to people on beaches when dangerous surf conditions are predicted via Council lifeguards;
- Close beach water areas when dangerous conditions caused by storms occur and notify the NSW SES and Surf Life Saving NSW;
- Council activities during a coastal erosion emergency should focus on the safety of Council staff who may be working under adverse weather conditions;
- Where damage to walkways is identified and/or reported to Council, as practical take appropriate action to close off the accessways by installing temporary fencing / signage and/or advising the local community of the hazards at the first opportunity;
- Where damage to assets is identified through monitoring, assess the damage and any opportunities for limiting further damage that may be appropriate during the event. This may include consideration of constructing emergency physical mitigation works to protect public property in accordance with the *Environmental Planning and Assessment Act 1979* and as

detailed in Councils Coastal Zone Management Plan and Coastal Erosion Emergency Action Subplan;

- Where repairs are permissible and may be readily and safely undertaken, this will be done at the first opportunity; and
- At the appropriate time the CEEASP controller will determine that the emergency has passed and that the remediation stages of the plan are to commence.

Note that no actions undertaken by Council during a coastal emergency event should conflict with other agency actions, such as those SES.

3.5 Council Actions Following the Cessation of a Coastal Erosion Emergency

The following activities would be undertaken by Council following the emergency, within their usual maintenance programs:

- Following the erosion emergency, Council will undertake an inspection of all beach accessways, beaches and dunes to establish any damage to the access or dangers to the public in accessing and using the beach and dune areas;
- Where an accessway is considered unsafe, action will be taken to close the access (top and/or bottom) and to place appropriate signage warning the access is unsafe for use;
- Prioritise the work required to repair and reopen any damaged or unsafe beach accessways in accordance with the Council maintenance works schedule;
- Where an erosion escarpment has been created at the back of the beach (height greater than 1.5 m¹), document the extent of the escarpment and at the earliest opportunity undertake a risk assessment of the likely hazard to beach users (both to persons on the beach and to persons on the dune above the scarp) from collapse of the erosion scarp (for example, onto children digging into the scarp base);
- Where the risk is deemed unacceptable, at the earliest opportunity undertake appropriate mitigation works which may include:
 - regrading the escarpment to a stable slope (following approval from Council's Design section);
 - fencing and signposting escarpments, to discourage public access (top and/or bottom) until such time as the beach recovers naturally; and
 - keeping the beach closed until such time as the risk has reduced to an acceptable level.
- At the appropriate time the CEEASP controller will declare the emergency has finished and the Coastal Erosion EASP is no longer operative.

¹ A height of 1.5 m is specified due to the public safety risk (for example, from a fall or trip from this height or scarp collapse). The action required may simply be to fence off the escarpment until such time as the beach recovers naturally.

4 Responsibilities

Specific responsibilities under the Coastal Erosion EASP are tabulated in Table 4-1.

Council (through the nominated CEEASP controller) must tabulate relevant Council positions and responsibilities for implementation and execution of the Coastal Erosion EASP. This will require an up-to-date list (names and contact numbers) for relevant contacts to be maintained by Council and updated as positions or responsibilities change. This list is to be readily available within Council and communicated to each of the nominated contact persons following any update.

Table 4-1 Specific Responsibilities for Implementation of the CEEAS

Position	Responsibilities
Combat Agency NSW State Emergency Service	Facilitate damage control for storms and with the legislative requirement to protect people from danger, to maintain their safety and health and manage the media during severe weather events.
Local Council	Responsible for commanding, controlling and conducting physical mitigation works. This includes assisting NSW SES with reconnaissance, installing fencing and signage in areas affected by erosion resulting in unsafe conditions, and construction of emergency mitigation works during or after a storm event in accordance with the <i>Environmental Planning and Assessment Act 1979</i> (NSW).
Local Emergency Operations Controller (LEOCON)	Execution of the Local DISPLAN, including aspects relating to coastal erosion.
Council Coastal Erosion EASP Controller (CEEASP Controller)	Liaison with LEOCON during storm emergency. Implementation of the Coastal Erosion EASP during non-storm erosion emergency.
Council Recreation Services Manager	Monitoring repair of beaches, dunes and local access roads. Closure of beaches as appropriate. Post storm remediation.
Council Media Liaison Officer	Distribution of warnings and closures to the media via the SES.

5 Plan Review

This coastal erosion emergency management plan should be maintained as required and reviewed at intervals not exceeding 5 years from its initial adoption. Earlier review may be triggered by:

- occurrence of a coastal erosion emergency that exceeds the defined hazard extent as outlined in the Kempsey Coastal Processes and Hazards Definition Study (BMT WBM, 2013) to redefine the extent of the area covered by the Plan;
- revision of the NSW State Storm Plan, the Local DISPLAN (revised each five years) or the Coastal Protection Legislation and associated guides, to ensure the plan remains consistent with their objectives;
- unsatisfactory outcomes or concerns following a coastal erosion emergency; or
- proposed changes to the adopted Coastal Zone Management Plan.

6 References

BMT WBM 2013, Kempsey Coastal Processes and Hazards Definition Study, final report prepared for Kempsey Shire Council by BMT WBM, June 2013.

BMT WBM, 2014. *Kempsey Coastal Zone Management Study*, prepared for Kempsey Shire Council by BMT WBM, 2014 (*in prep*).

Kempsey Shire Council, 2007. Kempsey Shire Local Disaster Plan (DISPLAN) February 2007, prepared by the Kempsey Local Emergency Management Committee in accordance with Section 29(1) of *State Emergency and Rescue Management Act, 1989*, as amended.

OEH, 2011. *Coastal Zone Management Guide note – Emergency action subplans*, NSW Office of Environment and Heritage, ISBN 978 1 74293 300 9. OEH 2011/0631. July 2011.

OEH, 2013. *Guidelines for Preparing Coastal Zone Management Plans*, NSW Department of Environment Climate Change and Water, ISBN 978-1-74359-054-6, OEH 2013/0224, July 2013.

SES, 2013. New South Wales Storm Emergency Sub Plan. Volume 1 of the NSW State Storm Plan, September 2013.



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