

Wyong Shire Council

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# **Coastal Zone Management Plan for the Wyong Coastline:**

## **Supporting Information Volume 1**

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November 2011

# Coastal Zone Management Plan for the Wyong Coastline:

## Supporting Information Volume 1

Prepared by

**Umwelt (Australia) Pty Limited**

on behalf of

**Wyong Shire Council**

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# Executive Summary

This document presents analysis and integration of information about the Wyong coastline, leading to recommendations for its future management to reduce risks associated with coastal processes. The document includes the working draft of the Wyong Shire Coastal Zone management plan which was exhibited for community comment during 2011. The final Plan is a separate, stand alone document, which takes into account the feedback on the exhibited working draft. **Therefore, this document is a supporting document for the statutory Wyong Shire Coastal Zone Management Plan 2011, which will be certified by the NSW Minister for the Environment.**

## 1.0 The challenge on the coast

Wyong Shire Council (WSC) and its communities are in the front line of developing appropriate, effective and efficient strategies to manage the high natural, social, recreational and economic values of the coastal landscape and exposure to severe coastal hazard impacts, which are expected to worsen as climate change and sea level rise take effect in the coming decades (see CSIRO 2010 and DECCW 2009). The NSW Government requires that councils consider how coastal processes could affect community use of the coast for the 2050 and 2100 planning periods.

In its Strategic Vision (Our Shire Our Future, 2009), WSC highlights that the Shire's 35 kilometres coastline is viewed by the local community as a key asset that attracts them to the Wyong Shire area. Managing the coast to maintain community access, enjoyment and economic values is an important part of Council's sustainability strategy.

Strategic coastal zone risk assessment prepared by the NSW Government in 2010 identified North Entrance, Hargraves Beach and Cabbage Tree Harbour as coastal erosion hotspots, with more properties at other beaches likely to be affected in the future. Detailed hazard studies completed during the preparation of this plan have confirmed that around 50 residences are within the immediate coastal erosion hazard zone. These residences could be impacted by storm erosion at any time.

In 2009, The Australian Department of Climate Change (now Department of Climate Change and Energy Efficiency DCCEE) released a first pass National Coastal Vulnerability Assessment – *Climate Change Risks to Australia's Coast*. This assessment identified Wyong Shire as one of the most at-risk local government areas in terms of the effects of sea level rise and other climate change impacts on the built environment.

The Wyong Shire Coastal Zone Management Plan (WSCZMP or the Plan) sets out Council's strategies for managing coastal process hazards that affect the way that the community uses and enjoys the coast. Coastal hazards can impact on residential and commercial development, recreation space and activities, scenic coastal outlooks and coastal ecological communities along the Shire's interface with the ocean.

The aim of the Plan is to manage risks associated with coastal process hazards so that risks do not escalate, certainty about coastal change improves and residents and visitors will be able to enjoy safe access to an attractive coastal landscape, now and over the 2050 and 2100 planning periods which the NSW Government requires Council to consider.

In preparing the plan, Council has drawn on the information presented in this document.

The Plan aims to support:

## Continuing community enjoyment of resilient coastal landscapes in times of change

### 2.0 Government involvement in coastal zone management

All levels of Government have a role in managing the coast, but local government has a key role in managing change on the ground, within local communities.

- The **Australian Government** manages matters of national importance, sets broad policy direction and priorities for Australia's coast, funds and conducts research into coastal process impacts and provides some funding for on-ground works through the Caring for Our Country Program.
- The **NSW State Government** sets the statutory and policy context for coastal zone management and for related land use planning, environment protection and natural resource management in NSW. It prepares Guidelines and Directions and sets standards to drive a consistent approach to issues affecting the coastal zone. It provides some funding to local government for the preparation of coastal zone management plans and emergency action sub-plans that are required by the *Coastal Protection Act* and also contributes to funding for on ground works.
- **Local government** has the major implementation role in coastal zone management. Councils plan and do on-ground works for their communities. State legislation requires that Wyong Shire Council prepares a coastal zone management plan for its local government area. Local Environmental Plans (LEPs) and Development Control Plans (DCPs) implement strategic land use decisions from the coastal zone management plan. Council owns and/or manages coastal land on behalf of local communities. Council works in partnership with community organisations to manage coastal vegetation and to provide safe and attractive beach access facilities for residents and visitors.

Diverse sections of Wyong Shire Council have been involved in the preparation of the WSCZMP, and many sections of Council have a role in the implementation of the Plan. The overall implementation process will be managed by Council's Environment and Natural Resources Unit, reporting to the Director of Environment and Planning Services. Policies and strategies across Council will be aligned to provide a clear local scale coastal management framework for the community.

Council does not have the resources or the statutory power to achieve all the changes needed to achieve sustainable management of its coastline on its own. To ensure timely and coordinated delivery of the priority actions in the WSCZMP, Council will foster its partnerships with key State agencies such as Department of Lands (coastal Crown lands) and Office of Environment and Heritage (OEH), the Australian Government Department of Sustainability, Environment, Water, Population and Communities (DSEWPC), DCCEE and with land holders and community based organisations along the coast.

### 3.0 Why the Plan is important

The WSCZMP is a key tool with which Council will manage risks associated with coastal hazards. Coastal erosion and recession are key hazards, but parts of the Wyong coastline are also affected by coastal inundation and by slope instability on cliffs and bluffs.

The analysis and evaluations in this supporting document show how a coherent program of strategies and actions, implemented in a coordinated manner, will reduce coastal hazard risks, enhance the resilience of coastal ecological communities and maintain important

community social, cultural and landscape values associated with the coast. The supporting documentation includes a working draft of the plan, which was exhibited for community comment, and is updated in the final statutory Plan

Council recognises that the changes to coastal processes that are occurring now mean that a 'business as usual' strategy is not appropriate. The WSCZMP sets out how Council will manage change and uncertainty about future coastal hazards and risks. Council will work with its growing community to develop flexible and adaptable solutions as new information emerges, whilst maintaining an overall risk reduction objective.

The Plan sets out strategic actions to be implemented over the next ten years. Once these actions are in place, they will continue to guide coastal use to enhance community benefits and reduce risks, for planning periods of 40 years and longer. Council will continue to monitor and evaluate progress in implementing the Plan, including performance review and outcome review, so that actions can be adjusted as necessary to get the best results for the community and the coastal environment. This ongoing review process means that changes to State government policies and regulations such as might occur with a change of government, can be taken into account.

## 4.0 Coastal Zone Planning Context

Wherever possible Council will align its policies and plans with the strategic coastal zone management frameworks established by the NSW and Australian Governments.

Maintaining and improving the condition of coastal and marine ecological communities is a target of the NSW State Plan. Improving the capacity of coastal residents and management authorities to understand and accommodate the interactions of natural systems in the coastal landscape with development and other coastal uses is also a target of the NSW State Plan.

Since 2009, the NSW Government has released a suite of policies, directions and guidelines to focus effective management of coastal process hazards and risks. These include:

- NSW Sea Level Rise Policy Statement (DECCW 2009), which sets sea level rise benchmarks for planning purposes of 40 centimetres above 1990 level by 2050 and 90 centimetres above 1990 levels by 2100.
- Coastal Planning Guideline – Adapting to Sea Level Rise (Department of Planning 2009)
- Amendments to the NSW *Coastal Protection Act 2010*
- Coastal Risk Management Guide – Incorporating sea level rise benchmarks in coastal risk assessments (DECCW 2010)
- Code of Practice under the *Coastal Protection Act 1979* (DECCW 2011)
- Guidelines for Preparing Coastal Zone Management Plans (DECCW 2010)
- Guide to the Statutory Requirements for Emergency Coastal Protection Works (DECCW 2011)
- Coastal Zone Management Guide Note: Emergency action Subplans (OEH 2011)

All of this updated legislation, policy and guidance focuses on managing risks associated with coastal process hazards. It provides clear direction to Councils that they must properly consider coastal process hazards in their local land use planning, natural resource management planning and community development planning.

As a local government area with three coastal erosion 'hotspots' and two 'Authorised Locations' for coastal protection emergency works, Wyong Shire Council has been directed by the NSW Government to prepare a coastal zone management plan and emergency action sub plans that show how it will manage coastal hazards and risks for the immediate, 2050 and 2100 planning horizons. These planning horizons are set in the NSW Sea Level Rise Policy Statement (2009). The *Local Government Act 1994* also requires that councils address climate change and have regard to the principles of ecologically sustainable development.

When the WSCZMP is complete, Council must submit it to the Minister for the Environment for certification. The Minister may take advice from the NSW Coastal Panel (a panel of coastal experts appointed under the *Coastal Protection Act 1979*, as amended 2010) before certifying the document. Council will regularly review and update the WSCZMP to ensure it takes into account the best available knowledge about coastal processes, climate change science and community values.

In addition to the new statutory and policy requirements, Council must give effect to the NSW Coastal Policy (1997) and align with the targets of the NSW State Plan and Hunter-Central Rivers Catchment Management Authority Catchment Action Plan in its planning and on ground works.

## 5.0 Council's policies and strategic approach

Wyong Shire Council has adopted the sea level rise planning benchmarks set by the NSW Government. These benchmarks are based on the best available science, including measured sea level rise and trends over the last 100 years.

Sea level rise is one of the indicators of climate change. Council has prepared and exhibited a draft Climate Change Policy. Within the Climate Change Policy and other Council strategic planning documents are a suite of policy direction statements that define Council's approach to managing coastal hazards and risks. These broad policies inform the WSCZMP.

Based on the best available information, Council expects that many assets along the Wyong coastline will be vulnerable to coastal processes in coming decades. Council's coastal strategy has three main components.

### Council's strategic approach to coastal hazard management

- **Monitor actual change** so that Council can use best available real information in its coastal zone management. Keep the community informed of new knowledge about coastal hazards.
- **Allow some interim protection of public and private assets** in immediate hazard zones, to give residents and businesses time to develop adaptive coastal land uses. This will also reduce the risk of sterilizing coastal land unnecessarily.
- In the longer term, **Council favours retreat of assets and infrastructure** out of coastal hazard zones

## 5.1 Council's policies for coastal zone management

- Council will seek flexible options for managing hazards and risks that facilitate ongoing appropriate use of vulnerable land until risks become unacceptable. Council will not sterilise valuable coastal land unnecessarily. This will require careful monitoring and evaluation of actual change and well understood triggers for action.
- In managing coastal hazard risks, Council will give priority to actions which can be implemented with its own resources and which have the effect of controlling risks in the immediate and longer term timeframes. Planning controls for new development are therefore a priority for the coast.
- Council will use a suite of land use planning tools (LEP and DCP clauses, design guidelines) to ensure that new development does not increase the risks associated with coastal hazards in the 2050 and 2100 planning horizons.
- In general, Council planning controls for the coast will use a 2050 planning period for new residential development on land already appropriately zoned and a 2100 planning period for major infrastructure, new subdivisions and strategic studies.
- Council will inform and consult with residents and landholders about coastal zone management issues affecting their property and their enjoyment of the coast.
- In general, in the longer term, Council will apply 'adapt' or 'retreat' strategies to coastal development and infrastructure. This requires relocation of assets to outside coastal risk zones and/or redesign of assets and infrastructure so that they are more resilient to coastal erosion and recession. Council may approve temporary or short term protection works for public and private assets in immediate hazard zones, to allow landowners time for adapt and retreat strategies to be refined and implemented. These short term protection measures are separate to actions which may be permitted at specific locations in coastal emergencies.
- Council will not approve protection of existing assets or private development where the works would increase risks to other land owners or to community use of the coastal landscape. Council will consider the public and private costs and benefits of protection works, retreat and adapt strategies.
- Council is adopting the NSW Government policy that private landholders should contribute to the cost of constructing and maintaining coastal protection works that benefit them. Council also proposes that in the longer term all Shire landholders should contribute in some way to the costs on managing community infrastructure in coastal hazard zones, so that services (both ecosystem services and infrastructure services) that are broadly enjoyed are able to be maintained.
- Council accepts that to maintain coastal biodiversity, coastal ecological communities must have room to migrate (roll back landward) and adjust to new climate and sea level conditions. Council's policy is to maintain buffers zoned to enhance ecological resilience, wherever practicable. Council will also continue to support projects that enhance the resilience of important coastal ecological communities.

## 6.0 Document structure

The WSCZMP Reference documents are in two volumes:

**Volume 1 (this volume):** Main text, comprising the details of the Plan and a summary of supporting evidence and evaluation

**Volume 2 (Appendices):** The seven appendices provide substantial technical and planning studies which underpin the strategies and actions that are presented in the Plan. For instance, the detailed assessments of coastal erosion hazards and coastal slope instability hazards are in Appendices 3 and 4.

### Volume 1 of the WSCZMP document has four main parts:

#### The Plan

**PART A:** Context, objectives and strategic approach

**PART B:** Eight Targeted Action Plans

Together, these parts provide a clear statement of Council's intended outcomes for the coastline and how it proposes to achieve those outcomes. The Plan sets out the priority actions and includes Council's implementation strategy, addressing responsibility for and coordination of activities, funding arrangements, monitoring, evaluation and review of progress, adaptive learning and future updating of the Plan.

Priorities are based on the best available science, inputs from local communities and on Council's capacity to secure funds from its own budget or from external partnerships.

#### Supporting evidence and evaluation

**PART C:** Knowledge and status review, including the condition of the coast, assessments of coastal processes and community values.

**PART D:** Evaluating options

**PARTS C and D** provide a summary of the technical details and show how information has been used to reach the recommended actions.

The four **PARTS** of **Volume 1** are colour coded, to help with navigation through the document. The boxes overleaf provide more information about the contents of each **PART** and highlight the colour that is in the header and footer of each text page in that **PART**.

Each appendix in **Volume 2** is identified by annotation in the footer and/or by colour coding. More details about this are in **Volume 2**.



## A Quick Guide to Volume 1 of the WSCZMP

### THE PLAN

#### Part A – Scope and strategy – a systematic and adaptive management program for the coastline

- Scope and intent of the Coastal Zone Management Plan: Managing coastal process hazards that affect public and private assets and community use and enjoyment of the coast
- Council's role and principal strategies for managing coastal change.
- How the Plan has been prepared, including consultation

#### Part B – Eight Coastal Zone Action Plans

- Objectives and targets for coastal zone management
- What is proposed for the next ten years and how Council will manage its investment in the coast
  - Understand change: Knowledge Management
  - Reduce risk by strategic defence, retreat or emergency response: coastal erosion, coastal inundation, entrance management and slope instability
  - Enhance the resilience of biodiversity and protect cultural heritage values
  - Enhance opportunities for safe community enjoyment
- Adaptive management processes – how Council will work with the community and its agency partners to evaluate progress and refine actions, including;
  - information about new science and policy
  - achievements of on-ground works
  - community awareness/capacity building and satisfaction
  - regular reviews of the strategic direction and detail of the Coastal Zone Management Plan.

Within each Action Plan, short term actions may be replaced or augmented by medium term or longer term actions – for instance, emergency protection works may be permitted at a few locations **now**, but other risk reduction measures are proposed for these locations beyond the immediate implementation period.

## Part C – Status review

### Information underpinning the CZMP

- Key stakeholders in the community and government sectors.
- Key legislation, policy and plans for the coast at all levels of government.
- Council's roles and the roles of the NSW government and Australian government.
- Gaps and inconsistencies in current management approaches.
- A 'coastal compendium' describes and analyses the condition of the coastline, trends in condition and the processes driving changes to the coast, considering:
  - Coastal landforms and features
  - Biodiversity
  - Cultural landscapes and community aspirations for the coastline
  - Coastal processes and hazards
  - Land use and assets
- Risk analyses incorporating coastal values and results of hazard studies to identify the key issues where Council has a management role.
- Where risks occur, how they vary over time and whether impacts on the coast will be gradual and reversible or result in irreversible step changes. For instance, changes to coastal processes will affect:
  - The value of coastal properties and major community infrastructure that may be affected by coastal erosion;
  - The condition and resilience of coastal biodiversity;
  - How storms create risks to community safety and access to the coast by damaging walkways, ramps and stairs.

## Part D - Evaluating options

**Part D** considers the range of responses available to Council to address each of the major issues. The do nothing option (or maintain the status quo) is considered for all issues for comparison; however successful management will require strategic changes. **Part D** evaluates the broad costs and benefits of potential actions against a suite of criteria. This evaluation shows why some approaches to managing coastal hazards and risks are likely to be more appropriate, efficient and effective than others. Criteria include:

- Whether a response is likely to be effective, for instance, with regard to the certainty of the science that predicts the outcomes and changes expected from management intervention. For some issues, scientific certainty will improve over time. An example is the science behind the use of vegetation rehabilitation on coastal dunes to enhance resilience to coastal recession (from sea level rise)?
- Whether the action addresses an important risk – is it an appropriate action, with a positive cost to benefit ratio?
- Whether the action is likely to be able to be implemented in a timely manner – is it consistent with State policy and legislation, or would it require significant change to the State's approach? Is it consistent with State and Commonwealth investment priorities? Is it dependent on further research or other outcomes by other organisations? The section includes information about funding options that are available to Council including a wide range of grant schemes.
- Whether it is possible to measure progress
- Are there multiple benefits?

## 7.0 Eight Plans of Action: Strategic responses for the next ten years

**PART B** of the working draft WSCZMP has eight interacting Action Plans that Council proposes to implement over the next ten years. By implementing these Action Plans Council will reduce immediate high risks and reduce the likelihood of risks increasing in the future.

Each Action Plan incorporates the key themes of Council's strategic approach, as relevant to the specific issues, the level of risk and the expected rates of change to the level of risk.

Each Action Plan is based on an adaptive management framework. It takes into account and foreshadows ongoing update of:

- Existing coastal condition
- Community engagement and community concerns
- Threats and issues, including coastal hazards and climate change
- Principles and objectives for management
- Development and evaluation of potential management responses and hypotheses
- An implementation plan for priority actions; and
- Ongoing monitoring of progress (outputs and outcomes),
- Evaluation of learning, reporting and adaptive review.

### The Action Plans are:

- Coastal Knowledge and Community Involvement
  - Emergency Response
- Adapting to Coastal Process Impacts and Climate Change
  - Lake and Sea Interactions
  - Geotechnical hazards
  - Biodiversity Resilience
- Access, Recreation and Tourism
- Protecting Cultural Landscapes

In each Action Plan, Council has identified coastal zone management actions with three levels of priority:

<p><b>Very high or Urgent Priority</b></p> <p>These actions should be commenced within the next two years, subject to funding and appropriate staff resources.</p> <p>They are actions which <b>control high or unacceptable risks, inform the community or which establish systems for future adaptive management.</b></p>	<p><b>High Priority</b></p> <p>These actions should be commenced within 5 years, providing funding and staff resources are available.</p> <p>The actions for this timeframe <b>consolidate initial achievements and reinforce community understanding of risk management strategies</b> for the coast.</p>	<p><b>Moderate Priority</b></p> <p>These actions should commence within 10 years.</p> <p>The actions for this timeframe continue the implementation of previous strategies but <b>also focus on evaluation, review and update of the Plan.</b></p>
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Actions to be commenced within two, five and ten year time frames are summarised below.

## 7.1 Very high or urgent priority actions – 2 year timeframe, subject to resources

These actions either address urgent, high risk issues or are essential starting steps for future adaptive management.

In general, Council has the budget and staffing resources to make a difference quickly.

<p><b>High priority - Adaptive management framework and knowledge management</b> <b>Strategy: Establish systems for adaptive management</b></p>
<ul style="list-style-type: none"> <li>• Council will maintain a coastal zone management coordinator position, to facilitate streamlined implementation of key strategies.</li> <li>• Council will establish an asset register for community assets in the coastal zone, which will eventually include maintenance schedules, monitoring and relocation/redevelopment planning etc.</li> <li>• Council will continue the operation of the TLEC&amp;FMC as an ongoing community forum for coastal zone issues.</li> <li>• Council will implement a community awareness and education program about coastal hazards, climate change risks and their management, including actions for coastal emergencies.</li> <li>• Council will set up a schedule of annual progress reviews and a full program review after no more than 5 years.</li> <li>• Council will ensure that relevant officers are appropriately trained in coastal hazard management – from strategic to emergency response activities and timeframes.</li> <li>• Council will continue to attend and make presentations at coastal management forums and to liaise with OEH and Department of Primary Industries (coastal lands) to ensure up to date and consistent management approaches.</li> </ul>

## High priority - Land Use Planning – preparing for planned retreat and accommodation of coastal change

### Strategy: Use precautionary planning tools to reduce coastal hazard risks

- Council will use the planning system to reduce the exposure of coastal development to coastal processes over time and to control the increase of risk associated with coastal processes.
  - No new development will be approved seaward of the immediate coastal erosion hazard planning line or seaward of the immediate geotechnical hazard planning line.
  - Council will place notation on the s149 certificate, for all properties within immediate, 2050 and 2100 coastal risk areas (coastal erosion) and also all properties seaward of the 2100 low risk line for geotechnical hazards. Council will also inform all affected ratepayers via information supplied with rate notices.
  - Council will introduce planning clauses in LEP and DCP (concurrently and consistently) with requirements for appropriate geotechnical assessments of proposed development within the zone bounded by the immediate hazard planning line and 2100 geotechnical hazard planning line.
  - Council will introduce planning clauses in the LEP and DCP to introduce timed consents for new development in the 2050 coastal risk area (bounded by the 2050 coastal erosion hazard planning line) and the 2100 coastal erosion risk area (as bounded by the 2100 Coastal erosion hazard planning line). These consents may also include other triggers for adaptive actions. Before the expiry date of the timed consent, or at a time when the identified trigger is realised, the landholder must apply and obtain an extension of time, or relocate the structure landward on the block (where this is possible) or remove the development.
  - Council may require proponents of new development in the 2050 coastal erosion risk area and the 2100 coastal erosion risk area to appropriately design residential buildings to address the hazard, including for example development which can be relocated landward as the coastal erosion scarp recedes.
  - Council will not approve new major infrastructure (such as main roads and sewerage systems) in the 2050 or 2100 coastal erosion risk areas, except where it can be protected in a cost effective manner that does not increase risks to other coastal values.
  - Council will not approve new subdivisions, vulnerable development (including nursing homes and hospitals) or other development that intensifies land use in the 2050 or 2100 coastal risk areas
  - Floor levels for new development in immediate inundation hazard areas must consider the one per cent AEP storm wave runup for each beach.
- Council will plan for the relocation of surf clubs out of coastal erosion hazard areas when major upgrades of facilities are due, plus identify surf club services/facilities that must be in the immediate hazard zone.
- Development landward of the 2100 coastal risk area and 2100 geotechnical low hazard line is not constrained by coastal process issues and there are no specific coastal hazard management requirements.

### High priority - Structural protection of coastal assets

**Strategy: Allow interim protection of assets (in accordance with legislation and guidelines) that are affected by hazards now, so that landholders can prepare for longer term change**

- Council will construct a toe drainage structure at Cabbage Tree Harbour that both improves groundwater drainage and protects the toe of the slope against erosion. This structure will be partly funded by OEH.
- Council will review the structural integrity of The Entrance sea wall and schedule structural upgrades as necessary to balance risk and cost.
- Council will approve emergency beach protection works at North Entrance and Hargraves Beach in accordance with the 2010 amendments to the *Coastal Protection Act 1979* and related Guidelines, and in accordance with the Emergency Management Plan for those beaches.
- For properties where existing structures are inside the immediate coastal erosion risk area, land holders may apply to construct interim protection (for up to 10 years), pending further evidence about sea level rise driven recession on the Wyong coastline. Such works must be designed to withstand at least a 1 in 20 recurrence interval storm. Structures must be removed after 10 years, unless an extension of the consent is granted. Landholders who build these structures may be liable for a levy to be paid to Council for ongoing maintenance of beach amenity.
- Council will consider applications for the construction of permanent rock sea walls to protect existing houses which are located in the **immediate hazard zone** only if:
  - all affected properties along a section of beach are involved/included;
  - the wall is built entirely on private property;
  - the wall will have minimal impact/risk in terms of erosion at the ends;
  - the landholders agree to contribute to the ongoing cost of beach nourishment to maintain beach amenity for the agreed life of the rock wall;
  - landholders are responsible for ongoing maintenance of the structure, as per standards specified by OEH and Council;
  - public safety and access are not compromised.

Council has identified some locations in the immediate hazard zone where it will not approve the construction of a permanent sea wall, because of unacceptable risks to community access to the beach and to the stability of adjoining areas.
- At this time Council will not consider the construction of rock sea walls to protect residential property in the 2050 or 2100 coastal risk areas. Council will manage new development in these hazard zones using planning controls.
- Council will prepare detailed designs and REF for providing interim (up to 10 years) protection for existing surf clubs and major access infrastructure at surf clubs which are at immediate risk.

### **High priority - Beach nourishment, dune enhancement and vegetation management**

#### **Strategy: Strengthen the ecological resilience of the coast**

- Council will conduct a benchmark biodiversity condition assessment for coastal ecological communities, in partnership with HCRCMA and local Dunecare groups.
- Council will continue to dredge sand from the active tidal delta at The Entrance and place the sand on North Entrance Beach. Some sand may also be placed at South Entrance to maintain beach amenity.
- Council will commission further studies of sediment dynamics in The Entrance channel, with sea level rise. These studies will help determine whether additional sand could be dredged from The Entrance for beach nourishment purposes. Sand used for emergency beach nourishment or to fill geotextile bags must comply with relevant Ministerial Guidelines.
- Council will continue to support Landcare groups to maintain and enhance the condition of vegetation communities on coastal dunes, including weed removal, replanting.
- Council will continue to work with OEH and CMA to protect nesting and roosting habitat for protected shore birds such as little tern (e.g. from disturbance by pedestrians, dogs and vehicles, possibly from short term wave overtopping).

### **High priority - Recreational enhancement**

#### **Strategy: Facilitate visitor-attracting recreational access infrastructure**

- Council will continue to develop plans for a coastal walking track, which can be promoted as a recreational attraction for the coastline.
- Council will begin to prepare and/or review detailed Plans of Management for foreshore reserve areas, including those at surf clubs, to maximise recreational opportunities and safety.
- Council will review the design and integrity of structures such as stairways and lookouts, which are within immediate geotechnical hazard zones and relocate or modify as necessary.

## **7.2 Consolidating change: High priority actions for the 5 year timeframe, subject to resources**

These actions consolidate and enhance the outcomes proposed in the first two years of implementing the WSCZMP.

### **5 years - Funding and resources**

#### **Strategy: Diversity funding sources for coastal zone management**

- Council will continue to maintain a coastal zone coordinator position
- Council will consider introducing a Shire wide levy to provide funds for managing climate change impacts on community assets along the coast, such as sewerage systems, roads and public beach access ways.

### **5 years - Adaptive management and knowledge enhancement**

#### **Strategy: Collect quality data to evaluate progress**

- Council will work with Hunter Councils and the NSW government to acquire new high resolution LiDAR data at regular intervals. LiDAR data, combined with aerial photogrammetry and satellite imagery provides a rapid process for evaluating changes to coastal terrain and terrestrial coastal ecology as sea level rises
- Council will continue to work with OEH to provide the most up to date methodology for assessing coastal erosion and recession hazards, including the interaction between coastal recession and processes operating in the entrance of the Tuggerah Lakes system.
- Council will review progress in implementing the CZMP at intervals of approximately five years. This performance review will be linked wherever possible to assessments of coastal condition (natural, cultural, social and economic values/assets), so that the effectiveness of investment can be evaluated. These condition reviews may be undertaken by management partners such as OEH or HCRCMA.
- Council will report the outcomes of its management decisions and investment in coastal management to its community on a regular basis.

### **5 years - Land use planning and land management**

#### **Strategy: Implement and monitor LEP and DCP requirements in the coastal zone**

- Council will continue to make planning decisions in accordance with the principles set out in the NSW coastal planning guidelines (DP&I), so that new development is located and/or designed in a manner which minimises risk from coastal recession.

### **5 years - Beach nourishment and managing coastal ecological communities**

#### **Strategy: Strengthen the ecological resilience of the coastal zone**

- Council will continue to protect the value of important coastal ecological communities (and protected species), in consultation with HCRCMA, OEH and Department of Primary Industries (coastal lands sections of the former L&PMA).
- Council will continue to support dune care, dune height management and dune volume protection works, particularly for relatively natural sections of the coastline, but also as part of the risk reduction strategy for existing residential areas.



### **5 years - Cultural landscapes**

#### **Strategy: Enhance collaboration with local Aboriginal knowledge holders**

- Council will work with Darkinjung Local Aboriginal Land Council and other Aboriginal community groups to document stories of Aboriginal attachment to the Wyong coastline and identify information that could be used in interpretative signage/booklets etc for the broader community, to raise awareness of the significance of the coastal landscape for Aboriginal people.
- Council will work with the Darkinjung Local Aboriginal Land Council to monitor the condition of known Aboriginal sites in land under its care and to take proper action to protect the cultural values of those sites.

### **5 years - Coordinated emergency management**

#### **Strategy: Integrate management of coastal process and flood hazards in the coastal zone**

- Council will work with OEH and SES to enhance communication about coastal emergencies, particularly where coastal emergencies are concurrent with flooding emergencies and decision need to be made quickly about egress from affected locations.

### **5 years - Recreation enhancement**

#### **Strategy: Facilitate visitor-attracting recreational access infrastructure**

- Council will work with NSW Maritime Authority and commercial and recreational boating users to determine the best strategy for ocean boating access in Wyong Shire, including upgrades of existing facilities as necessary.
- Council will conduct regular surveys (at approximately three year intervals) of beach users to ascertain satisfaction with beach facilities and amenity.

## **7.3 Checking and reviewing progress: Medium priority actions for the 10 year timeframe**

These actions continue long term projects and evaluate and review the implementation of the plan, to identify opportunities for improved management.

### **10 years - Adaptive management and knowledge enhancement**

#### **Strategy: Review assumptions, progress and strategic approaches**

- Council will continue the review, evaluation and reporting activities described for shorter time frames, so that all stakeholders continue to have access to good information with which to assess and manage risks.
- Council will review its assessment of coastal erosion and recession hazards, as new information from IPCC and the Australian and State governments becomes available. Hazard lines and planning lines will be reviewed in the light of new information.
- Council will review its LEP and DCP requirements for coastal hazard areas, based on best available evidence of actual coastal recession and the costs and benefits of planning controls.
- Council will consider options for government acquisition of private land affected by coastal hazards. Council will work with NSW and Australian Governments to develop an appropriate strategy for high risk locations. Government acquisition of private land in coastal risk areas is not currently supported by any of these levels of government.

### **10 years - Beach nourishment, dune management and coastal ecological communities**

#### **Strategy: Evaluate the cost/benefit of alternative sand sources to buffer dune communities against climate change**

- Council will review beach nourishment procedures and the availability of suitable sand for beach nourishment at key locations.
- Council will work with NSW government to study the feasibility of off shore sand being used for beach nourishment purposes for maintaining beach area, volume and amenity at key locations – not for use in the immediate term, but in the context of likely increasing need after 2020. For instance a large volume of sand would be needed to enhance the dune buffer to prevent overtopping/breakthrough at Budgewoi. Offshore sand supplies are a high cost sand source and Council's decisions will be affected by decisions made for very high profile beaches in the Sydney metropolitan area and the evolution of NSW government policy over the next 5 to 10 years.

### **10 years - Recreation enhancement**

#### **Strategy: Facilitate visitor-attracting recreational access infrastructure**

- Council will complete a coastal walking and cycling pathway, connecting coastal settlements and linking with the lake shore pathway.
- Council will continue to invest in relocation of surf club facilities, in accordance with a schedule based on erosion hazard and significance of the facility to safe beach use in the Shire.