

Shoalhaven City Council

EXECUTIVE SUMMARY

PRIORITIES FOR A SUSTAINABLE SHOALHAVEN COASTLINE

The Shoalhaven Coastal Zone Management Plan

March 2009

How Shoalhaven City Council is working towards a resilient and sustainable coastline

Shoalhaven City Council (SCC) seeks to deliver sustainable management of its coastal natural resources, fostering peaceful, vibrant and prosperous coastal communities. Sustainable coastal management means maintaining resilient natural systems and processes (such as water quality, ecology and stable landforms) that can successfully adapt to change. A sustainably managed coastline also refers to the capacity of future generations of residents and visitors to continue to enjoy the benefits of an attractive, safe and productive coastal landscape.

The Shoalhaven Coastal Zone Management Plan (SCZMP) is a key tool to guide how SCC will look after the assets that are valued by residents and visitors along the coast. These assets include naturalness and scenic beauty, and the safe and uncrowded beaches and headlands that are enjoyed by people of all ages and abilities. Almost the entire ocean frontage is in public ownership (National Park, Crown land or Council community land).

Shoalhaven's future coast

Council's Vision for the coastline is:

A cared-for coastal landscape:

Shoalhaven City Council and the communities along the city's coastline will care for coastal landscapes in ways that protect the beauty and productivity of the sea, the shoreline, healthy coastal waterways and coastal ecosystems, so that future generations continue to be refreshed and inspired by their experience of the coast.

To achieve this vision, Council has set targets to continue to improve:

- Coastal hazard management;
- Protection of naturalness and coastal biodiversity;
- Scenic outlooks and recreational facilities; and
- Sustainable coastal communities.

A long coastline means diverse coastal landscapes and issues

At 165 kilometres, the coastline of Shoalhaven City Council (SCC) is the longest of any local government area in NSW. The coast is very diverse in its character, with major estuaries, many coastal lakes, long wild beaches and small pocket beaches, extensive coastal dune systems, towering sandstone headlands and rugged bluffs. SCC has important coastal management responsibilities, including land use planning, emergency response, safe access and recreation facilities, tourism, habitat and biodiversity protection and heritage protection, for the section of coast extending from Shoalhaven Heads to North Durras.

A growing community

Approximately 46,000 people living in peaceful villages and thriving urban centres that are associated with beaches, headlands, inlets and harbours along the Shoalhaven coast. The link between healthy and resilient coastal ecosystems, strong communities and economic prosperity is very clear in the Shoalhaven, because so much social and economic activity depends directly on the outstanding natural qualities of the coastline.

The Shoalhaven coastal community is changing. The permanent population is boosted three to five times in the peak summer holiday period. More than 75% of the Shoalhaven coastal population now lives in Huskisson/Vincentia or Ulladulla/Mollymook. In other villages, the old holiday cottages are gradually being replaced with larger and more permanent residences. The Department of Planning South Coast Regional Strategy proposes further population growth over the next 25 years, focused in and around the existing major coastal centres.

Climate change and sea level rise – a new edge to coastal processes

Predicted climate change will challenge the resilience of the coastal landscape and the adaptive capacity of communities in coastal settlements. There is strong evidence that sea level is rising. The Department of Environment and Climate Change (DECC 2008) now advises that sea level is likely to be 40 centimetres above the 1990 level by 2050 and will rise to 90 centimetres above the 1990 level by 2100. Changes to temperature extremes, the seasonality of rainfall and to storminess are also predicted. The anticipated sea level rise has significant consequences for beaches and dunes along the coastline, including shoreline erosion and recession, dune overtopping by storm waves and inundation of low lying areas.

The SCZMP will help make SCC and the Shoalhaven community better prepared to adapt to the challenges of uncertainty about environmental variability and climate change, as well as the changes that accompany population growth.

Preparing the Plan

The SCZMP has been jointly funded by SCC, DECC and the Commonwealth Government.

The SCZMP has been prepared over a period of three years, following the process set out in the NSW *Coastal Protection Act 1979*, the NSW Coastal Policy, the NSW Coastline Management Manual and more recent Government guidance on sustainability and climate change in the coastal zone.

The Plan focuses on understanding and reducing risk, i.e. the likelihood and consequences of coastal hazard impact on biodiversity, homes, infrastructure and recreation facilities. Risk management requires an adaptive approach, structured to deal with uncertainty, change and evolving scientific knowledge. Implementation of the SCZMP will be monitored, reviewed and adapted as new information becomes available. SCC will keep its communities informed about progress.

The SCZMP sets out a management program based on a qualitative risk assessment, taking into account:

- Best available science in relation to storm bite erosion, predicted climate change affecting shoreline recession and inundation, geotechnical hazards, biodiversity and water quality.
- A review of all relevant legislation and policy.

- Consultation with State agency and Council officers – technical specialists and policy advisors.
- Consultation with Councillors and Council's Coastline Management Committee.
- Consultation with residents from villages along the length of the Shoalhaven coastline, including permanent residents and weekend/holiday home owners. Many of this latter group have owned holiday properties for decades.

SCC has evaluated diverse potential responses to coastal management issues, suggested by many different stakeholders. The evaluation process applied a suite of criteria to incorporate statutory, scientific and community perspectives, meeting the needs of the present community and protecting valued assets and opportunities for future generations. This enables everyone to see why some responses are preferred over others.

Principal concerns – high risk issues for the Shoalhaven coastline

The major issues of concern are in three categories:

- The existing and enhanced impact of coastal hazards (erosion, inundation and geotechnical instability) on natural and community assets.
- The impact of residential and recreational users on sensitive coastal biodiversity and landscapes.
- Managing the facilities for safe enjoyment of attractive beaches and coastline by growing numbers of locals and visitors.

Coastal hazards

Issues	Examples of localities
<p>Immediate coastal erosion hazard</p> <p>The impact of immediate coastal erosion (storm bite) affects safe community access to beaches, dunes and headlands.</p>	Callala Bay, Callala Beach, Collingwood Beach, Mollymook Beach, Currarong Beach
<p>Climate Change and medium to long term coastal erosion and recession</p> <p>On affected beaches long term erosion and recession is expected to impact on residential property, beach access, infrastructure, coastal biodiversity and on cultural sites and places.</p>	Currarong Beach is the most exposed to this hazard. Mollymook Beach, Callala Beach, Collingwood Beach, Shoalhaven Heads are also affected.
<p>Coastal inundation</p> <p>Medium to long term inundation associated with more frequent occurrence of 'extreme' water levels. More frequent or more persistent high water levels will lead to inundation of some private property by overtopping of coastal dunes. High water levels in coastal lakes may drown habitats such as saltmarsh, and increase inundation of community assets and infrastructure.</p>	Burrill Lake, Currumbene Creek, Collingwood Beach, Narrawallee Beach, Collers Beach
<p>Geotechnical hazards</p> <p>Land slip and rockfall affect safety and private property on several headlands.</p>	Collers Beach Headland, Penguin Headland, Inyadda Point, Berrara Headland, Bannister Point, Culburra Headland

Interaction of biodiversity and development

Issue	Examples of localities
<p>Conflicting objectives for the structure, function and value of coastal ecological communities</p> <p>The interaction of ecological and landscape functions with scenic amenity and access to dunes and beaches is principally about vegetation management on coastal dunes, including species selection and landscape concepts for dune rehabilitation programs. There have been some examples of vegetation vandalism to protect views from residential property; SCC's challenge is to balance the ecological connectivity and sand stabilising roles of vegetation against different perceptions of an attractive and well managed coastline (parkland and bush landscapes).</p>	Callala Beach, Collingwood Beach, Nelson Beach, Orion Beach, Barfleur Beach, Plantation Point, Cormorant Beach, Gannet Beach, Mollymook Beach
<p>Invasive species</p> <p>Ongoing expansion of areas affected by invasive species, particularly on the margins of urban areas</p>	Rennies Beach, Cormorant Beach, Gannet Beach, Currumbene Creek, Huskisson Beach/Moona Creek, Bendalong Headland and North Bendalong, Cunjurong and Inyadda Beach, Mollymook, Bannister Headland
<p>Intensive recreational use</p> <p>Dissection of coastal vegetation and dune forms by recreational access</p> <p>The impact of intensive recreational use and closely spaced access ways on the resilience of coastal vegetation.</p>	Callala Beach, Currarong Beach, Mollymook Beach, Narrawallee Beach.

Managing the interaction of different user groups to maximise benefits for all

Issue	Examples of localities
<p>Threats to roosting and nesting sites for migratory shorebirds</p> <p>Vehicles, domestic animals and beach users can threaten the roosting and nesting habitat for protected shore birds.</p>	<p>Currarong to Kinghorn Point, Lake Wollumboola, Shoalhaven Heads, Racecourse Beach</p>
<p>Recreational access planning for locals and visitors</p> <p>This cluster of related issues includes planning for coastal pathways and cycleways (linking coastal centres and providing access across dunes to the beach), disabled access, the quality of facilities in high usage reserves, designation of regional icon parks, signage and limited or congested boating access.</p>	<p>Jervis Bay foreshore (White Sands and Voyager parks at Huskisson), Kioloa and adjacent far south beaches, Berrara area, Mollymook and Narrawallee, Callala Bay, Ulladulla Harbour precinct, Lake Conjola</p>
<p>Occasional poor water quality events</p> <p>The evidence from the Beachwatch program is that ocean water quality is good, but there are occasionally elevated bacteria levels in coastal lakes that are popular for swimming in summer.</p>	<p>Lake Tabourie. Some concern about stormwater quality effects on National Natural Heritage listed rock platforms in Jervis Bay</p>
<p>Intensification of coastal development</p> <p>Urban expansion and population growth increase the risk of encroachment of private urban uses onto public land and changes to visual amenity.</p>	<p>Bannister Headland, Mollymook Beach, Racecourse Headland/Beach</p>
<p>Long term incremental threats to cultural values:</p> <p>Both Aboriginal heritage sites and historic heritage sites such as lighthouse reserves are affected by lack of awareness and land use pressures.</p>	<p>Warden Head, Currarong rock shelters, coastal dunes, rock platforms with natural heritage listings.</p>

Many other issues of lower significance to the sustainable management of the Shoalhaven coastline were also identified and are discussed in the Shoalhaven Coastline Management Study. This extensive reference document provides the analysis that supports the SCZMP.

Context for Implementation

SCC has prepared the SCZMP for the whole of the City's coastline. The SCZMP addresses principally Council's management of beaches, dunes and coastal reserves – the land between the Council boundary at Mean Low Water and the first street landward of the shoreline. This is a dynamic, highly valued and sensitive environment. Where coastal processes and hazards (such as wave inundation of low lying land) extend further from the shoreline, the SCZMP takes this into account.

Successful implementation of the SCZMP will require coordination across multiple parts of Council and support and successful collaboration from government agencies.

The SCZMP is designed to complement SCC's estuary and coastal lake management plans and to inform its land use planning instruments. In implementing the SCZMP, Council will also support and complement the management of adjoining land and ocean.

Preferred strategies for sustainability

While the SCZM Study investigated a comprehensive range of strategies, the SCZMP sets out the priority strategies to make the values of the Shoalhaven coastline resilient to current challenges and to coming environmental and development changes. The preferred options are presented as an integrated suite of strategies to make a difference over the next ten years – for the whole coast and for individual local communities. For each major issue, the actions include current condition benchmarking; a range of communication, planning and on ground works activities; monitoring; evaluation of progress and review.

Investment for Implementation

SCC will seek approval of the SCZMP by the Minister for the Environment and gazettal of the Plan under the *NSW Coastal Protection Act*.

The total investment required to implement the strategies identified in the SCZMP is beyond SCC's own resources. However, the SCZMP identifies key partnerships that will add value to the implementation process and also identifies a wide range of funding programs that will assist SCC to implement important strategies. By completing a comprehensive Coastal Zone Management Plan in accordance with Government policy and guidelines, SCC is well positioned to build strong partnerships and to attract private and public investment in its coastal assets.

Council will deliver the key strategies in the SCZMP in partnership with its residents and with State organisations such as the Southern Rivers Catchment Management Authority (SRCMA), Marine Parks Authority (MPA), Department of Environment and Climate Change (DECC), State Emergency Service (SES), Department of Lands and Department of Planning (DoP). Council will also continue its partnership with the Commonwealth Government, particularly in relation to climate change and emergency management.

Recommended strategies

Coastal Hazards

Issue: Immediate coastal erosion hazard	
Strategy and Implementation	Component Activities
<p>CE2 Prepare draft DISPLAN for priority areas and train local communities in emergency response procedures for severe coastal hazard events.</p> <p>Timing Immediate</p> <p>Partners <u>SCC</u> SES Other emergency response organisations, including the Commonwealth government Department of Lands</p> <p>Indicative cost Within existing staff responsibility of SCC, SES and State agencies. Implementation costs (e.g. for materials and construction of precautionary protection) are listed as costs to specific actions/sites.</p>	<p>CE2.1 Prepare Coastal DISPLAN for the following priority localities, where severe coastal weather events are predicted to cause erosion or inundation that would place important community facilities and access at risk (affecting large numbers of people): Priority localities include:</p> <ul style="list-style-type: none"> • Culburra Beach • Callala Bay and Callala Beach • Huskisson and Vincentia • Currarong • Mollymook <p>Follow up with DISPLAN detail for other coastal areas. The SCZMP incorporates a preliminary DISPLAN for coastal emergency events.</p> <p>CE2.2 Continue to refine and implement a coastal assets and infrastructure register and maintenance schedule, with a view to systematic application of robust designs for coastal access infrastructure and rapid repair after storms. Beach management during and after storms will be based on a series of impact scenarios – from minor to catastrophic, reflecting risk classes.</p> <p>CI13.1 Collaborate (Council, State agencies such as SES and DECC and Commonwealth) to incorporate best available information on tsunami risk in emergency planning and to develop appropriate emergency response warning and response procedures.</p>
<p>CE3 Prepare community information about coastal process hazards.</p> <p>Timing Within two years and ongoing</p> <p>Partners <u>SCC</u> DECC Department of Lands</p> <p>Indicative cost Low (less than \$20,000) (for each activity)</p>	<p>CE3.1 Prepare and deliver community information to residents in priority locations. Raise the community profile of coastal hazards, using media, Council's web site etc. Areas where there are significant coastal process hazards and/or a rapidly expanding population include:</p> <ul style="list-style-type: none"> • Culburra and Penguin Head • Currarong • Callala Beach and Callala Bay • Collingwood Beach • Mollymook Beach <p>Community education about coastal hazards could include:</p> <ul style="list-style-type: none"> • Regular updates about hazard issues on Council's web site • Educational signage at beaches and along coastal walkways • Presentations at local community meetings, linked to field days • Training for Bushcare and Coastcare volunteers

Issue: Immediate coastal erosion hazard	
Strategy and Implementation	Component Activities
<p>CE6 Nourish beaches with sand to provide a buffer against storm erosion.</p> <p>See also CI2</p> <p>Timing Commence immediately for beaches and dunes affected by major erosion consequences; and ongoing</p> <p>Review performance and refine after five years (Note this strategy is also relevant to longer term coastal erosion)</p> <p>Partners <u>SCC</u> DECC MPA Department of Lands</p> <p>Indicative cost Moderate - \$20,000 to \$50,000 per event, but needs to be regularly repeated. Long term costs are high if used as the principal mechanism for protecting amenity and assets.</p>	<p>Currarong Beach CE6.1 Periodically place sand on the eastern end of Currarong Beach either using sand dredged from Currarong Creek (only if the creek had become un-navigable since the last dredging event in accordance with the Currarong Creek Entrance Management Strategy) or using sand sourced from beach scraping. The sand nourishment would be combined with geotextile bag revetment. Any sand excavation and transport must be approved by the MPA.</p> <p>Narrawallee Beach CE6.3 Use beach scraping from the tidal beach to elevate dune crest levels to minimise the risk of coastal inundation</p> <p>Callala Bay CE6.5 Periodically scrape sand from the lower beach face and move to the back of the beach so that it reinforces the toe of the cut embankment at the beach/reserve interface. The sand nourishment would be combined with geotextile bag revetment. Other potential minor sand sources at Callala Bay include sand built up around the jetty and boat ramp, and sand obtained from the other side of the Callala Headland. Any sand excavation and transport must be approved by the MPA. Seagrass beds must not be disturbed.</p> <p>Collingwood Beach CE6.6 After storms scrape sand from the lower beach face and push up in front of the eroded dune escarpment to reinforce the slope and reduce the risk of slumping.</p> <p>Culburra Beach CE6.7 Use beach scraping after storms to reduce risk of escarpment failure, repair beach access ways and improve safety. This action would be beneficial after a series of erosive coastal storms, where the current sand buffer is removed.</p>

Issue: Climate Change and medium to long term coastal erosion	
Strategy and Implementation	Component Activities
<p>CE5</p> <p>Use land use policy and planning (LEP, DCP and s149 certificates) to restrict and control future development in coastal erosion hazard zones.</p> <p>Timing Immediate (within 1 year)</p> <p>Partners <u>SCC</u> DoP DECC Department of Lands Landowners and residents</p> <p>Indicative cost Within the responsibility of Council strategic planning staff</p>	<p>CE5.1 Use the 50 year and 100 year Zone of Slope Adjustment and Zone of Stable Foundation lines as key constraint layers in the Shoalhaven LEP (2009) and associated DCP. These coastal erosion hazard zones have been calculated separately for each beach. Council has resolved to not approve applications for development forward of the 50 year limit of the Zone of Slope Adjustment for any beach.</p> <p>CE5.2 A Coastal DCP would integrate planning requirements for issues such as with coastal erosion hazard, geotechnical hazards, views and access.</p> <p>CE5.3 Council will require that new development located within the 100 year Zone of Reduced Foundation Capacity is on pier foundations designed to transfer the building loads into the Stable Foundation Zone for a 100 year planning period.</p> <p>CE5.4 Council will develop an appropriate standard pier specification as a consent condition for new development and include in the DCP.</p> <p>CE5.5 Council will include the 50 year and 100 year limits of the Stable Foundation zone on 149 certificates to inform residents of the potential coastal hazard risk at each site. Specific activities for Callala Beach.</p> <p>CE5.6 Council will maintain the 23m Building Line for future new residential development proposals at Callala Beach (see Figure 6.3). Council will not approve applications for development forward of the 23 m Building Line at Callala Beach.</p> <p>CE5.7 Council will use the 23 m Building Line and 100 year limits of the Stable Foundation Zone on the 149 Certificates for Callala Beach to inform residents of the potential coastal hazard risk at each site (see Figure 6.1). Specific activities for Culburra Beach</p> <p>CE5.8 Council will update the DCP for Culburra Beach as part of the new Coastal hazard DCP and inform residents of the potential coastal hazard risk at each site affected by medium to long term erosion.</p> <p>Planning to permit retreat of surf club sites CE10.8 and 10.9 Some surf club sites are threatened by long term erosion but could be relocated landward. This action establishes appropriate zoning, tenure and approval process for land that is available for retreat of the surf clubs at Shoalhaven Heads and Warrain Beach. (Note actual relocation of the surf clubs is a supporting strategy for coastal erosion; however, because of the time frame and costs involved some short term protection options will also be developed).</p>

Issue: Climate Change and medium to long term coastal erosion	
Strategy and Implementation	Component Activities
	<p>Policy for private property affected by erosion hazard</p> <p>CE5.10</p> <p>Prepare a policy addressing potential assistance to owners of properties affected by medium term hazard. The policy would include options such as no relief/compensation, rate relief, assistance with technical advice, long term land use flexibility (sequential zoning), long term acquisition by SCC or the NSW Government.</p>
<p>VB5</p> <p>Investigate zoning options to allow for retreat of coastal habitats where dunes and saltmarsh communities are affected by sea level rise</p> <p>Timing</p> <p>Immediate (within 1 year)</p> <p>Partners</p> <p><u>SCC</u> DoP DECC MPA</p> <p>Indicative Cost</p> <p>Information to support zoning process: Low – less than \$20,000. Preparation of the LEP – within responsibility of Council strategic planning staff.</p>	<p>VB5.2</p> <p>Wherever possible, use zoning or other planning controls of land use to maintain spaces where coastal dune terrain and associated habitats could migrate landward in response to climate change/sea level rise.</p> <p>VB5.3</p> <p>Use zoning and other development controls, for instance in relation to sea wall construction, to minimise constraints to the retreat of saltmarsh communities at key sites, as sea level rises.</p>
<p>CE8</p> <p>Protect important community buildings or other infrastructure with revetments or other structures.</p> <p>Timing</p> <p>Immediate to 2 years, as specified for each activity, with ongoing maintenance</p> <p>Partners</p> <p><u>SCC</u> Surf Clubs RTA DECC Department of Lands Local landowners and residents</p>	<p>The intent of this strategy is to protect existing <i>significant investment</i> in buildings or community infrastructure from intermittent storm bite erosion and from erosion associated with long term coastline retreat. This is a defence strategy for <i>long term</i> climate change (sea level rise) impacts on the coastline. At some sites, structured solutions will be supported by sand nourishment or actions to enhance ecological resilience.</p> <p>Mollymook Beach</p> <p>CE8.1</p> <p>Review the design of the revetment (previously designed by NSW Public Works Department 1992) which protects the development and infrastructure at the southern end of Mollymook Beach. Maintain and/or reconstruct the revetment as necessary. Any modifications to the rock wall should include safe disabled access onto the beach. (2 YEARS)</p> <p>CE8.2</p> <p>Construct a buried gabion wall or rock wall on the northern side of the creek entrance (Mollymook Creek) at beach berm level, to train the creek entrance to its present location and prevent fluctuation of the entrance location. (2 YEARS)</p>

Issue: Climate Change and medium to long term coastal erosion	
Strategy and Implementation	Component Activities
<p>Indicative cost Monitoring and design reviews – Low (less than \$20,000) each.</p> <p>Detailed design, approvals and construction – minimum cost \$50,000; Major structures in high profile locations will be more than \$50,000 (costs for major sea walls likely to be in \$ millions). Some high cost structural measures considered in the Coastline Management Study are not recommended here.</p>	<p>Currarong Beach CE8.5 Construct a trial groyne on Peels Reef, using ‘sand sausage’ style structure. This structure is intended to be temporary in the first instance. The movement of sand would be monitored annually, using photogrammetry to determine whether the structure is contributing to greater sand retention on the beach. Sand filled geobags are also proposed in association with sand nourishment at the dune escarpment. (IMMEDIATE)</p> <p>Shoalhaven Heads CE8.9 Review design and engineering standards for the rock revetment in front of the Shoalhaven Heads Surf Club. The existing wall was built in the 1970s and was not designed to meet engineering standards. Develop a design for geobag terminal revetment to be deployed post storm or installed in stages using sand accreted fronting the club house (2 YEARS)</p> <p>Callala Bay CE8.10 Stabilise the shoreline at Sheaffe Street with a wall and potentially a ‘stub groyne’. These works would have several functions, including protection of the road, scour protection for off-road stormwater flowing onto the beach, and slowing loss of sand along the beach to the north. A boardwalk style viewing platform could be built over the wall. Seating and ramps to the beach would provide for disabled access and dinghy skid access onto the sand. The ramp should be designed to minimise any wave reflection. (2 YEARS)</p> <p>CE8.11 Use ‘sand sausage/geobag’ treatments along the scarp at the back of the Callala Bay Beach to retain the scarp and absorb wave energy. These geobags would also be used to protect access points onto the beach and in front of major trees on the edge of the bank (IMMEDIATE – in conjunction with other activities).</p>
<p>CE13 Prepare a comprehensive asset management strategy for all public infrastructure at risk from coastal hazards (immediate and longer term, allowing for climate change implications)</p> <p>Timing Immediate, for asset management plan and within 1 year for links to emergency response management. Two years for follow up into the Climate Change Adaptation Plan</p> <p>Partners SCC</p>	<p>CE13.1 Develop a comprehensive asset management strategy for all public infrastructure at risk from coastal hazards (by beach compartment) and integrate with emergency response management.</p> <p>CE13.2 The asset management plan may be integrated into a broader SCC Climate Change Adaptation Plan.</p>

Issue: Climate Change and medium to long term coastal erosion	
Strategy and Implementation	Component Activities
<p>Technical and policy advice from DECC</p> <p>Indicative cost Moderate to high. Asset management strategy requires detailed assessment of individual pieces of infrastructure. Allow \$50,000.</p> <p>Climate Change Adaptation Plan: allow approximately \$50,000 in the first instance. The Commonwealth Government is providing funds to assist councils to prepare adaptation plans.</p>	
<p>CE7 Maintain dune vegetation and fencing to increase the resilience of the landform to short to medium term storm erosion. See also RI2.</p> <p>Timing Immediate and ongoing</p> <p>Partners <u>SCC</u> DECC Bushcare</p> <p>Indicative cost Moderate – \$20,000 to \$50,000 for each of these specific sites, depending on the extent of fencing.</p>	<p>Specific localities</p> <p>Culburra Beach CE7.1 Maintain dune vegetation and fencing at Culburra Beach to protect and enhance dune stability, maintain a buffer and to prevent (slow down) possible losses of sand from the littoral system that would contribute to long term recession of Culburra Beach.</p> <p>Shoalhaven Heads Beach CE7.2 Maintain dune vegetation and fencing at Shoalhaven Heads Beach to promote dune stability, maintain a buffer and to minimise possible losses of sand from the littoral system that would contribute to long term recession of the beach during times of flood in the Shoalhaven. Develop a design for reuse of excavated flood “dry notch” sand on erosion sites fronting River Road or low dune crest locations.</p> <p>Currarong Beach CE7.3 Prepare and implement a detailed dune management plan for Currarong Beach, in consultation with local residents. (IMMEDIATE). The Plan would aim to maintain and enhance dune vegetation, with the exception of removing toppling trees. It would also address access ways and viewing platforms (reducing fragmentation of vegetation), fencing, use of geotextile protection of the dune surface and community information about dune processes.</p> <p>General CE7.4 Incorporate dune resilience functions into all vegetation management plans for coastal dune reserves.</p>

Issue: Climate Change and medium to long term coastal erosion	
Strategy and Implementation	Component Activities
<p>CE12 Conduct research into coastal processes.</p> <p>Timing Immediate</p> <p>Partners <u>SCC</u> DECC Department of Planning Universities CSIRO</p> <p>Indicative cost Fees for specialist coastal consultants (including universities) and/or support of post graduate students. Minimum likely to be moderate - \$20,000 to \$50,000 for each investigation.</p>	<p>Climate change CE 11.1 and 12.1 Liaise with DECC and other relevant organisations to ensure the most up to date scientific knowledge on the impacts of climate change on coastal processes and coastal landforms and assets is available to the coastal communities of the Shoalhaven. This includes current research on sea level, storm frequency and intensity, sediment transport processes and overall coastal vulnerability. It also includes use of best available data for analysis such as the high resolution LiDAR digital terrain data.</p> <p>CE 11.2 Establish baseline beach and dune monitoring profiles at likely to be impacted sites, such as Culburra, Currarong, Callala, Collingwood and Mollymook Beaches. These profiles should be monitored on a regular basis and particularly after storm events which create an erosion escarpment, to improve understanding of local sand recovery processes and patterns.</p> <p>Currarong Beach CE12.3 Conduct coastal process studies (current measurement and sediment tracer investigations) to clarify sand transport and deposition in the Currarong embayment.</p> <p>Coastal lake and creek entrances CE12.2 Develop climate change scenarios for all coastal lakes. Review entrance management plans for all lakes to ensure they are sufficiently risk averse in the context of climate change.</p> <p>CE12.4 Investigate estuary infilling processes in relation to interdecadal variations in coastal storminess (El Nino/La Nina). Currumbene Creek and Currarong Creek are examples, but the behaviour of creek entrances is relevant for coastline management for multiple coastal lakes south of Nowra.</p> <p>CE12.5 Establish baseline morning points at key lake entrances, where entrance management is linked to the risk of inundation by ocean waves/set up or storm surge. Monitoring of these areas will contribute to planning and priorities for moving sand from tidal deltas, opening lake entrances and beach scraping activities.</p> <p>CE12.6 Investigate impacts of climate change on the hydrology and entrance processes at Millards Creek, Ulladulla.</p> <p>Rock platforms VB5.4 Contribute to research projects that study the impact of sea level rise on rock platform ecological communities.</p> <p>Dune vegetation VB5.1 Investigate likely dune landscape processes in relation to existing development, as predicted sea level rise occurs. This action will support appropriate zoning of coastal dunes and further review of vegetation management priorities.</p>

Issue: Climate Change and medium to long term coastal erosion	
Strategy and Implementation	Component Activities
<p>CE11 Reassess storm erosion hazard every five years, using best available data, science and technology.</p> <p>Timing Medium term and ongoing</p> <p>Partners SCC DECC Department of Lands</p> <p>Indicative cost Moderate: \$20,000 to \$50,000 for review process, provided appropriate data is available. Policy development – less than \$20,000. Some policy options will have high long term implementation costs.</p>	<p>CE11.3 Liaise with DECC about current accepted best practice analytical techniques for coastal erosion, to ensure future work meets all government standards.</p> <p>CE11.4 Review risk profile of beaches and dunes with assets considered to be within the 50 year hazard zone and ensure that residents have access to the most up to date version of hazard lines. This should be conducted every five years, or when major new findings on climate parameters are released.</p>
<p>The two strategies listed below are longer term responses to coastal erosion, including retreat and ongoing defence for specific high hazard sites. Infrastructure retreat actions are identified as having a ten year time frame. However, where council is upgrading any of these sewerage systems over the next five to ten years, for other reasons, then consideration should be given to earlier relocation/retreat of the infrastructure.</p>	
<p>CE10 Over time, relocate assets and infrastructure away from high hazard sites (retreat)</p> <p>Timing Medium to long term (more than 10 years)</p> <p>Partners <u>SCC</u> DoP DECC Department of Lands Shoalhaven Water Surf Clubs, Landowners and Residents</p>	<p>Currarong Beach</p> <p>CE5.9 Review development approvals from the last five years, but not yet activated and wherever possible consult with land owners and modify development so that it is behind the 50 year limit of the Zone of Slope Adjustment.</p> <p>CE10.1 In the medium term, where feasible, relocate the existing houses in Warrain Crescent Currarong that are threatened by coastal erosion to the rear (landward) part of the lots.</p> <p>CE10.2 In the medium term, move water and road infrastructure along the eastern end of Warrain Crescent to the landward boundary of the housing lots.</p> <p>CE10.3 Locate sewerage infrastructure, when provided, to the rear of properties in Warrain Crescent</p> <p>Mollymook Beach</p> <p>CE10.4 Move Council owned sewer infrastructure, including a pipeline and pumping station that is located seaward of the Mollymook Beach 50 year zone of Wave Impact and Slope Adjustment. This infrastructure should be moved landward in the medium term.</p>

Issue: Climate Change and medium to long term coastal erosion	
Strategy and Implementation	Component Activities
<p>Indicative cost</p> <p>Very high – relocation of infrastructure is likely to cost at least \$500,000. Relocation of buildings to the landward margin of allotments at least \$50,000 per dwelling.</p> <p>Guidelines for new community buildings – Low (less than \$20,000).</p>	<p>Collingwood Beach</p> <p>CE10.5</p> <p>The sewer line along the beach front reserve, between Argyle Street and Berry Street at Collingwood Beach, is within the Zone of Wave Impact and Slope Adjustment for the 50 year planning period. In the medium term this infrastructure should be moved back along the road behind the houses.</p> <p>Culburra Beach</p> <p>CE10.6</p> <p>Part of the roadway of Allerton Avenue Culburra Beach extends into the 50 year Zone of Slope Adjustment. In the medium term, this road should be relocated landward.</p> <p>CE10.7</p> <p>16 buildings lie partially or wholly within the Zone of Reduce Foundation Capacity for the 50 year planning period at Culburra Beach. Moving these residences may be an option in the medium to long term.</p> <p>Warrain Beach</p> <p>CE10.8</p> <p>In the medium to long term, relocate the Warrain Beach Surf Club landward, out of the 50 year coastal hazard zone. There is currently room to move the surf club landward.</p> <p>Shoalhaven Heads</p> <p>CE10.9</p> <p>In the long term, relocate the Shoalhaven Heads Surf Club landward of its current position.</p>
<p>CE 8 Protect important community buildings and infrastructure with revetments or other structures</p> <p>As a supporting (follow up) activity, this strategy refers to maintenance of existing structures to ensure their continuing function.</p> <p>Timeframe</p> <p>Ongoing</p> <p>Partners:</p> <p><u>SCC</u> DECC Department of Lands Department of Lands (Minor Ports Program) (for Ulladulla)</p> <p>Indicative cost</p> <p>Breakwalls and harbour revetments are the responsibility of Department of Lands. Monitoring of boat ramps etc is</p>	<p>CE8.3</p> <p>Maintain the concrete wall and stairs structure in front of the Mollmook Surf Club, designed to protect the surf club during severe events. (ONGOING)</p> <p>CE8.8</p> <p>Monitor the condition of the revetments at Ulladulla Harbour and undertake maintenance work as necessary (protecting the harbour and the road). (ONGOING)</p> <p>CE8.12</p> <p>Upgrade the Shoalhaven Heads revetment to meet appropriate engineering standards, acknowledging the likely long term requirements for retreat of the surf club and car park (see also CE10.9). (10 YEARS)</p> <p>CE8.13</p> <p>Monitor the condition of minor training walls, breakwalls and revetments that have been constructed to provide safe boat launching and navigation. Some of these structures are not currently designed or constructed to be resilient to the wave and current conditions associated with future climate change scenarios. This action foreshadows review of the existing design, upgrade of design specifications and maintenance activities for related priority sites. Department of Lands, Council and MPA will determine priority sites in consultation with NSW Maritime, local communities and waterway users.</p>

Issue: Climate Change and medium to long term coastal erosion	
Strategy and Implementation	Component Activities
<p>within existing Council staff responsibilities, with some support from coastal engineering specialists and NSW Maritime.</p> <p>Maintenance costs will be moderate to high – likely to exceed \$50,000 per site for each maintenance event.</p>	

Issue: Coastal inundation	
Strategy and Implementation	Component Activities
<p>CI1 Incorporate coastal inundation risk into the local planning system to reduce risks.</p> <p>Timing Immediate</p> <p>Partners <u>SCC</u> DoP DECC Land owners and residents Caravan Park businesses</p> <p>Indicative cost Within responsibility of Council planning staff.</p>	<p>Collers Beach CI1.1 Annotate the inundation risk to beachfront development on section 149 certificates to inform residents and future purchasers of the coastal hazard at each site.</p> <p>Mollymook Beach CI1.2 Annotate s 149 certificates for properties predicted to be affected by coastal inundation. Develop a standard Dune Management Code as a consent condition for new development, as part of the Coastal DCP.</p> <p>Collingwood Beach CI1.3 Annotate s 149 certificates for properties predicted to be affected by coastal inundation. Develop a standard Dune Management Code as a consent condition for new development.</p>
<p>CI2 Use sand nourishment and vegetation restoration to maintain dune crest heights. See also CE6</p> <p>Timing Commence within two years, for high priority sites, and those affected by major storm erosion</p> <p>Partners <u>SCC</u> DECC Department of Lands Bushcare Land owners and residents</p>	<p>Callala Beach CI2.1 At Callala Beach, Maintain dune crest levels at a minimum of 6.0m AHD</p> <p>CI2.2 Use beach scraping after storm events to quickly move sand back from the intertidal area to the dune face. This helps to stabilise the eroded dune face and reduce further slumping (see also CE 6)</p> <p>Collingwood Beach CI2.3 At Collingwood Beach, maintain the dune crest level at a minimum of 5.0m AHD</p> <p>Narrawallee Beach CI2.4 At Narrawallee Beach maintain dune crest levels at a minimum of 6.0m AHD, especially at the northern end of the beach where there may be potential for breakthrough of the tombolo into Narrawallee Inlet.</p>

Issue: Coastal inundation	
Strategy and Implementation	Component Activities
<p>Indicative cost Sand nourishment will primarily be achieved by beach scraping activities (CE6). The cost for each activity/event is low – less than \$20,000 per event, per site; cumulative cost is significant.</p>	<p>Mollymook Beach</p> <p>CI2.5 Maintain the dune crest height around the creek entrance at 5.5m AHD.</p> <p>CE12.7 Establish a dune monitoring program that tracks dune crest height at high risk sites (i.e. those noted above). The program would involve survey of dune crests after major erosive storm events and/or every two years.</p>
<p>CI3 Improve knowledge of inundation risks in coastal lakes and link research to planning</p> <p>Timing Within five years</p> <p>Partners SRCMA SCC DECC Department of Lands</p> <p>Indicative Costs SRCMA project is already funded. It will provide data suitable for site specific assessment at Burrill Lake. Allow \$30,000 for local management details.</p>	<p>CI1.6 Use information from south coast specific digital terrain modelling to review low lying areas at risk from all forms of coastal inundation. Link this information to established baseline monitoring stations at lake entrances (this is a SRCMA project)</p> <p>Coastal lakes</p> <p>CI1.4 Assess coastal inundation hazard on the lake foreshore, using best available high resolution terrain data.</p> <p>CI 1.5 Investigate sand nourishment for coastal hazard sites using sand dredged from lake entrance both for asset protection and to improve public access and amenity along the foreshores.</p>

Issue: Geotechnical hazards	
Strategy and Implementation	Component Activities
<p>GI1 Use local land use planning to restrict and control future development in coastal hazard zones (in this case geotechnical hazards).</p> <p>Timing Immediate</p> <p>Partners SCC DECC DoP Department of Lands Landholders, residents and residents groups</p> <p>Indicative cost Within responsibility of Council planning staff.</p>	<p>General</p> <p>GI1.1 Include geotechnical hazards as a layer in the Shoalhaven LEP and/or DCP</p> <p>GI1.2 Require preparation of detailed geotechnical reports and risk assessments, certified by qualified and experienced geotechnical engineers or engineering geologists, to accompany development applications in areas identified in the map layer.</p> <p>Development applications must be supported by a Land Slip Assessment report prepared in accordance with Australian Geomechanics Society <i>Guideline for Landslip Susceptibility, hazard and risk zoning for land use planning</i> (2007) and accompanying <i>Commentaries</i> and <i>Practice Notes</i>.</p> <p>Specific localities where this requirement should be applied include:</p> <ul style="list-style-type: none"> • Inyadda Point, Manyana • Culburra Headland • Rennies Beach • Racecourse Beach • Collers Beach Headland • Bannisters Point, Mollymook • Berrara Headland • Hyams Point • Penguin Head
<p>GI2 Install signage and fencing at geotechnical hazard sites.</p> <p>Timing Within two years</p> <p>Partners <u>SCC</u> Department of Lands</p> <p>Indicative cost Moderate \$20,000 to \$50,000, including design and installation.</p>	<p>Collers Beach Headland</p> <p>GI2.1 Install signage warning of rock fall danger at Collers Beach Headland</p> <p>Bannisters Point Mollymook</p> <p>GI2.2 Fence the crest area that is open to pedestrian access along Mitchell Parade, Mollymook</p> <p>Inyadda Point, Manyana</p> <p>GI2.3 Install signage warning of rock fall danger at Inyadda Point, Manyana.</p> <p>Berrara Headland</p> <p>GI2.4 Install signage warning of rock fall danger at Berrara Headland</p> <p>Hyams Point</p> <p>GI2.5 Install signage warning of rock fall danger at Hyams Point.</p>

Issue: Geotechnical hazards	
Strategy and Implementation	Component Activities
<p>GI4 Manage vegetation to reduce geotechnical hazards. (High risk sites).</p> <p>Timing Within two years</p> <p>Partners <u>SCC</u> DECC Department of Lands Land holders and residents</p> <p>Indicative cost Low – less than \$20,000.</p>	<p>GI4.2 Prepare and implement management plans specifically relating to the removal of weeds from slopes affected by geotechnical hazards. Such plans should be prepared in consultation with adjoining property owners and reserve users and should address spraying, lopping, root removal, revegetation, follow up and interim stabilisation options. The Plans could be a section of broader Plans of Management for the relevant foreshore reserves. Penguin Headland is the first priority for such a plan, and the Nelson Beach to Plantation Point area is the second priority.</p> <p>Specific activities Penguin Headland GI4.4 Plant deep rooted native vegetation on the bluff to help stabilise rotational failures</p> <p>Plantation Point GI4.3 Remove trees which are at risk of toppling near the crest of the bluff, to reduce the likelihood of slope failure.</p>
<p>GI3 Monitor changes to geotechnically unstable slopes.</p> <p>Timing Commence within 2 years, and ongoing.</p> <p>Partners <u>SCC</u> DECC Department of Lands</p> <p>Indicative cost Low – less than \$20,000 per year</p>	<p>General: GI3.5 Develop a monitoring protocol for geotechnical hazard sites, involving Council and land holders, and focusing on drainage, leaks from other water infrastructure, soil condition, vegetation condition and any evidence of cracking.</p> <p>Inyadda Point GI3.1 Monitor changes to the slope at Inyadda Point, particularly the growth of tension cracks after prolonged rainfall events.</p> <p>Racecourse Headland GI3.2 Monitor evidence of instability in the cliff above the northern part of Racecourse Beach, adjacent to the car park and beach access steps.</p> <p>Penguin Headland GI3.3 Monitor landslip area for evidence of movement, including changes to water seepage etc.</p> <p>Council land and structures GI3.4 Monitor outlets of Council stormwater systems that discharge over cliffs and bluffs, with attention to scouring, seepage, cracking etc. Monitor the extent of slope deterioration on slopes on community land – soil and vegetation condition, presence of unstable blocks or smaller rock fragments, vegetation condition, accumulation of unconsolidated or weathered material. (See also GI5)</p>

Issue: Geotechnical hazards	
Strategy and Implementation	Component Activities
<p>GI5 Manage drainage on cliffs and bluffs to reduce geotechnical hazards.</p> <p>Timing Immediate to within 5 years (as specified)</p> <p>Partners <u>SCC</u> Landholders and residents</p> <p>Indicative cost Private property activities: within range of general property maintenance costs. Council maintenance – within overall stormwater system maintenance budget. Planning initiatives – within the responsibility of Council staff. Incentives for water management on priority private property: \$20,000 per property (moderate cost) Installation of diffusers or other refurbishing of stormwater drainage systems (e.g. Mollymook) where effective: Allow more than \$50,000 per site (high cost).</p>	<p>GI5.1 Include in council's relevant planning instruments that all landholders on cliffs and bluffs identified as being affected by geotechnical hazards should:</p> <ul style="list-style-type: none"> • Maintain an adequate surface drainage path in and out of the property • Pipe the drainage outlet away from the immediate slope to avoid potential surface scouring • Fix/repair leaking or broken underground drainage/sewer pipes as soon as faults are identified, • Undertake periodic inspections of the property. <p>GI5.2 Council will take timely action to rectify drainage issues that are caused by its stormwater system</p> <p>VB5.3 Where stormwater (both private and Council systems) must be discharged over cliffs and bluffs in geotechnically unstable areas, diffuse discharge to reduce erosion impact on the slope and on vegetation condition. Culburra Head is an example. (Within 5 years)</p> <p>VB5.4 Provide incentives to encourage the installation of rainwater tanks as a means of increasing on site detention and reducing the intensity of stormwater discharges over cliffs and bluffs. Narrawallee Street and Penguin Head are examples. (Incentives within 2 years, with the aim of having rainwater tank in place within 5 years).</p> <p>VB5.5 Promote water sensitive urban design as part of best practice coastal development (link to Shoalhaven LEP & DCP). (Immediate). Water Sensitive Urban Design (WSUD) should be a requirement for development in areas affected by geotechnical instability or which drain to high profile recreational beaches or to sensitive receiving waters (coastal lakes).</p> <p>VB5.7 Review Council's stormwater management plans and ensure that impacts on stability of coastal sites are addressed, as well as water quality impacts on receiving waters.</p>

Interaction of biodiversity and development

Issue: Conflicting objectives for the structure, function and value of coastal ecological communities	
Strategy and Implementation	Component Activities
<p>VB4 Prepare or revise and update existing Plans for Council reserves on dunes and headlands, in accordance with the Foreshore Reserve Policy and Department of Lands (Crown Lands) guidelines.</p> <p>Timing Immediate to within two years</p> <p>Partners <u>SCC</u> Department of Lands DECC (for reserves adjoining DECC managed land) Landowners and residents Bushcare and Dunecare groups Other community organisations</p> <p>Indicative cost Moderate: Allow \$20,000 to \$50,000 for each major foreshore reserve; less for small reserves, but acknowledge consultation, liaison costs.</p>	<p>General</p> <p>VB7.1 Make all foreshore reserve plans for Council managed land consistent with Government's legislation, the SCC generic plan of management for natural areas, the SCC Foreshore Reserves Policy 2005 (and future updates) and Crown Lands guidelines.</p> <p>The intent of preparing and upgrading Plans for specific reserves (in priority order) is to ensure that there is a clear and current link between the policy framework and on the ground activities in reserves along the coast. Plans guide investment of Council and community resources in land management at the local scale. They explore and explain at the local level how natural and recreational and visual values of foreshore reserves will be balance a (which objectives are most important at each location).</p> <p>VB4.1 Establish a hierarchy of reserves where the primary management objective is biodiversity/connectivity protection and where the primary management objective is community amenity. This will involve integration of existing foreshore reserve policies, parkland policies, regional biodiversity conservation priorities and information about climate change impacts on coastal ecology.</p> <p>The hierarchy would be also be based on habitat quality and risk assessments, considering weed hotspots, senescent vegetation, fire threat etc.</p> <p>VB4.8 Prepare community awareness material on the biodiversity/connectivity values of bushland foreshore reserves and how vegetation structure contributes to connectivity value.</p> <p>Bushland Reserves</p> <p>VB4.2 Ground truth the distribution and assess the condition of any EECs and habitat for threatened species. In bushland reserves, the primary objective is to protect and restore the condition of valuable species and communities (see also VB2.1).</p> <p>VB4.3 Use LEP zoning for the foreshore precinct and potentially for adjoining land which recognises the long term biodiversity value of the bushland reserves.</p> <p>VB4.4 Identify reserves which should have a bushland management orientation. Link reserve facilities, invasive species management and locations of access ways to the management orientation of the reserve, in consultation with local communities. Reserves which have the highest long term biodiversity value should be a priority for invasive species control. These reserves would also be a priority for actions to mitigate recreation access impacts and encroachment from residential development.</p>

Issue: Conflicting objectives for the structure, function and value of coastal ecological communities	
Strategy and Implementation	Component Activities
	<p>Parkland Reserves</p> <p>VB4.5 Vegetation management in these reserves should focus on ground surface stability (e.g. buffer function and mitigating geotechnical instability), visual amenity (water and coastal outlooks for residents and visitors from public recreation spaces); recreational amenity (shade and accessibility, space for recreation facilities).</p> <p>VB4.6 For parkland reserves clearly state the species that will be used and a landscaping plan in the draft plan of management – for community consultation. Focus on social functions of vegetation (shade and scenic amenity). Ensure there is clear advice about the habit of plants used – how big they grow, life expectancy etc.</p> <p>Aboriginal community involvement</p> <p>VB4.9 Involve local Aboriginal community in identifying culturally significant plants, developing plans of management and in Bushcare/Coastcare activities.</p> <p>Specific priorities for preparing or updating plans of management</p> <p>VB4.10 Revise 1996 Gannet Beach Plan of Management</p> <p>VB4.11 Prepare a plan of management for Cormorant Beach, or include this reserve in the Gannet Beach plan of management.</p> <p>VB4.12 Prepare a plan of management for the Bawley Point Coastal Reserve. Note this plan of management should also address vehicle access across the reserve to popular fishing and diving places.</p> <p>VB4.13 Revise and update the Murrumurung /Racecourse Beach Coastal Reserve Plan of Management</p> <p>VB4.14 Prepare a plan of management for the Merry Beach Coastal Reserve.</p> <p>VB4.15 Prepare a plan of management for the Collingwood Beach Reserve. Select and maintain vegetation to protect coastal views, stabilise the dune surface, provide habitat for small birds and other species and provide shade at key locations for coastal pathway users.</p> <p>VB4.16 Revise and update the plan of management for the Narrawallee Beach Reserve (south end and pocket beaches)</p> <p>VB4.17 Revise and update the plan of management for Reserves along Nelson, Barfleur and Orion Beaches and Plantation Point. These reserves are important recreation and tourism assets for the local community.</p>

Issue: Conflicting objectives for the structure, function and value of coastal ecological communities	
Strategy and Implementation	Component Activities
<p>VA2 Prepare vegetation management guidelines for Council reserves seaward of residential properties and refer to these guidelines where preparing/updating plans of management for the reserves.</p> <p>Timing Prepare guidelines within 2 years</p> <p>Partners <u>SCC</u> Department of Lands DECC Residents and landholders Bushcare and Dunecare groups Other community organisations</p> <p>Indicative cost Moderate to high: Allow \$25,000 for each locality</p>	<p>General The vegetation management guideline will identify appropriate species and vegetation management activities to best achieve the vegetation functions that are relevant to each locality (such as dune stabilisation, visual amenity, biodiversity/connectivity etc). The guideline would be prepared with both technical input and community consultation.</p> <p>VA2.1 Obtain technical advice about the ecological functions of particular species and vegetation assemblages on coastal dunes, with particular attention to structural characteristics that contribute to connectivity – what structure is necessary or desirable for habitat connectivity.</p> <p>VA2.2 Consult with residents and beach users about:</p> <ul style="list-style-type: none"> • the visual values of dune vegetation (or bare dunes), • the ecological functional values of different vegetation assemblages (noting that different species may perform similar ecological functions); • identifying important view corridors from land to water and from beach back towards land (in terms of naturalness or other features); and • The importance of shade provided by vegetation in foreshore reserves. <p>Specific Locations Collingwood Beach Collingwood Beach is a heavily used foreshore recreation area. The narrow frontal dune, which has recovered after severe erosion in the 1974 storm, is backed by a shared walking and cycleway, with residential properties immediately landward of the pathway. Patterns of vegetation height and density in the foredune are a source of controversy in the local community. Collingwood Beach is an example of a foreshore reserve where dune surface stability/erosion buffer and recreational/visual amenity are key functions of vegetation in the coastal landscape, with biodiversity a less important value.</p> <p>VA2.3 When preparing the plan of management for the Collingwood Beach Reserve, engage with landholders about the full range of values of foredune vegetation and how to best meet these objectives and functions in designing, planting and maintenance programs. Prepare a species selection and maintenance guide for Collingwood Beach.</p> <p>Cormorant and Gannet Beach Residential development is located immediately landward of the coastal foreshore reserve. Small patches of quality habitat exist on the dunes and together provide connected wildlife habitat. Twenty years ago the dunes in front of development had limited vegetation, so long term residents recall a time with unobstructed views to the beach. As dune vegetation is restored, elements of that view are being replaced with a view of bushland.</p>

Issue: Conflicting objectives for the structure, function and value of coastal ecological communities	
Strategy and Implementation	Component Activities
	<p>Recent detailed vegetation mapping in these reserves has confirmed the presence of Endangered Ecological Communities that are affected by various weed species</p> <p>There are multiple access tracks through the foreshore reserve, particularly at Gannet Beach.</p> <p>VA2.4</p> <p>As part of the review of the Gannet and preparation of a plan of management for Cormorant Beach Foreshore Reserve, consult with landowners about specific objectives and functions of foredune vegetation.</p> <p>Nelson, Orion and Barfleur Beach</p> <p>This is an important recreation and tourism area.</p> <p>VA2.5</p> <p>For Nelson, Orion and Barfleur Beach reserve, adapt landscaping and vegetation management to enhance visual and recreation values, with biodiversity a second level objective.</p>
<p>VB7</p> <p>Control clearing, pruning and other urban margin impacts on coastal bushland and foreshore reserves.</p> <p>Timing</p> <p>Immediate to five years</p> <p>Partners</p> <p><u>SCC</u></p> <p>Community Consultative Bodies Bushcare Department of Lands</p> <p>Indicative cost</p> <p>Regulatory activities are within the existing responsibility of council rangers and natural resources staff.</p> <p>Education and awareness materials – allow up to \$20,000 for development of City wide material.</p> <p>Consultation activities – generally within the existing responsibility of Council staff.</p> <p>Surveying and boundary identification – low costs – allow up to \$25,000 per annum.</p>	<p>General</p> <p>VB7.2</p> <p>Prepare community education material on managing the interface between bushland and private property, including extension of private uses onto coastal reserve lands, stormwater discharges, fire protection zones and weed management.</p> <p>VB7.3</p> <p>Promote and publicise the clauses of the Foreshore Reserves Policy relating to illegal pruning or poisoning/vandalism of trees in fresher reserves.</p> <p>VB7.4</p> <p>Enforce the clauses of the Foreshore Reserves Policy in relation to private vehicle access and structures in foreshore reserves, starting with priority sites selected because of impacts on biodiversity connectivity of impacts on buffer function of the reserve, or restriction of valid public access along the foreshore.</p> <p>VB7.5</p> <p>Prepare community awareness material and consult with affected property owners and real estate agents about the management of foreshore reserve lands.</p> <p>VB7.6</p> <p>Close illegal tracks from private property across foreshore reserves on dunes and headlands/bluffs, where these tracks affect stability, resilience or visual amenity.</p> <p>Specific Localities</p> <p>Manyana</p> <p>VB7.7</p> <p>Resolve vegetation management across the boundary between Crown land and private land.</p> <p>Mollymook Beach</p> <p>VB7.8</p> <p>Close and rehabilitate private access tracks that cross the public reserve on the dune system.</p>

Issue: Conflicting objectives for the structure, function and value of coastal ecological communities	
Strategy and Implementation	Component Activities
	<p>Bannisters Point</p> <p>VB7.9 Identify property boundaries with the headland reserve and remove illegal structures, gardens etc. from the reserve.</p> <p>Racecourse Beach Headland</p> <p>VB7.10 Identify private property boundaries and ensure that private structures do not impinge on the headland reserve.</p> <p>Culburra Headland</p> <p>VB7.11 Resolve Council and private land holder responsibilities for management of the break of slope at the top of the bluff and associated vegetation and landslip management. This action supports G14.2 and G14.4.</p> <p>Culburra Beach</p> <p>VB7.12 Define boundaries between private property and the foreshore reserve on the high dune field and ensure that private gardens and access ways are not encroaching onto the revegetated dune.</p>

Issue: Invasive species	
Strategy and Implementation	Component Activities
<p>VB1 Support Bushcare programs which target the removal of priority weed species from headlands and dunes.</p> <p>Timing Immediate to within two years and ongoing</p> <p>Partners <u>SCC</u> Bushcare Department of Lands</p> <p>Indicative cost Council already supports Bushcare groups. This strategy and activities continue support in targeted areas. Preparation of local weed management plans - allow \$5000 per plan</p> <p>Support for Bushcare activities moderate cost (to \$20,000 per year for materials, plus \$50,000 per year for staff support)</p>	<p>Reserves on coastal dunes and headlands are affected by invasive plants such as Turkey Rhubarb, Buffalo Grass, Bitou, Cassia, Mother of Millions, Agapanthus, Asparagus Fern, Bridal Veil Creeper, Garden Geranium and Monbretia.</p> <p>Specific Localities</p> <p>Rennies Beach</p> <p>VB1.2 Support Bushcare activities which focus on removal of priority weeds and rehabilitation of locally indigenous vegetation on public land, as described in a plan of management.</p> <p>Cormorant Beach and Gannet Beach</p> <p>VB1.3 Support Bushcare activities which focus on removal of priority weeds and rehabilitation of locally Indigenous vegetation on public land, in accordance with an updated plan of management.</p> <p>Currumbene Creek</p> <p>VB1.4 Develop and implement a weed management plan for the foreshore and saltmarsh areas.</p> <p>Huskisson Beach/Moona Creek</p> <p>VB1.5 Develop and implement a weed management plan as part of a foreshore rehabilitation strategy for Huskisson and Moona Creek.</p> <p>Mollymook</p> <p>IS1.6 Support weed management activities (conducted by Bushcare volunteers) in the littoral rainforest at Bannisters Point</p> <p>Bendalong Headland and North Bendalong</p> <p>VB1.7 Remove weeds from the Bangalay Sand Forest at North Bendalong. This EEC is in good condition and is a high priority for protection and weed control.</p> <p>VB1.8 Manage severe weed infestation at Bendalong Headland, in conjunction with works to rationalise and upgrade car parking and pedestrian access tracks on the headland and down to the beach.</p> <p>Cunjurong and Inyadda Beach areas</p> <p>VB1.9 Prepare and implement a weed control plan for coastal EECs at Cunjurong and Inyadda Beach.</p>
<p>VB2 Improve knowledge of coastal ecological communities and invasive species.</p> <p>Timing Ongoing</p>	<p>The intent of this strategy is to ensure that coastal land managers have access to the best available information about species, community dynamics and ecological processes (for instance dispersal vectors for invasive species, or aspects of natural community resilience to invasive species; communities that may be vulnerable to groundwater change as sea level rises), so that management activities are properly targeted.</p>

Issue: Invasive species	
Strategy and Implementation	Component Activities
<p>Partners <u>SCC</u> DECC Department of Lands DPI SRCMA Bushcare</p> <p>Indicative cost Invasive species mapping – allow up to \$80,000 over three years. Training for Bushcare volunteers – allow up to \$10,000 per year</p> <p>Council will not have full responsibility for other scientific studies. Allow for moderate annual costs over five years (\$20,000) Allow \$50,000 for each periodic review of vegetative condition.</p>	<p>VB2.1 Continue ground truth mapping of Endangered Ecological Communities on dunes and headlands, to enhance understanding of species diversity and distribution/condition of EECs (see also CB4.2)</p> <p>VB2.2 Map invasive species at priority sites (see also priority sites for management of invasive plant species identified by SRCMA). This action supports on ground works in VB1.</p> <p>VB2.3 Support training programs for community volunteers (such as Bushcare groups) on identification of native species, weed species and weed control strategies. This will support VB1.</p> <p>VB2.4 Develop guidelines for the management of sweet Pittosporum and other invasive native species, in consultation with Bushcare groups and residents, and with technical advice from DECC. (Within 5 years)</p> <p>VB2.5 Contribute to monitoring and research on control of <i>Caulerpa taxifolia</i> in coastal lakes in the Shoalhaven (e.g. Burrill Lake and Narrawallee Lagoon), in accordance with Estuary Management Plans or Plans of Management, and in consultation with DPI.</p> <p>VB2.6 Support studies of the vulnerability of groundwater dependent ecological communities in the coastal zone, such as back barrier wetlands and coastal saltmarsh, to clarify potential long term risks. (Within 5 years)</p> <p>VB1.10 Periodically (at five year intervals) review the condition of vegetation communities in coastal foreshore reserves, with particular reference to the presence of invasive species and risks associated with expansion of areas affected by invasive species. Using this information, revise the listing of priority sites for management of invasive species.</p>

Issue: Invasive species	
Strategy and Implementation	Component Activities
<p>VB3 Raise community awareness about the impact of garden escapees on coastal bushland.</p> <p>Timing Immediate and ongoing</p> <p>Partners <u>SCC</u> DECC Nursery Association Bushcare Land holders and residents SRCMA</p> <p>Indicative cost Low costs per event: Community flyers – allow \$10,000 Community field days – allow \$5000 per event.</p>	<p>Suburban gardens are a major source of invasive plant species in coastal reserves. The intent of this strategy is to reduce the potential for invasive species to move from suburban garden areas into adjoining bushland, in foreshore reserves.</p> <p>VB3.1 Prepare a community flyer for residents in the local area about illegal dumping of garden waste.</p> <p>VB3.2 Promote the 'Grow Me Instead' pamphlet to encourage residents to grow native species rather than invasive non native species.</p> <p>VB3.3 Conduct community field days on improved management of garden waste and species selection</p> <p>VB7.2 Prepare community education material on managing the interface between bushland and private property, including extension of private uses into coastal reserve lands, stormwater discharges, fire protection zones, weed management.</p>

Issue: Dissection of coastal vegetation and dune forms by recreational access	
Strategy and Implementation	Component activities
<p>RI1 Rationalise beach access tracks which cross vegetated coastal dunes See also VB7</p> <p>Timing Consultation and identification of key tracks for closure and /or upgrade – within 2 years. Closure of priority tracks should occur within 5 years.</p> <p>Partners <u>SCC</u> Department of Lands Bushcare Community Consultative Bodies DECC</p> <p>Indicative cost Consultation is within existing staff responsibilities. Allow \$20,000 per site for closure and rehabilitation of priority tracks (moderate cost) (see also R12).</p>	<p>RI1.1 Identify priority areas of dune and headland vegetation where control of access and fencing to promote rehabilitation will be beneficial. This task will be achieved using the results of a condition assessment of coastal vegetation communities (e.g. VB1.10, VB4.2, VB2.1, VB2.2).</p> <p>RI1.2 Consult with local residents about the details of track closure and rehabilitation at all beaches and headlands where rationalisation of access tracks across dunes is desirable to protect important native vegetation. See also VB7. Both of these actions will feed into detailed plans of management for foreshore reserves.</p> <p>Localities which are a priority for review and closure of some access tracks are:</p> <p>Callala Beach RI1.3 Where private access tracks across the frontal dune are currently spaced at only 10 to 20 metres.</p> <p>Currarong Beach RI1.4 Minimise access ways across the steep eroding dune face (eastern end of the beach) and space others at 100 metres. Design and construct to be resilient and serviceable to storm erosion.</p> <p>Mollymook Beach RI1.5 Tracks are currently spaced at approximately 50 metres; 100 metres should be the minimum spacing. Maintain and upgrade other tracks in accordance with the Coastal Dune Management Manual.</p> <p>Narrawallee Beach RI3.6 Review track spacing to achieve spacing of approximately 100 metres. Upgrade and maintain track structure at the highest usage areas (southern corner and northern corner).</p>
<p>RI2 Fence or install other barriers around important healthy vegetation and rehabilitating areas to reduce vehicle and pedestrian access (see also CE7)</p> <p>Timing Within five years and ongoing (maintenance)</p>	<p>The intent of this strategy is to reduce threats to relatively intact, coastal vegetation with high ecological values.</p> <p>Rennies Beach RI2.1 Install vehicle and bike barriers such as bollards on the Rennies Beach access tracks to reduce traffic</p> <p>RI2.2 Install post and rail switch backs on access tracks as necessary to control bike speed.</p>

Issue: Dissection of coastal vegetation and dune forms by recreational access	
Strategy and Implementation	Component activities
<p>Partners <u>SCC</u> DECC Department of Lands Bushcare Local land owners and residents</p> <p>Indicative cost</p> <p>Fencing is expensive to install and maintain but is important to controlling access across sensitive dune habitats.</p> <p>Allow an annual budget of up to \$20,000 for five years (moderate cost)</p> <p>Bushcare would assist with installation.</p>	<p>RI2.3 In cooperation with Ulladulla Board Riders Association, construct a viewing platform overlooking Rennies and Pockets Beaches. This will help control erosion and unnecessary pedestrian traffic on access tracks.</p> <p>Mollymook Beach RI 2.4 Use fencing to restrict access across the dunes to the north of the surf club (in conjunction with dune vegetation works such as invasive species removal). See also VB7.8, RI1.5</p> <p>Narrawallee Beach RI2.5 Install and maintain fencing and bollards as described in the Narrawallee Southern Foreshore Reserve Management Strategy (SCC 2005). See also VB4.16, RI3.6</p> <p>Currarong Beach RI2.6 Fence off all areas of dune except access ways that are to remain open (at a minimum spacing of 100 metres). This should be done only after community consultation about specific track closures and agreement about locations of new viewing platforms. See also CE7.3</p> <p>Culburra Beach RI2.7 Maintain fencing along the sides of access tracks to restrict pedestrians to properly constructed tracks across the dune surface.</p> <p>Bendalong RI2.8 Fence areas of relatively intact vegetation around walking tracks to reduce trampling and other disturbance of adjoining EECs.</p> <p>Bawley Point Headland RI2.9 Identify vehicle parking areas and access to be retained and fence off other tracks to facilitate rehabilitation. See also VB4.12.</p>
<p>RI3 Raise community awareness of the impacts of multiple uncontrolled beach access tracks on coastal vegetation</p> <p>Timing Within five years – prior to and in conjunction with planning for track closure and redesign.</p> <p>Partners <u>SCC</u></p>	<p>RI3.1 Prepare community information sheets and signage to explain how access tracks across coastal dunes introduce weed species, degrade vegetation and encourage wind blown sand transport across the dune crest. Link to best practice dune management that includes fencing of areas between access ways and maintenance of formalised access ways. (refer to the NSW Dune Management Manual)</p> <p>RI3.2 Conduct field days in conjunction with Bushcare volunteers, local progress associations (or similar community groups) and surf clubs. Present display material at surf carnivals about sustainable management of beach access across</p>

Issue: Dissection of coastal vegetation and dune forms by recreational access	
Strategy and Implementation	Component activities
DECC Department of Lands Bushcare Community Consultative Bodies Indicative cost Low – less than \$20,000	vegetated dunes.

Managing the interaction of different user groups to maximise benefits for all

Issue: Threats to roosting and nesting sites for migratory shorebirds	
Strategy and Implementation	Component Activities
<p>VB6 Protect breeding and roosting sites for migratory and resident shore birds.</p> <p>Timing Immediate and ongoing</p> <p>Partners <u>South Coast Shorebird Recovery Program</u> DECC SCC Department of Lands</p> <p>Indicative cost Council currently supports this program; this strategy and actions continue that support. Allow up to \$10,000 per year as SCC's ongoing contribution.</p>	<p>The Shoalhaven coastline provides nesting and roosting sites for several species of migratory shorebirds each summer. These species are protected by the EPBC Act and by international agreements such as JAMBA and CAMBA. Breeding success is affected by local weather conditions (high seas, floods and strong winds) and predators such as silver gulls, but also by feral animals, domestic animals, off road vehicles using the beach and pedestrians disturbing the birds.</p> <p>VB6.1 Prepare community awareness and education material about the species of shorebirds that visit the Shoalhaven annually, Australia's obligations under international conservation agreements (JAMBA, CAMBA), threats to successful breeding and how residents can help to protect these species.</p> <p>VB6.2 Monitor the condition of breeding and roosting sites and the success of breeding during each summer.</p> <p>VB6.3 Continue to support and implement measures to reduce the risks from feral animals</p> <p>VB6.4 Continue to reinforce the importance of control of dogs on beaches and dunes used by protected bird species</p> <p>VB6.5 Continue to make the users of vehicles on beaches aware of the presence of bird species and develop/implement best practice beach driving protocols.</p> <p>RI3.1 Seasonally identify, fence and signpost areas in use by shorebirds as nesting sites.</p> <p>RI4.2 Monitor compliance with existing policy and guidelines for dogs in Council Reserves around shorebird nesting sites, such as Currarong to Kinghorn Point, Shoalhaven Heads, Berrara, Lake Wollumboola, Myola.</p>

Issue: Safe access, quality facilities and recreational amenity for residents and visitors: Safe access and facilities for the less physically able to enjoy the coastline	
Strategy and Implementation	Component activities
<p>SA1 Provide safe access for disabled and elderly residents and visitors to selected beaches</p> <p>Timing Within five years</p> <p>Partners <u>SCC</u> DECC Department of Lands Community Consultation Bodies</p> <p>Indicative cost Significant costs overall - allow up to \$200,000.</p> <p>Costs for individual site upgrades are expected to be in the range \$5000 to \$100,000</p>	<p>The intent of this strategy is to provide strategic, quality and safe access for the less physically able, so that they can enjoy a range of coastal recreation and visual amenity experiences. The strategy targets locations that have suitable natural terrain, significant permanent population and a high number of visitors.</p> <p>General</p> <p>SA1.1 Provide quality recreational access and coastal experience for the less physically able at all Icon Parks along the Shoalhaven coastline.</p> <p>SA1.2 Provide look out points to showcase coastal views (cliffs, beaches, ocean waters where surfers, boats, whales and dolphins might be seen, etc., from foreshore reserves that are accessible by people in wheelchairs, or using other mobility aids.</p> <p>SA1.3 Design all steps, ramps and handrails in coastal reserves for resistance to erosion processes/reduce maintenance load and for safe use by people of various abilities.</p> <p>Callala Bay</p> <p>SA1.4 Upgrade disabled/less able access along the Callala Bay foreshore, including erosion resistant ramps, rails and mobi mat (for access onto the beach and into the nearshore waters); viewing platforms and connecting along shore pathways. Focus on the area between the Junior Sailing Club, Jetty and Sheaffe Street.</p> <p>North Mollymook Beach</p> <p>SA1.5 Improve (make practical) disabled access to the beach in the vicinity of the toilet block and seasonal lifeguard facility. The toilet block at north Mollymook needs upgrading. Note that this area is in the immediate hazard zone.</p> <p>Section 8 shows a concept design for this area, including access, toilet block upgrade and lifeguard facilities.</p> <p>Mollymook Surf Club Area</p> <p>SA1.6 Restore and maintain disabled access onto the beach from the pathway in front of the Surf club and Golf Club, including ramp access and mobi mat.</p>
<p>RI4 Manage dog exercise areas on beaches</p> <p>Timing Ongoing</p> <p>Partners SCC</p>	<p>Council already has relevant policy and guidelines.</p> <p>The intent of this strategy is to reinforce Council's dog exercise policy and guidelines in relation to beaches and coastal reserves.</p> <p>Mollymook and Narrawallee</p> <p>RI 4.1 Encourage responsible implementation of agreed dog exercising areas and conditions on Mollymook and Narrawallee Beaches, including hours and locations where dogs are permitted off leash. Use both public awareness and strategic enforcement during peak summer holiday periods.</p>

Issue: Safe access, quality facilities and recreational amenity for residents and visitors: Safe access and facilities for the less physically able to enjoy the coastline	
Strategy and Implementation	Component activities
<p>Community Consultative Bodies Residents and visitors</p> <p>Indicative Cost Within responsibilities of Council officers</p>	<p>Intensively used foreshore reserves (picnic areas and children's playgrounds) RI4.3 Monitor and enforce compliance during peak summer holiday periods. Examples include Mollymook, Huskisson, Collingwood Beach.</p>
<p>RR1 Maintain and improve the condition of headland walking tracks.</p> <p>Timing Within five years</p> <p>Partners <u>SCC</u> Department of Lands DECC Coastcare/Bushcare Other community groups</p> <p>Indicative cost Walking track and signage upgrades – allow up to \$100,000</p>	<p>The intent of this strategy is to support and build on existing efforts to manage headland access tracks sustainably, so that recreational and tourism values of the headland landscape are consistent with natural and cultural heritage values.</p> <p>RR1.1 Review and extend the coastal walking path package (Southern Shoalhaven Walks, prepared by Coastcare 2002). Consider options to extend the package to the northern Shoalhaven, for instance by upgrading local area paths along cliffs, bluffs and beaches and developing signage and information brochures that link the entire system within the local government area.</p> <p>Locality Specific Activities Warden Head RR1.2 Improve parking, viewing facilities, track network, picnic facilities and signage in the Warden Head Reserve. This will need collaboration between Department of Lands and Council, through a reserve plan of management.</p> <p>Bendalong and North Bendalong RR1.3 Close dangerous and eroding beach access tracks from the top of the bluff to the beach. Maintain preferred beach access tracks, including stairs and ramps to create a safe grade for all users and to control erosion.</p> <p>RR1.4 Convert the old coastal road to North Bendalong to a walking track, including rehabilitating the surface and protecting adjacent bushland.</p> <p>Racecourse Beach (Ulladulla) RR1.5 Upgrade the main access track from the headland to Burrill Beach, as part of the Southern Shoalhaven Coastal Walk.</p> <p>Manyana Beach RR1.6 Improve the walking track to Cunjurong Point.</p> <p>Kioloa and Merry Beaches RR1.8 Upgrade the coastal walking track from Bawley Point, through Kioloa and Merry Beaches, Cormorant beach, Gannet Beach and through to Murrumurang and Racecourse Beach.</p>

Issue: Safe access, quality facilities and recreational amenity for residents and visitors: Safe access and facilities for the less physically able to enjoy the coastline	
Strategy and Implementation	Component activities
<p>RR2 Upgrade recreation and parking facilities at priority locations.</p> <p>Timing Guidelines within 2 years. On the ground works 5 years and ongoing.</p> <p>Partners SCC Department of Lands Community Consultative Bodies Specific user groups</p> <p>Indicative Cost Guidelines less than \$20,000 On the ground works allow up to \$100,000 per project Detailed designs and costings are required.</p>	<p>The intent of this strategy is to match the quality of facilities in foreshore reserves to the sensitivity of the location and the recreational demand. Activities would be linked to Council's Icon Parks program and other plans of management.</p> <p>General CE10.10 Within 2 years, develop guidelines for assessing sites in foreshore reserves, proposed for buildings/facilities for coast related clubs, such as fishing clubs, sailing clubs, surf clubs and dive clubs. The guidelines should address coastal hazard issues but also other aspects of reserve amenity and facilities; for instance:</p> <ul style="list-style-type: none"> • A visual assessment must be completed, considering visual impacts from both land and water; • Structures must comply with the Coastal Design Guidelines, as adopted in the Shoalhaven DCP; • Structures must not compromise public access to the shoreline; and • Buildings that are club houses or similar must provide adequate trailer and vehicle parking space in a manner that does not impact on the visual or recreational amenity of other users. <p>Bendalong Headland and North Bendalong RR2.1 Car parks at Bendalong (off Bendalong Road) and North Bendalong – upgrade to reduce damage to vegetation and control erosion.</p> <p>RR2.2 North Bendalong and Dee Beach - upgrade reserve picnic facilities.</p> <p>RR2.3 Develop and implement landscape upgrade for the boat ramp reserve including a foreshore rehabilitation plan.</p> <p>Cunjurong Point RR2.4 Upgrade facilities at Ottawa Street carpark.</p> <p>RR2.5 Formalise the walking track link around the cabin site, extending to safe beach access and access to the boat ramp picnic area.</p> <p>Narrawallee Beach RR2.6 Construct a new toilet block at southern end of Narrawallee Beach, near the patrolled surf beach.</p> <p>RR2.7 Upgrade the carpark and toilet block facilities in the reserve at the northern end of Narrawallee Beach, next to Narrawallee Lagoon.</p>

Issue: Safe access, quality facilities and recreational amenity for residents and visitors: Safe access and facilities for the less physically able to enjoy the coastline	
Strategy and Implementation	Component activities
	<p>Collers Beach</p> <p>RR2.8 Complete and implement the rehabilitation plan for the rock pools car park.</p> <p>RR2.9 Upgrade toilet facilities, car parking and access at the northern end of Mollymook Beach (see also SA1.5 re relevance of this upgrade to disabled use of the beach).</p> <p>Manyana Beach</p> <p>RR2.10 Replace playground equipment and upgrade the toilet block to disabled standards.</p> <p>Inyadda Beach</p> <p>RR2.11 Upgrade and formalise the carpark and picnic area.</p> <p>Bawley Point</p> <p>RR2.12 Upgrade the car park, and close off vehicle tracks across the headland</p>
<p>RR5</p> <p>Rationalise signage at boat ramps, beaches, headlands and access paths</p> <p>Timing Signage guidelines – within two years. Other activities - within five years</p> <p>Partners <u>SCC</u> NSW Maritime Authority Department of Lands DECC MPA DPI Recreational user group (boating, surf clubs) Community Consultative Bodies</p>	<p>General</p> <p>RR5.1 Prepare signage guidelines for the entire Shoalhaven coastline.</p> <p>RR5.2 Develop signage for beach reserves that helps raise community awareness of coastal processes, coastal biodiversity and cultural heritage, rather than only identifying access or other exclusions.</p> <p>RR5.3 Create a unified signage system for connecting coastal walks along the Shoalhaven coastline (e.g. with a uniform design theme and style).</p> <p>Specific Locations</p> <p>RR5.4 Rationalise signage at Kioloa Boat Ramp.</p> <p>RR5.5 Rationalise signage at Conjola Boat Ramp.</p>

Issue: Safe access, quality facilities and recreational amenity for residents and visitors: Recreational boating access to ocean waters	
Strategy and Implementation	Component activities
<p>RR3 Provide safe boating access at priority locations.</p> <p>Timing Over ten years</p> <p>Partners <u>SCC</u> NSW Maritime Authority Department of Lands DECC MPA Recreational boating users Community Consultative Bodies</p> <p>Indicative cost Local foreshore management plans, allow \$10,000 to prepare. Implementation of sand removal, vegetation management and ramp upgrades will vary from approximately \$10,000 to more than \$100,000.</p> <p>Indicative cost Signage guidelines – within responsibilities of Council officers. Design and installation of new signage – (moderate) allow \$20,000 to \$50,000, depending on the number of sites.</p>	<p>The intent of this strategy is to maintain the safety and amenity of existing ocean boat launching ramps and to provide a system for decisions about upgrades or maintenance associated with long term changes to coastal processes and coastal communities.</p> <p>General</p> <p>RR3.1 Monitor use and condition of boat ramps to ocean waters, particularly after major storms and in the context of long term sea level rise. Establish trigger points where additional planning, consultation or on the ground works will be required.</p> <p>Specific Locations</p> <p>Currarong</p> <p>RR3.2 Construct the Yalwal Street boat ramp to reduce traffic load on the Warrain crescent ramp and reduce use of Currarong Creek as the primary access way for ocean going small vessels.</p> <p>Lake Conjola</p> <p>RR3.3 Use sand nourishment to improve the amenity of recreational areas adjacent to the boat ramp near the lake entrance.</p> <p>Bendalong Headland</p> <p>RR3.4 Develop and implement a foreshore management plan and landscape upgrade for the reserve at the boat ramp.</p> <p>Kioloa</p> <p>RR3.5 Develop and implement a foreshore management plan for the reserve adjacent to the boat ramp, including car and trailer parking, vegetation, and safety of associated users.</p> <p>Narrawallee and Mollymook</p> <p>RR1.7 Upgrade signage to highlight and interpret walking tracks through the headland coastal reserves</p>

Issue: Occasional Poor water quality in recreational waters and natural places	
Strategy and Implementation	Component activities
<p>VB5 Control stormwater flows across beaches, rock platforms and headlands</p> <p>Timing Planning actions within 2 years. On the ground works 5 to 10 years.</p> <p>Partners <u>SCC</u> MPA DECC DPI Department of Lands</p> <p>Indicative Cost Planning – (low cost) less than \$10,000 On the ground works – to be determined, depending on specific sites and detailed design</p>	<p>VB5.1 Install stormwater diffusers where major stormwater drains discharge onto recreational each areas. The main stormwater drains onto Mollymook Beach are an example.</p> <p>VB5.2 Where feasible infiltrate stormwater into back dune areas rather than discharging direct to the beach. This is an option at Collingwood Beach</p> <p>VB5.5 Promote water sensitive urban design as part of best practice coastal development (link to Shoalhaven LEP and DCP).</p> <p>VB5.6 Investigate impacts of urban stormwater on the surface of geological heritage sites such as Tapalla Point.</p>

Issue: Intensification and Visual Quality	
Strategy and Implementation	Component activities
<p>VA1 Reference the NSW Coastal Design Guidelines as a minimum standard in the Shoalhaven DCP</p> <p>Timing Within 2 years (in the Shoalhaven LEP and DCP).</p> <p>Partners <u>SCC</u> DoP Community Consultative Bodies</p> <p>Indicative cost Within current responsibilities of Council planners.</p>	<p>The intent of this strategy is to provide clear information about the visual character of new development that will be considered consistent with the Shoalhaven landscape.</p> <p>VA1.1 Include a coastal scenic value layer in the Shoalhaven LEP. The layer would be based on a strategic visual quality assessment of the coastline. An indicative area to include in the coastal visual quality layer would include all foreshore reserves, all headlands, the shoreline of all coastal lakes and other areas that are locally visible from beaches, reserves and the nearshore.</p> <p>VA1.2 Require visual amenity impact assessment for all new development within the visual quality layer and/or within a local scale sight line of the nearshore, beach and public reserves on dunes or headlands. The impact assessment would be assessed against the design guidelines in the Shoalhaven DCP.</p>

Issue: impacts of coastal processes and land use on heritage values	
Strategy and Implementation	Component activities
<p>CL1 Protect Aboriginal sites and places of cultural significance Incorporate Aboriginal heritage issues in plans of management along the coast.</p> <p>Timing Two to Five years</p> <p>Partners <u>SCC</u> DECC Department of Lands Wreck Bay Aboriginal Community Local Aboriginal Land Councils and Elders Bushcare groups</p> <p>Indicative cost Ongoing consultation about reserves managed by Council is within the responsibility of Council officers.</p> <p>Allow \$30,000 for cultural awareness guidelines and initial training for Bushcare groups</p>	<p>CL1.1 Identify (for Council planning and management purposes only) the location of Aboriginal sites in foreshore reserves, and the risks to those sites in specific localities. A particular issue is the impact of coastal retreat (climate change) on Aboriginal sites in coastal dune fields. This must be done in collaboration with local Aboriginal community groups, and in consultation with DECC.</p> <p>CL1.2 Ensure that plans of management for foreshore reserves address the protection of specific Aboriginal sites and cultural resources, using strategies developed in consultation with local Aboriginal community groups.</p> <p>CL1.3 Prepare cultural awareness guidelines and protocols for Bushcare groups conducting projects in foreshore reserves.</p> <p>CL1.4 Provide ongoing cultural awareness training for Bushcare volunteers and Council field officers.</p>
<p>CL2 Increase the involvement of Aboriginal communities in managing coastal landscapes and natural resources</p> <p>Timing Immediate and ongoing</p> <p>Partners <u>SCC</u> DECC Department of Lands SRCMA Wreck Bay Aboriginal Community Local Aboriginal Land Councils and Elders Commonwealth Government Bushcare</p> <p>Indicative cost Generally within the responsibility of Council officers (no additional cost). SRCMA also has significant responsibilities.</p>	<p>CL 2.1 Renew efforts to maintain Aboriginal involvement in the Shoalhaven Coastal Management Committee</p> <p>CL2.2 Encourage the active participation of local Aboriginal community groups in Bushcare, either separately for Aboriginal land or as members/visitors of other groups, for instance providing local information about the value of species in foreshore reserves.</p> <p>CL2.3 Consult local Aboriginal community groups about the wording and design of signage and interpretation material, for instance for coastal walks, or information for planting guides.</p>

Issue: impacts of coastal processes and land use on heritage values	
Strategy and Implementation	Component activities
<p>CL3 Protect and interpret significant non indigenous heritage</p> <p>Timing: Within 2 years for Warden Head conservation management plan.</p> <p>Other conservation management plans 5 years.</p> <p>Other interpretation and signage, within 5 years.</p> <p>Stormwater impacts on natural heritage sites – within two years for information, five years for remedial action as necessary.</p> <p>Partners SCC DECC Department of Lands DoP and Heritage division Local historical societies Commonwealth Government</p> <p>Indicative cost Conservation Plans moderate to high cost - \$20,000 to \$50,000 depending on complexity. Interpretative material – allow \$40,000 for preparation and installation.</p>	<p>The intent of this strategy is to ensure that valuable cultural heritage assets that reveal the different ways in which communities have approached, understood and managed the Shoalhaven coastline are protected for future generations.</p> <p>CL3.1 Narrawallee/Bannisters Point – as part of the Southern Shoalhaven coastal walking trail, include information boards about the history of the area – silica mining, early railway line along the coast and shipping. The Mollymook Bogey Hole is another area for historic interpretation. Some locals believe that the Bogey Hole was possibly an Aboriginal fish trap, later used for recreation and enlarged by silica mining.</p> <p>CL3.2 Update the Warden Head Lighthouse Conservation Management Plan and prepare an associated foreshore reserve plan of management.</p> <p>CL3.3 Link places of historic heritage significance by a 'Shoalhaven Coastline Heritage Trail', with maps, interpretative signage etc., and use in tourism marketing.</p> <p>CL3.4 Prepare a conservation management plan for heritage sites in coastal hazard zones – e.g. for the Narrawallee railway and wharves.</p>

The Coastal Zone Management plan also includes a small group of strategies that address issues that are currently considered to present a low risk to the sustainability of the coastline. These address matters such as feral animals in coastal reserves, fire management, interactions between recreational vehicles and other users at a limited number of sites and the potential to enhance beach management (cleaning and safety) at selected sites during peak holiday periods.

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