

# Limestone Coast and Coorong Coastal Action Plan and Conservation Priority Study







Government of South Australia

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# 2011

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This plan is a coastal conservation assessment and coastal action plan for the South East coast between the Murray River Mouth and the South Australia – Victoria border and builds upon the Conservation Assessment of the Northern and Yorke Coast, the Southern Fleurieu Coastal Action Plan and Conservation Priority Study, the Metropolitan Adelaide and Northern Coastal Action Plan and the Far West Coastal Action Plan and Conservation Priority Study.

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For further information about the Limestone Coast and Coorong Coastal Action Plan and Conservation Priority Study contact the Conservation and Land Management Branch, Department of Environment and Natural Resources, GPO Box 1047, Adelaide, South Australia, 5001.

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The project was based on a methodology devised by Doug Fotheringham, Nerissa Haby and Matthew Royal for a study of the Northern and Yorke Natural Resources Management Region (Caton et al. 2007a), which arose from an idea of Tim Noyce from the Department of Environment and Natural Resources.

# **Executive Summary**

This report documents the findings of a conservation assessment for coastal areas between the Murray River Mouth and the South Australia / Victoria border and details a coastal action plan for the region. With funding from the Commonwealth 'Caring for our Country' initiative, the South East Natural Resources Management (SENRM) Board commissioned the South Australian Department of Environment and Natural Resources (DENR) to conduct this study. DENR has provided resources to enable consultants and DENR staff to undertake this project. The direction of the report has been guided by meetings with DENR Regional Services Delivery staff and representatives of the five local coastal councils in the region; the methodology has followed that established for similar studies for other South Australian NRM regions in the last 4 years.

The aim of the study is to understand and facilitate the conservation, protection and maintenance of the region's natural coastal resources and to establish conservation priorities for action for places and areas within the region. The SENRM Board has recognised the need:

- for a detailed review of the region's coastal natural and cultural resource assets, thus establishing a baseline statement for the region;
- to examine the threatening processes impacting on these assets;
- to identify opportunities for more effective management at the local scale and to define specific management actions and their priority;
- to make available detailed knowledge of conservation assets at a local scale to guide targeted action, and
- to establish a framework of broad actions and targets to guide the regional community.

For the purposes of the assessment a coastal boundary was defined based on natural coastal features such as dunes and saltmarshes. Where coastal landforms were ill-defined a default distance of 500 metres from the high water mark was used. In order to facilitate the analysis and discuss management issues within this coastal zone, it was divided into 'cells' or small sub regional landform units with an average mapping length of approximately 25 kilometres. Seventeen of these of these cells were defined and were used as a means to analyse, describe and map significant areas.

The study used Geographic Information Systems (GIS) software (specifically ArcMap) to collate, analyse and present information retrieved from government databases, together with information from community groups and local experts. As part of the project a detailed weed survey of the region has been completed and used in the analysis<sup>1</sup>. Thirty-two conservation and 20 threat datasets were used to create 52 digital maps (or 'layers'). Each layer showed values from 0 to 9 for each pixel on the digital map, representing assessed conservation or threat values: any one layer consisted of millions of such values set out on a fixed grid. Thus conservation values or threat values could be summed for each point on the map of the region. As an example detailed maps of the sum of conservation values and the sum of threat values for the area from Robe to Nora Creina are shown in Figures 1.3 and 1.4, Introduction.

Conservation and threat values were determined for all cells, both in detail and as averages for the whole cell. Where high conservation values occur in the same location as high threat values

<sup>&</sup>lt;sup>1</sup> The detail of the weed survey is the subject of a separate report; the results are included in the cell descriptions, lists and recommendations of this report.

# **Executive Summary**

this was taken to indicate a high priority for action to manage the threat. A major part of the report is the description and analysis of cells, including local management action recommendations; for each cell a list of recorded plants and animals and a weed list are included. Where local conservation values and threats identified a wider regional issue and corresponding action, these have been detailed under Regional Management Actions in the following chapter.

The authors of the report believe this represents an objective and verifiable way of establishing priority for action in managing the conservation assets of this coastal part of the SE region. In the future it could be used as a baseline statement in a long term process of adaptive management.

The final report of the project will be in hard copy and on DVD, which includes the digital maps and data layers.

Regional recommendations for action are set out below. Local management actions are detailed in the cell descriptions in Chapter 6.

# **Regional Management Proposals**

[Local management actions derived from individual cell analysis are described in Chapter 6.]

# Recommendation 1. Adequacy of Data and Managing Change

The data upon which this project is based is a collation and review as at 2010. But change is occurring rapidly, including change as a result of management actions. In order to continue to manage effectively, survey and monitoring will need to take place in an ordered way in the future.

## <u>Objective</u>

• To improve and regularly update the databases on which this project is based, in order to manage change within the coastal regions of the SE.

# Actions:

- R1.1 NRM Board and DENR to work together to regularly update the databases within the project area. In particular, continue survey work to improve the resolution and reliability of existing floristic mapping; consider specifically mapping coastal plant associations identified by Oppermann 1999 and wetland (non saltmarsh) and grassland plant associations.
- R1.2 SENRM Board to consider using the coastal conservation methodology for conservation and threat assessment in its future planning for monitoring change and adaptive management.
- R1.3 Ensure that DENR plans for biological survey and monitoring take into account the data deficiencies revealed by this study.
- R1.4 For DENR to develop recovery plans for plant species and plant associations that are considered threatened.
- R1.5 Establish permanent monitoring sites to measure long term change to plant communities along the SE coast.
- R1.6 For DENR to maintain biological surveys of fauna to improve information about: total species within the region; population dynamics; habitat requirements. Such survey should focus on those areas with few current fauna records and species with few records.
- R1.7 Support research into fauna ecology and resource requirements in the SE coast.
- R1.8 Support volunteer groups, individuals, community groups, environmental organisations and education bodies in undertaking surveys to supplement and update current data.

(NRM, DENR)

# **Recommendation 2. Weed Strategies/ Priorities**

Collation of existing vegetation surveys, together with a SE coastal weed survey undertaken in 2009/10, suggests this region has a high level of weed threat. Entry points for weeds are widespread and include ORV tracks, parking and camping areas. In addition, the proximity of high value conservation areas to development nodes and settlements places vegetation at risk.

# <u>Objective</u>

• To manage weed threats in high importance areas as detailed in this report through recovery and action plans focused on red alert and declared non-indigenous species.

Actions: (These relate also to managing change, above)

- R2.1 Support the monitoring and mapping of weeds. Develop a centralised GIS based storage and collection system that links into State databases.
- R2.2 Support the establishment of long-term vegetation monitoring sites to determine changes including weed impacts.
- R2.3 Support research into the effects of weeds on threatened plants and vegetation communities on the coast and control methods for these.
- R2.4 Protect high conservation value areas from weed invasion (see individual cell descriptions).
- R2.5 Support research into the effects of weeds on fauna populations on the coast.
- R2.6 Support ongoing research into improved, targeted methods of control of the high impact and invasive species. (e.g. Polygala control in Bernoulli CP)
- R2.7 Develop an information/education community resource identifying known weeds with suggestions for action. Target the community, plant nursery suppliers, councils.
- R2.8 Support better containment of weeds from coastal urban areas(e.g. native vegetation areas adjacent to Robe, Beachport, Southend) through community education as well as weed control measures.
- R2.9 Develop a weeds watch early warning system with a rapid response capability to tackle coastal weed outbreaks.
- R2.10 Assess shorebird-nesting habitat for impact from introduced grass species.
- R2.11 Education initiative targeting residents and holiday home owners in coastal communities, regarding common plants that become weeds and alternatives for garden planting. Provide support in implementation.
- R2.12 Run workshops for the local community to learn more about landscaping with local species and creating biodiversity in their garden.

(NRM, DENR, Councils, Community)

# **Recommendation 3. Introduced animals**

A number of introduced animals have been recorded in the SE coast including rabbits, deer, foxes and cats. These species are known to impact on native wildlife through predation or competition.

#### <u>Objective</u>

• Minimise the impact of introduced fauna species on native flora and fauna.

#### Actions:

R3.1 Establish a monitoring program for rabbits (and rabbit warrens), foxes, deer and feral cats to identify distribution, abundance and impacts.

- R3.2 Investigate the impact of herbivores on native flora.
- R3.3 Investigate the effectiveness of rabbit control in coastal environments.
- R3.4 Continue the control program for foxes and extend to whole SE coast.

(DENR, NRM)

# **Recommendation 4. Improving Habitat Resilience**

Habitat resilience is a common theme for many of the regional and local actions proposed in this report. Connectivity between vegetated areas is stressed because of its widespread value in allowing species migration and interaction.

[Climate Change Note: On-going climate change underpins many of the regional recommendations for action listed here. Migration and adaptation of plant and animal species in response to climate change has occurred throughout historic and geologic time. Current adaptation to climate change is problematic because the speed of change is rapid, the barriers to migration unique and habitat is heavily stressed by other threats. There is a need to enhance ecosystem health to allow natural processes such as selection, migration and community composition to occur. Strategies to improve ecosystem resilience are already core business for many land managers. The threat of climate change underlines the need for renewed effort: in particular, increasing species numbers and combating community degradation by exotic species, as well as by erosion. Improving the connectivity between vegetation blocks and ensuring water for wetlands is a clear way to assist plants and animals to adapt to change].

## <u>Objective</u>

- To improve connectivity between vegetated areas and wetlands within the project area.
- To build habitat resilience to current pressures and to adjust now to climate change impacts on coastal habitats.
- To avoid decisions now which compromise future adaptation and avoid unnecessary expense.

## Action:

- R4.1 Review connectivity between vegetation blocks with a view to the establishment of a 'Coast Links' project for the South East.
- R4.2 Investigate and address threats to freshwater dependent natural areas including groundwater availability, sea water intrusion, the SE drainage scheme and weed invasion.
- R4.3 For the SENRM Board & DENR to adopt the vegetation linkages concept as a means of building resilience and to build partnerships with private landowners, community groups and the Nature Foundation to forward this concept within its coastal lands.
- R4.4 Review establishment of buffer zones for dune retreat. The review to include development plan provisions for buffer zones regionally.
- R4.5 To establish setback buffer areas in Council Development Plans in order that development now does not compromise adaptation to sea level rise in the future.
- R4.6 Continue the wetland inventory work in coastal areas and work with private landholders to protect valuable wetlands. include high value wetlands in the reserve system where possible.
- R4.7 Undertake a vulnerability assessment on flora and fauna species and communities to climate change.

(NRM, Councils, DENR, DPLG, Dept Premier and Cabinet)

# Recommendation 5. Off Road Vehicles on beaches, dunes and headlands

Recreation is a significant use of the South East coast, but the vehicle and foot traffic associated with it needs management to prevent degradation of the features that make the coast such a valuable asset to the region. The numerous impacts along the coast from these activities include wildlife disturbance, vegetation destruction, dune destabilisation, soil disturbance and

# **Regional Management Proposals**

compaction, weed introduction and the spread of litter. Many of these impacts are concentrated around settlements, formal and informal car parks and camping areas and along the popular ORV routes. Everywhere it is evident that these impacts are increasing and valuable areas are threatened. These threats are particularly concerning in our parks and reserves, where the damage is clearly incompatible with the intent of the reserve system.

#### <u>Objective</u>

• To manage access to beaches, dunes and headlands to reduce damage by vehicles to fauna and habitat.

#### Actions:

- R5.1 Establish a process of regularly updating the digital maps of tracks established for this study. Review the mapping taking into consideration high conservation priority areas, destabilised dunes and shorebird nesting sites.
- R5.2 Review ORV tracks across the region in consultation with key players, with a view to rationalising unnecessary and inappropriate or hazardous tracks and rehabilitation of degraded areas.
- R5.3 An audit of all SE beaches for type, hazards, associated human activity and wildlife. To inform R.5.2 and 5.4
- R5.4 Consideration of permanent, temporal or spatial beach closures for shorebirds across the region.
- R5.5 To establish access control and assist native plant recovery on badly damaged areas within Beachport CP, Little Dip CP, Canunda NP and Coorong NP.
- R5.6 Assessment of the socio-economic benefits of ORV activity for coastal communities.
- R5.7 Develop a regional land use and management strategy for ORVs that considers the provision of coastal tourism infrastructure, limits access to appropriate tracks and designated areas, guides management of public land and regulates activities on the foreshore and coastal reserves.
- R5.8 Consider implementation of a 'parks pass' or user pays system for ORVs accessing NPWSA reserves in SE.
- R5.9 Work with other coastal NRM regions and LGAs to develop a consistent state-wide approach to ORVs.

(DENR, NRM, Councils)

# Recommendation 6. Capacity building and community awareness

#### <u>Objective</u>

- To build capacity in managing coastal areas and raise community awareness of coastal conservation and threat issues.
- To maximise the benefit of Coastcare effort within the region.

#### Actions:

R6.1 Educate and involve local school children in coastal management and the values of their nearby natural areas (e.g. plants, animals and heritage; weed control, site rehabilitation)

R6.2 Improve community awareness of: a) coastal areas in their natural state (especially sand dunes and wetlands); b) the pressures on shorebirds; c) the threat of weeds and garden

escape plants; d) the heritage values of the coast; e) the values of and opportunities to enhance neighbouring native vegetation areas.

- R6.3 Councils, the NRM Board and DENR continue to support and guide local Coastcare and 'Friends of' groups and to consider the need for greater emphasis on maintenance and follow up, to back up community effort.
- R6.4 Working with community groups on interpretive events, volunteer opportunities, media releases and further development of interpretive signs, guides and walks.

(NRM, Councils, DENR)

# **Recommendation 7. Climate Change**

Climate change is already occurring: measured trends in sea level change, in mean air and ocean temperatures, in latitudinal migration of the climate belts and climate variability are becoming clear. These changes impact on our natural assets. Some 'no regrets' adaptations and necessary monitoring are proposed below.

## <u>Objective</u>

• To adjust now to climate change impacts on coastal resources; and to avoid decisions now which compromise future adaptation.

## Actions:

[Actions proposed as appropriate now, relate to further understanding existing change and to avoiding decisions now which will preclude later adjustment, or lead to unnecessary expense. See also 'Adequacy of Data and Managing for Change' above]

- R7.1 For low lying areas in cells SE1-2, SE 8 to 11 (Rivoli Bay to Guichen Bay) and cells SE12 to 17 (Cape Jaffa to Coorong North) the scoping of timelines and implications for possible adaptation of infrastructure and vulnerable habitats to on-going and accelerated sea level rise.
- R7.2 A regional review of sand dune retreat areas/ buffer zones is necessary to assist the implementation of the Better Development Plan process (From the Planning SA website:-Better Development Plan Policy Coastal Areas

"Development should be designed and sited so that it does not prevent natural landform and ecological adjustment to changing climatic conditions and sea levels and should allow for the following:... (c) sand dune drift."

- R7.3 Cells SE 1, 2, 3 and 4 have low elevation sub coastal wetlands with marine connection through drain outlets and often behind low dune ridges. These swamps are threatened by lowering (fresh) groundwater pressure from the land and rising saline groundwater pressure from the sea, by storm tide incursion of salt water through the drain outlets and by dune recession. These problems need baseline monitoring now, followed by adaptive management.
- R7.4 Currently change in the region is described, in certain aspects, by the existing time series of aerial photography. Because of changing technology in imaging it will be necessary to ensure that future imagery is of appropriate resolution to track coastal changes, such as dune, salt marsh and swamp migration.
- R7.5 The existing network of DENR profiles of beaches, foredunes, and wetlands will need to be extended to include more locations vulnerable to change resulting from sea level rise/ climate change.

(NRM, Councils and DPLG, Dept Premier and Cabinet, DENR, Coast Protection Board)

# **Recommendation.8.** Conserving Valuable Areas and Species

51% of the study area is captured in NPW Act reserve or heritage agreement. This demonstrates the conservation significance of the region's coastal natural areas. Protection of these dedicated conservation areas could be improved through increased resourcing and further community engagement. Another distinct feature of the SE coast is the relative importance of sedgeland plant communities. They occur within the saltmarshes but also where coastal land is swampy. Freshwater input through ground or surface water flows is critical to the health of these communities. Any future use/allocation of the fresh water resource in the SE must take regard of the ecological requirements of the unique coastal wetland communities.

## <u>Objective</u>

• To raise the conservation status and management investment in selected significant areas within the region and for selected species and vegetation associations.

## Actions:

- R8.1 To conserve the high vegetation and habitat values of the Lakes Robe, Eliza and adjacent wetlands, (Cell SE10, see Section 6.3.10) threatened by grazing, ORV activity and water availability/ quality, through the extension of Little Dip Conservation Park.
- R8.2 To conserve the high vegetation and habitat values of coastal land adjacent Beachport CP (Cell SE9, see Section 6.3.9) threatened by grazing and ORV activity, through the extension of the Beachport Conservation Park/ or incorporation into the heritage system.
- R8.3 To conserve the high value areas identified in Carpenters Rocks Cell SE5, not currently included within reserve or heritage agreement (see Section 6.3.5).
- R8.4 DENR and the SE NRM Board seek to achieve listing of Significant Geological Features (Geological Monuments see Section 3.4) as an attachment to the Development Plan of relevant councils.
- R8.5 Manage and protect floristic groups identified in the Coastal Dune and Clifftop Survey as both rare in the State (less than 20 sites in SA) and having >50% sites recorded along the SE Coast (see Section 3.1, Table 3.2); notably *Gahnia trifida* and *Juncus kraussii* associations.
- R8.6 Improve the awareness of and engage the community in threatened species preservation and protection of unique habitat in the SE (e.g. utilising focal species as detailed in Section 3.2). (see also Recommendation 6)
- R8.7 Prevent the drainage or alteration of floodplains, wetlands, swamps and creeks (all cells). These provide habitat to numerous water dependent plants and animals including species found only in the lower South East: the Swamp Antechinus, Swamp Skink and Swamp Wallaby.
- R8.8 Review / update reserve management plans across the regions; notably the Coorong NP and Small Coastal Parks management plans.

(NRM, DENR, Council)

# Recommendation 9. Aboriginal Sites / Indigenous Consultation and Engagement

## <u>Objectives</u>

- To raise awareness and respect for sites chosen by their traditional owners within the coastal region.
- To extend the involvement of local Aboriginal people in conservation of coastal areas.
- Future revision of the study to engage fully the Murapeena Heritage Committee, SE Aboriginal Focus Group and Ngarrindjeri Heritage Committee.

## Actions:

- R9.1 Encourage and support Aboriginal communities to register sites of Aboriginal significance with the Aboriginal Affairs and Reconciliation Division Department for the Premier and Cabinet.
- R9.2 Encourage and support further surveys through the area to identify areas of Aboriginal significance.
- R9.3 Support and assist management and protection of sites of Aboriginal significance.
- R9.4 Engage Aboriginal communities to identify and address cultural heritage values in the coastal environment and in coastal land management.
- R9.5 Capture, document and use local indigenous knowledge on the coastal environment and coastal land management.
- R9.6 Provide education and interpretation resources of Aboriginal Heritage sites and values to improve the awareness of coastal visitors.

(NRM, DENR, Dept Premier and Cabinet)

# Recommendation 10. Implementation of this Project

#### <u>Objectives</u>

• The actions to implement this project cross existing lines of responsibility and traditional concerns. Stakeholders will need to be made responsible to drive the process.

#### Action:

R10.1 For the NRM to form working groups and appoint officers to drive the implementation of this project.

(NRM, Councils)