

REGIONAL NRM STRATEGY DEVELOPMENT

COASTAL HABITAT AND PROCESSES

SOUTH REGION

Overview of the asset within the region

The Tasmanian coastal zone is a significant asset of the State. It encompasses the majority of human settlements, generates a significant proportion of the States economic wealth and is a major recreational asset. The coastal environment is also significant for its wide range of habitats and biodiversity. Inherent in this range of important values and uses is the potential for conflicts between development and conservation (State of the Environment Report, Tasmania, Volume 2 Recommendations, 1997, Sustainable Development Advisory Council)

This paper addresses habitat and geomorphological processes in the terrestrial portion of the coastal zone, and will largely limit its scope inland to 1km from the high water mark and to marine influences on this land. The coastal zone is now defined by the *State Coastal Policy 1996* and the *State Coastal Policy Validation Act 2003* as “state waters and to all land to a distance of one kilometre inland from the high-water mark.”

Natural Resource Management (NRM) issues in “state waters” will be discussed in the papers on Marine and Estuarine Water Quality and the Marine and Estuarine Habitat. The contents of this paper may also overlap with a number of other topic areas eg soil, native vegetation, weeds, etc.

The length of coastline for the whole of the Southern NRM region (including all estuaries up to fresh water, all islands and islets is 3,263 km (1:25,000 scale derived from the LIST 21/2/2001).

Sea level during the last Glaciation dropped to about 130m below current levels, but rose to its present levels about 6,500 years ago. Since that time, the present beaches and sand barrier systems have developed during a period of perhaps uncharacteristically stable sea levels.

Coastal features to the south and west of the Derwent Estuary (D’Entrecasteaux Channel, Bruny, Huon, South Coast) consist of convoluted bays and rocky headlands composed of sandstone and mudstone with dolerite intrusions, exposed sandy beaches, saltmarshes and tidal flats. Significant geoheritage sites include tidal delta at Egg Island, Southport Lagoon spit and syenite deposits in alkaline dykes at Cygnet. There are also coastal sites of restricted outcrops and fossils (den Exter 2003). Woodlands and forests occur right up to the shore along much of this coastline and saltmarshes are prevalent in the protected tidal flats of estuaries and inlets (den Exter 2003). Hills, broad valleys and plains fringe the lower reaches of the Huon River and the southern end of the D’Entrecasteaux Channel. Lowland and coastal areas have been largely cleared of the original forest cover and replaced by introduced grasslands. There are rich a diversity of wetlands in this area even though none are RAMSAR listed and few studied in detail.

The coastline to the south east of the Derwent Estuary including the Tasman Peninsula consist predominantly of cliffed coasts, sheltered bays and drowned river valleys (Zann 1995). They also have an underlying geological complexity that creates sandy beaches and dune systems, with geomorphological processes that are highly sensitive to human disturbances (Sharples 2002). The vegetation of the southern East Coast predominantly consists of Eucalyptus spp. woodlands intermixed with native and non-native grasslands. Foreshore vegetation is often highly modified and the majority of sandy areas are dominated by marram grass while patches of coastal wattle still exist on the foredunes and related systems (RD&M 2002).

Further north the East Coast has long stretches of sandy beaches interspersed with granite outcrops forming headlands and offshore islands. Freycinet Peninsula consists of granite mountains and rocky shorelines with small beaches and embayments. South of Swansea the

parent rock is dolerite and narrow beaches have formed in front of undulating hills and plains (TASQUE 1995). A description of the vegetation for Frecinet National Park and Maria Island National Park is available from the Parks and Wildlife Service.

Many habitats in this narrow fringe are exclusively coastal. Much has been lost especially along the Derwent Estuary and other population centres. The region has some important coastal National Parks, but outside these the pressures on both public and private coastal land from tourism, recreation, residential development, farming and forestry are considerable and growing. The possible impacts from sea level rise and climate change add a new potentially hostile dimension to be considered in future planning and management of the coast.

2. Current asset condition

There is limited detailed information available on coastal habitat and geomorphology for this region.

Vegetation located between high water mark and 100 metres inland is mapped on the TASVEG data base. However this data must be ground truthed if used for management or planning purposes. Contact the web site <http://www.gisparks.tas.gov.au> for more information.

The only comprehensive coastal habitat and geomorphology data is available for the municipalities of Clarence, Sorell and Tasman through the Integrated South East Coastal Management Strategy. Digitised maps and reports describe the condition of vegetation, fauna and geomorphology for a strip of coastline extending 100 metres inland from the high water mark between Cape Bernier and Cape Direction.

Minimal coastal habitat data is available through the Draft Huon Valley Natural Resource Management Strategy. The strategy provides some relevant information on vegetation and weeds.

A report on Derwent Estuary Foreshore Vegetation states that only 34% of the Derwent estuary foreshore has retained its vegetation. The vegetation that extends from Risdon to Geilston Bay is perhaps one of the healthiest sections of foreshore bush in the Derwent Estuary as the native vegetation is nearly continuous for 5km of coastline (Booth 2003) (<http://www.derwentriver.tas.gov.au>)

3. Issues associated with, or threats to the asset

Management

- Currently there is a lack of spatial information on coastal habitat and geomorphology (from HWM to 100 m inland) that is available to decision makers across the whole region. (RD&M; den Exter; Phillips1999 & 2000; Booth – reference to saltmarshes; Coughanowr)
- Coastal management from the Derwent Estuary is coordinated through the Derwent Estuary Program. For the other areas loose steering committees remain in place to implement the SE Coast and D'Entrecasteaux strategies. Whole of region coordination of coastal zone (See *State Coastal Policy 1996* definition) issues may be desirable in the context of the Regional NRM Strategy.
- A number of management plans existing for coastal areas (see under Section 4) need to be implemented, and additional plans developed for priority areas not covered (RD&M; Booth; Coughanowr).
- Public education and information on coastal management is needed, including a guide to the State planning framework, newsletters for the community, coastal management training courses, signage and interpretation about coastal values, educating recreational users about the consequence of their activities, interpretation materials, informational panels, pamphlets (RD&M, Sharples)

- Community participation in coastal management requires support (Booth; RD&M; den Exter)
- Planning guidelines for foreshore buildings and structures, and view-field maintenance are required (RD&M; TASQUE 1995; Phillips)
- Need to develop a strategy which guides the location of development, and open space for recreation in the region (RD&M; TASQUE 1995; Phillips)
- Liaison with Aboriginal Heritage Unit, DTPHA, and any relevant local Aboriginal community organisations must be emphasised prior to undertaking any development or management work (Booth; den Exter; Phillips).

Climate Change

- The implications of climate change include sea level rise and an increase in frequency and severity of storm events. Therefore some of the key impacts may include flooding and erosion or accretion on the coastline with the severity of impact determined by the type of coastline.
- Water table rise and salt water intrusion into ground water are a potential threat in some areas.
- A region-wide vulnerability assessment is required and a range of adaptive measures will need to be investigated. These could include preventing development in certain areas or only allowing demountable dwellings in others. (Sharples, RD&M, Coastal and Marine Branch)

Threats to coastal natural resource values

A large number of threats to coastal land exist in this region. Some of these are listed here:

- Impacts from Off Road Vehicles on beaches, dune systems and other coastal landforms (TASQUE 1995; RD&M; Sharples).
- Coastal weeds (RD&M; TASQUE 1995; den Exter; Booth, numerous Coastcare project management plans and reports).
- Stock on river reserves causing bank erosion; encourage farmers to fence stock out of river reserves (RD&M).
- Disturbance or mortality of nesting shorebirds and penguins from dogs, horses, feral cats and humans (RD&M).
- Camping in undesignated areas (RD&M).
- Feral oysters on coastal areas used for recreation (RD&M).
- Cross-dune access points and erosion areas. Review access strategies already developed. (RD&M; Sharples; Booth)
- Unauthorised private paths and significant and ongoing degradation of coastal foreshore ecosystems adjacent to private property. Education campaign (eg Creeping Backyards brochure), monitoring and enforcement are needed (RD&M; TASQUE 1995; Sharples).
- Adverse impacts on wetlands by draining, filling, clearing vegetation (TASQUE 1995; Coughanowr)

4. Current responses to issues and threats

Management

The Tasmanian *State Coastal Policy 1996* has recently been re-introduced following the passing of the *State Coastal Policy Validation Act 2003*. The Policy guides sustainable natural resource use in the coastal zone, and is binding on planning authorities and the Crown.

All planning and management decisions in the region should be consistent with this State Policy.

Priority relevant legislation relating to coastal management includes:

Crown Lands Act 1976

National Parks and Reserves Management Act 2002

Nature Conservation Act 2002

Land Use Planning and Approvals Act 1993

Environmental Management and Pollution Control Act 1994

State Policies and Projects Act 1993

Weed Management Act 1999

Aboriginal Relics Act 1975

The major regional strategies pertinent to this issue are:

- Integrated South East Coastal Management Strategy
- Huon Valley Council Draft NRM Strategy
- Derwent Estuary Program Environmental Management Plan
- D'Entrecasteaux Channel Strategy

(The last two reports have a principal focus on water quality issues addressed in other papers – though some foreshore issues are addressed).

Climate Change

A report titled *Vulnerability of the Coastal Zone to Climate Change in Tasmania, 1995*, trialed a methodology in vulnerability assessment using South Arm as a case study. This was part of a national project. The methodology was found to be robust, but difficult to use on individual planning and management decisions.

Impacts on coastal foreshores

A range of documents provides management direction or guidance on addressing coastal foreshore impacts either generically or in relation to specific areas. These include:

- Recreational Vehicles Strategy developed by Nature Conservation Branch, DPIWE
- Various weed management strategies and brochures developed for example Draft South East Weed Management Plan 2001, Coastal Weeds of Tasmania 2003.
- Waterways and Wetlands Works Manual 2003 (DPIWE/LGAT 2003).
- Coastcare has assisted with signage to protect nesting shorebirds at a number of prime locations.
- A camping strategy was developed for the coastal areas of the north east region – this may be a good model for a similar strategy in the south
- Coastcare developed an effective model of Aboriginal Heritage Assessment in conjunction with TALC as part of the assessment of Coastcare projects prior to commencement
- A Southern Beaches Access Strategy has been developed for the coastline between Lewisham and Connellys Marsh. It assessed current track and foreshore access with a view to developing recommendations to enhance the use by locals and visitors.
- “Creeping Backyards” - a brochure addressing illegal access, encroachment and weed infestation from private property onto public coastal land was launched in August 2003. This is available through Coastal and Marine Branch DPIWE.

- Existing management plans include: Millingtons Beach Coastal reserve Management Strategy, Action Plan for Droughty Point coastal reserve, Southern Beaches Foreshore Management Strategy (Jones Bay to Spectacle Head), Southern Beaches Foreshore Management Strategy Stage 2 (Spectacle Head to Susan Bay), Tarooma Foreshore Vegetation Survey and Management Plan, Roaring Beach Conservation Area Management Strategy, Mortimer Bay Reserve Management Plan, South Arm Peninsular Coastal Management Plan, Montague Bay to Kangaroo Bay Management Plan. (These are available through the Coastal and Marine Branch, DPIWE).
- A number of public education materials and guidelines exist to raise awareness or provide technical assistance on coastal zone management issues. Examples are:
 - Australian Coastal Atlas – Coasts and Clean Seas/DPIWE
 - Afloat and Aware – small boating practices for a clean, healthy sea – Coastcare/Tasmanian Environment Centre
 - Benefits of Retaining Coastal Vegetation - Worth looking at - Worth looking after – Coastcare
 - Coastal Weeds of Tasmania – are you growing invaders? – Coastcare
 - Community Coastcare Handbook – Caring for the Coast in Tasmania – Veronica Thorp, Coastcare
 - Creeping Backyards – Protecting coastal and estuarine public reserves – Tamar 2020/Coastcare
 - Fish and Fish Habitat Get Involved - DPIWE
 - Have you seen this beach WEED? Sea Spurge – Coastcare/MCCN
 - Helping Us Share Orford Spit with the birds – Temporary Fencing on Millingtons Beach – Threatened Species Unit, DPIWE
 - Leave No Wake – Guide to Minimal Impact Sea Kayaking in Tasmania – Coastcare/Sea Canoe Clubs
 - Living at Nine Mile Beach – Coastcare/9 Mile Beach consortium
 - Managing the Coast - Coastlink
 - Net Smarter, A Guide to Responsible, Safe and Sustainable Recreational Netting Practices - DPIWE
 - Rice Grass - coming to an estuary near you! - DPIWE
 - Save our shorebirds & seabirds – Coastcare
 - Waterways and Wetlands Works Manual - DPIWE
 - Whose beach is it? Learning to share the beach with the birds – Coastcare/Birds Australia and WWF
 - 50 Ways to Care for Our Coast - Coastcare

5. Productive use and other opportunities in relation to the asset

The coastal foreshore in the southern region is important to locals and visitors for recreation. Many use the foreshore for walking, camping, recreational fishing. The coastal reserve also provides access to the water for swimming, boating, snorkelling, diving, kayaking and canoeing. A survey of residents and ratepayers for the South East Coastal Strategy recorded significant values of coastal reserves as the views, lifestyle, peaceful surroundings, closeness to nature, access to the shoreline and “Just relaxing”. (RD&M).

Economic values of the coastal area include residential development, tourism and recreation, marine farming, agriculture, forestry, resource extraction, recreational and commercial fisheries. A number of industries are dependent on a coastal location. A good example being the cluster of businesses and organisations around water craft, from small craft to large vessels. This includes ports, boat harbours, marinas and moorings, jetties, slipways, ramps, boat building, repair and maintenance, storage, sales, provisioning and fuelling, navigation, dredging, rescue, pilotage, waste disposal etc.

Other clusters of businesses exist around marine farming and tourism and recreation, and there is a significant concentration of economic activity in the coastal zone in relation to residential development and associated infrastructure.

The natural and cultural values of the coast strongly underpin the economic values of tourism, recreation and the residential sectors. The whole coastline is implicated. Major public assets include the 5 coastal National Parks: Freycinet, Maria Island, Tasman Peninsula, South Bruny Island and the South West National Park (which is part of the World Heritage Area).

6. Available data and its usefulness

Through TASVEG vegetation around Tasmania's coastline has been mapped from high water mark to 100 metres inland, available through www.gisparks.tas.gov.au (password required). However data is derived from aerial photography up to 1:40,000 scale, and should not be relied on to include some important vegetation remnants.

The South East Coastal Strategy has produced much higher resolution (to 10m) ground truthed data for vegetation, weeds and geomorphology 100 metres inland from HWM available from PWS or Councils.

PWS Southern District has developed a system of coastal zoning - from North West Bay to Recherche Bay. Its coverage includes all coastal public land from HWM up to the private land boundary (including all reserves where they occur along the coast, such as Conningham). Data taken from aerial photos was ground truthed by field survey and coastal land has been zoned using the internal P&WS Land Management Zoning System. Five zones were developed according to condition, natural or cultural values present, existing use, protection, recreation, visitor services or special use.

The coastal zoning information from this 1998/99 survey is available on the Coastal Atlas. More detailed notes are available from the Parks and Wildlife internal MAPLINK system. This information may be made available to external people on request. The coast has been re-surveyed in 2003/03 but the data has not yet been digitised and is not readily available. All data is available at the 1:25,000 scale. Mark Bryce, District Manager, South, P&WS reports that the information has been very useful for assessment development and use proposals. Once the new survey data is digitised it can be compared with the previous data and trends over time identified and monitored. The system should be in use for all PWS Districts.

7. Information gaps and actions required to fill these gaps

There is a serious lack of baseline data describing coastal habitat and geomorphology within the Southern NRM region. The region's coastline has patchy coverage of management plans and strategies.

Some of the actions required to fill these gaps include:

- Coastal habitat and geomorphology and coastal zonation of the foreshore mapped for the whole of the south east NRM region for a minimum of 100m inland from the high water mark, including lagoons, wetlands and estuaries.
- This data to be available spatially in one place, for example the Tasmanian Node of the Australian Coastal Atlas (www.atlas.tas.gov.au).

- A strategic approach to public education, signage and fencing to protect remnant vegetation and habitat on coastal reserves
- A map of the region showing areas most vulnerable to climate change is required and a range of adaptive planning and management measures investigated for each area.
- Development of strategies/guidelines to assist in finding appropriate locations for and design of coastal development.

8. Current Aspirational, Resource Condition, and Management Action targets for the asset (at the national, state and/or regional level) and any data on progress towards targets.

The following NRM National Outcomes apply to coastal habitats within the region:

- the development of sustainable production systems, which maintain or rehabilitate biodiversity and ecosystem services,
- the avoidance or minimisation of threatening processes on locations or systems which are critical for the conservation of biodiversity agricultural production, cultural and social values,
- the maintenance of biodiversity, populations of significant species and ecological communities and ecosystem services and functions.

Several Resource Condition Matters for Targets also exist, and these include estuarine, coastal and marine habitat integrity, nutrients in aquatic environments, turbidity/suspended particulate matter in aquatic environments, significant native species and ecological communities and ecologically significant invasive species.

NHT priorities for achieving the national goal of protecting coastal catchments, ecosystems and the marine environment (under the revised Coastcare heading) include:

- Protect and restore significant marine, coastal and estuarine ecosystems,
- Protect and restore the coastal, estuarine and marine habitats of threatened species, threatened ecological communities, and migratory shorebirds and waterbirds,
- Prevent or control the introduction and spread of introduced marine pests, coastal weeds and other biological threats to biodiversity,
- Establish and effectively manage a comprehensive, adequate and representative system of marine protected areas, and
- Improve the condition of coastal, estuarine and marine resources that underpin the sustainability of coastal, estuarine and marine-based resource industries.

Integrated Coastal Zone Management (ICZM) specifically contributes to the achievement of the following **Tasmania Together** Goals. It also indirectly seeks to contribute to many others including Goals 2, 3, 10, 12 and 13.

- Goal 20 (Promote our island advantages including our ‘clean-green’ image, natural resources, location and people)
- Goal 21 (Value, protect and conserve our natural and cultural heritage)
- Goal 22 (Value, protect and maintain our natural diversity)

International ICZM obligations arise from Agenda 21 (Chapter 17) which states, amongst other things, that “*the protection and sustainable development of the marine and coastal environment and its resources . . . requires new approaches to marine and coastal area management and development . . . that are integrated in content and are precautionary and anticipatory in ambit*” [S.17.1]. Relevant Obligations arising from this include:

- integrated management and sustainable development of coastal areas
- protection of the marine environment and sustainable use of marine living resources
- addressing coastal and marine management issues arising from climate change.

The *Tasmanian State Coastal Policy 1996* provides a blueprint for sustainable development in the coastal zone derived from three main principles:

1. Natural and cultural values of the coast shall be protected
2. The coast shall be used and developed in a sustainable manner
3. Integrated management and protection of the coastal zone is a shared responsibility.

9. Proposed Management Action targets for the asset (at the national, state and/or regional level).

- Adopt marine and estuarine Protected Environmental Values, and develop appropriate water quality management objectives for the region.
- Address knowledge gaps relating to matters affecting water quality, address point and diffuse pollution sources, address recreational water quality issues, address toxicants and seafood safety, prioritise projects for reducing pollution, assess waste management practices associated with boating and shipping
- Survey rare and threatened plant and animal species and their habitats. Implement strategies to protect them.
- Determine the nature and extent of introduced animals and weeds in coastal and marine areas and develop an effective control program, including a public awareness campaign
- Implement DPIWE's property planning initiative and relevant catchment and estuary management strategies to ensure integrated management across the catchment-coast-ocean continuum.
- Encourage research into benefits and costs of marine reserves.
- Continued habitat mapping under SEAMAP Tasmania to ensure all marine and estuarine areas are mapped as a minimum out to the 40m depth contour.
- Address information gaps on coastal geomorphology, flora and fauna, including a condition and use assessment, for a minimum distance of 100m inland of HWM.
- Contribute relevant coastal and marine NRM information to a statewide Coastal Atlas and web site.
- Support coastal management training for Local Council works crews, coastal planners and managers and the community.
- Establish a coastal management structure for the region which provides advice to decision makers, oversees training, supports voluntary "Coastcare" type groups, seeks funding for projects and works, and facilitates integration of coastal management.
- Assess coastlines for vulnerability to climate change implications and develop adaptive measures at regional and local level
- Participate in the production of guidelines on assessment and protection of coastal scenic and landscape values.
- Develop a model of participation and consultation with the Tasmanian Aboriginal Land Council and local Aboriginal Communities for management and protection of cultural sites on the coast.
- Minimise the impact of public access and public walkways to the beach,
- Manage vehicle access to beaches including campervans
- Determine areas where camping takes place legally and illegally, establish values of these campsites and develop guidelines for ongoing management of camping areas
- Investigate the issue of salinisation of coastal water supplies from extraction of bore water

- Investigate the issue of nutrient input into coastal waters from septic tanks, storm water and garden fertilisers

10. Relevant publications

Booth, K., 2003, *Derwent Estuary Foreshore Vegetation – Risdon to Geilston Bay – Description and Recommendation*, Derwent Estuary Foreshore Vegetation Project, Derwent Estuary Program.

Coastal and Marine Program, 1995, *Vulnerability of the Coastal Zone to Climate Change in Tasmania*, Department of Environment and Land Management.

Coughanowr, C., Green G., Alomes, G., 2001, *Derwent Estuary Program – Environmental Management Plan*.

den Exter, N. (in progress 2003), *Draft Huon Valley Natural Resource Management Strategy*, Huon Healthy Rivers Project, Huon Valley Council.

DPIWE/LGAT, 2003, *Waterways and Wetlands Manual – Environmental Best Practice Guidelines for undertaking Works in Waterways and Wetlands in Tasmania*.

Leewood, W., 2002, *Southern Beaches Foreshore Access Management Strategy*, Lewisham to Connellys Marsh.

Phillips, G., 1999, *State of the D’Entrecasteaux Channel*, prepared as part of the D’Entrecasteaux Channel and Catchment Integrated Land and Marine Project.

Phillips, G., 2000, *The D’Entrecasteaux Channel and North West Bay Strategic Management Plan and Strategic Action Plan*.

Reserve Design and Management (RDM), 2002, *The Nature Conservation Values of the South East Coast of Tasmania*, Prepared for the Integrated South East Coastal Management Strategy.

Reserve Design and Management (RDM), 2002, *Integrated South East Coastal Management Strategy*.

Sharples, C., 2002, *Geomorphology of the South Eastern Region of Tasmania*, Prepared for the Integrated South East Coastal Management Strategy.

TASQUE, 1995, *A Strategy for The Management of Marine and Coastal Resources*, Prepared for Dorset, Break O’Day and Glamorgan Spring Bay Councils.

Tourism Tasmania, 2002, *Tasmanian Visitor Survey 1996/97 to 2000/01*.

Zann, L. P., 1995, *State of the Marine Environment Report for Australia*, Great Barrier Reef Marine Park Authority for Ocean Rescue 2000.