DRAFT

REGIONAL NRM STRATEGY DEVELOPMENT
COASTAL HABITAT AND PROCESSES
NORTH WEST REGION

1. 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 North West NRM region including all estuaries up to fresh water, all islands (including King Is) and islets is 2,640 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. The area experiences significantly greater tidal range than other parts of Tasmania with Bass Straight tides much as 3.3m.

Sharples (1998) usefully divides the shorelines of the North West Region's mainland coast into three broad sections:

- Southwest and west coasts - highly exposed, predominantly rocky, but with extensive sandy beaches and inland sand sheets and dunes north of Cape Sorell
- Woolnorth Pt. to Circular Head – a sheltered coastline, extensive low lying coastal plains with prograding (growing) sandy shorelines and intertidal flats
- Circular Head eastwards – moderately exposed, mainly rocky with some sandy beaches but little longshore sediment drift. This is an extensively developed coastline with many significantly modified landforms.

Many habitats in this narrow fringe are exclusively coastal. However, natural values have been severely compromised especially between Devonport and Wynyard and other population centres, and along the West coast marram grass has significantly altered coastal dune land forms and habitats. The region has some important coastal National Parks including Rocky Cape and the South West World heritage area, 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 this coast.

There is a balance of public and private ownership of the foreshore. For example, the extensive Woolnorth estate owns up to the high water mark, and their coastline remains in private ownership. Elsewhere, private use of the coastal strip in particular for grazing on the west coast and King Is affects natural vegetation and habitat values.

Sansom and Robertson (1999) describe the North West Coast as characterised by a string of urban centres with an agricultural hinterland and the west coast as being undeveloped for the most part except for a few small shack settlements and the townships of Strahan and Currie on King Island.

2. Current asset condition

There are a number of important vegetation communities in the region, including coastal heath, wetlands, saltmarshes, dry and wet sclerophyll forest and rain forest. Across much of the region these communities remain largely unprotected or subject to limited management effort to address human impacts and weed infestations. An inventory of these habitats should be developed.

The swamp forest in the Redpa-Welcome River region could be under threat from land clearing, coastal heath land and dune vegetation has been greatly affected by cattle grazing practices which include the burning of vegetation for regrowth (Samson & Robertson 1999).

Significant coastal weeds include marram grass, bridal creeper, mirror bush, boneseed and sea spurge with many others flourishing. Marram and Sea spurge are beyond control in most areas.

Much of the region's coastline, particularly on the north coast, has been considerably modified with management effort mostly directed at protection or restoration of remnant vegetation in the narrow foreshore strip. In many places this provides habitat for small penguin colonies. These colonies have been mapped in detail largely through community effort, and management guidelines prepared. Extensive penguin fences have been erected between Lillico and Burnie to prevent birds wandering ono the dominant transport corridor along this coast. Several Management Plans exist for the region which have data on vegetation and land use. Examples of areas covered are:

- Lillico Reserve
- Clayton Wetland
- Rocky Cape to Stanley
- Turners Beach
- Rocky Cape National Park
- Arthur Pieman
- King Island through the NRM Strategy.

3. Issues associated with, or threats to the asset

The challenge for the future will be to integrate the protection of the coastal assets and environmental quality with efforts to sustain economic development and the provision of infrastructure to accommodate future populations and uses along the coast. A number of clear threats to coastal asset values are discussed below.

<u>Coastal habitat loss</u>

Clearance of native vegetation, conversion of coastal lands for agriculture, forestry, urban and industrial development has led to a loss of biodiversity in the coastal zone. Other effects are the change in ecosystem processes, a reduction of vegetation communities and their habitat value and component species. A vegetation audit is required leading to identification of areas to be protected, rehabilitated or other management initiatives.

Once native vegetation is cleared, this can lead to competition and invasion form nuisance flora and flora. Biodiversity threats leading to the loss, damage, modification and/or isolation of habitat can be caused by a wide range of activities including grazing, fire, clearing, weeds, firewood collection, dumping of garden waste, building of beach access tracks, etc.

Despite past efforts through P&WS, Local Councils, Coastcare groups and MAST, a more strategic regional approach to coastal access (pedestrian, vehicle, small craft, stock, industry) is called for to protect coastal values. This requires rationalisation, improvement, maintenance and monitoring of coastal access issues including a regional inventory of infrastructure and responsible authorities enabling investment and management effort to be prioritised,

Other issues on coastal public land include:

- Dumping rubbish, including weeds
- Vehicles accessing beaches, dune systems other coastal areas
- Foreshore vegetation clearing
- Impacts on migratory bird populations and habitats
- Beach cast seaweed collection

Nuisance flora and fauna of concern to the coastal areas are:

- Weeds – a wide range including pampas grass, gorse, blackberries, bracken, boneseed, boxthorn, European sea spurge, mirror bush etc.
- Marram Grass (*Ammophila arenaria*) was used to stabilise dune systems and has spread into surrounding areas and replaced the native spinifex (*Spinifex sericeus*) on beaches in the region, and has significantly modified dune formation.
- Feral dogs and cats

Penguin populations are threatened by feral and domestic animals and habitat loss as well as fishing practices such as netting. Implementation of recently developed penguin habitat management guidelines is required.

Planning and Jurisdictional issues

The diversity of legislation often involved in coastal areas creates a complex mix of jurisdictional interests in the natural and built environments of the coastal zone. Inadequate coordination of coastal management at State and local Government level is an issue, ie. a failure of planning processes to adequately cater for the diversity of often conflicting coastal resource management needs.

Urban and residential development pressures are significantly growing at this point in time. Increasing impacts on coasts include nutrient input in to coastal receiving waters from sewage and stormwater, habitat loss within the development footprint and associated infrastructure, and the expanded activity footprint of the population into surrounding coastal areas. These all require coordinated cross sectoral strategic planning approaches to be developed and implemented possibly requiring a body that would commit to integrated coastal zone management in the region.

Recreation and Tourism uses

Increasing numbers of people are accessing coastal areas in their leisure time, and infrastructure at various scales is being developed or planned to service the related demand. Consequences of this growth include damage to vegetation, habitat, bird nesting sites, penguins, erosion etc. Uses include coastal camping and Off Road Vehicle activities. Coastal camping areas are usually in high value coastal reserves. Dogs, litter and dumping of rubbish in coastal areas are also problems. There is also the emergent issues resulting from 'freedom camping' of motor homes along the coastal foreshore. This is currently being discussed between Tourism Tasmania, Local Councils and other stakeholders.

In general however, there appears to be a lack of coordinated policy and management, community education and strategic planning for tourism and recreation issues, and the region needs to plan strategically to protect the natural and cultural coastal values that are attracting growth in this important economic sector. A coastal tourism and recreation strategy, including 'eco-tourism' would assist in managing future growth sustainably.

Erosion

Erosion processes are occurring across the region, in particular wind erosion on sandy substrates, water erosion, both coastal and riverbank, and on land.

Some dunes in the region are naturally mobile and attempting to hold the sand in place interferes with natural processes. Dune forming processes have been significantly modified by marram grass, an introduced species. Vehicle and pedestrian access, burning, grazing, sand extraction and clearing can also destabilise dunes and alter dune-forming processes.

Natural coastal processes and coastal dynamics

The coast is one of the most challenging environments to manage because it is subject to powerful natural processes and always changing. The main physical features that shape the coastal and estuarine environments are wind, wave and swell heights, geology, geomorphology and substrate. Erosion and deposition follow continual and poorly monitored natural cycles, but severe climatic events can change the physical environment and result in threats to property, amenity and habitats.

Land use planning has not adequately addressed this dynamic nature of the coast, with many developments at risk from erosion and inundation from storm surges. Structures such as groynes, seawalls and breakwaters are largely ineffective and generally give rise to other problems. The precautionary principle should be applied in planning decisions where land is at risk from coastal processes.

Effects of Climate Change and Sea Level Rise

The effects of rising sea level present a significant NRM challenge. According to the Intergovernmental Panel on Climate Change, the sea is expected to rise between 9 and 88cm over the next 100 years, causing stormier weather with more destructive waves and exceptionally high tides. As a result, many dunes and beaches are receding. Along sandy coasts with a flat hinterland, the sea may intrude inland by a factor of between 50 and 100 times the amount of sea level rise. This could equate to somewhere between 10m and 100m inland. This intrusion of the sea will remove sand from dunes, increase the salinity of coastal groundwater and freshwater wetlands, and cause flooding in coastal areas. Infrastructure, towns and highways could be threatened in some places.

Cultural heritage.

Many coastal areas, particularly dunes, headlands and lagoons, are of cultural significance to the Tasmanian Aboriginal community. These areas can be under threat from vandalism and erosion if not adequately protected.

4. Current responses to issues and threats

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 strategy is the West North West Coastal Management Project, Draft Coastal Management Plan, January 1999.

A range of Coastcare and Coasts and Clean Seas projects were completed in this region, listed on www.dpiwe.tas.gov.au/coasts.

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
- Waterways and Wetlands Works Manual 2003 (DPIWE/LGAT 2003).

- A camping strategy was developed for the coastal areas of the North Region – this may be a good model for a similar strategy in the North West Region.
- Coastcare developed an effective model of Aboriginal Heritage Assessment in conjunction with TALC as part of the assessment of Coastcare projects prior to commencement.

"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.

A number of public education materials, brochures 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
- Leave No Wake – Guide to Minimal Impact Sea Kayaking in Tasmania – Coastcare/Sea Canoe Clubs
- 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

There is significant economic activity in the coastal zone of the North West NRM Region. The majority of the Region's population live and work within 1 km of the shore, which also accommodates major transport corridors and industries. This is also the zone of maximum population growth pressure, with coastal land becoming increasingly valuable and attractive for residential and tourism development. The coastal zone is likely to be the location of the majority of future employment creation in the Region.

The coastal foreshore is very important to both 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, fishing, snorkelling, diving, kayaking and canoeing. "Just relaxing" is also a use of the coastal reserve and views, peaceful surroundings, closeness to nature and access to the shoreline are significant lifestyle values to coastal residents and visitors.

Economic values of the coastal area include tourism, marine farming, agriculture, forestry, extractive industries, and commercial fishing. The ports include Strahan, Grassy, Stanley, Burnie and Devonport, with many other smaller towns and settlements providing small harbours or public boat launching facilities.

6. Available data and its usefulness

The DPIWE has mapped **vegetation** around Tasmania's coastline from high water mark to 100 metres inland (TASVEG). This data is available through the web address: www.gisparks.tas.gov.au however a password is required. The data is taken from 1:40,000 scale maps so if small remnants of vegetation exist, they may not be picked up at this scale, a disadvantage of this data set.

Parks and Wildlife, North West District has developed a coastal zoning system applied from Smithton to Port Sorell. Its coverage includes all coastal public land from HWM up to the private land boundary (including all reserves where they occur along the coast). Data taken from aerial photos was ground truthed by field survey and coastal land has been zoned using the P&WS internal 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.

Chris Sharples has comprehensively looked at the geomorphology and geoheritage of the north west coast and this data is available spatially through Maplink, an internal server for DPIWE and DPTHA staff which has privileged information that is not available to the public. This data is also available in his report "West North West Tasmania Coastal Management Plan: Geomorphology and Geoheritage".

7. Information gaps and actions required to fill these gaps

As stated above, a significant start has been made to collect baseline data describing geology and geomorphology within the North West NRM region. However Chris Sharples; report recommends further investigation into geomorphic processes including:

1. Ground truthing of mapping in West North West Tasmania Coastal Management Plan Geomorphology and Geoheritage.
2. A third layer of landform mapping which would assist in assessing the sensitivity of landforms to disturbance.
3. Long shore drift patterns.

A map of the region showing areas most vulnerable to climate change is required and a range of adaptive measures will need to be investigated for each area. For example preventing development in certain areas or only allowing demountable dwellings in others may be options.

Coastal habitat and condition assessment of the foreshore mapped for the whole of the Region 100m inland from the high water mark.

Habitat mapping under SEAMAP Tasmania to ensure all marine and estuarine areas are mapped out to the 40m depth contour.

Development of strategies/guidelines to assist in the appropriate location 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:

- 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)

It also indirectly seeks to contribute to many others including Goals 2, 3, 10, 12 and 13.

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).

Suggested achievable actions to achieve these targets

- Implement DPIWE's property planning initiative and relevant catchment and estuary management strategies to ensure integrated management across the catchment-coast-ocean continuum.
- Consider establishing a coastal management structure for the region which provides advice to decision makers, oversees training, facilitates integration of coastal management effort, supports voluntary "Coastcare" type groups, seeks funding for projects and works.
- 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
- Encourage research into benefits and costs of marine reserves and consider establishment of marine protected areas within the Region.
- 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
- Support marine habitat mapping under SEAMAP Tasmania to ensure all marine and estuarine areas within the Region 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.
- Assess coastlines for vulnerability to climate change implications and develop adaptive measures at regional and local level
- Contribute relevant coastal and marine NRM information to the statewide web based Australian Coastal Atlas.
- 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
- Support coastal management training for Local Council works crews, coastal planners and managers and the community.
- Further develop understanding of regional and local scale planning and management implications of climate change and sea level rise on the coast
- 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.
- Participate in the production of guidelines on assessment and protection of coastal scenic and landscape values.
- Implement existing management plans, develop management plans for coastal areas where there are gaps.
- Investigate the issue of nutrient input into coastal waters from septic tanks, storm water and garden fertilisers

10. Relevant publications

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