

Tasmanian Coastal Works Manual

A best practice management guide for changing coastlines

Leah Page and Veronica Thorp

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Introduction

Tasmania's coast is a valuable and irreplaceable asset with diverse and sensitive natural and cultural values that require protection. Coastal landscapes of dunes, beaches, rocky shorelines, coastal wetlands, estuaries and saltmarshes support important vegetation communities and wildlife habitat. Tasmania's coast is also rich in Aboriginal heritage values and an important part of contemporary Aboriginal culture.

Diverse and significant coastal wildlife, including migratory shorebirds and waders stopover on Tasmanian wetlands, and shorebird species, hardly seen on mainland Australia, nest on more remote beaches. The cool temperate coastal waters contain significant marine communities including vast seagrass beds, kelp forests and a very high level of endemism (species only found here).

In the past, Tasmania's coastline has hosted industries and economies ranging from shipping and transport, whaling and sealing, through to mining of lime. Today coastal areas provide essential port infrastructure and are critical to transport and shipping operations. A number of heavy industries have been established on the coast, primarily to make use of the supply of water for cooling, and other industries such as fishing and aquaculture are intrinsically reliant on coastal areas.


Beautiful or iconic stretches of coastline are often the site of tourism ventures and developments such as resorts, caravan parks and golf courses. Extensive coastal areas adjacent to our cities and towns are prime real estate for coastal subdivisions whilst more remote locations often have coastal shack communities.

Tasmanians are fortunate to have such an abundance and variety of coastal areas to enjoy for recreation, and they have a long association with living and recreating on the coast.

Greater evidence of climate change and sea level rise on coastal environments in Tasmania is expected to emerge during this century. Many stretches of Tasmania's coastline already experience occasional inundation, and shoreline erosion events are becoming more frequent and widespread.

With the risks of inundation, erosion and recession already increasing, the management of natural and built assets needs to adapt to this threat. Climate change and sea level rise must now be considered

Tab photo: Friendly Beaches dunes, east coast of Tasmania. © Leah Page.



when planning and carrying out any management or development activity in the coastal zone to manage the coast sustainably.

The coast is under pressure from human use including modifications of shoreline areas for industry and development, the removal of native vegetation, introduction of weeds, and the introduction of pollutants and excess nutrients into estuaries. The vulnerability of coastal systems to climate change is exacerbated by increasing human-induced pressures in the coastal zone (DPIPWE 2010).

The intention of this manual is to help land managers to manage coastal environments for the protection of coastal values into the future, to ensure that works practices do not impact on coastal values and to encourage coastal works that are effective and of the highest environmental standard.

The Manual will also help land managers to better understand and address the possible on-ground consequences of climate change and sea level rise.

Planning and understanding coastal land management legislation and frameworks prior to starting works is important, to save time, effort and money while doing a good job. Approvals and permits are required for most works on the coast. Follow-up inspections are advisable, to find out whether the works are successful and if maintenance is required.

Using this manual and other recommended resources, land managers will be better informed to plan the most suitable approach for the type and scale of the work being undertaken, taking into account the unique characteristics of each coastal area.

Purpose of the Manual

This manual and the accompanying guidelines provide practical information and guidance on the sustainable management of Tasmania's coast for council staff (e.g. parks and reserve managers, engineers and planners), other on-ground coastal managers, work crew leaders and contractors. This information will help avoid unnecessary damage and make rehabilitation of coastal areas more effective.

The Manual gives guidance on which environmental management issues should be considered and how to minimise the risk of causing environmental damage and impacts on coastal values. It contains information on identifying coastal values and assets and seeking assessments and approvals. It also summarises the main legal and policy obligations for protecting coastal areas and provides sources of further information.

The Manual covers both construction and ongoing maintenance for small to medium-scale coastal management activities (including those classified as Level 1 under the *Environmental Management and Pollution Control Act 1994*).

The planning and approval process for industrial development and coastal subdivisions is beyond the scope of this manual. Land managers, however, have a responsibility to ensure that developments in the coastal zone minimise impacts on coastal values both during their construction and over their life span.

Managers of aquaculture facilities, golf courses, caravan parks and resorts can improve their environmental standards by following the best practice ideas throughout this manual such as maintaining native vegetation, removing weeds, protecting wildlife habitat and cultural heritage values, and reducing sediment and pollution run-off into waterways.

How to use the Manual

The Manual is organised into 15 chapters accompanied by a series of guidelines and checklists on specific management issues or approaches that complement some chapters. These can be found at the back of the manual. Each chapter is numbered independently to make future updates easier.

The Manual provides information on climate change impacts as they relate to specific issues. Most chapters also have a climate change section that summarises this information, where available.

Some chapters provide design and siting guidelines (where appropriate) and others contain information on key issues to consider in order to attain best practice standards. Wherever possible, case studies illustrate successful approaches to best practice coastal management techniques.

Each chapter, except Chapter 1, has a 'Tools and resources' section at the end of chapter to direct users to documents, maps and other resources. Website addresses are provided wherever possible. All tools and resources are also collated in Appendix 5.

Complete citations of all documents referred to in the text and listed in the tools and resources sections are provided in a reference list at the end of the manual.

Guidance for minor works undertaken by community groups is available in the *Community Coastcare handbook* (Thorp 2005).

Chapter overview

Chapter 1 Working on the coast

Contributors : Kathy Noble (Coastal and Marine Branch, DPIPWE), Mike Pemberton (Biodiversity Conservation Branch, DPIPWE)

Background on understanding local coastal processes (interactions of wind, waves, tides and currents) on both hard and soft elements of the changing and dynamic coastline.

Chapter 2 Climate change and the coast

Contributors: Chris Rees (Coastal and Marine Branch, DPIPWE), Chris Sharples (Consultant)

An overview of the latest climate change information, predictions for Tasmania, and some of the implications of these changes for Tasmania's coastal environment

Chapter 3 Coastal hazards

Contributors: Chris Rees (Coastal and Marine Branch, DPIPWE), Jocelyn Phillips (Coastal and Marine Branch, DPIPWE)

Information about risk management and common coastal hazards such as storm damage and oil spills.


Chapter 4 Community values

Contributors: Kristy Blackburn (Southern Coastcare Association of Tasmania), Anna Wind (Cradle Coast NRM), Sally and Chris Johns (Southern Beaches Landcare & Coastcare Inc)

Working with the community, effective consultation and understanding social and recreational values of coastal areas.

Chapter 5 Cultural heritage management

Contributors: Elizabeth Tew (Aboriginal Heritage Tasmania), Ester Guerzoni (Heritage Tasmania)



Cultural heritage values, how to protect them and how to work with the Aboriginal community to manage Aboriginal heritage values.

Chapter 6 Coastal landscape management

Contributors: Chris Rees (Coastal and Marine Branch, DPIPWE), Chris Sharples (Consultant), Vishnu Prahalad (University of Tasmania), Jason Bradbury (Land Conservation Branch, DPIPWE)

An overview of the range of Tasmanian coastal landscapes and some key management practices to protect coastal landscapes and landforms.

Chapter 7 Vegetation management

Contributors: Tim Rudman (Biodiversity Conservation Branch, DPIPWE), Anthony Reid (Biodiversity Conservation Branch, DPIPWE), Christine Corbett (Greening Australia)

Information about the conservation and management of natural coastal vegetation.

Chapter 8 Weed and disease management

Contributors: Mike Askey-Doran (Land Conservation Branch, DPIPWE), Karen Stewart (Land Conservation Branch, DPIPWE), Tim Rudman (Biodiversity Conservation Branch, DPIPWE), Sandy Leighton (Southern Tasmanian Councils Authority)

Information about preventing the spread of weeds and diseases whilst undertaking coastal land management activities.

Chapter 9 Fire management

Contributors: Sandra Whight (Parks and Wildlife Service, DPIPWE)

The role of fire in coastal ecosystems and fire hazard reduction works.

Chapter 10 Wildlife and pest management

Contributors: Rosemary Gales (Biodiversity Conservation Branch, DPIPWE), Anthony Reid (Biodiversity Conservation Branch, DPIPWE), Richard Schahinger (Biodiversity Conservation Branch, DPIPWE), Alistair Morton (Marine Farming, DPIPWE), Eric Woehler (Birds Tasmania)

Information about protecting wildlife habitat and values and threatened species and managing feral animals and marine pests.

Chapter 11 Soil management and earthworks

Contributors: John Chrispijn (Derwent Estuary Program), Rob Moreton (Land Management Branch, DPIPWE), Chris Grose (Land Management Branch, DPIPWE), Regan Parkinson (Land Management Branch, DPIPWE)

Information on best practice excavation works, soil and water management plans and protecting against acid sulfate soil contamination.

Chapter 12 Stormwater and crossings

Contributors: John Chrispijn (Derwent Estuary Program)

Information on stormwater and crossings and how to minimise impacts on coastal ecosystems and values.

Chapter 13 Access management

Contributors: Lynne Sparrow (Parks and Wildlife Service, DPIPWE), Stuart Dudgeon (Parks and Wildlife Service, DPIPWE), Richard Greenhill (Hobart City Council), Jennifer Burdon (Parks and Wildlife Service, DPIPWE)

Best practice techniques for designing and constructing and maintaining roads, tracks and access infrastructure, including signs.

Chapter 14 Structures and facilities

Contributors (Julie Woolley, Marine and Safety Tasmania)

Best practice techniques for designing, siting, constructing and maintaining coastal infrastructure such as boat ramps and public facilities.

Chapter 15 Shoreline modification

Contributors: Chris Rees (Coastal and Marine Branch, DPIPWE), Chris Sharples (Consultant), Jason Bradbury (Land Conservation Branch, DPIPWE), Ruth Eriksen (Aquatic Science)

Guidance on minimising impacts on coastal values when undertaking shoreline modification, reclamation and dredging.

Guidelines and checklists

Guidelines and, when required, checklists for specific work activities, are collated at the end of the Manual and are colour-coded to correspond with the relevant chapter.

The guidelines are designed to be used as stand-alone tools that can be issued to planners, engineers, contractors or works crew leaders to stimulate thinking about key coastal issues or best practice techniques when planning and undertaking coastal works. Dot points could be extracted for use as environmental clauses in contracts to improve environmental standards.

Several guidelines have detailed procedures and designs that are either not readily available elsewhere, or have been adapted to coastal conditions.

List of guidelines

- 4.1 Working with community groups
- 4.2 Partnership agreement template
- 5.1 Working with the Aboriginal community
- 6.1 Dune forming fence
- 6.2 Portable dune forming fence
- 6.3 Brush dune forming fence
- 6.4 Seagrass & seaweed removal from beaches
- 7.1 Plant propagation
- 7.2 Planting tube-stock
- 7.3 Revegetation in coastal areas
- 7.4 Slashing and mowing in coastal areas
- 8.1 Weed management in coastal areas
- 8.2 Weed and disease hygiene in coastal areas
- 10.1 Working in penguin habitat
- 10.2 Working in shorebird habitat
- 11.1 Trench digging
- 11.2 Acid sulfate soils
- 12.1 Bridges and causeways
- 12.2 Culverts
- 13.1 Track construction in coastal areas
- 13.2 Track structures - steps, boardwalks and ladders
- 13.3 Auditing tracks
- 13.4 Fencing
- 15.1 Rock revetments
- 15.2 Geotextile revetments



Appendices, Glossary and References

Appendix 1: Sets out the legislation and policy requirements for coastal management.

Appendix 2: Organises the legislation according to work activity areas.

Appendix 3: Where to obtain information; contact details for key organisations.

Appendix 4: Lists useful community and non-government organisations.

Appendix 5: Lists useful tools and products, organised by activity area.

A glossary, list of acronyms and references can be found at the end of the Manual.