



**COASTAL ACTION PLAN
BINNINGUP TO WALPOLE,
WESTERN AUSTRALIA
DECEMBER 2015**



THIS PROJECT IS SUPPORTED BY THE SOUTH WEST CATCHMENTS COUNCIL THROUGH FUNDING FROM THE AUSTRALIAN GOVERNMENT'S
NATIONAL LANDCARE PROGRAMME

DISCLAIMER

This document has been produced in accordance with and subject to an agreement between Aurora Environmental (Dunsborough) Pty Ltd ("Aurora Environmental") and the client for whom it has been prepared South West Catchments Council ("Client"). It is restricted to those issues that have been raised by the Client in its engagement of Aurora Environmental and prepared using the standard of skill and care ordinarily exercised by Environmental / Occupational Health and Safety consultants in the preparation of such documents.

Any person or organisation that relies on or uses the document for purposes or reasons other than those agreed by Aurora Environmental and the Client without first obtaining the prior written consent of Aurora Environmental, does so entirely at their own risk and should not alter their position or refrain from doing so in reliance of this document. Aurora Environmental denies all liability in tort, contract or otherwise for any loss, damage or injury of any kind whatsoever (whether in negligence or otherwise) that may be suffered as a consequence of relying on this document for any purpose other than that agreed by Aurora Environmental.

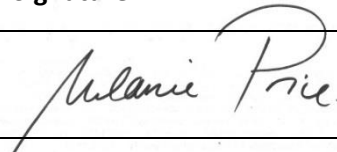

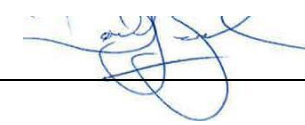

QUALITY ASSURANCE

Aurora Environmental has implemented a comprehensive range of quality control measures on all aspects of the company's operation.

An internal quality review process has been applied to each project task undertaken by us. Each document is carefully reviewed and signed off by senior members of the consultancy team prior to issue to the client.

Document No: SCC2015_001_CAP_001_mp_V4.docx

Report No: AA2015/004

	Signature	Date
Author: Melanie Price Associate Environmental Scientist		24 July 2015
Author: Jane Wilshaw Senior Environmental Scientist		24 July 2015
Reviewed by: Paul Zuvela Manager – Environmental Impact Assessment		24 July 2015
Reviewed and edited by: Joanna Hugues dit ciles South West Catchments Council		18 Nov 2015
Reviewed and edited by: Damien Postma South West Catchments Council		Dec 2015

Prepared For: South West Catchments Council
PO Box 5066
Bunbury Delivery Centre
BUNBURY WA 6230

Report Number: AA2015/004

Report Version: Version 5

Report Date: 24 July 2015

DISTRIBUTION

Format	Report File Name	Report Status	Date	Prepared for:	Initials
Pdf and word	SCC2015_001_CAP_001_mp_V1-Draft.docx	Draft V1	20 April 2015	South West Catchments Council	MP
Pdf and word	SCC2015_001_CAP_001_mp_V2.docx	Draft V2	8 June 2015	South West Catchments Council	MP
Pdf and word	SCC2015_001_CAP_001_mp_V3.docx	Draft V3	12 June 2015	South West Catchments Council	MP
Pdf and word	SCC2015_001_CAP_001_mp_V4.docx	Final V4	24 July 2015	South West Catchments Council	MP
Word	CC2015_001_CAP_001_mp_V5 docx	Final V5	18 Nov 2015	South West Catchments Council	JHDC
Word and PDF	CC2015_001_CAP_001_mp_V6 docx	Final V6	23 December 2015	South West Catchments Council	DP
Word and PDF	CC2015_001_CAP_001_mp_V7 docx	FINAL V7	23 February 2017	South West Catchments Council	JM

TABLE OF CONTENTS

ATTACHMENTS	I
LIST OF ABBREVIATIONS	iii
EXECUTIVE SUMMARY	2
1 OVERVIEW OF THE COASTAL ACTION PLAN	10
1.1 INTRODUCTION	10
1.1.1 South West Catchments Council	10
1.1.2 The South West NRM region	10
1.1.3 The South West NRM Coastal Zone	11
1.1.4 The Nature of the Coastal Zone	12
1.2 THE SWCC COASTAL ACTION PLAN	12
1.2.1 Investment in the Coastal Zone	12
1.2.2 The Aims and Objectives of the CAP	13
1.2.3 Approach	13
2 CURRENT STATUS OF COASTAL PLANNING	15
2.1 LEGAL, PLANNING AND POLICY FRAMEWORK	15
2.1.1 Australian Government	16
2.1.2 Australian States	19
2.1.3 Western Australian Government	19
2.2 SOUTH WEST REGIONAL NATURAL RESOURCE MANAGEMENT STRATEGY 2012 – 2020	21
2.2.1 Objective for the Coastal and Marine Environment	21
2.2.2 Outcome Indicators for the Coastal and Marine Environment	21
2.2.3 Projected Management Outcomes:	22
2.2.4 Priorities for Management Actions	22
2.2.5 Priority Management Actions	24
2.2.6 Threats	25
2.2.7 Project Planning Matrices	26
2.3 EXISTING MANAGEMENT PLANS AND DOCUMENTS	28
2.4 GAPS	33
2.5 DISCUSSION AND RECOMMENDATIONS	33

3	COMMUNITY AND STAKEHOLDER CONSULTATION	35
3.1	KEY STAKEHOLDERS	35
3.2	CONSULTATION METHODOLOGY	39
3.3	KEY ISSUES RAISED IN STAKEHOLDER CONSULTATION	39
3.4	SUMMARY OF ACHIEVEMENTS	41
3.5	THREATS, ISSUES AND RISKS	43
4	THE SWCC COASTAL ZONE – DESCRIPTION, VALUES AND THREATS	44
4.1	SECTION 1: BINNINGUP TO CAPE NATURALISTE	44
4.1.1	Description and Key Features	44
4.1.2	Values	46
4.1.3	Key Threats, Issue and Risks	48
4.2	SECTION 2: CAPE NATURALISTE TO AUGUSTA	48
4.2.1	Description and Key features	49
4.2.2	Values	51
4.2.3	Key Threats, Issue and Risks	52
4.3	SECTION 3: AUGUSTA TO WALPOLE	53
4.3.1	Description and Key Features	53
4.3.2	Values	55
4.3.3	Key Threats, Issues and Risks	57
4.4	MARINE ENVIRONMENT	58
4.4.1	Description and Key Features	58
4.4.2	Values	59
4.4.3	Threats, Issues and Risks	60
5	PRIORITISING COASTAL LOCATIONS FOR MANAGEMENT	62
5.1	COASTAL MANAGEMENT PRINCIPLES	62
5.2	PRIORITISATION FRAMEWORK	64
5.2.1	The Priority Matrix	64
5.2.2	Objectives and Desired Outcomes	65
5.2.3	Methodology	65
5.2.4	Limitations	68
5.3	RESULTS OF THE PRIORITY MATRIX: THE SWCC COASTAL ZONE	68

5.4	RESULTS OF THE PRIORITY MATRIX: SECTION 1 – BINNINGUP TO CAPE NATURALISTE	71
5.5	RESULTS OF THE PRIORITY MATRIX: SECTION 2 – CAPE NATURALISTE TO AUGUSTA	72
5.6	RESULTS OF THE PRIORITY MATRIX: SECTION 3 – AUGUSTA TO WALPOLE	73
5.7	RESULTS OF THE PRIORITY MATRIX: THE MARINE ENVIRONMENT	73
6	PRIORITISING COASTAL ACTIONS AND ACTIVITIES	75
6.1	STRATEGIC ACTIONS AND ACTIVITIES	75
6.2	PRIORITIES FOR ACTIONS AND ACTIVITIES	75
6.3	ACTIONS AND ACTIVITIES BY SECTION AND PLACE	79
6.3.1	Section 1 – Binningup to Cape Naturaliste	79
6.3.2	Section 2 – Cape Naturaliste to Augusta	86
6.3.3	Section 3 – Augusta to Walpole	91
6.3.4	The Marine Environment	93
7	THE FUTURE OF COASTAL MANAGEMENT	94
8	REFERENCES	101

TABLES IN TEXT

Table 0-1 provides explanations on why those assets were not put in the 10 top priority sites	5
Table 2-1: Legal Planning and Policy Framework	15
Table 2-2: Priority Assets – Area and Class	24
Table 2-3: Project Planning Matrices (SWCC NRM Strategy, 2012)	27
Table 2-4: Management Plans and Strategies by Section	28
Table 3-1: Key Stakeholders	35
Table 5-1: Coastal Management Principles	63
Table 5-2: Priority Matrix – Objectives, Steps and Outcomes	65
Table 5-3: Prioritisation Matrix – Considerations, Scoring Criteria and Weighting	66
Table 5-4: Risk Matrix for Scoring Threats	67
Table 5-5 provides explanations on why those assets were not put in the 10 top priority sites	69
Table 5-6: Top 10 Coastal Zone Priority Management Areas	70
Table 5-7: Section 1 - Ranking of Priority Locations	71
Table 5-8: Section 2 - Ranking of Priority Locations	72
Table 5-9: Section 3 - Ranking of Priority Locations	73
Table 5-10: Marine Environment - Ranking of Priority Locations	74
Table 6-1: Considerations for Prioritising Actions and Activities	78
Table 6-2: Section 1 Priority Activities – SMART	79
Table 6-3: Section 2 Priority Activities - SMART	86
Table 6-4: Section 3 Priority Activities - SMART	91

ATTACHMENTS

LIST OF FIGURES

- Figure 1: South West Catchments Council - Natural Resource Management Region
- Figure 2: Status of Coastal Planning
- Figure 3: Section 1 – Binningup to Cape Naturaliste – Stakeholder Zones of Influence
- Figure 4: Section 2 – Cape Naturaliste to Augusta – Stakeholder Zones of Influence
- Figure 5: Section 3 – Augusta to Walpole - Stakeholder Zones of Influence
- Figure 6: Section 1 - Coastal Values, Threats and Priorities - Binningup to Leschenault Peninsula
- Figure 7: Section 1 - Coastal Values, Threats and Priorities - Leschenault Peninsula to Back Beach
- Figure 8: Section 1 - Coastal Values, Threats and Priorities - Maidens Reserve to Minninup Beach
- Figure 9: Section 1 - Coastal Values, Threats and Priorities – Stirling Beach to Peppermint Grove Beach
- Figure 10: Section 1 - Coastal Values, Threats and Priorities – Forrest Beach to Vasse Wonnerup Estuary and Wetlands
- Figure 11: Section 1 - Coastal Values, Threats and Priorities – East Busselton Foreshore to Locke Estate
- Figure 12: Section 1 - Coastal Values, Threats and Priorities – Siesta Park to Dunsborough
- Figure 13: Section 1 - Coastal Values, Threats and Priorities – Meelup Regional Park to Cape Naturaliste
- Figure 14: Section 2 - Coastal Values, Threats and Priorities – Cape Naturaliste to Wilyubrup Beach
- Figure 15: Section 2 - Coastal Values, Threats and Priorities – Gallows to The Point
- Figure 16: Section 2 - Coastal Values, Threats and Priorities – South Beach to Augusta
- Figure 17: Section 3 - Coastal Values, Threats and Priorities – East Augusta to White Point
- Figure 18: Section 3 - Coastal Values, Threats and Priorities – Black Point to Warren River Mouth
- Figure 19: Section 3 - Coastal Values, Threats and Priorities – Malimup to Coodamurup
- Figure 20: Section 3 - Coastal Values, Threats and Priorities – Broke Inlet to Walpole

LIST OF APPENDICES

- Appendix 1: Summary and Notes from Literature Review – Threats and Values
- Appendix 2: SWCC Project Planning Matrices
- Appendix 3: Letter to Stakeholders
- Appendix 4: Stakeholder Interview Agenda
- Appendix 5: Stakeholder Interview and Online Survey Summary
- Appendix 6: Advertisement for Workshop and Online Survey

Appendix 7: Workshop Agenda and Presentation

Appendix 8: Workshop Outcome Summary

Appendix 9: Coastal Zone Achievements

Appendix 10: Priority Matrix – How to Use

Appendix 11: Priority Matrix – Places

Appendix 12: Indicative Costs

LIST OF ABBREVIATIONS

ACECRC	Antarctic Climate and Ecosystems Cooperative Research Centre
AMRSC	Augusta Margaret River Shire Council
CALM Act	<i>Conservation and Land Management Act 1984</i>
CAMBA	China-Australia Migratory Bird Agreement 1988
CAP	Coastal Action Plan
CCWA	Conservation Commission of Western Australia
CoastSWaP	South West and Peel Coastal Management Group
COB	City of Busselton
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAA	Department of Aboriginal Affairs
DoF	Department of Fisheries
DoP	Department of Planning
DoT	Department of Transport
DoW	Department of Water
DPaW	Department of Parks and Wildlife
DUP	Dual Use Pathway
EPBC Act	<i>Commonwealth Environment Biodiversity Conservation Act 1999</i>
EEZ	Exclusive Economic Zone
ha	hectare
JAMBA	Japan-Australia Migratory Bird Agreement 1974
IBRA	Interim Biogeographic Regionalisation for Australia, Version 7
ICZM	Integrated Coastal Zone Management
km	Kilometre
LCDC	Land Conservation District Committee
LGA	Local Government Association
LNE	Leeuwin-Naturaliste (bioregion)
LNNP	Leeuwin-Naturaliste National Park
MERI	Monitoring, Evaluation, Reporting and Implementation
MPRSWG	Marine Parks and Reserves Selection Working Group
NRM	Natural Resource Management
NRSMPA	Natural Representative System of Marine Protected Areas

NRM	Natural Resource Management
PPM	Project Planning Matrices
ROKAMBA	Republic of Korea and Australia Migratory Bird Agreement 2007
SMART	Specific, Measurable, Assignable, Realistic and Timebound
SPP	State Planning policy
SW	South west
SWCC	South West Catchments Council
WALGA	Western Australian Local Government Association
WA	Western Australia
WAPC	Western Australian Planning Commission

ACKNOWLEDGEMENTS

SWCC would like to thank the key stakeholders and community members who provided input to this plan. A special thanks to Blair Darvill from CoastSWaP, who provided support at workshops and information regarding previous stakeholder engagement and to Jen Mitchell who coordinated and arranged all the workshops.

Thank you to the Department of Planning, which kindly contributed to Figure 2 for 'Status of Coastal Planning'.

SWCC respectfully acknowledges this land that we meet on today is the traditional land of the Nyungar people and that we respect their inherent spiritual relationship with their country. We also acknowledge the Nyungar people are the custodians of the SW Region and that their cultural and heritage beliefs are still strong to the living Nyungar people today.

The Coastal Action Plan was prepared in a short time frame with a limited budget. As such, it forms a foundation for coastal zone planning and is subject to future development and review.

The CAP process was facilitated by Melanie Price and Jane Wilshaw of Aurora Environmental.

The development of this Coastal Action Plan has been made possible by funding from the Australian Government's National Landcare Program.

This report was overseen and managed by the Coastal Program Manager, Joanna Hugues-dit-Ciles, to meet strategic outcomes towards the strategic planning aspect of the coastal program.

EXECUTIVE SUMMARY

This Coastal Action Plan (CAP) has been developed to prioritise locations for on-ground works and other critical activities required across the South West Catchments Council (SWCC) coastal zone. The CAP has been developed with extensive stakeholder and community input and prioritisation has been undertaken based on previous planning and through consideration of values, threats, opportunities and gaps in current management.

The CAP provides a unique planning mechanism, which will operate across different land tenures, jurisdictions and land management responsibilities to achieve integration and coordination of coastal zone management. This planning process will enhance the ability of SWCC and its partners, including local governments, State government agencies, Aboriginal groups, community groups, and local residents to work together to achieve the best outcomes for the South West coastal zone.

This document outlines a 5 year aspirational plan to be implemented between 2015 and 2020 (and potentially beyond). As the present funding situation is limited and funding sources past 2018 are uncertain, meeting its deliverable in the next five years will be challenging, however SWCC will aim in partnership with key partners to implement the priority management actions identified.

This CAP is a working document that will be updated regularly with a major review in 2020, to reflect changes in the status of threats, values and ongoing achievements towards listed management actions.

Method of Analysis

The development of the CAP has involved the following methodology:

- A literature review of strategic documents, foreshore management plans, water quality improvement plans and other documentation pertaining to the management of the coastal zone. Information from the literature review process was used to populate the threats, values, capacity and gaps portion of the Priority Matrix. In addition, information from the literature also formed the basis for discussion with key stakeholders during the stakeholder consultation phase of the CAP.
- Consultation with community groups, land managers, State agencies, LGAs and other stakeholders has been undertaken to obtain information not captured in published documents and to establish the relevance of existing planning documentation. Consultation has included stakeholder interviews, hosting an online questionnaire and three community workshops.
- Development of a ranking system that prioritises coastal zone areas. Coastal zone areas have been prioritised by considering threats, values, capacity of land managers and other stakeholders, and gaps in current management. Analysis has been undertaken in a matrix to allow for comparison between sites. The Priority Matrix was developed with consideration of coastal management principles. SWCC applied some corrections to the raw outcomes of the priority matrix to reflect other programs, projects and initiatives. Some areas were unable to be scored due to a lack of information specific to the site. It is hoped that during reviews of the CAP, these information gaps will be filled.

- On-ground works and strategic activities for priority areas were determined through consultation with relevant land managers with consideration of previous planning.
- A public review process was carried out seeking stakeholder input prior to finalising the CAP.

Priority Locations for Coastal Management

The top 10 priority locations for coastal management in the South West NRM region, based on threats, values, opportunities and gaps are as follows:

- Leeuwin Naturalist National Park - Entire Management Area;
- Walpole Nornalup Inlets and Marine Park;
- Hardy Inlet;
- Leschenault Estuary and Foreshore;
- D'Entrecasteaux National Park - Entire Management Area;
- Meelup Regional Park;
- Peppermint Grove Beach;
- Cape Leeuwin-Flinders Bay, Augusta;
- Leschenault Peninsula - The Cut; and
- Leschenault Peninsula - Entire Management Area.

The top 10 priority locations in the South West NRM region, based on the prioritisation process and including considerations of threats, values, opportunities and gaps are listed in Table 5-6. The complete Priority Matrix for places is included in Appendix 11.

The following four areas, are agreed as high ranking assets/locations but have not been included in the top ten for the purposes of this Coastal Action Plan; a full explanation is provided below. These areas include:

- Vasse Wonnerup Wetlands (already overseen and managed by the Vasse Task Force;
- Geographe Bay;
- Leschenault Inlet; and
- Ngari Marine Park (Vested in the Marine Parks and Reserves Authority).

The above areas were raised during the community consultation and are agreed as being very important environmental assets in the South West NRM region, although the scope of this coastal action plan is limited to coastal zone management and associated activities. The reason these assets have been nominated, or the priority actions required to address the threats or issues are generally outside of the scope of this plan and are better addressed through other SWCC and NRM programs.

For the purpose of the CAP, where on ground works and community involvement is not the focus, these locations are not included in the top 10 locations. However, where opportunities allow, SWCC will be involved in promoting the care and management of these locations in partnership with land managers.

It is important to note that information for some coastal zone areas is not readily available and these areas could not meaningfully be prioritised. However, this does not mean that these areas are not important or not in need of management actions and activities. It is hoped that information for these locations will be available to inform reviews of the CAP.

Table 0-1 provides explanations on why those assets were not put in the 10 top priority sites

Asset	How those assets are or can be presently managed
Vasse Wonnerup Wetland System – Ramsar listed	<ul style="list-style-type: none"> The primary management actions required to address the key threats to the VW system are catchment management activities and those detailed in the Water Quality Improvement Plan. Implementation of the required management actions is managed jointly by the Dept of Water and GeoCatch through a variety of committees and fora – including the Vasse taskforce. More details can be found here (http://geocatch.asn.au/our-work/vasse-geographe-strategy/vasse-taskforce/). The majority of required management actions are not coastal zone management actions and considered outside the scope of this plan.
Leschenault Inlet	<ul style="list-style-type: none"> This small water system requires minimal coastal rehabilitation work and it primarily requires water quality improvement through catchment management including water sensitive urban design and through the implementation for the recommendation of the Leschenault Estuary Water Quality Improvement Plan.
Geographe Bay	<ul style="list-style-type: none"> This asset is primarily managed as a key tourism precinct by the City of Busselton and most of its issues are being overseeing and manage by this local government. Coastal groups will however help work on the coastal zone of geographe bay which in turn will provide direct benefit to the health of the bay
Ngari Marine Park	<ul style="list-style-type: none"> This marine park is the responsibility and managed by the Department of Parks and Wildlife.

Gaps in Coastal Management

A number of ‘gaps’ in coastal management are evident, through review of literature and stakeholder consultation, including:

- Lack of funding, lack of certainty and inconsistent funding for coastal management.
- No overarching or integrated approach to coastal management in the region and across the nation.
- Discontinuous land tenure and jurisdiction leads to a disjointed approach to management along the coast.
- No integrated approach to managing vehicle access.

- Lack of collaboration and data sharing.
- Not all Aboriginal or European heritage sites are documented and the legal system does not necessarily reflect values of these places to the community.
- The outcomes of education programs and research need to be measured and shared.
- There is a lack of understanding of coastal processes and the impacts of climate change at a local scale.
- Many coastal management plans are written at a strategic level and therefore do not contain specific recommendations for actions and activities. It is likely that more specific but less formal planning is undertaken as part of operations by land managers.
- Most management plans (and land managers) do not have a mechanism to track implementation or the status of plans.
- Most management plans do not prioritise actions or activities, provide cost estimates or timeframes for the recommended management actions or contain diagrams or explanations of where actions or activities should occur.
- Information regarding threats and values is lacking for many coastal zone nodes.

Priority Actions for Coastal Management

Specific actions have been outlined in the CAP for each of the top 10 priority listed areas and are based on stakeholder consultation and relevant/ current management plans. Priority actions have been identified and are NRM and community focused at a regional, sub region and local scale.

Stakeholders and land managers consistently raised the following actions, activities and strategies as high priorities for the South West NRM region:

- Manage coastal access sustainably (pedestrian and vehicle).
- Control invasive species with a consistent, long term, planned approach.
- Support innovation in coastal infrastructure construction (including trials for materials and methodology).
- Support 'Stick to the Track' campaign as an overall education tool.
- Provision and maintenance of facilities related to NRM protection.
- Support and increase the capacity of coastal community groups to undertake coastal restoration and education.
- Develop educational programs and raise awareness in the community regarding coast care.
- Information sharing - provide access to coastal information and databases.
- Facilitate downscaling of predictions for climate change impacts and coastal erosion.
- Identify community attitudes and values in relation to impacts of climate change on the coastal zone and associated assets.

- Improve coastal project and activity implementation processes: Development of a 'How to' manual for coastal works and rehabilitation with standards for infrastructure and implementation.
- Improve management planning processes (especially implementation tracking, monitoring, evaluation, reporting and improvement).
- Fill in knowledge gaps for coastal zone areas where threats, values and management requirements are poorly known.

Specific actions and activities for the top 10 Priority areas are included in Chapter 6.3.

Several key issues regarding coastal management at a strategic level were identified during the CAP process. Strategic actions are recommended to address these issues and to guide future management decisions regarding the use of the CAP (Chapter 7).

Recommendation 1: Promote the use of the CAP as a framework for regional coastal planning to ensure that ICZM can be delivered at the regional, sub-regional and local scales.

Recommendation 2: Develop a more structured approach to engagement of regional stakeholders to improve and clarify linkages in the CAP.

Recommendation 3: Work with key stakeholders to develop management plan templates that allow for tracking of implementation and long term outcomes.

Recommendation 4: Undertake a review of previous coastal implementation projects to determine long term results from implementation.

Recommendation 5: Over the next 5 years, SWCC and its partners should review the extent to which priority management actions outlined in this CAP have been implemented and where they have not, examine the key issues preventing implementation.

Recommendation 6: Advocate for greater access to existing data with identification of data gaps and prioritisation of data collection.

Recommendation 7: Through communication and networking, build capacity with key stakeholders to provide resilience in a low funding environment and make the most of limited funds available.

Recommendation 8: Advocate to and seek from State, Federal Government and other funding avenue for resourcing projects outlined as priorities in the CAP.

Recommendation 9: Support collection, collation and dissemination of data and other information related to climate change impacts and adaptation.

Recommendation 10: Support research and data collection related to relatively poorly known terrestrial/ coastal and marine environments to establish baseline data related to biodiversity and NRM.

Recommendation 11: SWCC and its partners should advocate for greater coordination at the State and National levels, with more active facilitation and provision of resources to address significant coastal issues on a national and statewide scale, where possible.

Recommendation 12: Should undertake internally an annual review of CAP outcomes.

Structure of the CAP

The CAP 2015 – 2020 has been structured as follows:

Chapter 1 – Overview of the CAP (this Section)

- An introduction to SWCC and the South West NRM region;
- Defines the coastal zone as used in the CAP;
- Overview of CAP and the framework within which it operates;
- Outlines the aims, objectives and approach to developing the CAP.

Chapter 2 – Current Status of Coastal Planning

- Provides information on management planning previously undertaken for coastal areas;
- Provides a summary of current relevant coastal planning documentation for each Section and outlines the gaps in coastal management;
- Provides a summary of the threatening processes and values (social, economic and environmental);
- Provides a discussion of the gaps in coastal management planning with recommendations for future management planning.

Chapter 3 – Community and Stakeholder Consultation

- Outlines key stakeholders and their 'zone of influence';
- Outlines the consultation methodology for the CAP;
- Provides a summary of outcomes from consultation.

Chapter 4 – Description, Values and Threats

- Describes the SWCC coastal zone by section

Chapter 5 – Prioritising Coastal Areas for Management

- Provides an overview of coastal management principles
- Introduces a Prioritisation Framework for the management of coastal zone areas.
- Provides a ranking of locations for coastal management within the SWCC Coastal Zone
- Provides a ranking of locations for coastal management within each Section
- Provides a ranking of locations for coastal management for the Marine Environment

Chapter 6 – Prioritising Actions and Activities for the Coastal Zone

- Outlines priority actions and activities, at a strategic level, for each priority location and for each Section.
- Outlines specific actions and activities for top 10 priority areas.

Chapter 7 – The Future of Coastal Management

- Strategic actions are recommended to address issues raised and to guide future management decisions regarding the use of the CAP.

1 OVERVIEW OF THE COASTAL ACTION PLAN

1.1 INTRODUCTION

1.1.1 South West Catchments Council

The South West Catchments Council (SWCC) is a community based, independent, not-for-profit organisation. SWCC works with key stakeholders and the community to sustainably manage and improve the condition of the South West NRM Region (the region). This is achieved by providing support, funding and sharing knowledge and skills in natural resource management (NRM). SWCC is a conduit for funding and facilitation but can't always directly provide funds until investment sources are confirmed by State and Australian governments.

The SWCC Vision is:

"The natural environment of the South West of Western Australia is dynamic, bio-diverse and resilient (surviving, adapting and thriving). As we interact in harmony with it, it will sustain us, and we will strive to enhance and improve it. As a community, we will protect and value our natural environment in and of itself, as a legacy to enrich future generations."

(SWCC, 2012)

This CAP outlines how the SWCC community plans to prioritise NRM activities in the coastal zone within the South West NRM region between 2015 and 2020. Preparation of the CAP will facilitate a more integrated approach to investment in the coastal zone.

1.1.2 The South West NRM region

SWCC is one of seven NRM organisations in Western Australia and 57 regions nationally, that coordinate NRM activities. Its boundaries are displayed in Figure 1. The South West NRM region had a population of almost 300,000 people in 2010, living in 19 Local Government Areas (LGAs). The region covers almost 4 million hectares (ha) and is divided into five sub-regions managed by community catchment groups; the Blackwood Basin Group, Cape-to-Cape Catchments Group, Geographe Catchment Council, Leschenault Catchment Council and Warren Catchments Council.

At a local level, the Region is strongly supported by a network of pro-active and committed community-based groups including Land Conservation District Committees (LCDCs), grower and industry groups, friends of groups, Indigenous groups and other organisations (including government agencies). These groups are the backbone of community-based NRM and are generally the local drivers for positive change in the environment, with local governments and the private sector providing key support.

From a geological and evolutionary perspective, the Region is ancient and diverse, with rich natural resources that support a broad range of industries such as agriculture, forestry, recreational fishing, mining and tourism, all significant to the Western Australian economy. Water is likely to become a growth-limiting factor for some of these industries, especially if the current drying trend associated with climate change continues, as predicted (CSIRO, 2013).

The South West NRM region exhibits a high level of biodiversity which has led to it being declared one of the world's 'hotspots' for flora and fauna diversity (Myers *et al.* 2000), as some 3,500 plant species and over 500 species of terrestrial animal species have been recorded (SWCC, 2012). At least 10% of the plant and a quarter of the animal species have been identified as being at risk and require active conservation management (SWCC, 2012). The Region is also globally recognised and acknowledged for its Wetlands of International Importance, and also listed under the Ramsar Convention.

The Region is culturally diverse. The Nyungar people have lived in close association with the natural environment in the southwest for 40,000 years or more (SWCC, 2012). European history is much more recent, beginning in Western Australia in 1826 and resulting in many negative and on-going impacts on the natural environment, through land clearing for agriculture and settlement, timber harvesting, mining and the introduction of feral animals and invasive plant species (SWCC, 2012).

1.1.3 The South West NRM Coastal Zone

The definition of coastal and marine environment used in this document is:

The totality of all living species and ecosystems found along the coasts, in estuaries and in the marine environments of the South West NRM region. It includes the beaches and the cliffs and dune systems backing them, as well as the marine environment within the Exclusive Economic Zone (EEZ) extending up to 200 nautical miles (nm) (373 km) from the shore. The asset 'estuaries' refers here only to those ecosystems and species that require management action to deal with local threats, although there may on occasion be some overlap with estuaries in the theme area Water resources.

Source: (SWCC, 2014)

The South West NRM coastal zone is located within two Interim Biogeographic Regionalisation of Australia (IBRA) regions: the Swan Coastal Plain IBRA bioregion and the Warren IBRA bioregion. For the purposes of the CAP, the South West NRM coastal zone has been divided into three sections based on physical and geographical factors:

- **Section 1: Binningup to Cape Naturaliste.** This section is predominately within the Swan Coastal Plain IBRA bioregion. The coastal zone between Binningup and Bunbury is characterized by a predominately west-facing sandy shore affected by a moderate wind and wave regime. The coastal zone between Bunbury to Cape Naturaliste is characterized by a predominately north-facing sandy shore affected by a low-to-moderate wind and wave regime.
- **Section 2: Cape Naturaliste to Augusta.** This section ranges from Cape Naturaliste to Augusta within the Warren IBRA bioregion. The coastal zone is characterized by a predominantly west-facing rocky shore affected by a high wind and wave regime.
- **Section 3: Augusta to Walpole.** This section extends from Augusta to Walpole within the Warren IBRA bioregion. The coastal zone is characterized by a predominantly southwest-facing sandy shore affected by a high wind and wave regime.

These Sections are discussed in more detail in Chapters 4.1, 4.2 and 4.3. The marine environment is discussed in Chapter 4.4.

1.1.4 The Nature of the Coastal Zone

Stretching approximately 400 km from Binningup to Walpole, the South West NRM coastal zone includes rocky headlands, picturesque sheltered bays, high energy surfing beaches, dense bushland areas. The coastal zone also contains estuaries and wetlands of international importance for the habitat they provide for migratory birds. Many of the terrestrial environs are conserved within major reserves, such as D'Entrecasteaux National Park, Leeuwin-Naturaliste National Park, Meelup Regional Park and Leschenault Peninsula Conservation Park. Significant marine environs include Geographe Bay, Ngari Marine Park and Walpole and Nornalup Inlets Marine Park. On the Swan Coastal Plain, the coastal hinterland is dominated by residential and semi-rural development with diverse recreational uses, while in smaller communities, low-key tourism developments, agriculture and areas of undisturbed forest and heath characterise the Capes and south coast.

The coastal zone of the South West NRM region is an outstanding community, economic and environmental resource. The coast and marine environment offers lifestyle opportunities for local communities and visitors through its diverse features and accessibility (SWCC, 2004). The coastal environs are highly valued for residential development, agriculture, professional fishing, recreation and social and cultural pursuits.

The number of people visiting and residing in the coastal areas of the South West NRM region is growing rapidly, especially for the LGAs of Busselton, Bunbury, Harvey and Margaret River (South West Development Commission, 2015), which is exacerbating a number of threatening processes in the coastal zone. The clearing of native vegetation for development causes habitat loss, with potential erosion and weed invasion. Uncontrolled access, by four wheel drive and other off-road vehicles is damaging fragile coastal environments. Poor water quality from catchments contributes nutrients, pathogens, litter and other contaminants that can degrade the downstream coastal and estuarine environments (SWCC, 2004).

Tourists and other visitors are attracted to the coast by internationally acclaimed surfing breaks, sandy beaches and sheltered bays that are popular for swimming and fishing. All along the coast, dramatic landscapes and shady forests host walking trails and provide areas to passively enjoy the natural environment. Visitation to the coast is increasing, and many areas are not equipped to support the additional usage.

The fragility of many of the coastal features, increasing pressure from development and growing recreational use has created significant challenges for land managers and community partners in the region.

1.2 THE SWCC COASTAL ACTION PLAN

1.2.1 Investment in the Coastal Zone

The SWCC Coastal Action Plan (this document) is an important tool to help SWCC and its stakeholders to prioritise on-ground works and other activities required at key sites along the south west coastline. The prioritisation of key sites and the management actions required at these sites has been achieved through consultation with key stakeholders to identify the values, issues and threats affecting the coastal environs.

The CAP provides a unique planning mechanism, which operates across different land tenures, jurisdictions and land management responsibilities to achieve integration and coordination of coastal zone management. The CAP will enable SWCC, LGAs, State Government agencies, Aboriginal groups, community groups, and local residents to work together to achieve the best outcomes for the South West NRM region coastal environment.

This document outlines a five year plan to be implemented between 2015 and 2020. It is a working document that can be updated as required, with a major review recommended every five years, to reflect changes in the status of the threats and values. The review will document the achievements and the improvements of coastal sites following on ground works carried out by SWCC, regional partners, LGAs, State government, coastal community groups and other stakeholders. The CAP will assist in:

- Managing, maintaining and enhancing the conservation values of the South West NRM region coastal environs;
- Managing and facilitating sustainable recreation and tourism on the coast; and
- Fostering community, Local, State and Australian Government partnerships, ownership and responsibility for the protection and management of the coastline and foreshore.

1.2.2 The Aims and Objectives of the CAP

The aims of the CAP are to:

- Increase the resilience in the coastal zone, in the face of existing and emerging threats;
- Empower communities, partners and stakeholders; and
- Facilitate investment in on-ground works and activities that provide the best long term benefits for the coastal zone.

The objectives of this CAP are to:

- Consider coastal issues at the local, landscape and regional level by identifying values of the South West Coastal environments and the emerging threats and issues affecting them.;
- Work across issues, land tenures and land uses in an integrated way;
- Bring diverse stakeholders together across both government and community sectors to develop shared understanding and more collaborative approaches;
- Coordinate activities between NRM regions (e.g. Peel Harvey Catchment Council, South Coast NRM Inc.); and
- Prioritise on-ground works and other critical activities required at key sites in the region.

1.2.3 Approach

The development of the CAP has involved the following tasks:

- A literature review of strategic documents, foreshore management plans, water quality improvement plans and other documentation pertaining to the management of the coastal zone;

- Consultation with community groups, land managers, State agencies, LGAs and other stakeholders to obtain information not captured in published documents and to establish the relevance of existing planning documentation;
- Development of a ranking system that prioritises places for on-ground works and other strategic activities;
- Preparation of a draft CAP document for consideration by the community; and
- Adoption of a CAP to guide investment between 2015 and 2020.

2 CURRENT STATUS OF COASTAL PLANNING

There is a great deal of literature relating to the coastal zone in the South West NRM region, including strategic documents relating to regional planning through to site specific management plans. Documents were reviewed with a focus on identifying the document status (i.e. relevant/outdated or unavailable), the values (environmental, social and economic) and threats within the management area covered in the plan. In addition to documents which relate to the management of the SWCC coastal zone, documents relating to Western Australian, National and International policy and legislation were also reviewed.

A summary of all documents reviewed is provided in Appendix 1. All documents reviewed have been provided electronically to SWCC (where available). A diagrammatic representation of the status of coastal planning is shown in Figure 2.

2.1 LEGAL, PLANNING AND POLICY FRAMEWORK

When developing action plans, it is important to have a good understanding of the legal, policy and planning framework at the national, State, regional and local level. This provides context and allows for informed decision making when establishing priorities for action. The following section describes the framework of agreements, legislation, policies and planning relating to coastal and marine area, with further information provided where relevant. A visual representation of the framework is included in Table 2-1.

Table 2-1: Legal Planning and Policy Framework

	Policy Framework and Planning Mechanisms	
	Statutory	Non-Statutory
International	<ul style="list-style-type: none"> - JAMBA - CAMBA - ROKAMBA - Ramsar convention on wetlands. - UNEP's Global Program of Action for the Protection of the Marine Environment from Land-based Activities, the GPA 	
National	<ul style="list-style-type: none"> - <i>Environment Protection and Biodiversity Conservation Act 1999</i> 	<ul style="list-style-type: none"> - Integrated Coastal Zone Management Framework and Implementation Plan, 2006 - Wetlands Policy of the Commonwealth Government of Australia, 1997 - South-west Marine Bioregional Planning 2008 - Climate Change Risks to Australia's Coasts – A first pass national assessment and supplement, 2009 – 2011

	Policy Framework and Planning Mechanisms	
	Statutory	Non-Statutory
		<ul style="list-style-type: none"> - The George Report - Managing our Coastal Zone in a Changing Climate, 2009 - Marine Bioregional Plan for the South-west Marine Region, 2012
State	<ul style="list-style-type: none"> - State Planning Policy (SPP) 2.6 State Coastal Planning Policy, 2013 - <i>Wildlife Conservation Act 1950</i> - <i>Environmental Protection Act 1986</i> - <i>Planning and Development Act 2005</i> 	<ul style="list-style-type: none"> - Wetlands Conservation Policy for Western Australia, 1997 - Sea Level Change in Western Australia – Application to Coastal Planning, 2010 - State Coastal Planning Policy Guidelines, 2013 - Coastal Hazard Risk Management and Adaptation Planning Guidelines, 2014
Regional –	<ul style="list-style-type: none"> - Regional Planning Schemes 	<ul style="list-style-type: none"> - Regional Planning Strategies (WAPC) - South West Regional Natural Resource Management Strategy 2012 – 2020 (SWCC) - Water Quality Improvement Plans (DoW) - South West Blue Print (SWDC) - This COASTAL ACTION PLAN - Focus on NRM values and on ground implementation, while considering State and National coastal planning framework
Local Government	<ul style="list-style-type: none"> - Local/ Town Planning Schemes 	<ul style="list-style-type: none"> - Local Planning Strategies (LGAs and WAPC) - Coastal Management Strategies (LGAs)
Local	<ul style="list-style-type: none"> - Statutory Management Plans for DPAW Estate 	<ul style="list-style-type: none"> - Coastal Management Plans (LGAs and other land managers)

2.1.1 Australian Government

The Australian Government is the signatory to a range of international conventions and agreements and has also developed national policies to promote the protection and management of coastal and marine species, habitats and associated values.

International Agreements:

- Japan-Australia Migratory Bird Agreement (JAMBA, Department of Foreign Affairs 1974). An agreement between the Government of Western Australia and the government of Japan on the protection of migratory birds.
- China-Australia Migratory Bird Agreement (CAMBA; Department of Foreign Affairs and Trade 1988). An agreement between the Government of Western Australia and the government of the Republic of Korea on the protection of migratory birds (Department of Foreign Affairs and Trade 1988).

- The Republic of Korea and Australia Migratory Bird Agreement (ROKAMBA) was ratified in July 2007 and complements JAMBA and CAMBA (Department of Foreign Affairs, 2006).
- The Ramsar convention on Wetlands. The Convention on Wetlands of International Importance holds the unique distinction of being the first modern treaty between nations aimed at conserving natural resources. The signing of the Convention on Wetlands took place in 1971 at the small Iranian town of Ramsar. Since then, the Convention on Wetlands has been known as the Ramsar Convention). The Ramsar Convention's broad aims are to halt the worldwide loss of wetlands and to conserve, through wise use and management, those that remain. This requires international cooperation, policy making, capacity building and technology transfer. (source : <https://www.environment.gov.au/water/wetlands/ramsar>).
- UNEP's Global Program of Action for the Protection of the Marine Environment from Land-based Activities (GPA). It is the only global intergovernmental mechanism directly addressing the connectivity between terrestrial, freshwater, coastal and marine ecosystems. (See more at: <http://www.gpa.unep.org/#sthash.ulHTQfTV.dpuf>). It was created in 1995 when over 108 governments declared “their commitment to protect and preserve the marine environment from the impacts of land-based activities”, through the Washington Declaration.

Legislation

The *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, defined in the EPBC Act as matters of ‘national environmental significance’ (Department of Environment, 2015).

Policies

- *Integrated Coastal Zone Management Framework and Implementation Plan* (Natural Resource Management Ministerial Council, 2006). This plan sets the scene for national cooperation in managing coastal issues and achieving ecologically sustainable development outcomes.
- *Wetlands Policy of the Commonwealth Government of Australia* (Environment Australia, 1997). This policy outlines a framework to ensure that the activities of the Commonwealth Government promoted the conservation, ecological use and enhancement of wetland functions.

Planning

- *South-west Marine Bioregional Planning* (Department of Environment, Water, Heritage and the Arts, 2008). This process has developed a bioregional profile for the Commonwealth marine waters of the south-west marine region (Kalbarri, Western Australia to Adelaide, South Australia) under the EPBC Act, with a framework for sustainable use.
- *Climate Change Risks to Australia’s Coasts – A first pass national assessment and supplement* (Department of Climate Change, 2009 and Department of Climate Change and Energy Efficiency, 2011). These documents identify risks and outlines adaptation planning through an initial

assessment of implications of climate change on settlements and ecosystems. The report identifies national priorities for adaptation.

- *Managing our Coastal Zone in a Changing Climate* (The George Report - House of Representatives Standing Committee on Climate Change, Water Environment and the Arts, 2009). This document reports the outcome of a coastal zone enquiry with 47 recommendations on future actions relating to coastal management and climate change adaptation.
- *Marine Bioregional Plan for the South-west Marine Region* (Department of Sustainability, Environment, Water, Population and Communities, 2012). This plan covers the coastal zone from Shark Bay to Adelaide and aims to strengthen the operation of the EPBC Act in the Commonwealth marine area of the South-west Marine Region by keeping the marine environment of the region healthy and resilient. The bioregional plan describes the marine environment and conservation values (protected species, protected places and key ecological features), sets out broad objectives for its biodiversity, identifies regional priorities, and outlines strategies and actions to achieve these.

The Australian Government is responsible for the management of the EEZ which extends 200 nautical miles offshore, excluding 3 nautical miles of inshore State waters.

State of the Environment Reporting

The main messages regarding the coastal environment from State of the Environment Reporting 2011 (State of the Environment 2011 Committee, 2011) are:

- **Coastal regions are under pressure:** from urban expansion, modification from development, disturbance of acid sulfate soils, loss and fragmentation of native vegetation, invasive species and pathogens, tension between the potential economic value of land and conservation, shrinking budgets for coastal management, lack of recognition for cultural significance.
- **Some trends in land use and management practices have reduced some pressures:** including expansion of conservation and Indigenous areas and improvements in land-management practices (reduction of sediments and chemicals impacting the coast).
- **Promising responses to coastal challenges by governments, working individually and together but outcomes for some major issues are still far from ideal:** Local governments are concerned about the lack of guidelines, standards and national strategic approaches to address coastal development, growing populations and environmental impacts. There is significant uncertainty about how species and ecological systems will be affected by climate change.
- **The major emerging risk is climate change:** especially sea level rise, and demographic change.

The State of the Environment Report stated that ecological, social, economic and cultural issues are interlinked and cannot be addressed separately. The future of the coast depends on whether government and governance arrangements can be developed that allow a much more strategic approach to managing coastal resources, over spatial scales that match the scale of the challenges. Desirable futures are most likely if major reform of coastal governance is achieved in the next decade or sooner, which is possible, but not guaranteed.

Environmental initiatives

The National Landcare Program is the Australian Government framework for providing funding via regional NRM groups such as SWCC. The Australian Government does not prescribe delivery approaches; rather, it allows regional NRM organisations to outline priorities through stakeholder consultation to determine delivery mechanisms.

2.1.2 Australian States

Victoria has the *Coastal Management Act 1995* which forms a statutory basis for preparation of CAPs. However, the statutory nature of coastal management and planning has not always led to an increase in on-ground outcomes (Western Coastal Board, 2012) due to the inability of CAPs to keep up with other planning and policy framework development, reduced funding and stakeholder disengagement.

2.1.3 Western Australian Government

Policies

- The Western Australian Planning Commission (WAPC) has developed the *State Planning Policy (SPP) 2.6 State Coastal Planning Policy* (WAPC, 2013a), provides guidance for land use and development decision-making within the coastal zone, including managing development and land use change as well as the establishment of coastal foreshore reserves, with the aim of protecting, conserving and enhancing coastal values. The Policy requires that coastal hazard risk management and adaptation is appropriately considered, encourages innovative approaches to managing coastal hazard risk, and provides for public ownership of coastal foreshore reserves. Policies which support SPP 2.6 include:
 - *State Coastal Planning Policy Guidelines* (WAPC, 2013b) which outlines the requirements for minimising coastal hazards and risks through planning and allowances of appropriate setback for development.
 - *Sea Level Change in Western Australia – Application to Coastal Planning* (Bicknell, 2010) which outlines the probable sea level rise to 2110.
 - *Coastal Hazard Risk Management and Adaptation Planning Guidelines* which recognise that coastal zones are vulnerable to adverse impacts from inundation and erosion. The risk to the environment from climate change is influenced by the level of preparedness and response of the community and its recovery (WAPC, 2014).
- The *Wetlands Conservation Policy for Western Australia* (Government of Western Australia, 1997) recognises and commits to the protection and maintenance of wetland areas and associated flora and fauna throughout the State. It identifies objectives and actions to be undertaken to achieve the policy objectives.

Marine Parks

- The Ngari Capes Marine Park was established in 2012 and is located between the eastern end of Geographe Bay and Flinders Bay near Augusta. It comprises 123,790 ha within the Limits of the Western Australian Coastal Waters (three nautical miles or approximately 5.5 km from the shoreline). It abuts the South-west Corner Commonwealth Marine Reserve (which is in the

Australian Commonwealth EEZ). The Marine Park is managed by the Marine Parks and Reserves Authority via the Department of Parks and Wildlife (DPaW) and Department of Fisheries (DoF). The Marine Park contains general use zones, recreation zones, sanctuary zones and special purpose zones for shore based and surfing activities.

- The Walpole and Nornalup Inlets Marine Park was established in 2009 and is located adjacent to Walpole and Nornalup. The Marine Park covers 1442 ha and is vested in the Conservation Commission of Western Australia and managed by DPaW. The Marine Park forms part of the Walpole – Nornalup National Park which is noted for its high biodiversity and cultural values. The Marine Park also contains a recreation zone.

Strategies and Reporting

- The *Western Australian State Sustainability Strategy* (Government of Western Australia, 2003) sought to shape and advance sustainability within Western Australia. The Strategy presented global and local views and trends on sustainability, to enhance awareness, understanding and promote increased involvement with sustainability directions and initiatives.
- The *State of the Environment Report Western Australia* (Government of Western Australia, 2007) highlighted key environmental threats facing Western Australia and provides a number of responses to address these. Threats facing the coast include climate change impacts, increased pressure on marine resources due to increased shipping, ports, coastal developments, runoff and associated contaminants.

Environmental initiatives

The Western Australian Local Government Association (WALGA) is assisting coastal LGAs by facilitating discussion regarding the legal implications of long term coastal planning in the face of climate change (WALGA, 2014). WALGA has identified existing information gaps with regards to the legal liability of climate change impacts on Local Government planning decisions, and is investigating whether a liability shield planning instrument is a suitable option in Western Australia. In addition, WALGA is helping LGAs understand the planning implications of climate change so that consideration of these can be imbedded in planning instruments and processes (WALGA, undated).

Natural Resource Management

The Western Australian Government has facilitated a review of NRM groups (Review Panel Natural Resource Management, 2009) which concluded that there is strong support for the State NRM program that excellent outcomes have been achieved and that community engagement is essential. The Western Australian Government responded to the Review with continued support for NRM programs, and developed investment priorities to 2014 (State Natural Resource Management Office, 2010). Priorities relating to the coastal zone included:

- Sustainable use of inshore finfish and demersal finfish stocks;
- Protecting Ramsar wetlands (including the Vasse-Wonnerup system);
- Habitat protection and mitigation of threatening processes for priority fauna;

- Habitat protection for critically endangered flora species;
- Strategic enhancement and connection of remnant vegetation to provide viable ecological linkage;
- Controlling plant and animal pests that significantly threaten high value assets (matching community/stakeholder funding for recognised pests, Weeds of National Significance and feral pig control); and
- Controlling *Phytophthora* (dieback) by preventing new infestations.

2.2 SOUTH WEST REGIONAL NATURAL RESOURCE MANAGEMENT STRATEGY 2012 – 2020

SWCC has developed an NRM strategy (SWCC, 2012) to describe the region, outline stakeholder interests and develop project planning matrices (PPMs). In 2014, an addendum to the strategy was developed with stakeholder consultation, to incorporate the risks associated with climate change. The SWCC Strategy mission is to:

- Be community change-makers on behalf of the natural environment;
- Facilitate community ownership of natural resource management;
- Safeguard, conserve and rehabilitate ecosystems and environments;
- Coordinate human NRM systems and structures;
- Advance the environment to the highest priority; and
- Strive for best practice in everything SWCC does.

The Regional Strategy provides context for this CAP in relation to overarching objectives and desired outcomes, which are summarised below.

2.2.1 Objective for the Coastal and Marine Environment

The objective for the coastal and marine environment is to:

‘Contribute substantially to the conservation and management of targeted coastal and marine ecosystems in the South West NRM region so they remain healthy and productive, and are effectively co-managed’ (SWCC, 2012).

2.2.2 Outcome Indicators for the Coastal and Marine Environment

The outcome indicators for the coastal and marine environment are:

- Maintain and/or improve the condition of at least 15% of the coastal and inshore marine habitat within the Region in the period to 2020.
- Maintain and/or improve public awareness about coastal and inshore marine habitat condition and the status of marine fauna and flora within the Region in the period to 2020.
- Stocks of monitored species within the Region do not decline in the period to 2020.

2.2.3 Projected Management Outcomes:

SWCC and its partners are working towards the following management outcome:

The health and productivity of targeted coastal and marine ecosystems in the South West NRM region is maintained and/or improved to ensure their long-term viability in terms of both their productive and ecological functions in collaboration with an involved, informed and supported NRM Community that includes community members, Indigenous groups and government agencies by ensuring that all targeted coastal ecosystems in the south-west are managed according to the best integrated coastal zone management (ICZM) practices available, specifically with regard to maintaining and/or improving coastal, estuarine and marine ecosystems and managing and/or reducing the impact of key threats.

2.2.4 Priorities for Management Actions

To ensure that the Region's coasts and the marine environment remain healthy and productive, the 2012 SWCC Strategy identified that all threatened species and ecosystems are defined as priority assets, as are seven specific sites and a number of other species and ecosystems. Three management programs are defined to address 24 key threats to these assets:

- ICZM;
- Protecting, managing and enhancing priority coastal, estuarine and marine ecosystems;
- Managing the effects of climate variability on coastal and marine resources.

Priority assets for the South West NRM region are summarised in

Table 2-2.

Table 2-2: Priority Assets – Area and Class

PRIORITY ASSETS	
AREA	CLASS
<ul style="list-style-type: none"> Blackwood Estuary - Also a national and state priority Geographe Bay (including sea grass beds). Also a national priority Leschenault Estuary - also a state priority. Ngari Capes Marine Park Vasse Wonnerup Estuary - also a national and state priority Walpole Nornalup Inlet <p>Other priority areas, including:</p> <ul style="list-style-type: none"> Priority 1 – coastline of the Shires of Augusta-Margaret River, Busselton and Capel, and the City of Bunbury; all offshore islands; surf breaks with National surf reserve status. Priority 2 – Local Government coastlines – Shires of Harvey, Manjimup, and Nannup; Inlets – Broke, Hardy and Walpole-Nornalup; Capes – Leeuwin (Geographe – also State priority), Leschenault and Preston Peninsula; surf breaks alongside iconic beaches. 	<p>All <i>EPBC Act 1999</i> listed species and communities, including:</p> <ul style="list-style-type: none"> Turtles (Green and Leatherback turtles); Sharks (Grey Nurse, Great White and Whale sharks); Australian sea lion and whales (Blue, Humpback and Southern Right whale). <p>Priority species including:</p> <ul style="list-style-type: none"> Priority 1 – Little Penguin, West Coast rock lobster, Leeuwin snail and tufa colonies. Priority 2 – dolphins, NZ fur seals, cormorants, marine raptors, migratory birds, pelicans, all tern species, hooded plover and the following that are also State priorities – abalone, West Coast demersal scalefish, all marine fish stocks and tailor.

2.2.5 Priority Management Actions

SWCC and its partners believe that marine habitat condition must be maintained and/or improved, while giving greater protection to marine fauna throughout the South West region. However, SWCC and its partners recognise that the level of technical expertise and funding required is beyond current capacity and an increase in awareness about the issues and support for relevant research are the most achievable objectives (SWCC, 2012).

The following priorities for management action in priority locations were outlined in the South West NRM regional Strategy (2012):

- Promote and support the introduction an ICZM approach in close cooperation with regional stakeholders following the national guidelines to cover aspects such as tourism, recreational and commercial fisheries, conservation areas, mining of sand in the marine environment and along the coast, amenity value, spiritual and social well-being (intangible socio-cultural values).
- Protect, manage and enhance priority coastal, estuarine and near-shore marine ecosystems by:

- Developing multiple-use plan(s) for priority coastal, estuarine and near-shore marine ecosystems based on best scientific principles that define sustainable uses and management measures, including establishment of no-take, protected areas.
- Creating, protecting and enhancing corridors in the coastal environment and their integration into local government planning.
- Providing support to projects that maintain and improve the functions of coastal, estuarine and near-shore marine ecosystems in a holistic manner.
- Providing support to protect and enhance habitat in coastal, estuarine and near-shore marine areas.
- Providing support to manage access to, and usage of, coastal, estuarine and near-shore marine areas.
- Improving the understanding and management of cumulative impacts on the environment.
- Providing support for the collection of baseline data and research into ecosystem functions of priority assets.
- Providing support for community behavioural change and awareness programs on marine and coastal ecosystem functions and species issues to assist in the better management of those assets.
- Contributing to improving the resilience of the Region's coastal and marine resources to climate variability by:
 - Implementing adaptation and mitigation strategies for the effects of climate variability on coastal, estuarine and near-shore marine ecosystems.
 - Identifying and incorporating risk management strategies for the effects of climate variability into all projects and programs, utilising 'best management practice'.

2.2.6 Threats

The SWCC NRM Strategy (2012) identifies terrestrial threats which pose the greatest risk to the coastal and marine environment.

Primary threats:

- Climate change;
- Eutrophication caused by nutrient enrichment from range of sources, e.g. outflows from irrigation channels and sewerage;
- Ocean acidification;
- Changes in hydrology (either due to climate change or man-made);
- Governance (lack of strategic collaborative approach to issues by stakeholders such as that offered by the '*Integrated Coastal Zone Management*' approach);

- Increased population density;
- Pollution of sheltered beaches;
- Sea change population issues;
- Storm surge and shore stabilisation;
- Overfishing;
- Tourism;
- Uncontrolled public access.

Secondary threats:

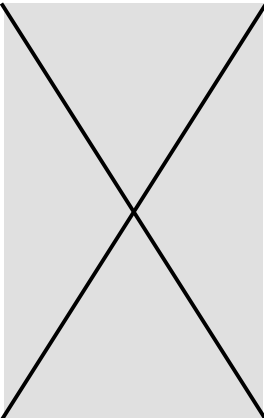
- Inappropriate management of acid sulphate soils;
- Conflict between recreational and commercial uses of near-shore waters;
- Increasing peri urban population;
- Introduced fish species;
- Reduced water flow into estuaries;
- Reduction of river flows;
- Seaweed accumulation;
- Shore stabilisation problems;
- Water quality;
- Recreational fishing;
- Salt water intrusion of coastal wetlands; and
- Sand mining.

2.2.7 Project Planning Matrices

The SWCC NRM Strategy (2012) developed a series of PPMs as an overarching framework for coastal zone management. The PPMs outline desired outcomes and indicators for each outcome. These are outlined in Table 2-3. Guidelines used for developing the PPMs are included in Appendix 2 and include specific desired outcomes, how to measure outcomes, whether the outcome was appropriate, realistic and could be achieved in a specified timeframe.

The PPMs form the basis for prioritisation of activities and actions and complement the CAP process, which aims to prioritise locations and then activities and actions.

Table 2-3: Project Planning Matrices (SWCC NRM Strategy, 2012)

COASTS AND THE MARINE ENVIRONMENT	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>Overall Outcome</p> <p>To contribute substantially to the conservation and management of targeted coastal and marine ecosystems in the South West NRM region so they remain healthy and productive, and are effectively co-managed.</p>	<p>Indicators for the Overall Outcome</p> <p>MI-1 Maintain and/or improve the condition of at least 15% of the coastal and marine habitat within the Region in the period to 2020.</p> <p>MI-2 Maintain and/or improve public awareness about coastal and marine habitat condition and the status of marine fauna and flora within the Region in the period to 2020.</p> <p>MI-3 Stocks of monitored species within the Region do not decline in the period to 2020.</p>	<ul style="list-style-type: none"> State of Environment Report WA. Annual reports (SWCC). Report cards or State of Environment reports (SWCC). 	
<p>Management Outcome</p> <p>MM-1 The health and productivity of targeted coastal and marine ecosystems in the South West NRM region is maintained and/or improved to ensure their long-term viability in terms of both their productive and ecological functions in collaboration with an involved, informed and supported NRM Community that includes community members, Indigenous groups and government agencies by ensuring that all targeted coastal ecosystems in the SW are managed according to the best ICZM practises available, specifically with regard to maintaining and/or improving coastal, estuarine and marine ecosystems and managing and/or reducing the impact of key threats.</p>	<p>Management Outcome Indicators</p> <p>MMI-1 An effective, collaborative ICZM system is developed and put into effect for the whole south-west region that includes multiple-use management plans for priority coastal, estuarine and marine environments of the south-west, including the creation of a network of refuges, are mapped out and set up in close collaboration with all stakeholders by 2020, and managed continuously thereafter.</p> <p>MMI-2 The environmental values of priority coastal, estuarine and marine ecosystems in the south-west region are maintained and/or restored by 2030.</p>	<ul style="list-style-type: none"> Annual reports (SWCC) Report cards or State of Environment reports (SWCC) Government agencies (data and reports) 	<ul style="list-style-type: none"> Collaboration with agencies is feasible and support forthcoming given that ICZM is not in use. Community support and participation continues.

2.3 EXISTING MANAGEMENT PLANS AND DOCUMENTS

Management plans have been prepared for most of the South West NRM coastline. However, many of the plans are relatively strategic, with broad recommendations, and few are specific enough for direct on-ground implementation. Some of the plans are no longer relevant to the coastal area they were developed for (due to planning considerations or changing environmental, social and economic conditions). It is evident that few plans have a review mechanism to consider progress towards implementation.

A summary of the relevant/current management plans by Section is included in **Table 2-4**. A full list of plans and documents is included in Appendix 1. The status of the plans (e.g. current or outdated) is noted where known. All plans reviewed have been provided in digital format for use by SWCC and its partners as part of the CAP process.

Table 2-4: Management Plans and Strategies by Section

SECTION 1 – BINNINGUP TO CAPE NATURALISTE	YEAR	KEY RESPONSIBILITY FOR IMPLEMENTATION	TYPE OF PLAN AND STATUS (WHERE KNOWN)
Swan Coastal Plain South Draft Management Plan (for Leschenault Peninsula and the Vasse Wonnerup Wetland System)	2014	DPAW	Statutory Management Plan (current)
Coastal Inundation Modelling for Busselton, Western Australia under Current and Future Climate	2014	WAPC, Department of Planning (DoP) and City of Busselton	Coastal Hazard and Adaptation Plan (current)
Independent Review of the Current and Future Management of Water Assets in the Geographe Catchment, WA	2014	Various including DoW, Australian Government, DPaW, SWCC, Local Governments, Geocatch	Catchment Status/ Review (current)
Cultural and Ecological Values of the Leschenault Catchment Cultural Landscape, Western Australia	2013	SWCC, DAA, Aboriginal Corporations, groups and individuals	Cultural and Ecological Assessment (current)
Design Brief - Realignment of Preston River	2013	Bunbury Port Authority (Southern Port Authority)	Design Brief (current)
Leschenault Inlet Master Plan Report	2013	City of Bunbury	Strategic Plan (current)
Greater Bunbury Strategy	2013	WAPC, City of Bunbury	Strategic Plan (current)
Meelup Coastal Nodes Master Plan	2013	Meelup Regional Park Management Committee and City of Busselton	Site Specific Management Plan (current)
Information Sheet: Storm Surge Modelling for Bunbury	2012	City of Bunbury	Catchment Plan (current)

SECTION 1 – BINNINGUP TO CAPE NATURALISTE	YEAR	KEY RESPONSIBILITY FOR IMPLEMENTATION	TYPE OF PLAN AND STATUS (WHERE KNOWN)
Leschenault Estuary Water Quality Improvement Plan	2012	Department of Water (DoW)	Water Quality Improvement Plan (current)
Back Beach Tourism Precinct Plan	2012	City of Bunbury	Site Specific Management Plan (current)
Preston River to Ocean Regional Park	2011	WAPC	Site Specific Management Plan (current)
Cultural and Ecological Values of the Preston River and Vasse Wonnerup Wetlands, Western Australia	2011	SWCC, DAA, Aboriginal Corporations, groups and individuals	Cultural and Ecological Assessment (current)
Peppermint Grove Beach Foreshore Management Plan	2010	Shire of Capel	Site Specific Management Plan (current)
Geographe Bay and Vasse Wonnerup Water Quality Improvement Plan	2010	DoW, GeoCatch, Shire of Capel and City of Busselton	Water Quality Improvement Plan (current)
Meelup Regional Park Management Plan	2010	Meelup Regional Park Management Committee, City of Busselton	Strategic Plan (current)
Storm Surge Modelling for Bunbury, Western Australia. Professional Opinion. Prepared for DoP.	2010	DoP	Strategic Plan
Bunbury Port Inner Harbour Structure Plan	2009	Bunbury Port Authority (Southern Port Authority)	Site Specific Management Plan (current)
East Busselton Foreshore Management Plan	2009	City of Busselton	Site Specific Management Plan (current)
Dunsborough Beach Foreshore Management Plan	2009	Shire of Busselton, Dunsborough and Districts Progress Association	Site Specific Management Plan (current)
City of Bunbury Tourism Strategy 2009-2014	2009	City of Bunbury	Strategic Plan
Coastal Foreshore Management Plan, Dalyellup Beach Estate	2008	Land developers in City of Bunbury	Site Specific Management Plan (current)
Coastal Foreshore Management Plan, Dalyellup Beach Estate	2008	Developer in the Shire of Capel	Site Specific Management Plan

SECTION 1 – BINNINGUP TO CAPE NATURALISTE	YEAR	KEY RESPONSIBILITY FOR IMPLEMENTATION	TYPE OF PLAN AND STATUS (WHERE KNOWN)
Geographe Catchment Management Strategy	2008	Geocatch	Strategic Plan (current)
Management Plan for the Western Portion of West Street Foreshore Reserve 37207	2008	City of Busselton	Site Specific Management Plan (current)
A Management Plan for Dugalup Brook. Crown Reserve 42673, Between Cape Naturaliste Road and Naturaliste Terrace, Dunsborough.	2008	City of Busselton	Site Specific Management Plan
East Busselton Foreshore Management Plan	2008	City of Busselton	Site Specific Management Plan
City Vision Strategy: Shaping the future of Bunbury	2007	City of Bunbury	Strategic Plan
Coastal Management Plan, Shire of Harvey	2006	Shire of Harvey	Coastal Management Plan (Strategic) (current)
Turkey Point Master Management Plan	2005	City of Bunbury	Site Specific Management Plan
Capel Coastal Strategy (Draft v1)	2005	Shire of Capel	Coastal Strategy (current)
Busselton Wetlands Conservation Strategy	2005	WAPC, DPAW, Shire of Busselton, community groups and land owners	Planning Strategy
Broadwater Foreshore Management Plan	2005	City of Busselton	Site Specific Management Plan (current)
Toby Inlet Management Plan	2005	City of Busselton	Site Specific Management Plan (current)
Foreshore Management Plan for Reserve 34111 Quindalup	2005	City of Busselton	Site Specific Management Plan
Management Plan Quindalup Reserve Number 46	2004	City of Busselton	Site Specific Management Plan
Bunbury Flood Management Strategy – Flood Modelling Report	2004	City of Bunbury	Strategic Plan
Usher Dalyellup Regional Park Management Plan	2002	Department of Housing	Regional Plan
Geographe Bay Foreshore Management Plan	2001	City of Busselton	Site Specific Management Plan

SECTION 1 – BINNINGUP TO CAPE NATURALISTE	YEAR	KEY RESPONSIBILITY FOR IMPLEMENTATION	TYPE OF PLAN AND STATUS (WHERE KNOWN)
Reserve 22952 Layman Road, Wonnerup Management Plan 'Captain Baudin Reserve'	2000	City of Busselton	Site Specific Management Plan
Bunbury Coastal Plan	1993	City of Bunbury	Coastal Management Plan (Strategic)

SECTION 2 – CAPE NATURALISTE TO AUGUSTA	YEAR	KEY RESPONSIBILITY	TYPE OF PLAN AND STATUS (WHERE KNOWN)
Leeuwin-Naturaliste Capes Area Parks and Reserves. Management Plan No. 81	2015	DPAW	Statutory Management Plan (current)
Yallingup Beach Management Plan	2013	City of Busselton	Site Specific Management Plan (current)
Coastal and Foreshore Facilities Asset Management and Expansion Plan	2012	Shire of Augusta Margaret River, City of Busselton and DPaW	Site Specific Management Plan (current)
River Mouth-Gas Bay Development Concept Plan	2011	Shire of Augusta Margaret River	Site Specific Management Plan
Cape Leeuwin Tourist Precinct Site Plan	2011	Shire of Augusta Margaret River	Cape Leeuwin Tourist Precinct Site Plan
Surfers Point and River Mouth Concept Plan	2006	Shire of Augusta Margaret River	Site Specific Management Plans
Augusta-Margaret River Coastal Management Plan.	2005	Shire of Augusta Margaret River	Coastal Management Plan (Strategic)
Rifle Butts - A concept Plan	2005	Shire of Augusta Margaret River	Site Specific Management Plan

SECTION 3 – AUGUSTA TO WALPOLE	YEAR	KEY RESPONSIBILITY	TYPE OF PLAN AND STATUS (WHERE KNOWN)
Hardy Inlet Water Quality Improvement Plan	2014	DoW	Site Specific Management Plan (current)
Ngari Capes Marine Park Management Plan No. 74 2013 - 2023	2013	DPaW, Department of Fisheries	Statutory Management Plan (current)

SECTION 3 – AUGUSTA TO WALPOLE	YEAR	KEY RESPONSIBILITY	TYPE OF PLAN AND STATUS (WHERE KNOWN)
Draft Shire of Manjimup Environmental Management and Sustainability Strategy	2013	Shire of Manjimup	Strategic Management Plan (current)
Shannon and D'Entrecasteaux National Parks Management Plan No. 71	2012	DPaW	Statutory Management Plan (current)
Warren Catchments Council Strategic Plan 2011-2014	2011	Warren Catchments Council	Strategic Management Plan (current)
Hardy Inlet Foreshore Weed Management Plan	2010	Shire of Augusta Margaret River	Site Specific Management Plan (current)
Augusta-Walpole Coastal Strategy	2009	WAPC and local government authorities	Strategic Plan with specific actions (current)
Shire of Nannup Coastal Management Plan	2009		Strategic Plan
Management Plan - Reserve 19787 - Camfield, Broke Inlet, Shire of Manjimup	2009	Shire of Manjimup	Site Specific Management Plan (current)
Walpole and Nornalup Inlets Marine Park Management Plan 2009-2019.	2009	DPaW and DoF	Statutory Management Plan (current)
Windy Harbour Management Plan 2007-17	2007	Shire of Manjimup	Site Specific Management Plan
Warren Blackwood Rural Strategy	2004	Shire of Nannup, Shire of Augusta Margaret River	Planning Strategy
Hardy Inlet Management Plan	2003	Shire of Augusta Margaret River	Site Specific Management Plan
Shire of Manjimup Local Planning Strategy	2003	Shire of Manjimup	Strategic Management Plan
Bulletins 4513: Scott Coastal Plain, a strategy for a sustainable future	2001	Department of Agriculture and Food	Strategic Management Plan

2.4 GAPS

The literature review of management plans and other related documentation, along with the subsequent stakeholder interviews identified the following gaps:

- Many of the management plans are written at a strategic level and therefore do not contain specific recommendations, diagrams or explanations for actions and activities. It is likely that more specific but less formal planning is undertaken as part of operations by land managers.
- The status of management plans is often not known, even by the land managers due to the passage of time, changes in staff and/or lack of clarity in management plan actions.
- Most management plans (and land managers) do not have a mechanism to track implementation or the status of plans.
- Most management plans do not prioritise actions or activities.
- Most management plans do not provide estimates of implementation costs.
- Most management plans do not provide timelines for the recommended management actions.

Overall, most management plans for coastal reserves are initiated by the land manager of the project area. When private land is the subject of a development proposal (e.g. subdivision), the preparation of a management plan may be required as a condition of development approval i.e. before development can commence. These plans are usually prepared by the proponent, to the satisfaction of the future land manager (often LGAs). The plans are approved, with implementation often taking place after development has commenced. During the literature review and the stakeholder interviews, it was noted that for some land managers, the management plans were not always readily accessible and there was limited knowledge about the status of implementation. It was unclear if this was due to the fact that the plans were initiated in the planning sections of local government and were not available to other areas (e.g. reserve management or works and services) or if the plans had not, in fact been implemented.

2.5 DISCUSSION AND RECOMMENDATIONS

The overarching legislative and policy framework drives coastal management from broad principles to guide more detailed planning and management. Particularly pertinent to regional scale planning is the State Planning Policy for Coastal Planning (WAPC, 2013a) and the current focus on hazard risk management and adaptation planning (WAPC, 2014). While assessment for hazards and risks has commenced in the region, downscaling national and state predictions to a regional and local level is proving challenging, given the difficulty with the prediction of impacts and the lack of information and data.

Coastal planning is closely linked with regional and town planning, much of which is governed by WAPC, DoP and LGAs with input from State agencies such as DoW. Planning strategies developed to progress town planning generally outline aspirations for preserving the health and amenity of the coastline, but often without concrete recommendations or actions for how this will be achieved.

Strategic coastal plans often allow for comparisons of different coastal areas within a management unit (e.g. a local government area). Strategic coastal plans often discussed broad threats and values but did not often specifically recommend actions and activities.

Site specific management plans deal with more detailed consideration of a management unit (e.g. a discrete beach). However, the plans are often prepared using very different approaches, some of which

do not easily allow for prioritisation of actions, or clear instructions on where or when specific activities should occur. For most plans there was no system outlined to allow for the tracking of the implementation of the recommended management actions.

Recommended actions (going forward) to assist in the development of coastal management plans and ensure the successful implementation of coastal preservation are as follows:

- Conduct a review regarding the status of management plans produced as a result of development conditions (Delivery by relevant land management authority e.g. LGA with support from DoP);
- Where possible, preparation of management plans (including development related plans) should involve community groups and key stakeholders;
- That a management plan template is developed for use by land managers and key coastal stakeholders, to improve the MERI process (monitoring, evaluation, reporting and improvement) and to allow for the prioritisation and tracking of implementation. The template should also allow for:
 - Compatibility with WA SPP 2.6 State Coastal Planning Policy Guidelines – Section 9 (WAPC, 2013b);
 - Assessment and documentation of the threats and values of specific management areas;
 - Development of specific management actions (shown in maps and diagrams);
 - Development of priority actions with specific, measurable, assignable, realistic and time-bound (SMART) outcomes with identification of funding source(s);
 - Opportunities and constraints should be considered during prioritisation, with a cost benefit analysis to ensure that funds are wisely spent.
- Integral to implementation of management plans is the ability for the plan to live beyond the tenure of its immediate champion, and within the different sectors of the management organisation. This could be achieved by establishment of a working group or steering committee which has joint ownership of the process.

Information from the literature review process has been used to populate the threats, values, capacity and gaps portion of the Priority Matrix (Chapter 8). In addition, information from the literature also formed the basis for discussion with key stakeholders during the stakeholder consultation phase of the CAP (Chapter 3).

3 COMMUNITY AND STAKEHOLDER CONSULTATION

3.1 KEY STAKEHOLDERS

Partnerships and networking are critical to the achievement of good outcomes in the management of coastal and marine environments. The South West NRM region has a long history of successful and enterprising groups and individuals engaged in NRM. A feature of many of the groups is the ability to recognise and adapt to changes in political, economic, social or biophysical conditions in order to better address the challenges of implementing sustainable development within the constraints of a landscape that is highly valued yet facing some severe threats. A list of stakeholders consulted during the CAP process is included in Table 3-1. A diagrammatic representation of stakeholder 'zone of influence', as identified by community groups and organisations is included in Figures 3 to 20.

Table 3-1: Key Stakeholders

Stakeholder	Names of groups/ organisations	Consulted during CAP process	Section 1	Section 2	Section 3	Zone of Influence (See also Figures 3 - 20)
Region Wide NRM groups	South West and Peel Coastal Management Group (CoastSWaP)	Yes	Yes	Yes	Yes	The whole coastline
	South West Aboriginal Land and Sea Council	Not Available	Yes	Yes	Yes	The whole coastline
	Tangaroa Blue	Yes	Yes	Yes	Yes	The whole coastline
	National Surfing Reserves	Yes	Yes	Yes	Yes	The whole coastline
State Government	Department of Aboriginal Affairs	Yes	Yes	Yes	Yes	The whole coastline
	Department of Fisheries	Yes	Yes	Yes	Yes	The whole coastline
	Department of Parks and Wildlife	Yes	Yes	Yes	Yes	The whole coastline
	Department of Planning	Yes	Yes	Yes	Yes	The whole coastline
	Department of Transport	Yes	Yes	Yes	Yes	The whole coastline
	Department of Water	Yes	Yes	Yes	Yes	Areas related to estuaries

Stakeholder	Names of groups/ organisations	Consulted during CAP process	Section 1	Section 2	Section 3	Zone of Influence (See also Figures 3 - 20)
						and water quality
	Western Australian Local Government Association (WALGA)	Yes	Yes	Yes	Yes	The whole coastline
Federal Government	Department of Environment	No	Yes	Yes	Yes	The whole coastline
Private landholders	Primarily Capel, and between Augusta and Walpole	One family from Capel attended workshop				No
Regional partners	Blackwood Basin Group Inc.	Yes			Yes	
	Cape to Cape Catchments Group	Yes		Yes		
	Geographe Catchment Council (Geocatch)	Yes	Yes			
	Leschenault Catchment Council	Yes	Yes			
	Warren Catchment Council	Yes			Yes	
Local Government Authorities	Shire of Harvey	Yes	Yes			
	City of Bunbury	Yes	Yes			
	Shire of Dardanup	Yes	Yes			
	Shire of Capel	Yes	Yes			
	City of Busselton	Yes	Yes			
	Shire of Augusta Margaret River	Yes		Yes		
	Shire of Nannup	Yes		Yes	Yes	
	Shire of Manjimup	Yes			Yes	

Stakeholder	Names of groups/ organisations	Consulted during CAP process	Section 1	Section 2	Section 3	Zone of Influence (See also Figures 3 - 20)
Other Stakeholders –Section 1 Binningup to Cape Naturaliste	Binningup Coastcare and Environment Group Inc.	Yes	Yes			
	Peron Naturaliste Partnership	Yes	Yes			Mandurah to Cape Naturaliste
	Harvey River Restoration Taskforce Inc.	Yes	Yes			
	Brunswick River Restoration Action Group Inc.	Yes	Yes			
	Dolphin Discovery Centre	Yes	Yes			
	Marlston Coastcare (Bunbury)	Not available	Yes			
	Friends of Broadwater Beach	Not available	Yes			
	Peppermint Beach Community Association	Yes	Yes			
	Toby Inlet Catchment Group	Not available	Yes			
	Wonnerup Residents Association	Yes	Yes			
	Cary Park Scouts (Bunbury)	No	Yes			
	Capel Land Conservation District Committee (LCDC)	Not available	Yes			
	Friends of Maidens Reserve (Bunbury)	No	Yes			
	Busselton Dieback Working Group	No	Yes			
Other Stakeholders –Section 2	Yallingup Land Conservation District Committee	Yes		Yes		

Stakeholder	Names of groups/ organisations	Consulted during CAP process	Section 1	Section 2	Section 3	Zone of Influence (See also Figures 3 - 20)
Cape Naturaliste to Augusta	Friends of the Cape to Cape Track	Not available		Yes		
	Margaret River Coastal Residents Association	Yes		Yes		
	Margaret River Surf rider Foundation	Yes		Yes		
	Gracetown Progress Association	Yes		Yes		
	Friends of the Blackwood Group	No		Yes		
	Lower Blackwood Land Conservation District Committee	Yes		Yes		
Other Stakeholders –Section 3 Augusta to Walpole	Molloy Island Environmental Group	Not available		Yes	Yes	
	Windy Harbour Residents Association	Not available			Yes	
	D'Entrecasteaux Coastcare	Not available			Yes	
	Friends of Yeagarup	Not available			Yes	
	Pemberton Discovery Tours	Yes			Yes	
	Walpole Wilderness Cruises	Not available			Yes	
	Walpole Weed Action Group	No			Yes	
Educational Institutions		Not available			Yes	

Note: 'Not available' indicates that the stakeholders were contacted but were either not active or were unable to respond during the consultation period.

3.2 CONSULTATION METHODOLOGY

A comprehensive approach was taken to ensure that stakeholders were contacted and engaged for the CAP planning process. The consultation methodology and materials are outlined below.

Initial Introduction Letter:	A letter to introduce the project was prepared and sent via email on 19 February 2015, to a targeted stakeholder list. The letter outlined the purpose of the CAP, key points in the planning process and an invitation to be involved. The letter is included in Appendix 3.
Stakeholder Interviews:	Selected stakeholders were targeted for interviews, including community group representatives, organisations involved in coastal management, LGAs and State government agencies. The interview schedule is included in Appendix 4 and covers items such as priority areas, priority activities, existing and proposed management plans, achievements and thoughts on gaps in managing the coastal zone. Thirty three interviews were undertaken, with responses summarised in Appendix 5.
Online Questionnaire:	SWCC hosted an online questionnaire on its web page, using the same format as the stakeholder interviews. Six online surveys were recorded and are summarised in Appendix 5.
Workshops:	Workshops were held at three locations, chosen as the most convenient for stakeholders from each section of the CAP area. The three locations included Busselton, Margaret River and Pemberton. An agenda, including dates, times and locations was emailed to an extensive email list which was provided by SWCC (Appendix 6). The PowerPoint presentation prepared for the workshop is included in Appendix 7. A summary of workshop outcomes, including attendees, numbers and comments is included in Appendix 8.

3.3 KEY ISSUES RAISED IN STAKEHOLDER CONSULTATION

The following points were raised by stakeholders as key issues:

Overall Planning and Funding

- The framework for integrated coastal zone management as outlined by the Australian Government in *Integrated Coastal Zone Management Framework and Implementation Plan* (Natural Resource Management Ministerial Council, 2006) has not been achieved. An overarching approach to coastal management in the region and across the nation would be beneficial.
- Stakeholders pointed out that planning is time consuming, but implementation is extremely challenging for all stakeholders due to continual budget cuts, reduction in funding and personnel changes. In addition, the inherent dynamic nature of the coastal zone and the high level of use, often makes projects and implementation of activities difficult and costly.

- There is a need for a consistent approach to implementation, especially for activities that need to be ongoing (e.g. invasive species). Funding these activities for one or two years and then ceasing work means that the situation quickly returns to the starting point.
- The cost benefit of implementation needs to be carefully considered, especially in dynamic areas of the coast where works such as fencing and rehabilitation can be undone (e.g. as a result of erosion caused by a severe storm).

Managing High Visitation

The increase in tourism and population pressure in the SWCC coastal zone has resulted in higher visitation, often concentrated spatially and temporarily (e.g. holidays). Impacts from higher visitation include environmental degradation and pressure on existing coastal infrastructure.

Tenure, Land and Waterways Management

Discontinuous land tenure and jurisdiction can lead to disjointed management of the coast. Examples include:

- Whale strandings (regarding who is responsible in certain areas);
- Estuary and waterways management - which are not recognised by some agencies to be part of the coastal zone or the area does not have a clear management authority.

Data Sharing

The lack of collaboration and data sharing was raised as a key issue. For example, data and information in relation to scaling of climate change risks was perceived during the consultation with the community often lacking or not available for use by management authorities. Since then, SWCC has made available to the public on its South West NRM Strategy website (<http://www.swnrmstrategy.org.au/climate-change-in-the-region/>) information providing modelled projects relating to warming, drought, extreme events and sea level rise. Some of this information represented through models and documented in a full report which can be found using this link: <http://www.swnrmstrategy.org.au/climate-change-in-the-region/sw-nrm-region-projections/>.

Stakeholders indicated that would like to see opportunities for future collaboration and information sharing to assist with coastal management planning to guide activities and better understand climate change risks.

The DoP are currently developing an online system which will provide access to key data sets.

Four Wheel Drive and Motorised Access

The use of four wheel drives and other motorised access in the coastal zone was raised as a significant issue in all three coastal sections. Vehicles on beaches can result in a number of significant impacts and hamper efforts to rehabilitate the coastal zone and protect habitat and nesting areas. Stakeholders felt that an integrated approach was needed to managing vehicle access, including restricting access, providing sustainable access and raising awareness about impacts. A “keep to the track” message needs

to be approached at a regional level across all shires to provide a consistent message to the community using the coast.

Research and Education

Research and education relating to the coastal zone would benefit from:

- Measures of long term success of previous projects in the coastal zone to help develop better processes and programs for the future.
- Education to increase understanding about the coastal zone and its management. The outcomes of education programs should be measured and shared.
- Development of innovative approaches to design, installation and management of coastal infrastructure to cater for the coast's dynamic nature.
- Increased understanding of coastal processes and the impacts of climate change at a local scale.

Culture and Heritage

Not all Aboriginal or European heritage sites are documented and the legal system does not necessarily reflect values of these places to the community.

Networking and Acknowledgement

Stakeholders said that they appreciated the opportunity presented by the CAP process to network, share information and ideas. The consultation process made them feel that there was acknowledgement and support for their interest in the coastal zone.

A complete summary of the items raised during the consultation period is included in Appendix 5 and Appendix 8.

3.4 SUMMARY OF ACHIEVEMENTS

The SWCC community has undertaken over 30 projects and programs in the coastal zone in the last 10 years with an overall investment of more than \$5 million dollars. Projects are described in Appendix 9 and have included:

- Stakeholder engagement and consultation;
- Educational materials and curricula;
- Interpretive materials (including pamphlets and signage);
- Sponsoring of events and activities;
- Research and monitoring;
- Collation and analysis of data; and
- On ground rehabilitation, restoration, erosion control and weed removal.

Coastwest is a State Government initiative aimed at providing opportunities for Western Australians to learn about, conserve and protect the coast. The Department of Planning administers the Coastwest program on behalf of the West Australian Planning Commission and has provided information regarding

projects and programs between 2003 and 2015 for Coastwest and Coastal Management Assistance Program projects between 2002 and 2015. These projects are described in Appendix 9 and include:

- Rehabilitation and replanting;
- Formalisation of pathways and access provision;
- Interpretive materials and signage (including web resources);
- Four wheel drive access track rationalisation;
- Dune protection;
- Awareness raising activities;
- Drainage system analysis;
- Clean up activities;
- Capacity building activities (including conferences, weed identification);
- Monitoring and research;
- Installation of infrastructure (e.g. composting toilets);
- Master planning;
- Stakeholder fora and information sharing; and
- Cultural heritage protection.

Coastwest projects undertaken between 1995 and 2003 are described in *WA Coastlines: Celebrating Coastwest/Coastcare and eight years of communities caring for our coast - 1995 to 2003* (Government of Western Australia, 2003).

The State Government has also supported 'Coastal Management Plan Assistance Program' projects between 2002 and 2015 which has assisted land managers in the development and review of strategic, policy and management plans. A list of the plans created is included in Appendix 9.

The State government has also supported Coastal Vulnerability Assessment Projects in the South West NRM region, a list of which is included in Appendix 9. These projects have included:

- Storm surge modelling;
- Climate change adaptation;
- State policy and guideline development (including coastal hazard risk management and adaptation planning).

In addition, stakeholder consultation indicated that a wide range of stakeholders have undertaken additional projects including:

- Gazettal of Marine Parks including Ngari and Walpole and Nornalup Inlets;
- Development of infrastructure to protect coastal resources (e.g. dual use paths, camping areas, fencing and signage);
- Major coastal infrastructure projects (e.g. Augusta Boat Harbour, replacement of Walpole jetty and new boat ramps);
- Rehabilitation, restoration, erosion control and weed removal;
- Cultural restoration (including reburial of Aboriginal remains and collection of oral history);
- Water quality improvement infrastructure and strategies;
- Modifications to coastal areas to improve coastal processes;

- Addressing marine debris and rubbish issues; and
- Volunteer ranger trials.

The details of these projects and programs are included in Appendix 9.

Appendix 9 provides a summary of number of projects funded by SWCC and the Western Australian government for various programs and their respective achievements.

3.5 THREATS, ISSUES AND RISKS

The literature review, stakeholder consultation and community workshops indicated that the most significant threats in this section are as follows:

- High visitation (key impacts include erosion, environmental degradation, increased risk of fire, introduction of weeds, spread of dieback, disease and user conflicts).
- Tourism and recreation (key impacts related to coastal access, four wheel drive use, camping. Illegal camping is also an issue.
- Climate change (key impacts include sea level rise, storm surge, bushfires and impacts to climate sensitive species).
- Residential subdivision near to the coast - planning and implementation needs to consider sustainable use due to increasing pressures from population growth.
- Coastal development (key impacts include loss of habitat, landscape fragmentation, pollution, increased visitation and user conflicts).
- Bushfire and post fire impacts such as erosion and weeds.
- Weeds and disease (such as dieback).
- Maintenance of coastal infrastructure (e.g. maintaining access to highly mobile beaches).
- Lack of funding for coastal management.
- Lack of knowledge or data, particularly in relation to coastal processes.
- Coastal risk (e.g. cliffs).

4 THE SWCC COASTAL ZONE – DESCRIPTION, VALUES AND THREATS

The information outlined in this Chapter indicates the similarities and differences across the SWCC coastal zone. The values, threats and issues outlined below were used to inform the priority matrix (Chapter 5) and ultimately the priority activities and actions of the CAP (Chapters 6 and 7).

4.1 SECTION 1: BINNINGUP TO CAPE NATURALISTE

The coastal zone from Binningup to Cape Naturaliste (Section 1, Figure 3) is primarily located within the Swan Coastal Plain IBRA region with a predominantly north-facing sandy shore which is affected by a low-to-moderate wind and wave regime. A small area of Section 1 (the tip of Cape Naturaliste) is located within the Jarrah IBRA region. Section 1 includes five LGAs (from north to south): the Shire of Harvey, Shire of Capel, Shire of Dardanup, City of Bunbury and City of Busselton. It is the most populated area of the three Sections and includes the coastal towns of Bunbury and Busselton and smaller coastal towns of Binningup, Australind and Dunsborough. These towns are experiencing high population growth (especially Busselton, Bunbury, Dunsborough and Margaret River) (SWDC, 2015).

This section features accessible beaches, historical values and biodiversity and environmental value in unique estuarine systems and the nearshore environment.

Key areas of high biodiversity and conservation significance are found in Section 1, including the Leschenault Estuary and Peninsula, Leschenault Inlet, the proposed Preston River to Ocean Regional Park, Vasse Wonnerup Estuary and wetlands, Geographe Bay, Meelup Regional Park, Cape Naturaliste and the Ngari Capes Marine Park.

The sustainable management of the coastal zone in this section is threatened by increasing population pressure and coastal processes associated with climate change (e.g. sea level rise, storm surge and inundation).

4.1.1 Description and Key Features

Coastal Geology and Landforms

From Binningup to Bunbury, the seaward margin of the Swan Coastal Plain is characterised by a series of Quindalup dunes that form a 4 to 6 km-wide belt, roughly parallel to the shoreline (SWCC, 2004). These dunes form discrete ridges close to the present shoreline and/or flank the seaward face of the Spearwood Dune System, an older formation (SWCC, 2002).

North of Bunbury, the coastline and dune system gradually turn to face north, forming Geographe Bay and ending at Cape Naturaliste. Along the north facing shoreline the beach is wide, with relatively low to moderate wave and wind regime (SWCC, 2004). Severe erosion has intermittently disrupted the formation of sandy beaches along Geographe Bay (SWCC, 2004).

The geomorphology of most of the Section 1 area, with its sandy beaches and lack of rocky headlands means that the coastal zone is particularly susceptible to erosion related to sea level rise, storm surge and other disturbances (e.g. access by four wheel drives).

Estuaries and Coastal Wetlands

Estuarine and lagoon deposits (e.g. the Vasse System) form low-lying, poorly-drained flats and terraces in depressions between dunes (SWCC, 2004). Column-like basalts outcrop on the coast at Bunbury forming a shallow, now artificially modified bay (Koombana Bay) (SWCC, 2004).

Estuarine vegetation is characterised by low woodlands and thickets of paperbark trees (*Melaleuca* sp.), and Peppermint (*Agonis flexuosa*), samphire marshes and sedgelands. Much of this vegetation has been degraded due to alteration of hydraulic regimes, weed invasion and grazing. Estuarine fauna include lamprey, salmon, goby, minnow, perch and marron and a variety of crustaceans and fish (SWCC, 2004).

A key feature of the Section 1 coastal zone is the Leschenault Estuary, a highly modified estuarine system located in the Australind - Bunbury area. Originally the area comprised one shallow tidal water body known as the Leschenault Inlet. Historical modifications have resulted in a smaller water body at Point MacLeod now known as the Leschenault Inlet (within Koombana Bay) and the main water body to the north known as the Leschenault Estuary. The Collie and Preston Rivers discharge directly into the estuary at the southern end with runoff from the catchment discharging into the ocean via 'the Cut' through the Peninsula (DoW, 2007). The Leschenault Inlet contains a relict species of white mangrove (*Avicennia marina*) (SWCC, 2002).

The highly modified Vasse-Wonnerup estuary system flows into Geographe Bay, which is at the southern extremity of the Swan Coastal Plain IBRA region (SWCC, 2002). A Ramsar listed wetland, the Vasse-Wonnerup is an inter-barrier estuary, which formed as a shallow, elongate basin parallel to the coast and separated from it through dune formation. Prior to being extensively modified through agricultural and urban development, the Vasse-Wonnerup estuary was a complex of brackish seasonal lakes, marshlands, forests and saline lagoons (Pen, 1997). The system is subject to high nutrient loads (often resulting in algal blooms and fish deaths in the estuary and channels) from nutrient rich groundwater sources, agricultural and urban runoff (DoW, 2010).

The Nearshore Marine Environment

Conditions in the nearshore marine environment are strongly influenced by the prevailing wave pattern and fluctuations in sea level (SWCC, 2004). From Binningup to Bunbury, the shoreline is exposed to the south-westerly swell and wind regime and the north-westerly storms. Some shoreline protection is offered by limestone pavements, ridges and relict beach rock slabs. There is a significant northwards movement of sediment in the littoral and nearshore zones (Jones *et al.*, 2005).

South of Bunbury, Geographe Bay is sheltered by the landmass of Cape Naturaliste from the Indian Oceans' south-westerly swells. The Bay provides habitat for seagrass meadows (an important nursery for fish) diverse sponge and coral communities, dolphins and whales. However, Geographe Bay is regularly exposed to north-westerly storm activity in winter, which is responsible for coastline erosion. Longshore sediment transport is predominately from west to east (Jones *et al.*, 2005).

Marine flora and fauna are predominately temperate, however a strong Indo-West pacific component is present due to the influence of the warmer Leeuwin current (SWCC, 2002).

Terrestrial Flora and Fauna

The Binningup to Cape Naturaliste coastline typically comprises a low-lying coastal plain dominated by *Banksia* or tuart woodland on sandy soils, *Casuarina* on outwash plains and *Melaleuca* in swampy areas (SWCC, 2002). Remaining Tuart forest is found in small pockets such as at Wonnerup and Ludlow (SWCC, 2002). The coastal woodlands become taller between Bunbury and Busselton and low peppermint woodland fringes the coastal zone between Busselton and Dunsborough (SWCC, 2002).

Terrestrial fauna has been impacted by loss of habitat (through clearing) and predation by foxes and cats (SWCC, 2004). Threatened fauna include the Western Ringtail Possum (*Pseudocheirus peregrinus occidentalis*), Brush-tailed Phascogale (*Phascogale tapoatafa*) and Yellow Admiral Butterfly (*Vanessa itea*).

Key Activity Nodes

The Binningup to Cape Naturaliste section has one of the fastest growing populations in Australia and is frequently visited by tourists (SWDC, 2015). Due to the increasing population, much of the coastal environment is developed and under pressure from recreational and commercial activities. Key recreational nodes in Section 1 include Geographe Bay, the Leschenault Peninsula and Estuary, Meelup Regional Park, Peppermint Grove Beach and Wonnerup Beach.

The Bunbury Port is a hub of commercial activity where materials related to mining, agriculture and industry are exported (and imported). Port Geographe, north of Bunbury, supports a marina, canals, artificial beaches, a breakwater and associated structures. This area has had significant financial investment to reduce impacts from coastal erosion and has commercial and recreational value, with community expectation that the area will be adequately maintained. High visitation and tourist activity are associated with the popular coastal towns of Bunbury, Busselton and Dunsborough, attracting large sporting events and holidaymakers.

4.1.2 Values

Values within Section 1 have been established through literature review, an analysis of relevant databases, stakeholder consultation and a community workshop. Values are related to conservation and biodiversity, heritage, economic, social and recreational values and are outlined in Appendix 1 and Appendix 5. The key values in Section 1 are listed below:

Biodiversity/Conservation Values:

- Areas of high biodiversity and conservation within Section 1 include the Leschenault Estuary and Peninsula; Geographe Bay; Meelup Regional Park; Preston River to Ocean (proposed) Regional Park; and Cape Naturaliste.
- Vasse Wonnerup System - Waterbird breeding and feeding habitats (providing habitat for waterbirds such as the Black-winged Stilt (*Himantopus himantopus*), Red Necked Avocet (*Recurvirostra novaehollandiae*), Australian Shelduck (*Tadorna tadornoides*), Australasian Shoveler (*Anas rhynchos*) and the largest known breeding colony of Black Swans in Western Australia).

- Geographe Bay - Ecological marine values of near shore environment (values include seagrasses, diverse sponge and coral communities, dolphins, seals and whales).
- Black Cockatoo foraging habitat.
- Threatened Fauna (notable species include the Western Ringtail Possum (*Pseudocheirus peregrinus occidentalis*), Brush-tailed Phascogale (*Phascogale tapoatafa*), Yellow Admiral Butterfly (*Vanessa itea*)).
- Threatened and Priority Flora.
- Threatened Ecological Communities, Priority Ecological Communities and vegetation of regional significance.
- Samphire marshes, *Sarcocornia-Halosarcia* wetlands and the most southern occurrence in the State of mangrove communities (White Mangrove, *Avicennia marina*) in the Leschenault Inlet.

Heritage Values:

- European Heritage: Key sites include Henton Cottage (Australind), Old Timber Jetty (Bunbury), Wonnerup House, St Marys Church and Pioneer Cemetery (Busselton), Busselton Jetty and Cape Naturaliste lighthouse.
- Aboriginal Heritage: The Kaniyang, Pinjarup and Wardandi Groups are the regional custodians for area between Binningup and Cape Naturaliste (ABC, 2015). Many heritage sites are located along the coastal zone including camping and ceremonial locations, artefacts and burial sites. Waterways, inlets and river mouths provide resources for Aboriginal people and historic burial sites are located in near coastal sand dunes.

Economic, Social and Recreational Values:

Beaches and the near shore marine environment are extensively used for:

- Recreational activities (swimming, snorkelling, fishing, bushwalking, horse riding, four wheel driving).
- Commercial fishing.
- Tourism (key tourism nodes include the Dolphin Discovery Centre and Busselton Jetty).
- Bunbury Port.
- Events and festivals.
- Dolphin and whale watching.
- Scenic values.
- Dual use path along Dunsborough/Busselton foreshore.

Values specific to coastal nodes and settlements are outlined in the priority matrix (Appendix 11) and in the literature review summary (Appendix 1).

4.1.3 Key Threats, Issue and Risks

Through the literature review, stakeholder consultation and community workshops the most significant threats identified in this Section are as follows:

- Tourism and recreation - Coastal access, uncontrolled and unmanaged four wheel drive use, camping and sandboarding. Erosion from uncontrolled access has been highlighted as a widespread threat to coastal integrity.
- Landscape fragmentation associated with development.
- Climate change (key impacts include sea level rise, inundation and storm surge).
- Disturbance of Aboriginal sites due to coastal development.
- High visitation where it cannot be managed adequately.
- Uncontrolled and unmanaged four wheel drive and/or pedestrian access (key impacts include erosion, environmental degradation, increased risk of fire, introduction of weeds, spread of dieback, disease, feral animals and user conflicts).
- Inappropriate use of off-road vehicles on beaches.
- Erosion related to climate change (including storm surge, sea level and coastal development (key impacts include loss of habitat, landscape fragmentation, pollution, increased visitation and user conflicts).
- Lack of on-going maintenance and the potential failure of coastal infrastructure (e.g. 'The Cut').
- Impacts of agriculture and urban development on water quality through diffuse and point source pollution resulting from land use such as fertiliser application.
- Impacts of boating on the nearshore environment, marine habitats and species (e.g. whales and dolphins).
- Land tenure and responsibility for management of waterways is either not clear or there is no management authority (e.g. Leschenault Estuary, Hardy Inlet and Vasse Wonnerup Estuary).
- Lack of continuity or certainty in funding for coastal management for activities that require an on-going or extended management effort (e.g. weed management).
- Lack of knowledge and certainty, particularly in relation to climate change predictions and coastal processes at both regional and local levels.
- Lack of collaboration and shared knowledge/databases.
- Marine debris.

4.2 SECTION 2: CAPE NATURALISTE TO AUGUSTA

The coastal zone from Cape Naturaliste to Augusta (Section 2, Figure 4) is primarily located within the Warren IBRA region with a predominantly west-facing rocky shore affected by a high wind and wave

regime (SWCC, 2002). A small area of Section 2 (the tip of Cape Naturaliste) is also located within the Jarrah IBRA region. The majority of the coastal areas within Section 2 are in the Western Australian conservation estate which is administered by the Conservation Commission of Western Australia (CCWA) with management undertaken by DPAW. These areas are relatively intact, with access to the coast provided at key nodes.

Between the conservation estate areas are crown reserves which are mostly managed by local governments, including the City of Busselton and the Shire of Augusta Margaret River. The coastal zone has a number of coastal settlements including (from north to south) Yallingup, Gracetown, Prevelly and Augusta. Section 2 also supports the rapidly growing towns of Cowaramup and Margaret River, located just inland of the coastal zone.

Key areas of high biodiversity and conservation significance are found in Section 2 within the Leeuwin-Naturaliste National Park and the Ngari Capes Marine Park.

The sustainable management of the coastal zone in this section is threatened by increasing visitation to the coast as the population in the area, and tourism, increases. This section also faces pressures related to coastal processes exacerbated by climate change. Threatening processes include erosion related to unmanaged access and the management of weed infestation in post-fire landscapes.

4.2.1 Description and Key features

Coastal Geology and Landforms

The coastal zone within Section 2 features a major physiographic unit, the Leeuwin-Naturaliste Ridge which comprises an elevated block of igneous rock approximately 95 km long and seven to 14 km wide (SWCC, 2002). The granite-gneiss is locally overlain by limestone that forms cliffs, caves and intertidal rock platforms. Minor lateritic deposits have also developed. Dunes and sand sheets cover rock outcrops and coarse sand beaches lie between rocky headlands (SWCC, 2004). In sheltered areas of the shorelines, particularly on the northern sides of headlands, granite-gneiss boulder fields and large pools provide rich habitats for a diverse range of flora and fauna (SWCC, 2002).

Estuaries and Coastal Wetlands

There are few coastal wetlands and estuaries in Section 2 due to the geology of the Naturaliste Leeuwin Ridge (SWCC, 2002). A small barred estuary occurs at the mouth of Margaret River.

The Nearshore Marine Environment

Coastal water circulation is dominated by a cool nearshore northerly Capes current in summer and the warmer south flowing Leeuwin current in autumn and winter. The area is dominated by with heavy south-westerly swells and dominant westerly winds (SWCC, 2002). Nearshore reefs and intertidal limestone platforms are present along the sector, especially south of Margaret River. The sea bed is dominated by the Yallingup Shelf extending to the continental slope. Water temperatures here can be 2-3 degrees higher than those in Geographe Bay when the Leeuwin current reaches this coast in autumn and winter (SWCC, 2002).

Intertidal and nearshore marine areas support an unusually diverse fauna (LNRSP, 1998). Fauna here occur within the Southern Australian biogeographic region, with habitat and species similar to those

along the south coast. This coastline also supports a range of south-west endemics and a minor Indo West Pacific element (SWCC, 2002).

Terrestrial Flora and Fauna

Coastal areas are typified by Holocene (recent) dunes with Peppermint (*Agonis flexuosa*), Banksia woodlands and heaths. These low woodlands are backed by medium forest (Jarrah/ *Eucalyptus marginata* – Marri/ *Corymbia callophylla*) and small pockets of tall Karri (*E. diversicolor*) forest (SWCC, 2002).

The Leeuwin – Naturaliste capes area parks and reserves management area (DPaW, 2015) contains 12 species of rare flora, some of which have recovery plans. The area also contains several geographically significant species. Those that occur in the park but not in other areas of Section 2 are usually associated with beaches, limestone and granite soils. Each of these habitats also supports restricted species (*Calystegia soldanella*, *Banksia sessilis* var. *cordata* and *Agrostocrinum scabrum* subsp. *littorale* respectively). Ten restricted species have significant disjunct populations in the park and one of those species is priority listed. Thirty-seven range-end species occur, at Cape Naturaliste, Yallingup, Canal Rocks, Moses Rock, Boranup wetlands, Cape Freycinet to Cosy Corner, Cape Leeuwin granites and in freshwater springs and seepages at Devil's Pool. Ten species are at their southern extent and the remaining species are at their northern or western extent. Five are priority-listed and another five are disjunct from other populations. Thirteen species are endemic to the Leeuwin-Naturaliste Ridge and some are considered endemic to the park, including two declared rare species – *Kenmedia lateritia* and *Wurbea calcicola*. Another declared rare species *Caladenia excels* is endemic to the Leeuwin-Naturaliste Ridge and does not occur in any other conservation reserve.

The coastal zone in this Section supports a number of threatened and priority fauna including Hutton's shearwater (*Puffinus huttoni*), Australasian bittern (*Botaurus poiciloptilus*). Coastal birds such as Bridled and Crested Terns (*Onychoprion anaethetus* and *Thalasseus bergii*), Red-tailed Tropic Bird (*Phaethon rubricauda*) and Hooded Plover (*Thinornis cucullatus*) nest in the area.

There is also a high level of endemism associated with Section 2, comprising locally restricted and disjunct species within the Leeuwin Naturaliste National Park (DPAW, 2015). Terrestrial fauna includes relict populations of invertebrate and vertebrate animals in association with remnant vegetation and cave systems.

Key Activity Nodes

Key activity nodes within Section 2 include popular surf beaches (such as Windmills, Three Bears, Yallingup, Lefthanders, Gracetown and The Point (Surfer's Point)), whale watching associated with Cape Naturaliste and Cape Leeuwin, hiking on the Cape to Cape track, and fishing, caving, abseiling, camping and surfing throughout the Leeuwin Naturaliste National Park and associated DPAW reserves. Quinninup Falls is a popular coastal node of heritage significance.

High visitation and tourist activity occurs both within the Leeuwin - Naturaliste National Park and within the settlement nodes of Yallingup, Gracetown, Kilcarnup and Prevelly. Coastal areas associated with these towns are popular for many activities including swimming, diving, surfing and fishing, with coastal reserves managed by the Shire of Busselton (Yallingup) and the Shire of Augusta-Margaret River. Boranup Beach and Hamelin Bay are popular four wheel driving, fishing and surfing locations with

camping and accommodation available at Hamelin Bay. The coastal zone from Cape Leeuwin to Augusta features historical values, high biodiversity and ocean vistas.

4.2.2 Values

Values within Section 2 have been established through literature review, an analysis of relevant databases, stakeholder consultation and a community workshop. Values are related to conservation and biodiversity, heritage, economic, social and recreational values and are outlined in Appendix 1 and Appendix 5. The key values in Section 2 are listed below:

Biodiversity/Conservation Values:

- Areas of high biodiversity and conservation within Section 2 include the Leeuwin - Naturaliste National Park, Ngari Capes Marine Park, Cowaramup Bay Reef Protection Area, Yallingup Marine Protection area, A class reserves and Margaret River estuary and river mouth.
- Ecological marine values of near shore environment (values include diverse temperate marine environment, high water quality, seabirds and shorebirds, corals, high finfish diversity of tropical and temperate species, internationally significant seagrass diversity, complex geomorphology with intertidal and sub-tidal reefs, endemic marine plants and animals, spawning, nursery and feeding grounds for invertebrates and fish, significant marine mammals including blue whales) (DPAW, 2013).
- Threatened fauna and fauna habitats including Osprey (*Pandion haliaetus*) nesting sites, nesting areas of the Red-tailed Tropicbird (*Phaethon rubricauda*) at Sugarloaf Rock and Hooded Plover (*Thinornis cucullatus*) (DPAW, 2015).
- Threatened and Priority flora plus endemic, relictual, locally restricted and disjunct species within the Leeuwin - Naturaliste National Park (DPaW, 2015).
- Threatened Ecological Communities, Priority Ecological Communities and vegetation of regional significance (DPaW, 2015).
- Karst systems including caves (DPaW, 2015).
- Groundwater dependent ecosystems (DPaW, 2015).
- Significant ecological linkages, notably the Cape Leeuwin to Cape Naturaliste ecological linkage (Molloy *et al.*, 2009).
- Fossil deposits of importance in understanding mammal extinction (DPaW, 2015).

Heritage Values:

- The Warandi people are the traditional custodians for the area between Cape Naturaliste and Augusta (ABC, 2015).
- Aboriginal Heritage: Sites of heritage significance are located along the coastal zone. Evidence of the occupation of Aboriginal people 55,000 years ago especially where resources were available along waterways, inlets and river mouths (SWCC, 2004).

- European Heritage: Key sites include Ellensbrook Homestead and Cape Leeuwin lighthouse (DPaW, 2015).

Maritime heritage (DPaW, 2015). **Economic, Social and Recreational Values:**

- Beaches and near shore marine environment for recreational activities (swimming, snorkelling, diving, fishing, bushwalking, surfing, abseiling, rock climbing and four wheel driving).
- Commercial fishing.
- Whale watching.
- Tourism (key tourism nodes include Yallingup Beach, Gracetown, Gnarabup, The Point and Rivermouth and the camping, day use and caves associated with the Leeuwin-Naturaliste National Park).
- Scenic values.
- Dual use path along Gnarabup foreshore.
- Educational opportunities.
- Events such as the Margaret River Pro (surfing).
- The Cape to Cape Track is an iconic walk trail that follows the coast from Cape Naturaliste in the north to Cape Leeuwin in the south (135km). There are a number of shorter trails which also provide access to the coast and coastal nodes.

Values specific to coastal nodes and settlements are outlined in the priority matrix (Appendix 11) and in the literature review summary (Appendix 1).

4.2.3 Key Threats, Issue and Risks

The literature review, stakeholder consultation and community workshops indicated that the most significant threats in this section are as follows:

- High visitation (key impacts include erosion, environmental degradation, increased risk of fire, introduction of weeds, spread of dieback, disease and user conflicts).
- Tourism and recreation - Coastal access, four wheel drive use, camping. Illegal camping is also an issue.
- Climate change (key impacts include sea level rise, storm surge, bushfires and impacts to climate sensitive species).
- Disturbance of Aboriginal sites due to coastal development.
- Residential subdivision near to the coast - planning and implementation for sustainable interaction of increasing numbers of people is not keeping up.
- Coastal development (key impacts include loss of habitat, landscape fragmentation, pollution, increased visitation and user conflicts).
- Bushfire and post fire impacts such as erosion and weeds.

- Weeds and disease.
- Maintenance of coastal infrastructure (e.g. maintaining access to highly mobile beaches).
- Lack of funding for coastal management.
- Lack of knowledge, particularly in relation to coastal processes.
- Coastal Risk.

4.3 SECTION 3: AUGUSTA TO WALPOLE

Section 3 of the CAP area is the Augusta to Walpole coastal zone, which is located in the Warren IBRA region and experiences a predominantly southwest-facing sandy shore affected by a high wind and wave regime. The majority of the coastal areas within Section 3 are either in private freehold land (particularly between Augusta and Black Point), or in the Western Australian conservation estate which is administered by the CCWA with management undertaken by DPAW. Between the conservation estate areas and private freehold land are crown reserves which are mostly managed by local governments, including the Shire of Augusta-Margaret River and the Shire of Manjimup. There is also unallocated crown land which is largely unmanaged (e.g. Nannup). Section 3 has few coastal settlements with a lease based townsite at Windy Harbour, a 'townsite' called Camfield on northern shore of the Broke Inlet (Shire of Manjimup) and Walpole located on the northern edge of the Walpole Inlet.

Section 3 is largely wilderness, with limited access to the coast, although the area is widely used by tourists and residents from nearby towns such as Augusta, Walpole, Northcliffe and Pemberton (although in lower numbers than Sections 1 and 2). The wilderness areas have few facilities and have a relatively low level of amenities for visitors.

Key areas of high biodiversity and conservation significance are found in Section 3 in association with the D'Entrecasteaux National Park, Walpole Wilderness areas and the Walpole-Nornalup National Park.

4.3.1 Description and Key Features

Coastal Geology and Landforms

To the east of Cape Leeuwin is the southeast-facing Flinders Bay, formed by the erosion of soft sediments of the Perth basin which lies to the south and east of Augusta. The Bay extends to where the Darling Fault crosses the coast at Black Head near Point D'Entrecasteaux (SWCC, 2004).

Much of Section 3 comprises long beaches with steep faces which are backed by dunes. Behind the dunes, low swampy plains overlie unconsolidated marine and alluvial sands forming the Scott Coastal Plain. Mobile sand sheets, such as the Yeagarup and Meerup systems, are most prevalent between the Donnelly River and Point D'Entrecasteaux. Basalt outcrops at Black Point form boulder fields and column-like cliffs (SWCC, 2002).

South of Black Point, granites, gneisses and doleritic rocks form coastal headlands such as Point Nuyts and West Cliff Point. These headlands are typically less than 100 m high and are overlain by limestone, including the cliffs near Windy Harbour. The coastline is interrupted by rivers, many of which end in estuaries and lagoons surrounded by large dunes and plugged by sand bars. The coastal dune belt varies

in width between 500m and 9 km. Inland, the dunes generally become more stable, vegetated and regular (SWCC, 2002).

Estuaries and Coastal Wetlands

Key estuaries in Section 3 include the Blackwood Estuary and Hardy Inlet, Broke Inlet and the Walpole and Nornalup Inlets (Pen, 1997). There are also smaller estuaries which are scattered along the coastal zone. The estuaries in this Section are either narrow and riverine (e.g. Donnelly, Warren and Gardner), and have been formed from drowned river valleys (e.g. Hardy), or are basins in the coastal plain that have been filled by the drainage of waterways towards the coast (e.g. Broke Inlet and Walpole Nornalup inlets) (Pen, 1997).

The Hardy Inlet is one of only two large permanently open estuaries on Western Australia's south coast. The Inlet is an important nursery for marine finfish, a habitat for migratory and resident water birds and supports sea grasses, aquatic weed and macroalgae (DoW, 2014). The Inlet has high economic, social and environmental values (DoW, 2014).

The Broke Inlet is a seasonally open, elongate lagoonal estuary fed by the Shannon River (SWCC, 2002). The catchment of this Inlet is relatively intact and untouched.

The Nornalup Walpole Inlets comprise two connected lagoons and the tidal reaches of the Deep, Frankland and Walpole Rivers (SWCC, 2002). These Inlets have high recreational, heritage and biodiversity values. Features of this system include (Department of Environment and Conservation, 2009):

- An entrance which is permanently open to the ocean;
- Good water and sediment quality;
- Habitat which supports finfish, sharks and rays, shorebirds and seabirds; and
- Sandy beaches and shoreline vegetation.

The Nearshore Marine Environment

Waves are generated by a variable to south-east onshore wind regime, together with a persistent and strong southwesterly swell, which create a high energy shoreline. There is a net easterly drift (SWCC, 2002).

The nearshore marine fauna are similar to communities in the Southern Australian region, although they have a significant local endemic element. There are few Indo-West Pacific species present. Species diversity on the north-western part of this Section is limited by geomorphic heterogeneity and the high energy environment (SWCC, 2002).

Basalt formations at Black Point form large tidal pools, boulder fields and narrow rock platforms extending into the nearshore zone and host unusual habitats. The more heterogeneous shoreline to the southeast supports a rich intertidal rock shore fauna (SWCC, 2002).

Terrestrial Flora and Fauna

Extensive areas of native coastal vegetation remain in this Section 3 of the SWCC coastal zone due to remoteness and the protection offered by national parks and conservation reserves (SWCC, 2002).

The terrestrial vegetation is characterised by a rich mosaic of shrublands, woodlands and forest, areas of dunal and wetland vegetation associations, Threatened Ecological Communities and Threatened and Priority Flora (WAPC, 2009). Peppermint shrublands and forests and woodlands dominated by jarrah are also common (WAPC, 2009).

A rich mosaic of wetland and dune vegetation associations, combined with areas of forest and woodland, dominate the Scott Coastal Plain. Scott National Park is particularly noted for its unusual diversity of vegetation complexes and for preserving woodland typical of the area (DPAW, 2015). Wetland, sedgeland and closed heath associations become more extensive towards Gingilup Swamps Nature Reserve.

There is a paucity of information regarding terrestrial fauna in the western portion (UCL and private land) of Section 3 (WAPC, 2009). However, the area is important habitat for the conservation significant frog species *Geocrinia rosea* (SWCC, 2002). Threatened and Priority fauna includes the Chuditch (*Dasyurus geoffroii*), Western-ringtail Possum (*Pseudocheirus occidentalis*), Baudin's Black Cockatoo (*Calyptorhynchus baudinii*), Carpet Python (*Morelia spilota*), Peregrine Falcon (*Falco peregrinus*) and Red-eared Firetail (*Emblema oculata*) (SWCC 2002, WAPC 2009). Other species of interest include the Crested Shrike-tit (*Falcunculus frontatus leucogaster*) and Freckled Duck (*Stictonetta naevosa*) (SWCC, 2002; WAPC, 2009).

Key Activity Nodes

Relatively high visitation and tourist activity occurs in peak holiday periods within the D'Entrecasteaux National Park and at Windy Harbour and Walpole. The coastal stretch from Augusta to Walpole is largely wilderness with limited or poorly defined access, sites and areas of Aboriginal heritage significance, high biodiversity and geo-heritage sites. Section 3 attracts large groups of beach fishermen and four wheel drive enthusiasts who target dune driving (such as a Yeagarup).

Key activity nodes within Section 3 include Black Point, Yeagarup, Malimup, Banksia Camp and Broke Inlet.

4.3.2 Values

Values within Section 3 have been established through literature review, an analysis of relevant databases, stakeholder consultation and a community workshop. Values are related to conservation and biodiversity, heritage, economic, social and recreational values and are outlined in Appendix 1 and Appendix 5. The key values in Section 3 are listed below:

Biodiversity/Conservation Values:

- Areas of high biodiversity and conservation value within Section 3 include Swan Lake, The Deadwater, D'Entrecasteaux National Park, Walpole-Nornalup National Park, the Hardy Inlet and Blackwood River, Broke Inlet, Walpole and Nornalup Inlets, Ngari Marine Park, Walpole Wilderness Area and A Class Reserves. Areas of unallocated and Crown land may have high values, but detailed information about these areas is lacking.

- Inlets at the mouths of the Donnelly, Warren, Meerup, Doggerup and Gardner waterways.
- Wetlands and associated vegetation and habitat for waterbirds, frogs and aquatic life.
- Groundwater resources.
- Ecological values of estuaries and near shore marine environments including diverse temperate marine habitats, high water quality, seabirds and shorebirds, corals, high fish diversity, seagrasses, geological complexity, endemic marine plants and animals, spawning, nursery and feeding grounds for invertebrates and fish, significant marine mammals including blue whales (DPAW, 2013).
- Threatened fauna and fauna habitats.
- Threatened and Priority flora plus endemic, relictual, locally restricted and disjunct species.
- Threatened Ecological Communities, Priority Ecological Communities and vegetation of regional significance.
- Significant ecological linkages (Molloy *et al.*, 2009).
- Wilderness and remoteness.
- Caves and karst systems.

Heritage Values:

- The traditional custodians for the area between Augusta and Walpole are the Bibbulmun and Minang people (ABC, 2015).
- Aboriginal Heritage: Sites and landscapes of mythological, ceremonial, cultural and spiritual significance. Fish traps and significant areas such as Black Point, waterways, inlets and river mouths.

Geo-heritage sites (e.g. Augusta Shell Bed and granulite exposures at Windy Harbour). Economic, Social and Recreational Values:

- Beaches and near shore marine environment for recreational activities (swimming, diving, fishing, bushwalking, wildlife interaction, surfing and four wheel driving).
- Commercial fishing.
- Groundwater resources.
- High scenic quality and wilderness.
- Nature based tourism.
- Bibbulmun Track.
- Educational opportunities.

Values specific to coastal nodes and settlements are outlined in the priority matrix (Appendix 11) and in the literature review summary (Appendix 1).

4.3.3 Key Threats, Issues and Risks

The literature review, stakeholder consultation and community workshops indicated that the most significant threats in Section 3 are as follows:

- Tourism and recreation use (e.g. camping, fishing) (key impacts include erosion from coastal access and four wheel drive).
- Climate change (key impacts include sea level rise, bushfires, reduced rainfall and impacts to climate sensitive species).
- Disturbance of Aboriginal sites.
- Difficulties related to planning for coastal development (ensuring reduction of key impacts such as loss of habitat, landscape fragmentation, pollution, increased visitation and user conflicts).
- Uncontrolled vehicle access to freehold land.
- Feral animals.
- Introduced marine pests.
- Eutrophication and water quality.
- Lack of infrastructure and facilities.
- Garden escapees resulting in weed invasion of adjacent areas (Windy Harbour).
- Lack of formal effluent and rubbish disposal systems (Camfield Townsite).
- Bushfire and post fire impacts such as erosion and weeds.
- Weeds and disease (including dieback).
- Inaccessibility resulting in poor management and maintenance of facilities in remote areas.
- Lack of funding for coastal management.
- Vandalism.
- Dogs in National Parks.
- Firewood collection.
- Use of closed tracks and creation of new tracks.
- Lack of knowledge.
- Land tenure - private land and leases surrounded by National Park, squatters huts, native title, UCL.
- Coastal risk (e.g. Fish Creek limestone cliffs).
- Acid sulfate soils.
- Management of community expectations.

- Land tenure and jurisdiction in local waters affecting appropriate coastal management (gap in management of estuaries).
- Informal camping in sensitive areas.
- Large camping groups resulting in environmental degradation due to lack of appropriate facilities.

4.4 MARINE ENVIRONMENT

4.4.1 Description and Key Features

Bioregional Setting

Marine areas have been characterised using the *Integrated Marine and Coastal Regionalisation of Australia* (IMCRA) (Commonwealth of Australia, 2006). IMCRA (V4.0) is a spatial framework for classifying Australia's marine environment into bioregions that make sense ecologically and are at a scale useful for regional planning. These bioregions are the basis for the development of a National Representative System of Marine Protected Areas (NRSMPA).

The marine coastal zone referred to in the CAP occurs within the Leeuwin-Naturaliste (LNE) Bioregion (IMCRA; Commonwealth of Australia, 2006). The LNE bioregion extends from Perth to Black Point and typically comprises high energy, swell affected coast with a narrow continental shelf, where coastal waters are strongly influenced by the warm offshore Leeuwin Current and cooler inshore counter currents. South and SW swell conditions dominate the region and many shores are exposed, while the north-facing Geographe Bay and, to a lesser extent, Koombana and Comet Bays are sheltered from these prevailing conditions. Bathymetry is typically uncomplicated, especially in the northern section, where the seabed shelves gently westwards. Coastal heterogeneity to the north of Geographe Bay is produced by fine calcareous Holocene sands and sublittoral reefs formed by Pleistocene limestone ridges that lie parallel to the coast. The elevated Leeuwin-Naturaliste block, which is an outlier of the Proterozoic Yilgarn Craton, has created a complex shore of gneiss boulders and headlands, limestone platforms and sandy beaches on this exposed, high energy coast. The exposed coast between Cape Leeuwin and Black Point comprises a long arcuate beach that forms the southern rim of the Scott coastal plain and extends to the unusual columnar basalt formations at Black Point, which delineate where the Darling Fault crosses the coast.

Commonwealth Marine Reserves

Commonwealth reserves are located in Commonwealth waters from three miles to 200 nautical miles out to sea. The coastal zone as defined in this CAP is within three nautical miles of the coast, within state waters. The CAP coastal zone is adjacent to the Southwest Commonwealth Marine Region that includes a number of reserves, including the Geographe Bay Commonwealth Reserve and the Southwest Corner Commonwealth Reserve (DoE, 2015).

State Marine Reserves

The State Government is progressively establishing a representative system of multiple-use marine parks and reserves in Western Australia. Under the *Conservation and Land Management Act 1984*

(CALM Act) marine parks and reserves are vested in the Marine Parks and Reserves Authority (DPaW, 2015).

The Marine Parks and Reserves Selection Working Group (MPRSWG) identified the marine coastal environments of Geographe Bay, Cape Naturaliste, Cape Leeuwin and Hardy Inlet as areas of high conservation and social value. To ensure that human activities are managed in a way that protects these high conservation value areas, the working group recommended the establishment of a marine reserve. Subsequently the Ngari Marine Park was established, extending from the City of Busselton's northern boundary to Flinders Bay (east of Augusta). The seaward boundary of the marine park is congruent with the seaward limit of Western Australian waters (three nautical miles from the territorial baseline). The Park is gazetted as an A Class Marine Park and surrounds a number of Islands that are important seabird nesting habitat and pinniped haul-outs, including Hamelin Island, Sugarloaf Rock and the Saint Alouran Islands. The marine park is adjacent to the Leeuwin-Naturaliste National Park, which extends to the high water mark.

Oceanic Currents

The marine environment of the south-west of Western Australia is dominated by the Leeuwin current, which carries relatively warm, nutrient-poor water southwards during winter along the coast. This differs markedly from other major eastern boundary currents, such as those on the lower west coasts of Africa (the Benguela current) and South America (the Humboldt current), both of which carry relatively cool, nutrient-rich waters northwards in continental shelf waters (Department of Environment and Conservation, 2013). The presence of the Leeuwin Current and the lack of large-scale ocean upwelling means that south-west Western Australian coastal waters are relatively warmer (up to 4°C) than other coastlines of comparable latitude, and this has a pronounced influence on the coastal and marine biota of the South West NRM region. The Leeuwin current disperses the pelagic larvae of tropical species southwards and enables warm-water species to colonise relatively high latitudes. These extended distributions of tropical species in temperate waters vary in that some appear to be stable, while the persistence of others may depend on Leeuwin current strength. Periodic localised extinctions may occur during extended periods of weak current strength.

Inshore of the Leeuwin current, the weaker and cooler Capes current flows northwards close to the coast from Cape Leeuwin to Cape Naturaliste and beyond. Whereas the Leeuwin current derives from oceanographic gradients between the tropics and Southern Ocean, the Capes current is locally generated during the summer months. It has implications for salmon fisheries as it may affect the migration of adult salmon around Cape Leeuwin at this time of year (Pearce and Pattiaratchi 1999).

4.4.2 Values

Values relating to the marine environment were established through literature review, an analysis of relevant databases, stakeholder consultation and a community workshop. Values are related to conservation and biodiversity, heritage, economic, social and recreational values. The key values in the marine environment are summarised below:

- Water and sediment quality: The clean, clear waters and relatively uncontaminated sediments of the marine environment provide for a healthy marine ecosystem.

- Seagrass communities: Seagrass species are highly diverse and include endemic and rare deep water species. Seagrass is an important primary producer and provides spawning and nursery habitat for a wide range of finfish and invertebrates.
- Intertidal, shallow subtidal and deep reef communities: Reef communities consist of a diverse range of reef dependent plants and animals that are adapted to live within high energy environments.
- Coral and invertebrate communities: Communities that consist of tropical and temperate species. Their presence is influenced by substrate, depth, availability of food and the interaction of the Capes and Leeuwin currents. Species exhibit high levels of endemism.
- Fisheries: The finfish fauna of marine environment comprise tropical and temperate species whose presence is influenced by habitat type, depth, availability of food and the influences of the Capes and Leeuwin currents.
- Cetaceans and pinnipeds: Cetaceans (whales and dolphins) and pinnipeds (seals and sea lions) are resident in and/or transient through the marine environment.
- Seabirds and shorebirds: The diverse range of seabirds and shorebirds of the marine environment include resident, transient and migratory species whose presence is influenced by the availability of prey and of habitat for breeding, nesting and roosting.
- Recreation: Sheltered bays, prevailing ocean swells and diverse marine life combined with easy access provide for a variety of water sports including surfing, diving, swimming, boating, sailing, kite surfing, jet skiing, windsurfing and kayaking.
- Recreational fishing: Recreational fishing for a variety of pelagic, reef and estuarine finfish and invertebrates from the shore, boats and underwater, is an important social activity in the region.
- Tourism: Marine nature based tourism is a rapidly growing industry and is supported by a wide range of attractions and opportunities, with popular activities including nature appreciation, diving and fishing.
- Aboriginal Heritage: A significant number of sites important to Aboriginal people are located within the SWCC marine environment.
- European Heritage: A rich maritime heritage relating to early European exploration and scientific visits which occurred prior to colonial settlement of Western Australia (Department of Environment and Conservation, 2013).
- Scientific research and education: The diversity of marine habitat, flora and fauna, combined with the range of human activities which occur in the marine park, provide excellent opportunities for ecological and social research and education.

(Source: Department of Environment and Conservation, 2013)

4.4.3 Threats, Issues and Risks

The literature review, stakeholder consultation and community workshops indicated that the most significant threats in the marine environment include:

- Climate change, which may lead to a range of marine impacts (e.g. increased water temperatures, acidification) and could influence aspects of the biology of marine species, such as spawning success, settlement patterns and recruitment patterns (Fletcher and Santoro, 2014).

- Extreme events, such as the marine heatwaves which influence the Leeuwin Current, may have severe negative effects, including increased mortalities of marine biota (Fletcher and Santoro, 2014).
- Marine Debris: Marine debris not only impacts on the aesthetic appeal of the coast, but may also result in injury or death to marine life through entanglement or ingestion.
- Pollution of the marine environment through stormwater discharge and runoff, agricultural runoff.
- Introduction of invasive species.
- Overfishing resulting in impacts to individual species and disrupting food chains and ecosystems.
- Increased population and high visitation in the southwest has resulted in an increase in boating activity in nearshore waters. The impacts of increased boating on NRM resources in the southwest coastal zone is yet to be quantified however impacts may include:
 - Disturbance of fish and wildlife (e.g. disturbance/ injury to whales and their calves);
 - Sediment re-suspension impacting water clarity and benthic communities;
 - Water pollution through hydrocarbon spills and leaks; and
 - Destruction of seagrasses and algal communities through contact with propellers/boat hulls/anchoring or indirectly through turbidity and wave damage.

5 PRIORITISING COASTAL LOCATIONS FOR MANAGEMENT

Information from Section 4, the literature review and input from stakeholders has been used to develop a prioritisation matrix for the South West NRM coastal region. Coastal management principles, methodology used to prioritise and outcomes are discussed in this Chapter.

5.1 COASTAL MANAGEMENT PRINCIPLES

There are a suite of Principles which need to be considered to effectively and equitably undertake projects and other activities, including planning in the coastal zone. These principles are summarised in Table 5-1 and include the need to:

- Consider legislation, policies and guidelines;
- Involve and consult with stakeholders;
- Consider and plan for the preservation of ecological resources;
- Manage risk and safety; and
- Provide opportunities for the sustainable use of the coastal zone by different user groups.

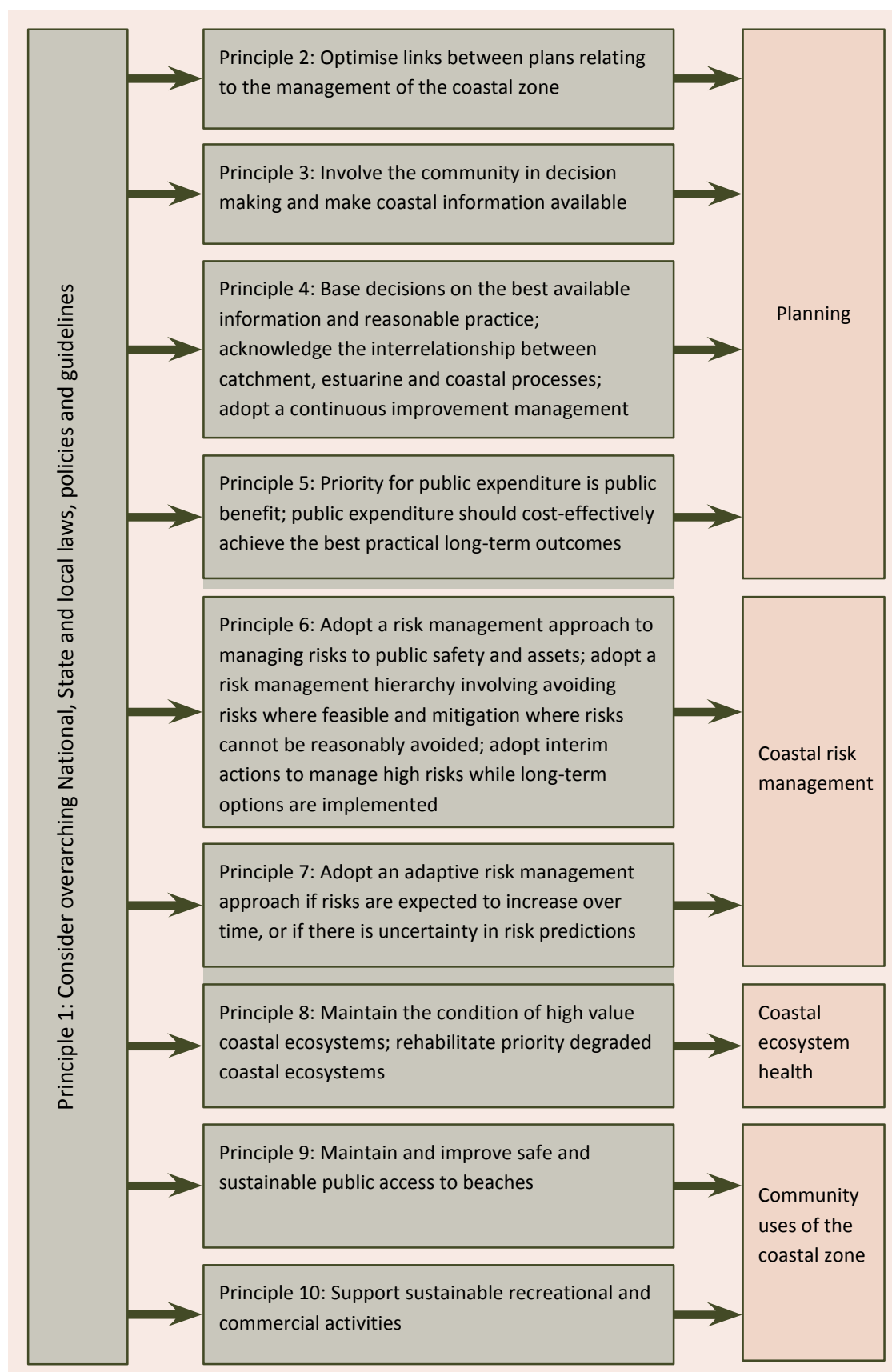
SWCC supports these principles and will ensure that, for matters within its control, decision making on the coast will be guided by and consistent with the hierarchy of principles, which are:

- Provide for the protection of significant environmental and cultural values;
- Undertake integrated planning and provide clear direction for the future; and
- Ensure the sustainable use of natural coastal resources.

When the above principles have been considered and addressed, SWCC will support development on the coast that is located within existing modified and resilient environments, where the demand for development is evident and the impact can be managed.

The hierarchy of principles has been considered in the prioritisation of places, actions and activities in the SWCC coastal zone. SWCC's charter as an NRM facilitator means that it has a focus on the protection and enhancement of environmental values with consideration of social, cultural and economic impacts.

Table 5-1: Coastal Management Principles



(Adapted from NSW Government Guidelines for Preparing Coastal Zone Management Plans. Office of Environment and Heritage, 2013).

5.2 PRIORITISATION FRAMEWORK

5.2.1 The Priority Matrix

A prioritisation matrix is a visual tool to help make choices about actions, issues, tasks or goals. The prioritisation process can be used in various situations where there are difficult choices, multi-variants, or when a mixture of qualitative and quantitative information is available. Being a visual tool, a matrix assists in looking at the issue in a new way and can bring new perspectives and the ability to compare, to a process.

The creation of a priority matrix is most useful in the following circumstances:

1. For narrowing down the number of places or actions:
 - a. When there are plenty of things to be done, but resources are limited.
 - b. Quantitative data is limited.
 - c. There are a variety of agendas.
2. Deciding what are key actions or activities.
3. Sorting between risks.

Advantages of a prioritisation matrix include:

- No place or action is out of consideration; some places or actions are just a lower priority. All places are acknowledged, which can help to avoid conflict about places being excluded.
- The visual presentation of information in a spreadsheet makes it easier to consider multiple factors simultaneously. When there is a multitude of places to pick from, deciding where to focus limited resources can be overwhelming. Having all the places visually represented is easier to comprehend and digest.
- Quick and easy, and can be used when there is limited data.

Disadvantages of a prioritisation matrix can be:

- Doesn't exclude a place or action. As nowhere is specifically 'out', it can result in over complication with too many options cluttering the matrix.
- Subjective: Although also an advantage when there are limited facts, the inherent level of subjectivity can lead to doubts about the conclusion.
- Still difficult to manage more than a few dimensions. Having criteria with multiple considerations, such as threats, values, capacity and gaps can help to deal with complex scenarios.

5.2.2 Objectives and Desired Outcomes

Priority coastal zone areas have been prioritised by considering threats, values, capacity of land managers and other stakeholders and gaps in current management. Analysis has been undertaken in a matrix to allow for comparison between sites.

The objectives and desired outcomes for the Priority Matrix are included in Table 5-2.

Table 5-2: Priority Matrix – Objectives, Steps and Outcomes

Development of the Priority Matrix
Objective: Identify and rank priority coastal and marine places for NRM actions and activities
Desired Outcomes:
<ul style="list-style-type: none"> - Assignment of priority areas according to threats, values (natural resources, economic values and social, cultural and intrinsic values), opportunities (capacity and support) and gaps. - Clear transparent and repeatable use of criteria, considerations and scoring to define priorities - Communication through maps of priority areas and stakeholder influence - A set of priorities broadly agreed upon by partners and stakeholders to guide the next five years of coastal and marine investment. - Agreed responsibility of stakeholders (may be after the initial CAP process)

5.2.3 Methodology

Steps involved in developing the Prioritisation Matrix:

1. Decide on the process for applying the tool.
2. Be clear about what you are prioritising and why. In this case we are prioritising coastal zone management units.
3. Set parameters and criteria.
4. Identify options.
5. Rank the options.

The Priority Matrix is an excel spreadsheet with a row for each coastal management unit. For each coastal management unit (e.g. Binningup Beach) a score was assigned for threats, values (NRM, economic and social/ cultural/ intrinsic), capacity/ opportunity and gap for sustainable management. Items considered, and scoring criteria are summarised in Table 5-3. In addition, weighting was assigned to values to ensure that while economic and social values were included, NRM values were weighted, in line with SWCC's key role in NRM activities. Threats were scored according to a risk matrix (Table 5-4) which considers likelihood of an event versus the consequences to NRM values.

Most items were scored on a subjective basis, based on literature review and stakeholder consultation. For example, under economic considerations, ecosystem services (including storm and flood protection, erosion buffers and nutrient cycling) were scored as qualitatively 'present or absent' for sites which provide an obvious ecosystem contribution.

Table 5-3: Prioritisation Matrix – Considerations, Scoring Criteria and Weighting

Priority - Place	Threats	Values			Capacity/ Opportunities	Gap
The matrix has been used to prioritise Reserves/ nodes/ beaches. The scale varies from small reserves to large National Parks/ Marine Parks	Are threats likely to result in likely and/ or significant consequences? (e.g. climate change vulnerability, erosion, risk to life and property, loss of species)	Does the place have significant natural resource features?	Does the place have significant economic values?	Does the place have significant social, cultural and intrinsic values?	Does the place have capacity and opportunities (e.g. appropriate tenure, management plan, community support, and funding potential)?	Does the place have a large gap between existing and sustainable management?
Considerations	1 - Sea level rise - Erosion/ storm surge/ inundation 2 - Climate - e.g. Warming/ drying 3 - Disease (inc. dieback) 4 - Coastal stability (e.g. cliffs) 5 - Degradation - due to uncontrolled access/ geomorphology (e.g. sandy) 6 - Eutrophication 7 - Invasive species 8 - Increased visitation (unmanaged or leading to degradation) 9 - Development/ land use 10 - Water resource use/ hydrology 11 - Lack of planning or information/ data 12 - Governance/ tenure 13 - User conflict 14 - Overfishing 15 - Acid sulfate soils 16 - Pollution 17 - Lack of maintenance (i.e. preserving a condition level or situation) 18 - Fire 19 - Infrastructure (e.g. aging, failure or lack of) 20 - Other	1 – Ramsar listed wetlands 2 - Wetlands of National or State significance 3 - Threatened/ priority flora 4 - Threatened Priority fauna 5 - Threatened/ Priority communities 7 - Geomorphology 8 - Fauna - Waterbirds 9 - Groundwater dependent ecosystems 10 - Other	1 - Fisheries 2 - Tourism 3 - High visitation 4 - Businesses/ enterprises 5 - Ecosystem services	1 - Aboriginal heritage sites 2 - European heritage sites 3 - Recreation 4 - Intrinsic or bequest values (visual amenity, passive enjoyment, values for future generations)	Capacity for implementation and maintenance Support base Funding Leverage Multiple partnerships	If gap is small and achievable to bring area into sustainable management, score higher. If area has a large gap and difficult to raise level of sustainable management, score lower.
Scoring Criteria	1 - Low risk - Threats are likely to result in low risks (low impacts on NRM resources)	Score a point for each known item in considerations row	1 - Low economic values, low visitation	1 - Low social, cultural or intrinsic values	1 - Low Capacity - No management plan, no community group, manager has few resources, low feasibility	5 - Small gap to achieve sustainable management
	2 - Risk medium - Threats represent in moderate risk/costs later (moderate impacts on NRM resources)		2 - Medium economic values, medium visitation	2 - Medium social, cultural or intrinsic values	2 - Medium Capacity - Supported by partner(s)	3 - Medium gap to achieve sustainable management
	3- Risk High - Threats result in high risks (high impacts on NRM resources)		3 - High economic values, high visitation	3 - High social, cultural or intrinsic values (e.g. Aboriginal or European Heritage sites)	3 - High Capacity - Supported by policy, planning and partners	1 - Large gap to achieve sustainable management
	4 - Risk Severe - Threat represents severe risks (loss of life, loss of species)					
Weighting for Parameters	Not weighted	Weighting: 4 to give priority to NRM values	Not weighted	Weighting: 2 to give priority to social and cultural values	Not weighted	Not weighted
Scoring	The priority ranking is determined by adding the scores for threats and values (natural resources, economic and cultural). Capacity and gaps are considered separately.					

Table 5-4: Risk Matrix for Scoring Threats

	Risk Score for Threats				
	➡ CONSEQUENCE FOR NRM VALUES ➡				
	Insignificant	Minor	Moderate	Major	Critical
↑ LIKELIHOOD OF HAPPENING ↑	Low - 1	Medium - 2	High - 3	Severe - 4	Severe - 4
	Low - 1	Medium - 2	Medium - 2	High - 3	Severe - 4
	Low - 1	Low - 1	Medium - 2	High - 3	Severe - 4
	Low - 1	Low - 1	Low - 1	Medium - 2	High - 3
	Low - 1	Low - 1	Low - 1	Medium - 2	High - 3

Data sets used for the population of the priority matrix are included in Appendix 10. Information from the literature review, stakeholder interviews and workshop sessions were also used to score threats, values, capacity/opportunity and gaps.

SWCC undertook an evaluation of the raw score created by the Priority Matrix and added a filter to ensure that NRM considerations were given a high priority.

Sources of Information

The following sources were used to guide the design of the Priority Matrix:

- **Higgins, J. Esselman, R. (2010).** The Nature Conservancy - Conservation Gateway. Setting Priorities. Chapter 13: Define Priorities for Action.
<https://www.conservationgateway.org/Documents/Std13DefinePrioritiesForActionFeb06.pdf>
- **Food and Agricultural Organization of the United Nations (1998)** Integrated Coastal Area Management and Agriculture, Forestry and Fisheries. FAO Guidelines. Rome, Italy.
<http://www.fao.org/docrep/w8440e/w8440e11.htm>
- **Marsden Jacob Associates (2010)** The Economic and Social Impacts of Protecting Environmental Values in Great Barrier Reef Catchment Waterways and the Reef Lagoon. Prepared for the Department of Environment and Resource Management.
- **Marshall, N.A., Marshall, P.A., Tاملander, J. Obura, D., Malleret – King, D. and Cinner, J.E. (2010)** A Framework for Social Adaptation to Climate Change. Sustaining Tropical Coastal Communities and Industries. Prepared for IUCN International Union Conservation of Nature and Natural Resources.

- **The Nature Conservancy (2006)** Ecoregional Assessment and Biodiversity Vision Toolbox. Conservation Gateway. <https://www.conservationgateway.org/Files/Pages/ecoregional-assessment-to.aspx>
- **SVA Consulting (2015)** Prioritisation Matrices. Sourced from: <http://svaconsultingquarterly.com/2014/12/06/prioritisation-matrix-framework-for-making-difficult-decisions/>

5.2.4 Limitations

Constraints related to prioritising coastal locations for actions and activities include:

- There was not enough information to score some coastal zone areas. However, this does not mean that these areas are low priorities or don't have significant values. Filling in the 'gaps' of knowledge for these coastal area should be a priority activity for SWCC and its partners, to allow for consideration during review of the CAP.
- Much of the data relating to values has been collected inconsistently. That is, some areas may have been subject to studies and other not other areas. For example, flora surveys may have been undertaken, with threatened species marked in the DPAW database. However, there is no information relating to the extent of the survey or areas not surveyed.
- The use of qualitative data provided information just as valuable as quantitative data in terms of prioritisation.
- There is bias to large management units with high NRM values. Weighting of factors allowed for balancing of this to some degree. While this ensures that the areas with the highest values are ranked highest, it does mean that some small management units are not ever likely to rank highly in this type of scoring system.

5.3 RESULTS OF THE PRIORITY MATRIX: THE SWCC COASTAL ZONE

The top 10 priority locations in the South West NRM region, based on the prioritisation process and including considerations of threats, values, opportunities and gaps are listed in Table 5-6. The complete Priority Matrix for places is included in Appendix 11.

The following four areas, are agreed as high ranking assets/locations but have not been included in the top ten for the purposes of this Coastal Action Plan; a full explanation is provided below. These areas include:

- Vasse Wonnerup Wetlands (already overseen and managed by the Vasse Task Force);
- Geographe Bay;
- Leschenault Inlet ; and
- Ngari Marine Park (Vested in the Marine Parks and Reserves Authority).

The above areas were raised during the community consultation and are agreed as being very important environmental assets in the South West NRM region, although the scope of this coastal action plan is limited to coastal zone management and associated activities. The reason these assets have been nominated, or the priority actions required to address the threats or issues are generally outside of the scope of this plan and are better addressed through other SWCC and NRM programs.

For the purpose of the CAP, where on ground works and community involvement is not the focus, these locations are not included in the top 10 locations. However, where opportunities allow, SWCC will be involved in promoting the care and management of these locations in partnership with land managers.

It is important to note that information for some coastal zone areas is not readily available and these areas could not meaningfully be prioritised. However, this does not mean that these areas are not important or not in need of management actions and activities. It is hoped that information for these locations will be available to inform reviews of the CAP.

Table 5-5 provides explanations on why those assets were not put in the 10 top priority sites

Asset	How those assets are or can be presently managed
Vasse Wonnerup Wetland System – Ramsar listed	<ul style="list-style-type: none"> The primary management actions required to address the key threats to the VW system are catchment management activities and those detailed in the Water Quality Improvement Plan. Implementation of the required management actions is managed jointly by the Dept of Water and GeoCatch through a variety of committees and fora – including the Vasse taskforce. More details can be found here (http://geocatch.asn.au/our-work/vasse-geographe-strategy/vasse-taskforce/). The majority of required management actions are not coastal zone management actions and considered outside the scope of this plan.
Leschenault Inlet	<ul style="list-style-type: none"> This small water system requires minimal coastal rehabilitation work and it primarily requires water quality improvement through catchment management including water sensitive urban design and through the implementation for the recommendation of the Leschenault Estuary Water Quality Improvement Plan.
Geographe Bay	<ul style="list-style-type: none"> This asset is primarily managed as a key tourism precinct by the City of Busselton and most of its issues are being overseeing and manage by this local government. Coastal groups will however help work on the coastal zone of geography bay which in turn will provide direct benefit to the health of the bay
Ngari Marine Park	<ul style="list-style-type: none"> This marine park is the responsibility and managed by the Department of Parks and Wildlife.

Table 5-6: Top 10 Coastal Zone Priority Management Areas

Top 10	Ranking in South West NRM region	Section	Node/ Location	Tenure	Threats	Threats Score	Natural Resource Values	NRM Score	With Weighting: 4	Economic Values	Economic Score	With Weighting: 1	Social, cultural and intrinsic values	Social/ Cultural Score	With Weighting: 2	TOTAL SCORE	Support, stakeholders with capacity, opportunities	Capacity Score	Gap	Gap Score
1	1	2	Leeuwin Naturalist National Park - Whole Management Area	DPAW	2,3,4,5,7,8,9,10,18	4	3,4,5,7,9,10 relictual and endemic species	8	32	2,3,4	3	3	1,2,3,4	3	6	45	Management Plan, DPAW, Community Groups	3		5
2	2	3	Walpole Nornalup Inlets and Marine Park	DPAW/ Department of Fisheries	1,2,3,5,6,7,8,9,10	3	2,3,4,5,8,9,10	7	28	1,2,3,4,5	3	3	1,2,3,4	3	6	40	Shire of Manjimup, DPAW, Community	3		5
3	3	3	Hardy Inlet and Blackwood River	Shire of Augusta Margaret River	1,2,3,5,6,7,8,9,10,12,14,15,16	4	2,3,4,8,9,10	6	24	2,3,5	2	2	1,3,4	3	6	36	AMRSC	2		3
4	4	1	Leschenault Estuary and Foreshore	No management authority for estuary. Foreshore: Shire of Harvey, City of Bunbury (Leschenault Catchment Council is key stakeholder)	5,6,10,12	4	2,3,4,8,9	5	20	1,2,3,4,5	2	2	1,3	3	6	32	Estuary has no clear management authority, WQIP, City of Bunbury, Shire of Harvey	1		1
5	5	3	D'Entrecasteaux National Park - Entire Management Area	DPaW	2,3,5,18	3	2,3,4,5,7	5	20	2	2	2	1,2,3,4	3	6	31	DPAW	2		3
6	7	1	Meelup Regional Park: Castle Beach, Meelup Beach, Eagle Bay	Meelup Regional Park Management Committee/ City of Busselton	3,5,7,8,17,18,20 rubbish	3	3,4,5,7	4	16	2,3,4	3	3	1,3,4	3	6	28	Management Plan, Masterplan, Committee	3		5
7	8	1	Peppermint Grove Beach	Shire of Capel	7,8,12,13,17,18	3	4,8,9,10	4	16	3	2	2	1,2,3,4	3	6	27	Foreshore Management Plan	2		5
8	9	2	Cape Leeuwin-Flinders Bay	Shire of Augusta Margaret River	1,2,4,8,9,17	2	3,4,5,9	4	16	2,3	2	2	1,2,3,4	3	6	26	Cape Leeuwin Group, Some concept plans to be developed	2		1
9	10	1	The Cut Picnic and Camping area	DPaW	1,6,8	4	4,8,9,10 Fairy terns	4	16	5	1	1	1,3	2	4	25	Management Plan, DPAW, DoT	3		1
10	10	1	Leschenault Peninsula - Entire Management Area	DPaW	1,3,5,6,17	4	3,4,5,7	4	16	5	1	1	1	2	4	25	Management Plan, DPAW	2		1

Refer to Table 5-3 for criteria codes and scoring methodology.

5.4 RESULTS OF THE PRIORITY MATRIX: SECTION 1 – BINNINGUP TO CAPE NATURALISTE

Priority areas have been scored based on threats, values (natural resources, economic values and social, cultural and intrinsic values) opportunities (capacity and support) and gaps (between existing and sustainable management). Table 5-7 shows priority areas within Section 1, which are in the top 10 ranked areas for the whole South West NRM region. The places are listed in order of ranking and take into account the SWCC focus on NRM priorities. All management units have been prioritised based on information regarding the specific values, values opportunities and gaps which are shown in Appendix 11.

Table 5-7: Section 1 - Ranking of Priority Locations

TOTAL SCORE	OVERALL RANKING	NODE/ LOCATION	OPPORTUNITY/ CAPACITY/ GAP
32	4	Leschenault Estuary	Water Quality Improvement Plan, no clear management authority for water body, DoW, Leschenault Catchment Council, Shire of Harvey, City of Bunbury
Priority Actions & Activities/ Assumptions/ Comments Priority Actions – On ground foreshore protection works, access control. Water quality issues will be managed by DoW, Leschenault Catchment Council and other SWCC theme areas.			
28	7	Meelup Regional Park - Castle Beach, Meelup Beach, Eagle Bay	Meelup Regional Park Management Committee, City of Busselton and community groups. Master Plan.
Priority Actions & Activities/ Assumptions/ Comments Priority Actions –Revegetation at Meelup Beach and rehabilitation of other coastal nodes.			
27	8	Peppermint Grove Beach	Shire of Capel and community, foreshore management plan.
Priority Actions & Activities/ Assumptions/ Comments Priority Actions – Participation in ‘Stick to the Track’ program to raise awareness of four wheel drive use and promote more sustainable use of the beach.			
15	8	Leschenault Peninsula Conservation Park, particularly ‘The Cut’ picnic and camping area	
Priority Actions & Activities/ Assumptions/ Comments Priority Actions: Management of coastal access and erosion, protection of fauna (e.g. Fairy Terns)			

Several places that ranked high in the Priority Matrix were not included in the key area listed above as explained in section 5.3 These areas include:

- Vasse Wonnerup Wetland System;
- Leschenault Inlet ;
- Geographe Bay; and
- Ngari Marine Park.

5.5 RESULTS OF THE PRIORITY MATRIX: SECTION 2 – CAPE NATURALISTE TO AUGUSTA

Priority areas have been scored based on threats, values (natural resources, economic values and social, cultural and intrinsic values) opportunities (capacity and support) and gaps (between existing and sustainable management). Table 5-8 shows priority areas within Section 2, which are in the top 10 ranked areas for the whole South West NRM region. The places are listed in order of ranking and take into account the SWCC focus on NRM priorities. All management units have been prioritised based on information regarding the specific values, values opportunities and gaps which are shown in Appendix 11.

Table 5-8: Section 2 - Ranking of Priority Locations

TOTAL SCORE	OVERALL RANKING	NODE/ LOCATION	OPPORTUNITY/ CAPACITY/ GAP
45	1	Leeuwin-Naturaliste National Park and associated Reserves	Statutory Management Plan, DPAW, community support, relatively small gap in sustainable management
Priority Actions & Activities/ Assumptions/ Comments			
Land manager: DPAW with support from other key stakeholders and community groups (e.g. Friends of the Cape to Cape Track).			
Priority Actions - management of creeks and drainage lines that exit at the coast – (e.g. Quinninup Falls) Aboriginal sites, nutrient and water quality issues with threats to endemic fauna and relictual communities (e.g. weeds). Area needs interpretation and protection from unmanaged access. General weed issues at various camping sites: Double gee, Bridal Creeper, Arum Lily, Black Flag trials, Cape Tulip, Cotton Bush. Protection of Hooded Plovers/ breeding areas from dogs and vehicles. Specific sites include (Quinninup, Canal Rocks, Moses Rocks, areas of outflow of fresh water).			
26	9	Augusta – Cape Leeuwin and Flinders Bay	Shire of Augusta-Margaret River, DPAW, Cape Leeuwin Group. Some concept plans to be developed, relatively large gap in sustainable management.
Priority Actions & Activities/ Assumptions/ Comments			
Weed control, beach access, protective fencing and delineation, revegetation, infrastructure and signage.			

5.6 RESULTS OF THE PRIORITY MATRIX: SECTION 3 – AUGUSTA TO WALPOLE

Priority areas have been scored based on threats, values (natural resources, economic values and social, cultural and intrinsic values) opportunities (capacity and support) and gaps (between existing and sustainable management). Table 5-9 shows priority areas within Section 3, which are in the top 10 ranked areas for the whole South West NRM region. The places are listed in order of ranking and take into account the SWCC focus on NRM priorities. All management units have been prioritised based on information regarding the specific values, values opportunities and gaps which are shown in Appendix 11.

Table 5-9: Section 3 - Ranking of Priority Locations

TOTAL SCORE	OVERALL RANKING	NODE/ LOCATION	OPPORTUNITY/ CAPACITY/ GAP
40	2	Walpole Nornalup Inlets and Marine Park	Statutory Management Plan, DPAW, Department of Fisheries, Shire of Manjimup, community support, relatively small gap in sustainable management
Priority Actions & Activities/ Assumptions/ Comments Priority Actions – Research for biodiversity assessment and monitoring for condition, citizen science. Management of stormwater quality in Walpole (e.g. Town boat ramp and Swarbrick Reserve)			
36	3	Hardy Inlet and Blackwood River (tidal portion)	Shire of Augusta Margaret River, Blackwood Catchment Group.
Priority Actions & Activities/ Assumptions/ Comments Weed control, revegetation and erosion prevention.			
31	5	D’Entrecasteaux National Park	Statutory Management Plan, DPAW, community support, moderate gap in sustainable management.
Priority Actions & Activities/ Assumptions/ Comments On-ground works relating to rehabilitation and protection.			

5.7 RESULTS OF THE PRIORITY MATRIX: THE MARINE ENVIRONMENT

Priority areas have been scored according to threats, values (natural resources, economic values and social, cultural and intrinsic values) opportunities (capacity and support) and gaps (between existing and sustainable management). Table 5-10 shows that the marine environment, largely contained within the Ngari Marine Park is a high priority area. The table also provides a ranking within the South West NRM region. Details regarding the specific values, values opportunities and gaps are shown in Appendix 11.

Table 5-10: Marine Environment - Ranking of Priority Locations

TOTAL SCORE	OVERALL RANKING	NODE/ LOCATION	OPPORTUNITY/ CAPACITY/ GAP
29	6	Ngari Marine Park	Statutory Management Plan, DPAW, Department of Fisheries, Department of Transport, community support
Priority Actions & Activities/ Assumptions/ Comments			
Priority Actions – Research for biodiversity assessment and monitoring for condition, citizen science. Monitoring of island communities and succession.			

6 PRIORITISING COASTAL ACTIONS AND ACTIVITIES

6.1 STRATEGIC ACTIONS AND ACTIVITIES

Stakeholders and land managers consistently raised a suite of actions and activities as high priorities for the entire South West NRM region. They are listed below in order of priority (based on stakeholder input):

1. **Sustainable management:** of vehicle and pedestrian access to prevent erosion and degradation. This issue requires an integrated approach at both the State and regional level to engage land managers and users through awareness raising, and supporting legal processes.
2. **Raising awareness:** in user groups and the broader community to encourage engagement and sustainable use of coastal zone resources.
3. **Improvement of the project and activity implementation process:** Update of DOP's *Coastal Planning and Management Manual* (WAPC, 2003) for coastal works and rehabilitation with standards for infrastructure and implementation.
4. **Improvement of the management planning process:** Development of a management plan process that increases the long term success and completion of the implementation process (e.g. establishment of a working group or steering committee which has joint ownership of the process, mechanisms for tracking implementation). To improve the MERI (monitoring, evaluation, reporting and improvement) of management plans, a planning template could be developed and promoted that encourages: the analysis of threats and values, land manager capacity, gaps, consideration of community input, development of SMART activities and actions with a component of cost benefit analysis.
5. **Survey of community attitudes:** Identify community attitudes and values in relation to the coastal zone. What are their views on values, threats, user conflict, risks, hazards and adaptation (e.g. protect vs retreat). This CAP process captures the views of informed and engaged stakeholders, the views of the broader community would be a useful tool to guide investment.
6. **Better integration and communication of key stakeholders:** An integrated approach to coastal management will yield better outcomes in coastal zone management. This should include development of an agreed approach between land managers regarding coastal management, future collaboration and information sharing to assist with coastal management planning to guide activities and better understand climate change risks.

These actions and activities are not easy to address at a local or regional scale due to inherent constraints in implementation, coordination and on-going maintenance. However, striving towards a more strategic approach will provide superior outcomes in the long term.

6.2 PRIORITIES FOR ACTIONS AND ACTIVITIES

SWCC focuses on achieving on-ground outcomes, with additional activities to promote planning, sustainable management and awareness-raising across the region. As resources are limited, SWCC has the following priorities for actions and activities in each priority area:

- To support community based NRM that has the most effective, long term and inclusive outcomes.

- Preference for actions and activities that involve and engage the community (e.g. active community groups, citizen science). Activities that have collaborative approach between the various landholders, government agencies and community groups to ensure better and sustained environmental outcomes are also supported.
- To allow LGAs, State government and its agencies to focus on key responsibilities relating to their operational charter (e.g. infrastructure, safety, commercial activities).
- To increase the knowledge base for coastal zone locations for areas which are relatively poorly know and understood, to allow for inclusion in priority setting for actions and activities.

In this CAP, some priority areas have overlap with other SWCC themes (e.g. estuaries - water resources, water quality - agricultural land, biodiversity, communities and Aboriginal culture; SWCC, 2012). This means that some actions and activities in the coastal zone may be implemented via theme areas other than the 'coast and marine environment' theme, and therefore will not be identified in this CAP.

Methodology for Determining Priority Actions and Activities

The priority of activities is best established by considering:

- Planning framework;
- Need/ urgency;
- Benefit to the environment or the community;
- Feasibility of the action;
- Affordability of the action versus the benefit of the outcomes; and
- Capacity and support for the action over time.

A summary of methodology to prioritise actions is included in

Table 6-1.

Importantly, land managers who are ultimately responsible for the actions and/ or activities need to be supportive of priorities and their long term implications (including maintenance).

Activity and project planning needs to consider a number of issues, including the short to medium term risks associated with climate change (e.g. storm surge, sea level rise) and the impact these might have on the viability of a project. This is essential to ensure that project funding is spent on activities which are likely to have long term benefits.

Key stakeholders and land managers, when consulted, found it challenging to tease out NRM and community related projects from overall activity plans, especially where staging and coordination within and between activities was required.

Table 6-1: Considerations for Prioritising Actions and Activities

Priority - Action	Need/ Urgency	Benefit	Feasibility	Affordability	Capacity/ Support
	Is the need for the action urgent?	Will the project benefit natural resources, economy and social factors?	Can the project be done feasibly? Is it achievable?	Is the project affordable? Are ongoing commitments high?	Consistent with management plans, strategies, policies and supported by partners?
Criteria	Risk low - Action not urgent	Benefit low - benefits only one of either natural resources, economy or social factors	Not feasible due to scale, cost, timeframe	Project expensive, needs to be maintained over a long period	Low capacity - Supported by partners but may not have widespread support or partners have limited experience.
	Risk medium - Not doing project will result in higher risk/costs later	Benefits medium - Benefits for 2 of the parameters	Project with challenges due to scale, cost or timeframe	Project moderate expense, ongoing commitments not onerous	Medium capacity - Supported by partners
	Risk High - Not doing project will result in high risks	High benefits - Demonstrably benefits multiple parameters	Project easily achieved and feasible	Project affordable, ongoing commitments low	High capacity - Supported by policy, planning and partners.

Results

Results for prioritisation of actions related to specific management areas are summarised in the following sections. Priority activities related to priority sites are included in the tables below. The tables have been prepared so that they are specific, measurable, assignable, realistic and time bound (SMART).

SWCC and South Coast NRM Inc. have provided indicative costs for coastal activities (Appendix 12). Costs vary widely depending on site conditions, scale of project, source of materials and desired outcomes.

6.3 ACTIONS AND ACTIVITIES BY SECTION AND PLACE

6.3.1 Section 1 – Binningup to Cape Naturaliste

Table 6-2 outlines the priority activities in Section 1 for Leschenault Estuary and eastern foreshore, Meelup Regional Park and Peppermint Grove Beach and Leschenault Peninsula.

Table 6-2: Section 1 Priority Activities – SMART

Top 10 Priority Locations	Action/ Activity	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years	Comment
	Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound	
Leschenault Peninsula and 'The Cut'	Weed Control within Conservation Park	<p>Ongoing management and control spread of the following weeds within the Park</p> <ul style="list-style-type: none"> • Arum Lilly • Bridle Creeper • Double Gee • Cape Tulip • Black Flag • Cotton bush • Apple of Sodom • Castor Oil bush • Victoria Tea tree <p>Olives</p>	Parks & Wildlife, SWCC, SoH, schools, environmental groups (eg McLEG)	\$30-50,000 annually for monitoring & control	By 2020	Target species require annual management for set years (dependant on species) to manage and control the weed.
	Berm Reformation	Protection of dunes, remanent vegetation and indigenous sites from erosion and damage by 4WD vehicles and seasonal weather.	Parks & Wildlife, SWCC, Local Indigenous groups	\$10,000 annually	By 2020	

Top 10 Priority Locations	Action/ Activity	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years	Comment
	Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound	
Leschenault Peninsula and 'The Cut'	Revegetation of dune system	Protection and stabilisation of the dune system and indigenous sites from seasonal weather and public impact <ul style="list-style-type: none"> • Reform Berms • Mulching/brushing • Revegetation/planting • Fencing/stabilisation 	Parks & Wildlife, SWCC, Local Indigenous groups	\$50,000 annually	By 2020	
	Revegetation of tuart/peppermint forest and estuary foreshore	Protection and regeneration of the estuary foreshore and Tuart/Peppermint forest to enhance habitat for ringtail possums, quenda, carpet python and many other fauna native to area	Parks & Wildlife, SWCC, Local Indigenous groups, schools, environmental groups (eg. McLEG)	\$10,000 annually	By 2020	
	Provenance seed collection and germination	Collection of provenance seed species from park and germinate for revegetation work in the park to maintain natural diversity of area.	Parks & Wildlife, SWCC, Local Indigenous groups, schools, environmental groups (eg McLEG)	\$5-10,000 annually	By 2020	

Top 10 Priority Locations	Action/ Activity	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years	Comment
	Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound	
Leschenault Estuary and Eastern Foreshore	Management Planning of Leschenault Estuary Eastern and northern Foreshore	Integrated planning for management of foreshore in private and public ownership	LCC, DoW, SoH, City of Bunbury, SWCC	\$30,000 for engagement and planning	By 2017	
	Environmental monitoring in Leschenault Estuary to determine nutrient levels and progression of sedimentation	Understanding of nutrient levels and sedimentation with a view to improving water quality and reducing sedimentation	LCC, DoW	Sampling in catchment fortnightly for flow and nutrient levels for 26 sampling runs (\$31,333 sampling and \$40,344 for field staff/ other expenses). Sampling in Estuary, fortnightly for nutrients – Analysis \$21,326, Operations - \$41,146.	By 2020	Estuary only? Source of budget?
	In-fill of sewer system into estuary	Decrease nutrient load in Leschenault Estuary	DoW, LCC, SoH	Water Corporation – design SoH – manpower LCC /SWCC– monitoring	Completed by 2030	

Top 10 Priority Locations	Action/ Activity	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years	Comment
	Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound	
	Fire management of Leschenault Estuary foreshore to reduce the risk of wildfire (prescribed burning and other fire management)	Decrease in wildfires per fire season	DFES, DPaW, LCC, SoH	Ground assessment – SoH Burn – DFES	Autumn – prescribe burns	
Meelup Regional Park	Revegetation at Meelup Beach	500m ² revegetation	City of Busselton/ Meelup Regional Park Management Committee (MRPMC)	\$5,000	3 years	Would need to synchronise with infrastructure projects for best effect
	Rehabilitation of coastal nodes	2 ha revegetation, 2 ha weed control, 400m fencing	City of Busselton/ MRPMC	\$10,000	3 years	Not a discrete, one-year project. Ongoing over 2-3 years.
	Implementation of the Meelup Beach Master Plan	2 new beach access paths, 1 new disabled access path, 500m ² revegetation, 1 new viewing platform, 1 new boardwalk, 1 creek crossing installed	City of Busselton/Meelup Regional Park Management Committee	\$750,000	10 years	
	Implementation of the Coastal Nodes Master Plan	9 car park improvements, 3 composting toilets, 1 universal access trail, 2ha revegetation, 400m fencing	City of Busselton/MRPMC	\$1,000,000	10+ years	
	Implementation of the Trails Master Plan	Install 30 new signs (mostly markers), limestone, 1 viewing platform, 13.5km limestone trails, trail improvements at 6 locations, 200m trail closures, 180 steps install, 500m new trail, install 5 dieback hygiene stations	City of Busselton/MRPMC	\$1,600,000	10+ years	

Top 10 Priority Locations	Action/ Activity	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years	Comment
	Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound	
	Implementation of the Meelup Research Proposal	16 research projects completed	City of Busselton/MRPMC	\$1,000,000	15 years	Developed by DPaW setting research priorities for Meelup to assist with management
	Implementation of the Zone 6 rehabilitation plan	17 ha rehabilitated	City of Busselton/MRPMC	\$680,000	10+ years	Is a contaminated site, various complexities with rehabilitation, future mountain bike trail network site
	Feral animal control	577 ha baited for foxes, rabbits, cat trapping	City of Busselton/MRPMC	\$12,000 annually	Annual - ongoing	
	Weed control	20 ha weed control	City of Busselton/MRPMC	\$12,000 annually	Annual - ongoing	
	Dieback treatment susceptible vegetation	1 ha of vegetation treated	City of Busselton/MRPMC	\$15,000 every five years	Every five years - ongoing	
Peppermint Grove Beach	Inclusion in 'Stick to the Track' program	All users of coastal areas for driving/riding aware of the program. Measurable reduction in damage/ erosion to Peppermint Grove Beach (use photo monitoring as evidence) Involvement of 4WD training facilities	Shire of Capel, in partnership with SWCC and with involvement of Peppermint Beach Community Association	Shire of Capel time, SWCC contribution (Coastal Facilitator) \$5,000	Initial 2 year campaign with review and on-going reminders via media, off-road magazines, TV adverts.	Shire of Capel would only be able to do as partnership and would support by dissemination of information (local newsletters, Facebook page, website, interviews for TV, local press) and monitoring.

A key outcome of the stakeholder consultation process and community workshop was that there are actions that require management (and funding) that are not restricted to a particular geographical area or 'priority place' within the coastal zone. The actions for Section 1 in priority order are:

Actions

1. Control and/or restrict access to four wheel drive and off road vehicles on beaches.
2. Consider innovation in coastal infrastructure (including trials for materials and methodology).
3. Research and monitoring the impacts of large events in areas of high value (e.g. Meelup Regional Park) and restrict/control where necessary.
4. Control invasive species with a consistent, long term, planned approach.
5. Control of watercraft, especially in relation to whale and calf movements in Geographe Bay.
6. Promote beach clean-ups.
7. Ensure appropriate treatment of stormwater to prevent debris and pollutants entering waterways.
8. Promote responsible control of dogs.

Activities

1. Work in partnership with local government and key stakeholders and beach users.
2. Support 'Stick to the Track' campaign as an overall education tool.
3. Establish systems/planning/policy for dealing with coastal management issues on private land and across different tenures (e.g. whale strandings, rubbish dumping).
4. Fund research into climate change impacts and coastal erosion.
5. Investigation of the impacts of existing coastal structure on coastal erosion.
6. Measure and monitor the outcomes of education programs.
7. Formal recognition and funding of regional parks.
8. Maintain, protect and enhance ecological and cultural values.

9. Strategic Management Plan for the City of Busselton coastal zone.

Strategies

1. Develop an integrated, strategic approach for overall coastal zone management.
2. Increase and raise awareness in the community regarding coast care and respecting natural resource values.
3. Identification and protection of high value assets.
4. Support and increase the capacity of coastal community groups to undertake coastal restoration and education.
5. Information sharing - provide access to coastal information and databases.

Recommendations for Coastal Action Planning Priorities for coastal management units within Sections 1 (Binningup to Cape Naturaliste), Section 2 (Cape Naturaliste to Augusta) and Section 3 (Augusta to Walpole) and the marine environment are included in Chapters 5 – 8.

6.3.2 Section 2 – Cape Naturaliste to Augusta

Table 6-3 outlines the priority activities in Section 2 for Leeuwin Naturaliste National Park and Cape Leeuwin to Flinders Bay, Augusta.

Table 6-3: Section 2 Priority Activities - SMART

Top 10 Priority Locations	Action/ Activity	Outcome	Key Responsibility (and partners)	Resources? Can it be done? Cost benefit?	By when/ number of years	Comment
	Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound	
Leeuwin Naturaliste National Park	Rehabilitation of 4WD tracks in LNNP – Blackboy Hollow and Boodjidup Beach	4WD Tracks closed and vehicles restricted from the area Disturbed areas (track + dune blowouts) revegetated	Parks & Wildlife	Works are planned, approved and scheduled. Budget \$10k	Ongoing	Due to established use patterns, this is a very difficult project which has had ongoing vehicle incursions and compliance requirements after the initial work was completed.
	Closure and rehabilitation of 4WD tracks in LNNP – Kilcarnup	Tracks closed that are not required for public or management access	Parks & Wildlife	An ongoing program as many tracks have already been closed and rehabilitated south of Joeys Nose Beach.	Completed	Had a few vehicle incursions into the rehab area over Summer however the closure and rehabilitation works are complete.
	Rehabilitation of 4WD tracks in LNNP – Deepdene Beach access off Hillview Rd	A single defined track established. All other tracks closed and rehabilitated	Parks & Wildlife	Currently no budget for the works	This project has not commenced	

	Old Yallingup Tip Site Leeuwin Naturaliste NP	Need to undertake an assessment of any above ground waste (in particular hazardous materials such as asbestos) and prepare a management plan to deal with these materials. Also requires weed control and native revegetation.	Parks & Wildlife	Currently no budget for the works.	5 years - ongoing	Applied for funding under the: Moondak one million trees project
	Aquarium rec site (nth Canal Rocks), Leeuwin Naturaliste NP	Form a single vehicle track and close all other track alignments.	Parks & Wildlife + Shire Busselton + private property owners		Underway	Track closure works have been undertaken by the owner of private property. Parks and Wildlife are undertaking a project to strengthen the gate on the national Park track with boulders to stop vehicle incursion. The site is on UCL which is believed to be managed by City Busselton.
	Ellensbrook Homestead –	Removal of Tea Tree and other identified weeds	Parks & Wildlife	Many projects have been undertaken. Works ongoing	Works underway and ongoing	

	LNNP. Weed control work					
	Windmills Rec site – weed control and path upgrade	Removal of Geraldton carnation Weed Erosion control on pedestrian beach access	Parks & Wildlife, and local Landcare partners	Coastwest Grant approved	Works underway and ongoing	
Cape Leeuwin to Flinders Bay, Augusta	Undertake weed control as required around existing coastal access points	3.83 km and 50 ha coastal vegetation protected	Shire of Augusta Margaret River	\$2,000 per annum	5 years	
	Construct beach access stairs, fencing, revegetation and weed control at Ringbolt Bay	12 linear metres staircase, 1,200 seedlings, 1 interpretive sign, 135 linear metres bollards, 10 volunteers regularly engaged	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group.	\$42,670	2015-16	Currently underway via Shire and Coastwest funding
	Implement remaining elements of Ringbolt Bay plan including, toilets, carpark formalisation, picnic tables, stabilised limestone paths	65 metres compacted limestone paths, universal access toilets, picnic shelters, 1,000 additional seedlings	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	\$375,000	1 year	Infrastructure project to be part funded by Shire and grants where available
	Construct beach access stairs and bollards, install 500 seedlings at	18 linear metres staircase, 500 seedlings, 10	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	\$25,000	2016-17	Some potential to access additional funding from Coastwest

	Eastern end of Sarge Bay	volunteers regularly engaged				
	Construct beach access stairs and fencing, 750 seedlings at Western end of Sarge Bay	40 linear metres stairs, 750 seedlings, 10 volunteers regularly engaged	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	\$62,000	2016-17	Some potential to access additional funding from Coastwest
	Implement remaining elements of Sarge Bay plan including carpark, pathways	75 metres compacted limestone pathways, car park	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	\$50,000	1 year	Infrastructure project to be part funded by Shire and grants where available
	Install beach access stairs, bollards, revegetation and bollards at 'Pull Over'	15 linear metre stairs, 18 linear metres bollards, 250 seedlings, 10 volunteers regularly engaged	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	\$30,500	2018-19	Some potential to access additional funding from Coastwest
	Implement remaining elements of Pull Over plan including carpark, pathways	62 metres compacted limestone pathways, car park	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	\$25,000	1 year	Infrastructure project to be part funded by Shire/Transport grants
	Construct beach access stairs, bollards, revegetation and pathways at light station carpark	7 linear metres stairs, 80 linear metres bollards, 500 seedlings, 10 volunteers regularly engaged	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	\$32,000	2017-18	Some potential to access additional funding from Coastwest
	Implement remaining elements of light station plan including carpark, pathways	120 m compacted limestone path, car park	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	\$80,000	1 year	Infrastructure project to be part funded by Shire/Transport grants

	Implement Scenic Lookout plan including car park, erosion control, retaining wall, stairs and pathway to Leeuwin lighthouse	1.25km concrete DUP, 55 linear metres stairs	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	\$667,000	1 year	Infrastructure project to be part funded by Shire/Transport grants
	Implement signage and marker posts for coastal trail between Flinders Bay and Cape Leeuwin Lighthouse	3.9km coastal walk, interpretive signage, 10 volunteers regularly engaged	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	Estimated to be approximately \$100,000	1 year – 2016/17	Some potential to access additional funding from Coastwest
	Consider constructing concrete path from Flinders Bay to Cape Leeuwin Lighthouse	3.9 km concrete DUP, interpretive signage	Shire of Augusta Margaret River, Cape Leeuwin Precinct Group	Estimated to be approximately \$1.4m	3 years	Infrastructure project to be part funded by Shire/Transport grants

A key outcome of the stakeholder consultation process and community workshop was that there are priority actions that require management (and funding) that are not restricted to a particular geographical area or ‘priority place’ within the coastal zone. The priority actions for Section 2 are:

Actions

1. Manage coastal access to ensure sustainability (pedestrian and vehicle).
2. Protect threatened and priority communities associated with water courses emerging along the coast.
3. Control invasive species, including after fire, with a consistent, long term, planned approach.

Activities

1. Support ‘Stick to the Track’ campaign as an overall education tool.

Strategies

1. Support and increase the capacity of coastal community groups to undertake coastal restoration and education.
2. Increase education and raise awareness in the community regarding coast care and respecting natural resource values.

6.3.3 Section 3 – Augusta to Walpole

Table 6-4 outlines the priority activities in Section 3 for Walpole Nornalup Inlets Marine Park and foreshores, Hardy Inlet and Blackwood River (tidal area) and D'Entrecasteaux National Park.

Table 6-4: Section 3 Priority Activities - SMART

Top 10 Priority Locations	Action/ Activity	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years	Comment
	Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound	
Hardy Inlet and Blackwood River (tidal)	Weed control between Ellis St and Turner Caravan Park	3.3 ha and 1.1km of riparian vegetation protected by weed control per annum.	Shire of Augusta Margaret River, Friends of the Hardy Inlet	Volunteer labour	3-6 years	Replacement of weeds, including grasses with native species as per 2014 Foreshore Management Plan.
		10 volunteers regularly engaged per annum.		\$2,500 per annum		
	Weed control in existing high quality vegetation between Ellis St and Pelican Rise (Donovan St Bushland)	6.5 ha and 1.8 km of riparian vegetation protected by weed control per annum.	Shire of Augusta Margaret River	\$3,500 per annum – all contractor based.	3-6 years	
	Revegetation and infill planting between Ellis St and Turner Caravan Park	3.3 ha and 1.1km of riparian vegetation enhanced by	Shire of Augusta Margaret River, Friends of the Hardy Inlet	\$12,000 per annum. Contractor and materials	3 years	Replacement of weeds, including grasses with native species as per 2014

		revegetation per annum.				Foreshore Management Plan. Requires limestone block wall delineation between private lawns and Shire vegetation.
		10 volunteers regularly engaged per annum.		Volunteer labour		
	Reconstruct retaining wall near Colourpatch and Turner Caravan park		Shire of Augusta Margaret River	\$350,000	3 years	Existing infrastructure required to protect vegetation, pathways. Shire to seek external funding for where possible.
D'Entrecasteaux National Park	Details to be added in consultation with DPAW and other key stakeholders.					
Walpole Nornalup Inlets Marine Park	Details to be added in consultation with DPAW and other key stakeholders.					

A key outcome of the stakeholder consultation process and community workshop was that there are priority actions that require management (and funding) that are not restricted to a particular geographical area or 'priority place' within the coastal zone. The priority actions for Section 3 are:

Actions

1. Improve sustainability of four wheel drive access (e.g. by preventing erosion and degradation of vegetation).
2. Formalise camping areas and car parks within the National Parks.
3. Control invasive species with a consistent, long term, planned approach.
4. Provision of camping areas at selected sites to cater for larger groups.
5. Ensure appropriate treatment of stormwater to prevent debris and pollutants entering waterways.

Activities

1. Support 'Stick to the Track' campaign.
2. Provision and maintenance of facilities.
3. Support the Maroo Wildlife Refuge.
4. Consider innovation in coastal infrastructure (including trials for materials and methodology).

Strategies

1. Maintain, protect and enhance ecological and cultural values.
2. Develop opportunities through collaboration (e.g. partnership with commercial operators).
3. Increase education and raise awareness in the community regarding coast care and preserving natural resource values.

6.3.4 The Marine Environment

The responsibility for implementation in this area is largely with State government agencies so a specific action and activity table has not been prepared.

7 THE FUTURE OF COASTAL MANAGEMENT

Several key issues regarding coastal management at a strategic level were identified during the CAP process. Strategic actions are recommended below to address these issues and to guide future management decisions regarding the use of the CAP.

Promotion of CAP

Issue: CAPs provide one of the few planning mechanisms at a regional scale which can bring different interests together across land tenures and jurisdictions to develop coordinated and integrated programs and approaches. The involvement of key stakeholders and land managers is an essential part of this process.

Recommendation 1:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
Promote the use of the CAP as a framework for regional coastal planning to ensure that ICZM can be delivered at the regional, sub-regional and local scales.	Outcomes: -All stakeholders know about the CAP and use the CAP in coastal zone planning. -CAP promotion in SWCC communication and engagement strategy.	SWCC, land managers and stakeholders.	SWCC will connect CAP to NRM Strategy, so use of CAP for coastal zone planning is encouraged.	Used by stakeholders by 2020.

Recommendation 2:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
Develop a more structured approach to engagement of regional stakeholders to improve and clarify linkages in the CAP.	Development and implementation of communication and engagement strategy for CAP and coastal zone issues/ management.	SWCC, land managers and stakeholders.	SWCC will connect CAP to NRM Strategy, so use of CAP for coastal zone engagement and communication.	Structured approach engaging stakeholders by 2016.

Development of Management Plan and MERI Templates

Issue: The degree of implementation from individual management plans across the region is unclear due to the lack structure relating to monitoring, evaluation, reporting and improvement (MERI).

Development of a framework for management plans and implementation for use in the South West NRM region, would be beneficial for land managers.

Recommendation 3:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
Work with key stakeholders to develop management plan templates that allow for tracking of implementation and long term outcomes.	-Management Plan template - MERI guidance document	SWCC to facilitate, land managers and stakeholders. Input and advice from DoP.	Pending funding, this action is achievable.	Complete by 2018.

Monitoring Project Outcomes

Issue: Outcomes for projects (e.g. on ground works) funded by SWCC and other sources (e.g. CoastWest) are checked at the sign off stage. However, a MERI review to determine the legacy, on-going effectiveness and value would be useful to guide the funding of future projects.

Recommendation 4:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
Undertake a review of previous coastal implementation projects to determine long term results from implementation.	Outputs: - MERI document.	SWCC and partners.	This action is achievable.	Complete by 2018.

Recommendation 5:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
SWCC and its partners will review the extent to which priority management actions outlined in this CAP have been implemented and where they have not, examine	Outputs: - MERI report on CAP	SWCC.	This action is achievable.	Complete annually.

Recommendation 5:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
the key issues preventing implementation.				

Information and Data Availability

Issue: The current information available for impacts related to climate change at a sub-regional and local scale are unclear. SWCC and its key partners have a primary interest in NRM, social and cultural outcomes related to the coast. While SWCC is not able to progress regional planning for climate change adaptation directly, it can have a strong advocacy and support role for NRM interests through coordination, information dissemination and support of key stakeholder groups.

Recommendation 6:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
Advocate for greater access to existing data with identification of data gaps and prioritisation of data collection.	Records of representation/ advocacy.	SWCC and key stakeholders.	This action is achievable.	Ongoing.

Funding and Capacity

Issue: Funding and capacity are key drivers for the successful implementation and ownership of CAP directions and actions. Without this support the effective use and implementation of a CAP is challenged.

Recommendation 7:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
Through preparation of a communication and engagement strategy, build capacity with key stakeholders to provide resilience in a low funding environment and make	Outcome: Ensure that the SWCC communication strategy refers to the CAP and that the communications messages come across in the document.	SWCC and key stakeholders.	This action is achievable.	Revised annually.

the most of limited funds available.				
--------------------------------------	--	--	--	--

Recommendation 8:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
Advocate for funding consistency and/or long term support to achieve desired goals for projects outlined as priorities in the CAP.	Outcome: Appropriate funding for priority projects	SWCC and key stakeholders.	This action is reliant on funding bodies.	By 2020.

Implications of Climate Change

Issue: During the consultation period of the CAP, feedback received was that there was a perception of a The largest gap in the South West NRM region is the lack of knowledge of the potential implications and impacts associated with climate change. However since, SWCC has release its final climate change strategy and all the information gathered during this process is not available on the SWCC website (<http://www.swnrmstrategy.org.au/climate-change-in-the-region/>). Further partnerships need to continue (e.g. CoastSWaP and Peron Naturaliste Partnership) and extended to other areas of the South West NRM region so that downscaling of information and sharing of knowledge and approaches to adaptation are enhanced. In addition, some areas (east of Augusta, offshore islands and parts of the marine environment (Walpole and Nornalup Inlets and Ngari Marine Parks) needed further investigation and research in terms of biodiversity and require monitoring to determine composition, species richness and establishment of baseline data.

Recommendation 9:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
Support collection, collation and dissemination of data and other information related to climate change impacts and adaptation.	Outcome: Information downscaled from national and regional data readily available to assist with adaptation. Local information regarding vulnerability and values better understood.	Australian Government, DoP and other WA agencies. SWCC and key stakeholders.	This action is reliant on organisations other than SWCC.	By 2020.

Knowledge - Values and Threats

Issue: Information regarding the values and threats of many coastal zone locations is lacking, which makes it difficult to assess and prioritise the need for actions and activities.

Recommendation 10:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
Support research and data collection related to relatively poorly known terrestrial/ coastal and marine environments to establish baseline data related to biodiversity and NRM.	Outcome: Areas identified in CAP as having limited data have documented information regarding values.	Australian Government, WA agencies, SWCC and key stakeholders.	This action is reliant on organisations other than SWCC and adequate resourcing.	By 2020.

Australian and State Government Leadership

Issue: During consultation, stakeholders noted that since the Australian Government released the *Integrated Coastal Zone Management Framework and Implementation Plan* in 2006, they did not perceive that much changes occurred in terms of integration and facilitation. In addition, resources and funding are consistently being reduced.

Recommendation 11:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
SWCC and its partners will advocate for greater coordination at the State and National levels, with more active facilitation and provision of resources to address significant coastal issues on a national and statewide scale, where possible.	Records and correspondence regarding advocacy. Outcome: Commitments and support to progress integrated coastal zone planning and management.	SWCC and key stakeholders.	Outcomes of this action are reliant on organisations other than SWCC.	By 2020.

Monitoring, Evaluation, Reporting and Improvement of the CAP

Issue: MERI for this CAP needs to be undertaken to determine degree of implementation and to allow for updating and continual improvement.

Recommendation 12:	Outcome	Key Responsibility (and partners)	Resources- Can it be done?	By when/ number of years
Specific	Measurable (e.g. area, outcome)	Assignable	Realistic	Timebound
Undertake and annual review of CAP outcomes to inform the MERI process.	Records and correspondence regarding advocacy. Outcome: Commitments and support to progress integrated coastal zone planning and management.	SWCC and key stakeholders.	Outcomes of this action are reliant on organisations other than SWCC.	By 2020.

8 REFERENCES

- ABC, Australian Broadcasting Commission (2015)** Indigenous Language Map. Sourced on line on 8 July 2015: <http://www.abc.net.au/indigenous/map/>
- Bicknell, C. (2010)** Sea Level Change in Western Australia – Application to Coastal Planning Department of Transport. Perth, Western Australia.
- Commonwealth of Australia (2006)** A Guide to the Integrated Marine and Coastal Regionalisation of Australia. IMCRA Version 4. Department of Environment and Heritage. Canberra, Australia.
- CSIRO (2013)** Climate Change Projections for Australia's NRM Regions – Interim Climate Projection Statement – Southern and South Western Flatlands.
- CSIRO and ACECRC (2014a)** Sea Level Rise – Understanding the past – Improving projections for the future. Sourced 11 May 2014 at: http://www.cmar.csiro.au/sealevel/sl_hist_few_hundred.html. Commonwealth Scientific and Industrial Research Organisation and Antarctic Climate and Ecosystems Cooperative Research Centre.
- CSIRO and ACECRC (2014b)** Global Projections for Regional Sea-level Rise. Sourced 23/4/2014 at http://www.cmar.csiro.au/sealevel/sl_proj_regional.html. Commonwealth Scientific and Industrial Research Organisation and Antarctic Climate and Ecosystems Cooperative Research Centre.
- Department of Climate Change and Energy Efficiency (2011)** *Climate Change Risks to Australia's Coasts – Supplement*.
- Department of Climate Change (2009)** *Climate Change Risks to Australia's Coasts – A First Pass National Assessment*.
- Department of Environment (2015)** Sourced on 13 May 2015 from <http://www.environment.gov.au/about-us/legislation>.
- Department of Environment and Conservation (2009)** Walpole and Nornalup inlets Marine Park Management Plan 2009 – 2019. Management Plan No. 62.
- Department of Environment and Conservation (2013)** Ngari Capes Marine Park 2013 - 2023. Management Plan No. 74.
- Department of Foreign Affairs (1974)** JAMBA: Australian Treaty Series 1981 No. 6. Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and their Environment. Canberra, ACT.
- Department of Foreign Affairs (2006)** ROKAMBA: Australian Treaty Series 2007 ATS 24. Agreement Between The Government Of Australia And The Government Of The Republic Of Korea On The Protection Of Migratory Birds. Canberra, ACT.
- Department of Foreign Affairs and Trade (1988)** CAMBA: Australian Treaty Series 1988 No. 22. Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment. Canberra, ACT.
- Department of Planning (2003)** WA Coastlines Celebrating Coastwest/Coastcare 1995-2003. Sourced from: <http://www.planning.wa.gov.au/publications/774.asp> on 2 June 2015.

Department of Sustainability, Environment, Water, Population and Communities (2012) Marine Bioregional Plan for the South-west Marine Region.

DoE, Department of Environment (2015) Sourced 24/5/2015 at <http://www.environment.gov.au>

DoW, Department of Water (2007) The Leschenault Estuarine System, South-western Australia. Condition Statement and Recommendations for Management.

DoW, Department of Water (2010) Vasse Wonnerup Wetlands and Geographe Bay - Water Quality Improvement Plan.

DoW, Department of Water (2014) Hardy Inlet- Water Quality Improvement Plan.

DPaW, Department of Parks and Wildlife (2015) Leeuwin-Naturaliste Capes Area Parks and Reserves. Management Plan No. 81.

DPaW, Department of Parks and Wildlife (2015b) Sourced on 23 May 2015 from <http://www.dpaw.wa.gov.au/management/marine/marine-parks-and-reserves>

Environment Australia (1997) The Wetlands Policy of the Commonwealth Government of Australia.

Fletcher, W.J. and Santoro, K. (eds). (2014). Status Reports of the Fisheries and Aquatic Resources of Western Australia 2013/14: The State of the Fisheries. Department of Fisheries, Western Australia.

Food and Agricultural Organization of the United Nations (1998) Integrated Coastal Area Management and Agriculture, Forestry and Fisheries. FAO Guidelines. Rome, Italy. <http://www.fao.org/docrep/w8440e/w8440e11.htm>

Government of Western Australia (1997) Wetlands Conservation Policy for Western Australia.

Government of Western Australia (2003) Western Australian State Sustainability Strategy.

Government of Western Australia (2007) State of the Environment Report Western Australia.

Government of Western Australia (2009) Government Response to the Natural Resource Management (NRM) Review.

Higgins, J. Esselman, R. (2010) The Nature Conservancy - Conservation Gateway. Setting Priorities. Chapter 13: Define Priorities for Action.

House of Representatives Standing Committee on Climate Change, Water Environment and the Arts (2009) Managing our Coastal Zone in a Changing Climate (The George Report).

Jones, T., Middelmann, M.H. & Corby, N., (2005) Natural hazard risk in Perth, Western Australia - Cities Project Perth Report - 2005. 1 ed. Geoscience Australia, Canberra.

Marsden Jacob Associates (2010) The Economic and Social Impacts of Protecting Environmental Values in Great Barrier Reef Catchment Waterways and the Reef Lagoon. Prepared for the Department of Environment and Resource Management.

Marshall, N.A., Marshall, P.A., Tamelander, J. Obura, D., Malleret – King, D. and Cinner, J.E. (2010) A Framework for Social Adaptation to Climate Change. Sustaining Tropical Coastal Communities and Industries. Prepared for IUCN International Union Conservation of Nature and Natural Resources.

Molloy, S., Wood, J., Hall, S., Wallrodt, S and Whisson, G. (2009). Southwest regional Ecological Linkages Technical Report. A report for the Western Australian Local Government Association and the Department of Environment and Conservation.

Myers, N., Mittermeier, R.A., Mittermeier, C.G., da Fonseca, G.A.B., Kent, J. (2000) Biodiversity Hotspots for Conservation Priorities. *Nature* **403**, 853-858

Natural Resource Management Ministerial Council (2006) *Integrated Coastal Zone Management Framework and Implementation Plan*. Canberra, ACT.

Office of Environment and Heritage (2013) NSW Government Guidelines for Preparing Coastal Zone Management Plans.

Pearce A. and Pattiaratchi, C. (1999) The Capes Current: a summer counter current flowing past Cape Leeuwin and Cape Naturaliste, Western Australia. *Continental Shelf Research*. Volume 19, Issue 3, Pages 401 – 420.

Pen L. (1997) A systematic overview of environmental values of the wetlands, rivers and estuaries of the Busselton-Walpole region. Waters and Rivers Commission, Perth. Water Resources Allocation and Planning Series, Report 7, 1-125.

Review Panel Natural Resource Management (2009) Natural Resource Management Review Western Australia. A Report to the Minister for Agriculture, Food and Forestry. Perth, Western Australia.

Smith, R.S. (2003) South West NRM Region Natural Biodiversity Assets and the Threats to Them. Prepared for the South West Catchments Council.

South West Development Commission (2014) – South West Regional Blueprint source on the 25th Dec 2015 <http://www.swdc.wa.gov.au/what-we-do/strategic-planning/south-west-regional-blueprint.aspx>

.

South West Development Commission (2015) Information sourced on 20 May 2015 from <http://www.swdc.wa.gov.au/information-centre/statistics/population.aspx>

SWCC, South West Catchments Council (2002) Technical Report #4 – Coastal Environs in the South West NRM Region. Southwest Regional Strategy for Natural Resource Management. Prepared for South West Catchments Council by the Institute for Regional Development University of Western Australia.

SWCC, South West Catchments Council (2004) Preliminary Technical Report 5 – Coasts. South West Regional NRM Strategy.

SWCC, South West Catchments Council (2012) South West Regional Natural Resource Management Strategy 2012 – 2020.

SWCC, South West Catchments Council (2014) South West Regional Natural Resource Management Strategy 2014 – 2020. Update to reflect the expected effects of a Changing Climate.

Standing Committee on Climate Change, Water Environment and the Arts (2009) The George Report: *Managing our Coastal Zone in a Changing Climate*. House of Representatives.

SWCC, South West Catchments Council (2012) South West Regional Natural Resource Management Strategy 2012 – 2020. Prepared by Dr M.S. Christensen of IDEAS and Gary McMahon of Ecosystem Solutions.

State Natural Resource Management Office (2010) State NRM Program Investment Priorities 2010/11 – 2013-14. Prepared for South West Catchments Council with support from the Australian Government's Caring for our Country Program and the Government of Western Australia.

State of the Environment 2011 Committee (2011) Australian State of the Environment 2011. Independent Report to the Australian Government Minister for Sustainability, Environment, Water, Population and Communities. Prepared for Department of Sustainability, Environment, Water, Population and Communities. Canberra. Sourced on 20 May 2015 at <http://www.environment.gov.au/science/soe/2011-inbrief/coasts#ib11>

SVA Consulting (2015) Sourced from: <http://svaconsultingquarterly.com/2014/12/06/prioritisation-matrix-framework-for-making-difficult-decisions/>

The Nature Conservancy (2006) Ecoregional Assessment and Biodiversity Vision Toolbox. Conservation Gateway. <https://www.conservationgateway.org/Files/Pages/ecoregional-assessment-to.aspx>

United Nations Educational, Scientific and Cultural Organisation (As amended 1994) Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat. First adopted in 1971.

WALGA, Western Australian Local Government Association (2014) Local Government and Coastal Land Use Planning – Discussion Paper.

WALGA, Western Australian Local Government Association (Undated) Climate Change Management – Guidelines for Incorporating Climate Change Impacts into the Local Government Planning Framework.

WAPC, Western Australian Planning Commission (2003) Coastal Planning and Management Manual.

WAPC, Western Australian Planning Commission (2009) Augusta – Walpole Coastal Strategy. Developed by the WAPC and the Government of Western Australia Department of Planning. Published by the WAPC.

WAPC, Western Australian Planning Commission (2013a) State Planning Policy No. 2.6 State Coastal Planning Policy. Perth, Western Australia.

WAPC, Western Australian Planning Commission (2013b) State Coastal Planning Policy Guidelines. Perth, Western Australia.

WAPC, Western Australian Planning Commission (2014) Coastal Hazard Risk Management and Adaptation Planning Guidelines. Department of Planning. Perth, Western Australia.

Western Coastal Board (2012) Review of Coastal Action Plans in Victoria's Western Coastal Region. Prepared for State Government Victoria.

FIGURES

APPENDIX 1

Summary and Notes from Literature Review – Threats and Values

APPENDIX 2

SWCC Project Planning Matrices

APPENDIX 3

Letter to Stakeholders

APPENDIX 4

Stakeholder Interview Agenda

APPENDIX 5

Stakeholder Interview and Online Survey Summary

APPENDIX 6

Advertisement for Workshop and Online Survey

APPENDIX 7

Workshop Presentation

APPENDIX 8

Workshops Summary

APPENDIX 9

Achievements

APPENDIX 10

Priority Matrix – How to Use

APPENDIX 11

Priority Matrix – Places

APPENDIX 12

Indicative Costs