

# THE NATIONAL COASTAL MANAGEMENT PROGRAMME OF SOUTH AFRICA



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*“The overall goal of Integrated Coastal Management is to improve the quality of life of human communities who depend on coastal resources while maintaining the biological diversity and productivity of coastal ecosystems. . . . It is a process that unites government and the community, science and management, sectoral and public interests in preparing and implementing an integrated plan for the protection and development of coastal ecosystems and resources.”*

*Report on fundamental goals of coastal management via deliberations of the Group of Experts of Marine Protection (1996)*

# Executive Summary

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This document presents South Africa's National Coastal Management Programme (NCMP) under the National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008) (ICM Act) for the period 2013 to 2017.

Coastal zones throughout the world have historically been among the most heavily exploited areas because of their rich resources. In coastal countries today, an estimated half of the total population live in coastal zones, and migration from inland areas to the coast is increasing. Not surprisingly, there is also a rising conflict between the need for immediate consumption or use of coastal resources and the need to ensure the long-term supply of those resources. The enjoyment of the coastal zone by a wide variety of users and the view of the coast as a national asset and legacy for future generations is of the utmost importance for the promotion of its current and future sustainable use.

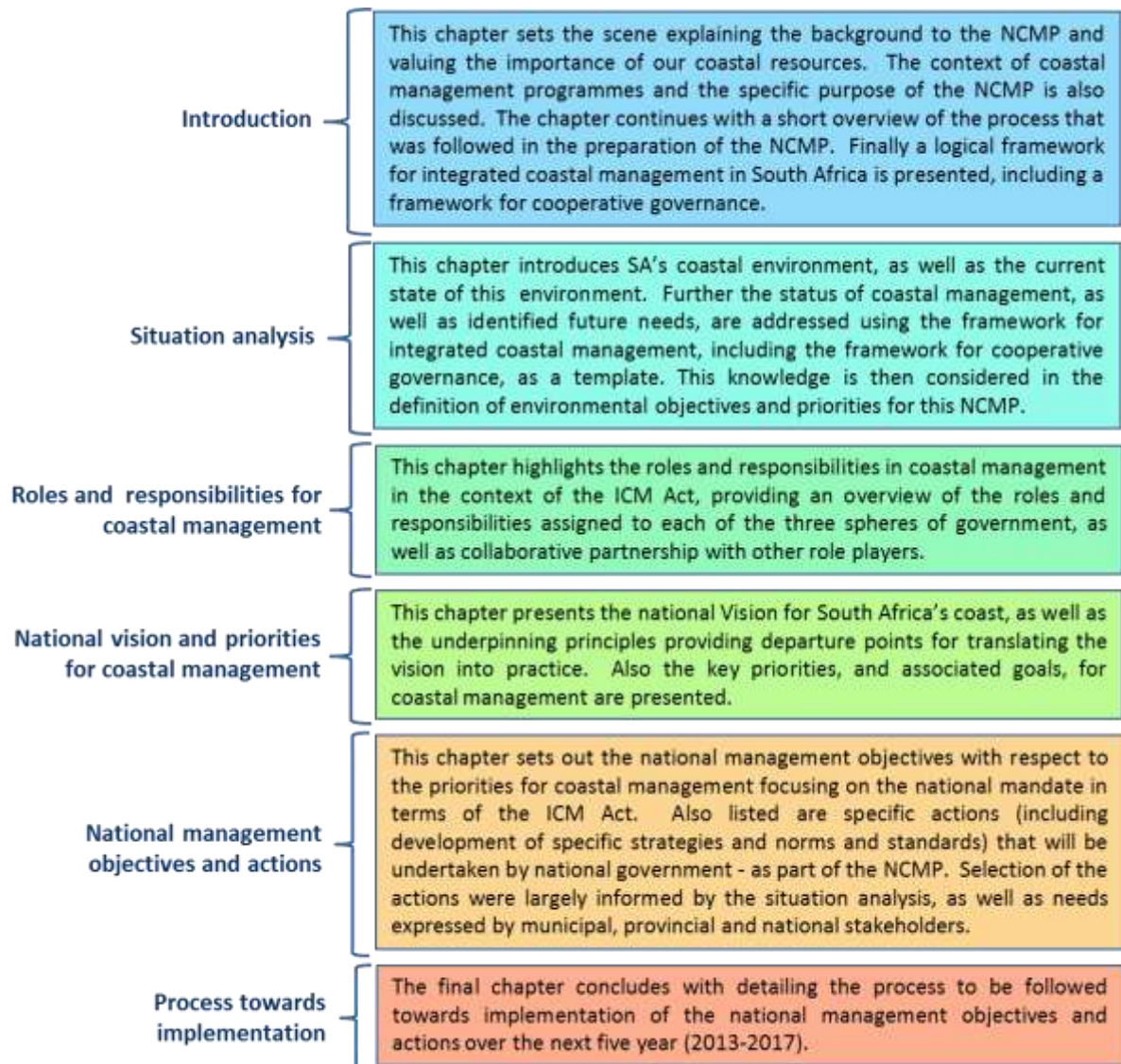
South Africa's coastal environment is a rich and diverse national asset, providing important economic and social opportunities for the human population. The estimated total contribution of coastal resources (without regulatory services) to the South African economy is in the order of some R 57 billion (US\$5.7 billion). The direct economic benefits from coastal resources in South Africa are estimated to be approximately 35% of the country's annual gross domestic product (GDP) (referring to the "White Paper"). Direct economic benefits include the marine fishing industry, port and harbour development and attractive lifestyles, and recreational and tourism opportunities offered by a coastal location. Furthermore, the coast provides indirect economic benefits such as the erosion control provided by coastal features such as dunes and high cliffs which protect built and natural features along the coast (including roads, buildings and farmlands) from the damaging effects of waves and wind, and it allows waste assimilation, detoxification and recycling through coastal wetlands, forests and grasslands. These indirect benefits account for an additional 28% of the country's GDP.

The ICM Act has been promulgated to establish the statutory requirements for integrated coastal and estuarine management in South Africa. The Act also prescribes the inclusion of norms, standards and policies for further elaboration and guidance on coastal management provisions within legislation and specific scenarios and/or issues. One of the many reasons for the adoption of this form of management is to promote the conservation of the coastal environment, and to maintain the natural character of coastal landscapes.

Among the myriad of implementation tools that are available within the ICM Act, Coastal Management Programmes (CMPs) are arguably the most powerful integrating instruments in an ICM toolbox. A CMP is a policy directive for the management of the coastal zone, inclusive of strategies and plans for the effective implementation of the ICM Act that will enable organs of state to plan accordingly, to set a course for the environmental future of a nation by addressing the resolution of current management problems and user-conflicts (due to the wide variety of activities and uses of the coast), as well as the long-term development and management of the coastline. CMPs also play the vital role of bringing together the various spheres and sectors of government, private sector activities and community activities on the coast for the effective implementation of ICM over a projected period of time. This is

achieved by ensuring that the development and use of natural resources in the coastal zone is done with the best interests of the public and economy, while being ecologically sustainable.

The overall structure of the NCMP comprises the following:



The framework for coastal management for South Africa identified key components or elements of an integrated coastal management programme presenting the structure – the integrated, coordinated and uniform approach to coastal management. The framework is presented in a cyclic context where environmental management – including ICM – has an iterative, adaptive approach where the system is incrementally improved as new information and knowledge is made available:

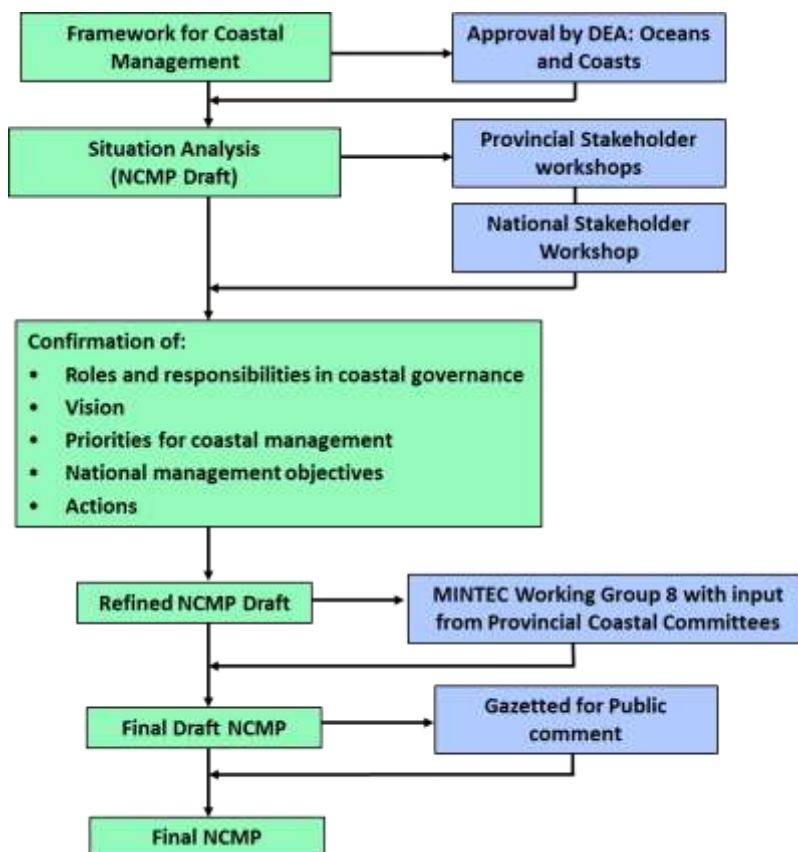
- A **Vision** which reflects ecosystem protection (i.e. ecological aspects) and key opportunities for sustainable coastal development (i.e. social, cultural and economic aspects), as well as **objectives** direct the focus of coastal management effort in order to achieve the vision;
- **Coastal area management units**, which boundaries can be delineated at the regional, national, provincial and municipal (local) level;
- **Ocean and coastal spatial planning** (i.e. strategic planning and mapping of coastal and ocean use), as an integral component within the larger integrated coastal management framework, including a spatial data infrastructure;

- **Activity-based management programmes**, involving the management specific activities, often show a stronger sectoral focus (i.e. activities are managed by different governing authorities through activity-specific statutory systems);
- **Monitoring and evaluation using appropriate performance indicators** to measure progress in achieving the vision and strategic objectives; and
- **Status reporting** (e.g. State of Coast reporting) evaluates the findings of monitoring programmes to inform subsequent reviews and to inform future strategic planning processes.

Overarching and intrinsic to all of the above is an enabling **Cooperative governance framework**. While formal coastal management institutions (e.g. coastal management committees) remain central to a cooperative governance framework, a governance framework extends wider requiring additional partnerships with government, business, civil society, and the scientific and professional communities. Seven such “support elements” for effective cooperative governance are considered relevant to the South Africa:

- Marginalised and previously disadvantaged communities;
- Awareness and Education;
- Training and capacity building;
- Scientific research support;
- Financing mechanisms;
- Compliance and enforcement systems; and
- Data and information systems.

The process followed in the development of this NCMP included the development of a framework for coastal management, a detailed situation analysis, as well as national and provincial stakeholder consultation, are illustrated below:



The **national vision** sets out the desired future for South Africa's coast and the people using this valuable resource as follows:

**We, the people of South Africa, celebrate the diversity, beauty and richness of our coast and seek an equitable balance of opportunities and benefits throughout it**

**We strive for sustainable coastal development – involving a balance between material prosperity, social development, cultural values, spiritual fulfilment and ecological integrity, in the interests of all South Africans**

**We strive for a time when all South Africans recognise that the coast is ours to enjoy in a spirit of community**

**We look forward to a time when all South Africans assume shared responsibility for maintaining the health, diversity and productivity of coastal ecosystems in a spirit of stewardship and caring**

**We seek to guide the management of our coast in a way that benefits current and future generations, and honours our obligations and undertakings from local to global levels.**

The NCMP framework, including the framework for cooperative governance, provided the template for the detailed Situation Analysis related to coastal management in South Africa, as well as providing a structured approach to engage with the stakeholders. Following a detailed situational analysis and a key stakeholder consultation process, nine key **priorities** for coastal management was identified, that is key issues that are currently preventing South Africa from achieving the Vision for our coast. For each of the key priorities the NCMP then set out a series of national **goals and associated management objectives** specifically aimed at areas which coastal management efforts at national government level must address.

### **Priority 1: Effective planning for coastal vulnerability to global change (including climate change)**

**Goal:** Ensuring that all planning and decision-making tools applied by all organs of state within the coast zone address coastal vulnerability by taking into account the dynamic nature of our coast, sensitive coastal environments, health and safety of people, illegal structures within coastal public property, and appropriate placement of infra-structure not to compromise investment by the state, as well as the rehabilitation of coastal ecosystems

**Management Objective 1.1:** Develop regulatory mechanisms (including norms and standards) to facilitate a uniform approach to assess coastal vulnerability and to establish conditions of use in the coastal zone

**Management Objective 1.2:** Develop appropriate data and decision-support for the identification of vulnerable coast areas to dynamic coastal processes and the effects of global change

**Management Objective 1.3:** Rehabilitation of areas along the coast that have been adversely effected

### **Priority 2: Ensuring equitable public access in the coastal zone**

**Goal:** Ensuring that the public has safe and equitable access to coastal public property through the establishment of sufficient coastal access land that is cognisant of the sensitivity of coastal ecosystems, the needs and livelihoods of coastal communities or other socio-economic considerations, as well as the removal of inappropriate and unsafe coastal access points

**Management Objective 2.1:** Provide a national commitment for the facilitation of safe and equitable access to coastal public property along South Africa's coast

**Management Objective 2.2:** Develop norms and standards to assist municipalities in carrying out their responsibilities with respect to coastal access

**Management Objective 2.3:** Provide capacity strengthening mechanisms for municipalities to effectively implement, maintain and monitor coastal access

### Priority 3: Integrating the management of estuaries

**Goal:** Ensure that all estuaries along the South Africa coast are managed in an integrated, holistic manner in accordance with the National Estuarine Management Protocol and the extent to which activities within estuaries are consistent with the other key priorities for coastal management

**Management Objective 3.1:** Develop and implement a national estuarine management protocol for a uniform approach to estuarine management, including individual estuary management plans that are tailored to suit the current and future requirements including social, economic and ecological considerations

**Management Objective 3.2:** Establish appropriate institutional mechanisms for estuarine management to facilitate dialogue, collaboration and implementation of Estuarine Management Plans

### Priority 4: Managing pollution in the coastal zone

**Goal:** Ensure the effective management of waste and wastewater into the coastal zone and minimizing adverse effects on the health of coastal communities, and on coastal ecosystems and their ability to support the sustainable uses of coastal resources in a manner that is socially, economically and ecologically justifiable

**Management Objective 4.1:** Establish regulatory mechanisms for waste and wastewater disposal in the coastal zone

### Priority 5: Establishing coastal monitoring and reporting systems to inform decision-making

**Goal:** Ensure the development and implementation of a dedicated, cooperative, co-ordinated and integrated coastal monitoring and reporting system that includes compliance monitoring and reporting in accordance with laws and policies, performance monitoring and reporting to measure progress in coastal management, and descriptive monitoring and reporting to measure variability and trends in biophysical, social and economic characteristics and processes in the coastal zone

**Management Objective 5.1:** Establish a national commitment for an effective coastal monitoring system in accordance with the ICM Act and other legislation that has a bearing on the coastal zone

**Management Objective 5.2:** Ensure that performance and status reporting on coastal management is conducted in accordance with the ICM Act and other legislation that has a bearing on coastal zone

### Priority 6: Establishing mechanisms for effective compliance and enforcement

**Goal:** Establish a committed compliance and enforcement system for coastal management in alignment with related laws and policies, and inclusive of cooperation and coordination between organs of state with enforcement responsibilities and NGOs with appropriate capacity

**Management Objective 6.1:** Ensure a coordinated, uniform approach to implementation of compliance and enforcement in the coastal zone across all spheres of government

**Management Objective 6.2:** Ensure that the necessary capacity within all spheres of government is available to conduct compliance and enforcement under the ICM Act

### Priority 7: Provision of coastal information and research

**Goal:** To have an effective national information system and research framework to support integrated coastal management, that is able to promote a dedicated, cooperative, coordinated and integrated planning management approach accessible to all stakeholders

**Management Objective 7.1:** Ensure that information in support of integrated coastal management is collated, maintained and managed in a responsible manner, and made accessible to all stakeholders

**Management Objective 7.2:** Conduct relevant research in support of coastal management in collaboration with various role players, nationally and international



### Priority 8: Strengthening awareness, education and training to build capacity

**Goal:** Ensuring that the general public and decision-makers are appropriately aware, educated and trained, where applicable, so as to be able to take collective responsibility for managing and protecting the coastal environment in a manner that is socially, economically and ecologically justifiable

**Management Objective 8.1:** Develop enabling mechanisms for the effective implementation of coastal awareness and education for South Africa, including empowerment of coastal communities

**Management Objective 8.2:** Develop enabling mechanisms for effective training to build capacity in coastal management in South Africa

### Priority 9: Strengthening partnerships for ICM

**Goal:** To ensure that institutional partnerships and mechanisms for ICM are established amongst all sectors and spheres of government, the private sector and civil society in a collaborative, problem-solving and consensus-building manner that promotes dialogue, cooperation, coordination and integration

**Management Objective 9.1:** Develop enabling formal, institutional mechanisms for promotion and coordination of ICM

**Management Objective 9.2:** Establish and strengthen collaborative partnerships with coastal local structures for empowerment, knowledge sharing and implementation of coastal management

**Management Objective 9.4:** Facilitating partnerships towards the long-term integration of the principles of integrated coastal management in all sectors of South African economy

The priorities, together with the national management objectives, as well as the various actions and performance indicators presented in this NCMP constitute national governments' (DEA's) commitment to implementing ICM in South Africa over the next five years (2013-2017).

# Acronyms

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ASCLME	Agulhas Somali Current Large Marine Ecosystem
A&E	Awareness and Education
AET	Awareness, Education and Training
Air Quality Act	National Environmental Management: Air Quality Act (Act No. 39 of 2004)
AsgiSA	Accelerated and Shared Growth Initiative of South Africa
BCLME	Benguela Current Large Marine Ecosystem
Biodiversity Act	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
BLSMS	Boat Launch Site Monitoring System
CAPE	Cape Action for People and the Environment
CARA	Conservation of Agricultural Resources Act (Act No. 43 of 1983)
CERM	Consortium for Estuarine Research and Management
CMP	Coastal management programme
CSIR	Council for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
Defence Act	Defence Act (Act No. 42 of 2002, amended 2010)
DMR	Department of Mineral Resources
DoT	Department of Transport
DST	Department of Science and Technology
DPLG	Department of Provincial and Local government and municipalities
DPW	Department of Public Works
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
EAF	Ecosystems Approach to Fisheries Management
EEZ	Exclusive Economic Zone
EIA	Environmental impact assessment
EIF	Environmental Integrity Framework
EMPlans	Environmental management plan
EMProgrammes	Environmental management programmes

Energy Act	National Energy Act (Act No. 34 of 2008)
ERR	Environmental Risk Report
EFZ	Estuarine functional zone
FAO	Food and Agriculture Organisation of the United Nations
GIAMA	Government Immovable Asset Management Act (Act No. 19 of 2007)
GIS	Geographic information system
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities
ha	Hectare
HCDS	Human Capital Development Strategy
HWM	Highwater mark
ICM	Integrated coastal management
ICM Act	National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008)
IDP	Integrated development plan
IMMS	International Marine Mining Society
IP	Implementation Plan
IUCN	The World Conservation Union
KZN	KwaZulu-Natal
LME	Large marine ecosystem
Marine Traffic Act	Marine Traffic Act (Act No. 2 of 1981)
Maritimes Zones Act	Maritimes Zones Act (Act No. 15 of 1994)
MARPOL Act	International Convention for Prevention of Pollution from Ships Act (Act No. 2 of 1986)
MEC	Member of the Executive Council of a coastal province responsible for designated provincial lead agency in terms of the ICM Act
Merchant Shipping Act	Merchant Shipping Act (Act No. 57 of 1951)
MINMEC	Standing intergovernmental body consisting of the Minister of Environmental Affairs, members of the provincial Executive Councils (MECs) responsible for environmental management functions and South African Local Government Association (SALGA)
MINTEC	Standing intergovernmental body that provides technical input into the MINMEC. The MINTEC consists of the Director-General of the DEA, the heads of the provincial departments responsible for environmental management functions, and SALGA

MLRA	Marine Living Resources Act (Act No. 18 of 1998, amended 2000)
MPRD Act	Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)
MSL	Mean sea level
MSP	Marine spatial planning
Municipal Systems Act	Municipal Systems Act (Act No. 32 of 2000)
NBSAP	National Biodiversity Strategy and Action Plan
National Building Regulations and Standard Act	National Building Regulations and Building Standards Act (Act No. 103 of 1977 amended 1982, 1984, 1989, 1995, 1996)
National Health Act	National Health Act (Act No.61 of 2003)
NBA 2011	National Biodiversity Assessment 2011 (South Africa)
NCMP	National Coastal Management Programme
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NMMU	Nelson Mandela Metropolitan University
NPAES	National Protected Area Expansion Strategy
NPC	National Planning Commission
NPoA	National Programme of Action to protect the marine environment from land-based activities (South Africa)
NQF	National Qualifications Framework
NRF	National Research Foundation
NSDI	National Spatial Data Infrastructure
NSDP	National Spatial Development Perspective
NSSD 1	National Strategy for Sustainable Development and Action Plan 2011–2014
NWA	National Water Act (Act No. 36 of 1998)
NWMS	National Waste Management Strategy
OCSDI	Ocean and Coastal Spatial Data Infrastructure
PAI Act	Promotion of Access to Information Act (Act No. 2 of 2000, amended Act No. 54 of 2002)
PAR	Performance Assessment Report
Protected Areas Act	National Environmental Management: Protected Areas Act (Act No. 57 of 2003)
SABS	South African Bureau of Standards
SADCO	Southern African Data Centre for Oceanography
SAEO	South Africa Environment Outlook

SAHRA	South African Heritage Resources Agency
SALGA	South African Local Government Association
SAMSA	South African Maritime Safety Authority
SAMSA Act	South Africa Maritime Safety Authority Act (Act No. 5 of 1998)
SAMSM&CP	South African Molluscan Shellfish Monitoring and Control Programme
SANBI	South African National biodiversity Institute
SANCOR	South African Network for Coastal and Oceanic Research
SANParks	South African National Parks
SASSI	South African Sustainable Seafood Initiative
SDF	Spatial development framework
SDI Act	Spatial Data Infrastructure Act (Act No. 54 of 2003)
Seashore Act	Seashore Act (Act No. 21 of 1935, as amended 1984, 1993)
Sea Fishery Act	Sea Fishery Act (Act No. 12 of 1988)
SIPS	Port Expansion Strategies
SOP	Standard Operating Procedures
SPUMLA	Spatial Planning and Land Use Management Act (Act No. 16 of 2013)
TAC	Total Allowable Catch (TAC)
TAE	Total Allowable Effort (TAE)
The Constitution	The Constitution of the Republic of South Africa Act (Act No. 108 of 1996)
Transnet NPA	Transnet National Ports Authority
Waste Act	National Environmental Management: Waste Act (Act No. 59 of 2008)
WESSA	Wildlife and Environment Society of South Africa
WG8	Working Group 8 (Oceans and Coasts) of MINTEC
WRC	Water Research Commission
WWF	World Wildlife Fund

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# Structure of Document

This document presents South Africa's National Coastal Management Programme (NCMP) under the National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008) (ICM Act) for the period 2013 to 2017 and is intended to be used by coastal provinces, coastal municipalities, coastal practitioners and decision-makers, as well as professionals working in non-government organisations and other organisations and institutions that have a bearing on coastal management.

The Introduction (Chapter 1) sets the scene explaining the background to the NCMP and valuing the importance of our coastal resources. The context of coastal management programmes in terms of other national, provincial and municipal planning programmes and frameworks are then illustrated followed by the specific purpose of the NCMP. The chapter continues with a short overview of the process that was followed in the preparation of the NCMP. Finally a logical framework for coastal management in South Africa is presented. Chapter 2 presents a Situational Analysis related to coastal management in South Africa. A brief overview of the coastal environment and the status of coastal ecosystems are provided. Thereafter, the status of coastal management is assessed using the framework for coastal management as a template. Specifically future needs are identified taking into account the status of coastal ecosystems, feed-back from the stakeholder consultation process, as well as outstanding statutory requirements. This knowledge is then considered in the definition of environmental objectives and priorities for this NCMP. Chapter 3 highlights the roles and responsibilities in coastal management in the context of the ICM Act, providing an overview of the roles and responsibilities assigned to each of the three spheres of government, as well as collaborative partnership with other role players. Chapter 4 presents the national Vision for South Africa's coast, as well as the underpinning principles providing departure points for translating the vision into practice. Also the key priorities, and associated goals, for coastal management are presented here, informed by stakeholder consultation process. This is followed, in Chapter 5, by the national management objectives with respect to the priorities for coastal management focusing on the national mandate in terms of the ICM Act. Chapter 5 also lists specific actions that will be undertaken by national government - as part of the NCMP - to achieve the national management objectives largely informed by the Situation Analysis, considering needs expressed by municipal, provincial and national stakeholders. Finally, the NCMP concludes (Chapter 6) with detailing the process that will be followed towards implementation of the National management objectives and actions over the next five year (2013-2017).

## Defining important terminology used in this document:

Vision	A vision answers the following question <i>How do we (the people of South Africa) envisage our future coast (considering the ecological, heritage and socio-economic environment)?</i>
Priority	A issue related to coastal management currently preventing us from achieving the vision
Management Objective	A clearly defined objective – linked to a specific priority - which coastal management must be directed at towards achieving the vision
Strategy	A plan of actions or a policy designed towards achieving the vision, a priority or a management objective
Norms and standards	According to the ICM Act (Section83(f)), norms and standards include systems, guidelines, protocols, procedures, standards and methods

# 1. Introduction

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## 1.1 Background

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*“The overall goal of Integrated Coastal Management is to improve the quality of life of human communities who depend on coastal resources while maintaining the biological diversity and productivity of coastal ecosystems. . . . It is a process that unites government and the community, science and management, sectoral and public interests in preparing and implementing an integrated plan for the protection and development of coastal ecosystems and resources.”*

*Report on fundamental goals of coastal management via deliberations of the Group of Experts of Marine Protection (GESAMP, 1996)*

Almost half of the entire planet’s population is concentrated along the coast, placing an ever-increasing burden on coastal habitats and resources to meet the social and economic demands of a growing human populace.

Coastal zones throughout the world have historically been among the most heavily exploited areas because of their rich resources. In coastal countries today, an estimated half of the total population live in coastal zones, and migration from inland areas to the coast is increasing. Not surprisingly, there is also a rising conflict between the need for immediate consumption or use of coastal resources and the need to ensure the long-term supply of those resources. In many countries this conflict has already reached a critical stage, with large parts of the coastal zone polluted from local or inland sources, wetlands drained, estuarine ecosystem health compromised and beaches long since ruined for human enjoyment. Notwithstanding these impacts, the enjoyment of the coastal zone by a wide variety of users and the view of the coast as a national asset and legacy for future generations is of the utmost importance for the promotion of its current and future sustainable use.

The right to an environment that is protected for the benefit of both present and future generations of South Africans – which ensures the perpetuation of their health and well-being – is enshrined in the Constitution of the Republic of South Africa (1996). Section 24 of the Constitution requires the promulgation of legislation and appropriate instruments that promotes conservation, prevents pollution and ecological degradation, and ensures that the social and economic growth of our nation progresses with due consideration of the need to secure ecologically sustainable development and natural resources.

In answer to this need, the National Environmental Management Act (No. 107 of 1998) (NEMA) was promulgated in 1998. Acting as a broad “umbrella” legislative instrument, NEMA’s primary objectives include the promotion of a co-ordinated approach to matters affecting the environment by ensuring that co-operative governance as well as co-ordinating mechanisms and institutions are implemented as key principles for the effective management of the environment of South Africa.

These principles, translated within the context of coastal management, were captured in the White Paper for Sustainable Coastal Development in South Africa (DEAT, 2000) (White Paper), which signified the first fundamental shift in thinking, ushering in a new era for adopting an integrated approach to matters pertaining to the coast.

According to the White Paper, past coastal management efforts did not recognise the value of coastal ecosystems as a cornerstone for development. Coastal management was also resource-centred rather than people-centred, and attempted to control, rather than promote the sustainable use of coastal resources, with a lack of recognition of the diversity of our coast. Furthermore, management of the coastal area was fragmented and uncoordinated, and was undertaken largely on a sector-specific basis, with an emphasis on maximising coastal resource use on a single sector basis and the exclusive use of areas and resources. In recognition of these shortcomings the government of South Africa elected to embrace a holistic approach, known as Integrated Coastal Management (ICM). The purpose of ICM is to maximize the benefits provided by the coastal zone and to minimize the conflicts and harmful effects of activities upon each other, on resources and on the environment.

It starts with an analytical process to set objectives for the development and management of the coastal zone. All of the historical challenges mentioned above are contradictory to the objectives of ICM and therefore the Integrated Coastal Management Act (No. 24 of 2008) (hereafter referred to as the “ICM Act”) has been promulgated, to establish the statutory requirements for integrated coastal and estuarine management in South Africa. ICM also prescribes the inclusion of norms, standards and policies for further elaboration and guidance on coastal management provisions within legislation and specific scenarios and/or issues. One of the many reasons for the adoption of this form of management is to promote the conservation of the coastal environment, and to maintain the natural character of coastal landscapes and seascapes. The purpose of ICM is to ensure that the development and use of natural resources in the coastal zone is socially and economically justifiable, as well as being ecologically sustainable.

The ICM Act contains a variety of tools that can be used as important tools to ensure that:

- The coastal zone is conserved;
- Development is conducted in an environmentally sustainable manner; and
- Transgressions by individuals or groups are dealt with through appropriate measures and/or fines.

Amongst these tools, Coastal Management Programmes (CMPs) are arguably the most powerful integrating instruments. A CMP is a policy directive for the management of the coastal zone, inclusive of strategies and plans for the effective implementation of the ICM Act that will enable organs of state to plan accordingly, to set a course for the environmental future of a nation by addressing the resolution of current management problems and user-conflicts (due to the wide variety of activities and uses of the coast), as well as the long-term development and management of the coastline. CMPs also play the vital role of bringing together the various spheres and sectors of government, private sector activities and community activities on the coast for the effective implementation of ICM over a projected period of time. This is achieved by ensuring that the development and use of natural resources in the coastal zone is done with the best interests of the public and economy, while being ecologically sustainable.

## 1.2 Value of our Coast

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South Africa's coastal environment is a rich and diverse national asset, providing important economic and social opportunities for the human population. As a result, coastal populations have developed a strong reliance on these resources for commercial opportunity and gain, food, recreation, and transport. Also, coastal resources have facilitated job creation and general economic upliftment in coastal regions.

Historically, the industrial centre in South Africa was in the interior of the country near the gold mines along the Witwatersrand. However, over the years the country's economy evolved from a strong dependence on primary extraction activities (e.g. mining) to increased manufacturing and service industries to lately becoming increasingly dependent on port facilities for the export of such processed products. Consequently, the coastal cities have developed and expanded rapidly.

Since the 1980s the major coastal cities of Cape Town, Port Elizabeth, East London, Durban, and Richards Bay (Figure 1) have experienced the fastest economic growth of all cities in the country (DEAT, 2006).

The coastal environment of South Africa is therefore:

- An *economic place* where commercial, recreational and subsistence activities take place;
- A *social place* where people enjoy themselves and come to relax and find spiritual peace; and
- A *biophysical place* where land, sea and air meet and interact, and where beaches, sand dunes, rocky headlands and estuaries support a wide range of coastal biodiversity.

Importantly, these three components are interrelated with the social and economic value of coastal systems, largely depending on the health and productivity of the biophysical component.

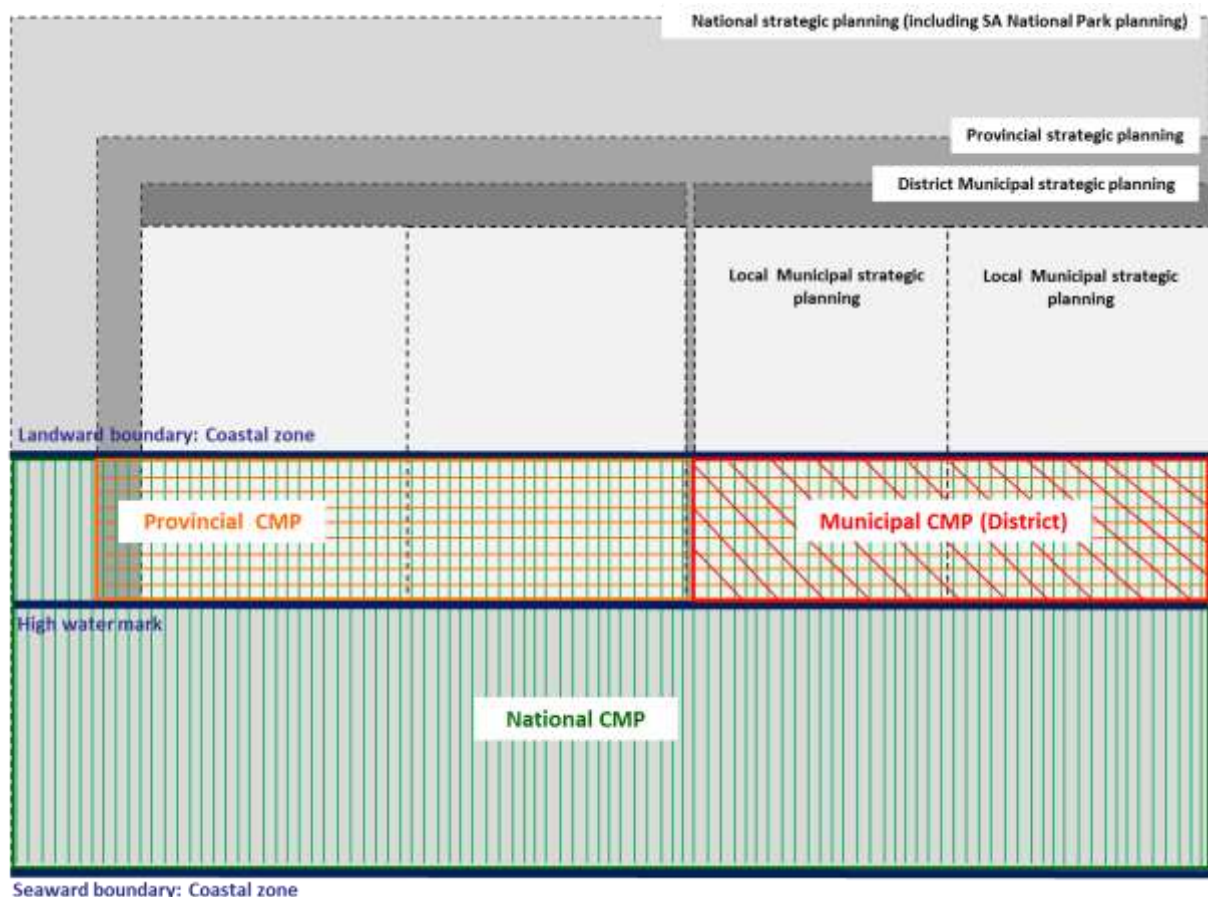
The estimated contribution of coastal resources (without regulatory services) to the South African economy is in the order of some R 57 billion (US\$5.7 billion) (UNOPS, 2011). The direct economic benefits from coastal resources in South Africa are estimated to be approximately 35% of the country's annual gross domestic product (GDP). Direct economic benefits include the marine fishing industry, port and harbour development and attractive lifestyles, and recreational and tourism opportunities offered by a coastal location. Furthermore, the coast provides indirect economic benefits such as the erosion control provided by coastal features such as dunes and high cliffs which protect built and natural features along the coast (including roads, buildings and farmlands) from the damaging effects of waves and wind, and it allows waste assimilation, detoxification and recycling through coastal wetlands, forests and grasslands.

These indirect benefits account for an additional 28% of the country's GDP. In addition to the economic benefits, the coastal environment provides enormous social benefits that many people enjoy. For some people, the coast is a place of cultural or spiritual significance and many South Africans also see the coast as a place of recreation. It support coastal population livelihood, by providing building materials, food and other benefits that are difficult to measure in monetary terms. The coast also provides many educational and scientific opportunities which are not easily quantifiable in monetary value. Tourism, recreation and leisure activities have developed into a global growth industry and South Africa's coast has particular value in this regard.

## 1.3 Context of Coastal Management Programmes

While the promulgation of the ICM Act, for the first time mandated the development of coastal management programmes (CMPs) and institutions for cooperative coastal governance, South Africa already has several statutes governing aspects of coastal management. These include at least 19 international obligations and agreements, 11 national policies (other White Papers) and approximately 46 national acts (Taljaard, 2011). The most recent overviews on international and national legislation pertaining to South Africa's coastal and marine environment are provided by Glavovic and Cullinan (2009) and McLean and Glazewski (2009). A summary of the key international obligations and agreements is provided in Appendix B.

The ICM Act views CMPs as the most important tool for integrating coastal management in South Africa. All spheres of government – national, provincial and municipal - must establish and implement CMPs. Provincial CMP's must be consistent with the NCMP, as well as the national estuarine management protocol. Municipal CMP's, applying to a particular coastal municipality, must be consistent with the NCMP and that of the province in which they are located. Therefore, nested within the NCMP is the various provincial coastal management programmes (CMPs), and within these, the various municipal CMPs (developed at the district municipal level). These CMPs specifically apply to the coastal zone within the various jurisdictions (Figure 1).



**Figure 1:** Conceptual illustration depicting the context of coastal management programmes in relation to other national, provincial and municipal strategic planning

For example, provincial CMPs address strategic planning and implementation in the coastal zone in the provinces, stretching from the HWM up to the landward boundary of the coastal zone. Municipal CMPs similarly address planning and implementation in the coastal zone within the district municipal boundaries, again stretching from the HWM up to the landward boundary of the coastal zone.

Further, larger strategic planning processes at national, provincial and municipal levels, must embed CMPs for the coastal zone in order to address the legal requirements of the ICM Act (Figure 1). For example, the municipal integrated development plan, spatial planning framework and zoning schemes must take into account and incorporate the provisions of the municipal CMP. Similarly, provincial spatial and development planning must take into account and incorporate the provisions of the provincial CMP, which in turn must be aligned with the NCMP (including coastal planning schemes).

## 1.4 Purpose of NCMP

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With specific reference to the NCMP the ICM Act (Section 45) stipulates that the programme must –

- (a) *“Be a policy directive on Integrated Coastal Management;*
- (b) *Provide for an integrated, coordinated and uniform approach to coastal management by organs of state, in all spheres of government, non-governmental organisations, the private sector and local communities”.*

More specifically the Act (Section 45) states that the NCMP must include the following components:

- A national vision for coastal management, including sustainable use of coastal resources;
- National coastal management objectives;
- Priorities and strategies to achieve the objectives;
- Performance indicators to measure progress with achieving objectives;
- Norms and standards for the management of the coastal zone or specific components thereof; and
- A framework for cooperative governance in which the responsibilities of organs of state and other stakeholders (including previously disadvantaged communities that rely on coastal resources for their livelihood) are identified. The framework should include mechanisms for coordination between these groups to enable integrated coastal management.

In other words, the NCMP provides the direction and guidance towards a structured and standardised approach to coastal management in South Africa, including an appropriate cooperative governance framework – a critical element for effective implementation of integrated coastal management. However, the NCMP is an iterative, dynamic process where priorities for coastal management must be periodically evaluated to improve performance and revise strategies. As a result South Africa’s NCMP is not a once-off programme that is “cast in iron” Indeed, this NCMP identifies national strategies, and norms and standards still to be developed towards achieving the vision and management objectives. For this reason the ICM Act (Section 44) requires that the Minister of Environmental Affairs review the programme at least once every five years or, and, when necessary, amend the programme.



## 1.5 NCMP Development Process

The development of this NCMP did not happen within a coastal management void. Indeed, South Africa had several statutes, management programmes (e.g. DEAT, 2008) and initiatives in place that already addressed aspects of coastal management (these are dealt with in greater detail in the Situation Analysis chapter). In this light, the intention here was not to start completely afresh, but rather to consider existing management programmes and initiatives and to use those as basis for the development of the NCMP within the realm of the ICM Act. The process followed in the development of this NCMP is schematically illustrated in Figure 2.

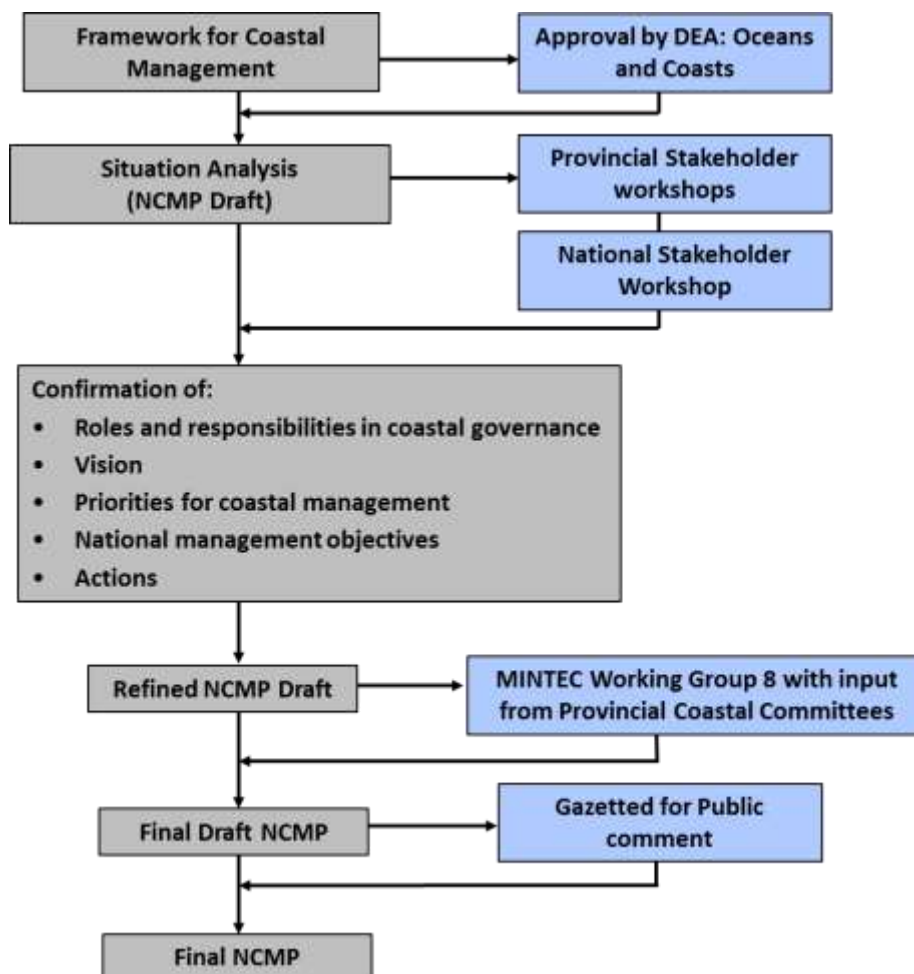


Figure 2: The NCMP development process

First a framework for coastal management in South Africa was proposed. This framework identifies key components or elements of an integrated coastal management programme presenting the structure – the integrated, coordinated and uniform approach to coastal management. The preparation of a draft situation analysis on coastal management in South Africa followed, including the identification of future needs. The proposed framework and draft situation analysis were then presented at stakeholder workshops in each of the four coastal provinces, as well as at a national stakeholder workshop. The aim of these workshops was to consult on the proposed framework for coastal management, as well as the

finding of the draft situation analysis. Further, the aim was to gauge stakeholders' priorities for coastal management. The detailed findings of the stakeholder consultation process are documented in a supporting document to this NCMP (DEA, 2013a). Following the stakeholder consultation process, the framework for coastal management was refined; a national vision for coastal management in South Africa was derived, as well as the management objectives to achieve the vision. A list of priorities - linked to each of the management objectives – was then identified guided by results from the situation analysis and priorities emerging from the stakeholder workshops. A preliminary list of indicators for coastal management - in order to monitor progress in terms of achieving the management objectives, and ultimately, the vision for coastal management in South Africa - was also derived. This national vision, management objectives and the priorities, serve as the broad directive for coastal management in South Africa, giving guidance to provinces and municipalities in the development of their coastal management programmes - supporting a synchronised approach to coastal management. However, the specific foci of provincial and municipal management programmes may vary, as defined by the site-specific coastal management issues in various provinces and municipalities. Finally, specific actions for the NCMP 2013 were distilled for which DEA: Oceans and coasts will develop detailed implementation plans, in collaboration with others where appropriate.

The above was compiled into a draft NCMP document and presented to MINTEC Working Group 8 (WG8) for review. WG8 deals with oceans and coasts and is attended by key national agencies, representatives from provincial lead agents for ICM, science councils, and conservations bodies amongst others. Pending the establishment of an official national institutional structure for coastal management, under the ICM Act, WG8 fulfilled the role. Comments from WG8 were incorporated into a final draft NCMP document that was gazetted for public comments. Finally, public comments were considered and, where appropriate, incorporated into the final NCMP for South Africa.

## 1.6 Framework for Integrated Coastal Management

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The framework for integrated coastal management represents the overarching components or elements to be addressed within an integrated coastal management programme - the integrated, coordinated and uniform approach to coastal management (Figure 3). It provides for a holistic and structure manner in which to conduct a situation analysis, and to identify issues and future needs. Management objectives and priorities within a coastal management programme are then typically directed at specific components or elements in the framework that is either lacking or needing improvement – working towards a comprehensive integrated coastal management programme. The framework is presented in a cyclic context as environmental management – including ICM – has an iterative, adaptive approach where the system is incrementally improved as new information and knowledge becomes available. The framework for ICM proposed here are informed by requirements stipulated in the ICM Act, (referring to Section 45), as well as international best practice. While it is widely recognised that ICM is contextual and place-based, commonalities have been distilled from the implementation of ICM worldwide (e.g. Stojanovic et al., 2004; Taljaard et al., 2011).

In ecosystem-based management not only the ecological, but also the economic, social and cultural aspects of the resource become important (UNEP/GPA, 2006). All these aspects should be reflected in the **vision** for the coast. Thus, the vision should not only reflect ecosystem protection (i.e. ecological aspects)

but also the key opportunities for sustainable coastal development (i.e. social, cultural and economic aspects). **Objectives** direct the focus of coastal management effort in order to achieve the vision. Elucidation of jurisdictional space (i.e. the applicable space within which the jurisdiction of coastal management and coastal management programmes must be applied) for management comprises another key component – specifically the delineation of coastal management units (Halpern et al. 2008).

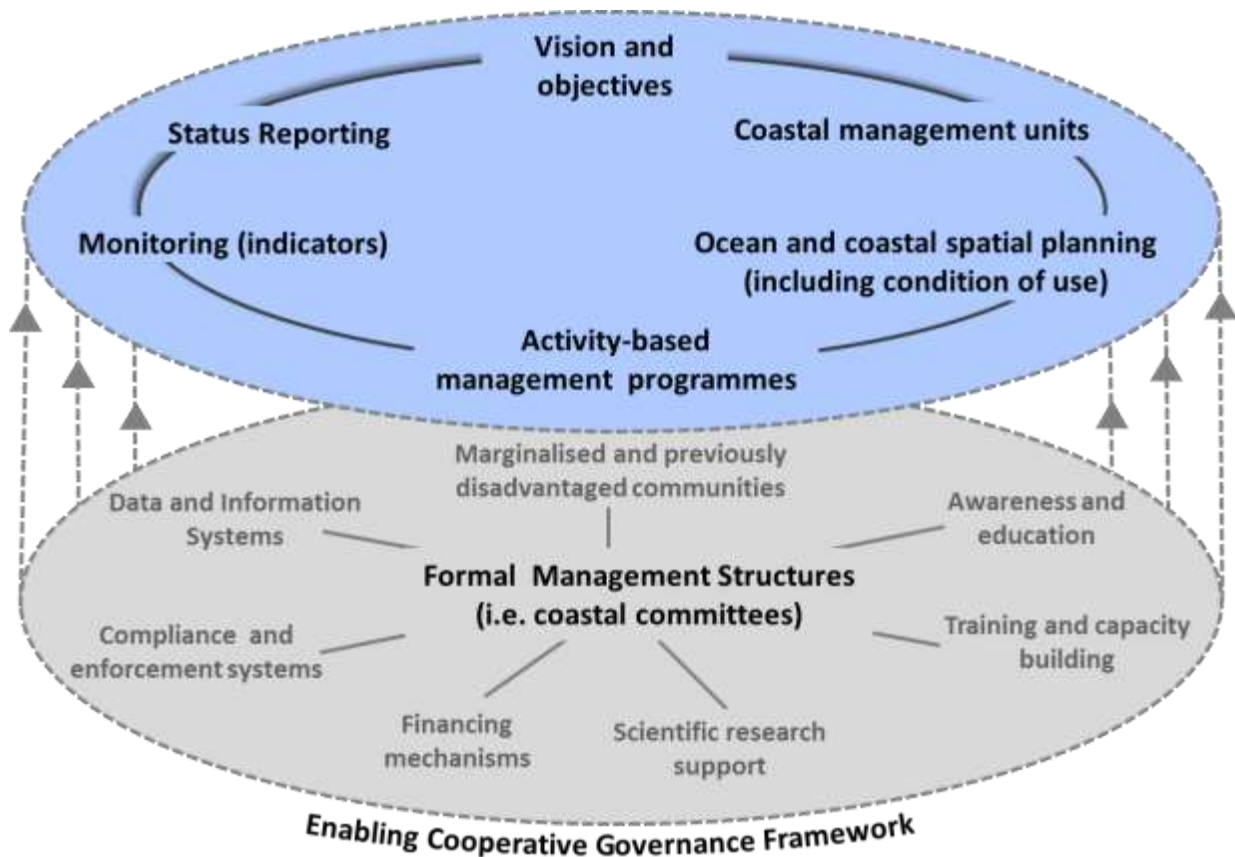
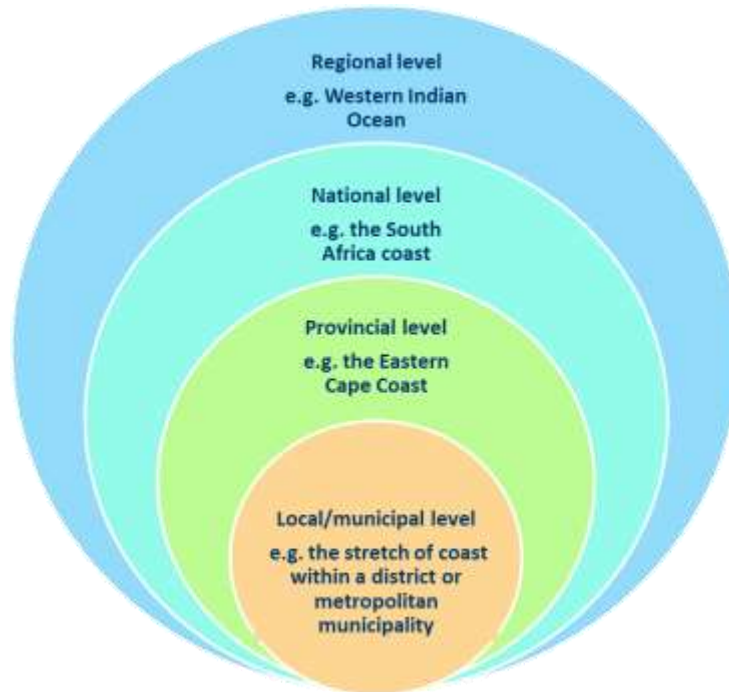


Figure 3: A framework for integrated coastal management in South Africa

Coastal Management units can be delineated at regional and national scales, as well as at the provincial and municipal (local) level (see Figure 4). Demarcation of the coastal management units of the local/municipal area is challenging because most of the threats posed by intensifying human activities and ecosystem change cannot necessarily be dealt with by managing river basins, coastal zones and larger marine ecosystems in isolation (UNEP/GPA, 2006). However, it does make practical sense to limit the size of the local coastal management unit. The boundaries of a coastal management unit stipulate the geographical space at the core of the management programme. However, this does not imply that activities outside these boundaries - which may impact on the geographical space – are excluded. These are typically addressed through the activity-based management programmes in the framework (e.g. stormwater runoff into the coastal zone but originating outside the geographical boundaries of the coastal zone). Due to a burgeoning demand for ocean and coastal space, **ocean and coastal spatial planning** (i.e. strategic planning and mapping of coastal and ocean use), is increasingly becoming a necessity (e.g. Ehler and Douvère, 2009). Spatial planning in the coastal zone, therefore, is not a separate process rather it is an integral component within the larger integrated coastal management framework.



**Figure 4: Generic Illustration of coastal management units at various tiers within which respective coastal management programmes may apply**

In coastal environment **activity-based management programmes**, involving the management specific activities, often show a stronger sectoral focus (i.e. activities are managed by different governing authorities through activity-specific statutory systems) where the expertise to develop and manage these programmes typically resides. The framework, therefore, embeds activity-based management programmes but subservient to the vision, management objectives, and ocean and coastal spatial planning outcomes. The selection of indicators and implementation of **monitoring** programmes are fundamental to coastal management providing the means of continuously assessing progress toward achieving the vision and management objectives. Monitoring comprises “a continuous function that uses the systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing development intervention with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds” (Kusek and Rist, 2004). **Status reporting** (e.g. State of Coast reporting) evaluates the findings of monitoring programmes to inform subsequent reviews and to inform future strategic planning processes (coastal management is an incremental, adaptive management process – “learning-by-doing”).

Implementation of coastal management requires and enabling **cooperative governance framework**. While formal coastal management institutions (e.g. coastal management committees) remain central to a cooperative governance framework, a governance framework extends wider requiring additional partnerships with government, business, civil society, and the scientific and professional communities. Seven such “support elements” for effective cooperative governance are considered relevant to the South Africa situation as illustrated in Figure 3. Cicin-Sain and Knecht (1998) argue that integrated coastal management cannot survive over the long-term without the support of the public (i.e. society outside government) Further human capital development and empowerment are critical to enhance the capacity of institutions and individuals to undertake effective coastal management programmes.

## **2. Situation Analysis**

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This chapter presents a situation analysis related to coastal management in South Africa. A brief overview of the coastal environment and the status of coastal ecosystems are provided. Thereafter, the status of coastal management is assessed using the framework for coastal management (Chapter 1.6) as template. Specifically future needs are identified taking into account the status of coastal ecosystems, feed-back from the stakeholder consultation process, as well as outstanding statutory requirements. This knowledge is then considered in the definition of environmental objectives and priorities for this NCMP.

## 2.1 Natural Coastal Environment

### 2.1.1 Brief description

South Africa's coastline stretches from the Orange River on the west coast to Ponta do Ouro on the east coast, a distance of approximately 3 100 km (Figure 4).



Figure 5: Biogeographical regions and currents along the South African coast

Further there are nearly 300 river catchments draining into the coastal zone through functional estuaries. These estuaries constitute much of the sheltered marine habitat along South Africa's coastline and consequently they are important for biodiversity as well as socio-economic development (Van Niekerk and Turpie, 2012). The coast spans three biogeographical regions (or coastal climatic zones), namely the cool temperate west coast, warm temperate south coast and subtropical east coast (Brown and Jarman, 1978).

The coastal environment of South Africa spans two of the 64 large marine ecosystems (LMEs) of the world, namely the Benguela Current large marine ecosystem (BCLME) and the Agulhas Somali Current (ASCLME) (NOAA, 2013). LMEs are relatively large areas of ocean space, approximately 200 000 km<sup>2</sup> or greater, adjacent to the continents where primary productivity in coastal waters is generally higher than in open ocean areas. The Benguela Current on the west coast comprises a general equator-ward flow of cold water in the South Atlantic gyre and dynamic wind-driven upwelling close inshore at certain active upwelling sites (Shannon, 1985). The temperature regime in the Benguela Current region is strongly seasonal, with average surface temperatures ranging between 21°C and 15°C in summer and between 17°C and 13°C in winter (Boyd and Agenbag, 1984), broadly reflecting changes in insolation, upwelling, vertical mixing and horizontal advection (Shannon, 1985). As a result of upwelling the west coast is characterised by high nutrient supplies to the upper layers resulting in high primary production (i.e. dense plankton blooms). Decay of large deposits of organic-rich matter along the west coast reduces the dissolved oxygen content of the bottom waters to extremely low levels in the mid and inner continental shelf (Lombard et al., 2004). The Agulhas Current flows strongly southward along the east coast. Sea surface temperatures in the region show a decline of about 2°C moving from north to the south, with maximum average temperatures ranging from 28°C (summer) and 23°C (winter) in the north and from 25°C (summer) and 21°C (winter) in the south (Lutjeharms, 2006). Compared to the west coast, primary production is much lower owing to the warm, nutrient-poor tropical waters introduced from the equatorial region of the western Indian Ocean. Coastal waters, therefore, are typically blue and clear (Lombard et al., 2004), except in areas adjacent to larger, turbid river systems such as the larger systems located along South Africa's east coast in the sub-tropical biogeographical region (Figure 1). Along the south coast, upwelling of nutrient-rich sub-photic water occurs along the shelf break and at promontories along the southern coastline, creating an intensive, dynamic mixing region, intermediate in terms of temperature and productivity between the BCLME and ASLME (Lombard et al., 2004).

The coastal zone of South Africa comprises various types of benthic substrate including several sandy, rocky and mixed substrata (Sink et al., 2012). The distribution of habitat types can be partly explained by geography, likely reflecting large-scale patterns in coastal geology. The west coast is characterised by very heterogeneous substrates with marked contrasts between rocky cliffs, long sandy beaches, extremely sheltered deep bays and highly exposed open coasts. The majority of South Africa's long dissipative beaches are found in along this stretch of coast. The south coast comprises largely a series of log spiral bays (e.g. Mossel Bay, Plettenberg Bay and Algoa Bay) interspersed with cliffs or long stretches of rocky coastline (e.g. the Tsitsikamma coast). Along the south coast the Alexandria dune field is a unique feature and represents one of the largest active coastal dune fields in the world. Cliffs, rocky shores and intermediate estuarine pocket beaches dominate the transition zone into the east coast. Along the east coast rocky shores and sandy beaches dominate the south whereas beaches become more intermediate and dissipative-intermediate in the north.

The strong oceanographic variability is reflected in the division of the marine biodiversity zones (Branch et al., 1994; Heemstra and Heemstra, 2004; Lombard et al., 2004) in the South African coastal environment depicted in Figure 5 (Source: Sink et al. 2012). Together with the complex interactions between the oceans and the atmosphere, combined with high variability in rainfall patterns and variety of biodiversity zones, it is not surprising that South Africa displays such high levels of marine biodiversity within such a small area. Some 10 000 species of plants and animals have been recorded, representing 15% of the global marine species diversity (DEAT, 2006).

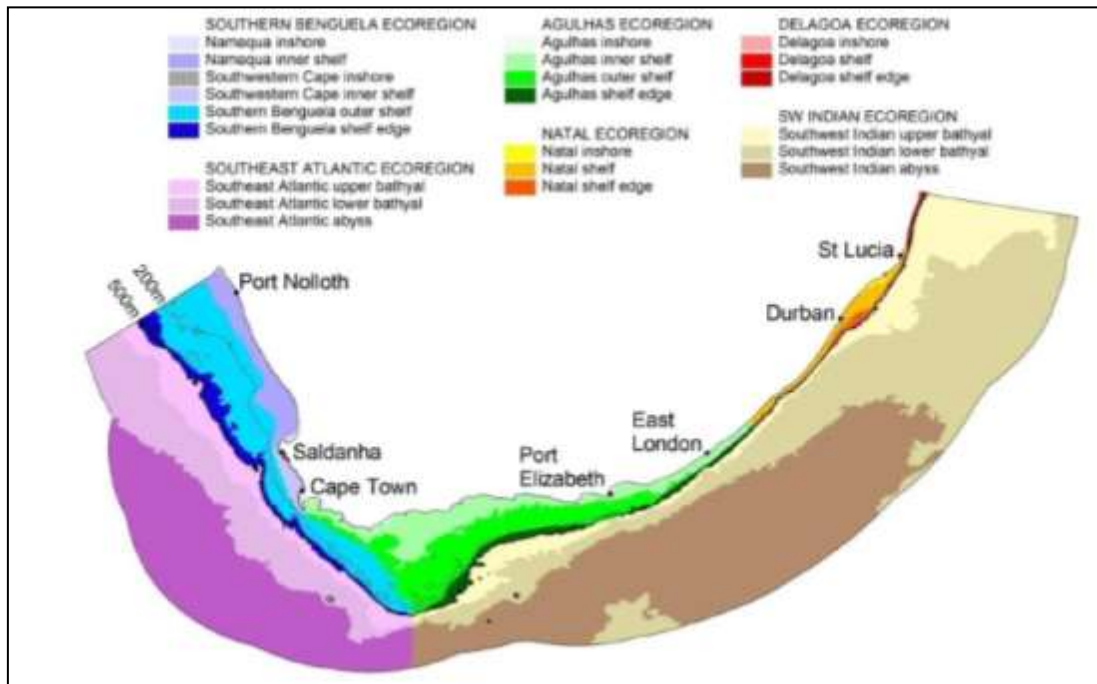


Figure 6: Bioregions within South Africa’s coastal environment

In broad terms, plants and animals are distributed according to the distinctive physical characteristics of the different regions. Along the west coast is characterised by high primary productivity and low species diversity, but it supports large populations of some species. The south coast is a transition zone between the east and west coasts, showing characteristics of both areas. Its coastal environment has a high biological diversity and moderate productivity. Along the east coast becomes increasingly warm and tropical northward and is characterised by increasing species diversity but smaller populations (DEAT, 1998).

### 2.1.2 Health Status of Coastal Ecosystems

The health status of South Africa’s coastal ecosystems - summarized here - was extracted from the National Biodiversity Assessment 2011 (NBA 2011) (Driver et al., 2012) and the yet unpublished 2012 Environmental Outlook and the reader is referred to the original documents for details.

The NBA 2011 assessed the ecosystem threat status of status of South Africa’s marine and coastal ecosystems (Sink et al., 2012). The ecosystem threat status of 136 marine and coastal habitat types was assessed (Figure 6, Source: Sink et al., 2012) included 58 coastal, 62 offshore benthic and 16 offshore pelagic habitat types grouped into a total of 14 broad ecosystem groups.

A total of 64 habitat types (47% of total amount of habitat types) are considered threatened. Seventeen percentage (17%) of these habitat types are critically endangered, 7% endangered, 23% vulnerable and 52% least threatened. Although 47% of habitat types are considered threatened (i.e. critically endangered, endangered and/or vulnerable), the overall area of threatened habitat is less than 30% of the marine and coastal environment considered (i.e. shaded areas in Figure 6).



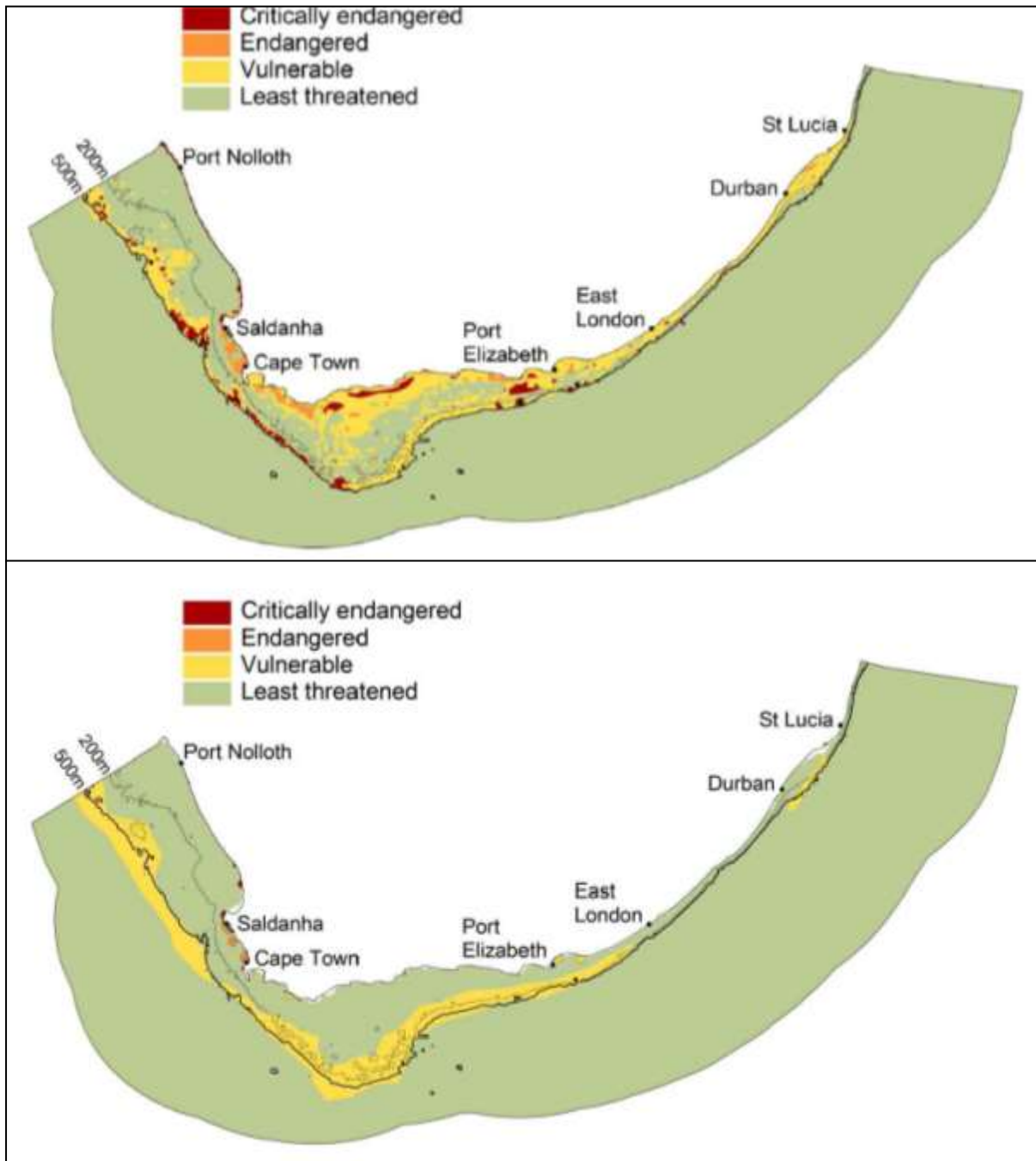


Figure 7: Ecosystem threat status of marine and coastal benthic (top figure) and pelagic (bottom figure) in South Africa

This reflects the small spatial extent of many threatened habitat types whereas many of the deeper habitat types that have far greater extent are least threatened (Sink et al., 2012). A summary of the threat status of coastal and marine habitat types in South Africa is provided in Figure 7 (Source: Sink et al., 2012).

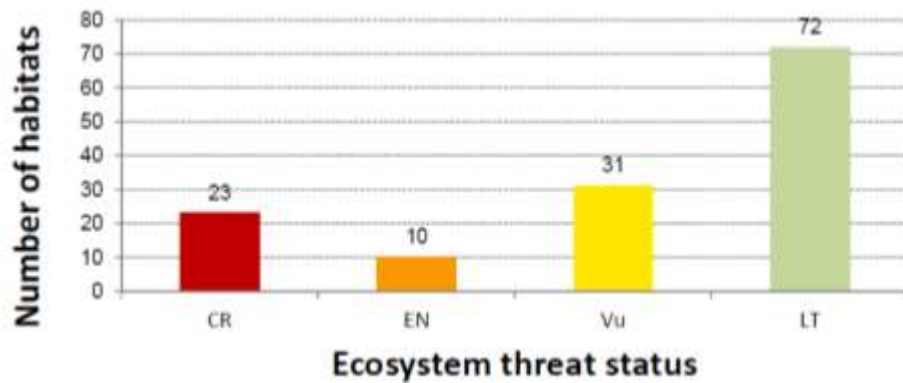


Figure 8: Number of coastal and marine habitat types in each ecosystem threat status category in South Africa (Cr - critically endangered; En – endangered; Vu – vulnerable; LT - least threatened)

The health status of South Africa’s estuaries was also determined as part of the NBA 2011 (Van Niekerk and Turpie, 2012). This assessment found that a total of 17% of estuaries were considered to be in excellent state and another 41% were in a good state. About 35% were in a fair state and 7% were in a poor state (Figure 8, Source: Van Niekerk and Turpie, 2012).

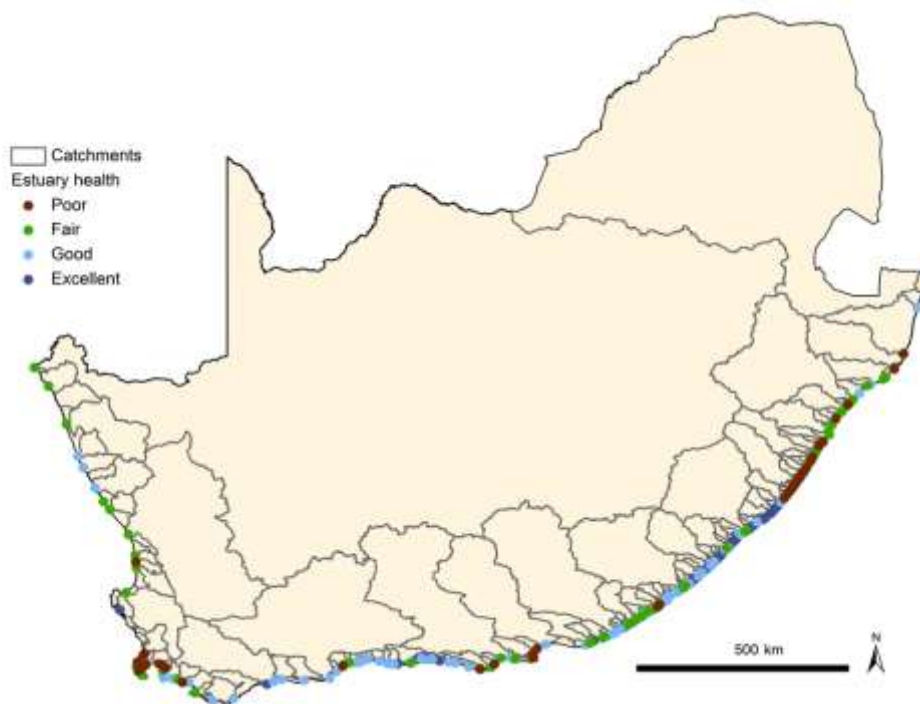


Figure 9: Health status of South African estuaries

This relative optimistic picture changes dramatically if “total estuarine area” (expressed as hectares habitat) is used as the measure. Figure 9 provides a summary of the state of South Africa’s estuaries expressed as a percentage of estuaries, as well as percentage of the total habitat (ha) area.

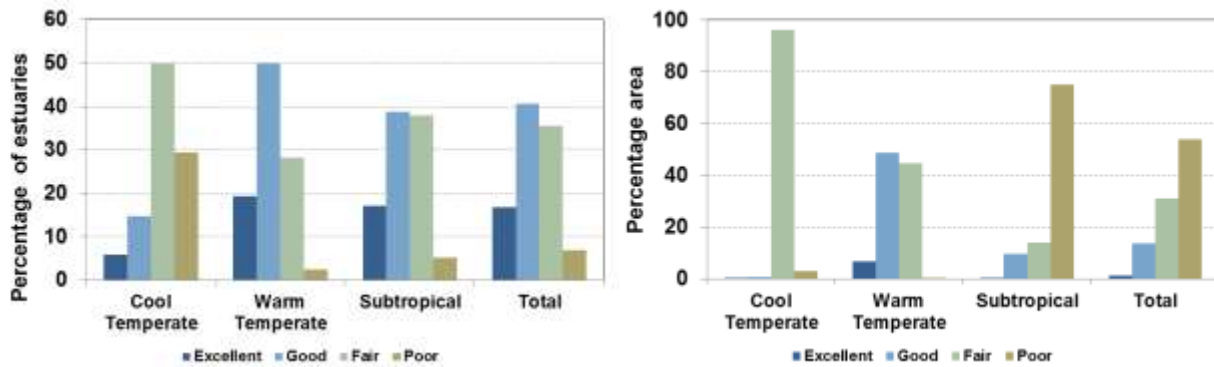


Figure 10: Different perspectives arising when the National Health Assessment is presented as “Percentage of estuaries” or “Percentage Area”

From this analysis it is very clear that only a very small percentage of estuarine habitats are in an excellent condition, with most of these areas located in the Warm Temperate region (i.e. the numerous small, near-natural estuaries along the Wild Coast). Only about 1% of total estuarine habitat is in an excellent state and only 14% of the total estuarine habitat is in a good state, mostly represented by systems in the Warm Temperate biogeographical region.

The 2006 SAEO concluded that the ocean and coastal environment of South Africa was in a moderately healthy state in relation to international trends at the time. Five years later, there has been considerable focus and investment in creating appropriate policy and legislative conditions, which has positively influenced several aspects of marine and coastal environments. These aspects over last five years have included, amongst others, the expansion of marine protected areas, the creation of operational estuarine management plans, the implementation of the Working for Coasts programmes, improved implementation of the ecosystem approach to fisheries, the establishment of water quality guidelines, the creation and implementation of species management plans and a significant increase in the spend of ocean and coasts research and monitoring. Real gains from these initiatives have been a decrease in seabird mortalities, increases in some island bird populations, improved management of sensitive estuarine habitats and species, and an increase in the understanding of marine ecosystem functioning and biodiversity distribution. Some aspects of the health of our oceans and coasts continue to experience apparent deterioration. Pressures on the oceans and coasts ecosystems are mostly as a result of increased anthropogenic pressures such as pollution from land-based sources and resultant decreases in water quality. Estuaries are examples of habitats that may be susceptible to such pressures. This includes the continuing trend of increased numbers of peoples residing in coastal areas.

The growing importance of mitigation and adaptation to **climate change** in the coastal zone specifically aimed at reducing risks and impact needs to be addressed. The Climate Change Response White Paper (DEA, 2012d) recognises that climate change is one of the greatest threats to sustainable development and, if left unmitigated, will undo many positive advances in meeting development goals. It further highlights the important role of healthy intact ecosystems (including coastal ecosystems) in adapting to climate change. The White Paper acknowledges that the mandate for various spheres of government to take on various specific climate change-related issues is not always clear, and that it may be useful to assign specific powers for mitigation and adaptation actions.

Climate change results in environmental changes in the coastal zone such as:

- Changes in ocean circulation patterns;
- Sea level rise and increase storminess;
- Changes in temperatures from both the land and sea;
- Changes in precipitation and runoff; and
- Changes in pH (referred to as ocean acidification).

Response to climate change in coastal management, therefore, requires understanding of the influence of these environmental changes on other pressures and activities in the coastal zone. Climate change is not a separate pressure rather it is an anthropogenically-induced alteration acting as an accelerator of ecosystem change. It is necessary to understand the potential amplification of variability that climate change may have on the existing coastal system (and its use), together with the potential impact on production, as well as the harvesting of resources in the marine environments. Climate change should also be seen as a catalyst to fast track freshwater resource management, e.g. ecological water allocations. It is also essential that climate change, and the projected effects thereof, be integrated into ocean and coastal spatially planning, e.g. the demarcation of coastal set-back lines. In addition, adaptation includes adjusting to situations, developing coping strategies and impact responses. Adaptation may be behavioural or involve mitigation such as engineering solutions. Response to climate change in coastal management requires an adaptive management approach supported by monitoring and frequent review.

## 2.2 Vision and Objectives

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During the development of the “White Paper” (DEAT, 2000) the first shared vision for coastal management in South Africa was put forward through an extensive, consultative and participatory process. Subsequently, the National Development Plan 2030 (NPC, 2012), one of the most important strategic documents visioning South Africa’s development over the next 18 years also came to force that also applies to the coastal zone. The National Strategy for Sustainable Development and Action Plan 2011–2014 (NSSD 1) (DEA, 2011a) is another policy that visions South Africa’s future specifically related to sustainable development and also applies to the coastal zone. The “White Paper’s” vision (as a result of the progressive and democratic process adopted at the time) largely reflect the spirit of the National Development Plan 2030 and Sustainable Development and Action Plan 2011–2014 visions by acknowledging the three pillar of sustainable development, that is economic growth, social well-being and equity, and ecological integrity.

The “White Paper” (DEAT, 2000) also put forward goals and objectives for coastal management. Also, the “White Paper” presented a list of priority issues that came to the fore over the period of development of the policy. At them time these included:

- Diversifying coastal economies and optimising benefits for local coastal communities;
- Promoting coastal tourism, leisure and recreational development;
- Establishing “one-stop-shops” for development approvals;
- Identifying supplementing and managing State coastal assets;
- Identifying opportunities for improving public access to the coast and coastal resources;
- Introducing effective planning and development mechanisms and incentives for effective coastal management;

- Exploring opportunities for development of ports and harbours;
- Identifying opportunities for mariculture and aquaculture development;
- Developing and implementing a representative system of coastal protected areas;
- Introducing mechanisms and incentives to avoid physical development in high risk coastal areas;
- Creating incentives to promote better estuary and river mouth management practices;
- Improving co-ordination and integration of coastal and marine resource management;
- Improved co-ordination of monitoring and management of coastal pollution; and
- Rehabilitating degraded coastal areas and resources.

While many of the goals, management objectives and priorities for coastal management may still be relevant, these need to be updated and refined as part of this NCMP informed by this Situation Analysis, as well as priority issues identified by stakeholders during the provincial and national stakeholder workshops (DEA, 2013a).

## 2.3 Status of Coastal Management Units and Boundaries

The ICM Act defines the coastal zone as the area comprising coastal public property, the coastal protection zone, coastal access land and coastal protected areas, the seashore, coastal waters and the exclusive economic zone and includes any aspect of the environment on, in, under and above such area. Important coastal management boundaries relevant to the NCMP is summarised in Table 3. The relevant boundaries are defined under the Maritime Zones Act, ICM Act and National Environmental Management Act (Act No. 107 of 1998) (NEMA). Various coastal boundaries are also schematically illustrated in Figure 10. This figure is sourced from *a user-friendly guide to the Integrated Coastal Management Act of South Africa* (Celliers et al., 2009) that also describes the demarcation of these boundaries in greater detail.

**Table 1: Important coastal management boundaries relevant to the NCMP**

Geographical boundary		DESCRIPTION
Maritime Zones Act	Coastal baseline	(1) Subject to subsections (2) and (3) the low-water line shall be the baseline. (2) Notwithstanding subsection (1) straight lines joining the grouped coordinates mentioned in Schedule 2 shall be the baselines of the relevant part of the coast. (3) Notwithstanding subsections (1) and (2) the outer limits prescribed or determined in accordance with subsection (4) or (5) shall be the baselines. (4) Outer limits of internal waters referred to in section 3(1) (b) shall be established in the prescribed manner. (5) In the absence of any outer limits of internal waters prescribed in accordance with subsection (4), the outer limits shall be the outermost harbour works which form an integral part of the harbour system (Section 2).
	Continental shelf	The continental shelf as defined in Article 76 of the United Nations Convention on the Law of the Sea, 1982, adopted at Montego Bay on 10 December 1982 (Section 8)
	Exclusive Economic Zone	The sea beyond the territorial waters referred to in section 4, but within a distance of two hundred nautical miles from the baselines (Section 7)
	Contiguous zone	The sea beyond the territorial waters referred to in section 4, but within a distance of twenty four nautical miles from the baselines (Section 5)

Geographical boundary		DESCRIPTION
ICM Act	Territorial waters	The sea within a distance of twelve nautical miles from the baselines (Section 4)
	High water mark	The highest line reached by coastal waters, but excluding any line reached as a result of exceptional or abnormal floods or storms that occur no more than once in ten years or an estuary being closed to the sea (Section 1)
	Seashore	Subject to section 26, means the area between the low water mark and the high-water mark
	Admiralty reserve	Any strip of land adjoining the inland side of the HWM which, when this Act took effect, was state land reserved or designated on an official plan, deed of grant, title deed or other document evidencing title or land-use rights as “admiralty reserve”, “government reserve”, “beach reserve”, “coastal forest reserve” or other similar reserve (Section 1: Definitions)
	Coastal access land	Land designated as coastal access land in terms of section 18(1), read with section 26
	Coastal protected areas	A protected area that is situated wholly or partially within the coastal zone and that is managed by, or on behalf of an organ of state, but excludes any part of such a protected area that has been excised from the coastal zone in terms of section 22.
	Coastal waters	Marine waters that form part of the internal waters or territorial waters of the Republic referred to in sections 3 and 4 of the Maritime Zones Act (Act No. 15 of 1994) (Maritime Zones Act), respectively, and, subject to section 26, any estuary
	Estuaries	Estuarine functional zone (EFZ) <sup>1</sup> as defined in the National Estuaries Layer ( <a href="http://bgis.sanbi.org/estuaries/project.asp">http://bgis.sanbi.org/estuaries/project.asp</a> ), available from the South African National Biodiversity Institute’s BGIS website ( <a href="http://bgis.sanbi.org">http://bgis.sanbi.org</a> ) (Government Gazette No. 33306, Notice No. R 546, 10 June 2010) (National Estuary Management Protocol)
	Special management areas	An area declared as such in terms of section 23
	Coastal public property	Coastal public property consists of - (a) coastal waters; (b) land submerged by coastal waters, including - (i) land flooded by coastal waters which subsequently becomes part of the bed of coastal waters; and (ii) the substrata beneath such land; (c) any island, whether natural or artificial, within coastal waters, but excluding - (i) any part of an island that was lawfully alienated before this Act commenced; or (ii) any part of an artificially created island (other than the seashore of that island) that is proclaimed by the Minister to be excluded from coastal public property; (d) the seashore, but excluding - (i) any portion of the seashore below the high-water mark which was lawfully alienated before the Sea-Shore Act (No. 21 of 1935), took effect or which was lawfully alienated in terms of that Act and which has not subsequently been re-incorporated into the seashore; and (ii) any portion of a coastal cliff that was lawfully alienated before this Act took effect and is not owned by the State; (e) the seashore of a privately owned island within coastal waters; (f) any admiralty reserve owned by the State; (g) any State-owned land declared under section 8 to be coastal public property; or (h) any natural resources on or in (i) any coastal public property of a category mentioned in paragraph (a) to (g); (ii) the exclusive economic zone, or in or on the continental shelf as contemplated in sections 7 and 8 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), respectively; or (iii) any harbour, work or other installation on or in any coastal public property of a category

<sup>1</sup> This layer maps the estuarine functional zone for South Africa’s estuaries. The estuarine functional zone is defined by the 5 m topographical contour (as indicative of 5 m above mean sea level). The estuarine functional zone includes: Open water area; Estuarine habitat (sand and mudflats, rock and plant communities); and Floodplain area <http://bgis.sanbi.org/estuaries/project.asp>.

Geographical boundary		DESCRIPTION
		mentioned in paragraphs (a) to (h) that is owned by an organ of State (Section 7). Section 8 allows the Minister to extend the boundaries of coastal public property under certain conditions.
	Coastal protection zone	The coastal protection zone consists of - (a) land falling within an area declared in terms of the Environment Conservation Act, 1999 (Act No. 73 of 1989), as a sensitive coastal area within which activities identified in terms of section 21(1) of that Act may not be undertaken without an authorisation; (b) any part of the littoral active zone that is not coastal public property; (c) any coastal protection area, or part of such area, which is not coastal public property; (d) any land unit situated wholly or partially within one kilometre of the high-water mark which, when this Act came into force - (i) was zoned for agricultural or undetermined use; or (ii) was not zoned and was not part of a lawfully established township, urban area or other human settlement; (e) any land unit not referred to in paragraph (d) that is situated wholly or partially within 100 metres of the high-water mark; (f) any coastal wetland, lake, lagoon or dam which is situated wholly or partially within a land unit referred to in paragraph (d)(i) or (e); (g) any part of the seashore which is not coastal public property, including all privately owned land below the high-water mark; (h) any admiralty reserve which is not coastal public property; or (i) any land that would be inundated by a 1:50 year flood or storm event. An area forming part of the coastal protection zone, except an area referred to in subsection (1)(g) or (h), may be excised from the coastal protection zone in terms of section 26.
NEMA	Estuaries	EFZ as defined in the National Estuaries Layer, available from the South African National Biodiversity Institute's BGIS website ( <a href="http://bgis.sanbi.org">http://bgis.sanbi.org</a> ) (Government Gazette No. 33306, Notice No. R 546, 10 June 2010)

The ICM Act specifies the relevant spheres of government responsible for the determination or adjustment of various coastal boundaries, as well as the demarcation of as follows:

Coastal public property	Minister of Environmental Affairs in accordance with section 27 of the ICM Act by notice in the Gazette (the power of the Minister to determine or adjust the inland coastal boundary of coastal public property in terms of section 27, includes the power to make any consequential change to an adjoining coastal boundary of the coastal protection zone or coastal access land)
Coastal protection zone	MEC (Executive Council of a coastal province who is responsible for the designated provincial lead agency) in accordance with section 28 of the ICM Act by notice in the Gazette
Special management area	Minister of Environmental Affairs in accordance with section 23 of the ICM Act by notice in the Gazette
Coastal access land	Municipality in accordance with section 29 of the ICM Act by notice in the Gazette

In addition to the coastal management boundaries listed in Table 1, the ICM Act also stipulates the geographical boundaries of coastal management units for the provincial and municipal CMPs as follows:

Provincial CMP	Managing the coastal zone in the province (Section 46), which may extend to 500 m seaward of the HWM
Municipal CMP	Managing the coastal zone or specific parts of the coastal zone in the municipality (Section 48), which may extend to 500 m seaward of the HWM

The jurisdiction of various other Act and international conventions is depicted in Figure 11 (Source: DEAT, 2000).



Figure 11: Important geographical boundaries in the coastal zone

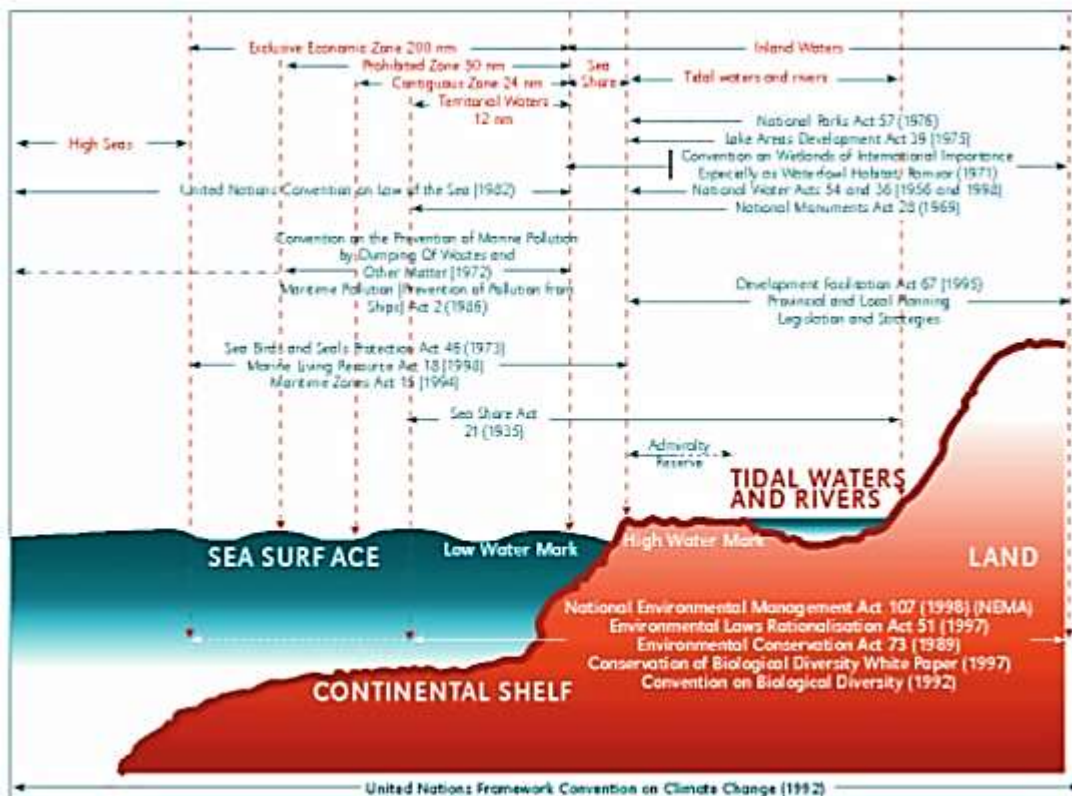


Figure 12: Important jurisdiction of other Act and international conventions



Important is the confirmation of the location of the HWM, as other coastal boundaries such as coastal public property and coastal protection zone are defined in terms of the HWM. National guidelines/norms and standards for the demarcation of coastal set-backlines is also required to ensure a standardised approach in the development of these lines across coastal provinces. This will be developed in collaboration with coastal provinces. A number of coastal provinces together with metropolitan and district municipalities within the provinces (e.g. in the Western Cape and KwaZulu-Natal) have already invested in the development of coastal set-back lines in their area of jurisdiction in accordance with the ICM Act (Section 25). During stakeholder consultation the need was expressed for practical guidelines on the interpretation, application and mapping of the geographical boundaries, specifically at the provincial and municipal (both local and district/metropolitan municipalities) levels.

Reflecting on the situation analysis on boundaries for coastal management the following future needs emerged in terms of giving directives and guidance on coastal management in South Africa:

- A standardised approach and method for the determination of the HWM, a critical geographical boundary in coastal management
- National guidelines/norms and standards to determine coastal set-backlines/management lines
- Guidelines to standardize the approach and methods for the demarcation of the coastal protection zone (CPZ), and a nationally consistent spatial layer indicating the position and extent of the CPZ
- Practical guidance on the interpretation, application and mapping of geographical boundaries for coastal management directed at all three spheres of government. Specifically the guidelines should focus on the provincial and municipal levels differentiating local, district and metropolitan municipalities, where appropriate.

## 2.4 Coastal Spatial Planning and Condition of Use

Legislation governing spatial planning either within the coastal zone, or overlapping with the coastal zone, is extensive. Spatial planning is already occurring in the coastal zone through an array of spatial planning processes as illustrated in Table 2.

**Table 2: Important spatial planning (or demarcation of use area) processes occurring/overlapping in the coastal zone**

PLANNING PROCESS	KEY LEGISLATION/PLAN	LEAD AUTHORITY
National Spatial Development Perspective	National Development Plan 2030	The Presidency: NPC
	National Spatial Development Perspective (NSDP) 2006	The Presidency
	Spatial Planning and Land Use Management Bill (Notice 280 of 2011)	Department of Rural Development and Land Reform
Biodiversity protection area as informed by biodiversity planning processes	National Environmental Management: Biodiversity Act (No. 10 of 2004)	DEA
	Protected Areas Act (Act No. 57 of 2003) (Protected Areas Act)	South African National biodiversity Institute (SANBI) SANParks
	National Protected Area Strategy	DEA
Sensitive Coastal Areas	Environmental Conservation Act (No. 73 of 1989) (areas specifically gazetted, namely areas	DEA

PLANNING PROCESS	KEY LEGISLATION/PLAN	LEAD AUTHORITY
	in the Garden Route and south coast of KZN).	
Marine Protected Areas (MPAs) and Protected Areas (PAs)	Marine Living Resources Act (Act No. 18 of 1998) (MLRA)	DAFF
	Protected Areas Act	DEA
National parks	Protected Areas Act	DEA/SANParks
Fishing zones	MLRA	DAFF
Mining and exploration concessions	Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	DMR
Shipping and navigation routes	Marine Traffic Act (Act No. 2 of 1981)	DoT
	National Ports Act (Act No. 12 of 2005)	Transnet NPA
	Port Expansion Strategies, e.g. Strategic Infrastructure Projects (SIPS)	Transnet NPA
National Water Resource Strategy	National Water Act (Act No. 36 of 1998)	DWA
Agricultural spatial plans	Conservation of Agricultural Resources Act (Act No. 43 of 1983)	DAFF
Heritage areas	National Heritage Resources Act (Act No. 25 of 1999)	DEA through South African Heritage Resources Agency (SAHRA)
Estuary zoning plans (as part of estuary management plans)	National Estuary Management Protocol (ICM Act)	District Municipalities
Coastal set-back lines/ Management lines	ICM Act	MEC
Coastal planning schemes	ICM Act	DEA, Responsible provincial authority and municipalities
Special management areas	ICM Act	DEA
Provincial and municipal SDFs, land use plans and zoning schemes	Municipal Systems Act (Act No. 32 of 2000),	Relevant provincial authority Municipalities
	Spatial Planning and Land Use Management Act (Act. No. 16 of 2013) (SPLUMA)	
	Provincial Planning and Development Acts	

Spatial planning in the coastal zone landward of the HWM – the part of the coastal zone that fall within areas under the jurisdiction of provinces and municipalities - is assigned to the designated provincial and municipal authorities under legislation such as the Municipal Systems Act, Spatial Planning and Land Use Management Act (Act. No. 16 of 2013) (SPLUMA), and provincial planning and development act (Table 2). Provincial and municipal spatial planning processes are consolidated in provincial and local spatial development frameworks, land-use plans and zoning schemes.

Currently spatial planning in the coastal zone seaward of the HWM remains largely sector-based. In other words, the various spatial planning processes listed in Table 2 still largely occur independently from one another. Increasing demand for ocean and coastal space, however, necessitates greater coordination in ocean and coastal spatial planning, especially seaward of the HWM. One of the key aims of the Green Paper: National Environmental Management of the Ocean (DEA 2012b) is to address spatial planning in

this area of the coastal zone. Ultimately, strategic alignment between the landward (role of provinces and municipalities) and seaward (role of various national government departments) spatial planning processes is necessary to prevent conflict of use across the interface.

With specific reference to the ICM Act, spatial planning is explicitly addresses in term of special management area, estuaries and coastal planning schemes. Spatial planning in estuaries forms part of estuary management plans, as specified in the National Estuary Management Protocol (DEA, 2013c). The responsibility for the development of estuary management plans is set out in the National Estuary Management Protocol. Also, the Act provides for estuary management plans (including spatial zoning plans) to be to be prepared or adopted as part of an integrated development plan and spatial development framework (Section 48[4]). Section 23 makes provision for the declaration of special management areas where an area that is wholly or partly within the coastal zone may be declared a special management area by the Minister (after consultation with the MEC) if environmental, cultural or socio-economic conditions require the introduction of measures to:

- Attain the objective of any CMPs;
- Facilitate management of coastal resources for a local community;
- Promote sustainable livelihood for a local community; or
- Conserve, protect or enhance coastal ecosystems and biodiversity in the area.

Finally, Section 56 of the Act allows for the demarcation of coastal planning schemes for specific purposes and activities, or prohibition of certain purposes and activities in the coastal zone or coastal management area, under certain conditions. These schemes may be established by the Minister, a MEC or a municipality under specific conditions, the person in which the authority to manage a coastal protected area is vested if the planning scheme only applies within that protected area or the management authority of a special management area, in consultation with the MEC and after consultation with the municipality, if the planning scheme only applies within that management area.

A powerful, pro-active manner in which to promote sustainable coastal use is to set norms and standards that specify the **conditions of use**, in general, and not aimed at a specific activity or use<sup>2</sup>. These may, for example be stipulated in acts, regulations or protocols. Furthermore, plans and guidelines can also be put forward to encourage best practice that recommends best practice conditions of use. Several norms and standards, as well as guidelines, have been issued by government either stipulating condition of use in the coastal zone. Important national norms and standards, as well as guidelines, expressing condition of use in the coastal zone is summarised in Table 3. Provinces and municipalities may also specify condition of use of areas within the coastal zone under their jurisdiction, provided that those specifications are aligned with these national specifications on conditions of use.

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<sup>2</sup> Norms, standards and guidelines can also be stipulated for specific activities taking place in the coastal zone e.g. use of off-road vehicles or discharging of effluent. These are dealt with under "Activity-based management programmes"

**Table 3: National acts, regulations, protocols and gazetted notices (norms and standards), as well as national plans and guidelines expressing conditions of use in the coastal zone in South Africa**

AREA	NORM AND STANDARD/PLAN/GUIDELINE/NOTICE
Coastal zone	The building, erection, alteration or extension of structures that are wholly or partially seaward of that coastal set-back line must be prohibited or restricted (ICM Act, Section 25) South Africa Risk and Vulnerability Atlas ( <a href="http://www.sarva.org.za/">www.sarva.org.za/</a> )
Coastal public property	Any natural person in the Republic - (a) has a right of reasonable access to coastal public property; and (b) is entitled to use and enjoy coastal public property, provided such use-(i) does not adversely affect the rights of members of the public to use and enjoy the coastal public property; (ii) does not hinder the State in the performance of its duty to protect the environment; and (iii) does not cause an adverse effect. (2) This section does not prevent prohibitions or restrictions on access to, or the use of, any part of coastal public property - (a) which is or forms part of a protected area; (b) to protect the environment, including biodiversity; (c) in the interests of the whole community; (d) in the interests of national security; or (e) in the national interest. The above do not apply to apply to coastal public property- (a) that has been leased; or (b) that is, or forms part of a protected area or the sea that forms part of a harbour or a proclaimed fishing harbour (Section 13 of ICM Act). Regulations for use of coastal public property (currently being developed by DEA)
Coastal protection zone	Established for enabling the use of land that is adjacent to coastal public property or that plays a significant role in a coastal ecosystem to be managed, regulated or restricted in order to- (a) protect the ecological integrity, natural character and the economic, social and aesthetic value of coastal public property; (b) avoid increasing the effect or severity of natural hazards in the coastal zone; (c) protect people, property and economic activities from risks arising from dynamic coastal processes, including the risk of sea-level rise; (d) maintain the natural functioning of the littoral active zone; (e) maintain the productive capacity of the coastal zone by protecting the ecological integrity of the coastal environment; and (f) make land near the seashore available to organs of state and other authorized persons for - (i) performing rescue operations; or (ii) temporarily depositing objects and materials washed up by the sea or tidal waters (Section 17 of ICM Act).
Estuaries	National Estuarine Management Protocol Guidelines to determine the Present Ecological Status, as well as Recommended Ecological Status for estuaries (contained in Methods to determine the Ecological Flow requirements for Estuaries – DWAF 2008) a requirement under the NWA Generic framework for estuary management plans developed as part of the CAPE estuaries programmes (currently being implemented across the country, but still need to be officially adopted as a guideline under the National Estuarine Management Protocol. National Estuary Biodiversity Plan (Turpie et al. 2012)
Coastal waters	Water quality guidelines for the coastal environment: Recreational use (DEA, 2012a) Water quality guidelines for the coastal environment: Natural Environment (DWAF 1995)
Sensitive coastal area	Regulations on Sensitive Coastal Areas (zone promulgated under Environmental Conservation Act (No. 73 of 1989) (these apply only to areas that have specifically been gazetted, namely areas in the Garden Route and south coast of KwaZulu-Natal)
Marine protected areas	The MLRA and the MLRA Regulations sets out rules, prohibitions and limitations for MPAs
Protected areas	National Protected Area Expansion Strategy (SA Government 2008) Offshore Marine Protected Area Plan (Sink et al. 2011) Norms and standards, plans, guidelines and policies issued for South African National Parks

During the stakeholder consultation additional needs in terms of the condition of use of the coastal zone were identified (as reflected below). For example, guidelines were required on conditions of use in the

Admiralty Reserve. Also, the caveat in guidance or specification on rehabilitation and stabilisation of dunes areas within the coastal zone was highlighted.

Future needs for ocean and coastal spatial planning in terms of giving directives and guidance on coastal management - including specification on condition of use of coastal zone - include:

- Schedule of prohibited and restricted activities on coastal public property (DEA: Oceans and coasts, in progress)
- A national ocean and coastal spatial planning strategy
- Guidelines for the development of coastal planning schemes (e.g. SAWIC website)
- National resource strategy plan for estuaries (based on recommendations in the NBA 2012)
- Guidance/specifications on the conditions of use of the Admiralty Reserve
- A national coastal risk and vulnerability assessment that will provide guidance mitigation and adaptation to climate change in the coastal zone (DEA: Oceans and coasts, in progress)
- A national coastal risk and vulnerability assessment that will provide guidance on beach safety along in the coastal zone
- Adopt/adapt the Generic framework for estuary management plans (CAPE Estuaries Programme) as an official guidelines under the National Estuary Management Protocol
- Norms and standards/guidelines on dredging/mouth breaching for estuaries
- National guidelines on conditions of use of the coastal zone to inform EIA process
- Guidelines/norms and standards for dune rehabilitation and stabilisation
- Review the South African water quality guidelines for coastal waters, especially for protection coastal ecosystems (natural environment)
- Guidelines addressing limits imposed by ecosystem goods and services (?)
- Guidelines/norms and standards for condition of use of the coastal zone in terms of small harbours and marinas
- Consider national guidelines/norms and standards for protected areas as proposed in the NBA 2011.

## 2.5 Status of Activity-based Management Programmes

The management and control of activities taking place in the coastal zone are governed under numerous Acts. The legislation is largely sectoral, i.e. different activities are governed by different acts and often by different departments or governing authorities. Activity-based regulations, norms and standards, and guidelines have been promulgated under these acts - all of which need to be acknowledged and put in context of coastal management under the ICM Act. To illustrate this, as well as to guide the situation analysis on activity-based management programmes, the **key activities** taking place in the coastal zone, as well as the primary act/s governing such activities, are presented in Table 4. This list may expand as other activities are introduced.

For the purposes of this assessment activities were categorised further into the following types, namely:

- Activities governed under the ICM Act;
- Activities governed under other Act by the Department responsible for the environment; and

- Activities governed under other Acts by other departments or governing authorities.

**Table 4: Key activities in the coastal zone including the key Act/s governing such activities**

CATEGORY	KEY ACTIVITY	KEY ACT/S
<b>Governed under ICM Act</b>	Managing of coastal access land	ICM Act
	Land reclamation	
	Coastal leases and concessions	
	Unlawful structures	
	Off-road vehicles (being transferred to ICM Act)	
	Boat launching sites	
	Effluent discharges into the coastal zone	
	Dumping at sea	
	Incineration at sea	Prohibited under the ICM Act (Section 70), except under specific conditions as specified in the Act
<b>Governed under other Acts by DEA</b>	Environmental Impact Assessment	NEMA
	Biodiversity and protected areas management	National Environmental Management: Biodiversity Act (No. 10 of 2004) (Biodiversity Act)
		National Environmental Management: Protected Areas Act (Act No. 57 of 2003) (Protected Areas Act)
	Marine protected areas	MRLA (Section 43)
	Sensitive Coastal Areas	Environmental Conservation Act (Act No. 73 of 1989) (Environmental Conservation Act)
	Heritage area management	World Heritage Convention Act (Act No. 49 of 1999)
		National Heritage Resources Act (Act No. 25 of 1999)
	Prevention and combating pollution from ships, including solid waste (garbage) and ballast water)	International Convention for Prevention of Pollution from Ships Act (Act No. 2 of 1986) (MARPOL Act)
		South Africa Maritime Safety Authority Act (Act No. 5 of 1998) (SAMSA Act)
		Marine Pollution (Control and Civil Liability ) Act (Act No. 6 of 1981) (Control and Liability Act)
Merchant Shipping Act (Act No. 57 of 1951)		
Solid waste management (land-based)	National Environmental Management: Waste Act (Act No. 59 of 2008) (Waste Act)	
Atmospheric pollution	National Environmental Management: Air Quality Act (No. 39 of 2004) (Air Quality Act)	
Control of scuba diving, whale watching and shark cage diving and other protected or threatened species	Marine Living Resources Act (Act No. 18 of 1998, amended 2000) (MLRA)	
	Transkei Environmental Decree and legislation controlling whales, sharks sea birds	
<b>Governed under other Acts by other departments or governing</b>	State assets in coastal zone, including 12 fishing harbours	Government Immovable Asset Management Act (Act No. 19 of 2007) (GIAMA)
		State Land Disposal Act (Act No. 48 of 1961)

CATEGORY	KEY ACTIVITY	KEY ACT/S
authorities		MLRA
	Fisheries management	MLRA Sea Fishery Act (Act No. 12 of 1988)
	Marine aquaculture or harvesting of marine living resources (sea-based)	MLRA
	Harvesting of coastal resources (land-based)	Conservation of Agricultural Resources Act (Act No. 43 of 1983) (CARA)
		National Forest Act (Act No. 84 of 1998)
	Port management	National Ports Act (Act No. 12 of 2005)
		International Health Regulations Act (Act No. 28 of 1974)
	Shipping	Marine Traffic Act
		SAMSA Act
	Freshwater flows (quantity and water quality) into coastal zone	National Water Act (Act No. 36 of 1998) (NWA)
	Mining	Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRD Act)
	Oil and gas exploration	MPRD Act
	Coastal infrastructure (and-based)	Local Government: Municipal Systems Act (Act No. 32 of 2000) (Municipal Systems Act)
		National Building Regulations and Building Standards Act (Act No. 103 of 1977 amended 1982, 1984, 1989, 1995, 1996) (National Building Regulations and Standards Act)
Spatial planning and land use management Act (Act No. 16 of 2013) (SPLUMA)		
Provincial Planning Acts		
Recreational water quality (e.g. beaches)	National Health Act (Act No. 61 of 2003)	
Renewable energy activities	National Energy Act (No. 34 of 2008)	
Defence activities	Defence Act, 2002 (Act No. 42 of 2002, amended 2010)	

### 2.5.1 Activities governed primarily under the ICM Act

#### *i. Managing coastal access land*

Part 3 of the ICM Act deals with coastal access land. Specifically Section 18 assigns the designation coastal access land to district and metropolitan municipalities (including local municipalities were those municipalities have provided written consent to their appropriate district municipality stating that there is sufficient funding and capacity to carry out such functions), while Section 20 stipulates municipalities' responsibilities in terms of managing coastal access land - including compliance and enforcement. Municipalities may also issue by-law related to their responsibilities in terms of the management of coastal access land.

Section 59 of the ICM Act grants the Minister (Environment) – under certain conditions - the right to issue coastal access notices to prohibit activities in order to allow natural persons access to coastal public property. Section 83 also permits the Minister to make regulations related to public access to coastal public property.

Future needs in terms of giving directives and guidance on management of coastal access land include:

- Regulations pertaining to the establishment and maintenance of coastal access (DEA: Oceans and coasts, in progress)
- Guidelines to municipalities for the designation of coastal access land and public access servitudes (DEA: Oceans and coasts, in progress)

*ii. Land reclamation*

Approval of land reclamation in the coastal zone is assigned to the Minister (environment) as per Section 21(6) of the ICM Act.

Future needs in terms of giving directives and guidance on land reclamation include:

- Regulations pertaining to the reclamation of land from the sea (DEA: Oceans and coasts, in progress)

*iii. Coastal leases and concessions*

The ICM Act (Section 65 and 66, once proclaimed) gives the Minister (Environment) the powers to grant coastal leases or coastal concessions in coastal public property, as well as to set the terms and conditions of leases. However, this section has not yet been proclaimed for leases below the HWM. Management of such leases still remains under the Seashore Act (Act No. 21 of 1935, as amended 1984, 1993) (in the case of leases in the Admiralty Reserve, the Department of Public Works is still responsible under the Government Immovable Asset Management Act (Act No. 19 of 2007) [GIAMA]). Sections 7 and 8 allow municipalities to extend coastal public property for the purpose of improving coastal access. Section 95 of the ICM addresses transitional provisions in the case of coastal leases from the act under which it was previously governed.

Future needs in terms of giving directives and guidance on management of coastal leases and concessions include:

- Procedures for the transitional transfer period for management and control of coastal leases from Seashore Act (and other legislation) to the ICM Act.

*iv. Unlawful structures*

Section 96 of the ICM Act (once proclaimed) grants the Minister (Environment) or the MEC the authority to issue a notice for the removal of unlawful structures in accordance with Section 60 (dealing with the repair or removal of structures within coastal zone). Municipalities, however, have a responsibility to pro-actively ensure that their building inspectors do not allow the erection of unlawful structures, in terms of conditions of use specified for various areas within the coastal zone falling within their areas of jurisdiction. Illegal occupation of state land (e.g. the Admiralty Reserve) also involves the Department of Public Works, and, in the case of the Eastern Cape Province, the Provincial Department responsible for Land Affairs (relating to land previously falling under the Department of Defence in the Transkei/Ciskei).

Future needs in terms of giving directives and guidance on management of unlawful structures include:

- National guidelines on the procedures to prevent/remove unlawful structures in the coastal zone, specifically aimed at assisting provinces and municipalities.



v. *Off-road vehicles*

Currently off-road vehicles are regulated by Regulations in terms of NEMA (Section 24) pending the promulgation of replacement regulations under Section 83 of the ICM Act. Regulations under the ICM Act assign the responsibility for issuing of off-road vehicle permits to the responsible department within DEA: Oceans and coasts. The national department is also the competent authority for implementing and conducting of compliance and enforcement for the Regulations.

Existing regulations, norms and standards, or guidelines for off-road vehicles include:

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Off-road Vehicle Regulation Guidelines to assist with the implementation of the Off-road Vehicle (under NEMA) (2004)

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Future needs in terms of giving directives and guidance on management of off-road vehicles include:

- Control of Use of Vehicles in the Coastal Area Regulations (DEA: Oceans and coasts, draft regulation published - <http://discover.sabinet.co.za/document/GGD126075>)
- Ensure implementation of reporting of status of management and control of off-road vehicles in the coastal zone by national government (DEA: Oceans and coasts)

v. *Boat launching sites*

The Minister (Environment) may issue regulation on activities in the coastal public property (Section 83). Pending the approval of such regulations, boat launching sites are governed by provincial legislations (under NEMA) and administered by either provincial lead agents or protected areas management authorities. These departments and authorities are also responsible from compliance and monitoring of boat launching sites. The regulations under the ICM Act, give the MEC powers to list launching sites by notice in the Gazette under specific conditions. THE MEC may also appoint a management body - an organ of state identified by the MEC – to manage a public launch site.

Existing regulations, norms and standards, or guidelines for boat launching sites include:

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Provincial regulations dealing with boat launching sites (under NEMA)

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Future needs in terms of giving directives and guidance on management of boat launching sites include:

- Management of Public Launch Sites in the Coastal Zone Regulations (DEA: Oceans and coasts, draft regulation published - <http://discover.sabinet.co.za/document/GGD126076>).

vi. *Effluent discharges*

Section 69 of the ICM Act governs effluent discharges to coastal waters, including estuaries. Any discharge of effluent that originates from a source on land into coastal waters must be authorized by the Minister (Environment), either in terms of a general authorisation or a coastal waters discharge permit. Where effluent is disposed of into estuaries, the Minister must consult with the Minister responsible for Water Affairs. Effluent discharges are also listed activities under the NEMA EIA Regulations. Therefore any new development (or upgrading of existing development) is subject to an Environmental Impact Assessment (EIA). However, on approval of the EIA, operations may commence only after general authorization or a coastal waters discharge permit has been granted by the Minister (Environment). The characteristics of industrial or urban stormwater discharges – typically containing waste – fit the definition of effluent in the ICM Act (Section 1), defined as any liquid discharged into the coastal environment as waste, and includes any substance dissolved or suspended in the liquid; or (b) liquid

which is a different temperature from the body of water into which it is being discharged. However, management and control of urban stormwater resides with local municipalities (Constitution [Act No.108 of 1996]). Municipalities typically control stormwater quality in term of by-laws.

Previously, effluent discharges to the coastal zone was governed under general authorization or licenses issued under the NWA. All such effluent discharges must be reviewed and, where appropriate, transferred either to a general authorisation or coastal waters discharge permit under the ICM Act (Section 69). DEA: Oceans and coasts (the organ of state issuing permits) must report every three years National Coastal Committee on the status of each pipeline that discharges effluent into coastal waters and its impact on the coastal environment (i.e. the competent authority for compliance and enforcement).

Existing regulations, norms and standards, or guidelines for effluent discharges include:

NEMA EIA Regulations (2010) Effluent discharges are scheduled activities under the NEMA EIA Regulations (contained in Government Notices R544, R545 & R546, Government Gazette 33306, 18 June 2010)
NWA (1998). Most effluent discharges to the coastal zone still operate under Section 21 licenses issued under this act pending review and transfer to general authorisation or coastal waters discharge permit under the ICM Act
General Authorisations Regulations under the NWA (2004). Most effluent discharges to estuaries and the surf zone still operate under these regulations pending review and transfer to general authorisation or coastal waters discharge permit under the ICM Act
Municipal by-laws related to stormwater
A framework for implementing non-point source management under the NWA (Pegram et al., 1999)
Operational policy for the disposal of land-derived water containing waste to the marine environment of South Africa. Guide on implementation (DWAF, 2004)
A guide to non-point source assessment (Pegram and Görgens, 2001)
Guidelines for human settlement planning and design - The Red Book (CSIR, 2001)
Managing the Water Quality Effects of Settlements (DWAF, 1999)
Strategic guidance towards prioritising stormwater management research in human settlements (Burke and Mayer, 2007)

Future needs in terms of giving directives and guidance on management of effluent discharges include:

- National Policy for coastal effluent discharges from land-based sources (DEA: Oceans and coasts, in progress)
- Develop Assessment Criteria for Coastal Waters Discharge Permits (DEA: Oceans and coasts, in progress)
- Conduct review of all effluent discharge issued under the NWA, and in the case of estuaries a joint review with the department responsible for water affairs in order to determine compliance to the ICM Act, and where appropriate re-issue coastal water discharge permits
- Regulations on general authorisation (where appropriate)
- Technology-based standards (or effluent limit values) for waste streams linked to specific industry types, e.g. based on 'best available' or 'best attainable' cleaner technologies aimed at eliminating, minimizing or improving the waste streams from specific processes or industries (e.g. desalination, marine aquaculture)
- Regulations/norms and standards pertaining to a Waste Discharge Charge System for South Africa
- National guidelines on urban stormwater management in order to improve effluent quality prior to discharging to the coastal zone.

*vi. Dumping at sea*

The ICM Act prohibits the dumping of waste at sea (Section 70, unless a dumping permit has been issued by the Minister (Environment) (Section 71). Furthermore the Act stipulates that dumping permits may only be granted for the disposal of dredged material, sewage sludge, fish waste, or material resulting from industrial fish processing operations, vessels and platforms or other man-made structures at sea, inert, inorganic geological material, organic material of natural origin, or bulky items primarily comprising iron, steel, concrete and similarly non-harmful materials for which the concern is physical impact, and limited to those circumstances where such wastes are generated at locations, such as small islands with isolated communities, having no practicable access to disposal options other than dumping at sea. DEA: Oceans and Coasts is responsible for implementation of the provisions for dumping at sea in terms of the ICM Act.

Existing regulations, norms and standards, or guidelines for dumping at sea include:

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NEMA EIA Regulations (2010) Dumping of certain wastes at sea is a scheduled activity under the NEMA EIA Regulations (contained in Government Notices R544, R545 & R546, Government Gazette 33306, 18 June 2010)

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The Waste Assessment Guidelines (as per ICM Act, Schedule 2) stipulating guidelines for the assessment of wastes or other material that may be considered for dumping at sea

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South Africa's National Action List for the screening of dredged material proposed for marine disposal (DEA, 2012c)

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Future needs in terms of giving directives and guidance on dumping at sea include:

- Regulations and best practice guidelines to facilitate effective management and control of dredging operations in South Africa, taking into account the specific requirements of the London Convention and the 1996 Protocol.
- Resolve conflict between ICM Act and EIA Regulations

## 2.5.2 Activities governed by DEA under other Acts

*i. Environmental impact assessments*

In South Africa, environmental impact assessment studies (EIAs) are required for numerous activities – including activities in the coastal zone – prior to development and implementation. All the activities, for which EIA (or Basic Environmental Assessments) are required, are listed in the EIA regulations promulgated under NEMA.

Existing regulations, norms and standards, or guidelines for EIAs include:

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Overview of Integrated Environmental Management (DEAT, 2004)

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NEMA EIA Regulations (Government Notices R544, R545 & R546, Government Gazette 33306, 18 June 2010)

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Development of a National Environmental Impact Assessment Management Strategy for South Africa (DEA, 2013d)

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Standard operating procedure for EIAs in the coastal zone (DEA, 2010b)

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Future needs in terms of giving directives and guidance on EIAs include:

- National norms and standards/guidelines applying to the EIAs (or Basic Assessments) to be conducted for scheduled activities in the coastal zone.

ii. Biodiversity and protected areas management

The Biodiversity Act (Chapter 3) deals with biodiversity planning and monitoring in South Africa. The Minister (Environment) is responsible for the development and monitoring of a national biodiversity framework (Section 38). The Minister may also determine a bioregion and prepare a bioregional plan after consultation with an MEC. An MEC, in turn, may also determine bioregions within province and prepare provincial bioregional plans, but with concurrence of the Minister (Section 40). Any person, organization or organ of state that want to contribute to biodiversity management may request approval from the Minister to prepare a biodiversity management plan (Section 43). The South African National Biodiversity Institute (SANBI) may assist the Minister or others involved in the preparation of the national biodiversity framework, a bioregional plan or a biodiversity management plan (Section 48). Monitoring and reporting on the status of South Africa’s biodiversity is one of the key responsibilities assigned to SANBI through this Act (Section 11), as is done through the NBA 2011 (Driver et al., 2012). Compliance primarily resides with the Minister who can make regulation (Section 97) and norms and standards (Section 9) in this regard. Compliance with bioregional plans may also reside with the MEC, where appropriate (Section 42).

The management of protected areas is dealt with in Chapter 4 of the Protected Areas Act. According to the Act (Section 38), either the Minister (Environment) or MEC has the power to assign a management authority for a designated protected area (e.g. SANParks in the case of National Parks). The Protected Areas Act (Section 8) does not affect the implementation of provincial legislation regulating matters with regard to provincial or local protected areas to the extent that such legislation regulates matters not covered by this Act, is consistent with this Act, or prevails over this Act in terms of section 146 of the Constitution.

Existing regulations, norms and standards, or guidelines on biodiversity and protected areas management include:

Provincial conservation plans
Guidelines regarding the determination of bioregions and the preparation of and publication of bioregion plans (Government Gazette No. 32006. Government Notice No. 291, 16 March 2009)
South Africa’s National Biodiversity Strategy and Action Plan (NBSAP) (DEAT, 2005)
Existing national biodiversity frameworks, Bioregion plans and biodiversity management plans
National Protected Area Expansion Strategy proposing to achieve cost-effective protected area expansion for ecological sustainability and increased resilience to climate change (DEA, 2008)
Offshore Marine Protected Area Project proposing systematic planning to identify focus areas for offshore biodiversity protection in South Africa in alignment with the NPAES (SANBI, 2011) (summary presented in Appendix C)
National Estuary Biodiversity Plan proposed as part of NBA 2011 (Turpie et al., 2012) (summary presented in Appendix D)
Guidelines for Offshore Marine Protected Areas in South Africa (SANBI, 2008a)
User profiles for the South African offshore environment (SANBI,2008b)
Alien and invasive species Regulations (Gazette Notice No. 36683, Notice No. R 506, 19 July 2013)
Publication of national list of invasive species (Gazette Notice No. 36683, Notice No. R 507, 19 July 2013)
Publication of prohibited alien species (Gazette Notice No. 36683, Notice No. R 508, 19 July 2013)
Publication of exempted alien species (Gazette Notice No. 36683, Notice No. R 509, 19 July 2013)

Future needs in terms of giving directives and guidance on biodiversity and protected areas include:

- Expand the national biodiversity assessment to include terrestrial areas in the coastal zone
- Refine/expand the coastal sections (especially the area immediately seaward of the high-water mark up to roughly the territorial water boundary) in the coastal and marine component in the national biodiversity assessment
- National Coastal Biodiversity Plan that integrates marine, estuarine, freshwater and terrestrial aspects. Such a plan should be conducted at a fine enough scale to support integrated coastal development at the municipal level (linked to spatial planning)
- Consider recommendation on biodiversity planning in SANBI's NBA 2011 for inclusion in the National biodiversity framework, Bioregion plans and biodiversity management
- Best practice guide specifically focusing on the control and management of alien flora and fauna in the coastal zone, e.g. removal of aliens and using aliens for stabilization, invasive introduced through ballast waters and dry dock operations.

*iii. Marine protected areas*

Marine protected areas (MPAs) - in terms of the MLRA (Section 43) - remained designated to the Minister (Environment). Specifically MPAs, in terms of the MLRA is declared for the protection of fauna and flora or a particular species of fauna or flora and the physical features on which they depend, to facilitate fishery management by protecting spawning stock, allowing stock recovery, enhancing stock abundance in adjacent areas, and providing pristine communities for research, or (c) to diminish any conflict that may arise from competing uses in that area.

Existing regulations, norms and standards, or guidelines on MPAs include:

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MLRA Regulations (1998) (Government Notice R1111 in Government Gazette 19205 of 2 September 1998 – as amended)

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*iv. Sensitive coastal areas*

Sensitive coastal areas along the South African coast have been promulgated under the Environmental Conservation Act namely along the Garden Route and south coast of KZN. These are governed by DEA.

Existing regulations, norms and standards, or guidelines on management of sensitive coastal areas include:

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Sensitive coastal Areas Regulations in terms of the Environmental conservation Act

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*v. Heritage area management*

The management of heritage areas is not specific to the coastal zone, but such areas are located in the coastal zone, and where applicable related regulations, norms and standards, and guidelines apply. The DEA manage and control national heritage sites through South African Heritage Resources Agency (SAHRA). The World Heritage Convention Act provides for the recognition and establishment of World Heritage Sites, the establishment of authorities and the granting of additional powers to existing organs of state tasked with the management of World Heritage Sites. The National Heritage Resources Act introduces an integrated and interactive system for the managements of national heritage resources (which include landscapes and natural features of cultural significance). One of the important elements of the Act is that it provides the opportunity for communities to participate in the identification,

conservation and management of cultural resources. The Act requires that in areas where there has not yet been a systematic survey to identify conservation-worthy places, a permit is required to alter or demolish any structure older than 60 years. This will apply until a survey has been done and identified heritage resources are formally protected. Anyone who intends to undertake a development must notify the heritage resources authority and if there is reason to believe that heritage resources will be affected, an impact assessment report must be compiled at the developer's cost. Thus developers will be able to proceed without uncertainty about whether work will have to be stopped if a heritage resource is discovered.

Existing regulations, norms and standards, or guidelines on management of heritage areas related to the coastal zone include:

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Regulations in connection with the Greater St. Lucia Wetland Park (renamed to the iSimangiliso Wetland Park) (No. R.1193, 24 November 2000)

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*vi. Preventing and combating of pollution from ships*

Prevention of pollution from ships is primarily the responsibility of the Department responsible for transport and the South African Maritime Safety Authority (SAMSA) under the MARPOL Act, SAMSA Act, and Control and Civil Liability Act. However, in the case of oil pollution from ships the responsibility is shared with the DEA (MARPOL Act and SAMSA Act). Specifically the DEA takes responsibility once oil has been released to sea, including shoreline protection and clean-up, and at-sea response. Their responsibility includes the use of dedicated oil response vessels and aircraft and dispersant spraying operations. In terms of compliance and enforcement the DEA carries out regular oil spill surveillance through its Kuswag programme. Through this service, ships are also monitored for potential illegal oil discharges.

Existing regulations, norms and standards, or guidelines on preventing and combating pollution from ships include:

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National Plan for the prevention and combating of pollution from ships and offshore installations. The National Oil Spill Contingency Plan was implemented in August 2006, and an amendment was made in 2007

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Local oil spill contingency plans for coastal regions. There are 25 coastal regions for which oil spill contingency plans are prepared. These plans are in the process of being upgraded (Plan within ports have been delegated to Transnet NPA)

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Proposed South African Management Framework for the implementation of the International convention for the control and management of ballast water and sediment (2011) (Nolting, 2011)

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Future needs in terms of giving directives and guidance on preventing and combating pollution from ships include:

- Upgrade and revision of local oil spill contingency plans for coastal regions, including disaster management planning, and handling and disposal of waste originating from clean-up
- National contingency plan, not only for oil spill contingency, but also other pollution sources, e.g. toxic chemical spills

*vii. Solid waste and litter management (land-based)*

Solid waste disposal is not specific to the coast, but activities contributing to solid waste – e.g. littering – are having serious impact on the coastal zone (e.g. entanglement of marine animals and deteriorated aesthetics). The solid waste management is governed by DEA under the Waste Act. Formally, solid waste

is typically disposed of in landfill sites. Landfill construction is listed as a scheduled activity in regulations under NEMA, and, therefore requires an EIA prior to commencement of operations. Littering constitutes a diffuse source of solid waste and to address this, the Department implements activities under the Working for the Coast Programme. This includes the annual participation in the International Coastal Clean-up campaign. Municipalities have day-to-day operational responsibilities for collection and disposal (at landfill sites) of solid waste (Waste Management Act).

Existing regulations, norms and standards, or guidelines on the management of solid waste and litter (land-based) include:

NEMA EIA Regulations (2010), landfill construction is listed as scheduled activities under the NEMA EIA Regulations (contained in Government Notices R544, R545 & R546, Government Gazette 33306, 18 June 2010)
Guidelines for the development of integrated waste management plans (DEA, 2009a)
National Waste Management Strategy (NWMS) (DEA, 2011b)
National waste information regulations (Government Notices No. 35583. No R 625 of 13 August 2013)
Waste classification and management regulations (Government Notices No. 36784. No R 634 of 23 August 2013)
National norms and standards for the assessment of waste for landfill disposal (Government Notices No. 36784. No R 635 of 23 August 2013)
National Norms and standards for disposal of waste to land fill (Government Notices No. 36784. No R 636 of 23 August 2013)

Future needs in terms of giving directives and guidance on management of solid waste and litter include:

- Adopt and update best practice guidelines - that were previously developed by DWA- under new waste management legislation
- Strengthen links with international marine litter programmes such as the International Coastal Clean-up campaign.

### *viii. Atmospheric pollution*

Although not specific to the coastal zone, activities causing air pollution can potentially impact on the coastal zone (through atmospheric deposition), although this has not been listed as a serious impact as yet. The Air Quality Act – administered by the DEA – governs air pollution in South Africa. The Act aims to provide reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development. It provides for the establishment of national norms and standards regulating air quality monitoring, as well as management and control by all spheres of government. This Act also allows the MEC and municipalities to issue notices in the Gazette (provincial) or by-laws (municipal) issue standards for air quality in their areas of jurisdiction provided that these are not contradicting national norms and standards. Section 8 of the Air Quality Act assigned [compliance] monitoring of air quality to provinces and municipalities.

Existing regulations, norms and standards, or guidelines on the management of air quality include:

Draft regulations describing the format of the atmospheric impact report (Government Gazette No. 35883, Notice 945 of 2012, 23 November 2012 )
Draft declaration of small boilers as controlled emitters (Government Gazette No. 35883, Notice 946 of 2012, 23 November 2012 )
Draft dust control regulations (Government Gazette No. 35931, Notice 1007 of 2012, 7 December 2012 )
Municipal by-laws on air quality

*ix. Control of scuba diving, whale watching and shark cage diving*

Section 77 of the MLRA allows for the promulgation of Regulations for the protection of marine living resources under the Act, including regulations. The regulation and norms and standards for off-road vehicles also apply (these activities also require permits for the use of off-road vehicles on the beach).

Existing regulations, norms and standards, or guidelines on the management and control of scuba diving, whale watching, shark cage diving, and other related activities, include:

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Regulations for the management of boat based whale watching and protection of turtles (Government Gazette No. 31212, Notice No. R725, 4 July 2008)

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Policy on White Shark Cage Diving (Government Gazette No. 33458, Notice No. R804, 31 July 2009)

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Policy on boat based whale watching and dolphin watching (Government Gazette No. 32458, Notice No. 805, 31 July 2009)

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### 2.5.3 Activities governed by other departments/authorities under other Acts

*i. State assets in coastal zone, including 12 fishing harbours*

Immovable state assets are controlled and managed by the Department responsible for public works under GIAMA. Fishing harbours are jointly managed by the Departments' responsible for public works and fisheries in terms of the State Land Disposal Act 48 of 1961 and the MLRA with public works managing the landward areas, and fisheries the seaward areas of the fishing harbours.

Existing regulations, norms and standards, or guidelines on the management of state assets in the coastal zone (including fishing harbours) include:

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MLRA Regulations (1998) (Government Notice R1111 in Government Gazette 19205 of 2 September 1998 - as amended) regulates certain activities in fishing harbours

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Future needs in terms of giving directives and guidance on management of state assets in the coastal zone:

- Align regulations, norms and standards, or guidelines for management of coastal assets in the coastal zone with requirements under the ICM Act (and NEMA)
- Norms and standards/guidelines applying to management of state assets in the coastal zone, including roles and responsibilities of various departments and authorities.

*ii. Fisheries management*

Fisheries management is governed under the MRLA by the Department responsible for fisheries. South Africa has committed itself to the Ecosystems Approach to Fisheries Management (EAF) as defined by the Food and Agriculture Organisation of the United Nations (FAO). The EAF approach integrates the biotic, abiotic and human components of ecosystems with a view to managing fisheries within ecologically meaningful boundaries. Within this context, scientific advice informs the setting of Total Allowable Catch (TAC) or Total Allowable Effort (TAE) levels albeit for commercial, recreational, subsistence and small-scale fisheries. Scientific advice is coordinated and routed through the fishing-sector specific Scientific Working Groups convened by DAFF.

Fisheries that operate off the beach close to urban area e.g. False Bay beach-seine (treknet) fishery also often have to adhere to the municipal bylaws when launching or fishing e.g. there is an MoU between the



City of Cape Town, treknetters and DAFF with respect to netting in Muizenberg corner. Gillnetters are also subject to the authority of SANParks and municipalities.

Existing regulations, norms and standards, or guidelines on the fisheries management include:

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MLRA Regulations (1998) (Government Notice R1111 in Government Gazette 19205 of 2 September 1998 - as amended).

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Policy for the small scale fisheries sector in South Africa (Government Gazette 35455, Notice No. 474, 20 June 2012).

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Various policies for the allocation and management of commercial fishing rights (<http://www.nda.agric.za/>)

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Future needs in terms of giving directives and guidance on marine fisheries management:

- Align regulations, norms and standards, or guidelines for fisheries management with requirements under the ICM Act (and NEMA)
- Transparent norms and standards for the allocation of fishing rights

### *iii. Marine aquaculture or harvesting of marine living resources (sea-based)*

Marine aquaculture and harvesting of marine living resources are governed under the MLRA by the Department responsible for fisheries. The collection of marine vegetation (e.g. kelp) also requires a permit in terms of the MLRA.

Under the MLRA, each marine aquaculture enterprise has to apply for a right to engage in marine aquaculture. Each application is assessed for viability, economic, social and environmental aspects by the Marine Aquaculture Working Group. Further to this, applicants need to apply for permits to collect brood stock, import and export animals, engage in marine aquaculture activities (production, hatchery), transport animals, seed and harvest abalone for ranching. Farms are visited at least annually to assess adherence to permit conditions and rights. Disease surveillance of each of the marine farms is undertaken by qualified veterinarian service provider appointed by the DAFF. In terms of the permit conditions, production facilities are required to comply with the requirements of the relevant food safety programmes such as the South African Molluscan Shellfish Monitoring and Control Programme (SAMSM&CP).

Existing regulations, norms and standards, or guidelines on the marine aquaculture and harvesting of living marine resource management include:

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MLRA Regulations (1998) (Government Notice R1111 in Government Gazette 19205 of 2 September 1998 - as amended)

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Policy for the development of a sustainable marine aquaculture sector in South Africa (Notice 1109 of 2007) aimed at create an enabling environment that will promote the growth of marine aquaculture in South Africa and enhance the industry's contribution to economic growth and to support and develop regulatory and management mechanisms aimed at avoiding or minimizing adverse environmental impacts

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National Aquaculture Strategic Framework sets out to provide a harmonised national direction and scope for achievable government and private sector interventions, towards achieving goals that facilitate and lead to the removal of constraints and create a pragmatic, enabling environment for developing an equitable, diverse, viable, competitive and sustainable aquaculture sector (prepared by DAFF)

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The Biodiversity Risk and Benefit Assessment of seven alien species aquaculture species (including marine oyster and mussel) to assist the DAFF and other relevant decision-makers to promote the consideration of the effective management of specific alien species used in aquaculture in South Africa (prepared by DAFF in collaboration with provincial and national competent environmental authorities) (DAFF, 2012e)

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Strategic environmental assessment to define Marine Aquaculture Development zones in South Africa (prepared by DAFF in collaboration with DEA: Oceans and Coasts) (DAFF, 2011)

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Guidelines for Marine Finfish Farming in South Africa This document provides guidelines for fin-fish farming, including land-based farming (DAFF, 2012a)

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Guidelines for Aquaculture Better Management Practices in South Africa (DAFF, 2012b)

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Guidelines and Potential Areas for Marine Ranching and Stock Enhancement of Abalone (*Haliotis midae*) in South Africa (DAFF, 2010)

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The Environmental Integrity Framework (EIF) for Marine Aquaculture is based on principles of “sustainable development”, requiring the optimisation of human beneficiation and equity from the use of natural resources, while maintaining biological diversity and protecting ecosystem function. To achieve this, the EIF provides a framework for setting objectives, indicators, mitigation measures, monitoring and performance standards, as the starting point for responsible and sustainable sector development. The EIF provides a decision support tool from project level to sector level, for the planning of marine aquaculture and for EIA’s, while serving as an information platform for new entrants, government officials and consumers (prepared by DAFF in collaboration with provincial and national competent environmental authorities) (DAFF, 2012c)

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South African Molluscan Shellfish Monitoring and Control Programme (SAMSM&CP). This manual was prepared by DAFF and the Department of Food and Associated Industries of the Regulator for Compulsory Specifications with the purpose of developing an official manual for South African operators (DAFF, 2008; DAFF, 2012d)

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EIA and Environmental Management Guideline for Aquaculture in South Africa (DEA, 2012e)

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Future needs in terms of giving directives and guidance on marine aquaculture and collection of living marine resource management include:

- Align regulations, norms and standards, or guidelines for marine aquaculture and collection of living marine resource management with requirements under the ICM Act (and NEMA)
- Norms and standards/guidelines on the harvesting of marine algae (e.g. kelp)
- Transparent norms and standards for the allocation of permits for marine aquaculture

### *iii. Harvesting of coastal living resources (land-based)*

Land-based coastal resources (e.g. coastal forests and mangroves) are governed under the National Forest Act governed by the Department responsible for forestry.

Future needs in terms of giving directives and guidance on harvesting of coastal living resource (land-based) management include:

- Align regulations, norms and standards, or guidelines for harvesting of coastal living resource (land-based) in the coastal zone with requirements under the ICM Act (and NEMA)

### *iv. Port management*

Commercial ports in South Africa are managed and control by the Department responsible for transport through the Transnet National Ports Authorities (Transnet NPA) under the National Ports Act. Further the International health regulations Act requires that every seaport must be provided with a system for the removal and disposal of excrement, refuse, waste water, condemned food and other matter dangerous to health. This act falls under the jurisdiction of the Department responsible for health. Activities within ports that are governed by other Act, e.g. effluent discharges dredging requiring dumping at sea, are governed under the related legislation

Existing regulations, norms and standards, or guidelines applying to port management include:

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Draft Port Rules and Harbour Master’s Written Instructions to replace Harbour Regulations  
[www.info.gov.za/gazette/notices/2007/30253d.pdf](http://www.info.gov.za/gazette/notices/2007/30253d.pdf)

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Future needs in terms of giving directives and guidance on port management include:

- Align regulations, norms and standards, or guidelines related to port management with requirements under the ICM Act (and NEMA)
- Monitoring and reporting on environmental management in commercial ports.

v. *Shipping traffic*

Shipping traffic in the coastal zone of South Africa is governed under the Marine Traffic Act by the Department responsible for Transport and provides for matters such as regulating ship traffic and the anchoring of ships outside harbours and the sinking and abandoning of ships.

Existing regulations, norms and standards, or guidelines applying to shipping traffic include:

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Marine Traffic Regulations (1981) (under Marine Traffic Act)

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Future needs in terms of giving directives and guidance on shipping traffic include:

- Align regulations, norms and standards, or guidelines for shipping traffic with requirements under the ICM Act (and NEMA)

vi. *Freshwater flows (quantity and water quality) to coastal zone*

The freshwater flow (both related to quantity and quality are governed by the Department responsible for water affairs under the NWA. Chapter 3 of the NWA deals with the protection of water resources, including classification and determination of Reserve (estuaries remains classified as water resources under this Act). Further, Section 21 lists a number of activities that are classified as water uses requiring authorisation from the Minister (Water Affairs), some of which still apply to uses in estuaries. Specific operational management procedures are detailed in individual license Agreements. The Working for Water Programme (established by the Department responsible for water affairs) fulfills a key role in removal of alien vegetation to reduce water demand on the country's water resources.

Existing regulations, norms and standards, or guidelines applying to freshwater flows to the coastal zone include:

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General Authorisations (2004) under NWA (Section 39) pertaining to the exception of applying for a licences for use of freshwater, as well as disposal of wastewater into a water resources under specified conditions

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Methods for the determination of ecological water requirements for estuaries (DWAf 2008 and future updates thereof)

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Determination of freshwater requirements of the marine environment of South Africa: A proposed framework and initial assessment (Van Ballegooyen et al., 2007)

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Future needs in terms of giving directives and guidance on freshwater flows to the coastal zone include:

- Align regulations, norms and standards or guidelines applying to estuaries under the NWA with requirements under the ICM Act (and NEMA)
- Methods to determine the freshwater requirements of the sea, including requirements in terms of sediment supply
- Determine and implement ecological water requirements for all estuaries
- A national strategy for the use of desalination of coastal waters as an additional source of water supply for South Africa

*vii. Mining*

Mining, including mining in the coastal zone is governed by the MRDP Act by the Department responsible for mining. The authorisation process for mining is also governed under the MRDP Act, not NEMA Regulations. The Act did adopt certain sections of NEMA namely Section 2 on the principles of NEMA, Chapter 5 on the objectives of IEM, and section 24(7) on impact assessment. Holders of authorisations are required to include detailed monitoring plans in their EMProgrammes and EMPlans and to submit Performance Assessment Reports (PARs) to DMR. Although the larger mining companies generally have well-developed monitoring plans (as part of EMProgrammes and EMPlans) and, importantly, implement them, this is generally not the case for the smaller mining operations (e.g. sand winning). The MPRD Act requires that a Closure Plan be submitted to the Minister (Mining) for approval. The Regulations stipulate that a final Performance Assessment Report (PAR), Environmental Risk Report (ERR) and closure plan are submitted for consultation and approval. This Closure Plan also requires that the closure objectives and strategies are implemented and monitored to ensure that it leads to closure. The issuing of a closure certificate is undertaken in consultation with other government departments to ensure that environmental; social, economic, water, health and safety issues are fully addressed. Environmental Monitoring Plans and Programmes are not closure plans, these only address the closure objectives to ensure that holders have a strategic framework in place when applying for closure, which is a process on its own addressing a wide range of issues including the natural environment.

Existing regulations, norms and standards, or guidelines applying to mining in the coastal zone include:

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MPRD Act Regulations (2004) specifying the procedures to follow and the content in the preparation of EIA's, EMPlans and EMProgrammes, as well as PARs. Pollution control and waste management is also addressed ([www.info.gov.za/gazette/regulation/2004/26275.pdf](http://www.info.gov.za/gazette/regulation/2004/26275.pdf)).

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Financial provision guidelines (2005) developed in terms of the MPRD Act and the MPRD Act Regulations ([www.aspasa.co.za/PDFs/DMR-guidelines-quantam.pdf](http://www.aspasa.co.za/PDFs/DMR-guidelines-quantam.pdf))

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Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector (DEA, DMR, Chamber of Mines, South African Mining and Biodiversity Forum & SANBI, 2013)

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Future needs in terms of giving directives and guidance on mining in the coastal zone include:

- Align regulations, norms and standards or guidelines applying to mining in the coastal zone under MRDP Act with requirements under the ICM Act (and NEMA)
- Norms and standards/guidelines specifically addressing mining in the coastal zone, including application and authorisation, implementation and monitoring as well as closure for coastal mining (both coastal and offshore)
- Investigate the International Marine Mining Society (IMMS) Environmental management code for marine mining for adoption in South Africa
- Investigate national strategy for smaller scale coastal mining operations (e.g. sand mining) including a more strategic approach to environmental assessment.

*viii. Oil and gas exploration*

Offshore oil and gas exploration in the coastal zone is governed by the MRDP Act by the Department responsible for mining.

Existing regulations, norms and standards, or guidelines applying to oil and gas exploration in the coastal zone include:

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MPRD Act Regulations (2004) ([www.info.gov.za/gazette/regulation/2004/26275.pdf](http://www.info.gov.za/gazette/regulation/2004/26275.pdf)).

Financial provision guidelines (2005) ([www.aspasa.co.za/PDFs/DMR-guidelines-quantam.pdf](http://www.aspasa.co.za/PDFs/DMR-guidelines-quantam.pdf)) developed in terms of the MPRD Act and the MPRD Act Regulations

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Future needs in terms of giving directives and guidance on oil and gas exploration in the coastal zone include:

- Align regulations, norms and standards or guidelines applying to oil and gas exploration in the coastal zone under MRDP Act with requirements under the ICM Act (and NEMA)

*ix. Infrastructure development (land-based)*

Municipalities are largely responsible for the implementation of legislation in terms of coastal infrastructure development. Municipalities usually have officials, such as building inspectors that check for compliance with building regulations and approve building plans.

Existing regulations, norms and standards, or guidelines applying to coastal infra-structure (land-based) in the coastal zone include:

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Building Regulations and Standards prepared by the South African Bureau of Standards (SABS) setting standards for the technical performance for all buildings constructed in South Africa, mainly to ensure the health and safety of occupants (<https://www.sabs.co.za/>)

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NEMA EIA Regulations (2010) - certain activities are listed as scheduled activities under the NEMA EIA Regulations (contained in Government Notices R544, R545 & R546, Government Gazette 33306, 18 June 2010)

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Provincial planning legislation and SDFs

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Municipal IDPs and SDF, as well as related by-laws

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Future needs in terms of giving directives and guidance on infrastructure development (land-based) in the coastal zone include:

- Norms and standards/guidelines for infrastructure development in the coastal zone consolidating existing guidelines and by adapting Building Regulations to reflect aspects specific to the coastal zone. Allow for refinement at the Provincial and Local level to accommodate site specific aspects. Application and adaptation for climate change scenarios should also be addressed.

*x. Recreational water quality (e.g. beaches)*

The National Health Act requires that every metropolitan and district municipality to ensure that appropriate municipal health services are effectively and equitably provided in their respective areas. This is understood to include water quality monitoring (in terms of health risks) in water resources (e.g. estuaries) used for recreational purposes.

Existing regulations, norms and standards, or guidelines applying to recreational water quality (beaches) include:

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Water quality guidelines for the coastal environment: Recreational use (DEA, 2012a)

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*xi. Renewable energy activities*

Renewable energy activities are governed under the National Energy Act by the Department responsible for energy. The Act defines "Renewable energy" is defined as energy generated from natural non-depleting resources including solar energy, wind energy, biomass energy, biological waste energy, hydro

energy, geothermal energy and ocean and tidal energy. The Department may make regulations on such matters (Section 19).

Existing regulations, norms and standards, or guidelines applying to renewable energy activities that may be relevant to the coastal zone include:

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Strategic Environmental Assessment (SEA) for the efficient and effective rollout of wind and solar photovoltaic (PV) energy (in progress, DEA: Integrated Environmental Management Support)

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Future needs in terms of giving directives and guidance on renewable energy activities in the coastal zone include:

- Align regulations, norms and standards or guidelines applying to renewable energy activities in the coastal zone under the National Energy Act with requirements under the ICM Act (and NEMA)

### *xii. Defence activities*

Defence activities are governed under the Defence Act by the Department responsible for defence and Chapter 4 of this act stipulates the Integrated Environmental Management Support law enforcement powers of the defence force at sea executed by the South Africa Navy.

Existing regulations, norms and standards, or guidelines applying to defence activities in the coastal zone include:

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Maritime Doctrine for the SA Navy that guides the actions of maritime forces in the pursuit of national and military objectives in support of national policy (SA Navy 2006)

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Future needs in terms of giving directives and guidance on defence activities in the coastal zone include:

- Align regulations, norms and standards or guidelines applying to defence activities in the coastal zone under the Defence Act with requirements under the ICM Act (and NEMA)

## 2.6 Monitoring for Coastal Management

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The ICM Act defines *monitoring* and enforcing compliance with laws and policies that regulate human activities within the coastal zone as a key component of coastal management (Section 1) and requires the NCMP to define *performance indicators* to measure progress with the achievement of its management objectives (Section 4[2]). Provincial lead agents are responsible for monitoring coastal management in their provinces to ensure that it is undertaken in an integrated, effective and efficient manner and in accordance with the objects of the ICM Act. A provincial lead agent must also monitor the state of the environment in the coastal zone and relevant trends affecting that environment (Section 38[2]). Further, the Biodiversity Act (Section 11) tasks SANBI to monitoring (and report) on the status of South Africa's biodiversity.

Monitoring for coastal management, therefor, comprise three main categories, namely:

- Compliance monitoring to ensure that human activities in the coastal zone comply with laws and policies
- Performance monitoring to measure progress with the achievement of its management objectives

- Descriptive monitoring to measure actual variability and trends in biophysical, social and economic characteristics and processes in the coastal zone.

Requirements and roles and responsibilities related to compliance monitoring and enforcement are mostly stipulated the laws and policies governing various human activities in the coastal zone (referring to Chapter 2, Section 2.5).

Performance monitoring addresses key performance assessments in terms of fulfilling environmental management objectives in the coastal zone. These are typically based on monitoring of selected performance indicators related to specific management objectives and strategies, as is put forward in Chapter 6.

Descriptive monitoring (i.e. monitoring of variability and trends in biophysical characteristics and processes) in the coastal zone largely occurs on an *ad hoc* basis. Examples of monitoring programmes - mainly comprising physical parameters – include seawater levels (including tides) which are monitored along South Africa’s coast in some of the ports and harbours, Wave data are recorded near the commercial ports, and water level recorders in estuaries indicating change in the duration and frequency of mouth closure in the long term (about 10% of South Africa’s estuaries are currently being monitored by DWA). The DWA – under the NWA - is rolling out monitoring programmes to measure selected physico-chemical parameters in estuaries. South African Environmental Observation Network (SAEON) was established in 2002 to develop an *in situ* environmental observation network that delivers long-term reliable data for scientific research and to inform decision-making. Their Elwandle and Egagasini nodes operate in the coastal and ocean environment, respectively. The Elwandle node has a well-established long-term observation programme ongoing in Algoa Bay. Environmental departments in some of the coastal provinces also commenced with monitoring programmes (e.g. monitoring of 10 priority estuaries in the Western Cape Province). Most of the coastal metropolitan municipalities (and some district municipalities) conduct long-term microbiological monitoring programmes at recreational beaches to fulfil their responsibility in terms of environmental quality under the National Health Act. Monitoring under the Biodiversity Act also addresses aspects of descriptive monitoring.

In terms coastal monitoring the following needs were identified:

- Selection of performance indicators in order to assess progress and status in terms of fulfilling environmental management objectives in the coastal zone
- Norms and standards on the roles and responsibilities of different spheres of government, as well as other role players, in long-term monitoring for coastal management
- Finalise development, and implement the National Estuary Monitoring Programme
- Develop and implement a national pollution monitoring programme, specifically targeted at pollution hotspots (DEA: Oceans and Coasts, in progress)
- Expand the national network of gauging station to monitor freshwater flows into the coastal environment
- Expand the national network of continuous water level recorders in estuaries
- Expand and re-establish the sediment monitoring programme in estuaries

## 2.7 State of Coast Reporting

Section 93 of the ICM requires deals with Coast Reporting. First the MEC in coastal provinces must prepare a report on the state of the coastal environment (State of coast Report) and submit these to the Minister. Provincial State of Coast reports must be updated as applicable information becomes available (i.e. an adaptive management approach). At national level, the Minister (Environment) must prepare and regularly update a national report on the state of the coastal environment based on provincial reports. Further, the Biodiversity Act (Section 11) tasks SANBI to report on the status of South Africa's biodiversity as was done with the NBA 2011 (Driver et al., 2012).

Procedures on reporting mechanisms for compliance monitoring are mostly stipulated in the laws and policies govern the various human activities in the coastal zone. Performance reporting is (or should be) addressed in key performance assessments of various departments in terms of, for examples requirement under NEMA (requiring reporting on management of environmental matters).

To date state of coast reporting was largely accommodated in State of Environment Reports (e.g. South Africa Environment Outlook and Western Cape State of Environment Report) that is required in terms of NEMA, as well as the National Biodiversity Assessment (NBA 2011) as required in terms of the Biodiversity Act. Ideally, State of Coast Reporting that will have to be undertaken in terms of the ICM Act should provide greater detail on coastal matter which could then be incorporated into State of environment Reports. In 2002, DEA proposed a core set of environmental indicators (marine, coastal and estuarine) for State of the Coast Reporting (DEA, 2002), presented in the Pressure-State-Response (PSR) framework. However, few of these have been officially incorporated into performance monitoring programmes. More recently, the National Biodiversity Assessment 2011 (Driver et al., 2012) also proposed indicators and assessment approaches for future consideration. In the light of the above, an official suite of state of the coast indicators is required to evaluate and report on progress and effectiveness of coastal management in South Africa.

To strengthen mechanisms for State of Coast Reporting the following is required:

- Norms and standards for performance reporting – related to coastal management - in DEA's (and other departments') key performance assessments
- Norms and standards on the content and information to be included in State of Coast Reporting, including the selection of indicators and associated data sources (potential list of indicators presented in Appendix E)

## 2.8 Progress in Cooperative Governance

The framework for cooperative governance (Chapter 2) recognises the important of governance "support elements" - in addition to **formal institutional structures** - to achieve effective ICM. These support elements – in the South African context - include:

- Recognition and empowerment of marginalised or previously disadvantaged communities;
- Data and information systems;
- Awareness, education and training;



- Training and capacity building;
- Scientific (research) support programmes;
- Financial support programmes; and
- Coordinated coastal compliance and enforcement system.

### 2.8.1 Formal institutional structures

The ministerial political (MINMEC) and technical (MINTEC) structures under Intergovernmental Relations Framework Act (Act No. 13 of 2005), were set up to facilitate a high level of policy and strategy coherence between the three spheres of government. MINMEC: Environment is a standing intergovernmental body consisting of the Minister of Environmental Affairs, members of the provincial Executive Councils (MECs) responsible for environmental management functions and South African Local Government Association (SALGA). MINMEC meets quarterly. MINTEC: Environment is a standing intergovernmental body that provides technical input into the MINMEC. Several technical working groups meet regularly to discuss and advise on issues of biodiversity and heritage, impact management, pollution and waste management, and planning and reporting and a working group that deals with cross-cutting issues. Working Group 8 (WG8) deals with oceans and coasts and is chaired by the Chief Director: Integrated Coastal Management of DEA: Oceans and Coasts. WG8 is attended by key national agencies, representatives from provincial lead agents for ICM, science councils, and conservations bodies, amongst other.

Coastal committees form the core of the institutional framework for ICM under the ICM Act (Chapter 5) in a nested coastal governance system. The Minister (environment) must establish a National Coastal Committee (NCC), of which the key function is to promote integrated coastal management in the Republic and effective co-operative governance by co-ordinating the effective implementation of the ICM Act and of the NCMP (Section 35). Representatives on the NCC (Section 36) must include (i) persons with expertise in fields relevant to coastal management and coastal ecosystems; (ii) a representative from each Provincial Coastal Committee; (iii) one or more members representing municipalities in the coastal zone; (iv) representatives of national government departments which play a significant role in undertaking or regulating activities that may have an adverse effect on the coastal environment, including representatives of the departments responsible for agriculture, minerals, energy, transport, public works, provincial and local government, land affairs, water affairs and forestry and trade and industry; and (v) one or more members representing the management authorities of coastal protected areas. Pending the establishment of an official national institutional structure for coastal management, under the ICM Act, WG8 fulfils the role. In this regard, a term of reference has been developed and adopted for this working group (DEA, 2011d).

The ICM Act (Section 39) also mandates the establishment of Provincial Coastal Committees (PCCs) in each of the coastal provinces of which the key function is promote integrated coastal management in the province and the co-ordinated and effective implementation of this Act and the provincial coastal management programme. Section 40 of the Act states PCCs must include (i) persons with expertise in fields relevant to coastal management; (ii) one or more members representing municipalities in the coastal zone; (iii) one or more members representing community based and non-government organisations; and (iv) one or more members representing scientific or coastal research institutes. The

status of PCCs varies, where some provinces have already established their committees (e.g. Northern Cape and Western Cape) and others are in the process of doing so (Kwa-Zulu Natal and Eastern Cape).

In municipalities, coastal committees are not mandatory and are left to the discretion of the metropolitan, district or local municipalities (Section 42). The key function of municipal coastal committees (MCCs) may be to promote integrated coastal management in the municipality and the coordinated and effective implementation of this Act and the municipal coastal management programme. Representation on MCCs may include (i) persons with expertise in fields relevant to coastal management; (ii) representatives of the management authorities of coastal protected areas or special management areas within the municipality; and (iii) representatives of communities or organisations with a particular interest in contributing to effective coastal management, such as port authorities, organs of state, persons whose livelihoods or businesses rely on the use of coastal resources, environmental interest groups and research organisations (Section 42).

Institutional structure addressing trans-boundary aspects of coastal management includes the structures under the Nairobi and Abidjan Conventions (e.g. their Conference of Parties), as well as institutional structures set up for the Large Marine Ecosystems, such as the Benguela Current Commission (for the BCMLE). South Africa is a contracting party to the Nairobi Convention, which has, over the past three years, developed an Integrated Coastal Zone Management Protocol to the Convention, which has utilised the ICM Act as a foundational document to its content regional implementation plans (UNEP, 2012).

Reflecting on the above, as well as feed-back from stakeholders, the following needs related to formal coastal institutional structures are apparent in terms of giving directives and guidance on coastal management in South Africa:

- Agree on the institutions representative of the NCC under the ICM Act
- Complete the establishment of all PCCs (in progress)
- Strategy/norms and standards on the inclusion of civil society in coastal committees, especially the NCC
- Develop guidelines on the Develop guidelines for the establishment and consistent functioning of coastal committees, specifically addressing also collaboration and partnerships with traditional leadership should be included in the NCMP
- A strategy for collaboration and partnerships with traditional leadership should be included in the NCMP
- Strategies or guidelines for local co-management of projects in the coastal zone
- Strategy to coordinate disaster management in the coastal zone.

### **2.8.2 Marginalised or previously disadvantaged communities**

The ICM Act is very specific on the empowerment of marginalised or previously disadvantaged communities. Section 45(2)(f)(i) stipulates that the framework for co-operative governance for coastal management (under the NCMP) must identify the responsibilities of different organs of state, including their responsibilities in relation to marginalised or previously disadvantaged communities that are dependent on coastal resources for their livelihood. Further 49(2)(c)(iv) of the Act requires that municipal CMPs must equitably designate zones for the purposes of mixed cost housing and taking into account the needs of previously disadvantaged individuals (e.g. designated coastal planning schemes).

The empowerment and acknowledgement of empowerment of marginalised or previously disadvantaged communities is a cross-cutting element that must be address from setting the vision, through zoning of uses in the coastal zone, and in the cooperative governance framework for coastal management.

To facilitate the empowerment and recognition of marginalised or previously disadvantaged communities in the coastal zone, the following needs emerged in terms of giving directives and guidance on coastal management in South Africa:

- Strategy/norms and standards on the recognition, involvement and empowerment of marginalised or previously disadvantaged communities, across all spheres of government.
- Strategy to address sustainable and alternative livelihoods and job creation associated with coastal zone.

### 2.8.3 Data and information management systems

Section 93 of the ICM Act states that the Minister (Environment) must progressively, and within the available resources of the Department, make sufficient **information** available and accessible to the public concerning the protection and management of the coastal zone to enable the public to make an informed decision of the extent to which the State is fulfilling its duties in terms of coastal management. Section 83(1e) permits the Minister (environment) to make regulations stipulating the type and format of data to be submitted to the Department or other organs of state for the purposes of monitoring the coastal environment and the implementation of the ICM Act or maintaining a coastal information system. The accessibility to information is also supported in the Promotion of Access to Information Act (Act No. 2 of 2000, amended No. 54 of 2002). Further the Spatial Data Infrastructure Act (Act No. 54 of 2003) (SDI Act) was promulgated in recognition of the importance of a National Spatial Data Infrastructure.

The most comprehensive oceanographic data system for South Africa – that includes data on the coastal zone – is the Southern African Data Centre for Oceanography (SADCO). SADCO is hosted by the Council for Scientific and Industrial Research (CSIR) and is funded by a number of marine organisations in South Africa and Namibia, including the CSIR, South African Navy, Namibian Ministry for Fisheries and Marine Resources, National Research Foundation (NRF) and DEA: Oceans and Coasts. SADCO is also recognised by the Intergovernmental Oceanographic Commission as the official South African mouthpiece in terms of international exchange of marine data.

The DEA maintains a Geographic Information System (GIS) for the storage and analysis of cartographic (mapped) and related environmental information for use by the Department. In this regard the department prepared a handbook, GIS Handbook: Policies, standards and guidelines (DEA, 2012) that outlines GIS policies, standards and guidelines applicable to the department. Policies that are included in this handbook are public access, pricing of products and services, custodianship. The policies on pricing of spatial data and data custodianship are adopted from those being developed by the Committee for Spatial Information. Some Departmental programmes require the submission of mapped data to a GIS standard. The submission of mapped data by all sectors based on the standard presented in this handbook will facilitate data input into the Department’s GIS and the integration of data with other GIS systems.

With specific reference to estuaries a number of data bases and information systems exist, including:

- Estuary information system developed by the Elwandle node of SAEON

- KZN estuary data base
- Botanical data base of the Nelson Mandela Metropolitan University (NMMU), Botany Department
- DWA hydrological data base (data on river flows into, and water level recording in, some estuaries)
- DWA river water quality data base (including river inflows into some estuaries has developed and populated an information systems for estuaries.

Furthermore, in the absence of a national ocean and coastal information management system, several provinces and municipalities collated their own data and information systems, for example the Northern Cape Province uses the SPISys system as its spatial planning data and information system (<http://spisys.co.za/>).

In the light of the data and information needs in terms of giving directives and guidance on coastal management in South Africa include:

- Develop a comprehensive Oceans and Coastal Information Management System (OCIMS) taking into account existing national, provincial and municipal developments (in progress)
- Requirements in terms of the SDI Act, probably only above HWM?
- Norms and standards on the type and format of data to be submitted to the OCIMS, as well as roles and responsibilities of various authorities and institutions
- Ensure that the OCIMS is easily accessible (e.g. web-based systems) with proper training on its use and application
- Establish a “Hotline” in support of coastal management.

#### 2.8.4 Awareness and education

Section 83(1[m]) of the ICM Act permits the Minister (Environment) to make regulations on training, **education and public awareness programmes** on the protection, conservation and enhancement of the coastal environment and the sustainable use of coastal resources. The ICM Act (Section 38) tasks provincial lead agents to promote, in collaboration with other appropriate bodies and organisations, training, **education and public awareness programmes** relating to the protection, conservation and enhancement of the coastal environment and the sustainable use of coastal resources.

In practice, awareness and education (A&E) is a shared responsibility between public, private and civil society sectors. There are a number of notable past efforts to promote coastal awareness in South Africa, such as the numerous initiatives undertaken as part of the CoastCARE programme (a DEA initiative). Current examples include the International Coastal Clean-up campaign ([www.oceanconservancy.org/icc](http://www.oceanconservancy.org/icc)) in September each year involving large numbers of public participants through a series of regional initiatives. Environmental awareness and education is also a key component (amongst others) of South Africa’s Blue Flag campaign ([www.blueflag.org.za/](http://www.blueflag.org.za/)), an international initiative that encourages municipalities to provide clean and safe beaches for local populations and tourists ([www.blueflag.org/](http://www.blueflag.org/)). NGOs, such as World Wildlife Fund South Africa ([www.wessa.org.za/](http://www.wessa.org.za/)), the Environment Society of South Africa ([www.wessa.org.za/](http://www.wessa.org.za/)), Coastwatch (KZN), and Ushaka Sea World and its Education Centre (Durban) ([www.seaworld.org.za](http://www.seaworld.org.za)), also play a critical role in A&E in the coastal zone.

To advance a coordinated approach in coastal A&E in South Africa, specific needs in terms of giving directives and guidance on coastal management in South Africa include:

- Coordinated strategy for coastal awareness, education [and training] for South Africa to enable the effective planning, development, implementation monitoring and evaluation of various initiatives and programmes in the country (specifically recognising the roles on NGOs)
- Develop a national brand for coastal A&E (similar to the previous CoastCARE programme)
- Expand awareness raising programmes to address specific activities in the coast, such as inappropriate coastal development (e.g. linking with the insurance industry) and the importance of stormwater management
- Strategy to incorporate coastal issues in the school curriculum.

### 2.8.5 Training and capacity building

Within cooperative governance framework for coastal management, it was decided to present training and capacity building as a separate support element to A&E to stress the importance of training directed at building professional capacity in coastal management.

Section 83(1[m]) of the ICM Act permits the Minister (Environment) to make regulations on **training**, education and public awareness programmes on the protection, conservation and enhancement of the coastal environment and the sustainable use of coastal resources. Section 38 of the Act tasks provincial lead agents to promote - in collaboration with other appropriate bodies and organisations - **training**, education and public awareness programmes relating to the protection, conservation and enhancement of the coastal environment and the sustainable use of coastal resources.

A major threat sustainable coastal management in South Africa, is diminishing (or lack of) capacity in government, from national to municipal level. This has a cascading effect on the effectiveness and efficiency of coastal management institutions. Effective training and capacity building mechanisms are, therefore, a critical support element in the long-term sustainability of ICM implementation. DEA, in response to the national challenges relating to skills and expertise have developed a Human Capital Development Strategy (HCDS) (DEA 2009) that arose out of the constitutional imperative for a clean, healthy environment that benefits current and future generations, and the impetus to strengthen opportunities associated with a green economy for South Africa. Significant to the HCDS is the Human Resource demands of achieving the Presidential Delivery Agreement for Outcome 10, which focuses on environmental assets and natural resources that are valued, protected and continually enhanced. The HCDS is also directly relevant to provincial and local government strategy and planning. Skills development demands outlined in this document were established in consultation with provincial government, and local government, and took account of the specific needs identified at provincial and municipal level. It is vital that the institutions for ICM, both formal and informal, provide input to an Oceans and Coasts sub-component of the HCDS. The capacity and skill indicated to effectively engage ICM as a management paradigm requires a specific set of parameters within the broader environment HCDS.

Existing strategies, initiatives and training opportunities relevant to coastal management in South Africa include:

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[Working for the Coast Programme \(DEA\) providing jobs and training for unemployed people in coastal](#)

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communities to create and maintain a cleaner and safer coastal environment.

Estuary Management Training Course accredited by the Nelson Mandela Metropolitan University (NMMU)

A User-friendly Guide to South Africa's Integrated Coastal Management Act (DEA) (Celliers et al., 2009)

Training course on the ICM Act (course developed by DEA: Oceans and Coasts)

Human Capital Development Strategy Environmental Sector. A systems approach to skills development to support the environmental sector strategic plan 2009-2014 (DEA, 2009b)

Environmental Sector Skills Plan for South Africa. A systems approach to human capacity development and sector skills planning (DEA, 2010a)

Reflecting on the above, training and capacity building needs in terms of giving directives and guidance on coastal management in South Africa include:

- An National Human Capacity Development strategy complimentary and in addition to the existing DEA Human Capital Development Strategy - specifically aimed at coastal management – that includes specific actions to improve the skills and expertise required to manage the coast
- Coordinated strategy for coastal [awareness, education and] training for South Africa to enable the effective planning, development, implementation monitoring and evaluation of various initiatives and programmes in the country
- Regular “in-job-training” courses on coastal management for government officials (and other authorities responsible for aspects of coastal management) (potentially collaborating with tertiary education institutions for accreditation of such training courses)
- Explore expansion of the role of the Working for the Coast Programme to further enhance training and capacity building for coastal management
- Develop a guide for coastal committees on establishment of coastal management programmes (in progress).

### **2.8.6 Financing mechanisms**

The ICM Act assigns various role and responsibilities to national, provincial local government for which the various spheres of government should allow in their budgets. However, the reality in that since the proclamation of the Act in 2009, budgets (or budget allowances) for coastal management – especially the new roles and responsibilities assigned to authorities under the ICM Act – are either limited or lacking. Also, the extent to which these budget are limited or lacking various from authority to authority. Therefore, it is important that coastal management programmes in South Africa do address the issue of funding.

In addressing issues around funding mechanism for coastal management it is important that requirements - including roles and responsibilities - under the following Act be closely explored:

- Public Finance Management Act (Act No. 1 of 1999);
- Municipal Finance Management Act (Act No. 56 of 2003); and
- Government Immovable Asset Management Act (Act No. 19 of 2007).

Furthermore, governing authorities need also to explore innovative ways in which to secure financial resources for coastal management, for example user pay systems. An avenue to secure political will to fund coastal management is to demonstrate and promote the value of the coastal zone in supporting government priorities such as poverty alleviation, economic development and job creation.

However, Section 83(2) requires the Minister (environment) obtain the consent of the Minister of Finance before making any regulation that will entail the expenditure of funds in future years or prescribes application fees for, or other monies in relation to, dumping permits or coastal waters discharge permits.

Towards securing financial sustainability for coastal management in South Africa the following needs come to the fore in terms of giving directives and guidance on coastal management in South Africa:

- A coastal socio-economic assessment and investment strategy (including an assessment coastal zone' value in supporting government priorities such as poverty alleviation, economic development and job creation)
- Strategy on securing sustainable funding mechanisms for coastal management
- Strategy promoting the value and role of coastal tourism (a specific mechanism through which to generate and secure funding for coastal management)
- National guidelines on appropriate funding mechanisms for coastal management, specifically at the aimed at generating these at provincial and municipal levels

### **2.8.7 Scientific research support**

Sustainable coastal management is strongly reliant on sound scientific research support, continuously extending and improving the information and knowledge base, and ensuring that new learning are taken up in the coastal management and governance systems.

In South Africa, organized scientific research support – including support for coastal management - spans institutions. These include:

- South African Network for Coastal and Oceanic Research (SANCOR), a non-statutory body aimed at generating and communicating knowledge and advice in order to promote the wise and informed use and management of marine and coastal resources and environments (<http://sancor.nrf.ac.za/>)
- Consortium for Estuarine Research and Management (CERM), an organisation that concentrates on estuarine systems, providing a platform for South African scientists and resource managers to collaborate in promoting the wise management of estuaries through joint participation in research, training and technology transfer (<http://www.nmmu.ac.za/cerm/default.htm>)
- South Africa's Water Research Commission (WRC), that provides the country with applied knowledge and water-related innovation, by continuously translating needs into research ideas and, in turn, transferring research results and disseminating knowledge and new technology-based products and processes to end-users (<http://www.wrc.org.za/>).
- National Research Foundation (NRF), an independent government agency that promotes and supports research in all fields of knowledge – including coastal management ([www.nrf.ac.za](http://www.nrf.ac.za)).

Furthermore, coastal research is also undertaken at several of the country's tertiary education institutions, science councils (e.g. CSIR), scientific institutions (e.g. SAEON, Southern African Institute for Aquatic Biodiversity, South African National Biodiversity Institute and the Oceanographic Research Institute), and through private consultancies. The DEA is also in the process of preparing coastal research plan.

Existing strategies relevant to coastal research in South Africa include:

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Environment Sector Research, Development and Evidence framework. An approach to enhance sector science-policy interface and evidence-based policy making (DEA, 2012h)

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Towards enhancing a coordinated scientific research support base for coastal management the following is required in terms of giving directives and guidance on coastal management in South Africa:

- Coastal research strategy that identifies research priorities for coastal management, as well as mechanisms to address priority research involving the various role players (including research funding mechanisms)
- The role and importance of freshwater (and sediment) flows to the coastal zone, also coastal areas other than estuaries.

### 2.8.8 Coordinated compliance and enforcement systems

The ICM Act (Section 1) includes *monitoring and enforcing compliance with laws and policies that regulate human activities within the coastal zone* as an integral element of coastal management, and therefore, integral to the cooperative governance framework supporting coastal management. The ICM Act (Section 83[k]) allows the Minister (Environment) to make regulations on the methods, procedures and conditions of enforcing compliance with authorisations under the Act. Section 32[2][h] tasks provincial lead agents to take all reasonably practical measures to monitor compliance with, and to enforce, the ICM Act, [in their provinces] either alone or in cooperation with other enforcement agencies. The Minister may request provinces to implement or monitor compliance with national norms and standards, in instances where a province has not implemented adequate measures in this regard. In turn, an MEC may use any powers granted to the MEC under this Act to implement or monitor compliance with provincial norms and standards, if a municipality located in the province does not comply with directives given to the municipality.

While provinces are tasked to conduct compliance and enforcement of the ICM Act within their provinces, compliance and enforcement mechanisms outside the geographical jurisdiction of provinces (e.g. coastal waters) is complicated and dictated by the legislation governing various activities in the coastal zone (e.g. Table 4). The implementation of compliance and enforcement mechanisms in the coastal zone remains, however, a challenge, primarily blamed on inadequate financial and human resources. A possible solution to improve compliance and enforcement is collaboration among the various responsible departments and authorities. In 2011 the DEA published a document entitled *Enforcement manual for the integrated Coastal Management Act* to serve as a guide to officials in the enforcement of the Act (DEA, 2011c).

Towards improving the implementation of compliance and enforcement in the coastal zone, the following is needed in terms of giving directives and guidance on coastal management in South Africa:

- Strategy for coordinated coastal compliance and enforcement, including the opportunities for collaboration, roles and responsibilities of various departments, authorities and operators
- Compliance and enforcement strategy for involvement of local communities



## **3. Roles and Responsibilities for Coastal Management**

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The Situation Analysis (Chapter 2) highlighted the numerous acts specifying roles and responsibilities of various government departments (and other role players) in an array of activity-based management programmes potentially affecting the coastal zone. However, the most central piece of legislation dealing roles and responsibilities of government departments (and other roles players) in the **coastal zone** is the ICM Act. This chapter, therefore, provides an overview of the roles and responsibilities assigned to each of the three spheres of government, as well as collaborative partnership with other role players, by this Act.

## 3.1 Mandatory Roles and Responsibilities

### 3.1.1 National government

Table 5 summarises the key, mandatory roles and responsibilities of national government in coastal management in terms of the ICM Act.

**Table 5: Summary of mandatory roles and responsibilities of national government in coastal management in terms of the ICM Act**

ASPECT	RELATED SECTION/S IN ICM ACT	BRIEF DESCRIPTION OF ROLE & RESPONSIBILITY
The management of coastal public property	7, 8,9,10,11,12,13,14,15,21,26,27,32	Ensuring the state as a public trustee, provides for the protection, management and enhancement of coastal public property as an inalienable area within the coastal zone that belongs to the citizens of South Africa. This achieved by developing regulations to control the use of coastal public property, determine and adjust the boundaries of coastal public property as deemed appropriate, as well as designation and inclusion of certain portions of state-owned land as coastal public property to achieve the objectives of the ICM Act.
The National Estuarine Management Protocol	33,34	Ensure that the National Estuarine Management Protocol is developed and that Estuarine Management Plans for each estuary along the SA coast is place in collaboration with responsible bodies appointed for Estuary Management Plan development and implementation.
The National Coastal Committee	35,36,37	Establishment of the National Coastal Committee, determination of its powers and appointing representatives for the Committee.
Monitor the appointment of provincial lead agencies	38	Ensure that Provincial lead agencies for ICM are established and functioning on a continual basis.
Development and Implementation of the National Coastal Management Programme	44,45	Develop a National Coastal Management Programme aligned with the contents of the ICM Act.
Consistency and alignment between the National Coastal Management Programme and other statutory plans	51,52	Ensure that any plan, policy or programme adopted by an organ of state that may affect coastal management is consistent and aligned with the national coastal management programme.
Consultation and public participation	53	Ensure meaningful consultation with government and other coastal stakeholders.
Environmental authorizations for coastal activities	63,64	Ensure that the competent authority refers, in terms of S63 (4) applications that are inconsistent with S63 (2), but

ASPECT	RELATED SECTION/S IN ICM ACT	BRIEF DESCRIPTION OF ROLE & RESPONSIBILITY
		are in the public interest, to the Minister for consideration. Ensure that where an environmental authorization is not required for coastal activities, the Minister considers listing activities that will be requiring a permit or license in terms of S63 (6).
Discharge of effluent into coastal waters	69	Ensure that point source discharges of effluent are effectively assessed, controlled and monitored.
Dumping of waste into coastal waters	70,71	Prohibit incineration at sea and ensure that the overall intent of S70 and S71 is understood by stakeholders.
Emergency dumping at sea	72	Ensure that consideration is given to emergency situations relating to the dumping of waste at sea.
The National Action List	73	Ensure that an effective screening mechanism is available to support assessment of dumping applications.
Determination of national appeals powers	78	Establish powers of Minister and MEC's and procedures to be followed in determining appeals.
Prescribing regulations and fees	83	Develop regulations for the management of activities within coastal public property and consult the Minister of Finance before making any regulations which will entail expenditure of funds in future years, application fees, or regulations imposing fees, costs or any other charges.
General provisions applicable to regulations	85	Specify general procedures relating to regulations, including penalties for contraventions.

### 3.1.2 Provincial government

Table 6 summarises the key, mandatory roles and responsibilities of provincial government in coastal management in terms of the ICM Act.

**Table 6: Summary of mandatory roles and responsibilities of provincial government in coastal management in terms of the ICM Act**

ASPECT	RELATED SECTION/S IN ICM ACT	BRIEF DESCRIPTION OF ROLE & RESPONSIBILITY
The management of the coastal protection zone	16,17,22,26, 28,30	Ensuring the protection, management and enhancement of the coastal protection zone. This achieved by developing regulations to control the use, determine and adjust the boundaries of the coastal protection zone as deemed appropriate, as well as designation and inclusion of certain portions of provincially controlled state-owned land as coastal public property to achieve the objectives of the ICM Act.
Imposition of fees within coastal public property	13	Obtain the approval of the Minister before charging any fee for access to coastal public property.
Establishment of coastal management lines	25	Establish coastal management lines in regulations to restrict or prohibit certain activities that may have an adverse effect on the coastal environment.
Marking coastal boundaries on zoning maps	31	Inform municipality of any coastal boundaries determined or adjusted in terms of S26
Designation of provincial lead agencies	38	In collaboration with the Premier, ensure that provincial lead agencies for coastal management are designated and function effectively to promote and coordinate coastal

## *Roles and Responsibility for Coastal Management*

ASPECT	RELATED SECTION/S IN ICM ACT	BRIEF DESCRIPTION OF ROLE & RESPONSIBILITY
		management within a coastal province.
Establishment and functioning of Provincial Coastal Committees	39,40,41	Establishment of the Provincial Coastal Committee, determination of its powers and appointing representatives for the Committee.
Development and Implementation of Provincial Coastal Management Programmes	46,47	Develop Provincial Coastal Management Programmes aligned with the contents of the ICM Act.
Consistency and alignment between Provincial Coastal Management Programmes and other statutory plans	51,52	Ensure that any plan, policy or programme adopted by an organ of state that may affect coastal management is consistent and aligned with provincial coastal management programmes, which in turn is aligned with the national coastal management programme.
Consultation and public participation	53	Adequate consultation and public participation precede the exercising of a power by the MEC, which this Act requires to be exercised in accordance with this section.
Environmental authorisations for coastal activities	63	Coastal management issues considered and requirements of this section complied with before an environmental authorisation is issued in terms of Chapter 5 of the National Environmental Management Act.
Regulations by MECs	84,85	Develop regulations for the management of activities within the coastal protection zone and specify general procedures relating to regulations, including penalties for contraventions.
Information and Reporting on Coastal Matters	93	Prepare a report on the state of the coastal environment in the province which must contain any information prescribed by the Minister
Co-ordination of actions between provinces and municipalities	94	Liaise with coastal municipalities in the province to co-ordinate actions taken in terms of this Act by provincial organs of state in the province with actions taken by municipalities

### 3.1.3 Local government

Table 7 summarises the key, mandatory roles and responsibilities of local government in coastal management in terms of the ICM Act:

**Table 7: Summary of mandatory roles and responsibilities of local government in coastal management in terms of the ICM Act**

ASPECT	RELATED SECTION/S IN ICM ACT	BRIEF DESCRIPTION OF ROLE & RESPONSIBILITY
Access to coastal public property	18,19,20	Ensuring that the public has equitable access to coastal public property by designating coastal access land, designate in by-laws strips of coastal access land to promote access to CPP along the coast, withdraw inappropriate coastal access land and Follow an environmentally sensitive and socially responsible process in designating coastal access land.
Coastal management line demarcation on zoning maps	25	Delineate set-back lines in municipal zoning schemes maps (should participate in any provincial set-back line

ASPECT	RELATED SECTION/S IN ICM ACT	BRIEF DESCRIPTION OF ROLE & RESPONSIBILITY
		determinations, but this is discretionary; alternatively can work with province to determine set-back lines. Province will have to Gazette).
Determining and adjusting coastal boundaries of coastal access land	29	Ensure specified considerations are taken into account when determining or adjusting a coastal boundary of coastal access land.
Marking coastal boundaries on zoning maps	31	Delineate coastal boundaries determined or adjusted in terms of S26 on zoning scheme maps
Municipal Coastal Management Programmes	48,49,55	Prepare and adopt a municipal coastal management programme for managing the coastal zone or specific parts of the coastal zone in the municipality.
Consistency and alignment between Municipal Coastal Management Programmes and other statutory plans	51,52	Ensure that any plan, policy or programme adopted by an organ of state that may affect coastal management is consistent and aligned with municipal coastal management programmes, which in turn is aligned with provincial coastal management programmes and the national coastal management programme and ensure that IDPs (including its spatial development framework) is consistent with other statutory plans [See S52 (1) (a-f)] adopted by either a national or a provincial organ of state.
Consultation and public participation	53	Adequate consultation and public participation precede the exercising of a power by a municipality, which this Act requires to be exercised in accordance with this section.
Implementation of land use legislation in coastal protection zone	62	In implementing any legislation that regulates the planning or development of land, in a manner that conforms to the principles of co-operative governance contained in Chapter 3 of the Constitution, apply that legislation in relation to land in the coastal protection zone in a way that gives effect to the purposes for which the protection zone is established as set out in section 17.

## 3.2 Collaborative Partnerships for Coastal Management

Addressing the need for co-operative governance is principle to the achievement of ICM in South Africa, by clearly defining the methods and approaches that must be employed to ensure that the adequate involvement of all stakeholders in decision-making processes for various coastal management projects and initiatives within the CMP is achieved.

As a result, collaborative partnerships may include, but are not limited to:

- Involve communities in coastal management;
- Improve partnerships between government, civil society and private sector to achieve effective and integrated coastal management;
- Improve relationships between communities and conservation Agencies;
- Improve conflict-resolution mechanisms;
- Improve communication between spheres of government and institutional structures;

- Improve co-ordination between sectors;
- Encourage sustainable development;
- Improve understanding of macro-economic policies;
- Facilitate public review of land use planning process;
- Reduce bureaucracy of development approvals;
- Elevate the priority of coastal management;
- Establish protocols for communication and time-frames of consultation within the context of PAIA and PAJA;
- Integrate coastal management principles into plans and strategies for all spheres and sectors of government; and
- Establish consistent policies for integrated coastal management with neighbouring countries.

## **4. Vision and Priorities for Coast Management**

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## 4.1 Vision

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During the development of the “White Paper” (DEAT, 2000) the first shared vision for the coast in South Africa was put forward through an extensive, consultative and participatory process. The “White Paper’s” vision largely reflects the spirit of the National Development Plan 2030 and Sustainable Development and Action Plan 2011–2014 visions by acknowledging the three pillar of sustainable development that is economic growth, social well-being and equity, and ecological integrity. In this context, it was therefore decided to keep the original vision for coastal management (DEAT, 2000) as the overarching vision for the coast, recognising that incremental refinements will emerge as ICM progresses in our country:

### Vision

**We, the people of South Africa, celebrate the diversity, beauty and richness of our coast and seek an equitable balance of opportunities and benefits throughout it.**

**We strive for sustainable coastal development – involving a balance between material prosperity, social development, cultural values, spiritual fulfilment and ecological integrity, in the interests of all South Africans.**

**We strive for a time when all South Africans recognise that the coast is ours to enjoy in a spirit of community.**

**We look forward to a time when all South Africans assume shared responsibility for maintaining the health, diversity and productivity of coastal ecosystems in a spirit of stewardship and caring.**

**We seek to guide the management of our coast in a way that benefits current and future generations, and honours our obligations and undertakings from local to global levels.**

In the spirit of sustainable development (i.e. considering economic profitability, ecological functionality and social acceptability) the vision is underpinned by the following principles which provide a departure point for translating the vision into practice:

### Principles

- **National asset**: The coast must be retained as a national asset, with public rights to access and benefit from the many opportunities provided by coastal resources
- **Economic development**: Coastal economic development opportunities must be optimised to meet society’s needs and to promote the wellbeing of coastal communities



- **Social equity**: Coastal management efforts must ensure that all people, including future generations, enjoy the rights of human dignity, equality and freedom
- **Ecological integrity**: The diversity, health and productivity of coastal ecosystems must be maintained and, where appropriate, rehabilitated
- **Holism**: The coast must be treated as a distinctive and indivisible system, recognising the interrelationships between coastal users and ecosystems and between the land, sea and air
- **Assimilative capacity**: Acknowledging that coastal ecosystems have finite assimilative capacity to accommodate development and exploitation in a sustainable manner, both in terms of living and non-living resources
- **Risk aversion and precaution**: Coastal management efforts must adopt a risk-averse and precautionary approach under conditions of uncertainty
- **Accountability and responsibility**: Coastal management is a shared responsibility. All people must be held responsible for the consequences of their actions, including financial responsibility for negative impacts
- **Duty of care**: All people and organisations must act with due care to avoid negative impacts on the coastal environment and coastal resources
- **Integration and participation**: A dedicated, co-ordinated and integrated coastal management approach must be developed and conducted in a participatory, inclusive and transparent manner
- **Co-operative governance**: Partnerships between the government, the private sector and civil society must be built in order to ensure co-responsibility for coastal management and to empower stakeholders to participate effectively
- **Differentiated approach**: Recognising that the implementation of integrated coastal management is contextual. While a generic (standardised) management framework is important, mechanisms of implementation cannot be rigid (fit-for-all)
- **Adaptive management approach**: Incrementally adjusting practices based on learning through common sense, experience, experimenting, and monitoring (“learning-by-doing”)

## 4.2 Priorities for Coastal Management

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The Situation Analysis (Chapter 2) reflects on the state of South Africa’s coastal ecosystems. Further the assessment reviews the status of coastal management in South Africa, refined through contributions from stakeholder workshops held in each of South Africa’s four coastal provinces, as well as contributions from a national stakeholder workshop (DEA, 2013a).

The above information was used to distil key **priorities for coastal management** towards achieving the vision. Nine priorities emerged, as informed by the Situation Analysis (Chapter 2) and contributions from the stakeholder workshops (DEA, 2013a) (in no particular order of importance):

### Priorities for Coastal Management

**Priority 1: Effective planning for coastal vulnerability to global change (including climate change)**

**Priority 2: Ensuring equitable public access in the coastal zone**

**Priority 3: Integrating management in estuaries**

**Priority 4: Managing pollution in the coastal zone**

**Priority 5: Establishing coastal monitoring and reporting systems to inform decision-making**

**Priority 6: Mechanisms for effective compliance and enforcement in the coastal zone**

**Priority 7: Provision of coastal information and research**

**Priority 8: Strengthening awareness, education and training to build capacity for coastal management**

**Priority 9: Creating and strengthening partnerships for ICM**

Each of the nine priorities is dealt with in greater detail below. Specific roles and responsibilities of the various spheres of government are dealt with in Chapter 3.

#### **4.2.1 Priority 1: Effective planning for coastal vulnerability to global change**

**Goal: Ensuring that all planning and decision-making tools applied by all organs of state within the coast zone address coastal vulnerability by taking into account the dynamic nature of our coast, sensitive coastal environments, health and safety of people, protection of property rights, illegal structures within coastal public property, and appropriate placement of infra-structure not to compromise fiscal investment by the state, as well as the rehabilitation of coastal ecosystems.**

Numerous vectors of global change, including rapid coastal urbanisation (e.g. demand for coastal infrastructure development), exploitation coastal resources (e.g. mining) and climate change (e.g. flooding, sea level rise and increase in storminess) increasingly threaten vulnerable and sensitive areas along South Africa's coastal zone – to the point where development becomes unsustainable and peoples' lives are at risk. To address this situation, coastal vulnerability to these stresses need to be assessed, and subsequently management strategies and interventions must be implemented accordingly to minimise or mitigate risk.

#### 4.2.2 Priority 2: Ensuring equitable public access in the coastal zone

**Goal:** Ensuring that the public has safe and equitable access to coastal public property by virtue of establishing sufficient coastal access land that is cognisant of the sensitivity of coastal ecosystems, the needs and livelihoods of coastal communities or other socio-economic considerations, as well as the removal of inappropriate and unsafe coastal access points.

Public access to the coast is explicitly addressed in the ICM Act and was also identified as an important priority by stakeholders (DEA, 2013a). The demarcation of coastal access land is a municipal function, although provincial and national governments play a key role in building commitment, providing guidance and fiscal and/or capacity strengthening mechanisms for municipalities to effectively implement, maintain and monitoring coastal access.

#### 4.2.3 Priority 3: Integrating management in estuaries

**Goal:** Ensure that all estuaries along the South Africa coast are managed in an integrated, holistic manner in accordance with the National Estuary Management Protocol and the extent to which activities within estuaries are consistent with the other key priorities for coastal management.

The NBA 2011 (Van Niekerk and Turpie, 2012) highlighted that a very small percentage of estuarine habitats in South Africa are still in an excellent condition. Only about 1% of total estuarine habitat is in an excellent state and only 14% of the total estuarine habitat is in a good state, mostly represented by systems in the Warm Temperate biogeographical region. The critical importance of these sensitive ecosystems - playing a disproportionately large role in providing ecological, social and economic benefits to South Africa - warrants a particular effort to minimize and mitigate further deterioration. Further, legislation addressing the protection and management of estuaries in South Africa spans three key pieces of legislation, namely the National water Act, Biodiversity Act, Protected Areas Act and the ICM Act. As a result it is very important that the roles and responsibilities of the government departments involved are defined to ensure effective implementation.

#### 4.2.4 Priority 4: Managing pollution in the coastal zone

**Goal:** Ensure the effective management of waste and wastewater into the coastal zone and minimizing adverse effects on the health of coastal communities, and on coastal ecosystems and their ability to support the sustainable uses of coastal resources in manner that is socially, economically and ecologically justifiable.

The NBA 2011 (Driver et al., 2012) rated pollution – specifically land-based effluent discharges - as one of the key pressures impacting on the coastal environment. This concern was also echoed by stakeholders in the provincial and national stakeholder workshops, where land-based sources pollution, such as effluent discharges and urban stormwater, was viewed as a key priority for coastal management (DEA, 2013a).

#### 4.2.5 Priority 5: Establishing coastal monitoring and reporting systems to inform decision-making

**Goal:** Ensure the development and implementation of a dedicated, cooperative, co-ordinated and integrated coastal monitoring and reporting system that includes compliance monitoring and reporting in accordance with laws and policies, performance monitoring and reporting to measure progress in coastal management, and descriptive monitoring and reporting to measure variability and trends in biophysical, social and economic characteristics and processes in the coastal zone.

Critical to effective coastal management is monitoring, not only monitoring for compliance or performance monitoring to evaluate the effectiveness of coastal management actions, but also descriptive monitoring to assess the ecological, social and economic status of coastal resource. Also, established reporting mechanisms are essential to support continuous, adaptive management, i.e. improving-by-learning.

#### **4.2.6 Priority 6: Mechanisms for effective compliance and enforcement**

**Goal:** Establish a committed compliance and enforcement system for coastal management in alignment with related laws and policies, and inclusive of cooperation and coordination between organs of state with enforcement responsibilities and NGO with appropriate capacity.

Stakeholders viewed inadequate compliance and enforcement systems as one of the main shortcomings for the effective implementation of the ICM Act, primarily attributed to lack of capacity, as well as lack of coordination and collaboration between the various responsible authorities. This is a priority to be addressed by all spheres of government exploring new, innovative ways in which to strengthen capacity and collaboration.

#### **4.2.7 Priority 7: Provision of coastal information and research**

**Goal:** To have an effective national information system and research framework to support integrated coastal management, that is able to promote a dedicated, cooperative, coordinated and integrated planning management approach accessible to all stakeholders, in particular, decision-makers and the general public to ensure meaningful participation.

The ICM Act, and in fact ICM in general, requires data and information as a key pillar supporting this management approach. The DEA therefore identified the establishment of an ocean and coastal information system as a strategic priority. Specifically the Act requires the Minister to progressively, and within the available resources of the Department, make sufficient information available and accessible to the public concerning the protection and management of the coastal zone to enable the public to make an informed decision of the extent to which the State is fulfilling its duty.

#### **4.2.8 Priority 8: Strengthening awareness, education and training to build capacity**

**Goal:** Ensuring that the general public and decision-makers are appropriately aware, educated and trained, and so as to be able to take collective responsibility for managing and protecting the coastal environment in a manner that is socially, economically and ecologically justifiable.

ICM, over the long-term can only survive with the support of the general public, therefore the priority to strengthen public awareness education that involves civil society and that create awareness of, and a sense of responsibility for, coastal issues among ordinary people. One of the main threats to sustainable coastal management in South Africa, is diminishing (or lack of) capacity in government, from national to municipal levels. This has a cascading effect on the effectiveness and efficiency of coastal management institutions. Effective training and capacity-building mechanisms, therefore, are a key priority to ensure long-term sustainability of ICM implementation and should not be dealt with in an *ad hoc* manner. Awareness, education and training are shared responsibilities between public, private and civil society sectors.

#### 4.2.9 Priority 9: Strengthening partnerships for ICM

**Goal:** To ensure that institutional partnerships and mechanisms for ICM are established amongst all sectors and spheres of government, the private sector and civil society in a collaborative, problem-solving and consensus-building manner that promotes dialogue, cooperation, coordination and integration.

The ICM Act, for the first time mandates the establishment of cross-sectoral, multi-actor coastal management programmes and institutions for cooperative governance. However, it is not the only piece of legislation governing matters pertaining to the coastal zone; South Africa's coastal legal framework spans at least 19 international obligations and agreements, 11 national policies and 46 national acts involving various authorities across all spheres of government. A key priority for coastal management, therefore, is the establishment of formal institutions for coastal management, as well as partnerships among various role players to better understand roles and responsibilities in the quest for effective coastal governance. These partnerships should not only be limited to collaboration among government authorities, but also extend to business, the private sector and civil society.

## **5. National Management Objectives and Actions**

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The vision, together with the nine priorities, provides the primary policy directive on coastal management for South Africa. Specific management objectives and actions, to address these priorities are required to give direction for implementation planning.

This chapter addresses the national management objectives – with respect to the nine priorities for coastal management in South Africa - focusing on the national mandate in terms of the ICM Act. In a similar manner, provincial and municipal CMPs need to identify management objectives – in alignment with these national management objectives - to fulfil their respective mandates in terms nine priorities for coastal management in South Africa.

Further this chapter lists specific actions that will be undertaken by national government - as part of the NCMP - to achieve the national management objectives. These actions are largely informed by the Situation Analysis (Chapter 2), considering needs expressed by municipal, provincial and national stakeholders (DEA, 2013a).

**The priorities, together with the national management objectives, actions and performance indicators presented here, constitute national governments’ (DEA’s) commitment to implementing ICM over the next five years (2013-2017).**

## 5.1 Priority 1: Coastal vulnerability

### Management Objective 1.1: Develop regulatory mechanisms (including norms and standards) to facilitate a uniform approach to assess coastal vulnerability and to establish conditions of use in the coastal zone

Actions	Targets	
	Completion date	Performance Indicator
Ensure alignment between EIA regulations and guidelines, and the conditions of use specified for in the coastal zone in terms of regulation, norms and standards issued under the ICM Act	Dec 2013	<ul style="list-style-type: none"> <li>DEA internal standard operating procedure for EIAs</li> </ul>
Develop guidelines for the adjustment of coastal boundaries	Mar 2014	<ul style="list-style-type: none"> <li>Completed guideline document</li> </ul>
Regulations pertaining to the reclamation of land from the sea	Mar 2014	<ul style="list-style-type: none"> <li>Regulations published in <i>Government Gazette</i></li> </ul>
Develop norms and standards for the demarcation of the HWM	Mar 2014	<ul style="list-style-type: none"> <li>Phase 1 completion of the coastal risk and vulnerability study on mitigation and adaptation to dynamic coastal processes (including impacts from climate change)</li> </ul>
Develop norms and standards for coastal set-back lines (e.g. as influenced by sea-level rise)	Mar 2014	<ul style="list-style-type: none"> <li>Phase 1 completion of the coastal risk and vulnerability study on mitigation and adaptation to dynamic coastal processes (including impacts from climate change)</li> </ul>
Regulation on the control of use of vehicles in the coastal area	Mar 2014	<ul style="list-style-type: none"> <li>Regulations published in <i>Government Gazette</i></li> </ul>
Regulations for the management of boat launching sites in the coastal zone	Mar 2014	<ul style="list-style-type: none"> <li>Regulations published in <i>Government Gazette</i></li> </ul>
Prepare a nationally consistent spatial layer indicating the boundaries within the coastal zone for national planning	Mar 2015	<ul style="list-style-type: none"> <li>Completed spatial layer as component of a component of marine spatial planning tool</li> </ul>
Develop Norms and standards for modelling of sea-level rise projections	Mar 2015	<ul style="list-style-type: none"> <li>Phase 2 completion of the coastal risk and vulnerability study on mitigation and adaptation to dynamic coastal processes (including impacts from climate change)</li> </ul>
Develop norms and standards for modelling of storm surge projections	Mar 2015	<ul style="list-style-type: none"> <li>Phase 2 completion of the coastal risk</li> </ul>

		and vulnerability study on mitigation and adaptation to dynamic coastal processes (including impacts from climate change)
Develop guidelines on the development of coastal planning scheme	Mar 2015	• Completed guideline document
Develop guidelines for coastal defence (e.g. environmental engineering approaches)	Mar 2016	• Completed guideline document
Review and revise the water and sediment quality guidelines for the protection of aquatic ecosystems in the coastal zone of South Africa	Mar 2016	• Completed guideline document

**Management Objective 1.2: Develop appropriate data and decision-support for the identification of vulnerable coast areas to dynamic coastal processes and the effects of global change**

Actions	Targets	
	Completion date	Performance Indicator
Prepare a schedule of prohibited and restricted activities on coastal public property and condition of use	Dec 2014	• Regulation schedule published in <i>Government Gazette</i>
Mapping coastal boundaries inclusive of a comprehensive audit of all structures on coastal public property	Dec 2014	• Freely accessible mapping tool
Prepare a coastal hazard zone index and demarcate coastal hazard zones (including impacts from climate change)	Mar 2015	• Regulation schedule published in <i>Government Gazette</i>
Expand the database on illegal structures in coastal public property	Mar 2015	• Expanded and updated geo-data base
Prepare a database on the location of the Admiralty Reserve and condition of use	Mar 2016	• Completed geo- data base, including condition of use

**Management Objective 1.3: Rehabilitation of areas along the coast**

Actions	Targets	
	Completion date	Performance Indicator
Guidelines of the stabilisation and rehabilitation in the coastal zone (e.g. dunes)	Mar 2015	• Completed guideline document
National guidelines on the procedures to prevent/remove unlawful structures in the coastal zone, specifically aimed at assisting provinces and municipalities (e.g. expansion to enforcement manual to the ICM Act)	Mar 2016	• Completed guideline document

## 5.2 Priority 2: Public access

**Management Objective 2.1: Provide a national commitment for the facilitation of safe and equitable access to coastal public property along South Africa's coast**

Actions	Targets	
	Completion date	Performance indicator
Regulations pertaining to the establishment and maintenance of coastal public access	March 2015	• Regulation schedule published in <i>Government Gazette</i>
A national strategy for facilitating coastal public access and incorporated into the NCMP	Mar 2014	• Completed strategy document available

**Management Objective 2.2: Develop norms and standards to assist municipalities in carrying out their responsibilities with respect to coastal access**

Actions	Targets	
	Completion date	Performance Indicator
Develop guidelines for designation of coastal access	Mar 2014	• Completed guideline document
Develop norms and standards for coastal signage towards facilitating a unified approach for the South African coast	Mar 2015	• Completed guideline document
Develop a national electronic reporting and dissemination system for coastal access, incorporated into the National OC Information Management System	Mar 2017	• Completed electronic reporting system for coastal access



**Management Objective 2.3: Provide capacity strengthening mechanisms for municipalities to effectively implement, maintain and monitoring coastal access**

Actions	Targets	
	Completion date	Performance Indicator
Develop a local government support strategy for the fulfilment of environmental mandates (including support for coastal access)	Mar 2015	<ul style="list-style-type: none"> <li>Signed Implementation Plan for the Local Government Support Strategy with test cases</li> </ul>
Establish internal work plans to utilise Working for the Coast to support municipalities in the establishment, maintenance and monitoring of coastal access	Mar 2015	<ul style="list-style-type: none"> <li>Completed and approved work plans</li> </ul>

## 5.3 Priority 3: Estuaries

**Management Objective 3.1: Develop and implement a national estuarine management protocol for a uniform approach to estuarine management, including individual estuary management plans that are tailored to suit the current and future requirements including social, economic and ecological considerations.**

Actions	Targets	
	Completion date	Performance Indicator
Prepare National Estuarine Management Protocol for South Africa	May 2013	<ul style="list-style-type: none"> <li>Regulation schedule published in <i>Government Gazette</i></li> </ul>
Develop a national estuary resource strategy for South Africa	Mar 2015	<ul style="list-style-type: none"> <li>Strategy developed</li> </ul>
Develop guidelines for the development and implementation of estuary management plans, allowing for a differentiated approach across South Africa	Mar 2015	<ul style="list-style-type: none"> <li>Completed guideline document</li> </ul>
Develop estuary management plans for estuaries assigned to national government (DEA)	Mar 2017	<ul style="list-style-type: none"> <li>Completed national estuary management plans</li> </ul>
Ensure alignment between EIA regulations and the National Estuarine Management Protocol	2013-2017	<ul style="list-style-type: none"> <li>On-going updates</li> </ul>

**Management Objective 3.2: Establish appropriate institutional mechanisms for estuarine management to facilitate dialogue, collaboration and implementation of EMPs.**

Actions	Targets	
	Completion date	Performance Indicator
Develop guidelines for coastal committees that include institutional sub-structures for integration and coordination of estuary management	Mar 2014	<ul style="list-style-type: none"> <li>Completed guideline document</li> </ul>
Prepare SOPs to facilitate and integrated approach to estuarine protection and management across relevant departments	Dec 2014	<ul style="list-style-type: none"> <li>Signed and implemented standard operation procedures</li> </ul>

## 5.4 Priority 4: Pollution

**Management Objective 4.1: Establish regulatory mechanisms for waste and wastewater disposal in the coastal zone**

Actions	Targets	
	Completion date	Performance Indicator
Develop assessment criteria for coastal waters discharge permits	Jun 2014	<ul style="list-style-type: none"> <li>Final assessment criteria developed</li> </ul>
Finalise national policy for coastal effluent discharges from land-based sources finalised	Dec 2014	<ul style="list-style-type: none"> <li>Finalised National Policy by Minister</li> </ul>
Permits and recommendations issued for all coastal waters discharge	Mar 2015	<ul style="list-style-type: none"> <li>Permits and recommendations issued</li> </ul>

applications received up to December 2014		
Regulations and best practice guidelines to facilitate effective management and control of dredging operations in South Africa	Mar 2015	<ul style="list-style-type: none"> <li>Regulation schedule published in <i>Government Gazette</i></li> <li>Completed guideline document</li> </ul>
Prepare a National contingency plan for oil spills	Dec 2015	<ul style="list-style-type: none"> <li>Completed oil spill contingency plan</li> </ul>
Draft regulations on coastal water quality monitoring initiated	Mar 2016	<ul style="list-style-type: none"> <li>Draft Regulations developed</li> </ul>
Regulations on effluent disposal to coastal environment in terms of Section 69 of the ICM Act developed and finalised	Mar 2016	<ul style="list-style-type: none"> <li>Regulations finalised</li> </ul>
Conduct review of all effluent discharge issued under the NWA, and in the case of estuaries a joint review with the department responsible for water affairs in order to determine compliance to the ICM Act, and where appropriate re-issue coastal water discharge permits	Mar 2017	<ul style="list-style-type: none"> <li>Completed review</li> </ul>
Develop effluent emission limits or standards	Mar 2017	<ul style="list-style-type: none"> <li>Standards or emission limits developed</li> </ul>
Upgrade and revise of local oil spill contingency plans for coastal regions, including disaster management planning, and handling and disposal of waste originating from clean-up	2013 - 2017	<ul style="list-style-type: none"> <li>Continuously updated oil spill contingency plans</li> </ul>

## 5.5 Priority 5: Coastal monitoring and reporting

### Management Objective 5.1: Establish a national commitment for an effective coastal monitoring system in accordance with the ICM Act and other legislation that has a bearing on the coastal zone

Actions	Targets	
	Completion date	Performance Indicator
Develop a national strategy for ocean and coastal monitoring	Mar 2016	<ul style="list-style-type: none"> <li>Strategy developed</li> </ul>
Establish internal work plans to utilise Working for the Coast for coastal monitoring	Mar 2016	<ul style="list-style-type: none"> <li>Completed and approved work plans</li> </ul>
Development of a National Coastal Water Quality Monitoring and Assessment Programme	Mar 2018	<ul style="list-style-type: none"> <li>Programme developed</li> </ul>

### Management Objective 5.2: Ensure that performance and status reporting on coastal management is conducted in accordance with the ICM Act and other legislation that has a bearing on coastal zone

Actions	Targets	
	Completion date	Performance Indicator
Develop norms and standards on the content and information towards a unified approach to State of Coast Reporting, including the selection of indicators and associated data sources	Mar 2016	<ul style="list-style-type: none"> <li>Norms and standard developed and implemented in State of the Coast Reporting</li> </ul>
Prepare a National State of Coast report	Mar 2017	<ul style="list-style-type: none"> <li>National state of coast Report completed</li> </ul>

## 5.6 Priority 6: Compliance and enforcement

### Management Objective 6.1: Ensure a coordinated, uniform approach to implementation of compliance and enforcement in the coastal zone across all spheres of government

Actions	Targets	
	Completion date	Performance Indicator
Standardised reporting templates for compliance and enforcement reporting under the ICM Act	Mar 2015	<ul style="list-style-type: none"> <li>Reporting templates completed</li> </ul>
Develop a National strategy for oceans and coast compliance and enforcement	Mar 2015	<ul style="list-style-type: none"> <li>Completed strategy</li> </ul>

### Management Objective 6.2: Ensure that the necessary capacity within all spheres of government is available to conduct compliance and enforcement under the ICM Act

Actions	Targets
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	Completion date	Performance Indicator
Develop regulations for the appointment and functioning of vulnerary coastal officers under the ICM Act (e.g. involving local communities)	Dec 2014	<ul style="list-style-type: none"> <li>Regulation schedule published in <i>Government Gazette</i></li> </ul>
Establish internal work plans to utilise Working for the Coast to strengthen compliance and enforcement in the coastal zone	Mar 2016	<ul style="list-style-type: none"> <li>Completed and approved work plans</li> </ul>

## 5.7 Priority 7: Coastal information and research

### Management Objective 7.1: Ensure that information in support of integrated coastal management is collated, maintained and managed in a responsible manner, and made accessible to all stakeholders

Actions	Targets	
	Completion date	Performance Indicator
Develop a Marine Spatial Planning decision support tool	Mar 2015	<ul style="list-style-type: none"> <li>Decision support tool developed</li> </ul>
Establish a nationwide ICM hotline/support service	Mar 2016	<ul style="list-style-type: none"> <li>Support service available</li> </ul>
Develop an ocean and coastal information management system with public access	Mar 2017	<ul style="list-style-type: none"> <li>Operational information management system</li> </ul>

### Management Objective 7.2: Conduct relevant research in support of coastal management in collaboration with various role players, nationally and internationally

Actions	Targets	
	Completion date	Performance Indicator
Prepare a national coastal research plan to inform management decision under the ICM Act	Mar 2014	<ul style="list-style-type: none"> <li>Completed research plan</li> </ul>

## 5.8 Priority 8: Awareness, education and training

### Management Objective 8.1: Develop enabling mechanisms for the effective implementation of coastal awareness and education for South Africa, including empowerment of coastal communities

Actions	Targets	
	Completion date	Performance Indicator
Develop a National strategy for awareness, education and training in the coastal zone	Dec 2013	<ul style="list-style-type: none"> <li>Completed strategy</li> </ul>
Develop a concurrent strategy for the adoption of a nationwide brand for coastal awareness and education	Mar 2016	<ul style="list-style-type: none"> <li>Brand established</li> </ul>
Develop a Strategy to strengthen coastal awareness in school curricula	Mar 2017	<ul style="list-style-type: none"> <li>Strategy completed including educational materials</li> </ul>
Develop a practical guide to coastal management in South Africa, including a series of user-friendly fact sheets	Mar 2017	<ul style="list-style-type: none"> <li>Completed guide and fact sheet series</li> </ul>

### Management Objective 8.2: Develop enabling mechanisms for effective training to build capacity in coastal management in South Africa

Actions	Targets	
	Completion date	Performance Indicator
Develop a guide for development of coastal management programmes	Mar 2014	<ul style="list-style-type: none"> <li>Completed guide</li> </ul>
Expand DEA's existing Human Capital Development Strategy to specifically address issues related to coastal management	Mar 2015	<ul style="list-style-type: none"> <li>Completed strategy addressing coastal management issue</li> </ul>
Establish internal work plans to utilise Working for the Coast to strengthen training and capacity building for coastal management	Mar 2015	<ul style="list-style-type: none"> <li>Completed work plan</li> </ul>
Prepare SOPs for conduction regular ICM training courses on coastal	Mar 2015	<ul style="list-style-type: none"> <li>Signed and implemented standard</li> </ul>

management for government officials involving coastal provinces		operation procedures
Develop a Strategy to include coastal management as a national qualifications framework (NQF) accredited module within appropriate tertiary institutions	Mar 2017	<ul style="list-style-type: none"> <li>Accredited NQF module for coastal management</li> </ul>

## 5.9 Priority 9: Strengthening partnerships

### Management Objective 9.1: Develop enabling formal, institutional mechanisms for promotion and coordination of ICM

Actions	Targets	
	Completion date	Performance Indicator
Establish National Coastal Committee	Mar 2014	<ul style="list-style-type: none"> <li>National Coastal Committee established</li> </ul>
Develop guidelines for the establishment of coastal committees including the formalisation of powers and representation	Mar 2014	<ul style="list-style-type: none"> <li>Completed guide</li> </ul>

### Management Objective 9.2: Establish and strengthen collaborative partnerships with local structures for empowerment, knowledge sharing and implementation of coastal management

Actions	Targets	
	Completion date	Performance Indicator
Develop Strategy for engaging coastal traditional councils in management	Mar 2016	<ul style="list-style-type: none"> <li>Completed strategy</li> </ul>
Establish formal agreements with coastal traditional councils towards the implementation of the ICM Act	Mar 2017	<ul style="list-style-type: none"> <li>Number agreements established</li> </ul>
Establish a reporting mechanism for reporting on success with coastal access facilitation by municipalities, provinces and national government	Mar 2015	<ul style="list-style-type: none"> <li>Reporting templates for coastal access developed for municipalities and provinces and submitted to national DEA once a year</li> </ul>

### Management Objective 9.3: Establish and strengthen collaborative partnerships with other institutions and organs of state for empowerment, knowledge sharing and implementation of coastal management

Actions	Targets	
	Completion date	Performance Indicator
Establish Memorandum of Understanding (MoUs) with other departments governing the management and control of activities in the coastal zone not legislated under the ICM Act, e.g. mining, infrastructure development, fisheries and marine aquaculture, renewable energy, state assets, shipping, oil and gas, and biodiversity and protected areas planning	Mar 2017	<ul style="list-style-type: none"> <li>Number of MoUs established</li> </ul>
Establish MoUs with other institutions to strengthen research and capacity building for coastal management in South Africa	Mar 2017	<ul style="list-style-type: none"> <li>Number of MoUs established</li> </ul>
Strategy to coordinate disaster management in the coastal zone in collaboration with various competent authorities	Mar 2015	<ul style="list-style-type: none"> <li>Strategy completed</li> </ul>

### Management Objective 9.4: Facilitating partnerships towards the long-term integration of the principles of integrated coastal management in all sectors of South African economy

Actions	Targets	
	Completion date	Performance Indicator
Economic valuation of coastal resources in relation to its contribution to the South African economy	Mar 2015	<ul style="list-style-type: none"> <li>Completed valuation</li> </ul>
Collaboration with insurance industry to combat inappropriate coastal development and promote the managed retreat from sensitive coastal area	Mar 2017	<ul style="list-style-type: none"> <li>Integration of hazard zone indices into insurance premium evaluations</li> </ul>
Development of a Strategic Infrastructure Plan for for ICM	Mar 2017?	<ul style="list-style-type: none"> <li>Formalised SIP for coastal amangement with associated funding</li> </ul>



## **6. Process towards Implementation**

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The overall plan to advance integrated coastal management in South Africa – as presented in this NCMP – is conceptually summarised in Figure 12. First, a **vision** was established, setting out the desired future for South Africa's coast and the people using this valuable resource. Following a detailed Situational Analysis and a key stakeholder consultation process, nine key **priorities** for coastal management was identified, that is key issues that are currently preventing South Africa from achieving the Vision for our coast. For each of the key priorities the NCMP then set out a series of national **management objectives** specifically aimed at areas which coastal management efforts at national government level must address. Finally a list of specific **actions** that will be undertaken by national government - as part of the NCMP - to achieve the national management objectives over the next five years (2013-2017).

Several of the actions to be undertaken as part of the NCMP involves the development of **specific strategies**. In the development of these strategies a generic approach is proposed as illustrated in Figure 13.

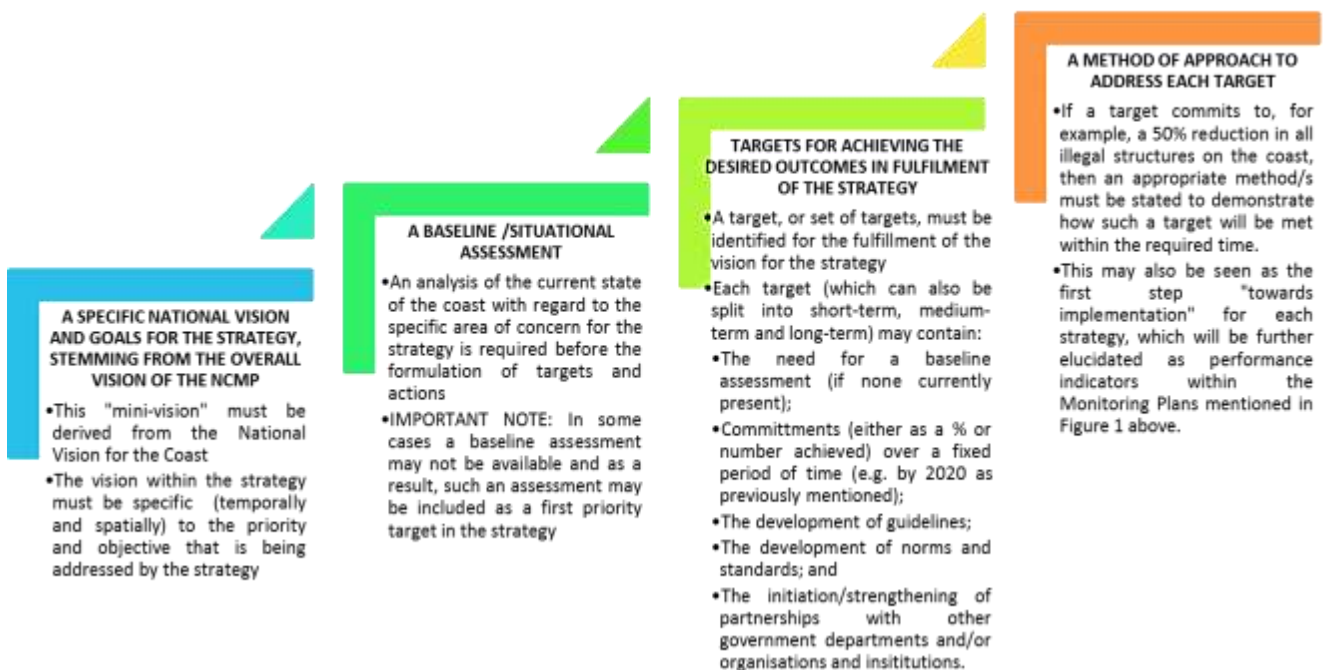


Figure 13: Generic approach proposed for the development of specific strategies as part of the NCMP

The next step in the overall plan for the NCMP is to develop detailed implementation plans for each of the listed actions. The IPs for various actions typically will include the following information (after IUCN, 2003):

- Specific requirements stipulated in policy and legislation;
- Specific methods, protocols and best practice-guides to assist with implementation;
- Spatial planning and conditions of use that need to be complied with (these should be extracted from situational analysis or relevant documentation);
- A detailed work plan identifying different tasks;
- Responsibilities for the different tasks;
- Scheduling of task, indicating start and finish dates;

- Interim milestones and associated interim performance indicators;
- Monitoring and reporting plan to verify the effectiveness of the implementation process and to assess compliance with the related management objective and, ultimately the vision;
- Human resource plan, for implementation indicating specific service providers, where relevant; and
- Financial resource plan.

An example template for the IPs is presented in Figure 13.

<b>ACTION</b>	<b>Develop a strategy for coastal access</b>																																																																								
<b>COMPLETION DATE</b>	March 2015																																																																								
<b>PERFORMANCE INDICATOR</b>	<b>Final strategy publish in <i>Government Gazette</i></b>																																																																								
Requirements stipulated in policy and legislation	ICM Act, Section 18																																																																								
Available methods, protocols and best practice-guides	Check for any methods, policies and best practice guides available on coastal access																																																																								
Spatial planning considerations and Conditions of use	Specific aspects to consider in terms of existing spatial planning frameworks and conditions of use in the coastal zone																																																																								
Detailed work plan	Task 1: Prepare situational analysis Task 2: Stakeholder consultation Task 3: Prepare final draft for gazetting and public comment Task 4: Prepare final strategy and gazette																																																																								
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The IPs will be developed and embedded in the business plan of the DEA: Oceans and Coasts over the next five years (2013 to 2017) to enable committed and effective execution of the listed actions over the next five years following the gazetting of the NCMP.



# References

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- Boyd AJ and Agenbag JJ 1984. Seasonal temperature and salinity trends off central Namibia between 1978 and 1983 with particular reference to the cool winter of 1982. *South African Journal of Marine Science* 80, 2:77-79.
- Branch GM, Griffiths CL, Branch ML & Beckley LE 1994. Two oceans. A guide to the marine life of southern Africa. Cape Town, South Africa: David Philip.
- Brown AC and Jarman N. 1978. Coastal habitats. In Wiener MJA (ed) *Biogeography and ecology of Southern Africa*, 1239-1277. The Hague: W. Junk.
- Burke J and Mayer X. 2007. Strategic guidance towards prioritising stormwater management research in human settlements: Draft final report. Water Research Commission Report K5/1670/3.
- Celliers L, Breetzke T, Moore L. and Malan D. 2009. A User-friendly Guide to South Africa's Integrated Coastal Management Act. The Department of Environmental Affairs and SSI Engineers and Environmental Consultants. Cape Town, South Africa.
- Cicin-Sain B and Knecht RW 1998. *Integrated coastal and ocean management concepts and practices*. Washington DC: Island Press.
- Christie P. 2005. Is integrated coastal management sustainable? *Ocean and Coastal Management* 48: 208-232.
- CSIR 2001. Guidelines for human settlement planning and design - The Red Book. CSIR Report BOU/E2001. Pretoria, South Africa
- DAFF (Department of Agriculture, Forestry and Fisheries) 2008. South African Molluscan Shellfish Monitoring and Control Programme.
- DAFF (Department of Agriculture, Forestry and Fisheries) 2010. Guidelines and potential areas for Marine Ranching and Stock Enhancement of Abalone (*Haliotis midae*) in South Africa of Marine Living Resource Act, 1998 (Act No. 18 of 1998). Government Gazette 20 August 2010 No 33470
- DAFF (Department of Agriculture, Forestry and Fisheries) 2011. Strategic environmental assessment: Identification of potential marine aquaculture development zones for fin fish cage culture. Draft October 2011. Produced by Anchor Environmental Consultants (Hutchings, K., Porter, S., Clark, B.M. and Sink, K).
- DAFF (Department of Agriculture, Forestry and Fisheries) 2012a. Guidelines for Marine Finfish Farming in South Africa.
- DAFF (Department of Agriculture, Forestry and Fisheries) 2012b. Guidelines for Aquaculture Better Management Practices in South Africa.
- DAFF (Department of Agriculture, Forestry and Fisheries) 2012c. Environmental Integrity Framework for Marine Aquaculture. A report for the Department of Agriculture, Forestry, and Fisheries originally produced by Enviro-Fish Africa (Pty.) Ltd. and revised by AquaEco. ISBN: 978-0-621-42098-2

DAFF (Department of Agriculture, Forestry and Fisheries) 2012d. South African Molluscan Shellfish Monitoring and Control Programme.

DAFF (Department of Agriculture, Forestry and Fisheries) 2012e. The Biodiversity Risk and Benefit Assessment. Produced by Anchor Environmental Consultants.

DEA (Department of Environmental Affairs) 2008. National Protected Area Expansion Strategy for South Africa. Priorities for expanding the protected area network for ecological sustainability and climate change adaptation (<https://www.environment.gov.za/documents/strategicdocuments>)

DEA (Department of Environmental Affairs) 2009a. Guidelines for the development of integrated waste management plans (<https://www.environment.gov.za/legislation/guidelines>)

DEA (Department of Environmental Affairs) 2009b. Human Capital Development Strategy Environmental Sector - A systems approach to skills development to support the Environmental Sector Strategic Plan 2009-2014 (<https://www.environment.gov.za/documents/strategicdocuments>).

DEA (Department of Environmental Affairs) 2010a. Environmental Sector Skills Plan for South Africa. A systems approach to human capacity development and sector skills planning. Pretoria, South Africa: DEA (<https://www.environment.gov.za/documents/strategicdocuments>).

DEA (Department of Environmental Affairs) 2010b. Standard operating procedures (SOP) Marine and coastal management (MCM) Chief Directorate: Integrated coastal management and development (ICM&D). National Department of Environmental Affairs (DEA- Head Office), Provincial Department of Environmental Affairs (Competent Authorities) Local Authorities and private consultants<sup>1</sup>

DEA (Department of Environmental Affairs) 2011a. National Strategy for Sustainable Development and Action Plan 2011-2014. (<https://www.environment.gov.za/documents/strategicdocuments>).

DEA (Department of Environmental Affairs) 2011b. National Waste Management Strategy (NWMS) Pretoria, South Africa: DEA (<https://www.environment.gov.za/documents/strategicdocuments>).

DEA (Department of Environmental Affairs) 2011c. Enforcement manual for the Integrated Coastal Management Act, 2008 (Act No. 24 of 2008). Document published by the DEA in March 2011.

DEA (Department of Environmental Affairs) 2011d. Draft TOR Submission to the WG on Oceans and Coasts Terms of reference for WG8.

DEA (Department of Environmental Affairs) 2012a. South African Water Quality Guidelines for coastal waters. Volume 2: Guidelines for recreational use.

DEA (Department of Environmental Affairs) 2012b. National Environmental Management of the Ocean. Draft Green Paper for comment. December 2012.

DEA (Department of Environmental Affairs) 2012c. Review and update of South Africa's national action list for the screening of dredge material proposed for marine disposal.

DEA (Department of Environmental Affairs) 2012d. National Climate Change Response White Paper. Pretoria.

DEA (Department of Environmental Affairs) 2012e. EIA and Environmental Management Guideline for Aquaculture in South Africa. Department of Environmental Affairs, Pretoria.

DEA (Department of Environmental Affairs) 2012h. Environment Sector Research, Development and Evidence framework. An approach to enhance sector science-policy interface and evidence-based policy making(<https://www.environment.gov.za/documents/strategicdocuments>).

DEA (Department of Environmental Affairs) 2013a. Documentation of stakeholder consultation process. Supporting document to the National environmental management Programme 2013.

DEA (Department of Environmental Affairs) 2013b. 2012 South African Environmental Outlook. Draft Report Pretoria, South Africa.

DEA (Department of Environmental Affairs). 2013c. National estuary management protocol.

DEA (Department of Environmental Affairs). 2013d. Development of a National Environmental Impact Assessment Management Strategy for South Africa. Pretoria (<http://eiams.environment.gov.za/home/>).

DEA (Department of Environmental Affairs, Department of Mineral Resources (DMR), Chamber of Mines, South African Mining and Biodiversity Forum and South African National Biodiversity Institute (SANBI) 2013. Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector. Pretoria (<https://www.environment.gov.za/legislation/guidelines>)

DEAT (Department of Environmental Affairs and Tourism) 1998. Coastal Policy Green Paper [online]. Pretoria: Department of Environmental Affairs. Available from [www.info.gov.za/](http://www.info.gov.za/).

DEAT (Department of Environmental Affairs and Tourism) 2000. White Paper for Sustainable Coastal Development in South Africa. Printed for the Government Printer by Formset Printers, Cape Town.

DEAT (Department of Environmental Affairs and Tourism) 2002. National core set of environmental indicators. Phase 3: Selection of indicators. Specialist Report 2: Marine, Coastal & Estuarine. Report prepared for Directorate: Environmental Information and Reporting, Pretoria.

DEAT (Department of Environmental Affairs and Tourism) 2004. Overview of Integrated Environmental Management. Pretoria. (<https://www.environment.gov.za/documents/strategicdocuments>).

DEAT (Department of Environmental Affairs and Tourism) 2005. South Africa's National Biodiversity Strategy and Action Plan (NBSAP) (<https://www.environment.gov.za/documents/strategicdocuments>)

DEAT (Department of Environmental Affairs and Tourism) 2006. South Africa environment outlook. Pretoria: Department of Environmental Affairs.

DEAT (Department of Environmental Affairs and Tourism) 2008. South Africa's national programme of action for protection of the marine environment from land-based activities. Cape Town: Department of Environmental Affairs.

DEAT (Department of Environmental Affairs and Tourism) 2012. GIS Handbook. Policies, standards and guidelines. Published by Directorate: Enterprise Geospatial Information Management (EGIM).

DFO (Department of Fisheries and Ocean) 2002. Policy and operational framework for integrated management of estuarine, coastal and marine environments in Canada. Ontario: Government of Canada, Fisheries and Oceans Canada, Oceans Directorate, Ottawa.

Driver, A, Sink, KJ, Nel, JL, Holness, S, Van Niekerk, L, Daniels, F, Jonas, Z, Majiedt, PA, Harris, L and Maze, K. 2012. National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems. Synthesis Report. South African National Biodiversity Institute and Department of Environmental Affairs, Pretoria.

DWAF (Department of Water Affairs & Forestry) 1995. South African water quality guidelines for coastal waters. Volume 1. Natural environment. Pretoria: Department of Water Affairs.

DWAF (Department of Water Affairs & Forestry) 1999. Managing the water quality effects of settlements (Edition 1). The national strategy (Policy document U 1.1), Guidelines for implementation (Operational guideline U 1.2), A guide to problem analysis (Operational guideline U 1.3), Information booklet to support community efforts to minimise water pollution from their settlements - Working towards a clean and healthy community ([www.dwaf.gov.za/Documents.asp](http://www.dwaf.gov.za/Documents.asp)).

DWAF (Department of Water Affairs & Forestry) 2004 Operational policy for the disposal of land-derived water containing waste to the marine environment of South Africa. Guide on implementation. Pretoria: Department of Water Affairs. Available at [www.dwa.gov.za/Dir\\_WQM/docsPolic.asp](http://www.dwa.gov.za/Dir_WQM/docsPolic.asp).

Ehler, C and Douvere, F. 2009. Marine spatial planning: a step-by-step approach toward ecosystem-based management. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides No 53, ICAM Dossier No 6. Paris, UNESCO. Available at: [www.unesco-ioc-marinesp.be/msp\\_guide](http://www.unesco-ioc-marinesp.be/msp_guide).

GESAMP (Group of Experts on the Scientific Aspects of Marine Environmental Protection) 1996. The contributions of science to integrated coastal management. GESAMP Reports and Studies No. 61. Rome, Italy: Food and Agriculture Organization of the United Nations.

Glavovic BC 2006. The evolution of coastal management in South Africa: Why blood is thicker than water. *Ocean and Coastal Management* 49: 889-904.

Glavovic BC and Cullinan C. 2009. The coast. In Strydom HA & King ND (eds) *Environmental Management in South Africa* (2nd ed), 868-920. Cape Town, South Africa: Juta Law.

Görgens M and Kusek JZ. 2009. Making monitoring and evaluation systems work. A capacity development toolkit. Washington: World Bank.

- Kusek JZ and Rist RC. 2004. A handbook for development practitioners. Ten steps to a results-based monitoring and evaluation. Washington DC: World Bank.
- Harrison T, Taljaard S and Van Niekerk L. 2001. Discussion Document to Stakeholders: Development of core set of indicators for State of the Environment reporting - Coastal and Marine Indicators. Unpublished CSIR document.
- Harrison T, Taljaard S and Van Niekerk L. 2002. DEAT National Environmental Indicator Programme. Phase 3: Selection of Indicators (Marine, Coastal and Estuarine).
- Heemstra P and Heemstra E 2004. Coastal fishes of southern Africa. Grahams Town: South African Institute for Aquatic Biology (SAIAB) and National Enquiry Service Centre (NISC).
- IUCN (The World Conservation Union) 2003. Guidelines for Management Planning of Protected Areas. World Commission on Protected Areas. Best Practice Protected Area Guidelines Series No. 10.
- Lombard AT, Strauss T, Harris J, Sink K., Attwood C and Hutching L. 2004. South African National Spatial Biodiversity Assessment 2004: Technical Report. Volume 4: Marine Component. South African National Biodiversity Institute, Pretoria, South Africa.
- Lutjeharms JRE 2006. The Agulhas Current. Berlin Heidelberg: Springer-Verlag.
- McLean B and Glazewski JI. 2009. Marine systems. Environmental management: An introduction. In Strydom HA & King ND (eds) Environmental management in South Africa (2nd ed), 455-512. Cape Town, South Africa: Juta Law.
- NOAA (National Oceanic and Atmospheric Administration) 2013. Large marine ecosystems of the world [online]. Charleston, USA: U.S. LME Program, NOAA. Available from [www.lme.noaa.gov/](http://www.lme.noaa.gov/) [Accessed on 5 August 2013].
- Nolting J. 2011. Proposed South African Management Framework for the implementation of the International convention for the control and management of ballast water and sediment. A dissertation submitted in partial fulfilment of the requirements for the degree of Masters in business Administration of Rhodes Investec Business School: Rhodes University. Available at: <http://eprints.ru.ac.za/3836/1/NOLTING-MBA-TR11-239.pdf>.
- NPC (National Planning Commission) 2012. National Development Plan 2030 Our Future-make it work. Available at: <http://www.npconline.co.za/MediaLib/Downloads/Downloads/Executive%20Summary-NDP%202030%20-%20Our%20future%20-%20make%20it%20work.pdf>
- Pegram G and Görgens AHM. 2001. A guide to non-point source assessment. Water Research Commission Report TT 142/01. Pretoria, South Africa.
- Pegram GC, Görgens AHM and Quibell G. 1999. Framework for Implementing Non-Point Source Management under the National Water Act - A Discussion Paper. Water Research Commission TT115/99. Pretoria, South Africa.

Roux DJ, Nel JL, MacKay HM and Ashton PJ. 2006. Discussion paper on cross-sectoral policy objectives for conserving South Africa's inland biodiversity. Water Research Commission Report No TT 276/06. Pretoria, South Africa.

Offshore Marine Protected Area Project proposing systematic planning to identify focus areas for offshore biodiversity protection in South Africa in alignment with the NPAES (SANBI, 2011) (summary presented in Appendix C) ([www.sanbi.org/information/documents](http://www.sanbi.org/information/documents))

SANBI (South African National biodiversity Institute) 2008a. Guidelines for Offshore Marine Protected Areas in South Africa([www.sanbi.org/information/documents](http://www.sanbi.org/information/documents)).

SANBI (South African National biodiversity Institute) 2008b. User profiles for the South African offshore environment (SANBI2008c) ([www.sanbi.org/information/documents](http://www.sanbi.org/information/documents)).

SANBI (South African National biodiversity Institute) 2011. Offshore Marine Protected Area Project proposing systematic planning to identify focus areas for offshore biodiversity protection in South Africa in alignment with the NPAES ([www.sanbi.org/information/documents](http://www.sanbi.org/information/documents)).

SA Navy. 2006. Maritime doctrine for the SA Navy. 1<sup>st</sup> Edition. Available at: <http://www.navy.mil.za/peoplesnavy/index.htm>.

Shannon LV. 1985. The Benguela ecosystem, I. Evolution of the Benguela, physical features and processes. *Oceanography and Marine Biology* 23: 105-182.

Sink KJ, Attwood CG, Lombard AT, Grantham H, Leslie R, Samaai T, Kerwath S, Majiedt P, Fairweather T, Hutchings L, van der Lingen C, Atkinson LJ, Wilkinson S, Holness S, Wolf T. 2011. Spatial planning to identify focus areas for offshore biodiversity protection in South Africa. Final Report for the Offshore Marine Protected Area Project. Cape Town: South African National Biodiversity Institute. Available at: <http://dev2.sanbi.org/information/documents>

Sink K, Holness S, Harris L, Majiedt P, Atkinson L, Robinson T, Kirkman S, Hutchings L, Leslie R, Lamberth S, Kerwath S, von der Heyden S, Lombard A, Attwood C, Branch G, Fairweather T, Taljaard S, Weerts S, Cowley P, Awad A, Halpern B, Grantham H, Wolf T. 2012. National Biodiversity Assessment 2011: Technical Report. Volume 4: Marine and Coastal Component. South African National Biodiversity Institute, Pretoria. Available at: <http://bgis.sanbi.org/nba/project.asp>

Stojanovic, T, Ballinger RC and Lalwani, CS. 2004. Successful integrated coastal management: Measuring it with research and contributing to wise practice. *Ocean and Coastal Management* 47:273–298.

Taljaard, S. 2011. An implementation model for integrated coastal management in South Africa – from legislation to practice. PhD Dissertation, Dept of Geography and Environmental Studies, University of Stellenbosch, South Africa.

Taljaard, S, Slinger, JH and Van Der Merwe, JH. 2011. Criteria for evaluating the design of implementation models for integrated coastal management. *Coastal Management* 39(6): 628-655.

Turpie, J.K., Wilson, G. & Van Niekerk, L. 2012. National Biodiversity Assessment 2011: National Estuary Biodiversity Plan for South Africa. Anchor Environmental Consultants, Cape Town. Report produced for

the Council for Scientific and Industrial Research and the South African National Biodiversity Institute. Available at: <http://bgis.sanbi.org/nba/project.asp>

United National Environmental Programme (UNEP) 2012. Seventh Draft. Protocol on integrated coastal zone management in the Western Indian Ocean. The Seventh Conference of the Parties to the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western (September 2012).

UNEP/GPA (United Nations Environmental Programme & Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities) 2006. Protecting coastal and marine environments from land-based activities. A guide for national action. The Hague, Netherlands: UNEP/GPA.

UNOPS (United Nations Office for Project Services). (2011). Draft Cost/benefit assessment of marine and coastal resources in the Western Indian Ocean: Mozambique and South Africa. Produced for the Agulhas and Somali Current Large Marine Ecosystems Project. Jane Turpie & Gwyn Wilson, Anchor Environmental Consultants, South Africa. June 2011.

Van Ballegooyen RC, Taljaard S, Van Niekerk L, Lamberth S, Theron AK and Weerts S. 2007. Determination of freshwater requirements of the marine environment of South Africa: A proposed framework and initial assessment. Water Research Commission Report KV 191/07. Pretoria, South Africa.

Van Niekerk L, Taljaard S and Muller E. 2002 Environmental Indicators. Phase 1: Selection of Indicators. Report presented to Coastal Management Office, DEAT.

Van Niekerk, L. & Turpie, J.K. (eds). 2012. National Biodiversity Assessment 2011: Technical Report. Volume 3: Estuary Component. CSIR Report Number CSIR/NRE/ECOS/ER/2011/0045/B. Council for Scientific and Industrial Research, Stellenbosch. Available at: <http://bgis.sanbi.org/nba/project.asp>



# Appendices

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## **Appendix A: Stakeholder participated in the development of the NCMP**

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**National Stakeholders:**

NATIONAL REPRESENTATIVE	ORGANISATION/AFFILIATION
Alan Boyd (Dr)	Department of Environmental Affairs (DEA)
Andile Mangcengega	SANBI
André Riley	SANParks
Andrea Bernatseder	Department of Agriculture Forestry and Fisheries (DAFF) (Marine Aquaculture)
Ané Oosthuisen (Dr)	SANParks
Athayanda Mbanjwa	Transnet NPA
Bridget Corrigan	Endangered Wildlife Trust
C. Ofori	Afri-Coast Eng
Chuma Mkonjwa	Transnet National Ports Authority (Transnet NPA)
Delricia A	DAFF
E. Motsoahole	Transnet NPA
E. Mwibana	DEA
Elijah Ramulifho	DEA
F.P. Angwenyl	DEA
Faizal Paulsen	Department of Public Works (DPW) (National)
Fatima Samodien	DAFF
Hlanganani Ngema	DPW (Asset Investment Management)
Kgomotso	DEA
Liwalam Madikiza	DEA
Mphakamisi Fifane	DAFF (Fisheries)
N. Madlokazi	DEA
N. Mpende	DEA
Nelisa Ndulama	Transnet NPA
Niel Malan (Dr)	DEA
Nokukhanya Gabela	Transnet NPA
Nomkhitha Kwinana	Transnet NPA
Nomtandazo Hoza	DAFF
Nyameka Makitshi	DPW: Asset Investment Management
Nziweni N.	DEA
Ossie Lamb	DPW (National)
Patrick Zake	ECP&TA
Paul Steyn	Nelson Mandela Metropolitan University (NMMU)
Peter Myles	Tournet Africa
Razeena Omar	DEA
Rodney Taai	DPW (Asset Investment Management)
Saroor Ali	South African Maritime Safety Authority (SAMSA)
T Mosiane	DRDLR
Tommy Bornman (Dr)	SAEON (Lwandle Node)
Vicky Stevens	Worley Parsons
Vusumzi Sihawu	Transnet NPA
Xola Mkefe	DEA
Z. Mapekula	DEA

**Provincial Stakeholders:**

EASTERN CAPE REPRESENTATIVE	ORGANISATION/AFFILIATION
A.M Jara	Eastern Cape: Department of Economic Affairs, Environment and Tourism (DEAET)
Alan Carter	Coastal and Environmental Services (CES)
Albert Mfenyana	DEAET
Bev Geach	Eastern Cape Parks and Tourism
Bonginkosi Salelo	DEAET

<b>EASTERN CAPE REPRESENTATIVE</b>	<b>ORGANISATION/AFFILIATION</b>
Briant Noncembu	DEAET
Clement Ofori	Afri-coast engineers
Dolly Ganashe	ECPTA
G Murrell	Nelson Mandela Bay Metro
Gerry Pienaar	DEAET
Gert Barnardt	Amathole MPA
Greg Brett	Eastern Cape Museum
Ken Pressly	Nelson Mandela Bay Metro
Kibi Makhaya	Mnquma Local Municipality
Kojo Gyan	Dept. of Local Government and Trade Affairs
Lelethu Sawuti	DEAET
Leonard Dyani	Dept. of Local Government and Trade Affairs
Loyiso Nondlebe	DEAET
Neliswa Piliso	DEAET
Nomkhitha Kwinana	Transnet National Ports Authority
Nosinondi Ntola	DEAET
Patric Zakhe	DEAET
Peter Myles	International Coastal & Marine Tourism
Phumla Mzazi-Geja	DEAET
Qaphela Mpotulo	DEAET
Reo Schutte	Buffalo City Metro
Ricky Hannan	DEAET
Sandiso Zide	DEAET
Stanford Spotsi	DEAET
T Tyali	DEAET
Ted Avis	Coastal and Environmental Services (CES)
Tony Williams	Department of Local Government and Trade Affairs
Tshililo Vele	Department of Local Government and Trade Affairs
Vuyisile Alven	DAFF (Fisheries)
Xolani Nikelo	DEAET
Zelda Matwele	DEAET
Zonwabele Plata	Great Kei Municipality

<b>KWAZULU-NATAL REPRESENTATIVE</b>	<b>ORGANISATION/AFFILIATION</b>
Adrienne Edgson	AFE & Associates/Ugu Coastal Working Group
Alfred Matsheke	Dept. Agriculture and Environmental Affairs (DAEA) - apologies
Bonga Sithole	Transnet-NPA
Bronwyn Goble	Oceanographic Research Institute (ORI)
Cedric Coetzee	Ezemvelo KZN Wildlife
Di Jones	Coastwatch
Godfrey Vella	eThekweni Metro Municipality
Hennie Smit	uThugulu District Municipality
Hlamalani Phephenyane	TNPA Richards Bay
Iain Bickerton	Independent Consultant
July Bell	Coastwatch
Kabelo Motumi	Department of Economic Development and Tourism (KZN)
Karen Kohler	TKZN
Lisa Guastella	BCRE/UCT Oceanography
Neal Naidoo	Transnet – Port of Durban
Nelson Mbtha	Transnet-NPA
Nicolette Forbes	MER – apologies
Omar Parak	DAEA
Phumzile Mhlangu	Umzumbe Municipality

KWAZULU-NATAL REPRESENTATIVE	ORGANISATION/AFFILIATION
Pippa la Cock	Environmental Solutions/ Ugu Coastal Working Group
Randee Kasserchun	eThekweni Metro Municipality
Rod Bulman	Phelamanga Projects
Santosh Bachoo	Ezemvelo KZN Wildlife
Siyanda Mkhize	Dept. of Economic Development and Tourism (KZN)
Sizwe Khuzwayo	Mandeni Local Municipality
Tandi Breetzke	Roal Haskoning DHV
Thanda Madlala	Dept. of Economic Development and Tourism (KZN)
Theresia Ott	Richards Bay Minerals
Vuyo Keswa	TNPA RCB
Wade Holland	Coastwatch Umdloti Conservancy
Wendy Forse	Coastwatch Umdloti Conservancy

NORTHERN CAPE REPRESENTATIVE	ORGANISATION/AFFILIATION
Abraham de Wet	Richtersveld Municipality
Adeleen Cloete	Northern Cape: Northern Cape Department of Environment and Nature Conservation (DENC)
Anze Yephi	DENC
Bernard van Lente	SANParks
Bronwen Cornelius	DENC
Corrie van Zyl	Northern Cape: Department of Co-Operative Governance, Human Settlement and Traditional Affairs (COGHSTA)
Eddie Julius	Northern Cape: Department of Economic Development and Tourism (DEDaT)
Elsabé Stewers	Kamiesberg Municipality
Hendrik Louw	Northern Cape: Department of Economic Development and Tourism
Klaas van Zyl	DENC
Lesley van Gensen	DEDat
Sakkie Jenner	Kamiesberg Municipality
Schalk Grobbelaar	COGHSTA
Thandeka Mlatha	DENC
Valda Cloete	DEA
Wilna Oppel	DENC

WESTERN CAPE REPRESENTATIVE	ORGANISATION/AFFILIATION
Caren George	Western Cape: Department of Environmental Affairs and Development Planning (DEADP)
Christelle du Plessis	PDNA Consulting
Clement Arendse	DEADP
Darryl Colenbrander	City of Cape Town
Gregg Oelofse	DEADP - apologies
Ieptieshaam Bekko	DEADP
Kishan Sankar	DEADP
Kobie Brand	DEADP
Makwarela Matshili	DEADP
Pierre de Villiers	CapeNature
Sinethemba Shelembe	DEADP
Vernon Gibbs	Eden District Municipality - apologies
Washiela Anthony	DEADP
Wilna Kloppers	Department of Water Affairs (Western Cape regional office)

## **Appendix B: Summary of Key International Obligations and Agreements applicable to the Coastal Zone of South Africa**

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INTERNATIONAL OBLIGATION	SHORT DESCRIPTION
<p>International Convention for the Regulation of Whaling (1946)</p>	<p>The convention was established in order to provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry. It was one of the first international fisheries conventions ever to be established and many more followed in its wake to cater for the conservation and rational use of marine living resources. South Africa ratified the convention in 1946.</p>
<p>International Convention for the Conservation of Atlantic Tunas (ICCAT) (1966)</p>	<p>This convention is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean. Through the Convention, it is established that ICCAT is the only fisheries organisation that can undertake the range of work required for the study and management of tunas and other large pelagics in the Atlantic Ocean. South Africa was a founder member and ratified the Convention on 7 October 1967.</p>
<p>Civil Liability Convention (1969) as replaced by its 1992 Protocol and amended in 2000 Civil Liability Convention (1969) as replaced by its 1992 Protocol and amended in 2000 Civil Liability Convention (1969) as replaced by its 1992 Protocol and amended in 2000</p>	<p>This Convention (<a href="http://www.imo.org">www.imo.org</a>) was adopted to ensure that adequate compensation is available to persons who suffer oil pollution damage resulting from maritime casualties involving oil-carrying ships. The Convention places the liability for such damage on the owner of the ship from which the polluting oil escaped or was discharged. The Marine Pollution (Control and Civil Liability) Act (No. 6 of 1981) gives legal effect to this Convention in South Africa.</p>
<p>Convention on Wetlands of International Importance especially as Waterfowl Habitat (1971) (Ramsar Convention) Convention on Wetlands of International Importance especially as Waterfowl Habitat (1971) (Ramsar Convention) Convention on Wetlands of International Importance especially as Waterfowl Habitat (1971) (Ramsar Convention)</p>	<p>The broad aims of this Convention (<a href="http://www.ramsar.org">www.ramsar.org</a>) are to stem the loss and to promote wise use of all wetlands. The Convention includes estuaries in its definition of wetlands. The Convention defines wetlands as ‘areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres’ (which includes estuaries).</p> <p>South Africa presently has 17 sites designated as Ramsar sites with a total surface area of 498 721 ha, including estuaries such as the Orange, Verlorenvlei, Sout (De Hoop Vlei), Heuningnes (De Mond), St Lucia and Kosi Bay. A Wetland Conservation Bill has been proposed which will further assist South Africa in meeting the aims of the Convention.</p>
<p>Convention Concerning the Protection of the World Cultural and Natural Heritage (1972) (World Heritage Convention) Convention Concerning the Protection of the World Cultural and Natural Heritage (1972) (World Heritage Convention) Convention Concerning the Protection of the World Cultural and Natural Heritage (1972) (World Heritage Convention)</p>	<p>The Convention (<a href="http://whc.unesco.org/en/convention/">http://whc.unesco.org/en/convention/</a>) states that each state party to that Convention recognises the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage situated in its territory (which may include estuaries).</p> <p>South Africa acceded to the Convention in 1997, given legal status through the World Heritage Conservation Act (Act 49 of 1999). The Greater St. Lucia Wetland Park (1999) (renamed to the iSimangiliso Wetland Park) and the Cape Floristic Region (2004) for example, were given international recognition as World Heritage Sites.</p>
<p>International Convention for the Prevention of Pollution from Ships (MARPOL) (1973/1978) International Convention for the Prevention of Pollution from Ships (MARPOL) (1973/1978) International Convention for the Prevention of Pollution from Ships (MARPOL) (1973/1978)</p>	<p>The MARPOL Convention (<a href="http://www.imo.org/">www.imo.org/</a>) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. It is a combination of two treaties adopted in 1973 and 1978 respectively and updated by amendments through the years. The Convention includes regulations aimed at preventing and minimising pollution from ships and currently includes six technical Annexes:</p> <p>Annex I Regulations for the Prevention of Pollution by Oil Annex II Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk Annex III Prevention of Pollution by Harmful Substances Carried by Sea in</p>

INTERNATIONAL OBLIGATION	SHORT DESCRIPTION
	<p>Packaged Form Annex IV Prevention of Pollution by Sewage from Ships Annex V Prevention of Pollution by Garbage from Ships Annex VI Prevention of Air Pollution from Ships (entry into force in May 2005)</p> <p>States Parties must accept Annexes I and II, but the other Annexes are voluntary.</p> <p>In October 2006 amendments to MARPOL designating the waters off Southern South Africa as a Special Area under the Convention. The designation will provide measures to protect wildlife and the marine environment in an ecologically important region used intensively by shipping.</p> <p>The International Convention for Prevention of Pollution from Ships Act (No. 2 of 1986) gives legal effect to MARPOL in South Africa, as well as Annex I and Annex II. The Marine Pollution (Intervention) Act (No. 64 of 1987) – as last amended by the South Africa Maritime Safety Authority Act (No. 5 of 1998) – also incorporates this convention into South African law.</p>
<p>Convention of Migratory Species of Wild Animals (1979) (Bonn Convention) Convention of Migratory Species of Wild Animals (1979) (Bonn Convention) Convention of Migratory Species of Wild Animals (1979) (Bonn Convention)</p>	<p>The Convention (<a href="http://www.cms.int/">www.cms.int/</a>) was a response to the need for nations to co-operate in the conservation of animals that migrate across their borders. These include terrestrial mammals, reptiles, marine species and birds. Special attention is paid to endangered species. South Africa is a major partner in this Convention as it is the terminus for many of the migratory species, both the Palaeartic (birds) and the Antarctic species (whales and birds). South Africa acceded to the Convention in December 1991.</p>
<p>Abidjan Convention (1981) and Nairobi Convention (1985)Abidjan Convention (1981) Nairobi Convention (1985)Abidjan Convention (1981) and Nairobi Convention (1985)</p>	<p>In 1974, the United Nations Environment Programme (UNEP) initiated the Regional Seas Programme (<a href="http://www.unep.org/regionalseas/">www.unep.org/regionalseas/</a>) with a view to improving the control of marine pollution and management of marine and coastal resources (including estuaries). The Programme covers eleven regions. For each region an action plan was developed which included a Regional Convention and technical protocols signifying the commitment of participating countries to address, individually and jointly, their common problems. The regions including South Africa are the West and Central African region (Abidjan Convention, came into force in South Africa in 1984) and the Eastern African or West Indian Ocean (WIO) region (Nairobi Convention, came into force in South Africa in 1996).</p>
<p>United Nations Convention on the Law of the Sea (UNCLOS) (1982)</p>	<p>UNCLOS (<a href="http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm">www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm</a>) is an attempt by the international community to regulate all aspects of the resources of the sea and its uses. Among the most important features of the treaty are included navigational rights, territorial sea limits, economic jurisdiction, legal status of resources on the seabed beyond the limits of national jurisdiction, passage of ships through narrow straits, conservation and management of living marine resources, protection of the marine environment, a marine research regime and, a more unique feature, a binding procedure for settlement of disputes between States.</p>
<p>Southern African Developing Countries (SADC) Protocol on Fisheries (1992)</p>	<p>The objective of the Protocol (<a href="http://www.sadc.int/fanr/naturalresources/fisheries/index.php">www.sadc.int/fanr/naturalresources/fisheries/index.php</a>) is to promote responsible and sustainable use of the living aquatic resources and ecosystems of interest to State Parties in order to promote and enhance food security and human health, safeguard the livelihood of fishing</p>



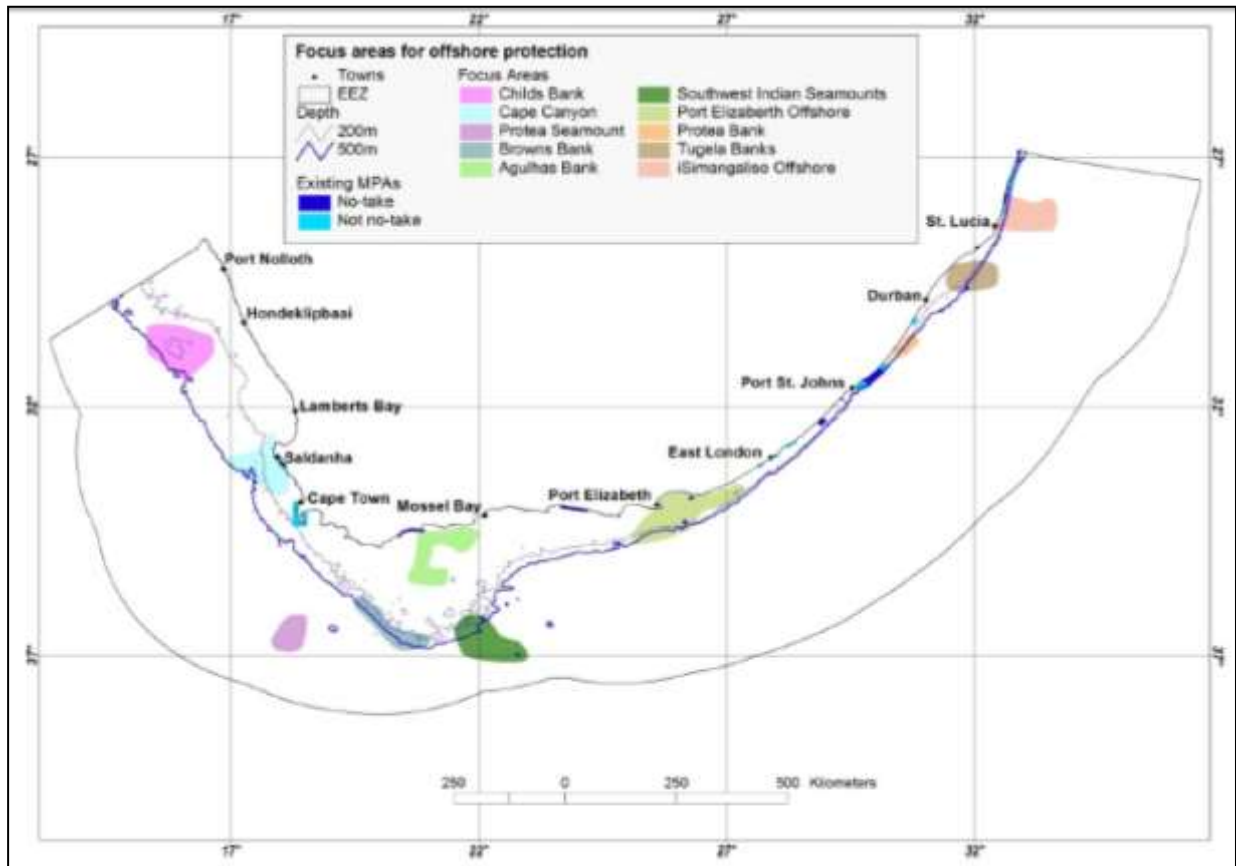
INTERNATIONAL OBLIGATION	SHORT DESCRIPTION
	<p>communities, to generate economic opportunities for nationals in the region, to ensure that future generations benefit from these renewable resources and to alleviate poverty with the ultimate objective of its eradication</p>
<p>Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1992) (Basel Convention)</p>	<p>The main objectives of the convention (<a href="http://www.basel.int/">www.basel.int/</a>) are the reduction of the production of hazardous waste and the restriction of transboundary movement and disposal of such waste. It also aims to ensure that any transboundary movement and disposal of hazardous waste, when allowed, is strictly controlled and takes place in an environmentally sound and responsible way. South Africa ratified the convention in May 1994.</p>
<p>Agenda 21 (1992) as reaffirmed at the subsequent United Nations World Summits (e.g. RIO +20) in 2012 Agenda 21 (1992) as reaffirmed at the subsequent United Nations World Summits (e.g. RIO +20) in 2012 Agenda 21 (1992) as reaffirmed at the subsequent United Nations World Summits (e.g. RIO +20) in 2012</p>	<p>Agenda 21 (<a href="http://www.unep.org/Documents.Multilingual/Default.asp?documentid=52">www.unep.org/Documents.Multilingual/Default.asp?documentid=52</a>) is an internationally accepted strategy for sustainable development, decided upon at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992. Agenda 21 is, however, not legally binding on states, and merely acts as a guideline for implementation. Agenda 21 requires, for example, the preparation of a State of the Environment Report prepared on national, provincial and local level (responsibility of the National Department of Environmental Affairs and Tourism, Provincial Departments of Environmental Affairs and Local Authorities, respectively).</p>
<p>United Nations Framework Convention on Climate Change (1992) United Nations Framework Convention on Climate Change (1992) United Nations Framework Convention on Climate Change (1992)</p>	<p>The United Nations Framework Convention on Climate Change (<a href="http://unfccc.int/2860.php">http://unfccc.int/2860.php</a>) sets an "ultimate objective" of stabilising greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Countries ratifying the Convention agree to take climate change into account in such matters as agriculture, energy, natural resources, and activities involving sea coasts. They agree to develop national programmes to slow climate change. The Convention encourages parties to cooperate to reduce greenhouse gas emissions, share technology and carry out scientific research.</p> <p>South Africa ratified the Convention in 1997. The Department of Environmental Affairs and Tourism published a Climate Change Policy Discussion Document in 1998 to begin the process of formulating policies to respond to climate change both locally and internationally.</p>
<p>United Nations Convention on Biological Diversity (1993) United Nations Convention on Biological Diversity (1993) United Nations Convention on Biological Diversity (1993)</p>	<p>The Convention on Biological Diversity (<a href="http://www.biodiv.org/convention/default.shtml">www.biodiv.org/convention/default.shtml</a>) has three objectives: the conservation of biological diversity; the sustainable use of biological resources; and the fair and equitable sharing of benefits arising from the use of genetic resources.</p> <p>As a party to the Convention, South Africa is required to develop national strategies, plans or programmes, or adapt existing ones, to address the provisions of the Convention, and to integrate the conservation and sustainable use of biodiversity into sectoral and cross-sectoral plans, programmes and policies. South Africa's response to this requirement is contained in the White Paper on the Conservation and sustainable use of South Africa's biological diversity (July 1998), given legal status through the National Environmental Management: Biodiversity Act (No. 10 of 2004).</p>
<p>Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) (1995) Global Programme of Action for</p>	<p>The GPA (<a href="http://www.gpa.unep.org/">www.gpa.unep.org/</a>) builds on the principles of Agenda 21 and was adopted in November 1995. The programme is designed to assist states in taking action, individually or jointly, within their respective policies, priorities and resources, that will lead to the prevention,</p>

INTERNATIONAL OBLIGATION	SHORT DESCRIPTION
the Protection of the Marine Environment from Land-based Activities (GPA) (1995) Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) (1995)	reduction, control or elimination of the degradation of the marine environment, as well as to its recovery, from the impacts of land-based activities (including pollution and developments/activities leading to the destruction of marine habitat). The GPA identifies the Regional Seas Programme of UNEP as an appropriate framework for delivery of this programme at regional level. South Africa upholds the principles of GPA.
Code of Conduct for Responsible Fisheries (1995)	The Code ( <a href="http://www.fao.org/fishery/ccrf/en">www.fao.org/fishery/ccrf/en</a> ) takes cognisance of the state of world fisheries and aquaculture, and proposes actions towards implementing fundamental changes within the fisheries sector to encourage the rational and sustainable utilisation of fisheries and aquaculture. The Code is a voluntary instrument rather than a legally binding international agreement and was approved by South Africa's government in January 2002.
Convention on the Conservation and Management of Fishery Resources in the South East Atlantic Ocean (2001)	The main objective of this convention ( <a href="http://www.fao.org/fishery/rfb/seafo">www.fao.org/fishery/rfb/seafo</a> ) is to ensure the long-term conservation and sustainable use of fish stocks other than highly migratory stocks found in areas of the South East Atlantic beyond the limits of national jurisdiction. South Africa signed the convention in April 2001 which came into force in April 2003.
International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004) International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004) International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004)	The Convention ( <a href="http://www.imo.org/">www.imo.org/</a> ) was adopted by consensus at a Diplomatic Conference held at the International Maritime Organisation (London) in February 2004. Invasive aquatic species are one of the four greatest threats to the world's oceans, and can cause extremely severe environmental, economic and public health impacts. The GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast) ( <a href="http://globallast.imo.org/index.asp">http://globallast.imo.org/index.asp</a> ) is assisting developing countries to reduce the transfer of harmful aquatic organisms and pathogens in ships' ballast water; Implement ballast water guidelines of the IMO; Prepare for the Convention on ballast water.
'Minamata' Convention Agreed by Nations Global Mercury Agreement to Lift Health Threats from Lives of Millions World-Wide (2013)	In January 2013 the negotiations on a future global legally binding instrument on mercury concluded where 147 governments agreed on draft text for this convention. The draft Minamata Convention on Mercury is scheduled to be adopted and opened for signature at a Conference of Plenipotentiaries in Japan during October 2013.

## **Appendix C: Proposed Focus Areas for Offshore Biodiversity Protection**

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Proposed focus areas for biodiversity protection were provided in the Offshore Marine Protected Area Project (Sink et al., 2011) and are summarised in this Appendix. For details please refer to the original report or updates thereof.



Focal Area Name	Objectives	Key stakeholders	Potential spatial management measures & other considerations
Childs Bank	<ul style="list-style-type: none"> <li>Offshore habitat representation</li> <li>Benthic protection (submarine bank, shelf, shelf edge and cold water corals)</li> <li>Bycatch management (offshore trawl)</li> <li>Fisheries management (demersal trawl)</li> </ul>	Offshore trawl fishery Demersal longline fishery Petroleum Mining	Experimental closure for benthic fisheries along the shelf (linked to the SADSTIA proposed trawl closure committed as part of eco-certification conditions) is recommended. Full seabed protection is advised for the Child's Bank submarine feature and it is suggested that this is effected prior to implementation of the closure so as not to shift effort onto this potential vulnerable marine ecosystem. iBhubesi reef is also recommended as a seabed protection zone and further engagement with the petroleum sector is needed in this regard. The broader focus area is important for large pelagic fishing, seabed protection and support for the management of demersal resources. It may not be necessary to exclude pelagic fisheries from this area.
Cape Canyon	<ul style="list-style-type: none"> <li>Offshore habitat representation</li> <li>Pelagic habitats and processes</li> <li>Benthic protection (canyon)</li> <li>Threatened species</li> <li>Fisheries sustainability</li> </ul>	Offshore trawl fishery Demersal longline fishery Small pelagic Petroleum Mining	A zoned MPA including no-take areas, seabed protection zones and zones to minimise user conflict could help achieve multiple objectives in this area. The existing MPAs (Langebaan, Sixteen Mile Beach, Marcus Island, Malgas Island and, Jutten Island) in the area should be considered for consolidation, extension or re-zoning to resolve existing resource conflicts, protect threatened species in core areas and minimise stakeholder impacts. This area is important for small pelagic fisheries who are interested in negotiation to achieve increased protection of core seabird habitat in return for access to part of the Sixteen mile beach MPA.
Protea Seamount	<ul style="list-style-type: none"> <li>Offshore habitat representation</li> <li>Benthic protection (seamount)</li> </ul>	Large pelagic Mining	Two seamounts in this area should be included within a zoned MPA that includes a no-take area and a benthic protection zone. Fishing could be excluded from the seamount where lowest effort has been exerted. A portion of the Ferro-manganese nodule habitat must be included in the MPA.
Browns Bank	<ul style="list-style-type: none"> <li>Offshore habitat representation</li> <li>Benthic protection</li> <li>Fisheries sustainability (demersal trawl &amp; longlining)</li> <li>Bycatch management (offshore trawl)</li> </ul>	Offshore trawl fishery Demersal longline fishery Demersal shark South coast rock lobster	Sector specific Fishery management Areas, seabed protection zones or MPAs can be considered in this area. The Browns Bank area is an important spawning area for hake and data suggests that large hake frequent this area. As such a small closed area, including the more vulnerable hard ground habitat, could support the sustainability of the hake fisheries. There are hard grounds in this focus area which should receive formal protection (effected in legislation) from fishing and mining. Activities that affect the seabed should be prevented from extending into deeper water along this shelf edge area.
Agulhas Bank	<ul style="list-style-type: none"> <li>Offshore habitat representation</li> <li>Benthic protection (deep reefs)</li> <li>Bycatch management (inshore trawl)</li> <li>Fisheries sustainability (linefish, hake)</li> <li>Threatened species (linefish)</li> </ul>	Inshore trawl Linefish Demersal shark South coast rock lobster Petroleum	A zoned MPA is recommended in this area to represent poorly protected habitats (especially mud and gravel habitats), protect vulnerable marine ecosystems (deep reefs, hard grounds) and support fisheries sustainability. This could include or supplement independent spatial management aimed at supporting bycatch management for the inshore trawl sector. A network of linked (but not necessarily contiguous) spatial management measures across the bank may be most appropriate in this focus area. Key features for inclusion include the Alghard Banks, the 45 Mile Bank, unrepresented gravel and mud habitats and different fish communities that are caught by the inshore trawl sector.
Southwest Indian Seamounts	<ul style="list-style-type: none"> <li>Offshore habitat representation</li> <li>Benthic protection (seamount, shelf edge)</li> <li>Fisheries sustainability (small pelagic species)</li> <li>Bycatch reduction (large</li> </ul>	Offshore trawl Large pelagic	A fully protected or zoned MPA is suggested to achieve the multiple objectives for this area. Very rough ground and strong currents already offer some protection to this area which has lower cost than many other shelf edge areas. Unprotected habitats of very limited spatial extent should be considered for inclusion (e.g. shelf edge gravels). Two separate management areas or a large single zoned area could be considered.

Focal Area Name	Objectives	Key stakeholders	Potential spatial management measures & other considerations
Offshore Port Elizabeth	<ul style="list-style-type: none"> <li>pelagic)</li> <li>Offshore benthic habitat representation</li> <li>Benthic protection (cold water corals, canyon, shelf edge, deep reefs)</li> <li>Fisheries sustainability (kingklip, hake, linefish, squid)</li> <li>Bycatch management (inshore and offshore trawl)</li> <li>Threatened species (seabirds)</li> </ul>	Inshore trawl fishery Offshore trawl fishery Midwater trawl fishery Linefishery Demersal longline fishery Demersal shark fishery Large pelagic fishery South coast rock lobster fishery Petroleum	Seabed Protection zones, Fishery Management Areas and expansion of existing or proposed Marine Protected Areas should all be considered in this complex area. There are offshore features in this area that have few alternative options for conservation which is why this area is still selected despite relatively high cost values in this area. Existing planning for the proposed Addo MPA and the existing seasonal kingklip closure should also be considered in the development of offshore spatial management measures in this area and a suite of smaller appropriately zoned areas across this focus area could be appropriate.
Protea Bank	<ul style="list-style-type: none"> <li>Offshore benthic habitat representation</li> <li>Pelagic habitats and processes representation</li> <li>Benthic protection (cold water corals, canyon, shelf edge, deep reefs)</li> <li>Fisheries sustainability (linefish)</li> <li>Threatened species (linefish)</li> </ul>	Linefishery Recreational fishers Scuba divers Large pelagic fishery (if offshore of 20 nm)	A zoned Marine Protected Area should be considered in this area which also has potential to provide for non-consumptive resource use. This focus area was also identified by fine-scale planning conducted in KwaZulu-Natal through the SeaPlan project. The presence of 4 submarine canyons, deep reefs and 7 cold water coral records highlight the need for effective seabed protection in this area although there is evidence that this area is important for pelagic processes (high frequency of fronts) and sharks. This area could contribute to reef types that are currently underprotected in the bioregion and could help recovery of overexploited linefish. Conflict between divers and fishers needs to be addressed but there is currently some voluntary effort to stop fishing in some areas.
Tugela Banks	<ul style="list-style-type: none"> <li>Offshore habitat representation</li> <li>Benthic protection (cold water corals, canyon, shelf edge, deep reefs)</li> <li>Bycatch management (crustacean trawl)</li> <li>Threatened species (turtles, linefish)</li> </ul>	Crustacean trawl fishery Linefishery Large pelagic Petroleum (new leases) Mining	A zoned Marine Protected Area and industry-specific fisheries or bycatch management areas should be considered for implementation in this area. Unprotected pelagic and seabed habitats (such as Natal shelf muds and gravels and submarine canyons) warrant protection in this area which has complex sedimentary patterns and complex oceanography. This area is highly productive and serves a nursery area for many species. This focus area was also identified by fine-scale planning conducted in KwaZulu-Natal through the SeaPlan project led by Ezemvelo KZN Wildlife.
iSimangaliso Offshore	<ul style="list-style-type: none"> <li>Offshore benthic habitat representation</li> <li>Pelagic habitats and processes representation</li> <li>Benthic protection (canyons, corals)</li> <li>Bycatch management (crustacean trawl)</li> <li>Fisheries sustainability (linefish)</li> <li>Threatened species (turtles, linefish)</li> </ul>	Crustacean trawl fishery Linefishery Large pelagic fishery (if extends beyond 20 nm) Recreational fishers	Southern and offshore expansion of the existing Marine Protected Area and World Heritage Site with appropriate zonation is recommended in this area. Large pelagic fishing is not permitted within 20 nm of the coastline and costs are low within this zone of the focus area. This focus area was also identified by fine-scale planning conducted in KwaZulu-Natal (SeaPlan project). This area is important for threatened species, particularly turtles and linefish. Entire canyons and cold water coral records offshore of the current MPA must be included.

## **Appendix D: Proposed Biodiversity Targets for Estuaries as per National Estuary Biodiversity Plan (NBA 2011)**

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Proposed biodiversity targets and priorities for South Africa's estuaries have been included in the NBA 2011 National Estuaries Biodiversity Plan (Turpie et al., 2012) and are summarised in this Appendix. For details please refer to the original report or updates thereof.

These target and priorities are based on stakeholder discussions on an initial proposed set of goals and targets. Note that these pertain to estuary ecosystem type, habitats, fish and birds only, and that other elements, such as invertebrates are not directly targeted. The latter omission is due to lack of data, and the assumption was that the inclusion of habitats, fish and birds will be sufficient to cover the needs of other taxonomic groups, although this should be checked in future as further information becomes available.

### Overall area target

In line with national policy objectives for conserving inland water ecosystems (Roux et al., 2006), a biodiversity target of 20% of estuarine area was used in this plan. For estuaries selected for partial protection, half the area was assumed to be protected, irrespective of whether the partial-protection strategy for that estuary would be area-based. This applied to biodiversity targets for habitat types as well.

### Habitat targets

Biodiversity targets were not set for mangroves or swamp forest per se, but instead all estuaries that contained >5ha of these habitats were automatically included into the set of priority estuaries. Targets for all other habitat types (apart from rocks) were set at 20% (see Table below) (Turpie et al., 2012). No target was set for rocks due to the lack of estuarine dependence of the associated fauna and/or flora.

#### Targets for estuarine habitat types and for the total estuarine area

ESTUARINE HABITAT TYPE	TOTAL AREA (ha) WITHIN THE PLANNING DOMAIN	TARGET (% of area)
Supratidal salt marsh	7051	20%
Intertidal salt marsh	4310	20%
Reeds and sedges	11 806	20%
Swamp forest	4843	All occurrences of > 5ha
Mangroves	2111	All occurrences of > 5ha
Sand/mud banks	4017	20%
Submerged macrophytes	1327	20%
Open water area	55 284	20%
Rocks	96	No target
<b>Total estuarine area</b>	<b>90 844</b>	<b>20%</b>

### Species targets

Fish and bird population targets were calculated as a proportion of the total abundance for each species. The following population targets were applied to the estuary-dependent fish and bird species, agreed in workshop discussions:

- 50% of the population of threatened species (based on Red Lists) and overexploited/collapsed species;
- 40% of the population of exploited species; and

- 30% of the population of all other species.

Based on the list of priority estuaries generated in this analysis, plus preliminary estimates of their present ecological status (health; this analysis) and their importance rating (Turpie et al., 2012). The table below lists the national and regional priority estuaries provides recommendations regarding the extent of protection required for each, the recommended extent of the estuary perimeter that should be free from development, and a provisional estimate of the Recommended Ecological Category, or recommended future health class determining the limitations on future water use, as required under the NWA.

**National and/or sub-national (CAPE) priorities, the extent of protection required (full = full no-take protection, partial includes no-take sanctuary zone where feasible), the recommended proportion of the estuary margin that should remain undeveloped and provisional estimate of the Recommended Ecological Category (Source: Turpie et al. 2012)**

ESTUARY (WEST TO EAST)	CURRENT HEALTH CATEGORY	PRIORITY SET FOR NATIONAL AND/OR CAPE	RECOMMENDED EXTENT OF PROTECTION	RECOMMENDED EXTENT OF UNDEVELOPED MARGIN	PROVISIONAL ESTIMATE OF RECOMMENDED ECOLOGICAL CATEGORY
Orange	D	SA/CAPE	Full	50%	C*
Buffels	C				C
Spoeg	B	SA	Full	100%	A or BAS
Groen	B	SA	Full	100%	A or BAS
Sout	D				D
Olifants	C	SA/CAPE	Partial	50%	B*
Jakkalsvlei	D				D
Wadrift	E				D
Verlorenvlei	D	SA	Partial	50%	C
Berg	D	SA/CAPE	Partial	25%	C*
Rietvlei/ Diep	E	SA/CAPE	Partial	50%	C
Sout W	F				D
Hout Bay	E				D
Wildevoëlvlei	D				B
Bokramspruit	C				C
Schuster	A				A
Krom	A	SA/CAPE	Full	100%	A or BAS
Buffels Wes	F				D
Elsies	E				D
Silvermine	D				D
Sand	D	SA/CAPE	Partial	20%	C
Zeekoei	E				D
Eerste	E	SA/CAPE	Full	75%	D
Lourens	C	SA/CAPE	Full	75%	D
Sir Lowry's Pass	E				D
Steenbras	B				B
Rooiels	B				B
Buffels (Oos)	B				B
Palmiet	C	SA/CAPE	Full	50%	B*
Bot / Kleinmond	C	SA/CAPE	Partial	50%	B
Onrus	E				D
Klein	C	SA/CAPE	Partial	50%	B
Uilkraals	D	SA	Partial	75%	C
Ratel	C	SA	Full	75%	C
Heuningnes	D	SA/CAPE	Partial	75%	A or BAS
Klipdrifsfontein	A	SA/CAPE	Full	75%	A
Breede	B	SA	Partial	50%	B*



ESTUARY (WEST TO EAST)	CURRENT HEALTH CATEGORY	PRIORITY SET FOR NATIONAL AND/OR CAPE	RECOMMENDED EXTENT OF PROTECTION	RECOMMENDED EXTENT OF UNDEVELOPED MARGIN	PROVISIONAL ESTIMATE OF RECOMMENDED ECOLOGICAL CATEGORY
Duiwenhoks	B				A
Goukou	C	SA/CAPE	Partial	50%	B
Gourits	C	SA/CAPE	Partial	50%	B
Blinde	B				B
Hartenbos	D				C
Klein Brak	C				C
Groot Brak	E				C*
Maalgate	B				B*
Gwaing	B				C*
Kaaimans	B	SA	Full	50%	B*
Wilderness	B	SA/CAPE	Partial	50%	A or BAS
Swartvlei	B	SA/CAPE	Partial	50%	B*
Goukamma	B	SA/CAPE	Full	75%	A*
Knysna	B	SA/CAPE	Partial	50%	B*
Noetsie	B	CAPE			A*
Piesang	C	SA	Partial	50%	B
Keurbooms	A	SA/CAPE	Partial	50%	A*
Matjies	B				B*
Sout (Oos)	A	SA/CAPE	Full	100%	A*
Groot (Wes)	B	SA/CAPE	Full	75%	A or BAS
Bloukrans	A	SA/CAPE	Full	100%	A or BAS
Lottering	A	SA/CAPE	Full	100%	A or BAS
Elandsbos	A	SA/CAPE	Full	100%	A or BAS
Storms	A	SA/CAPE	Full	100%	A or BAS
Elands	B	SA/CAPE	Full	100%	A or BAS
Groot (Oos)	B	SA/CAPE	Full	100%	A or BAS
Tsitsikamma	B	SA	Full	50%	B*
Klipdrif	D				D
Slang	D				D
Kromme	D	SA/CAPE	Partial	25%	C*
Seekoei	D	SA/CAPE	Partial	25%	B*
Kabeljous	C				B
Gamtoos	C	SA/CAPE	Partial	50%	A or BAS
Van Stadens	B	SA/CAPE	Full	50%	A or BAS
Maitland	C	SA/CAPE	Full	75%	C
Bakens	E				D
Papkuils	F				D
Swartkops	C	SA/CAPE	Partial	25%	B
Coega (Ngcura)	F				D
Sundays	C	SA/CAPE	Partial	50%	A or BAS
Boknes	C				C
Bushman's	B	SA/CAPE	Partial	50%	A*
Kariega	C	SA/CAPE	Partial	50%	B
Kasuka	B				A
Kowie	C				B
Rufane	C				C
Riet	B				A
West Kleinemonde	B				A
East Kleinemonde	B				B*
Klein Palmiet	D				D
Great Fish	C	SA/CAPE	Partial	50%	B
Old woman's	C				C
Mpekweni	B				A
Mtati	B	CAPE			A
Mgwalana	B	SA	Partial	50%	A
Bira	B	SA	Partial	50%	A

ESTUARY (WEST TO EAST)	CURRENT HEALTH CATEGORY	PRIORITY SET FOR NATIONAL AND/OR CAPE	RECOMMENDED EXTENT OF PROTECTION	RECOMMENDED EXTENT OF UNDEVELOPED MARGIN	PROVISIONAL ESTIMATE OF RECOMMENDED ECOLOGICAL CATEGORY
Gqutywa	B	SA/CAPE	Full	75%	A
Ngculura	B				B
Freshwaterpoort	A				A
Mtana	B				B
Keiskamma	C	SA/CAPE	Partial	50%	B
Ngqinisa	B	SA	Full	75%	B
Kiwane	B				B
Tyolomnqa	B				A
Shelbertsstroom	C				C
Lilyvale	B				B
Ross' Creek	B				B
Ncera	B	SA	Full	75%	B
Mlele	B				B
Mcantsi	C				C
Gxulu	B				B
Goda	B	CAPE	Full	75%	B
Hlozi	B				B
Hickman's	B				B
Mvubakazi	B				B
Ngqenga	C				C
Buffalo	D				C
Blind	C				C
Hlaze	C				C
Nahoon	C				B*
Qinira	B				A
Gqunube	B	SA	Partial	50%	A
Kwelera	B	SA	Partial	50%	A
Bulura	B				B
Cunge	A				A
Cintsa	C				C
Cefane	B				A
Kwenxura	B	SA/CAPE	Full	75%	A
Nyara	A				A
Mtwendwe	B				B
Haga-haga	B				B
Mtendwe	B				B
Quko	A	SA/CAPE	Full	50%	A
Morgan	C				C
Cwili	B				B
Great Kei	C	SA/CAPE	Partial	50%	B*
Gxara	B				B
Ngogwane	B				B
Qolora	B				A
Ncizele	B	SA	Full	75%	B
Timba	A				A
Kobonqaba	B				B
Nxaxo/Ngqusi	B	SA/CAPE	Full	75%	A
Cebe	B				B
Gqunqe	A				A
Zalu	A				A
Ngqwara	A	SA	Full	75%	A
Sihlontlweni/Gcini	B				B
Nebelele	A				A
Qora	B	SA/CAPE	Partial	75%	A
Jujura	B				B
Ngadla	A	SA	Full	75%	A

ESTUARY (WEST TO EAST)	CURRENT HEALTH CATEGORY	PRIORITY SET FOR NATIONAL AND/OR CAPE	RECOMMENDED EXTENT OF PROTECTION	RECOMMENDED EXTENT OF UNDEVELOPED MARGIN	PROVISIONAL ESTIMATE OF RECOMMENDED ECOLOGICAL CATEGORY
Shixini	B	CAPE			B
Beechamwood	A				A
Un-named EC	A				A
Kwa-Goqo	A				A
Ku-Nocekedwa	A				A
Nqabara	B	SA	Partial	75%	A
Ngoma/Kobule	A				A
Mendu	A	SA			A
Mendwana	A	SA			A
Mbashe	C	SA/CAPE	Partial	75%	A or BAS
Ku-Mpenzu	B	SA/CAPE	Full	75%	B
Ku-					
Bhula/Mbhanyana	A	SA/CAPE	Full	75%	A
Kwa-Suka	B	SA			B
Ntlonyane	B	SA/CAPE	Full	75%	B
Nkanya	B	SA/CAPE	Full	75%	B
Sundwana	A	SA	Full	75%	A
Xora	B	SA	Partial	75%	A
Bulungula	B				B
Ku-amanzimuzama	A				A
Ngakanqa	A	SA	Full	75%	A
Un-named KZN	A				A
Mncwasa	B				B
Mpako	B				B
Nenga	C				C
Mapuzi	B				B
Mtata	D	SA	Partial	50%	C*
Tshani	B				B
Mdumbi	B	CAPE			A
Lwandilana	A	SA	Full	75%	A
Lwandile	A				A
Mtakatye	B	SA	Partial	75%	B
Hluleka	A	SA	Full	75%	A or BAS
Mnenu	B				B
Mtonga	B				B
Mpande	B				B
Sinangwana	B				B
Mngazana	B	SA	Partial	50%	B
Mngazi	C				C
Gxwaleni	A				A
Bulolo	B				B
Mtambane	B				B
Mzimvubu	C	SA	Partial	50%	C
Ntlupeni	B				B
Nkodusweni	B	SA	Partial	75%	A or BAS
Mntafufu	B	SA	Full	75%	A or BAS
Mzintlava	B	SA	Full	75%	A or BAS
Umzimpunzi	B	SA	Full	75%	B
Kwa-Nyambala	B	SA	Partial	50%	B
Mbotyi	B	SA	Partial	50%	A or BAS
Mkozi	A	SA	Full	75%	A
Myekane	A	SA	Full	75%	A
Sitatshe	A	SA	Full	75%	A
Lupatana	A	SA	Full	75%	A
Mkweni	A	SA	Partial	75%	A or BAS
Msikaba	A	SA	Full	75%	A or BAS
Butsha	A	SA	Partial	100%	A

ESTUARY (WEST TO EAST)	CURRENT HEALTH CATEGORY	PRIORITY SET FOR NATIONAL AND/OR CAPE	RECOMMENDED EXTENT OF PROTECTION	RECOMMENDED EXTENT OF UNDEVELOPED MARGIN	PROVISIONAL ESTIMATE OF RECOMMENDED ECOLOGICAL CATEGORY
Mgwegwe	A	SA	Partial	100%	A
Mgwetyana	A	SA	Partial	100%	A
Mtentu	A	SA	Full	75%	A or BAS
Sikombe	A	SA	Partial	75%	A
Kwanyana	B	SA	Partial	75%	B
Mtolane	A	SA	Partial	75%	A
Mnyameni	B	SA	Partial	75%	A or BAS
Mpahlanyana	A	SA	Full	75%	A
Mpahlane	A	SA	Partial	75%	A
Mzamba	B	SA	Partial	75%	A
Mtentwana	C	SA	Full	75%	C
Mtamvuna	B	SA	Full	75%	A or BAS
Zolwane	B				B
Sandlundlu	C				C
Ku-Boboyi	B				B
Tongazi	B				B
Kandandhlovu	B				B
Mpenjati	B	SA	Partial	75%	A or BAS
Umhlangankulu	C				C
Kaba	B				B
Mbizana	B				B
Mvutshini	B				B
Bilanhlo	C				C
Uvuzana	C				C
Kongweni	C				C
Vungu	B				B
Mhlangeni	C				C
Zotsha	C	SA	Partial	50%	C
Boboyi	C				C
Mbango	E				D
Mzimkulu	C	SA	Partial	50%	B
Mtentweni	C				C
Mhlangamkulu	C				C
Damba	C	SA	Partial	50%	C
Koshwana	C	SA	Partial	50%	C
Intshambili	B	SA	Partial	50%	B
Mzumbe	D				D
Mhlabatshane	B	SA	Partial	50%	B
Mhlungwa	C				C
Mfazazana	C	SA	Partial	50%	C
Kwa-Makosi	B	SA	Partial	75%	B
Mnamfu	C				C
Mtwalume	D				D
Mvuzi	C				C
Fafa	D				D
Mdesingane	C				C
Sezela	D				D
Mkumbane	C				C
Mzinto	C				C
Mzimayi	C				C
Nkomba	C				C
Mpambanyoni	C				C
Mahlongwa	C				C
Mahlongwana	B				B
Mkomazi	C	SA	Partial	25%	B
Ngane	B				B

ESTUARY (WEST TO EAST)	CURRENT HEALTH CATEGORY	PRIORITY SET FOR NATIONAL AND/OR CAPE	RECOMMENDED EXTENT OF PROTECTION	RECOMMENDED EXTENT OF UNDEVELOPED MARGIN	PROVISIONAL ESTIMATE OF RECOMMENDED ECOLOGICAL CATEGORY
Umgababa	B	SA	Full	50%	B
Msimbazi	B	SA	Full	75%	B
Lovu	C	SA	Partial	50%	C
Little Manzimtoti	D				D
Manzimtoti	D				D
Mbokodweni	E				D
Sipingo	F				D
Durban Bay	E	SA	Partial	25%	B
Mgeni	D	SA	Partial	25%	A or BAS
Mhlanga	D	SA	Full	75%	B*
Mdloti	D				C*
Tongati	E				D
Mhlali	C	SA	Partial	50%	B
Bobs Stream	C				C
Seteni	C				C
Mvoti	D	SA	Full	75%	D
Mdlotane	B	SA	Full	75%	A
Nonoti	B				B
Zinkwasi	C	SA	Partial	50%	B
Thukela	C				C*
Matigulu/Nyoni	B	SA	Partial	50%	A
Siyaya	F	SA	Full	50%	B*
Mlalazi	B	SA	Full	75%	A or BAS
Mhlathuze/R.Bay	C	SA	Partial	50%	A or BAS
Nhlabane	D				C
St Lucia/Mfolozi	D	SA	Full	75%	A*
Mgobezeleni	B	SA	Full	75%	A or BAS
Kosi	B	SA	Full	75%	A or BAS

\* Actual Recommended Ecological Category from Department of Water Affairs RDM study that has been conducted on the estuary

The national Estuaries Biodiversity Plan, which included area targets for estuary ecosystem type, suggested that 133 estuaries, including those already protected, would be required to meet the defined biodiversity targets, with some of these requiring partial protection. Of these, 61 should be fully protected, and 72 require partial protection. This amounts to about 46% of estuaries and 79% of estuarine area.

The following proposed criteria apply:

- Fully protected estuaries are taken to be full no-take areas.
- Partial protection might involve zonation which includes a no-take zone, or might address other pressures with other types of action.
- In both these cases, the management objective would be to protect 50% of the biodiversity features of the partially protected estuary.

## Appendix E: Potential Indicators for State of Coast Reporting

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The information presented in Appendix D was adapted from previous studies conducted for the Department of Environmental Affairs as part of project investigating State of Environment (coast, marine and estuarine) and State of Coast indicators for South Africa (Harrison et al., 2001; Harrison et al., 2002; Van Niekerk et al., 2002). The Table below presents a list of potential indicators for coastal management indicating suitability for condition of coastal zone (state), extent of activities and climate change (pressure), management and governance efforts (response), and finally, indicators for measuring outcome targets associated with the vision for the coast (outcome).

RELEVANCE	POTENTIAL INDICATOR	No.
Condition of coastal zone (state)	Distribution and abundance of introduced/exotic species	1
	Distribution and abundance of indigenous species and/or communities	2
	Number of species/communities/habitats endangered or vulnerable	3
	Threatened and extinct species	4
	Distribution and abundance of resource species	5
	Extent and distribution of natural habitats	6
	Erosion setback lines (shoreline stability- sand movements and stability)	7
	Nutrient concentrations in coastal waters	8
	Concentration of metals and toxic organic compounds in sediment and biota	9
	Pathogenic contamination of coastal waters	10
	Frequency of algal blooms and dominant species of algae	11
	Health status of estuaries	12
	Estuarine sedimentation	13
	Estuarine mouth condition	14
Extent of activities and climate change (pressure)	Development in coastal areas (e.g. land-cover change)	15
	Population density and growth in coastal areas	16
	Tourist frequency during peak periods	17
	Freshwater inflows (quality and quantity) to coastal waters (estuaries)	18
	Catches and maximum sustainable yield per fishery sector	19
	Foreign fishing	20
	Catch per unit effort per fishery sector	21
	Marine aquaculture production by major groups	22
	Shipping traffic in coastal waters	23
	Alerts and oil pollution accidents	24
	Litter in the coastal zone	25
	Number of effluent discharges into coastal waters	26
	Number of mining activities in the coastal zone	27
	Sea level rise (climate change)	28
	Changes in water pH and temperature (climate change)	29
Management and governance efforts (response)	Environmental protection laws and permits	30
	Multilateral environmental agreements	31
	Number of education and awareness programmes	32
	Number of training and capacity building programmes	33
	Number of coastal/estuarine management programmes operational	34
	Number of monitoring programmes in coastal zone	35
	Environmental expenditure	36
	Budgetary allocation for coastal research	37
	Budgetary allocation for coastal zone management	38
Budgetary allocation for awareness and education programmes	39	
Vision targets (outcome)	GDP generated in coastal zone	40
	Number of people employed in coastal areas	41
	Number and location of Blue Flag beaches	42
	Commercial fishing rights supporting SMME development	43
	Distribution and extent of formally protected areas	44
Value of fishery catch/resource	45	

The data requirements were assessed and rated using the following criteria:

- Type 1: Adequate data is available now and can be used to support the indicator without significant additional costs
- Type 2: The indicator is presently feasible, but cannot be provided without additional investment in the data collection process
- Type 3: No (or very limited) data currently exist for the indicator and there is no immediate intention to collect the data.

No.	POTENTIAL INDICATOR	DATA	TYPE
1	Distribution and abundance of introduced/exotic species	<ul style="list-style-type: none"> <li>• Checklists of introduced / exotic terrestrial biota</li> <li>• Satellite imagery/referenced aerial photography with ground truthing</li> <li>• Number of invading alien species for a specific coastal areas</li> </ul>	2
2	Distribution and abundance of indigenous species and/or communities	<ul style="list-style-type: none"> <li>• Checklists of introduced / exotic terrestrial biota</li> <li>• Satellite imagery/referenced aerial photography with ground-truthing</li> </ul>	2
3	Number of species / communities / habitats endangered or vulnerable	<ul style="list-style-type: none"> <li>• Checklists of introduced / exotic terrestrial biota</li> <li>• Satellite imagery/referenced aerial photography with ground-truthing</li> </ul>	2
4	Threatened and extinct species	Number of species of IUCN category for threatened species	1
5	Distribution and abundance of resource species	Species checklists, extent (and relative abundance) of resource biota, e.g. as listed in the South African Fishing Handbook (DAFF)	1
6	Extent and distribution of natural habitats	Satellite imagery/referenced aerial photography to determine the area of natural habitats	2
7	Erosion setback lines	Level of erosion set back line (the application of this measure is useful at a local level, but does not make sense at a national level)	2
8	Nutrient concentrations in coastal waters	Water quality monitoring programs and scientific surveys along the coast	3
9	Concentration of metals and toxic organic compounds in sediment and biota	<ul style="list-style-type: none"> <li>• Estuarine (and harbour) sediment monitoring programs</li> <li>• Monitoring programs such as Mussel watch / pesticides in seabird eggs / mammal tissues</li> <li>• Pesticides in mammal tissues</li> </ul>	1-3
10	Pathogenic contamination of coastal waters	Bacteriological monitoring programs undertaken by local authorities along the coast	1-2
11	Frequency of algal blooms and dominant species of algae	Chlorophyll-a measurements, Remote sensing (satellite images) or volunteer observations	3
12	Health status of estuaries	Distribution of various classification on SA estuaries (e.g. National biodiversity assessment 2011)	1
13	Estuarine sedimentation	<ul style="list-style-type: none"> <li>• Erosion losses from catchments (e.g. Rooseboom Atlas)</li> <li>• Changes in the bathymetry of estuaries, e.g. through cross section profiling</li> </ul>	1-3
14	Estuarine mouth condition	<ul style="list-style-type: none"> <li>• Continuous water level recorders inside the estuary mouth</li> <li>• Volunteer mouth condition observations (% open; % closed)</li> </ul>	1-3
15	Development in coastal areas (e.g. land-cover change)	<ul style="list-style-type: none"> <li>• Satellite imagery/Referenced aerial photography of coastal zone together with demographic survey data.</li> <li>• Change in land cover (ha) in the coastal zone per land cover category. Obtained from national land cover data base and local government integrated</li> </ul>	2



No.	POTENTIAL INDICATOR	DATA	TYPE
		development plans (IDPs)	
16	Population density and growth in coastal areas	<ul style="list-style-type: none"> <li>Demographic survey data (census surveys)</li> <li>Number of boating, fishing and diving permits issues</li> </ul>	1
17	Tourist frequency during peak periods	<ul style="list-style-type: none"> <li>Number of tourists visiting different coastal areas of the country (e.g. hotel, B&amp;B, caravan park, etc) occupation.</li> <li>Number of boating, fishing and diving permits issues</li> </ul>	1
18	Freshwater inflows to coastal rivers and estuaries	Comparisons between natural MAR and present MAR	1-3
19	Catches and maximum sustainable yield per fishery sector	<ul style="list-style-type: none"> <li>Estimation of recreational and subsistence fishing catch (including bait organisms?)</li> <li>Number of anglers, fishing and boat permits</li> <li>Number of species over-exploited</li> </ul>	1
20	Foreign fishing	Proportion of fishing quota's held by foreign fishing fleets	3
21	Catch per unit effort per fishery sector	Catches (mass) and effort (trawl days/diver hours) estimates of major species in each fishery sector. Extract relevant data from the Fishing Industry Handbook and South African Commercial Fisheries Review Series	1
22	Marine aquaculture production by major groups	Number and location of mariculture permits issues in South Africa	1
23	Shipping traffic in coastal waters	Number of ships rounding the South African coast per year	1
24	Alerts and oil pollution accidents	<ul style="list-style-type: none"> <li>Alerts and accidents as alerted by the 'Kuswag' patrols along the South African</li> <li>Number of oiled seabirds as provided by SANCOB</li> </ul>	1
25	Litter in the coastal zone	<ul style="list-style-type: none"> <li>Litter from clean-up campaigns</li> <li>Quantification of litter collected by local municipalities</li> <li>Proportion of litter comprising shipping flotsam</li> </ul>	2
26	Number of effluent discharges into coastal waters	Obtain data (e.g. location and volume) from DEA/DWA license/permit data base (all point source discharges to the marine environment requires a license)	1
27	Number of mining activities in the coastal zone	<ul style="list-style-type: none"> <li>Number of permits and location (sand mining, diamond mining, mineral extraction and oil exploration) issues along the South African coastal areas (including exploration)</li> <li>Rehabilitation associated with coastal mining activities</li> </ul>	1
28	Sea-level rise	Long-term tide recordings using tidal gauges	1
29	Change in water pH and temperature	Temperature and pH obtained from regular monitoring programmes, scientific surveys or satellite imagery	1-3
30	Environmental protection laws and permits	<ul style="list-style-type: none"> <li>List of Environmental protection laws and associated permits, Reserve allocations, etc.</li> <li>Proportion of illegal versus legal (permitted) resource exploitation</li> <li>Proportion of illegal exploitation/activities 'captured' in arrests/prosecutions/fines</li> </ul>	1-2
31	Multilateral environmental agreements	Number of Agreements	1
32	Number of education and awareness programmes	Number of national environmental awareness campaigns	1
33	Number of training and capacity building initiatives and programmes	Number of local municipalities with environmental officers	3
34	Number of coastal/estuarine management programmes operations	National and provincial programmes (number and extent) aimed at conservation, contingency planning and rehabilitation in the coastal zone	2

No.	POTENTIAL INDICATOR	DATA	TYPE
35	Number of monitoring programmes in coastal zone	Inventory of environmental monitoring programs related to the coastal and marine environment, including a list of prominent gaps in the inventory	2
36	Environmental expenditure	Proportion of national/provincial budgets allocated to environmental protection, science and technology, environmental monitoring, rehabilitation/clean-up and conservation in the coastal zone	1
37	Budgetary allocation for coastal research	Annual average budgetary allocation to environmental research over total budget. This indicator is already being measured by the Foundation for Research Development and Department of Arts, Culture, Science and Technology.	1
38	Budgetary allocation for coastal zone management	Annual average budgetary allocation to natural resource management over total budget. Data can be obtained from the local, provincial and national government departments, as well as SA National Parks and other appropriate government bodies	2
39	Budgetary allocation for awareness and education programmes	Annual average budgetary allocation to environmental education and awareness over total budget. The data can be acquired from the annual budgets of local governments. Environmental reports as prepared by Cape Town and Durban may also provide this information.	2
40	GDP generated from coastal zone	GDP distilled for coastal areas	2
41	Number of people employed in coastal areas	<ul style="list-style-type: none"> <li>• Proportion of coastal population unemployed.</li> <li>• Proportion of coastal population employed in terrestrially based activities.</li> </ul>	3
42	Number and location of Blue Flag beaches	Location and number of Blue flag beaches	1
43	Commercial fishing rights supporting SMME development	Number and size of new medium and long-term commercial fishing rights granted to small, micro and medium scale enterprises (reported as number and % per quota size category). Data can be obtained from the Rights Verification Unit, an independent unit established for this purpose.	1
44	Distribution and extent of formally protected areas	Area of terrestrial coastal land, number of estuaries, length of coastline areas of inshore/offshore habitats protected	1
45	Value of fishery catch/resource	Extract data from South African Fishing Handbook (DAFF)	1