

DEPARTMENT OF ENVIRONMENTAL AFFAIRS

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MARINE SPATIAL PLANNING FRAMEWORK

I, Bomo Edith Edna Molewa, Minister of Environmental Affairs, hereby publish South Africa's Marine Spatial Planning Framework for implementation, as set out in the Schedule hereto.



BOMO EDITH EDNA MOLEWA
MINISTER OF ENVIRONMENTAL AFFAIRS



The Republic of South Africa

National Framework for Marine Spatial Planning in South Africa

National Framework on Marine Spatial Planning in South Africa

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1 Context

1.1 Purpose of the South African Marine Spatial Planning Framework

The purpose of this document is to provide the framework for Marine Spatial Planning in South Africa's ocean space. It provides high-level direction for undertaking Marine Spatial Planning in the context of the South African legislation and policies as well as existing planning regimes. It describes the process for the preparation of Marine Area plans and their implementation, in order to ensure consistency in Marine Spatial Planning across the South African ocean space.

The framework will facilitate the development, implementation, monitoring and revision of Marine Area plans. Through this Marine Spatial Planning system, the sustainable development of South Africa's ocean space will be enabled. Marine Spatial Planning will provide the following benefits for the South African nation:

- Facilitate the unlocking of the ocean economy and sustainable ocean economic development;
- Enhance the achievement of societal benefits and strengthen the level of society's interaction with the ocean;
- Promote a healthy marine environment and the sustainable use of marine resources; and
- Contribute to good ocean governance;
- The framework is aimed at guiding the national regulatory authorities as the responsible entities for Marine Area plan preparation and implementation in South Africa.

1.2 The Concept of Marine Spatial Planning

Oceans are fundamental for human well-being and provide valuable ecosystem services. The organisation of the use of the ocean wealth has been through the designation of marine space for human activities such as fisheries and aquaculture, oil and gas exploitation, transport and offshore renewable energy. Such planning and management of human uses in the ocean space has usually been pursued on a sectoral basis. Sectoral regulation has however little or no consideration of policies and plans of other sectors or requirements that may be conflicting or compatible.

In many countries this situation has already caused conflicts among human uses or between the marine environment and human uses, when the effects of human activities on the marine environment are not taken into consideration adequately. Such conflicts affect the ability of the ocean to provide the kind of services upon which humans and emerging economies depend. This single-sector planning and management approach also limits the capacity of decision-makers to pro-actively shape and plan for the future – rather than reacting and navigating into conflict that minimizes the sustainable growth of their countries.

As a response, Marine Spatial Planning is an approach to improving the rational planning, management and governance of ocean space and marine resources. Marine Spatial Planning entails a development planning approach for marine areas by more coherently organizing the use of space to guide single-sector decision-making and provide for

comprehensive, integrated and complementary planning and management. Marine Spatial Planning offers a practical way to address both specific challenges and select appropriate management strategies to maintain a good status of ecosystem health that will, in turn, facilitate the advancement of national and regional economic and socio-cultural development.

Marine Spatial Planning is an emerging process that is being implemented by an increasing number of countries. Initially, Marine Spatial Planning was mainly limited to those countries witnessing mounting conflicts between competing human uses in their ocean space. This includes many European countries but also the United States of America, New Zealand and China. However, Marine Spatial Planning is increasingly being introduced in developing world regions with emerging economies. South Africa is now working with its neighbouring countries, in particular under the Benguela Current Commission and cooperating with other international partners such as the Kingdom of Norway and the Federal Republic of Germany, in developing the necessary capacities to pursue Marine Spatial Planning.

By embracing the application of the Marine Spatial Planning process, South Africa will obtain economic, social, ecological and governance benefits that will contribute to achieving sustainable development and facilitating the reaching of its national development objectives. The process of Marine Spatial Planning in South Africa will promote a culture of good ocean governance and thereby:

- Achieve integration among different objectives and economic sectors;
- Manage competing demands on its ocean space;
- Enable the co-existence of compatible activities wherever possible; and
- Enable co-ordination with terrestrial and coastal planning as much as possible.

2 Marine Spatial Planning in South Africa

2.1 Definition of Marine Spatial Planning in South Africa

Marine Spatial Planning is defined in this framework as follows:

Marine Spatial Planning is the governance process of collaboratively assessing and managing the spatial and temporal distribution of human activities to achieve economic, social and ecological objectives.

2.2 The Characteristics of South Africa's Marine Spatial Planning Process

The South African Marine Spatial Planning process will reflect the following characteristics:

Area-based: focusing on marine spaces that people can understand, relate to and care for;

Integrated: across sectors, agencies, entities and departments, and among spheres of government;

Multi-objective: maximizing the benefits to all sectors in a sustainable way;

Participatory and coordinated: actively involving all relevant stakeholders in the process to ensure a long-term and coordinated support for management;

Ecosystem-based: balancing economic, social and ecological goals and objectives toward achieving sustainable development with a focus on maintaining the provision of ecosystem services over time;

Strategic and future-oriented: considering alternative means to achieve the desired vision; and

Continuing and adaptive: promoting a learning-by-doing approach that enables the acceleration of the planning and implementation quality with growing experience through effective performance monitoring and evaluation.¹

2.3 South Africa's Marine Spatial Planning Vision

South Africa's shared vision within the marine environment for Marine Spatial Planning is:

"A productive, healthy and safe ocean that is accessible, understood, equitably governed and sustainably developed and managed for the benefit of all."

The vision for Marine Spatial Planning in South Africa is supported by a number of principles that set out the key characteristics of Marine Spatial Planning in South Africa. The vision is shared by all organs of state responsible for regulating human use in South Africa's ocean space. The vision balances economic, social and ecological aspirations for South Africa's ocean space.

2.4 South Africa's Marine Spatial Planning Principles

South Africa's Marine Spatial Planning principles will guide the preparation of South Africa's marine spatial plans. The principles determine the nature and characteristics of the process and reflect the results to be achieved through Marine Spatial Planning. South Africa's seven principles that will guide Marine Spatial Planning are:

Sustainable development

This principle seeks to promote sustainable economic development that is socially and environmentally sustainable and ensures that special consideration is given to ensuring long-term provision of the ocean services provided and required for sustainable economic growth through sustainable use of the ocean space.

Spatial efficiency

This principle seeks to promote the optimal use of marine space by ensuring that activities and infrastructure are able to make the best use of available resources in as coordinated a manner as possible. It also requires that decision-making procedures are designed to minimise negative financial, economic, social or environmental impacts arising from the utilisation of marine space.

Collaboration and responsible ocean governance

This principle recognises that working in sectoral and institutional compartments is an inefficient way to manage marine space and other resources. Horizontal and vertical cooperation and integration within government as well as good administration will lead to stronger and more complementary decisions and actions. The principle further requires that decision-making processes should be easily understood by the public, allowing citizens to see the outcomes of decisions and how these may affect their lives and communities.

Justice, equity and transformation

This principle recognises that South Africa's ocean space and its resources are a common good and are held in trust by the state for its people and future generations. Marine space should be planned and managed not for the disproportionate benefit of any one group or private interest, but principally as part of the public domain in a manner that addresses the injustices of the past through required transformation.

Ecosystem and earth system approach

This principle implies a primary focus on maintaining and, where feasible, restoring ecosystem structure and functioning within a marine area. It includes the recognition that ecosystems are dynamic, changing and sometimes poorly understood.

Precautionary approach

This principle suggests that if a decision could cause severe or irreversible harm to society or the environment, in the absence of a scientific consensus that harm would not ensue, the burden of proof falls on those who advocate taking the action, as much as the costs of potential pollution or damage to the environment should be paid by the party responsible for the action that caused the disturbance.

Adaptive management

This principle recognises that knowledge of ecosystem functions is deficient and subject to ongoing time and evidence-based research. It requires that planning processes be iterative,

respond to the best available scientific knowledge and flexible to provide for adaptive planning and use of South Africa's ocean space. The principle further requires the effective monitoring and evaluation of the performance of management actions and ecosystem responses.

Coherent Planning and Management

This principle recognises that marine spatial planning in South African ocean space may comprehend existing and emerging activities that have enhanced competition in the ocean space. As sectorial interests increasingly overlap, there is a need to adopt a more holistic approach (MSP) in the development of processes and practices for the sustainable management of the ocean space. The decision making process should take into account the degree of commonality and compatibility of activities in any area or space in the marine environment. These linkages in the different Bioregions in the ocean space should promote a holistic approach to managing the aggregation and accumulation of impacts and its users.

Use of Best available science and information:

The use of best available science / information serves to promote all aspects required for MSP. The efficiency and efficacy of decision-making will be based on the information provided, on environmental and socio-economic data to be used in the planning process.

South Africa's Marine Spatial Planning Goals

South Africa's Marine Spatial Planning goals focus on the desired outcomes of the Marine Spatial Planning process. Along with the vision and principles, they will guide the entire Marine Spatial Planning process, and provide the umbrella for developing the Marine Area Plan objectives.

South Africa's goals for Marine Spatial Planning are:

- **Goal 1: Unlocking the ocean economy**

This goal aims to stimulate the sustainable economic growth of South Africa's marine sectors to increase the ocean contribution to the national Gross Domestic Product, create jobs, and, ultimately, eradicate poverty. It does so by ensuring greater certainty of access to desirable areas for new investments. It seeks to identify compatible uses and reduce conflicts between incompatible uses. It promotes the efficient use of resources and space and improves the capacity to plan for new and changing human activities, including emerging technologies and their associated effects. It also promotes streamlining and improved transparency in permit and licensing procedures for ocean resources.

- **Goal 2: Engaging with the ocean**

This goal builds on South Africa's marine heritage and seeks to strengthen our marine identity. It aims to increase our awareness of the value, opportunities and societal benefits of South Africa's ocean space. It encourages all communities and citizens to engage in education about the sea, good stewardship, and participation in marine management. The goal promotes the identification and improved protection of cultural heritage and social and spiritual values related to ocean use.

- **Goal 3: Ensuring healthy marine ecosystems**

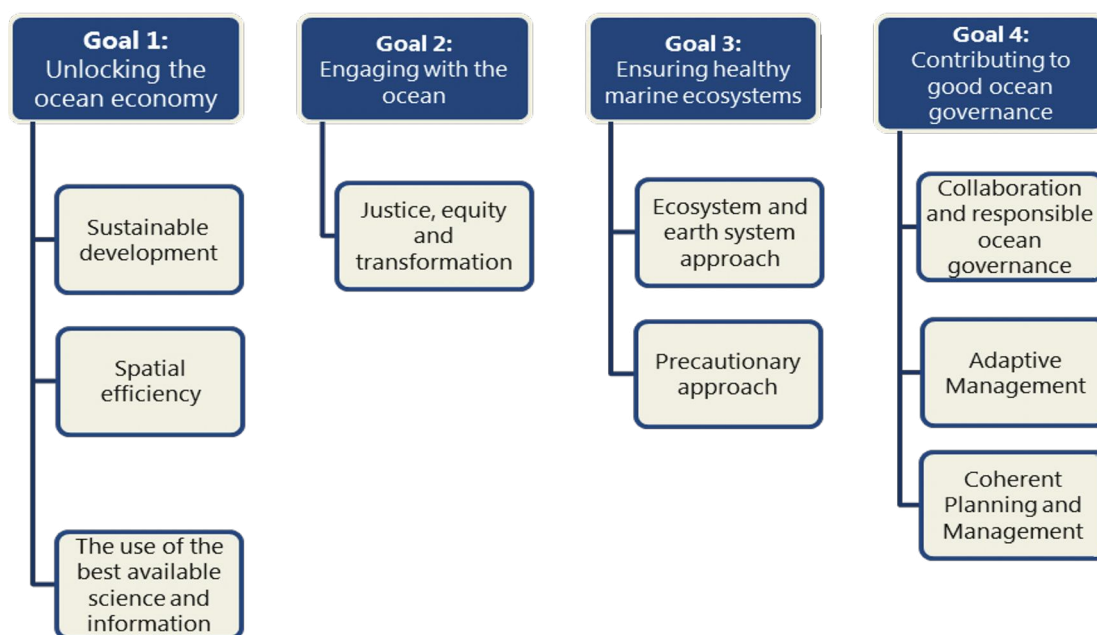
This goal is aimed at protecting, conserving and restoring South Africa's rich marine biodiversity by managing its living and non-living resources in a harmonious manner. It does so by identifying ecologically and biologically important areas and by integrating biodiversity objectives into decision-making. It allows for the identification and reduction of conflicts between human uses and nature, the allocation of space for biodiversity and nature conservation and the reduction of the cumulative effects of human activities on marine ecosystems.

- **Goal 4: Contributing to good ocean governance**

This goal requires a collaborative approach between organs of state relating to the ocean matters, through the establishment of formal and informal relations. It requires that decision-making be underpinned by sound knowledge and adaptive management. It also requires relations to be built with non-state organisations and communities that should be encouraged and enabled to contribute to planning processes as a means to enable effective ocean governance.

2.5 The Relationship between the Planning Goals and the Principles

The goals are in line with and cognisant of the principles in the following way so that when seeking to achieve goals it is possible to do so in accordance with the principles set:



2.6 The Authority for Marine Spatial Planning in South Africa

2.6.1 Responsibility for Marine Spatial Planning

Cabinet has designated the Department of Environmental Affairs as the lead Department for Marine Spatial Planning in South Africa. In this capacity, the Department of Environmental Affairs will collaborate with all relevant national authorities that have a mandate relating to marine planning and management through a governmental Working Group that will develop Marine Spatial Planning and steer and oversee the Marine Spatial Planning process. This includes having lead responsibility for the preparation of this National Framework and for Marine Area Plans

This National Marine Spatial Planning Working Group is constituted of representatives from the departments administering the following key functions and regulatory responsibility for human use activities in South Africa's ocean space:

- Defence;
- Energy;
- Environmental Affairs;
- Agriculture, Forestry and Fisheries;
- Mineral Resources;
- Tourism; and
- Transport.
- Rural Development and Land Reform;
- Planning, Monitoring and Evaluation;
- Science and Technology;
- Telecommunications.

The Department of Environmental Affairs supports the work of the National Working Group, through the provision of technical assistance. The Department of Environmental Affairs will also facilitate reporting on behalf of the National Working Group to the Directors-General Marine Spatial Planning Committee and the Ministerial Committee on Marine Spatial Planning. These committees are to be constituted by the representatives from the departments administering the following functions:

- Defence
- Energy,
- Environmental Affairs;
- Agriculture Forestry and Fisheries,
- Mineral resources,
- Planning ,Monitoring and Evaluation
- Rural Development and Land Reform,
- Tourism,
- Telecommunications,
- Transport,
- Science and Technology.

This Marine Spatial Planning Framework and the Marine Area plans will be submitted to the two committees for approval. The Ministerial Committee on Marine Spatial Planning will give final approval for the Marine Area Plans. The Committees will similarly deal with decisions on conflict resolution, trade-offs, and other matters relating to the marine spatial planning process. The Ministerial Committee on Marine Spatial Planning therefore has final authority over the adoption and implementation of Marine Spatial Planning in South Africa and will approve the Marine Area Plans and facilitate the resolution of any inter-departmental disagreements.

Sectoral organs of state will bear responsibility for the implementation of the Marine Area Plans on the basis of the sectoral spatial and temporal management actions stipulated as per their existing mandates and under existing legislation. Sectoral planning and decision-making in terms of licensing and other management measures will be consistent with the Marine Area Plans. Where a marine spatial planning decision has been taken on geographic use in an area, that decision does not automatically grant vested rights to any person or preclude them from complying with the relevant sector legislation. The implementation of the Marine Area plans builds on the Constitutional principle of cooperative governance.

The Marine Spatial Planning Act will set in place governance, enforceability and accountability arrangements appropriate for and relating to Marine Spatial Planning, the integrated preparation, implementation, monitoring and revision of the Marine Area plans.

2.6.2 Legislative context

The South African Exclusive Economic Zone is managed by several sectoral legislations and policies. South Africa is also a signatory to several international declarations, treaties, conventions and agreements that have informed some of the current legislation. The need to introduce and implement Marine Spatial Planning in South Africa is derived from this legislative context and the need for a workable framework to implement our laws. This includes Chapter 3 and Section 24 of Constitution of the Republic of South Africa, 1996 which stipulates the following:

- Section 41 of Chapter 3 of Constitution – Cooperative Governance² states that spheres of government must:

- (h) co-operate with one another in mutual trust and good faith by –
- (i) fostering friendly relations;
- (ii) assisting and supporting one another;
- (iii) informing one another of, and consulting one another on, matters of common interest;
- (iv) co-ordinating their actions and legislation with one another;
- (v) adhering to agreed procedures; and
- (vi) avoiding legal proceedings against one another.

- Section 24 of the Constitution states that:

“Everyone has the right:

- (a) to an environment that is not harmful to their health or well-being; and

- (b) to have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:
 - (i) prevent pollution and ecological degradation;
 - (ii) promote conservation; and
 - (iii) secure ecological sustainable development and use of natural resources while promoting justifiable economic and social development.”

South Africa's Constitution is progressive in nature, reflecting recent international debates around sustainable development that envisage environmental protection in the context of socio-economic development.

2.6.3 Both the environmental legislation and specific economic sectoral legislation of South Africa already provide for coordinated and integrated spatial planning. Policy context

South Africa is pursuing three broad policy initiatives that authorize and support the Marine Spatial Planning process.

Firstly, South Africa's National Development Plan 2030 identifies certain priorities relevant to the marine environment. These include developing strategies to increase off-shore renewable energy sources, off-shore oil and gas and investing in marine engineering initiatives. The New Growth Path sits alongside the National Development Plan and provides the framework for South Africa's economic policy and is the driver of the country's jobs strategy. It seeks to promote growth and employment from new opportunities such as the green economy, exports of goods and services to growing African markets, offshore oil and gas and the identification of realistic and sustainable options for diversification of the economy.

Government has also recently articulated a nine point plan setting out priorities for implementation by 2019 (end of the electoral cycle). This is in direct response to the low economic growth levels currently experienced by the South African economy. The nine point plan is aimed at boosting economic growth and contributing to job creation. The identified priorities are:

- Revitalisation of agriculture and agro-processing value chain;
- Advancing beneficiation, adding value to our mineral wealth;
- More effective Implementation of Industrial Policy Action Plan ;
- Unlocking the potential of Small, Medium and Micro-sized Enterprises (SMMEs), Co-operatives, township and rural enterprises;
- Resolving the energy challenge;
- Stabilising the labour market;
- Scaling-up private sector investment ;
- ***Growing the Ocean Economy;***

- Cross cutting reform to boost and diversify the economy through investment in science & technology, water & sanitation, transport infrastructure, broadband connectivity & state owned companies

2.7 Land-sea interface

Activities taking place on land and in the sea can have impacts on both terrestrial and marine environments. The coast and estuaries are highly valued environments, as well as social and economic assets. The marine area plan boundaries will extend up to the high water-mark while terrestrial planning boundaries generally extend to the low water-mark. Coastal Management activities and priorities extend beyond the high water –mark.

In the development of Marine Area plans coastal management and land-use planning authorities must be informed and properly consulted to ensure that harmonisation of plans is achieved. Coastal Planning legislation and policy documents already include policies addressing coastal and estuarine planning. Marine policy guidance and plans will seek to complement rather than replace these, recognising that both systems may adapt and evolve over time; Liaison and consultation between respective responsible authorities for terrestrial and marine planning, including plan development, implementation and review will help ensure, for example, that developments in the marine environment are supported by the appropriate infrastructure on land and reflected in terrestrial development plans. Sharing the evidence base and data where relevant and appropriate will also assist in ensuring consistency in the data used in making decisions and planning.

2.8 Trans-national Planning

Marine Area Plans will take into consideration Marine Spatial Planning in South Africa's neighbouring countries Namibia, Mozambique and France to align planning and management at a trans-national scale. The Benguela Current Convention and the Nairobi Convention provide the appropriate regional mechanisms and international legal instruments to coordinate trans-national planning.

3 South Africa's Ocean Space

The following sections may have social, economic and/or environmental implications that will need to be considered within the individual Marine Area Plans.

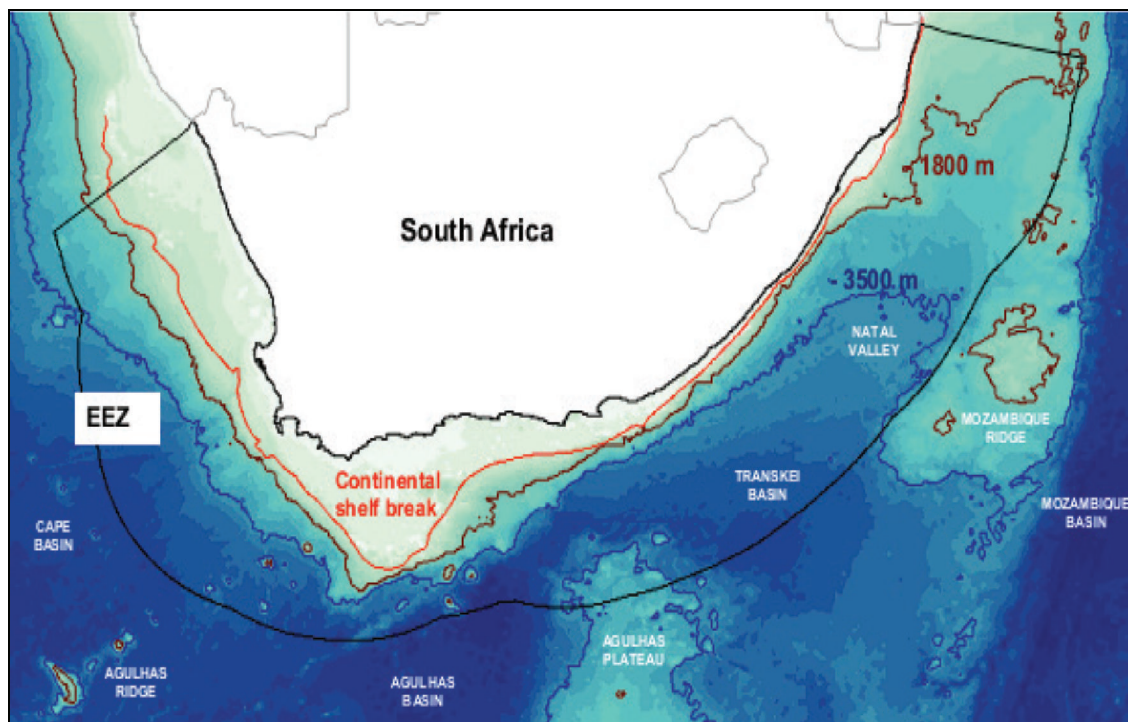
3.1 Natural Characteristics of South Africa's Ocean Space

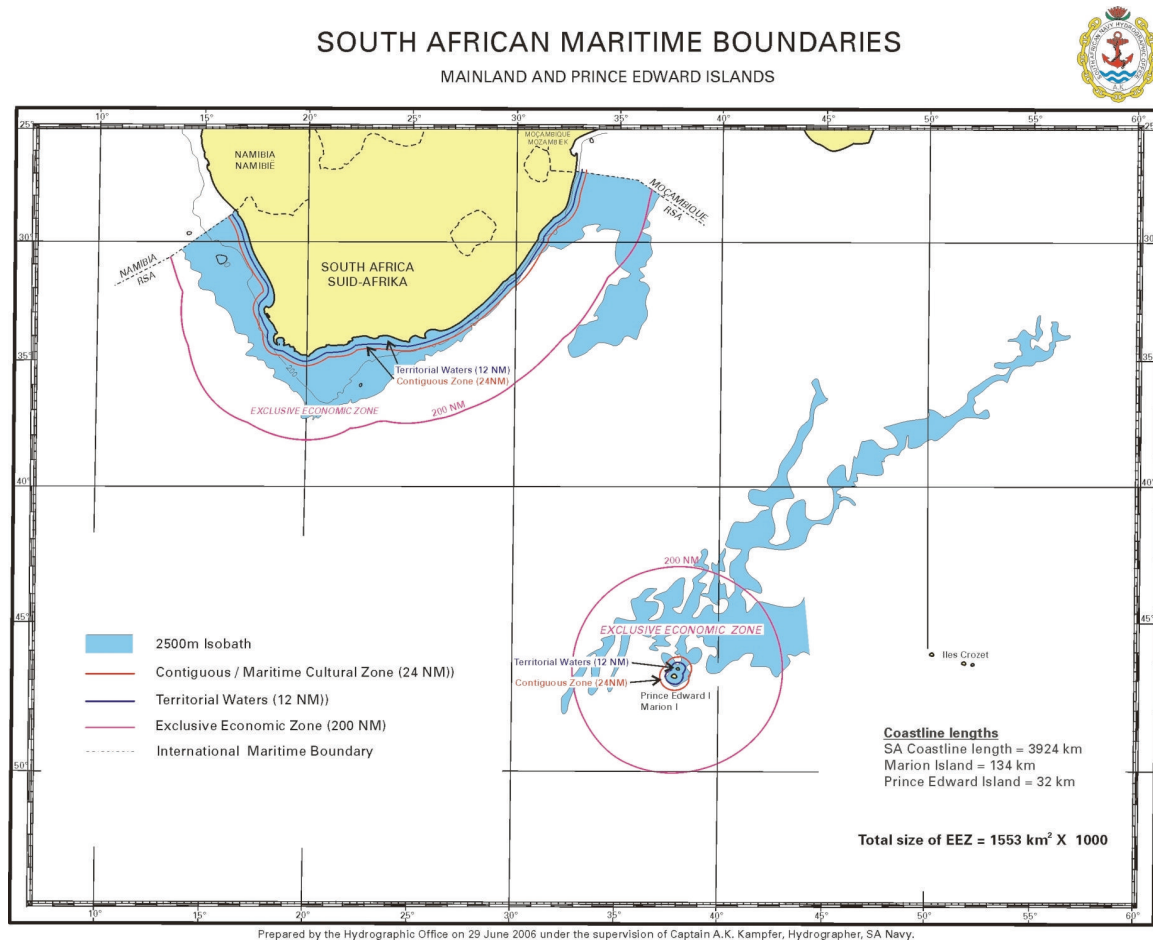
South Africa is a maritime nation bordered by the ocean on three sides – to the west, south and east. South Africa's coastline is approximately 3 924 km.³ It stretches from the Namibian border on the West Coast to the Mozambique border on the East Coast. South Africa's land territory includes the Prince Edward and Marion Islands that are located in the Southern Ocean.

The International Hydrographic Organisation indicates South Africa's hydrographic survey status of the coastal waters between 0 and 200 m as 70% adequately surveyed and 30% requiring resurvey. Waters deeper than 200 m have not been systematically surveyed and 88% is reflected as unsurveyed.⁴

Map: South Africa's Existing Mainland Exclusive Economic Zone⁵

(The continental shelf break (200m) is shown in red and the 1800m and 3500m contours are shown in brown and blue respectively.)





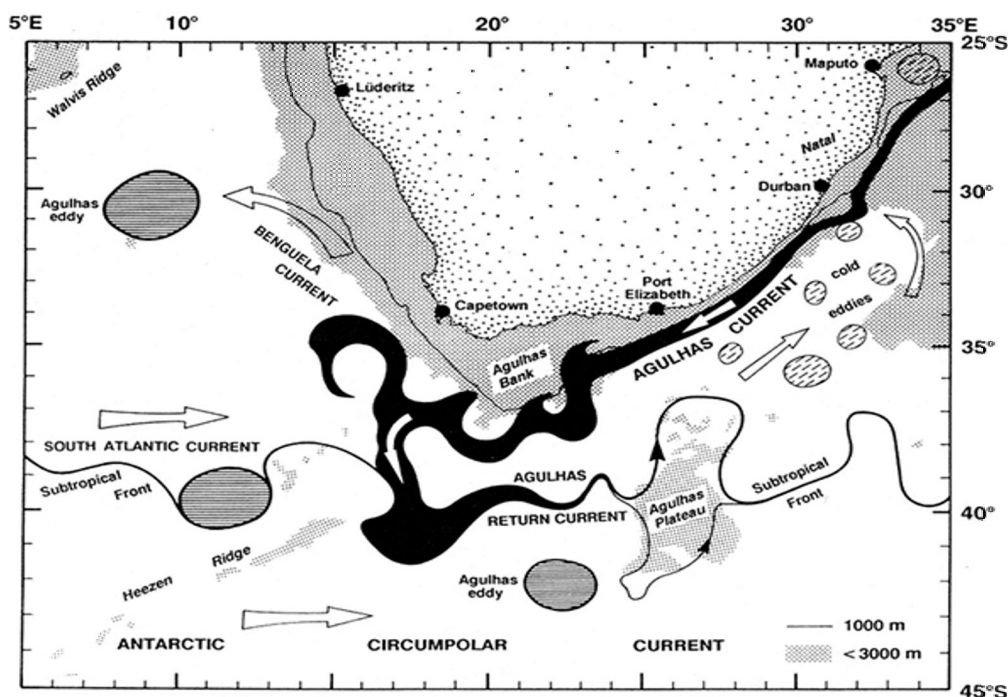
The ocean environment around Southern Africa is one of the most varied in the world. The strong oceanographic variability and in particular the contrasts in temperature, productivity and dissolved oxygen content of the ocean are reflected in the general division of South African marine biodiversity into three broad biogeographic regions (excluding the Prince Edward Island Group) namely, the cool temperate West Coast, the warm temperate South-East Coast and the subtropical East Coast.

South Africa displays high levels of marine biodiversity. Ten thousand species of marine plants and animals have been recorded in South Africa, that is almost 15% of the global marine species diversity. Plants and animals are generally distributed according to the distinctive physical characteristics of the different regions. There are recent indications of shifts in the distribution of species such as kelp ecosystems expanding south-eastwards. This may well be due to ongoing climate change that will need to be taken into consideration during the MSP process. The marine environment along the West Coast is characterised by cold upwelled waters and has low species diversity and large populations of some species.

The South-East Coast is a transition region between the cool dry West Coast and the warm moist East Coast, and shows characteristics of both areas. The marine environment here has a high biological diversity and moderate productivity. The East Coast becomes increasingly

warm, humid and tropical northwards. The marine biodiversity on the East Coast is characterised by increasing species diversity and smaller species populations.⁶ The high productivity of the West Coast allows for large volume offshore commercial fisheries and inshore small scale and recreational fishing. Towards the East Coast the low productivity but higher species diversity allows for small scale and recreational fishing but is not suitable for large offshore commercial fishing.

Map: South African Coastline Currents ⁷



South Africa has sharply contrasting currents on the West and East coasts. On the West Coast, in the Benguela Current System, ocean and wind interactions bring nutrients from deep waters to the surface where sunlight stimulates photosynthesis and the production of phytoplankton, increasing the overall volume of animal and plant productivity. These areas of upwelling are found where the wind is strongest and where the continental shelf is narrowest and deepest. This forms the basis of a complex food web. Sea surface temperatures in the Benguela ecosystem are typically between 13 °C and 15 °C.

On the East Coast, the Agulhas Current System becomes established between Southern Mozambique and Durban. This warm western boundary current flows strongly southward along the East Coast, bringing nutrient-poor tropical water from the equatorial region of the Western Indian Ocean. The waters are typically blue and clear, with low nutrient levels but very diverse biota from the rich Indo-Pacific region. Coral reefs, mangroves and high river input from sources along the East Coast characterise the shelf waters. The coastline and adjoining interior has a higher rainfall than the West Coast as heat and moisture are transferred from the ocean to the atmosphere.⁸

The Agulhas Bank (South-East Coast), off southern South Africa, is an intermediate environment between the cool Benguela Current in the west and the warm Agulhas Current in the east. The Agulhas Bank is shallower than 150 m in the east and slopes gently towards the

south. Sea surface temperatures over most of the Agulhas Bank are generally 16–17 °C in winter and 20–21 °C in summer. Concentrations of nutrients over the Agulhas Bank are not as high as on South Africa's west coast but are sufficient to support a productive marine community. The region is an important nursery and transit area for whales, such as the southern right and humpback whales that migrate to South Africa from the Southern Ocean.

In 1948 South Africa annexed the Prince Edward Island Group that lies south-east of South Africa. The Prince Edward Island Group is westernmost of islands that form the Kerguelen Province that also includes Îles Crozet, Îles Kerguelen (France) and Heard and McDonald Islands (Australia). Both Marion Island and Prince Edward Island are shield volcanoes that rise from depths of some 5 000 m. They are linked by a saddle, where the water depth is about 200 m. Sea surface temperatures around the islands range from 4–7 °C. South Africa has jurisdiction over a considerable Exclusive Economic Zone surrounding this area, comprising some 473 380 km². The International Hydrographic Organisation indicates Prince Edward Islands Hydrographic survey status of the coastal waters between 0 and 200 m as 30% adequately surveyed and 70% unsurveyed. Waters deeper than 200 m have not been systematically surveyed and 70% is reflected as unsurveyed.⁹

4 Human Uses in South Africa's Ocean Space

4.1.1 History of Human Use

Historically the two prevalent human uses of South Africa's ocean environment have been the harvesting of marine living resources and maritime transport. The Southern Cape coast contains archaeological remains such as shell middens, rock art and fish traps that demonstrate clearly that marine resources have been exploited for a long time. Important archaeological sites such as Klasies Cave and Pinnacle Point have achieved international renown. Shell middens have provided evidence that shell fish formed part of the diet of our early ancestors and some scholars believe that shells were used as early forms of ornamentation. Many fish traps (vywers) are still to be found along the Southern Cape inter-tidal zone. Traditional fish traps are also actively used by coastal communities along the Northern KwaZulu-Natal coast.

The importance of the ocean adjacent to South Africa as a maritime transport route has been demonstrated from as early as the fifteenth century by the Portuguese voyages of exploration. There is also some evidence of Arab and Chinese seafaring traders to the region that pre-dates this. Attempts were made to establish a trade route between Europe and the Indies. The eventual establishment of this trade route underpinned the European colonisation of South Africa. Until the opening of the Suez Canal in 1869, the only viable sea route between Europe and the markets and colonies of the East was the route around Southern Africa. The significance of this route is demonstrated by the more than 2 700 identified historical ship wrecks off the coast. These wrecks include vessels from 37 different nations.

The 20th century saw an exponential growth in both the intensity and range of exploitation of the marine environment. While the consumption of marine living resources and maritime transport remain significant modern uses of the ocean environment, other new uses have emerged. These include the extraction of minerals, oil and gas, eco-tourism, increased deep-water fishing and innovative methods of energy production. Coastal states like South Africa

increasingly have economies that are almost completely dependent on accessing import and export sea trade routes.

4.1.2 Harvesting of Marine Living Resources

The South African fishing industry is well established and is a net exporter of fishery products. Most of South Africa's fisheries are considered to be fully utilised and high-value fisheries such as abalone, rock lobster and line fish are seen as overexploited.

The fisheries sector contributes roughly 0,1% of the GDP, that is small, even by agricultural standards. The total output is estimated at 600 000 tons, worth about R6 billion. It is estimated that the direct employment in the industry constitutes approximately 27 000 jobs (16 000 in the primary sector and 11 000 in the secondary and tertiary sectors), while an additional 81 000 people are indirectly employed in industries that are at least partially dependent on the fishing sector.¹⁰

The productive waters of the West Coast support a variety of commercially exploited marine life, including hake, anchovy, sardines, horse mackerel, tuna, snoek, rock lobster and abalone. Along the east coast, squid, line fish and a wide range of intertidal resources provide an important source of food and livelihood for coastal communities. Almost 50% of South African marine resources are fully exploited, with a further 15% overexploited, including commercial species such as West Coast rock lobster and Indian Ocean yellow-fin tuna populations. Of equal concern is the number of species of which the current stock status is uncertain.¹¹

The deep-sea hake fishery lands the highest value catch, contributing 44% to the total revenue of South African fisheries. In the 1960s, the demersal trawl fishery contributed as much as 90% of South Africa's overall fish landings by value. The hake catches have significantly declined from landings of over 300 000 tonnes to just over 150 000 tonnes annually. This lower level of catch has shown no sign of increase over the last ten years.

The west coast rock-lobster (crayfish) fishery of South Africa is considered to be one of the oldest fisheries of the country, dating back to at least 1875 when the first commercial processing plant was established. The west coast rock lobster is the most important commercial species in South Africa and its fishery is one of the most important fisheries in South Africa due its high value of more than R260 million rand a year of which 98% is exported and earns important foreign exchange currency. The fishery is also considered to be one of South Africa's oldest and is an important provider of direct (1300) and indirect (2800) employment, most of them along the South African West Coast where impoverished communities live. The annual commercial landings of rock lobster have decreased since the 1960s, indicating that the high landings during earlier years were not sustainable. The 2011/2012 total allowable catch was 2 260 tonnes. Currently the South African harvestable rock-lobster biomass is estimated to be approximately 5% of pre-exploitation levels and the spawning biomass approximately 20% of pre-exploitation levels.¹²

Aquaculture of marine species commenced in the 1950s and has continued to grow within South Africa, with the successful farming of the introduced black mussel in Saldanha Bay, oysters in Knysna and abalone along the West Coast. Aquaculture permits have also been issued for prawns and seaweeds. Research indicates that certain fin fish species (e.g. salmon and dusky kob) are ideal candidates for successful aquaculture ventures and experimental farming of Norwegian salmon and turbot has been undertaken.¹³

4.1.3 Maritime Transport

There are an estimated 580 vessels in South Africa's waters every day (see fig below), of which many are laden tankers carrying in excess of 30 million tonnes of crude oil. Additionally over 11 000 ships visit South Africa's ports annually.

Ninety-eight percent of South Africa's exports are conveyed by sea. The turnover from South Africa's harbour activities in the 2009/10 financial year was R12.6 billion. South Africa recently acquired and installed 19 new container handling cranes in its ports. South Africa's commercial ports handle over 430 million tonnes of varied cargo types each year. Richard's Bay is South Africa's largest cargo volume port handling in excess of 80 million tonnes of cargo annually. Durban is South Africa's largest port in terms of value of cargo handled as well as the number of vessels docking per year.¹⁴ Container traffic is predominantly routed through Durban, with 2.5 million twenty foot equivalent units ("TEUs") passing through the port. Cape Town moved just under 700 000 TEUs and Port Elizabeth almost 400 000 TEUs in the 2008/09 financial year.

4.1.4 Marine Mining

In 1908 diamonds were discovered along the southern Namibian coast. In 1925 diamonds were discovered near Port Nolloth. In 1926 rich deposits were discovered near Alexander Bay and the then South African government commenced mining operations along this coast. In the early 1950s prospecting for off-shore diamonds commenced. Today off-shore mining of diamonds along the South African West Coast is an important industry. In 1997, alluvial and marine diamonds comprised approximately ten percent of South Africa's total diamond yield with marine diamonds specifically comprising 0.35% (nearly U\$6 million). Marine diamond mining contributes 0.0026% to South Africa's annual GDP.¹⁵ In 1994, the then South African Department of Minerals and Energy established a grid network of marine mineral concession zones on the West Coast of South Africa (from the Orange River mouth to just south of Saldanha Bay), extending from the high-water mark seawards to 500 m depth.

Internationally the off-shore exploration for hard minerals is on the increase and it is to be expected that the exploitation of South Africa's non-living marine resources will also increase. Deposits of two minerals important for the production of fertiliser (potassium and glauconite) are widely found in South Africa's Exclusive Economic Zone. Currently the costs of extraction remain prohibitive in the context of available terrestrial resources. However, as terrestrial resources diminish and technology improves these deposits may become economically viable.

4.1.5 Offshore Oil and Gas

The Geological Survey of South Africa conducted the first organised search for fossil fuels in South Africa in the 1940s. Initially all searches were land based. The first off-shore well was drilled in 1969 and gas and condensate was discovered in the Pletmos basin (between Plettenberg Bay and Mossel Bay). Currently the Pletmos basin contains two undeveloped gas fields and a further six gas discoveries. The Bredasdorp basin has been the focus of most seismic and drilling activity since 1980. The South African part of the Orange bank and shelf also contain oil and gas deposits that have not yet been developed. Currently there are over

300 off-shore exploration wells in the South African Exclusive Economic Zone. Developments in off-shore drilling technology increase the likelihood of industry growth.¹⁶

The focussed exploration work off the South Coast resulted to oil and gas discoveries and hence the commencement of production operations by Soekor (now PetroSA) in 5 fields; namely FA-EM, Oribi-Oryx, Sable, South Coast Gas and FO Production Fields in Block 9. Of these fields, FA-EM, South Coast and FO fields that are predominantly gas fields are active and producing gas. This gas is sent to the PetroSA's Gas-to-Liquids plant in Mossel-Bay. Besides the discoveries made off the South Coast, gas discovery was also made off the West Coast in Ibhubesi Gas Field. No production operations and/or development of the field have commenced yet.

Exploration work inclusive of the geophysical surveys, evaluation and reprocessing of historical data, environmental impact assessment studies for potential drilling work and production operations, etc. are continuing in/for various blocks where there are granted rights and/or permits.

4.1.6 Municipal and Industrial Waste Water Discharge into the Ocean

The discharge of waste water into the ocean environment in South Africa is generally comprised of municipal waste water (domestic sewage), industrial waste water and storm water flow. There are over 60 licenced pipelines that discharge effluent along the South African coast. Twenty discharge domestic sewage, 30 discharge industrial wastes and ten discharge mixed effluent.¹⁷ In South Africa disposal of sewage into the marine environment ranges from preliminary treated sewage, to secondary treated effluent discharges in the surf zone and estuaries, to untreated sewage from informal settlements occurring in storm water runoff.¹⁸ South Africa discharges approximately 66 million litres of domestic sewage into the marine environment on a daily basis.¹⁹ The primary sources of industrial waste water discharged are oil refineries, chemical, textile, paper and pulp industries, aluminium smelters, coastal mining and fish processing plants.²⁰ South Africa discharges approximately 230 million litres of industrial waste²¹ and approximately 360 million litres of mixed effluent on a daily basis.²²

Storm water runoff from urban areas is difficult to control or predict. It is heavily dependent on rainfall that is collected and channelled from non-porous surfaces into outlets onto beaches or rocks. Both Cape Town and Durban have over 100 storm water outlets in their immediate urban area. The runoff often contains heavy metals, oil residues, nutrients and pathogenic microorganisms. The first storm water flow of the rainy season is normally the most contaminated.²³ Large amounts of plastics are also introduced into the marine environment during storm water deposits.

4.1.7 Ocean Cultural and Social Use

South Africans engage in a wide variety of consumptive and non-consumptive uses of marine resources and the marine environment. Coastal tourism has been estimated as generating approximately 13.5 billion rand to the South African economy annually.²⁴ The true value to South Africa's citizens of enjoying access to and use of thousands of kilometres of pristine

coastline is incapable of calculation. Recreational fishing is a popular activity in South Africa with approximately 500 000 active sports fishermen. The value of recreational fishing is difficult to quantify but it contributes substantially to the South African economy.²⁵ Boat-based whale watching alone is estimated to contributing some R37 million to Gross Domestic Product. Diving is another popular recreational activity, as are sun-bathing, swimming and picnicking. Some religious groupings use the coastal environment for performance of activities and ceremonies. Many South Africans also gather sea water for medicinal purposes. The imagery of the sea is deeply embedded in the beliefs, poetry and songs of coastal communities.

Tourism marine activities that can be further developed include the following:

- Development of water-based recreation and activities – with particular focus on the previously disadvantaged individual market;
- Maximising the dynamic sea waters to promote and develop "active tourism" including recreational and competitive surfing, kite-surfing, boogie-boarding;
- Development of boating – as a sport and leisure activity in SA;
- Development of sailing/ yachting – as a sport and leisure activity;
- Development of tall ship industry – as a sport and leisure activity; and
- Development of recreational and sporting: swimming (leisure and life-skill) and diving.

Tourism has a major environmental impact in many coastal areas that are particularly vulnerable to pressures associated with its growth. The relationship existing between tourism and environment is best qualified as a relation of mutual dependence.

Coastal communities benefit from tourism through the creation of employment opportunities, the raising of revenue, the development of infrastructure, improvements in health and safety conditions and enhancements of aesthetic standards. However, mass tourism has been accused of being one of the main causes of severe ecological losses in coastal areas. Large tourism developments have dramatically altered not only the visual aspect of many coasts around the world but also the natural dynamics of coastal ecosystems.

4.1.8 Biodiversity Management

South Africa has been at the forefront of environmental management and the establishment of protected areas in Africa, and was the first African country to establish a marine protected area. The IUCN (2012) defines conservation as "the management of human use of the biosphere so that it may yield the greatest sustainable benefit to the present generation while maintaining its potential to meet the needs and aspirations of future generations." Environmental management and protection therefore can be seen as an activity for the benefit of people, and is a positive concept that embraces protection, sustainable utilisation, restoration, and enhancement of the natural environment (Robinson 1989).

Land-based spatial management includes the conservation purposes as a legitimate category of use within planning, and it is therefore necessary to align this way of thinking into the ocean space to ensure appropriate representation, especially within the coastal region where land and sea planning initiatives will interact. Biodiversity management is broader than just

conservation however, and includes many tools that emanate from different pieces of legislation across different sectors that will be involved in MSP going forward, providing an opportunity for all sectors to contribute to sustainable development in South Africa's ocean space. Good biodiversity management underpins a healthy economy.

4.1.9 Emerging Ocean Resource Usage

Ocean energy could potentially be derived from the various characteristics of the ocean. For example, the rise and fall of waves could be converted into hydraulic pressure by mechanical compression devices. Such pressure could drive a turbine generator to produce electricity, while the tidal variation, sea current and different thermal (temperature) layers in the ocean could also be used for energy production. The main reason why these energy sources are not currently being harnessed is that no reliable technology exists that can economically generate electricity. Various companies are testing systems internationally to develop technically viable solutions. Once technical reliability has been proven, cost-effectiveness in relation to other solutions will have to be established. Research surveys of the Agulhas Current on the east coast of South Africa and of wave energy have proved the technical feasibility of extracting significant large-scale renewable energy from the Agulhas current and waves.²⁶

The world's focus on the production of renewable energy includes initiatives such as off-shore wind farms, tidal energy farms and even the use of the chemical composition of sea water to generate energy. Initiatives are also underway to consider methods by which the ocean seabed can be used for carbon storage.

The exploitation of marine resources continues to expand in ways that are not always predictable. South Africa is a water scarce country and plans have been made to explore the large scale use of desalinated sea water. Recently there has been a significant increase in the aquaculture industry. Marine tourism has also increased significantly, particularly in areas such as boat-based whale watching and shark diving excursions.

Many countries are prioritising the research of technologies aimed at resource exploitation, deep sea exploration and marine biology. Focussed research is also being conducted on marine reproduction technologies, fine processing of marine biological resources, exploration and extraction of marine pharmaceuticals from marine organisms and the exploitation of chemical resources in sea water.

The harvesting of seaweed is a growing industry worldwide. Seaweed can be used for carbon sequestration and may be able to play a role in reducing the impacts of ocean acidification. Seaweed also contains a natural gum used as an additive, binder and emulsifier for foods, pharmaceuticals, beverages and the cosmetic industry.²⁷ Commercial cultivation of seaweed is now taking place in over 35 countries and it is estimated to be a \$5.5-6 billion industry. South Africa does not currently cultivate seaweed on a large scale. In 2002 about 2 000 tonnes of brown seaweeds was collected from beaches and exported for alginate extraction, 500 tonnes of kelp was collected to produce an extract that is used as a plant growth stimulant and some kelp was also collected for feeding abalone.²⁸

Both the manner and extent of human exploitation of marine living and non-living resources has increased rapidly in the past 50 years. Various user groups that did not previously affect one another now find themselves often competing for the use of similar areas of the marine environment. It is also increasingly evident that the marine environment itself is being affected by human uses in ways that were not previously anticipated. This has placed a responsibility

on countries to manage their marine resources in a more coherent manner. States are increasingly seeking to formulate management approaches that optimise marine resource usage in balance with the need to conserve these resources for future generations and ensure that they meet their ocean conservation responsibilities. Such approaches seek to integrate the planning efforts of sectoral stakeholders to ensure sustainable use of marine resources and the protection and conservation of ocean ecosystems. Marine Spatial Planning is one of these new approaches.

5 Developing Marine Area Plans

5.1 South Africa's Marine Areas

For the purposes of implementing Marine Spatial Planning and making it manageable and sufficiently relevant for detailed planning, South Africa's ocean space will be divided into smaller bio-geographic marine areas that will serve as planning units. To delineate these Marine Areas, South Africa will undertake a separate analysis that will provide the basis for the Marine Area Plan development and the subsequently described steps, in particular the national data-gathering exercise, thus taking into account knowledge gained during this exercise about, for example, habitat boundaries and the distribution of existing uses.

The landward boundary of Marine Spatial Planning and hence the Marine areas is the high water-mark and the seaward boundary of the Marine Areas will be the outer limit of South Africa's Exclusive Economic Zone (200 nm) or its continental shelf where this extends beyond the Exclusive Economic Zone.

5.2 Timeline for Preparing Marine Area Plans

South Africa's Marine Area plans will be prepared sequentially. This will allow effort to be focused on one Marine Area at a time, and also mean that the experience gained from preparing each plan can be used in improving the preparation (or review) of subsequent plans. In determining the order in which the plans will be prepared, an initial assessment will be made of the priorities for each marine area, taking into account environmental pressures, human uses and development opportunities.

Given that this will be South Africa's first experience of conducting Marine Spatial Planning, the first plan will allow the Marine Spatial Planning process to be fine-tuned for application in the subsequent plans.

International experience suggests that a period of two to four years is needed for the preparation of a marine spatial plan. Sufficient time will be needed to ensure a robust process, particularly for the preparation of the first Marine Area plan. A period of two to three years should be anticipated for preparing the first plan, with a possible compression of plan preparation for the subsequent plans.

In the interests of facilitating a rapid preparation of plans, a relatively streamlined Marine Spatial Planning process will be adopted, focusing on key elements, as outlined below.

This will be the first generation of South Africa's Marine Area plans. With this in mind, and also taking into account the extensive nature of the Marine Areas and the relatively low

density of use in most areas, a more strategic approach to planning will be adopted at this stage, in which broad patterns of use are proposed, with more detailed levels of planning and management being determined where possible. This high-level approach will facilitate the rapid introduction of Marine Spatial Planning.

5.3 National Marine Spatial Planning Data-gathering

As a preliminary measure to preparing the Marine Area plans, a data-gathering activity relating to the whole of South African marine space will be conducted. Data and information will inform the identification of specific biogeographic marine areas for the purpose of planning. Information that will be called upon from each sector department for each plan are unlikely to relate only to the specific Marine Areas, and may cover larger areas, possibly at a national or supra-national scale; this is especially so when data relates to marine ecosystem processes or wide-ranging maritime activities. Eventually sector departments will be required to submit sector plans which will be used to inform or review the marine area plans as required.

It will therefore be beneficial to compile existing data in a central repository that can be drawn upon as necessary for each Marine Area plan. This will also have the advantage of making more efficient use of data-gathering and management resources.

An inventory will be drawn up listing the issues for which data will be sought. Consideration will be given to at least the following categories of information:

Environmental conditions and assets;

- Geological, oceanographic, chemical and other physical features, such as seabed geology, bathymetry, currents, and up-welling areas;
- Important biological and ecological areas, such as habitats, areas of important and vulnerable species and high biodiversity, spawning areas, migration routes, etc.;
- Environmental trends;
- Climate change data and projections;
- Marine protected areas;
- Human maritime activities;
- Jurisdictional and administrative boundaries, including existing spatial designations;
- Commercial fishing grounds, indicating type of gear used;
- Recreational activities, such as boating, surfing and fishing;
- Ports and shipping, including shipping lanes, type and volume of traffic, anchorages and port activities;
- Mining and dredging, including sand and gravel extraction and disposal areas;
- Energy production, including oil and gas exploration and installations and offshore renewables;
- Pipelines and cables, for energy supply and telecommunications;
- Military training areas; and
- Cultural heritage, including shipwrecks, sites of historic importance and coastal areas of landscape value social distribution of economic activities.

In drawing up this inventory, regard will also be had to sectoral priorities, as indicated in 4. Data gathering efforts will thus be focused on issues of current policy importance to South Africa.

The emphasis will be upon gathering the best-available, spatial data, indicating the geographical and temporal distribution of marine conditions and activities. This will be supplemented by other forms of data, such as statistical information relating to environmental and socio-economic conditions and the economic value of maritime activities.

Information will be provided primarily by government bodies that are already responsible for collecting much of the relevant data. These will include relevant departments as well as national statutory bodies.

Spatial data will be harmonised and integrated as much as possible into a dedicated geodatabase. This will build upon the Ocean and Coast Information Management System currently being developed by the Department for Environmental Affairs. Datasets will then be incorporated into a geographic information system. This will allow the production of maps indicating such things as environmentally sensitive areas, natural resources, intensity of maritime uses and potential areas of opportunity and conflict. This exercise has already commenced and will continue to be carried out during the first year of implementation of this Framework, while the planning process is initiated simultaneously.

5.4 The Process for Preparing the Marine Area Plans

The Marine Area plans will be prepared through a series of well-defined steps based upon international experience. However, the steps described below are of an indicative nature and present guidance rather than prescriptions. Consideration will be given in particular to the adaptation of these steps to the governance and planning practices of South Africa.

The process will also be fine-tuned through experience, with further adaptations made as necessary as the authorities proceed from the preparation of one plan to the next.

5.4.1 Establishing an inter-departmental approach

The Department of Environmental Affairs, is the lead authority for Marine Spatial Planning in South Africa, and therefore for the preparation of the Marine Area plans. The Department of Environmental Affairs will coordinate the National Working Group that will oversee the Marine Area Planning process. The National Working Group comprises of representatives of organs of state with regulatory responsibility for human use activities in South Africa's ocean space. This group will meet at regular intervals, and will have the following roles and responsibilities.

- To oversee and guide the preparation of the Marine Area plans;
- To manage the technical team (Marine Area Planning Group) responsible for the practical preparation of the Marine Area plans;
- To recommend approval of the final drafts of the Marine Area plans to the Director-General Committee on Marine Spatial Planning; the Ministerial Committee on Marine Spatial Planning as described in paragraph 2.7.1.;
- To implement the Marine Area plans and monitor and evaluate their performance; and

- To review the Marine Spatial Planning preparation process and revise the Marine Area plans on a cyclical basis.

To assist in the practical preparation of the Marine Area plans, the National Working Group will establish a dedicated Marine Area Planning Group. This will be a dedicated team that will carry out the planning process for each marine area as indicated by the steps below. It will comprise representatives of the key sectoral priorities for the marine area in question, scientific and data management experts and those with other skills and interests as necessary. The Marine Area Planning Group may set up further technical teams as necessary, to focus on specific tasks, such as analysing the marine area's conditions and activities and managing data and mapping. The Marine Area Planning Group will report to the National Working Group.

The National Working Group will as detailed above report to the Directors General Committee on Marine Spatial Planning and the Ministerial Committee on Marine Spatial Planning has the final authority over the implementation of Marine Spatial Planning in South Africa.

5.4.2 Engaging with Stakeholders

The preparation of any marine spatial plan involves the participation of representatives of groups and organisations that will be affected by the plan. This is because they can provide information and ideas, assist in discussion between marine interests and contribute to the implementation of the plan. It is important that participants are brought in at an early stage in plan preparation and that they continue to be involved throughout the MSP process. They may be involved through meetings and workshops, through being invited to respond to draft versions of a plan, and by other methods as appropriate.

Stakeholders will be brought actively into the plan-making process, including, for example, representatives of key sectoral interests, non-governmental organisations, coastal authorities and community groups.

5.4.3 Setting marine area objectives

The preparation of the plan will begin with setting the objectives for the marine area that the plan is intended to achieve. These will conform to the vision, goals and principles of the national framework. However, they will be more detailed, relating to the more specific needs of the marine area. They should cover a range of economic, social and environmental issues, reflecting the priorities for conservation and development that are most important for the marine area. In drawing up the objectives, careful reference will be made to the natural characteristics and the human use activities of the marine area, as indicated in sections 3 and 4 of the framework. It is likely that in the first round of Marine Area plans, the objectives will be relatively small in number. The objectives may include specific targets to be met for certain marine activities.

The objectives will be achieved during a planning period of 20 years.

Characteristics of good objectives are that they are 'SMART': specific, measurable, achievable, relevant, and time-bound.

Specific	Is the objective concrete, detailed, focussed and well defined?	Does the objective define an outcome?
Measureable	Can we measure what we want to do?	Can the objective be expressed as a quantity?
Achievable	Can the objective be attained with a reasonable amount of effort and resources?	Can we get it done? Do we have or can we get the resources to attain the objective? Does sufficient knowledge, authority and capability exist?
Relevant	Will this objective lead to a desired goal?	Has the management intervention yielded the desired result?
Time-bound	When will we accomplish the objective?	Is a start and finish date clearly defined?

The objectives will be drawn up by the Marine Area Planning Group, with each organisation represented being invited to propose objectives in line with its interests. A coherent and achievable set of objectives should then be agreed by the National Working Group. These should be communicated publicly, along with information about the preparation of the plan, and stakeholder response invited. The objectives may need to be revised in the light of responses.

5.4.4 Defining current and possible future conditions

All available information that is relevant to the preparation of the plan will then be gathered and organized. This exercise will be conducted with close reference to the marine area objectives, so that effort is not wasted on drawing together information that will not assist in meeting those objectives or will not be used in the MSP process.

An inventory of the required information will be drawn up. Information for each category will then be sought, especially from the National Marine Spatial Planning Data-gathering Activity; data relevant to the marine area will be extracted from this source. This will be supplemented with additional relevant information, especially at the scale of the marine area in question and more localised levels within it. The data-providers referred to in 5.3 and stakeholders will be approached for information that they may be able to provide. Any new spatial data will be incorporated into the Ocean and Coast Information Management System.

This information will be used to define the current and possible future conditions of the Marine Area, depending on the objectives of the Marine Area, including:

- A description of the key environmental features of the area; trends and projections of certain environmental indicators in response to human activities and climate change;
- A description of maritime activities in the marine area, categorised by sector, with associated socio-economic data;

- An outline of sectoral growth and development plans over the plan period (20 years);
- The distribution of environmental assets and maritime activities;
- Existing and potential areas of spatial conflict (between human uses, and between human uses and the environment) and opportunity; and
- A description of relevant land-sea and cross-border issues including socio-economic data of adjacent land areas.

Spatial data will be used to produce a GIS-based set of maps for the marine area, with layers illustrating current conditions and possible conflicts and complementarities as appropriate.

5.4.5 Identifying key issues

The information supplied about the marine area will assist the working group in defining a set of key issues that the plan will address. These issues should also focus on the marine area objectives. They may include such things as the need to protect important habitats and species, opening up areas for the development of certain sectors and finding solutions to potential competition for space. The issues should be limited in number, taking into consideration the capacity to address them satisfactorily in the first planning cycle.

5.4.6 Designing alternative spatial scenarios

In developing the set of key issues, it may be helpful to consider spatial scenarios for the marine area. Spatial scenarios are visions of how an area may look in the future if alternative values, e.g., economic development or marine conservation, as well as future climate change scenarios, are emphasised. They may be drawn up on the basis of trends of environmental conditions and economic activities, projected forwards, and by envisaging desired futures. Alternative spatial scenarios may be devised, giving priority to different approaches to the use of marine space and the development of maritime activities. This should lead to the selection of a preferred spatial scenario for the area that is most in line with objectives. This preferred spatial scenario can then inform the definition of the key issues that must be addressed in the plan.

5.4.7 Developing and evaluating management actions

A number of alternative management actions will then be developed for addressing each key issue. These alternatives will be based upon appropriate management actions for the issue in question. Different alternatives for a particular issue may involve different management actions or variations of the same action. For example, enabling the expansion of mineral extraction whilst ensuring protection of an important habitat may be achieved by careful environmental management practices or by the establishment of a protected area; different versions of each of these management actions could be considered, such as alternative locations, scales for and management regimes of a protected area.

The full range of possible management actions should be considered at this stage, such as:

- Comprehensive zoning, indicating permitted and preferred uses in discrete zones covering the entire Marine Area;
- Individual spatial allocations, such as priority areas, safety zones, seasonal closures, concession areas, areas designated for environmental or cultural purposes;

- Temporal measures, such as areas closed during marine mammal breeding seasons or after sunset to improve compliance monitoring and to reduce the risk of collisions with ships;
- Identify the following measures to be taken up in the relevant sectors:
 - ✓ Incentives, such as tax concessions or grants for developments in certain zones;
 - ✓ Disincentives, such as higher taxes or stricter EIA requirements outside specified zones;
 - ✓ Regulatory measures such as licence and permit fees, effluent discharge fees, user pays royalties, quotas;
 - ✓ Technical measures, such as providing information to assist developers; and
 - ✓ Awareness-raising, education and training for professionals and the public.

The proposed management actions may reflect certain trade-offs between marine interests. The management actions for addressing each issue will then be evaluated. Evaluation criteria will be developed for this purpose, such as:

- The implications of the management action on other interests and for the Marine Area objectives as a whole;
- The capacity to mitigate any negative consequences of the management action;
- The regulatory measures needed in order to implement and enforce the management action;
- The financial cost of the management action and the feasibility of securing financing;
- The anticipated timescale of the management action;
- The acceptability of the management action to stakeholders and the public;
- The likely degree of success of the action; and
- Compatibility with other management actions and regulatory regimes.

When developing these criteria, close consideration will be given to the guiding principles for Marine Spatial Planning outlined in section two of this framework. A matrix will be drawn up in which different management actions and their performance against the evaluation criteria can be set alongside each other and compared.

It is important, when evaluating the management actions, that a distinction is drawn between actions that can be directly brought into effect by the plan, and those that can only be brought into effect by additional means, such as agreements or sectoral licensing. Options that are quickly achievable are likely to be rated more highly.

The Working Group will then select the preferred management action(s) for each issue, considering the compatibility of the actions selected. Where selected actions rely upon measures that the plan will not have the competency to introduce, it will be necessary to consider carefully the practical implementation of the measures concerned, and provide appropriate signposting and guidance within the Marine Area plan. The authorities that will play a role in implementing the options will be clearly identified.

Where a marine spatial planning decision has been taken on geographic use in an area, authorisations/permits/permissions and any other decisions required for the undertaking of

such activities in that area will be made in terms of the relevant sector legislation, taking into account the goals and principles in this Marine Spatial Planning Framework.

5.4.8 Preparing the draft Marine Area plan

The Working Group will then oversee the preparation of an initial, draft version of the Marine Area plan. This will be primarily for the purpose of inter-departmental, international and stakeholder consultation. The draft Marine Area plan will include the following elements:

- A summary of the national framework and an outline of the process being undertaken for preparing the plan;
- The Marine Area principles, goals, objectives and vision;
- A description of the Marine Area, including its outer boundaries, inner administrative boundaries and biophysical features;
- A description of the current and projected uses of the Marine Area;
- The key issues arising out of the assessment of the Marine Area;
- The management actions for addressing each of the key issues, including a statement about the authorities responsible for their implementation;
- A provisional timeline for delivering the Marine Area plan's proposed outcomes; and
- Funding requirements and a provisional financial plan.

In preparing the Marine Area plan, good use will be made of the most effective forms of communication, including maps and graphics as appropriate. The plan will be written in an accessible and concise style.

The draft Marine Area plan will be first agreed upon by the National Working Group and then made available to stakeholder groups, inviting their response (the second stage of stakeholder engagement). A deadline for responses will be set, giving sufficient time for proper consultation.

5.4.9 Reviewing and approving the Marine Area Plan

Consultation responses will be collated in a report to be presented to the Working Group. Consideration will be given to revising the plan in line with consultation comments and suggestions; this will include cross-departmental discussion both within and outside of the National Working Group to resolve any incompatibilities that may arise at this stage.

A reasoned response will be made to consultation responses, either to revise the plan accordingly, or to provide an explanation of why the plan cannot be revised in the way suggested. A report will be circulated to communicate this reasoning.

A revised version of the plan will then be prepared for agreement within the National Working Group. In addition to the points covered in the draft Marine Area plan, the final plan will include a full implementation plan, setting out the management actions needed to achieve the MSP objectives and the bodies that will have responsibility for these actions. Particular attention will be given to issues where integration with other planning regimes and international cooperation is needed.

The revised Marine Area plan, agreed by the National Working Group, will then be submitted for final approval by Ministerial Committee on Marine Spatial Planning via the Directors-General Committee on Marine Spatial Planning.

Following approval, the final version of the plan will be made widely and publicly available, including online

5.4.10 Implementing the Marine Area Plan

The National Working Group will oversee implementation of the Marine Area plan, as set out in the Implementation Plan. Implementation of the plan's provisions will mostly lie with those organs of state responsible for the regulation of marine activities. They will retain their regulatory powers, but will exercise them consistent with the relevant Marine Area Plan.

Depending on the nature of the management actions set out in the plan, this will involve such things as:

Communicating the provisions of the Marine Area plan across government and to stakeholders, including permissions and restrictions introduced by spatial allocations, and the precise coordinates of those allocations;

Informing government departments with maritime responsibilities of the need to exercise licensing and other powers in accordance with the Marine Area plan;

Securing government funding for public conservation and development actions identified in the plan;

Working with maritime industries to facilitate private investment in development opportunities identified in the plan;

Educating users to comply with the management actions and any good practice guidelines indicated in the plan;

Carrying out surveillance and inspections and taking enforcement action in relation to specific maritime activities as prescribed in the plan;

Negotiating with representatives of activities that are out of compliance to develop mutually agreeable solutions; and

Taking action where necessary to penalise violations and ensure future compliance.

To increase the success of compliance and enforcement, it is important that the provisions of the plan are clearly understandable, indicating what needs to be done, by whom and by when. The Marine Spatial Planning process will only be effective if it includes effective enforcement. However, this is a long-term process, and may involve shifts in behaviour of marine user groups.

A timeline for detailed implementation of the plan's proposals will be established as part of the Implementation Plan. This will distinguish between management actions that can be implemented swiftly, in the first year following plan approval, and those that require longer-term attention, that may be dependent on funding streams or initiatives from third parties.

5.4.11 Monitoring and evaluating the Marine Area Plan

To assess the extent to which the plan is successful in meeting its objectives and producing the desired results, the National Working Group will establish a process of monitoring the extent to which the plan's proposed management actions are being implemented. This will

include determining whether the sectoral regulation of marine activities is being carried out in accordance with the plan.

Some management actions can be monitored directly, such as the establishment of protected areas or the construction of offshore infrastructure. It is likely that other aspects of the plan will need to be monitored through selected indicators, such as the presence of certain species as an indicator of wider biodiversity.

A monitoring schedule will be developed, setting out the optimal parameters that will need to be observed to ensure proper coverage of the plan. These will be chosen as the key performance indicators that should be relevant and measurable. Baseline data will be gathered to provide a starting point for measuring performance.

The schedule will also set out the frequency of monitoring and the bodies that will have responsibility for monitoring different aspects of the plan. This will have regard to the resources available for monitoring, and will keep the elements of monitoring to a reasonable number. Where possible, monitoring data collected for other regulatory or management purposes will be drawn upon. The National Working Group will coordinate the results and publish an annual monitoring report that will be publicised and made publicly available.

Evaluation will involve taking a considered judgement on the plan's performance. This will be carried out in the light of the monitoring results by the National Working Group, in collaboration with scientists and stakeholders as appropriate. An analysis will be undertaken of the aspects of the plan that have been successfully implemented, those that have only been partially implemented, and those where little progress has been made. This will lead to recommendations for addressing any proposed management actions of the plan where more attention is needed. This evaluation will be included in the annual monitoring report.

Evaluation may also highlight the need for improved knowledge about the marine environment and the interactions of human activities upon each other and the environment. It may therefore lead to recommendations regarding the need for applied research to inform plan revision.

5.4.12 Revising the marine area plans

Following the principle of adaptability, once a Marine Area plan has been approved, consideration may be given at any stage to making amendments to the plan. This may be considered necessary if, for example:

- Monitoring and evaluating the plan brings to light any shortfall in the plan's performance;
- Environmental conditions undergo an unexpected change; and
- Opportunities for development unexpectedly diminish or arise.

Marine Area Plans should be revised regularly to allow for new knowledge and data about the marine areas and to take account of changing priorities for the protection and use of marine resources. The NWG will carry out any necessary analysis to support the proposed amendments and propose suitable changes to the Marine Area plan. The proposed amendment, with full reasoning, will be submitted to the Directors-General Committee on Marine Spatial Planning and the Ministerial Committee on Marine Spatial Planning for approval. Once approved, amendments will be incorporated into an amended version of the plan that will be publicised and made publicly available.

The steps outlined above will be a cyclical process, allowing the Marine Area Plans to be revised regularly. Revision will also allow the planning process to be improved in the light of experience, so that the process becomes more rigorous and effective with each cycle. It will also be possible to concentrate in more detail on certain aspects of the plans in subsequent cycles; for example, it may be desirable to develop more specific allocations and provisions for heavily-used areas, within the context of more strategic levels of planning for the marine areas as a whole.

The revision of each plan will thus build on the previous version of the plan, capitalising on improved data availability, growing experience of integrating sea uses through a range of planning measures and lessons learned from developing a Marine Spatial Planning system for South Africa. A revised plan will adapt, change, add to or replace the provisions of its predecessor plan as necessary – in line with the principle to continue what is working, and stop doing what is not working.

End notes

¹ Ehler, C., and F. Douvère (2009). *Marine Spatial Planning: a step-by-step approach toward ecosystem-based management*. UNESCO, Intergovernmental Oceanographic Commission: Paris, France at p24 available at <http://www.unesco-ioc-marinesp.be>

² Section 41 of Chapter 3 of the Constitution and Section 24 of the Constitution

³ South African Navy – Chapter 2, The South African Maritime Environment at p14 available from or www.navy.mil.za/SANGP100/SANGP100_CH02.pdf.

⁴ IHO C-55 http://www.iho.int/iho_pubs/CB/C-55/surveys.html

⁵ Lombard, A.T., Strauss, T., Harris, J., Sink, K., Dr Attwood, C., and Dr Hutchings, L. South African National Spatial Biodiversity Assessment 2004, Technical Report Volume 4: Marine Component, at p19

⁶ Republic of South Africa, Department of Environmental Affairs and Tourism (2008), South Africa's National Programme of Action for Protection of the Marine Environment from Land-based Activities, First Edition, Cape Town at p2-4

⁷ Peterson and Stramma, (1991), *Upper Level Circulation in the South Atlantic Ocean*, Prog. Oceanogr, vol 26

⁸ Op cit Lombard et al at p7

⁹ IHO C-55 http://www.iho.int/iho_pubs/CB/C-55/surveys.html

¹⁰ DAFF Annual Report 2013-14 at p25

¹¹ Ibid at p25

¹² Ibid pp6-7

¹³ Ibid p9

¹⁴ South Africa Year Book 2010/11 Chapter 23: Transport at pp530-535

¹⁵ Op Cit Atkinson, L. & Sink, K. (2008), *User profiles for the South African offshore environment* at p11

¹⁶ Petroleum Agency South Africa, History of exploration and production, available at <http://www.petroleumagency.co.za/Promotion/ExplorationHistory.aspx>

¹⁷ Information obtained from www.bcb.uwc.ac.za/envfacts/facts/marinepollution.htm

¹⁸ Op Cit South Africa's National Programme of Action for Protection of the Marine Environment at pp2-26

¹⁹ Information obtained from www.bcb.uwc.ac.za/envfacts/facts/marinepollution.htm

²⁰ Op Cit South Africa's National Programme of Action for Protection of the Marine Environment at pp2-31

²¹ Information obtained from
www.bcb.uwc.ac.za/envfacts/facts/marinepollution.htm

²² Information obtained from
www.bcb.uwc.ac.za/envfacts/facts/marinepollution.htm

²³ Op Cit South Africa's National Programme of Action for Protection of the Marine Environment at pp2-34

²⁴ Department of Environmental Affairs, *The value of the coast: sustainable coastal livelihoods programme*

²⁵ Martin and Nielsen, *Creation of a New Fisheries Policy in South Africa: The Development Process and Achievements*, , p1 available at
<http://www.ifm.dk/reports/3.PDF>

²⁶ South Africa Year Book 2010/11 Chapter 8 Energy at p186

²⁷ Bureau of Agricultural Research: Philippines available at
<http://www.bfar.da.gov.ph/pages/Programs/prog-seaweed.html>

²⁸ Op cit Troell et al