

# ***Namibian Islands' Marine Protected Area***

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Ministry of Fisheries and Marine Resources (MFMR)

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## Executive Summary

In response to the worldwide depletion of many fish stocks and other marine resources, commonly associated with over-fishing, unsustainable harvesting practices and uncontrolled human impacts, a clear global thrust has emerged towards a holistic management approach that takes account of entire ecosystems, multiple sectors and various management objectives. The necessity of marine habitat protection to promote sustainable marine resource use and marine biodiversity conservation<sup>1</sup> has recently been realized<sup>2</sup> and a number of coastal states have embarked on the creation of networks of Marine Protected Areas (MPAs).

One of the primary purposes of MPAs is to facilitate fisheries management, particularly the management of components of marine ecosystems that are not protected by traditional fisheries management. MPAs are regarded as one of the essential tools in the implementation of the ecosystem approach to fisheries (EAF)<sup>3</sup> management, a legal commitment in the SADC Fisheries Protocol, and a management approach embraced by the Namibian Ministry of Fisheries and Marine Resources (MFMR).

MPAs significantly assist traditional fisheries management in sustaining fisheries in many cases<sup>4</sup> and are increasingly receiving recognition and support as essential stock replenishment zones. Numerous studies have clearly demonstrated the benefits of MPAs on harvested species, such as increased abundance, biomass, body size and reproductive output and the associated socio-economic benefits derived thus. MPAs can have beneficial spillover effects on adjacent fished areas, particularly on harvested species such as lobsters, that are slow-growing, have a low natural mortality and are highly susceptible to over-fishing and other impacts<sup>5,6</sup>.

At an ecosystem level, MPAs provide a crucial role in the maintenance (or increase) of marine biological diversity, including genetic diversity, as well as the maintenance of essential ecological process. They act as reference points by representing marine habitats, and as reserves for the biodiversity protection of (threatened) species and habitats<sup>7</sup>.

MPAs allow the recovery of previously degraded habitats and have the capacity to buffer the effects of ecosystem change on biodiversity and ecosystem processes. Ecosystems

<sup>1</sup> Secretariat of the Convention of Biological Diversity (2004) and World Summit Sustainable Development (WSSD) Resolutions.

<sup>2</sup> Hutchings 2000, Meyers *et al.* 1997, Pauley *et al.* 1998, Hall 1999, Meyers & Worm 2003, Worm *et al.* 2005

<sup>3</sup> As well as in the advancement of a multi-sectoral approach towards integrated management.

<sup>4</sup> Attwood, C.G., Harris, J.M. and Williams, A. J. (1997a) *International Experience of marine protected areas and their relevance to South Africa*. South African Journal of Marine Science **18**: 311-322.

Attwood, C.G., Mann, B.Q., Beaumont, J. and Harris, J.M. (1997b) *Review of the State of marine protected areas in South Africa*. South African Journal of Marine Science **18**: 341 – 367.

Martin, K., Samoilys, M. A., Hurd, A. K. Meliane, I. and Gustaf Lundin C.G. (2007) *Experience in the Use of marine protected areas with fisheries management objectives – A review of case studies in Report and documentation of the Expert workshop on marine protected areas and fisheries management: review of issues and considerations*, Rome, 12-14 June 2006. FAO Fisheries Report **825**, 21-109.

<sup>5</sup> Kelley, S., Scott, D. and MacDiarmid, A.B. (2001) *The Value of a spillover fishery for spiny lobsters around a marine reserve in northern New Zealand*. Coastal Management **30**, 153 – 166.

Gell, F. R. and Roberts, C.M. (2003) *The Fishery Effects of Marine Reserves and Fishery Closures*. Report for WWF-US, 1250 24<sup>th</sup> Street, NW, Washington, DC 20037.

<sup>6</sup> Branch, G. M. and Griffiths, C. L. (Eds.) (1999) *Two Oceans – a guide to the marine life in Southern Africa*. Cape Town. David Phillip Publishers.

<sup>7</sup> IMCRA 1998, Kelleher 1999, Roberts *et al.* 2001, Ward *et al.* 2001, Roberts & Sargant 2002, Russ 2002, Gell & Roberts 2003b, Gjerde & Breide 2003, Blundell 2004

contained within MPAs tend to be more robust in the event of resource assessment uncertainty, management errors and climatic, ecological and social change.<sup>8</sup>

Furthermore, MPAs provide important scientific reference sites for studies centered on fisheries management<sup>9</sup>, which permit the proper identification and assessment of human impacts on biodiversity, including commercially important fish stocks and their habitats. This allows the effective development and implementation of protection measures. MPAs therefore provide crucial indicators of ecosystem health. Benefits derived from the creation of MPAs have been illustrated for various types of biota with different life histories, behavioral patterns and movements, as well as for different habitats and geographic regions.<sup>10</sup>

International endorsement for MPAs as a management tool includes policy declarations issued by the World Summit on Sustainable Development and the World Parks Congress.<sup>11</sup> These declarations set a target for governments to protect 20-30% of all marine habitats under their jurisdiction by 2012. Protected areas should include both territorial waters and the 200 nautical mile EEZ.

In 2005 the Directorate of Resource Management (DRM) within MFMR mandated the identification of MPAs in Namibia, with the purpose of protecting important spawning and nursery grounds for fish and other marine resources (such as rock lobster), as well as sensitive ecosystems and breeding areas for seabirds and marine mammals. As a first step, the DRM convened a meeting of environmental and legal specialists and scientists on 08 April 2005 in Swakopmund, to discuss both legal and scientific issues relevant to the identification and declaration of Namibian MPAs, and to refine its approach towards the attainment of these goals. Users and stakeholders to be consulted during the process were identified. These included the commercial fisheries, aquaculture, guano harvesting, eco-tourism<sup>12</sup>, NAMPORT, local authorities and diamond mining sectors. A review of old and current marine and environmental legislation was proposed, with regard to its relevance and implications for the declaration and management of MPAs by MFMR. Following the review,<sup>13</sup> it was agreed to follow a phased approach, whilst prioritizing areas in critical need of conservation.

The phased approach was adopted and implemented, with steady progress over the past two years. Through thorough consultation, the process aimed to:

- Identify priority representative areas to be protected, for which scientific information is available, on which to base sound management decisions.

<sup>8</sup> Sink, K. (2007) *A review of the role of the Marine Protected Area in the Tsitsikamma National Park in conserving marine biodiversity, supporting applied science and sustaining fisheries in South Africa.*

<sup>9</sup> Roberts, C.M. and Hawkins, J.P. (2000) *Fully Protected marine reserves: a guide.* WWF Endangered Seas Campaign, 1250 24<sup>th</sup> street, NW, Washington Dc 20037, USA and Environment Department, University of York, York YO10 5DD, UK

<sup>10</sup> Gell, F. R. and Roberts, C.M. (2003) *The Fishery Effects of Marine Reserves and Fishery Closures.* Report for WWF-US, 1250 24<sup>th</sup> Street, NW, Washington, DC 20037.

<sup>11</sup> Roberts, C.M. and Hawkins, J.P. (2000) *Fully Protected marine reserves: a guide.* WWF Endangered Seas Campaign, 1250 24<sup>th</sup> street, NW, Washington Dc 20037, USA and Environment Department, University of York, York YO10 5DD, UK.

Nel, D. (2006) *South Africa's Proposed Marine Protected Area around the Prince Edward Islands: an analysis of legal obligations, options and opportunities.*

Gell, F. R. and Roberts, C.M. (2003) *The Fishery Effects of Marine Reserves and Fishery Closures.* Report for WWF-US, 1250 24<sup>th</sup> Street, NW, Washington, DC 20037.

<sup>12</sup> Subsequently, the two islands closest to Lüderitz, Penguin and Seal island have been strategically identified as ideal propositions for eco-tourism and community awareness. Further islands have been identified for potential boat-based tourism, as indicated in the zonations at the end of this document.

<sup>13</sup> Currie, H. (2005) *Legal Review on the Declaration of Marine Protected Areas on and around Namibia's offshore islands.* WWF.

- Apply a multi-zoned approach in delineating areas with different management objectives.
- Avoid conflict between different use stakeholders.
- Create rational management boundaries.

At the start of this project, the project concept was presented to and approved by key Ministries, including the Permanent Secretaries of the Namibia's Ministries of Justice, Mines and Energy, Environment and Tourism and Fisheries and Marine Resources. Consultations then proceeded, in the form of communication, discussions and meetings with stakeholders, as well as formal workshops, briefing sessions and presentations.

The culminated opinion of these consultations resulted in consensus to clearly define a spatial area for MPA status. The proposed MPA area comprises a coastal strip in the south-west of Namibia's marine waters, extending from Hollamsbird Island (24°38'S), the northernmost island, to Sinclair Island (27°40'S) in the south, spanning approximately three degrees of latitude and an average width of 30 km. This includes 11 specified offshore islands and islets, as well as a number of rocks, which are key biodiversity foci. The total MPA area, also referred to as the buffer zone, has been further sub-zoned into four degrees of incremental protection. Zone 1 contains the most general (conservation measure) conditions applicable to all islands, islets and rocks throughout the buffer zone<sup>14</sup>, whereas zone 4 represents the highest protection status with specific conditions assigned individually to each island, islet or rock, as well as to Rock lobster sanctuaries and a proposed line fish sanctuary.

Extensive presentation, discussion and circulation of the information presented in this document has taken place with line Ministries and stakeholders. Their opinions and comments are included.

In this document, a Namibian MPA is defined to conform to the definition adopted by the Convention of Biological Diversity at its 7<sup>th</sup> meeting of parties in 2004 (Decision VII/5), which defines an MPA as: "any defined area within or adjacent to the marine environment, together with its overlaying waters, and associated flora, fauna and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings."<sup>15</sup>

This concept paper and management proposal recommends the development of a multi-zoned MPA along the Namibian coast, which specifically includes and addresses the islands, islets and rocks mentioned below. The IUCN (International Union for the Conservation of Nature) category VI *Managed Resource Protected Area* is recommended for the broader buffer zone of the proposed MPA, so that existing fisheries, aquaculture activities and mining activities should not be adversely affected through MPA promulgation.

<sup>14</sup> Including known whale calving areas within the MPA

<sup>15</sup> In other words, an MPA refers to an area within or adjacent to the marine environment that profits from a higher degree of protection than its surroundings. The general aim of MPAs is to contribute to the productivity of the marine environment and conservation of biological diversity, which includes ecosystem processes. Importantly, the design of an MPA (relating to its position, size, shape and management) depends on the characteristics of the specific ecosystem targeted as well as the stipulated management and conservation goals.

Specifically, it is intended that the first MPA proposed for Namibia will contribute to:

- sound management and conservation of marine resources under Namibia's jurisdiction;
- the protection of spawning and nursery grounds of the commercially exploited rock lobster (*Jasus lalandii*) and that of certain fish stocks and other marine resources, to promote stock recovery;
- protection of the foraging requirements of top predators in the Benguela Upwelling Ecosystem, including a number of globally threatened seabirds;
- MFMR's "precautionary principle" management strategy, whereby representative habitats are set aside to mitigate potential future threats, as well as MFMR's legal obligations to EAF management;
- improved vigilance with regard to risks posed by shipping-related threats, such as oil spills;
- continued collection of oceanographic and biological data from offshore island sites, constituting important monitored indicators of the state of Namibia's marine environment and coastal ecosystem (contributing an integral link to Namibia's environmental monitoring system);
- awareness, in a regional context, regarding novel approaches to the declaration and management of offshore MPAs;
- enhancement of Namibia's international relations by illustrating steadfast commitment to international environmental treaties, regional and national needs and requirements, and international law.<sup>16</sup>

Namibia's coast is a valuable national resource and community asset. Maintaining the health and integrity of Namibia's marine ecosystems is fundamental to good oceans management<sup>17</sup>, in order to assure the systems' continued sustainability. This is the foundation on which the multiple use management of Namibian waters needs to be pursued.<sup>18</sup>

The outlined legal and policy instruments need to be creatively used in order to conserve, protect and use our marine resources wisely for the benefit of all Namibians and future generations. This MPA designation will greatly advance Namibia's progress in meeting international legal obligations<sup>19</sup> and policy commitments, particularly with respect to MFMR's commitment to EAF management, and would significantly contribute to a national and global network of MPAs.

<sup>16</sup> See the legal instruments referred to in Currie, H. (2005) *Legal Review on the Declaration of Marine Protected Areas on and around Namibia's offshore islands*.

<sup>17</sup> Australia's Ocean's Policy, 1998, p. 3.

<sup>18</sup> *supra*

<sup>19</sup> Namibia to date has no formally proclaimed MPAs, in spite of international legal requirements stemming from the WSSD and the Convention on Biodiversity (CBD) to have 20 % of representative habitats under formal protection by 2010.

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## List of acronyms

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BCLME	Benguela Current Large Marine Ecosystem
CBD	1992 Convention on Biological Diversity
CETN	Coastal Environmental Trust of Namibia
CMS	Convention for Migratory Species
CTA	Chief Technical Adviser
DRM	Directorate of Resource Management
EAF	Ecosystems Approach to Fisheries Management
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessments
FIMS	Fisheries Independent Monitoring Surveys
IUCN	International Union for the Conservation of Nature
LA	Local Authority
LME	Large Marine Ecosystem
MET	Ministry of Environment and Tourism
MFMR	Ministry of Fisheries and Marine Resources
MME	Ministry of Mines and Energy
MPA	Marine Protected Area
NNF	Namibia Nature Foundation
RAP	Restricted Area Permit
SADC	Southern African Development Community
SPAN	Strengthening Protected Area Networks
STA	Senior Technical Adviser
VMS	Vessel Monitoring Systems

# 1. INTRODUCTION

In response to the worldwide depletion of many fish stocks and other marine resources, commonly associated with over-fishing, unsustainable harvesting practices and uncontrolled human impacts, a number of coastal states have embarked on the creation of a regional network of Marine Protected Areas (MPAs). The Argentinean experience in MPA management, for example, has reaped such extensive benefits and proven to be such a success story, that the Argentinean fishing industry<sup>20</sup> now expresses staunch support towards the use of MPAs and closed areas as positive fisheries management tools.

One of the primary purposes of MPAs is to facilitate fisheries management, by protecting the habitat of depleted, threatened or endangered species (including commercially important fish stocks) in an effort to restore and enhance their populations. International endorsement for MPAs as a management tool includes policy declarations issued by the World Summit on Sustainable Development and the World Parks Congress.<sup>21</sup> These declarations set a target for governments to protect 20-30% of all marine habitats under their jurisdiction by 2012. Protected areas should include both territorial waters and the 200 nautical mile EEZ. By the time Namibia became independent in 1990, many important fish stocks and other marine resources in Namibian waters had been severely depleted following decades of poorly regulated and unsustainable exploitation.<sup>22</sup> In order to remedy this situation, the Ministry of Fisheries and Marine Resources (MFMR) mandated the development and implementation of management policies, laws and regulations geared towards optimal and sustainable harvesting of marine resources within the context of the conservation of marine ecosystems. More recently, MFMR has made it a priority to embrace an “Ecosystem Approach to Fisheries (EAF) Management” to improve the management of its fish stocks. The purpose of this approach is essentially to sustain the health of the northern Benguela ecosystem in conjunction with the responsible use of its marine resources for current and future generations. The approach includes provision for a proportion of Namibia’s marine areas to be declared MPAs.<sup>23</sup>

In 2005 the Directorate of Resource Management (DRM) within MFMR mandated the identification of MPAs in Namibia, with the purpose of protecting important spawning and nursery grounds for fish and other marine resources (such as rock lobster), as well as sensitive ecosystems and breeding areas for seabirds and marine mammals. As a first step, the DRM convened a meeting of environmental and legal specialists and scientists on 08 April 2005 in Swakopmund, to discuss both legal and scientific issues relevant to the identification and declaration of Namibian MPAs, and to refine its approach towards the attainment of these goals. Users and stakeholders to be consulted during the process were identified. These included the commercial fisheries, aquaculture, guano harvesting, eco-

<sup>20</sup> Argentine fishing industry leader Guillermo Jacobs made a FVSA-WWF video, committing his support to a high seas MPA for the Argentine shortfin squid stock and first option for the design of the MPA drafted with the fishing industry.

<sup>21</sup> Roberts, C.M. and Hawkins, J.P. (2000) *Fully Protected marine reserves: a guide*. WWF Endangered Seas Campaign, 1250 24<sup>th</sup> street, NW, Washington Dc 20037, USA and Environment Department, University of York, York YO10 5DD, UK.  
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Gell, F. R. and Roberts, C.M. (2003) *The Fishery Effects of Marine Reserves and Fishery Closures*. Report for WWF-US, 1250 24<sup>th</sup> Street, NW, Washington, DC 20037.

<sup>22</sup> Boyer, D.C. and Hampton, I. 2001. *An overview of the living marine resources of Namibia*. South African Journal of Marine Science 23: 5-35.

<sup>23</sup> It is important to note, that although around 10 % of the world’s terrestrial area falls under formal protection, less than 0,3% of the world’s oceans are formally protected.

tourism<sup>24</sup>, NAMPORT, local authorities and diamond mining sectors. A review of old and current marine and environmental legislation was proposed, with regard to its relevance and implications for the declaration and management of MPAs by MFMR. Following the review,<sup>25</sup> it was agreed to follow a phased approach, whilst prioritizing areas in critical need of conservation.

The phased approach was adopted and implemented, with steady progress over the past two years. Through thorough consultation, the process aims to:

- Identify priority representative areas to be protected, for which scientific information is available, on which to base sound management decisions.
- Apply a multi-zoned approach in delineating areas with different management objectives.
- Avoid conflict between different use stakeholders.
- Create rational management boundaries.

The MPA proposed in this document, which includes all of southern Namibia's offshore islands and surrounding waters, is aimed at ultimately providing greater protection for biodiversity, recruitment areas, endangered species and habitats, as well as benefiting the rock lobster and line fish resources and industries.<sup>26</sup> As the IUCN (International Union for the Conservation of Nature) category VI *Managed Resource Protected Area* has been recommended for the broader buffer zone area of the proposed MPA, existing fisheries and mining activities should not be adversely affected through the declaration of an MPA .

Where there is a risk of serious and irreversible environmental damage resulting from an ocean use, that use should only be permitted if the damage can be mitigated, or is limited in extent, and there is an overriding community benefit from this use.<sup>27</sup> Similarly, incomplete information on potential impacts should not be used as a reason for postponing precautionary measure intended to avoid or reduce unacceptable levels of change or to prevent serious or irreversible environmental degradation of the oceans. This essentially encapsulates three International Law principles, namely the precautionary - , preventative and polluter pays principles, which arguably should attain customary law status, meaning that they are generally applicable, even in the absence of specific, legal instruments in countries' national jurisdictions outlining their status and commitment. These are also reflected in Namibia's marine resource legislation and regulations.

The sea is a valuable national resource and community asset, and the outlined legal and policy instruments need to be creatively used, in order to conserve, protect and use our marine resources wisely for the benefit of all Namibians and future generations.

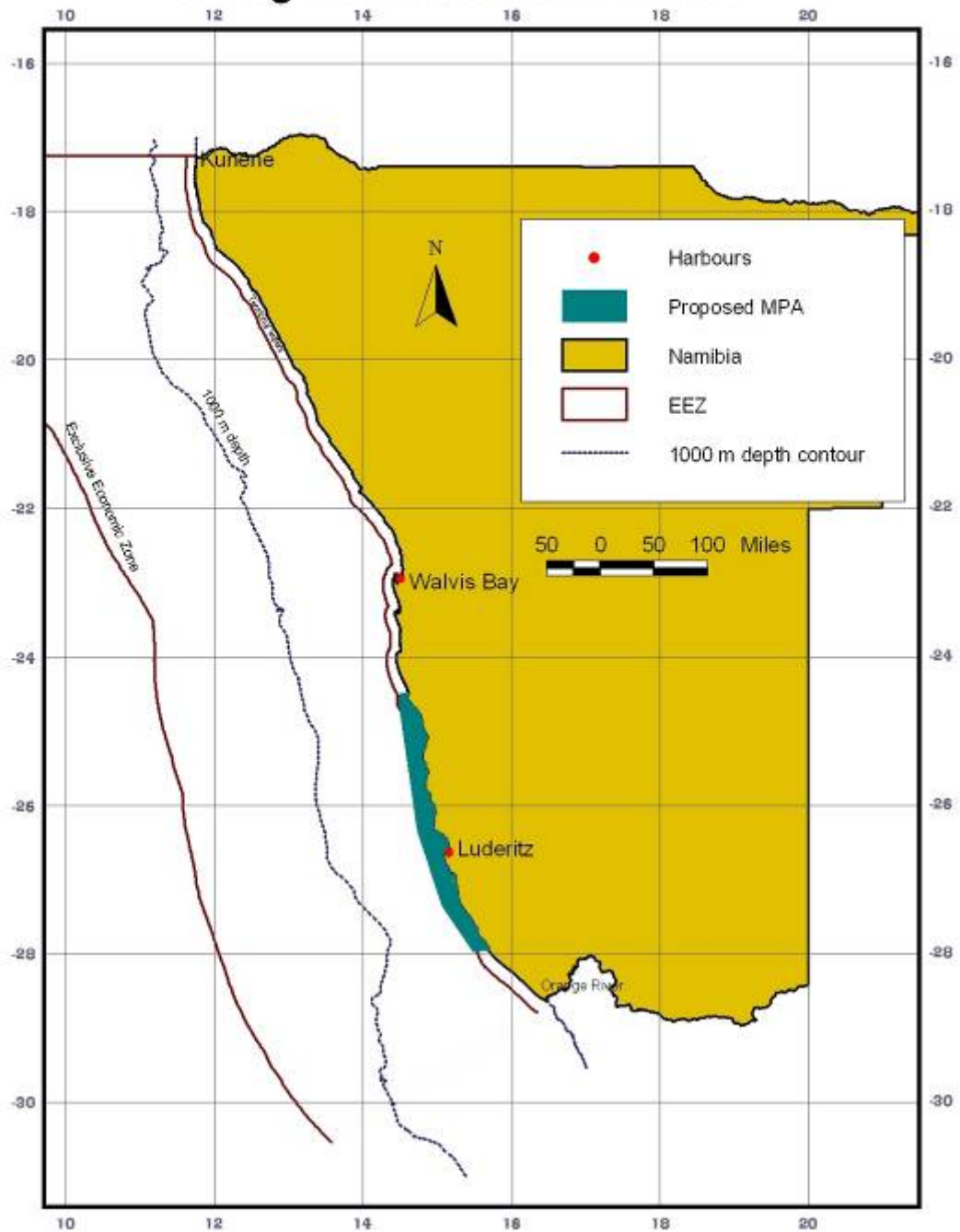
<sup>24</sup> Subsequently, the two islands closest to Lüderitz, Penguin and Seal island have been strategically identified as potential propositions for eco-tourism and community awareness. Further islands have been identified for potential boat-based tourism, as indicated in the zonations at the end of this document.

<sup>25</sup> Currie, H. (2005) *Legal Review on the Declaration of Marine Protected Areas on and around Namibia's offshore islands*. WWF.

<sup>26</sup> Specifically kabeljou (silver kob) and steenbras

<sup>27</sup> See Australia's Oceans Policy, 1998

## Proposed Marine Protected Area along the Namibian coast



## 2. SIGNIFICANCE OF ISLANDS AND COASTAL AREAS

The wind-driven Benguela Current up-welling system is one of the four eastern boundary current systems found on the planet. Situated along the southwestern African coastline between Cape Agulhas (34°5'S) and southern Angola at 10°S, the Benguela Current system, and in particular its northern sector, adjacent to Namibia's coastline, is one of the most productive marine ecosystems in the world.<sup>28</sup> The concentration and retention of nutrients in the coastal region, as a result of upwelling, support a host of fish assemblages and top predators such as seabirds and marine mammals.<sup>29</sup> In addition, the coastline provides some important retention areas and nursery grounds for juvenile and larval stages of pelagic fish and lobsters. Breeding habitats for important marine mammals are located along the coastal areas. A number of islands, islets and rocks provide important breeding habitats and roosting grounds for a range of seabirds of high conservation and economic importance.

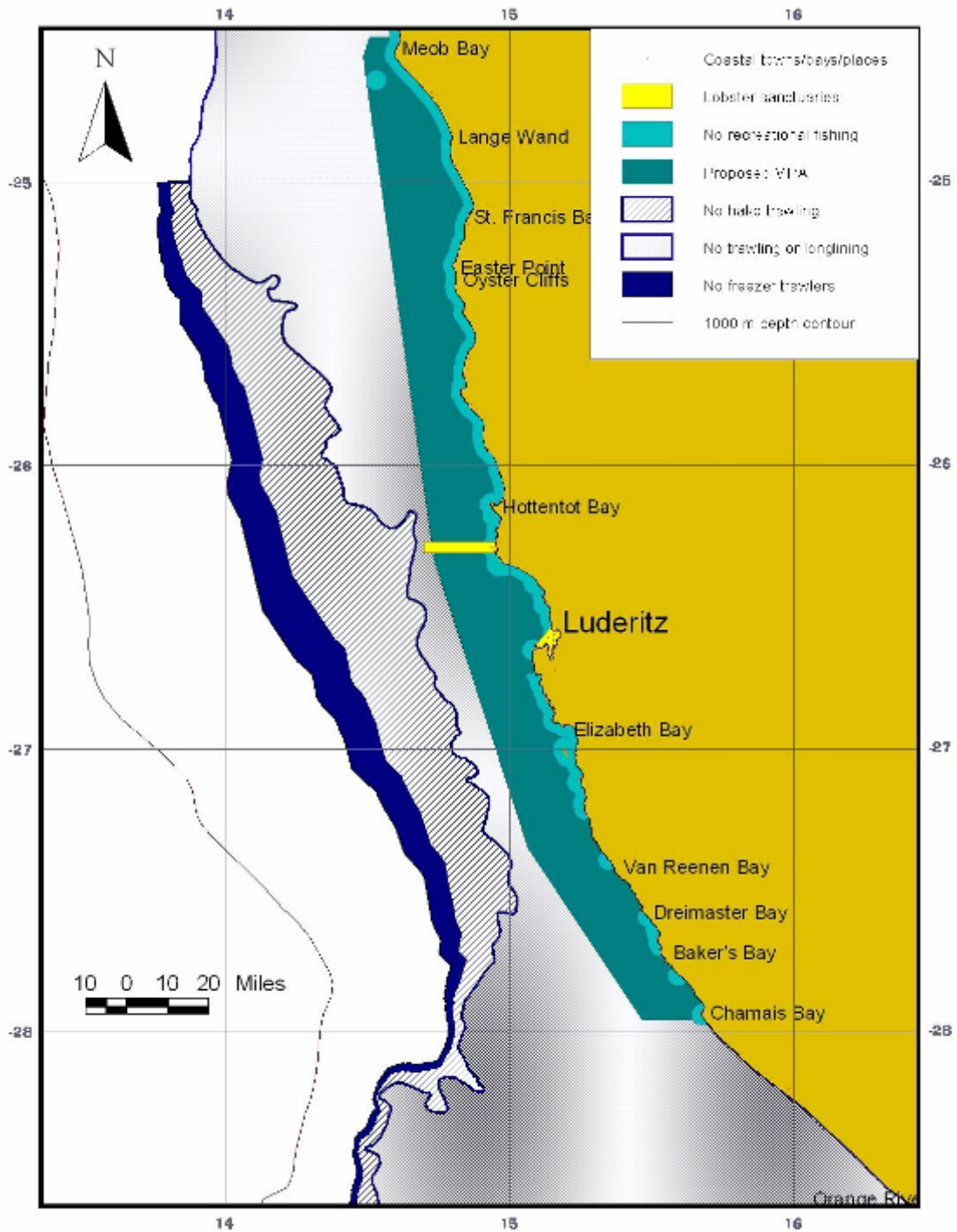
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<sup>28</sup> Carr, M.-E. (2001) *Estimation of potential productivity in Eastern Boundary Currents using remote sensing*. Deep Sea Research, California Institute of Technology.

<sup>29</sup> Crawford, R.J.M. (1998) *Responses of African Penguins to regime changes of sardine and anchovy in the Benguela system*. South African Journal of Marine Science 19: 355-364.

**NAMIBIAN ISLANDS' MARINE PROTECTED AREA**

*Proposed MPA in relation to marine areas that are presently protected from specific activities through Fisheries regulations.*



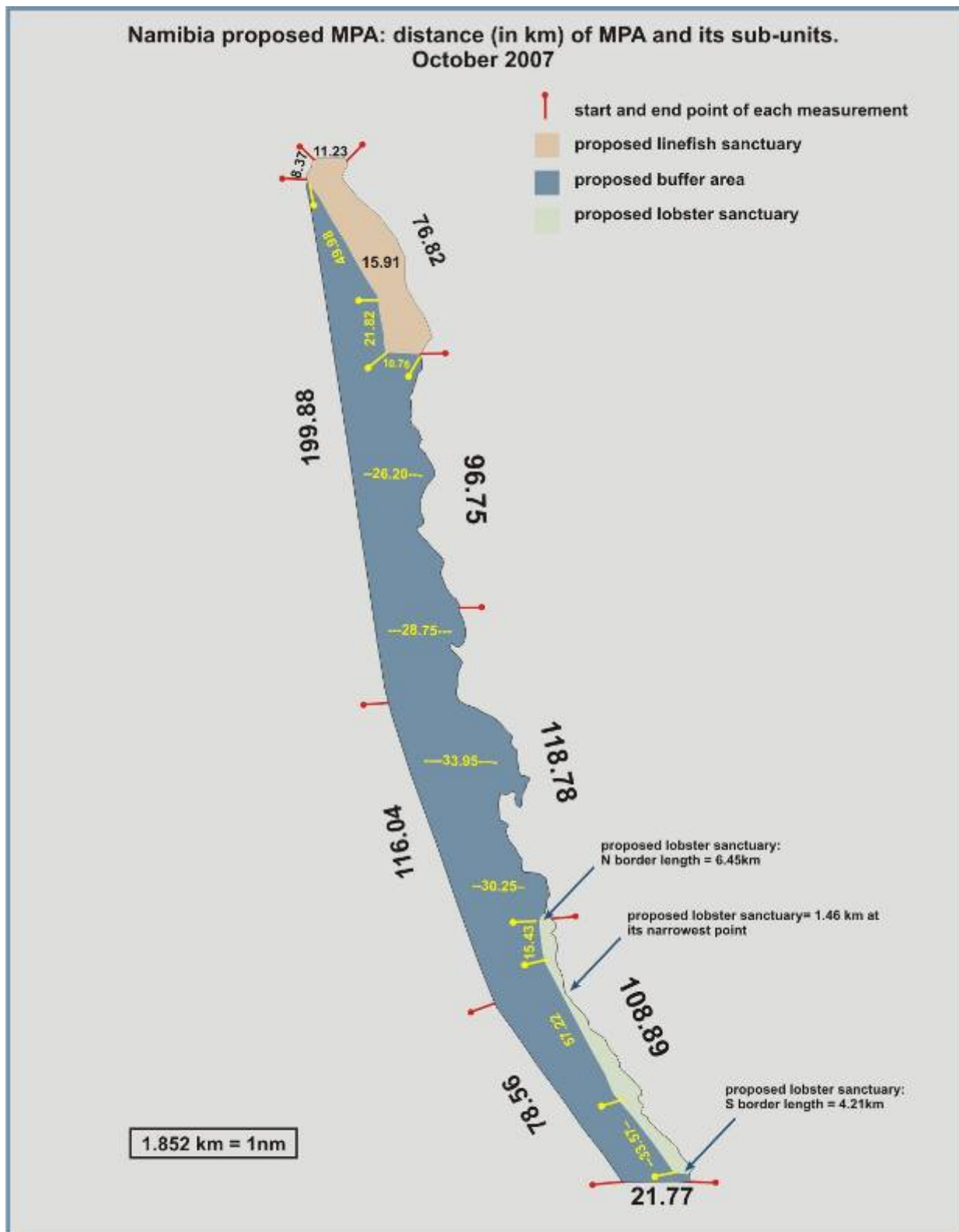
A total of 11 natural islands and islets, as well as a number of rocks<sup>30</sup> are specifically addressed in this document. These islands extend from Hollamsbird Island (24°38'S), the northernmost island, to Sinclair Island (27°40'S) in the south, spanning approximately three degrees of latitude. The islands are small, ranging in size from 0.2 hectares (ha), (Neglectus Islet) to 90 ha (Possession Island). Although the combined surface area of the islands, islets and rocks amounts to approximately 2.35 km<sup>2</sup> or less than 0.0003% of the total area of Namibia of 823 144 km<sup>2</sup>, their importance and significance rests on the marine species they support and protect, as well as the rich surrounding inter-tidal and kelp-bed communities. Details of the breeding seabird species breeding on these islands are indicated below and in Tables 2 and 3 in Appendix 2. The entire area of the proposed MPA spans 9555,25 km<sup>2</sup>, with the proposed line fish sanctuary in the north hereof constituting approximately one ninth of the area, i.e 1002,86 km<sup>2</sup>. The proposed<sup>31</sup> rock lobster sanctuary between Prince of Wales Bay and Chamais Bay constitutes 478,07 km<sup>2</sup>.

As indicated in the maps and diagrams below, the average width of the proposed MPA is approximately 30 km, and the total length is approximately 400 km.

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<sup>30</sup> Including their surrounding waters and some adjacent coastal areas as indicated below

<sup>31</sup> There are two existing rock lobster sanctuaries within the proposed MPA area, around Ichaboe Island and at Lüderitz, as indicated in the maps.





The islands are located in the vicinity of the Lüderitz Upwelling Cell, the strongest (of the seven) upwelling cells within the Benguela Upwelling Ecosystem. Here, perennial strong long-shore southerly and south-westerly winds, account for the cold and nutrient-rich waters upwelled to the surface.<sup>32</sup> The ecological importance of upwelling lies in the supply of abiotic nutrients from deep water to the euphotic zone, resulting in enhanced primary productivity. The upwelling of high concentrations of nutrients, together with optimal light, temperature and oxygen conditions in the water column, promote the production of phytoplankton forming the basis of a food web of zooplankton dominated by copepods and euphausiids, which in turn are ultimately fed on by pelagic fish stocks such as the commercially important Sardine (*Sardinops sagax*) and Anchovy (*Engraulis capensis*), as well as non-commercial Pelagic goby (*Sufflogobius bibarbatus*). The impact of the Lüderitz upwelling cell plays the most significant role in regulating the fish biomass not only locally but also northwards to fish stocks of central Namibia.<sup>33</sup> Because of its consistency and strength, the Lüderitz upwelling cell is thought to act as an environmental barrier, effectively dividing the Benguela Upwelling Region into a northern and southern component.

As indicated below<sup>34</sup>, the islands are situated along Namibia's southern coastline, roughly between latitudes 24° and 27° South. Air temperatures range, on average, from 9° C to 25° C, with extreme conditions up to 38° C experienced during the brief east-wind periods in autumn and winter. Sea surface temperatures generally range between 12° C and 14° C but may vary in relation to upwelling conditions. The entire Namibian coastal zone is marked by low rainfall, with annual precipitation less than 20 mm, decreasing from south to north. Additional moisture from fog is common north of Lüderitz.

All islands are predominantly rocky and may be sparsely covered with accumulations of sand, shells, seal hair and guano. The geological origins of the islands have been described as diverse, with some adjacent islands showing similar geological characters, for example Plumpudding and Sinclair-, Seal and Penguin Islands. All islands described in this report are relatively low in elevation, with maximum elevation above sea level ranging from 3 m (Neglectus Islet) to 49 m (Penguin Island). During heavy seas and extreme spring high tides sections of some islands and islets are washed over by waves or spray.

Breeding seabirds and seals dominate the islands' land fauna and many seabird species occur in globally significant numbers. A few of the larger islands support a sparse lizard population. The islands are typically considered true desert islands, with many not supporting any vascular plants. Seal, Penguin, Halifax, Pomona, Possession and Plumpudding Islands support small *Lycium* bushes, and are the only islands with natural vegetation. Mercury and Ichaboe, the major guano islands, lack natural terrestrial vegetation. The large seabird colonies residing on the islands supply nutrients to the littoral and sub-littoral communities living around these islands through their guano. The seal colonies along the coast have a similar localized impact.

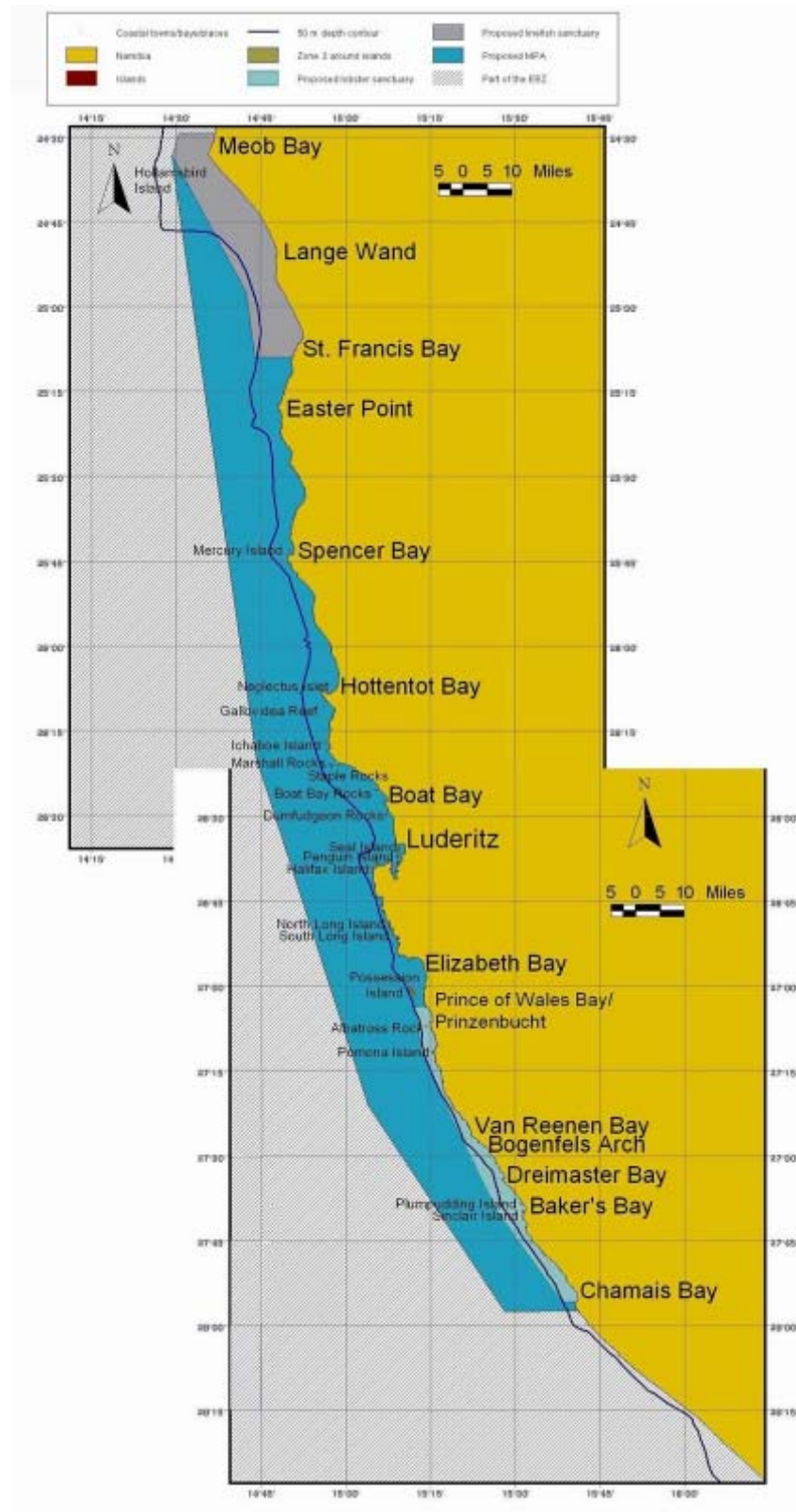
<sup>32</sup> Molloy, F. (2003) *Biological Environment*. In: Molloy, F. and Reinikainen, T. (eds), *Namibia's Marine Environment*. Directorate of Environmental Affairs of the Ministry of Environment and Tourism, Windhoek, Namibia.  
Shillington, F. (2003). Oceanography. In: Molloy, F. and Reinikainen, T. (eds), *Namibia's Marine environment*. Directorate of Environmental Affairs of the Ministry of Environment and Tourism, Namibia, Windhoek.

<sup>33</sup> Molloy, F. (2003) *Biological Environment*. In: Molloy, F. and Reinikainen, T. (eds), *Namibia's Marine Environment*. Directorate of Environmental Affairs of the Ministry of Environment and Tourism, Windhoek, Namibia.

<sup>34</sup> In order for the maps to appear in readable size, they have been divided into two, with the 'northern' and 'southern' islands respectively.

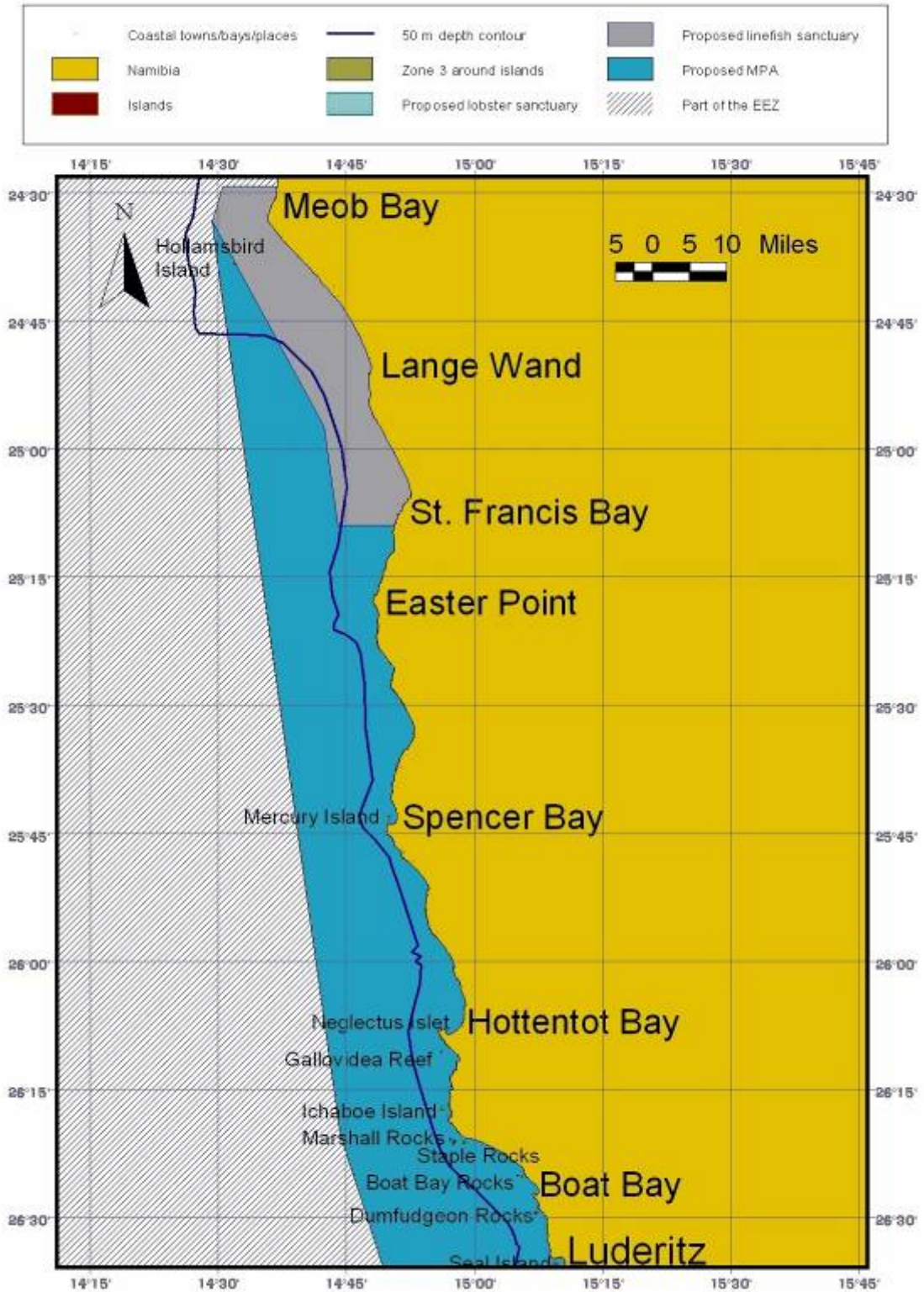
**NAMIBIAN ISLANDS' MARINE PROTECTED AREA**

*Proposed MPA showing the location of all islands and major bays, as well as the proposed buffer zone, line fish and lobster sanctuaries.*



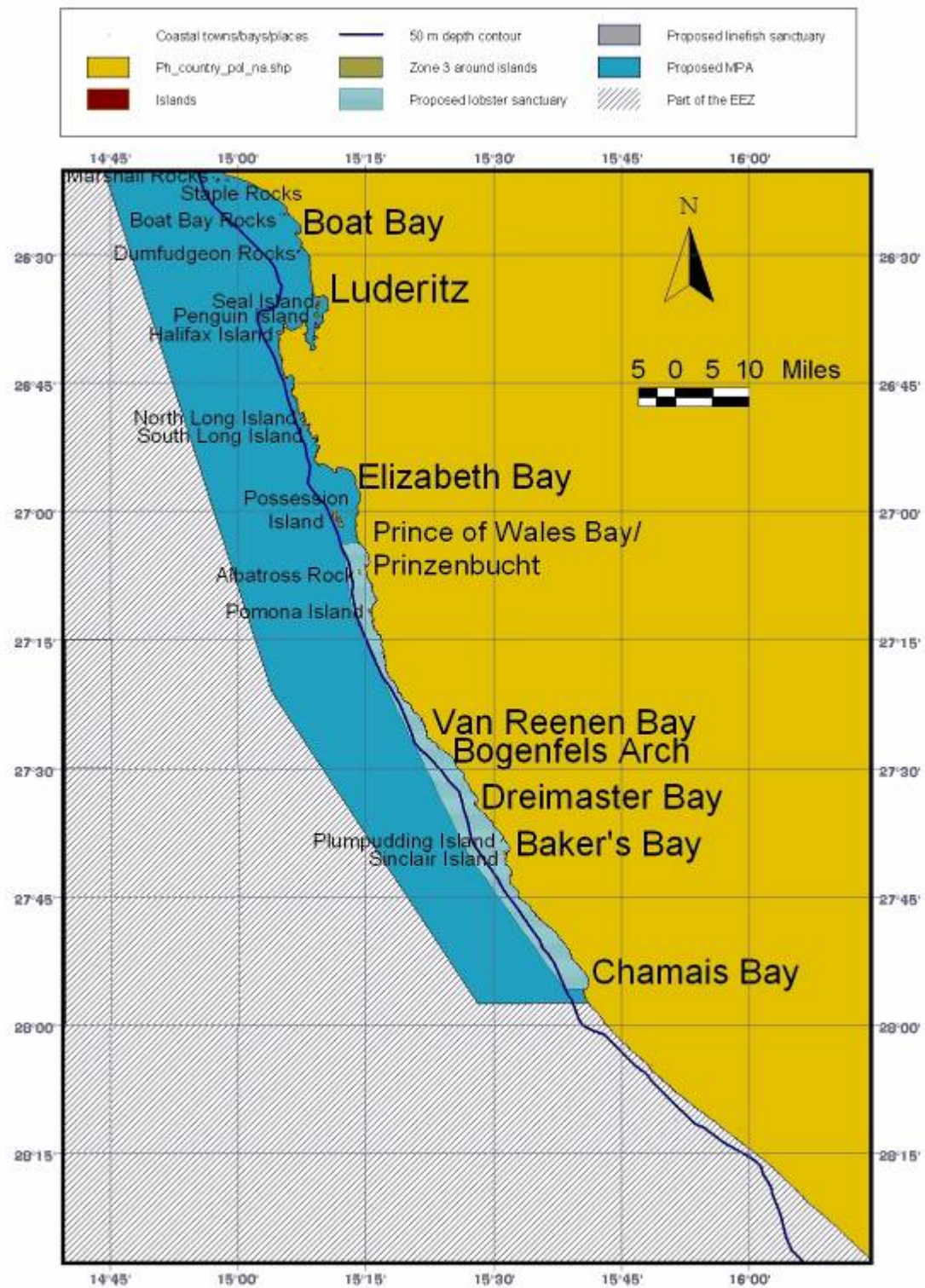
**NAMIBIAN ISLANDS' MARINE PROTECTED AREA**

*Proposed MPA showing the location of all islands and major bays, as well as the proposed buffer zone, line fish and lobster sanctuaries. Northern map: Meob Bay to Lüderitz.*



**NAMIBIAN ISLANDS' MARINE PROTECTED AREA**

*Proposed MPA showing the location of all islands and major bays, as well as the proposed buffer zone, line fish and lobster sanctuaries. Southern map: Boat Bay / Lüderitz to Chamais Bay.*



### 2.1.1 Island history

Apart from the Nama, who historically lived along the Namibian coast, the first people to explore the Namibian coast and the offshore islands were Portuguese seafarers in the late 15th century,<sup>35</sup> followed by American and English whalers and sealers hunting along the coast from the 1820s. Reports of extensive guano deposits “30 to 40 feet high at the front after already taking six feet from the top” sparked a massive guano rush to Ichaboe Island in 1843. Seabirds and their eggs provided a food source for labourers. By February 1846, all guano (about 200 000 tons) had been removed from Ichaboe Island and attention turned to inferior guano deposits at other islands.

Towards the end of the 19th century, Germany laid claim to the area around Lüderitz which prompted, among other legislation, the formulation of the Walfish (sic) Bay and St John's River Territories Annexation Act, 1884 (Act 35 of 1884 of the Cape of Good Hope Parliament). The objective of this piece of legislation, enacted by the British Government at the Cape Colony, was to prevent Walvis Bay, the only safe harbour along the Namib Desert coast, as well as the islands (which still yielded some profitable guano deposits and seals), from being annexed by Germany during the “scramble for Africa” in the 19th century. The government of the Cape Colony had already taken over authority of the islands and their guano accumulations in the 1870s, and the exploitation of guano stocks and seals remained under government control until the early 1980s. During this period, buildings for seasonal labourers and permanent island headmen, tasked with guarding the guano, were erected on all islands. Diamond prospecting was carried out at some of the islands during 1910, particularly at Possession and Halifax Islands. Some diamonds were found at Possession Island but mining was not economically viable there at the time<sup>36</sup>. Seals began to colonize the mainland opposite Long Islands, leading to the development of the Wolf and Atlas Bay seal colonies during the 1940s. Exploitation of seals then became more cost-effective, and less risky at the mainland colonies than at the islands where sealing soon ceased. During the Second World War artificial fertilizers began to be developed on an industrial scale, causing the price of guano to fall. This, together with large-scale declines in numbers of guano-producing seabirds, led to the abandonment of guano exploitation from most Namibian islands. Because of the drop in guano production, personnel began to be removed from the islands during the early 1950s.<sup>37</sup>

Under the authority of the Cape Provincial Administration, South Africa, all offshore islands were declared nature reserves in 1987 and were placed under the control of the then Department of Nature Conservation of the Cape Province. Namibia achieved independence in 1990. The Annexation Act of 1884 was repealed by South Africa in 1994 and the “Walvis Bay Enclave”, including all offshore islands, was transferred from South Africa to Namibia by the Transfer of Walvis Bay to Namibia Act, 1993 (Act 203 of 1993 of the South African Parliament). Since 1994, MFMR has been responsible for the management of the islands. Guano is still harvested commercially in Namibia, but most of this is now cormorant guano harvested at artificial platforms built for that purpose. However, the areas occupied by Cape

<sup>35</sup> Kolberg, H. (1992) *Untersuchungen bei, und Zählung der Brillenpinguine (Spheniscus demersus) auf der Insel Halifax*. Mitteilungen: Namibia Wissenschaftliche Gesellschaft 33:5;

Pallett, J. (ed.) (1995) *The Sperrgebiet: Namibia's least known wilderness*. DRFN and NAMDEB, Windhoek, Namibia.

<sup>36</sup> Wagner, P.A. (1971) *The diamond fields of southern Africa*. C. Struik, Cape Town, South Africa.

<sup>37</sup> Shaughnessy, P.D. (1984) *Historical population levels of seals and seabirds on islands off southern Africa, with special reference to Seal Island, False Bay*. Sea Fisheries Research Institute Investigational Report. 127: 1-61.

gannets *Morus capensis* at Ichaboe Island are still scraped occasionally, most recently in 2007.

## 2.2 Coastal Areas and Shallow Sub-tidal Reefs

The coastline of Namibia consists mainly of long stretches of sandy beaches. These long sandy stretches are sparsely interspersed by rocky shores, of which most occur south of Easter Point / Oyster Cliffs.<sup>38</sup> The only virtually continuous rocky coast in Namibia occurs between Bogenfels<sup>39</sup> and Lüderitz (about 80 km). South of this, the coast is interspersed with rocky outcrops. In comparison to sandy shores, rocky shores harbour rich plant and animal life. Sub-tidally the rocky shores extend as sub-tidal reefs supporting kelp bed communities, including commercially fished species such as rock lobster *Jasus lalandii*. The complexity of rocky shore community structure offers a wide variety of niches, occupied abundantly by both seaweeds and representatives of most invertebrate phyla. Rocky reefs in Namibia support the highest biomass of mussels per unit area in the southern African region.<sup>40</sup> Species diversity however is low to moderate. Rocky shores provide feeding and breeding grounds for not only the attached fauna, but also for fish, birds, and marine mammals. The complex structure of the kelp beds offers food, protection and shelter to young and vulnerable life stages of many marine animals.

All the Namibian islands possess rich rocky inter-tidal zones deepening into kelp bed reefs, thereby valuably and substantially increasing the proportion of rocky shore habitat and enhancing biomass accordingly. Most of the shallow (<30 m) sub-tidal rocky reef areas occur between Mercury Island and Chamais Bay, which falls within the proposed MPA buffer zone, as indicated in part 3 below. Because of the rocky reef structure – the habitat for lobsters – this area also constitutes some of the main recruitment grounds of the commercially important rock lobster. North of Spencer Bay, the occurrence of rocky outcrops becomes less frequent, giving way to mixed rock and sand.

Some of the rocky reefs north of Spencer Bay support a host of reef fish, such as galjoen, blacktail, white stumpnose and hottentot (with the two latter species also occurring in relatively large numbers south of Spencer Bay). The surf zone of these rocky shores hosts feeding grounds for terns, particularly Damara terns and Swift terns.

Zoogeographically, the islands fall into the Namaqua south temperate zone.<sup>41</sup> Many intertidal and reef species (such as the kelp *Ecklonia maximus*, some molluscs e.g. *Chaetopleura papilio* and echinoderms e.g. *Patira granifera*) are not found northwards of Sylvia Hill, so this stretch of coast comprises the northernmost limit for many species belonging to the species-richer southern temperate zone. Northwards, along the central Namibian coast, the fauna transitions into the characteristically species-poorer northern temperate zone.

<sup>38</sup> Co-ordinates of caves along here: 25 19'53.5S. 14 48' 43.OE and 25 20' 03S and 14 48' 42 E (co-ordinates given in degrees, minutes and decimal seconds; very close to one another).

<sup>39</sup> 27 27' 27.72S and 15 23' 27.11E

<sup>40</sup> Harris, J. M., Branch, G.M., Elliott, B. L., Currie, B., Dye, A.H., McQuaid, D. D., Tomalin, B.J. and C. Velasquez (1998): *Spatial and temporal variability in recruitment of intertidal mussels around the coast of southern Africa*. South African Journal of Zoology **33** (1) 1-11.

<sup>41</sup> Emanuel, B. P., Bustamante, R. H., Branch, G. M., Eekhout, S. and F.J. Odendaal (1992) *A zoogeographic and functional approach to the selection of marine reserves on the west coast of South Africa*. South African Journal of Marine Science **12**: 341-354.

Therefore, with regards to both species-richness and biomass, it is advantageous to preserve, the rocky shore fauna and flora in the proposed MPA buffer zone. Benthic species are not only important in terms of harvestable resources (such as the rock lobster), but also in terms of biodiversity preservation and the maintenance of ecosystems and essential ecological processes. Most of Namibia's marine reef areas occur inshore between Mercury Island and Chamais Bay, which include areas targeted by marine and land-based diamond mining, as well as the inshore rock lobster commercial fishery. Parts of these inshore areas and habitats have already been cumulatively impacted by either diamond mining and / or lobster fishing. Some areas have been more severely depleted and impacted, for example by smothering of kelp beds through mining-related sediments (from seawall erosion, mining discharge points, overcast burden and material from mining vessels, kelp cutting to facilitate mining), direct destruction of the seabed (by *inter alia* air lifts, gravel suction pumps, dredge mining) as well as the impact of fishing gear (mainly lobster traps) on reefs and kelp beds.

### 2.3 Marine fauna and flora

With the exception of seabirds and seals, the rocky shore fauna is generally poorly documented with respect to occurrence within island zones. Differences between marine flora around islands and that along mainland shores, although poorly documented, may be the result of high input levels of nutrients from guano into immediate island surroundings as well the lee effects on the eastern shores of the islands.

#### 2.3.1 Sub-tidal and inter-tidal benthic communities

The rocky areas around the islands provide rich inter-tidal zones and crucial substrate for kelp beds and various benthic species, including the commercially important west-coast rock lobster (*Jasus lalandii*). Lobster juveniles use the kelp beds around the islands for shelter, from where they will migrate to surrounding areas as they mature. The rocky reef provides important food for lobsters, and Mayfield (1998)<sup>42</sup> showed that the diet of *J. lalandii* includes species found on these reefs, such as:

- *Aulocomya ater* – ribbed mussel
- *Choromytilus meridionalis* – black mussel
- *Notomegabalanus algicola* – white dwarf barnacle
- *Parechinus angulosus* – sea urchin
- *Corraline* algae
- *Polychaete* worms
- Various fish species
- Sponges (e.g. *Tethya*)

Typical of cold water habitats, the benthic species diversity along Namibia's coastline is relatively low, but densities are high. Table 1 lists some of the main macro-benthic species observed.

In the area from Possession Island to Chamais Bay (where sub-tidal benthic areas at Possession Island, Albatross Rock, Pomona Island, Plumpudding Island, Black Sophie's Rock and Chamais Bay were surveyed) kelp beds (mainly *Laminaria pallida/schinzii*) are

<sup>42</sup> Mayfield, S. (1998) *Assessment of predation by the West Coast rock lobster (Jasus lalandii): relationships among growth rate, diet and benthic community composition, with implications for the survival of juvenile abalone (Haliotis midae)*. Zoology Department and Marine Biology Research Institute, UCT.

found. Kelp bed dive surveys cover small areas, and are limited to areas of relative shelter (small bays, around the islands, etc). Species that were observed as abundant (i.e. dominated at one or more of the dive sites) include:

- Brittle stars (various species)
- Various red and green algae species
- Sea cucumbers (*Pseudocnella insolens*, *Pentacta doliolum*, *Thyone aurea*)
- Black mussels (*Choromytilus meridionalis*)
- Ribbed mussels (*Aulocomya ater*)
- Sponges (various upright and encrusting species)
- Sea anemones (various species)
- Nippled seafans (*Eunicella papillosa*)
- Sea urchins (*Parechinus angulosus*)

Table 1: List of some of the most common macro-benthic species observed around Mercury, Ichaboe and Possession Islands, and in the coastal area Prince of Wales Bay to Chamais Bay.

Group	Common name	Scientific name
Echinoderms	Cape urchins	<i>Parechinus angulosus</i>
	Mauve sea cucumber	<i>Pentacta doliolum</i>
	Red-chested sea cucumber	<i>Pseudocnella insolens</i>
	Golden sea cucumbers	<i>Thyone aurea</i>
	Brittle stars	Various spp
	Cushion starfish	<i>Patriella stellifera</i>
	Red starfish	<i>Patiria granifera</i>
	Reticulate starfish	<i>Henricia ornate</i>
	Brooding cushion star	<i>Pteraster capensis</i>
	Serpent-skinned brittle star	<i>Ophioderma wahlbergi</i>
	Compound/encrusting ascidians	Various spp
Porifera	Upright and encrusting sponges	Various spp
Cnidarians	Sea anemone - long-tentacled	<i>Anthopleura michaelseni</i>
	Other sea anemones	Various spp
	Nippled seafans	<i>Eunicella papillosa</i>
	Hydroids	Various spp
Annelida	Cape reef worm	<i>Gunnarea capensis</i>
	Gregarious fanworm	<i>Pseudopotamilla reniformis</i>
	Black boring worm	<i>Dodecaceria pulchra</i>
Crustaceans	Hermit crabs	Various spp
	Rock lobster	<i>Jasus lalandii</i>
	Swimming & other crabs	Various spp
Bryozoa	Subovoid bryozoan	<i>Watersipora subovoidea</i>
Brachiopoda	Ruby lampshells	<i>Kraussina rubra</i>
	Disc lamp shells	<i>Discinisca tenuis</i>
Mollusca	Ribbed mussels	<i>Aulcomya ater</i>
	Black mussels	<i>Choromytilus meridionalis</i>
	Hairy chiton	<i>Chaetopleura papilio</i>
	Scaly dogwhelk	<i>Nucella squamosa</i>
	Other whelks	other <i>Burnupena</i> spp
	Papery burnupena	<i>Burnupena payraceae</i>
	Octopus and cuttlefish	Various spp
Seaweeds	Encrusting coralline algae	Various spp
	Split-fan kelp	<i>Laminaria pallida</i>
Fish	Klipfish	<i>Clinus</i> species



The area from Possession Island to Chamais Bay appears to be targeted by juvenile and immature lobsters, which leave the area once they reach maturity. Figure 1 shows the low presence of legal size lobsters ( $\geq 65$  mm Carapace Length) in this area, compared to commercial lobster fishing grounds.

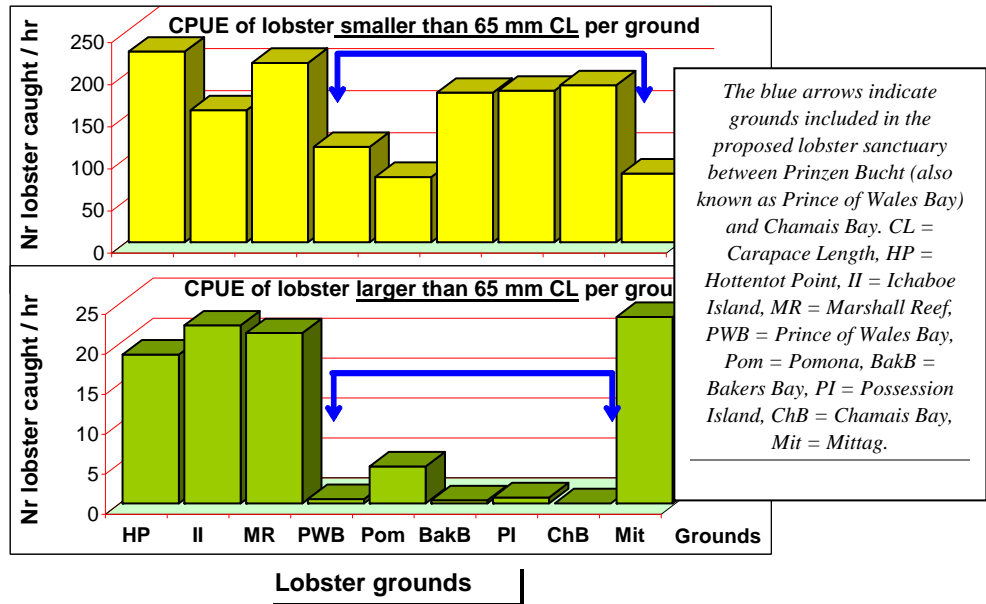


Figure 1: Catch per unit effort (CPUE) of legal and sub-legal size lobsters at various grounds north and south of Lüderitz.

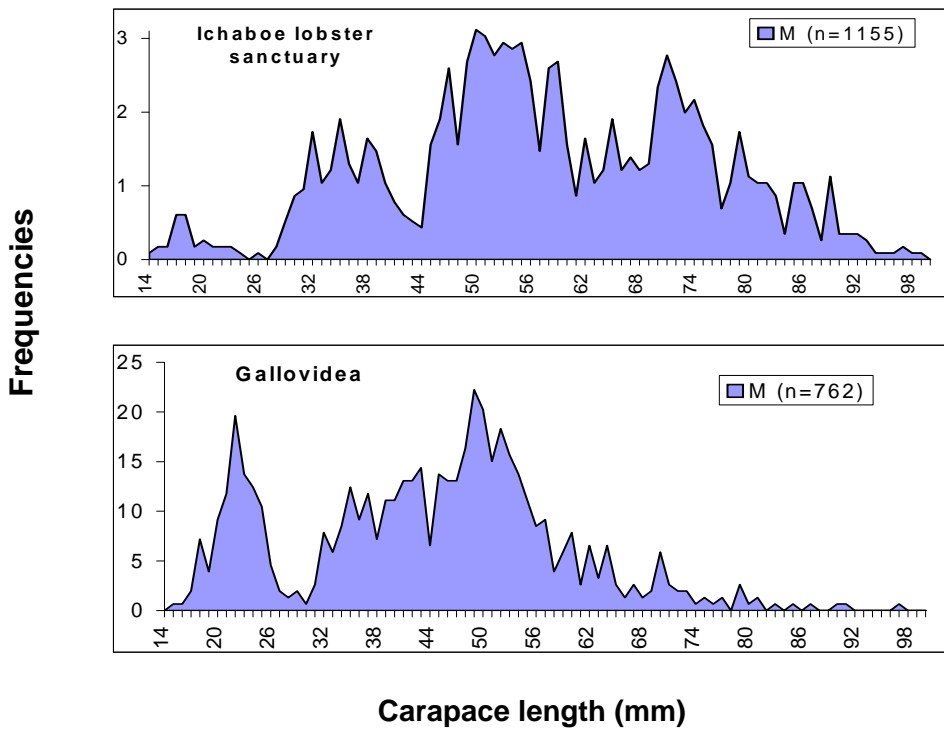


Figure 2: Male lobster size distribution at the present lobster sanctuary at Ichaboe Island (top) and at the commercial fishing grounds at Gallovidea (bottom).

Ichaboe Island falls within the lobster sanctuary (northern border at Danger Point and southern border at Douglas Point, eastern border the coastline, no western border). This area contains very high densities of female lobsters in berry (with eggs) each year from May to October, and also yielded high densities of juvenile lobster during various dive surveys. The protection of this area from commercial lobster fishing has resulted in a higher abundance of large size lobsters than on the commercial fishing grounds (Figure 2).

The same benthic species as listed in Table 1 occur around Ichaboe Island. One exception is the sea cucumber (*Pseudocnella insolens*), which has never been observed north of Lüderitz. The large amount of nutrients from guano washing off the island and into the surrounding seawater may enhance primary production, fed on by dense schools of various zooplankton species. Similarly, benthic filter feeders species are very dense as well as predator benthic species. High densities of anemones, mussels, sponges, seaweeds and kelp occur here.

At Mercury Island the highest densities of lobsters have been found during various surveys on the east side of the island at depths of less than 10 m, compared to any of the other dive survey sites both south and north of Lüderitz. This area seems to be an important shelter for local lobster populations under adverse weather conditions. Again benthic species here include most of those listed in Table 1.

Rock lobsters are distributed throughout the inshore areas between Sylvia Hill and the Orange River. They tend to occur mainly on rocky seabed habitat (due to their need for shelter), although they do move over soft sediment seabed areas during migrations and feeding activities.

Rock lobster is commercially harvested south of Lüderitz mainly in the area between Affenrücken (28°05'10"S) and Mittag (28°20'55.7"S), which fall outside of the proposed MPA buffer area, which has its southern border at Chamais Bay. All the commercial lobster grounds north of Lüderitz do, however, fall within this buffer zone.

Main commercial lobster grounds and main coastal diamond mining activities between Mercury Island and the Orange River.



Rock lobsters prefer a rocky seabed habitat with enough shelter and food, although they do move over soft sediments (sandy or muddy seabeds) during migrations or foraging for food. In Namibia, lobsters are particularly vulnerable to low bottom dissolved oxygen levels and will avoid or migrate out of areas where low dissolved oxygen (<2 ml/l) is experienced for extended time periods.<sup>43</sup> Research dive and trapping surveys since the early 1990s have focused mainly on areas north of Lüderitz, targeting those grounds that are the most intensively used by the rock lobster industry. Along the coastline *north* of Lüderitz, bottom dissolved oxygen follows a seasonal cycle with oxygen levels at water depths > 30 m being low during spring-summer and higher during autumn-winter. Consequently, the rock lobsters move closer inshore during summer, where dissolved oxygen levels are higher due to wave action; it is during these times that the commercial fishery operates. During autumn to winter, the adult lobster males migrate deeper and occur at depths exceeding 100 m, whilst the adult females remain relatively close inshore, as this is the time of year that they come into berry (bear eggs). Juvenile and immature lobsters remain closer inshore all year round, especially in the inshore kelp beds, where they are protected from bottom currents and surges.

To the *south* of Lüderitz, environmental surveys have been infrequent in the past, and it is consequently unclear whether similar high and low bottom dissolved oxygen cycles occur in this area.

### 2.3.2 Existing Lobster sanctuaries and Conservation Measures in the area

Two lobster sanctuaries exist along Namibia's coastline: the Ichaboe lobster sanctuary and the Lüderitz lobster sanctuary.

The Ichaboe lobster sanctuary has been proclaimed since 1990, and is located between Danger Point and Douglas Point, with both southern and northern borders consisting of a virtual line drawn from the mainland towards the west. This is expressed as follows in the regulations: *'A person may not, in any manner or for any purpose, harvest rock lobster within any of the following areas: a) the area within 15 nautical miles from the high water line, bounded in the north by a line drawn due west from a concrete beacon marked RL 1 situated at Danger Point and in the south by a line drawn due west from a concrete beacon marked RL 2 situated at Douglas Point.'*<sup>44</sup> No western border has been defined for this sanctuary, making it extend to the outer EEZ boundary at present. The effect of no fishing in this sanctuary can be seen in the lobster population size structure shown in Figure 2, compared to that of one of the commercial fishing grounds: there is a significantly higher abundance of larger-sized lobsters in the sanctuary compared to the commercial fishing grounds.

The Lüderitz lobster sanctuary has been in existence since before 1990, and is located on the east side of a virtual line drawn from Diaz Point, just north of North East Point. This is regulated by the same government notice referred to above for the Ichaboe lobster sanctuary, as follows: *'A person may not, in any manner or for any purpose, harvest rock lobster within any of the following areas: b) the area bounded by a line drawn from Diaz Point to a point north of Lüderitz Bay, where the 26 degrees, 34' south latitude intersects the high water line and which is marked with a concrete beacon marked RL 3.'*<sup>45</sup> This area seems to

<sup>43</sup> Grobler, C. (2005) MFMR: *Report on Issues regarding diamond mining activities near the southern lobster grounds between Lüderitz and the Orange River*, p. 2.

<sup>44</sup> Regulation 19(1)a) of government notice no. 153: *'regulations pertaining to the exploitation of marine resources'*.

<sup>45</sup> Regulation 19(1)b) of government notice no. 153: *'regulations pertaining to the exploitation of marine resources'*.

serve more as a recruitment settlement area due to the protective environment provided by various bays, small fjords, two islands and a lagoon area. High numbers of lobster puerulus larvae and juvenile lobsters occur in this area, which provides an integral part of a long term monitoring study conducted by MFMR.



*Lobster puerulus larvae*

### 2.3.3 Surf Zone Fish and Biological Boundaries

A natural biological barrier exists in the vicinity of Meob Bay and Sylvia Hill, which prevents fish species from crossing. Agenbach and Shannon<sup>46</sup> suggested that the cold core of the Benguela in the vicinity of Lüderitz could provide a barrier to the interchange of biota between the northern and southern parts of the Benguela system. Although surface distributions of temperature, salinity and chlorophyll – a revealed no significant long-shore gradients to explain this boundary, the distribution of shoals, commercial catches and larvae of pelagic fish species in the Benguela ecosystem pointed to a well-defined biological boundary near 24°30'S in the vicinity of Meob Bay. Upwelling in the Lüderitz cell produces one or more cold water filaments, of which the larger appears to be semi-permanently positioned with its northern edge approximately off Meob Bay. This could be the combined effect of changes of circulation and turbulence or stratification that causes the biological discontinuity.

Further evidence that the Meob Bay area is part of a different marine habitat compared to the rest of the Namibian coastline, is the presence of an isolated, living population of the large bivalve mollusk, *Panopea glycymeris*. This is the largest marine mollusk found in the southern African faunal region and the closest neighbouring population occurs at Baia dos Tigres in Angola, 1 060 km to the north. The normal range of this species is from the Mediterranean and Atlantic coasts of Portugal to northwest and West Africa as far as Baia dos Tigres, showing it to be a warm-temperate species. The presence of this isolated relic population, living in the offshore surf-zone, has been tentatively ascribed to the sea-temperature (range: 9.5 – 19.5°C) in the Meob Bay area. This latter, relatively high temperature may represent a localized pocket of warm water which falls within the temperature range of *Panopea* in the Mediterranean and West Africa.

<sup>46</sup> Agenbach, J. J. and Shannon, L.V. (1988) A suggested physical explanation for the existence of a biological boundary at 24 degrees 30' South in the Benguela system. South African Journal of Marine Science 6: 119 – 132.

Angling fish or surf zone fish that occur south of Witklip (24.°27'S, 14°36'E) down to Sylvia Hill (25.°5'S, 14.°30'E) are silver kob (*Argyrosomus inodorus*), West Coast steenbras, (*Lithognathus aureti*) and galjoen (*Dichistius capensis*); the surf zone sharks are the bronze whaler (*Carcharhinus brachurus*) and broadnose sevengill cow shark (*Notorynchus cepedianus*). Between Sylvia Hill and Gibraltar (26.°1'S, 14.°58'E) hottentot (*Pachymetopon blochii*) and white stumpnose (*Rhabdosargus globiceps*) replaces silver kob and West Coast steenbras.

The Meob Bay research angling area lies between Langewand (24°46'S, 14°46'E) and Witklip (24°27'S, 14°36'E), with the Fischersbrunn fishing camp situated centrally. The 50-km long coastline in this area consists of sandy shores interspersed with underlying reefs in the surf-zone. White mussels (*Donax serra*), one of the main food sources of the West Coast steenbras, occur in abundance in the surf-zone. Their shells cover the ground and some of the dunes. Several species of rocky shore mussels, including Brown mussels (*Perna perna*) and black mussels (*Choromytilus meridionalis*), the latter the main food source of West Coast steenbras, also occur in this area.

Tag-recapture results proved the existence of separate, closed population of West Coast steenbras in the vicinity of Meob Bay, and a northern population off central and northern Namibia. Also, distinct differences in growth rates, otolith morphology, size at maturity, sex ratios and length-at-age were found between the Meob Bay population and the more northern population. Electrophoretic analysis on samples from the two populations showed significant genotypic differentiation at two loci, indicating that effective barriers exist to isolate them.<sup>47</sup> Line-boats target the kob and West Coast steenbras resources in the Meob Bay area intermittently. West coast steenbras are protandrous, meaning that they change sex from male to female; therefore most fish with a length of over 40 cm are female. Thus the gravest concern is that these line-boats target the female component of the stock (the larger individuals), which will ultimately lead to a change in the sex ratio of the population that could impair their reproductive potential. This is a unique population that requires protection.

Tag-recapture results of silver kob demonstrated the migratory cycle of adult fish. Spawning adults start migrating southwards against the north-westerly surface current at the beginning of the austral summer, from the northern end of their distributional range, the Skeleton Coast Park, to their spawning grounds, Sandwich Harbour and Meob Bay at the southern end of their distributional range. After spawning, larvae probably drift north with the current to the nursery and juvenile area in the West Coast Recreational Area. From this it is clear that the Meob Bay area is very important for the southern West Coast steenbras population and an important spawning area for the silver kob stock.

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<sup>47</sup> Van der Bank, F. H. and Holtzhausen, J. A. (1998 / 1999) A preliminary biochemical genetic study of two populations of *Lithognathus aureti* (Perciformes: Sparidae) South African Journal of Marine Science **24**(1/2): 47-56.

### 2.3.4 Seabirds

Large populations of seabirds occur along the Namibian coast. Of the 14 seabird species breeding in Namibia, 11 species breed on islands and inshore rocks. A few species and populations also breed on mainland cliffs, coastal dune fields, salt pans and estuaries.<sup>48</sup> Of these, nine species are endemic to southern Africa, with only the Kelp Gull and White-breasted Cormorant being found outside that region. In addition, several species of coastal seabirds which breed outside Namibia, primarily terns, as well as a number of shorebirds forage and roost along the Namibian coast, including the islands, islets and rocks. In Namibia, as elsewhere, coastal seabirds face a number of threats mainly due to changes brought about by human activity. Although many of these species breed at relatively protected sites, presently away from the direct effects of human development, they are not immune to these pressures and a number of them are in serious need of better conservation measures. The most seriously threatened seabirds species in Namibia at present are African Penguins, Cape Gannets and Bank Cormorants. Namibia supports significant numbers of each of these three endangered species. Numbers have, however, declined dramatically over the last few decades and strict conservation measures are necessary to ensure the survival of these populations in Namibia, if not globally. African penguins, Cape gannets, Bank cormorants, African black oystercatchers and Damara terns are listed as "Specially Protected" birds in the draft Namibian Parks and Wildlife Bill 2007.

For many of the islands the danger of disturbing mainland seal colonies as well as those seal colonies on offshore rocks/islets, results in the seals being displaced to the nearby islands (e.g. Mercury, Possession, Ichaboe and Plumpudding Islands), which are inhabited by seabirds. This causes disturbance and competition for breeding space, and increases the potential for seal-seabird predation. Summaries of the conservation status and occurrence of the 11 seabird species breeding on the Namibian islands are indicated in Tables 2 and 3 of Appendix 2.

#### 2.3.4.1 African penguin (*Spheniscus demersus*)

African penguins breed at 25 islands and four mainland localities in Namibia and South Africa. In Namibia they breed at eight islands and in two coastal caves; breeding has ceased at an additional six islands. African penguins feed in coastal waters, usually within 12 km of the coastline. Movement of individuals between Namibia and South Africa is relatively common, although permanent emigration is rare. The African penguin population in Namibia decreased from 42 000 pairs in 1956 to 12 000 in 1978 and to 3 400 pairs in 2006. This represents a rate of decrease of 5.1% per year over the 50-year period. In 1956 the Namibian population contributed one third of the global population; in 2006 the population contributed less than 10%. African penguins are listed as "Endangered" in Namibia and globally as "Vulnerable". A key threat to the population is a lack of sufficient quality prey: sardine and anchovy stocks are generally inaccessible to breeders and the diet consists mainly of Pelagic goby *Sufflogobius bibarbatus* north of Lüderitz and of cephalopods south of

<sup>48</sup> Du Toit, M., Boere, G.C., Cooper, J., De Villiers, M.S., Kemper, J., Lenten, B., Petersen, S.L., Simmons, R.E., Underhill, L.G., Whittington, P.A. and Byers, O.P. (eds). (2003). *Conservation Assessment and Management Plan for Southern African Coastal Seabirds*. Cape Town: Avian Demography Unit and Apple Valley: Conservation Breeding Specialist Group.

Lüderitz. Other threats include a lack of suitable (sheltered) breeding habitat, oil pollution, human disturbance, predation at sea by rogue seals and of eggs and chicks by Kelp gulls, as well as nest flooding during storms. An oil spill between the two most important breeding islands (Mercury and Ichaboe Islands) would threaten 80% of the Namibian penguin population.

#### 2.3.4.2 Cape gannet (*Morus capensis*)

Cape gannets only breed at Mercury, Ichaboe and Possession islands in Namibia and an additional three islands in South Africa. They generally forage up to 100 km offshore and feed mainly on pelagic, shoaling fish by plunge-diving, but may scavenge Hake *Merluccius* spp. and offal from fishing vessels. In Namibia, the number of pairs of gannets decreased from 204 000 breeding pairs in 1956/57 (representing 82% of the global population at the time) to 10 000 pairs in 2005/06 (7% of the current global population). This constitutes a population decrease of 6% per year over 49 years in Namibia. Cape gannets are classified "Endangered" in Namibia and "Vulnerable" globally. Main threats to the Namibian population include a lack of prey, by-catch during longline fishing activities, human disturbance, being targeted for food in southern Angola, a lack of quality nesting habitat (particularly due to excessive guano removal) and nest flooding during storms.

#### 2.3.4.3 Bank cormorant (*Phalacrocorax neglectus*)

Bank cormorants are endemic to Namibia and South Africa, with between 80-90% of the entire species breeding on Mercury and Ichaboe Islands. They feed inshore, often amongst kelp beds; main prey items include Pelagic goby and rock lobster. Between 1993 and 1998 the Namibian breeding population of Bank cormorants is estimated to have declined by 68%. This loss is mainly due to the population collapse at Ichaboe Island after 1994/95. Numbers at Ichaboe Island have continued to decline and although numbers at Mercury Island have increased, the total Namibian population in 2006 was 39% less than in 1993. Bank cormorants are classified "Endangered" globally and in Namibia. Principal threats to Bank cormorants in Namibia include a lack of prey, oil pollution (a spill between Mercury and Ichaboe Islands could pose a serious risk to the global population), human disturbance and the predation of eggs and chicks by Kelp gulls.

#### 2.3.4.4 Crowned cormorant (*Phalacrocorax coronatus*)

Crowned cormorants are endemic to Namibia and South Africa, where they breed at numerous localities. They feed in shallow waters amongst kelp beds and close to rocky shores on benthic fish, crustaceans, molluscs and polychaete worms. The Namibian population of Crowned cormorants nearly trebled from 356 pairs in 1996/97 to 1 000 pairs in 2006/07. This increase stems mainly from Ichaboe Island where numbers increased between 1996 and 2001, before decreasing slightly again since then. Although numbers are currently increasing, the small overall population size of the species makes it vulnerable to extinction due to catastrophic events. Main threats include human disturbance, particularly during breeding activities, oil pollution, plastic pollution and predation of eggs and chicks by Kelp gulls.



#### 2.3.4.5 Cape cormorant (*Phalacrocorax capensis*)

Cape cormorants breed along the coast between southern Angola and the Eastern Cape, South Africa and regularly move between Namibia and South Africa as well as between Namibia and Angola. They are particularly sensitive to fluctuating environmental conditions and may not breed in some years or may abandon breeding activities if conditions for breeding become unsuitable. Cape cormorants forage on pelagic shoaling fish up to 10–20 km offshore and up to 40 km from their breeding colonies. There has been a general decline in the Cape cormorant population during the last three decades, placing the Cape cormorant in the category “Vulnerable”. A lack of food, human disturbance leading to nest desertion and, in severe cases, mass-abandonment of breeding colonies, oil and plastic pollution and predation by Cape fur seals constitute the main threats to the Namibian population. Cape cormorants are susceptible to avian cholera, which has resulted in mass mortalities in South Africa; this has so far not been reported from Namibia.

#### 2.3.4.6 White-breasted cormorant (*Phalacrocorax lucidus*)

White-breasted cormorants are widespread throughout Africa along the entire coastline as well as inland. They forage close to the shore, feeding on fish, but also on crabs and molluscs. The southern African coastal population has remained relatively stable or has slightly decreased over the last decade, placing the species in the “Least concern” category. White-breasted cormorants are highly susceptible to human disturbance at breeding sites. Other threats include predation of exposed eggs by Kelp gulls, entanglement in discarded fishing line, loss of nesting sites and a potential vulnerability to avian cholera.

#### 2.3.4.7 Kelp gull (*Larus dominicanus vetula*)

The subspecies *vetula* is endemic to southern Africa, where it breeds along the coasts of southern Angola, Namibia and South Africa. Kelp gulls feed on a range of marine prey, including fish, limpets and mussels. They also scavenge bird and mammal carcasses, predate eggs and chicks of seabirds (including from conspecifics), steal food from other birds and feed on refuse from dumps and on offal from fishing vessels and factories. About 2 800 pairs currently breed in Namibia; of these c. 75% breed on the islands close to Lüderitz as well as on Possession Island. The Kelp gull population in Namibia appears to be increasing slightly, largely because of the availability of food sources from human activities, particularly near Lüderitz, and the species is categorized as “Least concern”. Potential threats to the Namibian population include population control measures implemented at two breeding localities (through the destruction of eggs), predation of eggs or chicks by conspecifics, human disturbance during breeding and the (occasional) local exploitation of gull eggs and individuals by the public.

#### 2.3.4.8 Hartlaub's gull (*Larus hartlaubii*)

Hartlaub's gulls are endemic to Namibia and South Africa. Their distribution is closely associated with kelp beds, but they are also often found in areas associated with harbours, fishing factories and other human habitation. They feed on the water surface, behind trawlers and at refuse dumps on fish, marine invertebrates, insects, terrestrial snails and domestic waste. About 750 pairs, i.e. 10% of the species, breed in Namibia; numbers have remained relatively stable and the species is classified as being of “Least concern”. However, good

quality census data are lacking from Namibia, and the conservation status of the Namibian population needs to be re-evaluated based on future comprehensive censuses. Main threats to the Namibian population include predation of adults and nest contents by Domestic cats, particularly at Shark Island, Lüderitz, predation of eggs and chicks by Kelp gulls, breeding habitat destruction through housing or harbour developments in Lüderitz and a susceptibility to fish, fuel and crude oil pollution.

#### 2.3.4.9 Swift tern (*Sterna bergii bergii*)

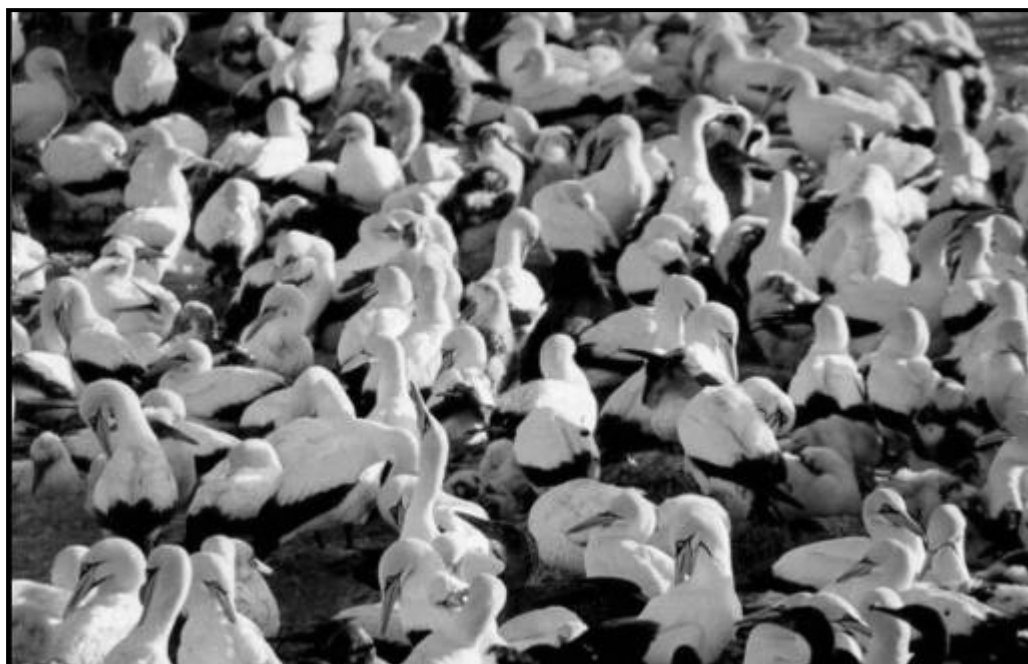
The subspecies *bergii* breeds in Namibia and South Africa and in small numbers in southern Angola. Swift terns forage over the continental shelf, up to 10 km from land, feeding mostly on pelagic shoaling fish, but also on insects, cephalopods and crustaceans. About 1 300 pairs of the subspecies breed in Namibia, constituting roughly 15% of the global population. Because of a relatively large global population size, an increase in numbers over the last two decades, and the large number of breeding localities, this subspecies falls into the category "Least concern". In addition to competition with commercial fisheries for food, threats faced by the Namibian Swift tern population correspond to those listed for Hartlaub's gulls.

#### 2.3.4.10 Damara tern (*Sterna balaenarum*)

Damara terns breed in Namibia and South Africa and possibly in southern Angola. They breed mainly along the coast, but have also been recorded breeding on Possession Island. Damara terns mainly forage over shallow water, especially in bays, but also behind the surf line at the sea shore. They feed on small fish and squid. The global population is thought to number about 13 500 individuals; the breeding population in Namibia appears to be stable. Because of the magnitude of the current threats to their breeding habitat in areas where significant numbers of Damara terns are known to breed (including the mining areas in southern Namibia), the species is listed as "Near threatened". Main threats consist of potential breeding and feeding habitat loss through diamond mining activities, human disturbance and breeding habitat loss from coastal developments and off-road driving.

#### 2.3.4.11 African black oystercatcher (*Haematopus moquini*)

African black oystercatchers breed exclusively in Namibia and South Africa. Nearly 40% of the global population breeds in Namibia; of these, 61% (c. 200 pairs) breed on Possession Island. The Namibian coast provides an important nursery area. Oystercatchers forage in the intertidal zone for mussels, limpets, clams, polychaete worms, whelks and crustaceans. Oystercatcher numbers have been increasing recently in South Africa, probably because the invasion of the Mediterranean mussel (*Mytilus galloprovincialis*) has resulted in greater food availability for oystercatchers and may have contributed to improved breeding success. Although currently listed "Near threatened", it has recently been proposed that the species should be reclassified to "Least concern" status. Oystercatchers in Namibia are mainly threatened by human disturbance (including off-road driving), coastal development; breeding and feeding habitat loss through mining activities and land predators.



*Cape gannet breeding colony*

### **2.3.5 Cape fur seals**

Although in the past most seals used to breed on islands off the Namibian coast, after the intervention of man through depleting the seal stock in the 18th and 19th century and altering the seabirds' breeding habitat by removing the accumulation of guano, most islands became unsuitable for both seals and seabirds. Owing to these changes, the maintenance of viable seabird populations (both because of their endangered status as well as guano production) is dependent on active management and locally excluding seals from important bird islands. This fact was demonstrated between 1984 and the early 1990s at Mercury Island: following a Benguela Niño event in 1984 and disturbance on the mainland seal colonies of Wolf and Atlas Bay through a relaxation of the sealing season, large numbers of seals were displaced from mainland colonies resulting in a rapid colonization of Mercury Island. This resulted in the displacement of endangered seabirds like Bank cormorants, African penguins and Cape gannets (Crawford et al. 1989). Chasing the seals off Mercury Island between 1990 and 1992 resulted in the recovery of the seabirds on this globally important bird area (IBA) (Crawford et al. 1994). The earlier recolonization of Hollamsbird Island by seals resulted in a significant loss of breeding habitat for seabirds (particularly Bank cormorants and African penguins). More recently seals have recolonized North Reef (adjacent to Possession Island) resulting in the loss of a significant Bank cormorant colony. Some active management measures might need to be implemented if the seabird-seal competition for breeding space increases in some of the shared islands like Sinclair; and the recolonization by seals of the main bird breeding sites should be discouraged as a priority.

The seals on the islands represent at present only a small proportion of the total population; during the latest aerial census (2006) only 20.1% of the pups born in Namibia were part of

island colonies, while nearly 62% were on mainland sealing concessions. If maintained undisturbed on those islands these seal colonies, being space-limited, are therefore not expected to expand. However despite their modest size those colonies constitute a reservoir of animals available for sealing at mainland sites (tagging studies have shown that a significant proportion of the bulls harvested at Cape Cross originated from several of the islands including Long Islands and Sinclair Island).

### 2.3.6 Cetaceans (whales and dolphins) and their calving sites

Out of 31 species of cetaceans occurring in Namibian waters<sup>49</sup>, three species are relevant to the MPA proposal as they make use of the coastal waters for breeding (southern right whale, Heaviside's dolphin) or as a migratory corridor (humpback whale). Other species are present regularly within the proposed boundaries of the MPA, the most regular being the dusky dolphin, the minke whale (see figure below), the southern right whale dolphin and the killer whale or orca.

*Minke whale*



#### 2.3.6.1 Southern right whale

The Southern right whale *Eubalaena australis* was heavily exploited in the 19th century and the population worldwide was driven to the brink of extinction, with a decline of more than 95%, before international protection was granted in 1935. The Southern right whale has since become a flagship conservation species worldwide. In Africa the species used coastal areas and bays between the south coast of South Africa and Northern Namibia to calve every winter and migrated to the sub-antarctic in late spring and summer. In South Africa a small nucleus of breeding adults was discovered in the 1950s along the south coast. This local population has been monitored since the 1970s and is growing at an estimated rate of 7% per annum. At present about 200 calves are born there every year and the species is supporting a multi-million whale-watching tourism industry which has developed in the past decade.

<sup>49</sup> Bianchi, G., Carpenter, K.E., Roux, J-P., Molloy, F.J., Boyer, D. and Boyer, H.J. (1999) *Field Guide to the living Marine Resources of Namibia*. FAO Species Identification Guide for Fishery Purposes. 2<sup>nd</sup> Edition. FAO, Rome. 265pp.

Along the Namibian coast, the breeding population was probably eradicated through over-exploitation before the species was granted protection in 1935.<sup>50</sup> More than 3700 whales were killed out of Walvis Bay alone between 1788 and 1803 and the last recorded catch in the region was in 1913 in southern Angola. The historical breeding range included Walvis Bay, Conception Bay, Spencer Bay, Lüderitz Bay, Elizabeth Bay and the Sperrgebiet coast. Since then, sightings of this species have been extremely rare with only three sightings documented between 1971 and 1980. Subsequent monitoring has shown that the species has been present in its former historical range but in extremely low numbers (with only 28 sightings involving 45 individuals between 1991 and 1999). In 1996 the first birth of a southern right whale calf in the modern era occurred in Elizabeth Bay (inshore from Possession Island). Since then between one and three calves were born each year between Conception Bay and the Orange River, confirming the existence of a local breeding stock.<sup>51</sup> However, the present population is still extremely small and the trend is still unclear. During recent surveys, adult females with new-born calves were sighted within one nautical mile from the shore in Conception Bay, Spencer Bay, inshore from Ichaboe Island, Lüderitz Bay,

Elizabeth Bay (inshore from Possession Island), between Albatross Rock and the mainland, in Bakers Bay (Between Sinclair Island and the mainland) as well as several other sites along the Sperrgebiet coastline.



*Southern right whale adult female and her newborn calf in Baker's Bay*

Recent aerial surveys (during 2003 to 2006) confirmed that the great majority of calving sites since 1996 are within the proposed MPA limits and since breeding female right whales show a high degree of philopatry to their calving sites, this area seems essential to the future of this tiny population. Worldwide, and due to the healthy trends of some subpopulation, from "*Critically Endangered*" in the 1970s, right whales were classified as "*Vulnerable*" in 1990 and 1994 using IUCN criteria and as "*Lower Risk*" in 1996. The species is currently listed in the

<sup>50</sup> Roux J-P., Best P.B, and Stander P.E. (2001) *Sightings of southern right whales (Eubalaena australis) in Namibian waters, 1971-1999*. Cetacean Resource Management (Special Issue) 2, 181-185.

<sup>51</sup> *supra*

2005 CMS (Convention on Migratory Species) Appendix I as an “*endangered migratory species*”. It is not clear at this stage if the animals breeding in Namibia at the moment represent an extension of the recovering South African population or a separate sub-stock and the trend of the local population cannot be evaluated without further monitoring. Due to its very small present population size (less than 20 mature females at present), the species should be considered as “*Endangered*” nationally. Because right whales worldwide are dependent on shallow coastal waters and bays during the breeding and calving season, ship strikes (collisions), entanglement in fishing gear and mariculture moorings, as well as noise pollution and harassment by unregulated whale watching activities are the main threats to their survival. Despite their rarity in Namibia, these potential threats are at play as there has been incidents of apparent harassment by small crafts in Walvis Bay in recent years and in Lüderitz Bay in 1993: one recorded entanglement incident (in lobster trap ropes in 2006 (on the southern commercial fishing ground) and two possible instances of fatal ship strikes north of Lüderitz (one dead adult washed ashore at Saddle Hill in 2000 and a new born calf mortality between Ichaboe Island and Marshall Reef in 2005). On the other hand, Southern right whales can be a major source of income and job creation through regulated whale-watching eco-tourism (both from shore and at sea) as demonstrated by the example of the recent growth of the multi-million Rand whale-watching South African industry.

#### 2.3.6.2 Humpback whale

The Humpback whale, *Megaptera novaeangliae*, has been exploited intensively worldwide and due to depletion of all stocks has been protected since 1966. The species has a very wide distribution in all oceans and undertakes extensive seasonal migrations, wintering in the tropics and spending summers at high latitudes. The world population of Humpback whales is divided in several stocks with different migration routes and wintering breeding grounds. The southern hemisphere humpback whale stocks were numbering 100 000 individuals prior to exploitation. After being exploited along the temperate continental margins (like in Namibia from shore stations at the beginning of the 20th century) their stocks were severely depleted and further collapsed under the pressure of summer whaling in the Southern Ocean later on. In the mid 1980s, 20 years after effective protection those stocks only numbered an estimated 3 000 individuals only. Although there were some signs of recovery of some sub-populations, the South Atlantic population numbered only a few hundred individuals.<sup>52</sup> There are no recent estimates of population size for the East Atlantic stock. Its migration route, from the summer feeding grounds in the Antarctic, follows the west coast of Southern Africa, inshore through the proposed MPA area and to the breeding/calving grounds in the tropics from northern Angola to Gabon. This population is therefore shared by several countries and three Large Marine Ecosystems (LME), namely the Antarctic, the Benguela Current and the Guinea Current LMEs. Some individuals, presumably non-breeding juveniles have spent the summer inside the proposed MPA area in recent years.<sup>53</sup> This species has great potential for eco-tourism and whale watching operators. However, strict limits on numbers, seasons and distances from cetaceans have to be imposed and regulated in order to limit interference with breeding habitats, natural behaviour and patterns etc. Like the Southern Right whale it is listed in the 2005 *Convention on Migratory Species* appendix I, its main threats being bycatch/entanglement, ship strikes (collisions) pollution and noise pollution (from vessel traffic and marine mining and oil drilling operations).

<sup>52</sup> Evans, P.G.H. (1987) *The Natural History of Whales and Dolphins*. Christopher Helm, Bromley, UK.

<sup>53</sup> P.A. Bartlett and MFMR unpubl. data

## 2.3.6.3 Heaviside's dolphin

The Heaviside's dolphin, *Cephalorhynchus heavisidii*, is endemic to the Benguela current and has a restricted distribution in the inshore waters of the South East Atlantic from the Cape peninsula<sup>54</sup> to Baia dos Tigres in southern Angola,<sup>55</sup> mostly within five nautical miles from the shore. Although there is at present no data on population size or trends (the species is listed as "data deficient" in IUCN (1996), this small coastal dolphin is vulnerable to interactions with fisheries (through by-catch, incidental mortality in fishing gears like drift, set, and beach-seine and purse-seine nets, as well as illegal directed catch). In addition, the species is also potentially indirectly affected by fisheries through depletion of prey species in its restricted range.<sup>56</sup> The proposed MPA area constitutes the centre of distribution of the species and seems to cover prime feeding and breeding habitat for this dolphin. Within Namibian waters, and possibly in the whole species range, the proposed MPA coastal waters are home to the highest Heaviside's dolphin densities observed from cruises<sup>57</sup> and could contain up to half the world population. This dolphin is popular with the local eco-tourism industry and can be watched easily from tour vessels inshore as well as from the coast within the proposed MPA area, as shown below.



*Heaviside's dolphins at  
Guano Bay,  
near Halifax Island*

<sup>54</sup> Best, P. B. and Abernethy, R.B. (1994) *Heaviside's dolphin Cephalorhynchus heavisidii* (Gray, 1828). In: *Handbook of Marine Mammals* (Ridgway S. H. and Harrison S.R. (Eds). Vol. 5: The first book of dolphins. Academic Press, London, pp: 289-310.

<sup>55</sup> J-P. Roux unpubl. data.

<sup>56</sup> Best, P. B. and Abernethy, R.B. (1994) *Heaviside's dolphin Cephalorhynchus heavisidii* (Gray, 1828). In: *Handbook of Marine Mammals* (Ridgway S. H. and Harrison S.R. (Eds). Vol. 5: The first book of dolphins. Academic Press, London, pp: 289-310;

Peddemors, V.M. (1999) Delphinids of southern Africa: A review of their distribution, status and life history. *Journal of Cetacean Research and Management* 1: 157:165.

<sup>57</sup> J-P. Roux unpubl. data.

## **2.4 Threats to Marine Biodiversity, Effects of Human Exploitation and Disturbance, and Existing Management Concerns**

### **2.4.1 Mining & Exploration at Islands and Mainland**

#### 2.4.1.1 Background

Geological surveys in the region have established the presence of diamonds and associated minerals transported along the coast from the Orange River mouth by northward currents. These diamond deposits have collected in certain areas on the seabed and also in the lee of the currents around some of the Namibian islands. The likelihood of such deposits diminishes with northward progression along the coast.

The diamond mining company SAMICOR has been awarded concessions in several offshore mining areas which effectively include all islands off the Namibian coast with the exception of Hollamsbird Island. These mining concessions expire in 2019.

NAMDEB has land-based mining operations close to the shore (such as pocket beach mining), whilst some of their subcontractors mine inshore close to the main land. According to the current<sup>58</sup> license-holder's General Manager, Chris Sivertsen, these land-based mining licenses extend approximately 5 km offshore, which include so-called 'shallow water' and 'mid water' areas.<sup>59</sup>

Historically, diamond mining activities have consisted of the following:

- land-based marine mining:
  - large scale overburden strip mining between Chamais Bay and the Orange River;
  - pocket beach mining between Bogenfels and Chamais Bay;
- marine:
  - Sub contractor diver operated mining from the shore from Chamais Bay northwards;
  - shallow to mid-water (>30 m depth) diver operated mining using small vessels;
  - offshore remote operated mining in deep waters exceeding 40 m (including airlift and crawler-suction techniques);
  - dredge mining (both inshore and offshore);
  - mining of the surf zone areas, using a mobile platform.

The diamond mining license areas south of Lüderitz currently belong to NAMDEB (inshore areas out to three nautical miles as well as all land-based concessions); de Beers Marine (subcontracted by NAMDEB and targeting the offshore areas south of Chamais Bay); SAMICOR (island concessions, which previously were mined by ODM and then NAMCO). In addition, future marine diamond mining around Meob Bay may be possible, as various Environmental Impact Assessments (EIAs) are currently being conducted nearby.

<sup>58</sup> NAMDEB

<sup>59</sup> Email correspondence, 14 August 2007, Namibia.



None of the islands have established oil or gas reserves but it is possible that such reserves may be found in waters adjacent to some of the islands. The only gas mining project currently operating along the Namibian coast, Kudu Gas, lies approximately 130 km west of Chamais Bay,<sup>60</sup> and thus is unlikely to pose any threat to marine life at or near the islands. However, it is conceivable that future gas prospecting or mining could take place in the vicinity of the islands.

#### 2.4.1.2 Threats through mining activities

Sediment movement and illegal kelp cutting activities have been identified as the two main threats to inshore biota, associated with mining activities. Inshore reef areas and kelp beds provide a crucial role as food source and shelter for a number of organisms, particularly juvenile rock lobster. The extent and potential impacts of mining-related threats are discussed below in relation to the different mining activities taking place within the proposed MPA area.

##### 2.4.1.2.1 Onshore and nearshore (< 30 m depth) mining activities

Subtidal kelp beds are vital in a natural environment where they provide crucial shelter, food resources and habitat for lobster recruits and various other benthic species. Sediment movement (including from mine processing plants discharging onto beaches, or from seawall erosion) potentially covers kelp beds and rocky outcrops and therefore may affect a host of organisms associated with these habitats, including rock lobster.

Continuing pocket beach mining activities were due to commence at two sites just south of the Bogenfels Arch. Although it was indicated that there would be no discharge points directly into the ocean at these sites, all discard material will be used to build up the seawalls, and erosion from these seawalls may result in inshore sediment plumes. The license-holder<sup>61</sup> did however give assurance at a meeting held during the beginning of 2005, that only coarser material would be mined, and that sites with a higher proportion of clay material would be avoided, and that thus inshore sediment plumes should be less than those observed off Chamais Bay. Adherence to this condition is crucial, as there are many inshore reefs north of Bogenfels.

Beach accretion will however still occur, due to seawall erosion, which is a cause for concern. Seawall erosion at Chamais Bay has completely smothered nearby subtidal kelp beds, to the extent that these areas have now become intertidal areas.<sup>62</sup> Such smothering effects need to be avoided in the proposed MPA.

Below is an extract out of a Bogenfels Offshore Baseline environmental report, commissioned by the mining industry:

<sup>60</sup> Which is the southern border of the proposed MPA. The kudu gas field is located approximately 160 km north-west of Oranjemund.

<sup>61</sup> The current license-holder is NAMDEB.

<sup>62</sup> Pulfrich, A. (2007 *Baseline Survey of nearshore marine communities in the Bogenfels Area off Southern Namibia*. Report to NAMDEB Diamond Corporation (Pty. Ltd., Oranjemund, August, 2007, 45pp.

*'Although no quantitative data on kelp density are available for the pocket beaches area the negative effect of accreting coarse sediments on kelp beds is clearly significant, and more extensive than that observed at Elizabeth Bay in response to beach accretion and deposition of fines. The effects of increased abrasion and deposition will not only lead to smothering of available rocky substrata, but result in high levels of mortality of the very young life stages of the kelp species, and consequently reduced recruitment, ultimately leading to reduction in kelp bed area. The greatest effects are likely to be along shores of intermediate exposure and in sheltered bays. Here wave energy is insufficient to keep the sediments in suspension and burial of kelp bed plants will consequently be prolonged, resulting in the progressive abrasion and smothering of fringing kelp beds. Accretion modelling studies for mining operations at Site 11/12 have predicted a maximum accretion of 250 m beyond the original shore line in the centre of the beach, directly opposite Site 11. Accretion at the southern limit of the beach is anticipated to amount to 170 m, while accretion of 180 m is predicted opposite the northern end of the beach (near Bogenfels Arch), thereby smothering an anticipated 300 – 400 m of rocky coastline at either end of the beach. Northward transport of sediments is also likely to affect the small beach immediately north of Bogenfels Arch...'*<sup>63</sup>

#### 2.4.1.2.2 Marine mining

In the area between Prince of Wales Bay and Chamais Bay both diver operated mining activities are conducted from smaller vessels, as well as remotely operated mining (such as airlifts) from large vessels. Experimental dredge mining was conducted by the current license-holder<sup>64</sup> off Chamais Bay during 2005.

Also during 2005, the other marine mining license-holder in the proposed MPA<sup>65</sup> commenced with bulk sampling (using a dredger), subsequently followed by mining, at depths of less than 30 metres in the Bakers Bay area. Although the sandy seabed areas south of the reef areas are targeted, any sediment plumes resulting from these activities need to be closely monitored, especially if full scale mining by large vessels so close inshore is likely to become an increasing activity in future.

<sup>63</sup> PISCES Environmental Services (Pty) Ltd (2007) *Baseline Survey of Nearshore Marine Benthic Communities in the Bogenfels Area, off Southern Namibia*, prepared for NAMDEB.

<sup>64</sup> NAMDEB

<sup>65</sup> SAMICOR



*Shallow subtidal kelp beds and abraded fronds and stipes protruding from the accreted beach to the north of mining site 2 (NAMDEB) in March 2005 (left) and March 2006 (right)  
(Images: NAMDEB / PISCES)*

Concerns regarding the impact of diamond mining on the inshore and midwater regions of our coastline include the following:

Sediment plumes and beach accretion threaten inshore reef habitats and kelp beds, which need to be protected at all costs.<sup>66</sup> As mining activities are continuous throughout the year, they have severe impacts on local areas, more so compared to episodic major floodings of the Orange River or strong easterly winds, that are not believed to have serious, similar impacts north of Chamais Bay.<sup>67</sup> The area of immediate concern includes the inshore area between Prince of Wales Bay and Chamais Bay. The sources of sediment pollution and unnatural sediment plumes in these inshore areas include erosion of sea walls, discharge points from mine treatment plants onto the beaches and mining vessels. Sediment pollution needs to be kept to a minimum.

Destruction of healthy reef areas during the removal of diamondiferous gravels is also cause for concern. Usually seabed with a soft sediment or gravel surface is targeted. However, removal of large boulders in order to reach gravel pockets on reefs, not only destroy the benthic life on the boulders, but also sessile benthic life on the immediate surrounding reef area. The damage to benthic life on the reef is further exacerbated long afterwards by the scouring effect of loose boulders moving over the reef area through the effect of swell and bottom surges.

The size of the area affected by dumping of overcast material from mining and dredging vessels onto unmined seabed sites adjacent to mined sites may become problematic. In the past, the mining industry has been requested to dump this overcast material, consisting of sand, boulders, mud etc., only onto previously mined sites, and not onto the adjacent, unmined areas. However, it is not clear to what degree companies have complied with this request.

<sup>66</sup> Grobler, C. (2005) *Report on Issues regarding diamond mining activities near the southern lobster grounds between Lüderitz and the Orange River* p. 13.

<sup>67</sup> *supra*

When kelp beds are very dense and mining pipes tend to get entangled, illegal kelp cutting by diamond divers may occur. Kelp-cutting, which has been done by small-scale operators in the past is also thought to be destructive to the kelp bed habitat. These habitats are particularly important for juvenile rock lobsters that shelter at the base of kelp plants, amongst the holdfasts, as indicated below in the underwater photographs from the annual survey conducted in 2006.

*Baker's Bay*



*Possession Island*



#### 2.4.1.2.3 *Other threats related to sediment movement*

Certain diamond mining activities, specifically mining methods like dredge-mining, pocket-beach mining and overburden strip mining, where large amounts of sediment are removed from the sea bottom and dumped back into the ocean (during mining) or onto the beach (after processing) could potentially result in the formation of land bridges from some islands to the mainland in the vicinity of islands. Sinclair, Plumpudding and Pomona Islands are most likely to be threatened by land bridge formation. Land bridges would expose breeding seabirds to potential predation by land predators such as Brown hyenas (*Parahyena brunnea*) and Black-backed jackals (*Canis mesomelas*) While these land bridges may not be permanent, even short-term access could allow land predators to cause large-scale

mortalities and disturbance of seabirds on these islands. Large-scale sediment disturbance around breeding localities could also affect local prey availability to marine predators. It could also seriously affect the West Coast steenbras population at Meob Bay and may have an effect on other marine organisms, like mussel beds, in the area.

#### 2.4.1.3 Potential conflict between mining and rock lobster Industry

The main commercial lobster fishing grounds south of Lüderitz occur in the area between Affenrücken and Mittag, thus well south of the proposed MPA. Both marine and land-based diamond mining have occurred in this area for many years. Direct conflict between crew from lobster vessels and from diamond mining vessels targeting the same reefs have occurred on various occasions, and concerns exist regarding the impact of both marine and land based mining activities on this southern lobster resource and lobster habitat. As the proposed new lobster MPA is located to the north of these commercial lobster grounds, direct conflict between lobster fishermen and mining vessel crews is less likely in the proposed area since commercial lobster vessels seldom operate here. However, the concerns still exist as to the impact of both land based and marine mining on the lobster habitat north of Chamais Bay, and indirectly on the lobster populations here. This is even more crucial in view of the theory proposed by MFMR scientists, after initial surveys at Chamais Bay during the 1990's and subsequent surveys during 2004-5 in the area of Possession Island to Chamais Bay, that this area serves as a lobster recruitment area for the commercial grounds further south. The satellite image on page 42 summarizes results from the 2004-5 surveys, completed by MFMR divers from Lüderitz, and shows the virtual absence of legal size lobsters from the area Possession Island to Chamais Bay.

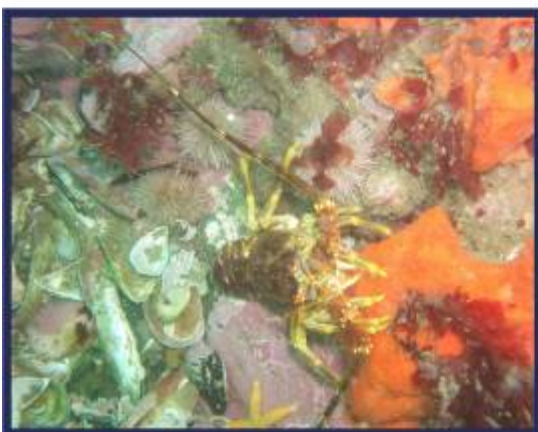
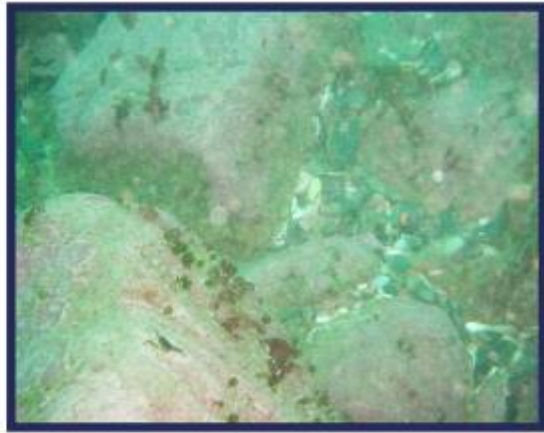
Further surveys in the Chamais Bay to Kerbe Huk area were done through the Fisheries Independent Monitoring Surveys (FIMS), organised by De Beers Marine Namibia and completed by PISCES, in order to study the impact of dredge mining activities in Chamais Bay. Results from these surveys also showed that lobsters at Chamais Bay constitute mainly juveniles, and additionally showed a gradual increase in average size of lobsters southwards up to the commercial fishing grounds, where adult lobsters make up the majority of the trap catches.<sup>68</sup> These results thus confirmed the present theory that the area Possession Island to Chamais Bay (which falls within the proposed MPA) constitutes a lobster recruitment area that serves as a source for lobsters on the commercial fishing grounds further south.<sup>69</sup>

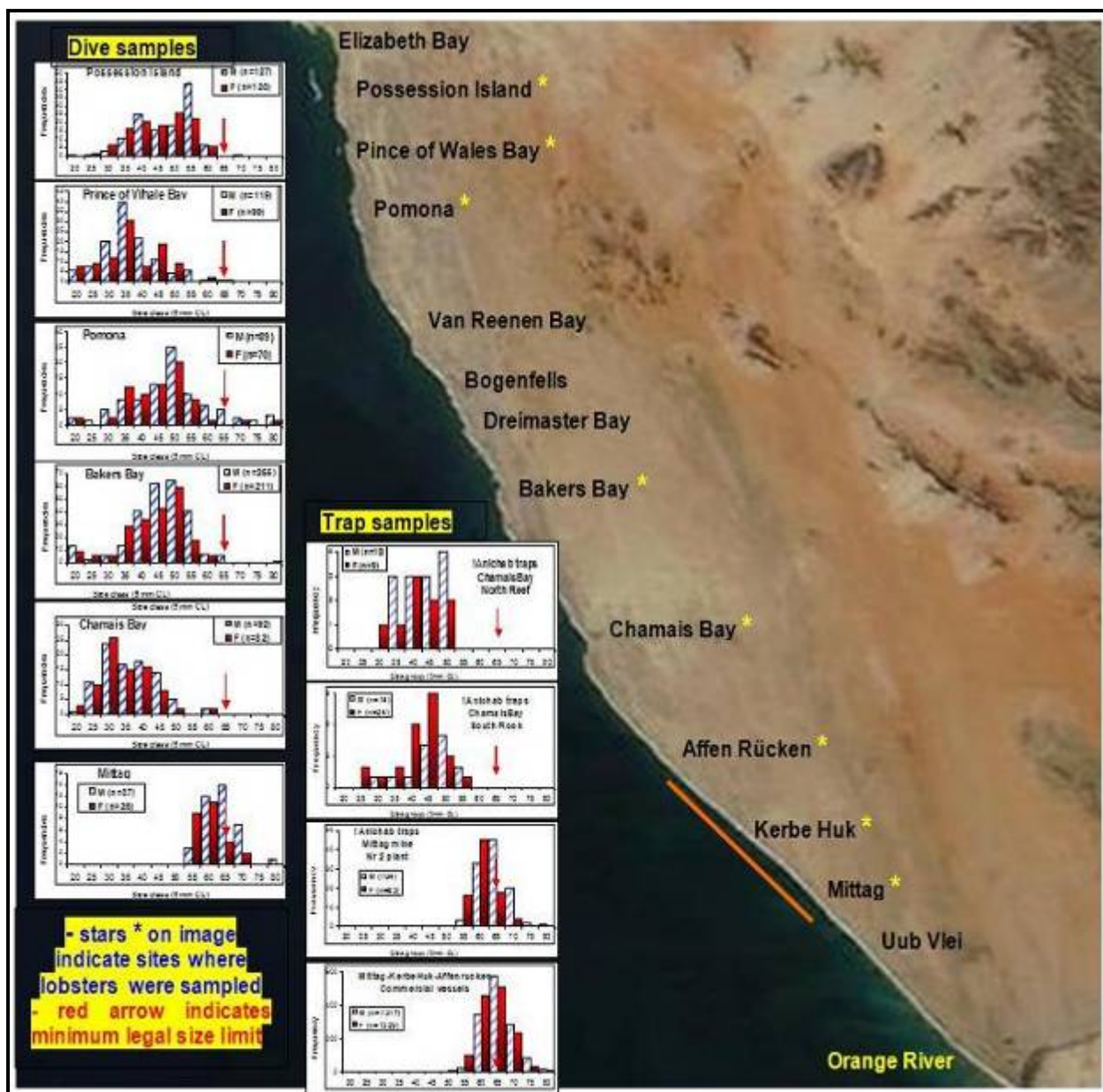
<sup>68</sup> Pulfrich, A., Penney, A.J., Brandão, A., Butterworth, D.S. & M. Noffke, (2006). *Marine Dredging Project: FIMS Final Report. Monitoring of Rock Lobster Abundance, Recruitment and Migration on the Southern Namibian Coast*. Prepared for De Beers Marine Namibia, July 2006. 149pp.).

<sup>69</sup> Grobler, C. (2005) *Report on Issues regarding diamond mining activities near the southern lobster grounds between Luderitz and the Orange River* p. 13.

*Natural Benthos, unspoilt and diverse marine habitat before Mining*

*Pictures showing impacts of mining in the sub-tidal areas west of Plumpudding Island*





Location of sites surveyed in southern Namibia by MFMR divers. Size distributions of lobster populations from various grounds were sampled by divers and with commercial traps, and are indicated on the image as a series of bar diagrams, each corresponding with its site location on the image. The diagonal orange line on the image indicates the main commercial lobster fishing grounds south of Lüderitz. Solid red bars represent females, and bars with diagonal blue lines represent males.

#### 2.4.1.4 Remediation Measures

Dredge experiments at Chamais Bay have indicated that where sediments in sea water are allowed to settle to the bottom of land based ponds, relatively sediment-free water can again be pumped back into the sea. As large ponds are created in the process of land-based mining, these mined out ponds can be used to allow these sediments to settle before returning the water back into the sea. The mining industry and license-holders involved<sup>70</sup> should be required to either use such a settling pond system as was employed for the dredge experiment at Chamais Bay, or alternatively not have discharge points onto the inshore areas, specifically for the area between Chamais Bay and Prince of Wales Bay.

It is also important for maximum acceptable sediment levels (due to mining) for the inshore waters off all mining sites to be defined. At present there does not seem to be a clear solution for the minimisation of seawall erosion, however it is clear that fine clay and mud materials should not be used in their construction. The maximum acceptable accretion level of beaches should also be determined.

Sediment plumes caused by seawall erosion should be closely monitored and contingency plans drawn up to reduce these plumes once they reach unacceptably high levels (that still need to be defined, as indicated above). This is especially relevant for the pocket beach mining activities off Bogenfels.

Sediment-rich seawater ejected from the discharge points at the Chamais Bay mine plant are to be re-directed via a settling pond system. North of this locality, at Elizabeth Bay, mining operations are too extensive for a settling pond system to be used.

Monitoring surveys on the impact of beach accretion at the Chamais Bay sites should continue. At present the extent of the impact of sediment plumes and beach accretion on the subtidal reefs and kelp beds in this area is not clear, nor what the condition of the subtidal reefs downstream of the pocket beach mining sites is.<sup>71</sup>

#### 2.4.1.5 Relevant Regulations

Section 52 (3) (e) of the Marine Resources Act stipulates the following:

*Any person who discharges in or allows to enter or permits to be discharged in Namibian waters anything which is or may be injurious to marine resources or which may disturb or change the ecological balance in any area of the sea, or which may detrimentally affect the marketability of marine resources, or which may hinder their harvesting, shall be guilty of an offence and liable on conviction to a fine not exceeding N\$ 500 000.*

<sup>70</sup> NAMDEB; MME have also been represented and stated agreement at all proceedings and conditions contained in this document.

<sup>71</sup> Surveys have however been conducted at Bogenfels in this regard.



Section 52 (3) (f) provides:

*Any person who kills or disables any marine animal by means of any explosive, poison or noxious substance, or by means of a firearm except as may be prescribed, shall be guilty of an offence and liable on conviction to a fine not exceeding N\$ 500 000.*

Subsection 5 provides that any of the above fines may also be recovered as if they were imposed in a civil judgement.

The **Minerals (Prospecting and Mining) Act 33 of 1992** addresses the reconnaissance, prospecting and mining for minerals, and related matters in Namibia. Mineral rights are vested in the Government of Namibia, and companies or individuals apply to the Ministry of Mines and Energy (MME) for licenses to explore and mine mineral deposits.

When licenses lapse or are cancelled or the license holder abandons the area (including reconnaissance, prospecting, retention or mining licenses), the license holder is required to take all necessary steps to remedy any damage caused to the environment through their activities.

The above Act also requires the license holder to report all incidences in which mineral(s) are spilt into the sea or on the land, or if this is polluted or damage is caused to any plant or animal, to the Minister of MME, and take all steps necessary, in terms of what is considered to be good practise,<sup>72</sup> to remedy the situation. Where the license holder fails to do this in good time, the Minister is to take the necessary steps to remedy the situation, at the expense of the license holder.

Applicants for mining licenses are obliged to give the Minister details regarding the anticipated effects of proposed prospecting and mining operations on the environment, and include proposed prevention and minimisation steps required.<sup>73</sup>

Section 57(1)(b) enables the Minister to direct applicants regarding environmental protection, the conservation of natural resources and the prevention of waste hereof. Where license holders fail to comply with such directions, the Minister may take the specified steps and recover the costs hereof from the license holder.

Section 122(2)(b) addresses pollution prevention by authorising the Minister to declare any prospecting or mining operation only permissible by special Ministerial authorisation, and subject to any conditions or terms he may determine.

**Section 130 makes mineral license holders liable for damage to the environment and other losses or damage caused.**

**If any minerals or group of minerals are spilled in the sea, on land or in any water, during the course of any mining-related operations, and if any plant or animal life is endangered or destroyed, or damage or losses are caused to any person, then the license holder is required to report the spillage and consequent pollution to the**

<sup>72</sup> defined in section 1 of the Act.

<sup>73</sup> section 91(f)(ii) and (iii).

**Minister, and to remedy the damage caused.** In the event of non-compliance with this provision, the Minister may take necessary steps himself, and recover costs from the license holder through legal process.

#### 2.4.2 Lack of Food for Predators and Over-fishing

Large-scale commercial fishing by foreign fleets started in South West African waters in 1947, when 1 000 tons of Sardine were first caught.<sup>74</sup> This industry grew rapidly and by 1953 catches, by more than 100 purse seiners, had risen to 262 000 tons. During 1968, 1.4 million tons were landed. Sardine stocks declined dramatically in the late 1960s and early 1970s.<sup>75</sup> Declines were attributable to over-fishing and environmental perturbations in the ecosystem, which also contributed to stock fluctuations. Sardine biomass in Namibia dwindled to a few thousand tons in 1995/96 following the 1995 Benguela Niño. Since then minimal stocks have contracted to the north of Mercury Island.<sup>76</sup>

After the collapse of Sardine, the fishing industry turned to Anchovy but this fishery also collapsed when stocks became severely depleted and after 1996, catches were negligible.<sup>77</sup> Sea-bird populations, that were largely dependent on pelagic shoaling fish, such as Sardine and Anchovy occurring near the breeding islands, decreased dramatically, especially to the south of Lüderitz. The sustainability and improvement of the prey base is central to improving the conservation status of threatened seabirds in Namibia, particularly African penguins, Cape gannets and Bank cormorants. It is essential that all possible steps are taken to encourage the build-up of Sardine and Anchovy along the Namibian coast. Food availability south of Lüderitz remains a specific concern.

With respect to line fishing, although the 'Regulations relating to the exploitation of marine resources' prohibit recreational fishing in restricted areas, such as at Meob Bay, they do allow commercial line fishing boats to fish along the entire Namibian coastline. Due to this concession to line fishing boats, the existing closed or restricted areas, that cover approximately 80 % of the coastline, cannot be classified as areas where line fish stocks are totally protected from fishing activities.

#### 2.4.3 Oiling and other Pollution

The Namibian coast is vulnerable to marine pollution, especially oiling. Although no major oil spill has yet taken place along Namibia's coast, persistent chronic oiling occurs regularly, probably from ships discharging waste oil and sunken boats leaking oil. African Penguins, being flightless, are particularly sensitive to oil pollution. A medium-size oil spill between Mercury and Ichaboe Islands would threaten 80% of the Namibian penguin population and at present, no mitigating measures can be implemented in such an event. Although Namibia does have in place a (draft) National Oil Spill Contingency Plan, there are severe shortcomings in Namibia's implementation of the International Convention on the Prevention

<sup>74</sup> Hampton, I. (2003) *Harvesting the Sea*. In: Molloy, F. and Reinikainen, T. (eds), *Namibia's Marine Environment*. Directorate of Environmental Affairs of the Ministry of Environment and Tourism, Windhoek, Namibia.

<sup>75</sup> Boyer, D.C. and Hampton, I. (2001) *An overview of the living marine resources of Namibia*. South African Journal of Marine Science 23: 5-35.

<sup>76</sup> Crawford, R.J.M. (1998) *Responses of African Penguins to regime changes of sardine and anchovy in the Benguela system*. South African Journal of Marine Science 19: 355-364.

<sup>77</sup> Boyer, D.C. and Hampton, I. (2001) *An overview of the living marine resources of Namibia*. South African Journal of Marine Science 23: 5-35.

of Pollution from Ships (MARPOL 73/78). This responsibility falls primarily under the mandate of the Department of Maritime Affairs (DMA) within the Ministry of Works, Transport and Communication. It is submitted that the monitoring and prevention of marine pollution, as well as co-management and efficient integration of Institutional mandates could be greatly enhanced in the proposed MPA area, by combining management and enforcement roles of MFMR's Inspectorate, the observer programme and DMA's pollution prevention officers and surveyors. For the proposed MPA area falling within port limits, NAMPORT and town council, pollution control roles should also be integrated effectively. To these ends, combined training workshops, courses and patrols should be implemented. Effective use and implementation of MFMR's gazetted regulations could easily facilitate this process.

Seabirds feeding from fish offal dumped overboard, particularly Cape gannets, and to a lesser degree gull species, are prone to oiling from fish oil. Other seabirds are threatened by entanglement, often due to waste dumped at sea. This includes several cormorant species, which incorporate bits of rope and fishing line as nesting material into their nests. Regulation 24 of Government notice 153 provides that no waste generated on a fishing vessel, other than biodegradable household waste or fish offal, may be discharged into the sea. Such waste, excluding the two exceptions mentioned above, must be taken to port and disposed of in a satisfactory manner. Biodegradable household waste and fish offal may only be dumped at sea '...beyond a distance of two nautical miles from the low-water line.'<sup>78</sup> This prohibition thus applies to most of the buffer zone between the coast and the islands as well as the two nautical miles on the ocean (western) side of the islands, as all of the mentioned islands are situated within two nautical miles of the coast-line, except for Hollamsbird Island in the north of the MPA buffer zone.



*Cape gannet entangled in fishing line*



*Oiled African penguin (at centre)*

<sup>78</sup> Regulation 24(3).

Section 52 (3) (d) of the Marine Resources Act No. 27 of 2000 provides the following:

*Any person who, in a marine reserve, without having been granted permission to do so under section 51(3)<sup>79</sup>, dredges or extracts sand or gravel, discharges or deposits waste or any other polluting matter, or constructs or erects any building or structure or in any way disturbs, alters or destroys the natural environment, shall be guilty of an offence and liable on conviction to a fine not exceeding N\$ 500 000.*

Section 52 (3) (e) stipulates the following:

*Any person who discharges in or allows to enter or permits to be discharged in Namibian waters anything which is or may be injurious to marine resources or which may disturb or change the ecological balance in any area of the sea, or which may detrimentally affect the marketability of marine resources, or which may hinder their harvesting, shall be guilty of an offence and liable on conviction to a fine not exceeding N\$ 500 000.*

Section 52 (3) (f) provides:

*Any person who kills or disables any marine animal by means of any explosive, poison or noxious substance, or by means of a firearm except as may be prescribed, shall be guilty of an offence and liable on conviction to a fine not exceeding N\$ 500 000.*

Subsection 5 provides that any of the above fines may also be recovered as if they were imposed in a civil judgment.

## **2.4.4 Habitat Loss and other Issues**

### **2.4.4.1 Guano Harvesting**

After Independence, guano harvesting continued at Ichaboe Island, where it is still considered to be marginally economically viable. Ichaboe Island was last scraped during 2007 and can currently produce approximately 500 metric tons of guano annually. This quantity of guano will decrease as the number of guano-producing seabirds, especially Cape Gannets, the main guano-producing species, continues to decrease.

If guano harvesting is not sufficiently controlled, this has a severe impact as it removes too much of the substrate required for African penguins to burrow in. Hardly any penguins are able to burrow on any of the Namibian islands any more. Nesting on the surface, where eggs may be predated by Kelp gulls and where chicks are prone to heat exhaustion has had a negative effect on breeding success.

Removing too much substrate for guano harvesting also compromises gannet breeding, because gannets construct their nests by scraping surrounding guano into a mound. In addition to removing burrowing substrate, large numbers of labourers stationed on Ichaboe Island to harvest guano cause disturbance to breeding seabirds.

<sup>79</sup> As indicated in the legal review appended to this document, and together with which this concept note and management proposal are to be read, section 51(3) of the Marine Resources Act provides that the 'Permanent Secretary may in a marine reserve perform any act or allow the performance of any act and take any measures which are not incompatible with the objectives for which the marine reserve has been set aside.

#### 2.4.4.2 Aquaculture

The aquaculture industry is increasingly being promoted as an alternative to fishing in a system still suffering from the consequences of over-fishing. However, aquaculture requires sheltered bays, which are scarce along the Namibian coast and several proposals have now suggested aquaculture in the lee of a number of seabird breeding islands. This will need to be carefully monitored, so as to prevent the release of supplements into the water, entanglement incidents (which are likely to affect mainly seabirds, cetaceans and marine turtles) or other disturbances. There is however close consultation together with the aquaculture directorate and industry regarding these issues and the MPA proposal, and no conflict is foreseen.

### 3. RECOMMENDED MARINE PROTECTED AREA WITH MANAGEMENT ZONES

#### 3.1 Methodology

For ease of measurement and management, an initial, outside buffer zone is suggested, although the management activities affecting each island in its own right have been dealt with in more detail, (and with stricter conditions applying closer to the islands, on a context-specific, 'island by island' basis).

In order to minimize any interference with existing resource-extracting and navigational activities, the suggested buffer zone could be classified according to the IUCN's category VI, a so-called 'Managed Resource protected area. This is to be managed mainly so as to ensure the sustainable use of natural resources; to ensure the '...long-term protection and maintenance of biological diversity'<sup>80</sup> whilst simultaneously providing for a sustained flow of natural products and services to meet local and national development needs.<sup>81</sup>

A viewing of the requisite diagram indicates that the mapping of the suggested buffer zone has been initiated by drawing 20 km x 40 km rectangles<sup>82</sup> around each island (for ease of management, implementation and enforcement), whilst the second stage of the process consisted of delineating the management activities affecting each island (falling within the larger buffer zone) in its own right. This approach was decided on, in order to interfere as little as possible with existing resource use, whilst simultaneously formalizing the requisite protection of the areas and resources concerned.

Subsequently, further attempts have been made to present a more 'user-friendly' buffer zone, following a line that runs roughly 20 km offshore, as indicated in the maps 1 to 5 below in this section. The diagrams provided here clearly show this proposed buffer zone, stretching along approximately one third of Namibia's coastline. The co-ordinates provided with the maps match the 20 km line in the first block of co-ordinates, as well as the first-mentioned buffer zone option. The co-ordinates have been rounded to degrees and minutes, in order to make it easier for fishers, vessels and other stakeholders / sea-users to include these in their GPS navigational systems.<sup>83</sup>

The co-ordinates for the initial MPA outline steps are as follows (see also map 2 on page 50):

14°39	24°36
14°31	24°36
14°30	25°02
14°38	25°02
14°38	26°00
14°45	26°00
14°45	26°33
14°54	26°33
14°54	26°56
15°01	26°56
15°01	27°28
15°15	27°28
15°15	27°56
15°42	27°56

<sup>80</sup> See the Draft Management and Development Plan for the Sperrgebiet National Park, January 2006, p. 24.

<sup>81</sup> *supra*.

<sup>82</sup> see maps 1 to 5 below.

<sup>83</sup> We are extremely grateful to the expertise and efforts by Katta Ludynia, from the University of Kiel, for providing some of the maps and diagrams.

Maps 1-5 show that the suggested buffer zone falls well within the existing 200 m trawl depth limit, thereby not interfering with the hake fishery. Namibia's EEZ, as well as the country's position in a regional and continental context are also illustrated below.

Within this broader 'IUCN category VI' buffer zone, further (and smaller) zonations were identified. In this manner, increasing levels of protection are 'narrowed down' as they apply to more specific and stricter-controlled areas, within the broader buffer zone. The zones are defined as follows (see diagram below):

Zone 1 consists of general conditions applicable to all the islands, islets, rocks and other areas specifically mentioned in this document.

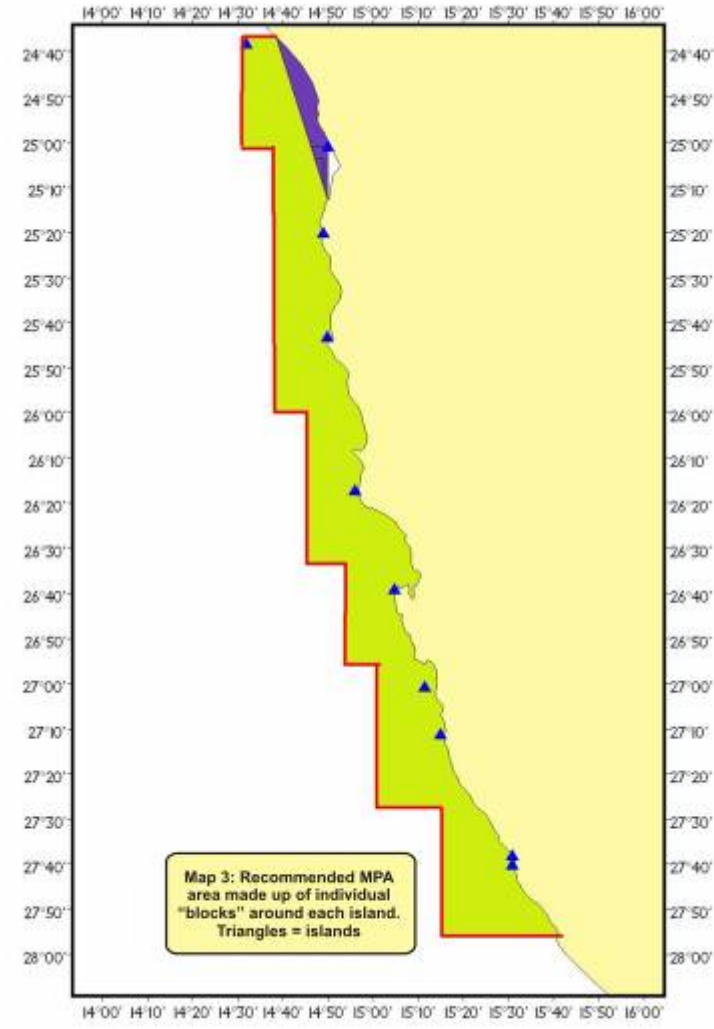
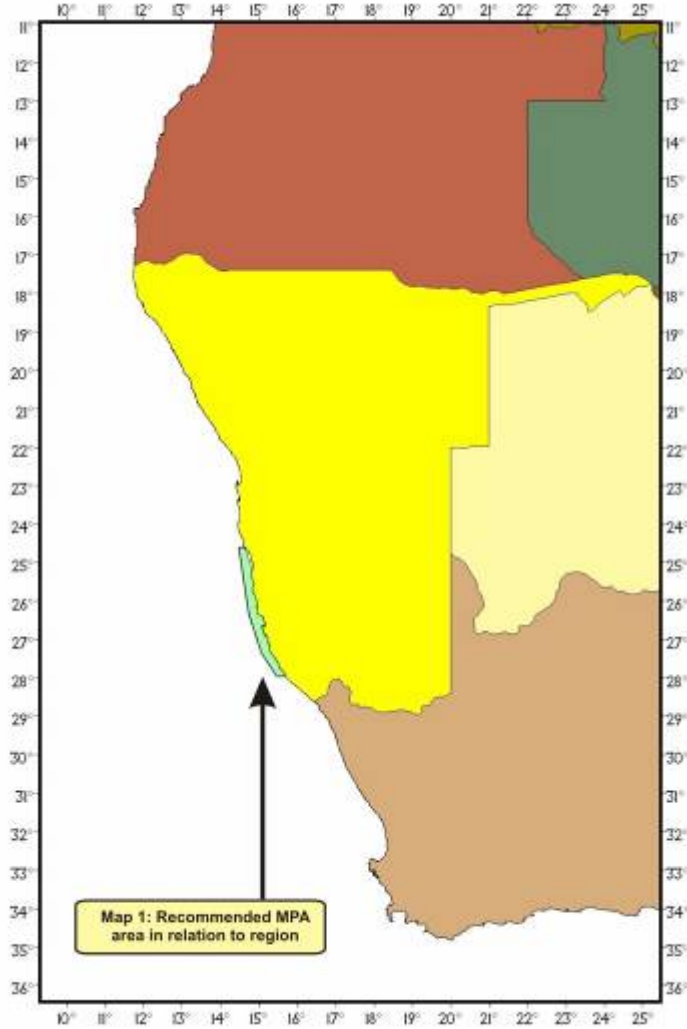
Zone 2 consists of stricter conditions, which apply to the proposed lobster-sanctuary areas and proposed land-based mining restrictions (currently applicable to the existing license-holders, NAMDEB).

Zones 3 and 4 are both island-specific, with zone 3 containing conditions applicable around each island, while zone 4 consists of the highest degree of protection on each island itself.

The proposed MPA was designed primarily to encompass critical feeding grounds of some seabirds, particularly African penguins and Bank cormorants, to protect important cetacean pathways and calving grounds, as well as the commercially important rock-lobster recruitment areas and nursery grounds. Hence the only proposed blanket limitation applies to the purse seining industry, which is affected minimally by this limitation and has approved this proposal. The above-mentioned IUCN category VI 'buffer zone' borders on national park area along the envisaged Eastern boundary. In this context it can be viewed as the essential marine complement to the proposed (terrestrial) Sperrgebiet National Park (26 degrees south to the Orange River), and the existing Namib Naukluft National Park (starting at the latter cut-off point of 26 degrees, extending further north.)

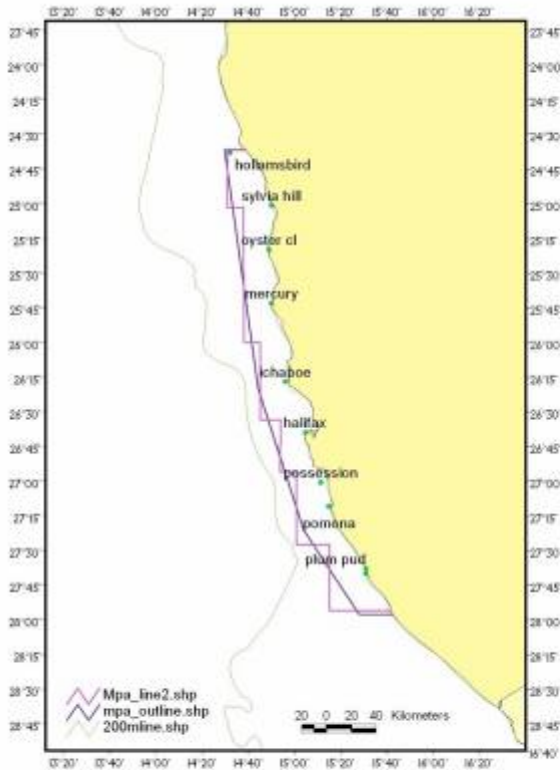
Within this buffer zone there are additional areas with more specific conservation aims, including rock lobster sanctuaries and specific mitigation measures applicable to best practice mining and environmental requirements. However, other than constraints on activities that may affect the purpose of the MPA as a whole, such as oil pollution, littering and sediment plume management, the mining sector within the larger buffer zone is not constrained significantly.

NAMIBIAN ISLANDS' MARINE PROTECTED AREA

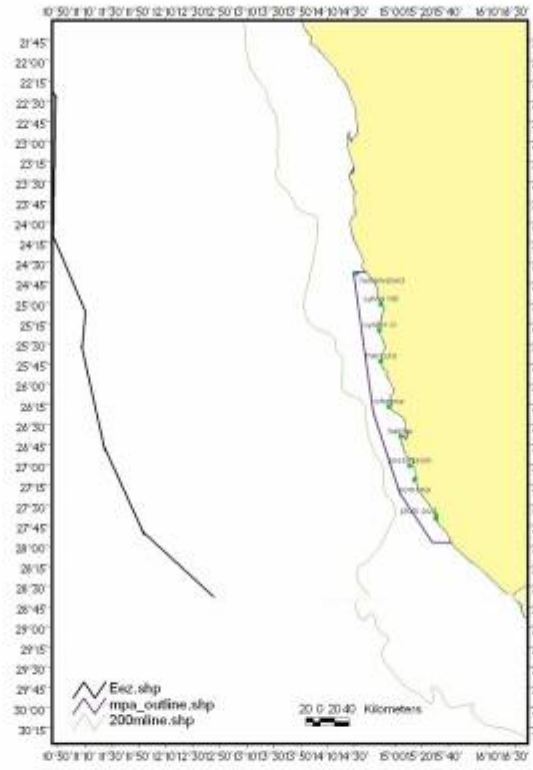




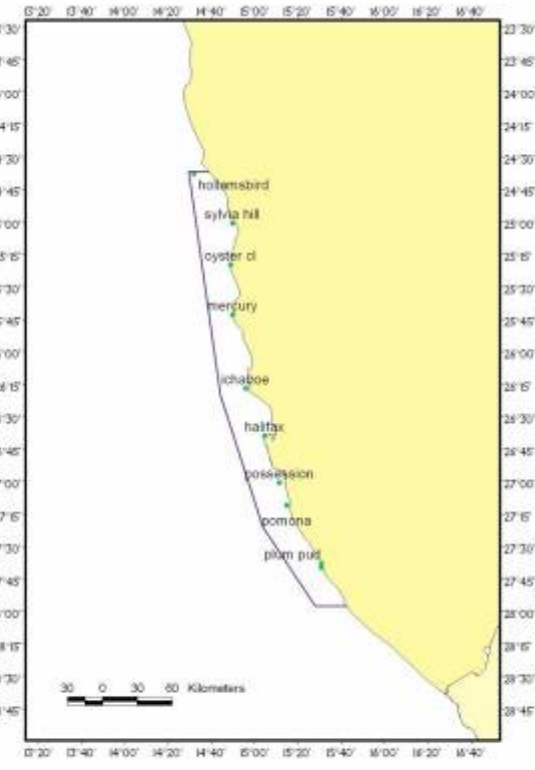
NAMIBIAN ISLANDS' MARINE PROTECTED AREA



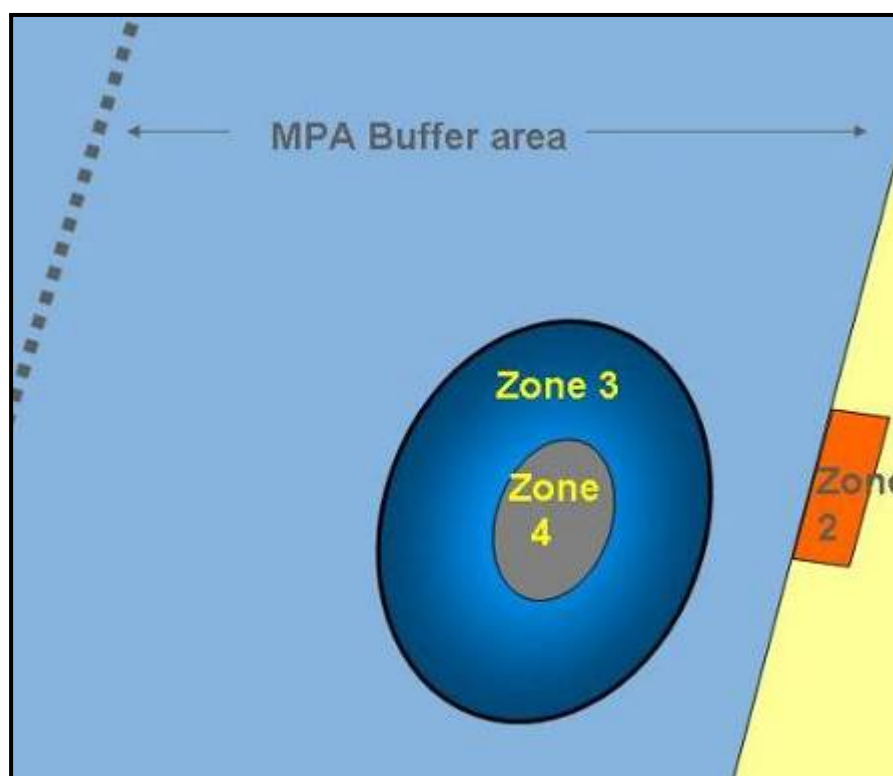
**Map 3: Showing final outline of MPA (over the "blocks" shown in Map 2)**



**Map 4: Recommended MPA in relation to the EEZ and the 200 m depth contour line (within which no trawling is allowed)**



**Map 5: Recommended MPA along the southern part of Namibia's coastline**



*Diagram of the general zonation scheme*

### **3.2 Proposed Borders of the Buffer Zone**

The buffer zone stretches from Meob Bay<sup>84</sup> in the north to 42 km south of Sinclair Island. It was defined as follow:

- 6 nautical miles offshore from the high water mark (h.w.m.) between Hollamsbird Island<sup>85</sup> and Meob Bay.
- 20 km x 30 km blocks fitted around each island (see maps and diagrams above).
- Eastern border up to the h.w.m., as per MFMR's stipulated jurisdiction over all marine resources.
- Western border as defined (see co-ordinates on diagram).
- A small part of the buffer zone falls within Lüderitz's port-waters; the port authorities are being briefed and consulted.<sup>86</sup>

<sup>84</sup> Co-ordinates for Meob Bay: 24°31'096"S, 14°36'483"E.

<sup>85</sup> Co-ordinates for Hollamsbird Island: 24°38'22.20"S, 14°31'51.96"E.

<sup>86</sup> Tim Eiman, NAMPORT Safety, Health and Environmental (SHE) Officer, Walvis Bay, and Willem Louwe, NAMPORT SHE officer Lüderitz. Aune Gebhard, the economic development manager of Lüderitz's town council has also been informed, briefed and consulted on the anticipated MPA plans, and has assured MFMR of the council's fullest co-operation in this regard. It is anticipated and hoped that certain community involvement, clean-up operations etc. could be facilitated in the future, in collaboration with MFMR and NAMPORT.

- Within Lüderitz's port-waters however, Seal and Penguin Islands fall under MFMR's jurisdiction, as also indicated in the legal review.

### 3.3 Conditions Applicable Within the Buffer Zone

It is anticipated that the recommendations listed below will be incorporated as flexible management plans, which should be reviewed on a periodic basis, as new scientific information becomes available, and / or resource extracting technologies change. It is important to stress that the suggestions below have been considered in the context of interfering minimally with existing activities in the proposed buffer zone, as the co-operation of all stakeholders has been essential to this planning process, and because stricter conditions apply closer to the islands, according to the different contexts, needs and activities currently existing around each island.

- Allow commercial lobster-fishing, snoek-fishing and mullet-fishing.
- Allow recreational fishing (for line fish and rock lobster) in Lüderitz area.
- Existing regulations (10.1.h)<sup>87</sup> presently prohibit recreational fishing in most of the buffer zone area; this includes all ski-boats as well as lobster fishers that have not been granted commercial licenses.
- Drift netting and gillnets are currently illegal<sup>88</sup> in **all** Namibian waters, and subject to a fine N\$ 500 000 upon conviction.
- Trawling and long-lining is prohibited in waters shallower than 200 m, by means of attaching this condition to commercial fishing licenses, referred to as 'Annexure C' in the commercial license.
- Proposed prohibition on long-lining, line fishing<sup>89</sup> (between Meob Bay and Sylvia Hill h.w.m to 6 nautical miles offshore), harvesting of inter-tidal species (between Meob Bay and Sylvia Hill h.w.m to 6 nautical miles offshore) and purse seining<sup>90</sup>. Only minimal purse seining activities may be affected, as indicated by the estimates of catch and log-sheets attached in Annex 1 at the end of this document.<sup>91</sup> Consultation and approval from purse seining representative, Hugo Viljoen.<sup>92</sup>
- Currently there is no commercial line fishery or harvesting of inter-tidal species in the proposed buffer zone area, except in the area between Hollamsbird Island and Meob Bay; 6 nautical miles offshore from h.w.m. between Hollamsbird Island and Meob Bay constitute the proposed line fish sanctuary.) Snoek may still be fished in this line fish

<sup>87</sup> 'A person may not harvest marine resources for recreational purposes within a distance of two nautical miles seaward from the high-water line in any of the following areas – the sea shore of any of the islands along the Namibian coast.'

<sup>88</sup> Section 52 (4) g) of the Marine Resources Act also prescribes the following: 'Any person who harvests any marine animal by means of a driftnet, being a gillnet or any other net, or a combination of such nets, with a total length exceeding 2.5 kilometres, or any shorter length as may be prescribed, being placed in the water and allowed to drift for the purpose of trapping or entangling marine resources, shall be guilty of an offence and liable on conviction to a fine not exceeding N\$500 000.'

<sup>89</sup> Consulted and approved with line fishing representative: Wayne Hart; Silver kob (Kabeljou) and steenbras will not be fished, however Snoek and galjoen may still be fished in this area by line fishing.

<sup>90</sup> Consultation and approval obtained, purse seining representative, Hugo Viljoen, Swakopmund, September 2007.

<sup>91</sup> See Table 1 in the Annex 1.

<sup>92</sup> Swakopmund, September 2007.

sanctuary, but not Silver kob (kabeljou) or steenbras. Consultation, meeting and approval from line fish representative, Wayne Hart.<sup>93</sup>

- The proposed conditions have a minimal impact on current commercial fisheries. As Namibian vessels have VMSs on board since 2007,<sup>94</sup> these restrictions on industrial fishing will be easy to enforce, and, as indicated, the closed area / buffer zone will not affect any long-liners, or the mid-water trawl or deep-water trawling.
- In future, possible new fishing methods are to be evaluated and subject to revision of the management plan before introduction into this area.
- No kelp cutting, unless a permit is obtained from Ministry of Fisheries and Marine Resources regional office in Lüderitz.
- Throughout the MPA, present and potential future marine operations may not, through fixed moorings, lines or other structures in the water, obstruct the known pathways of cetaceans.
- Namibia's mining policy also requires mining vessels to have VMSs on board, which allow the monitoring of access in the MPA. This is also expedient for co-management and self-policing in terms of restricted area permits (RAPs) through MME.
- No underwater explosions or underwater blasting is allowed, or, if necessary, subject to certain conditions, including permit requirement; Kudu Gas was consulted to ascertain that their operations (including 170 km of pipeline controlled from shore) fall to the south of the proposed buffer area. A site visit was undertaken in the NAMDEB area, and they were consulted and their approval obtained, as they control the onshore and near-shore (30 m depth) mining licenses.<sup>95</sup>
- No more than 1% of the total marine area of mining licenses 43, 44, 45, 128 A, 128 B, 128 C will be mined per annum.<sup>96</sup>

### 3.4 Zoning

#### 3.4.1 Zone 1

Listed below are conditions generally applicable to all islands, islets, rocks and areas falling within the indicated IUCN category VI buffer zone as specifically mentioned in this management proposal.

- No prospecting or mining on any islands.
- No anchoring on any islands, rocks or islets within the buffer zone area.
- Mining license-holders<sup>97</sup>: conditions within 120 m around each island, as measured from the low water mark (l.w.m.): only vessels < 500 GRT allowed.

<sup>93</sup> September 2007, MFMR boardroom, Swakopmund, Namibia.

<sup>94</sup> Except for the smaller vessels including rock lobster vessels.

<sup>95</sup> De Beers Marine Namibia (DBN) also expressed their support and approval at the formal multi-stakeholder workshop, day 1, 14 November 2007, Lüderitz.

<sup>96</sup> NAMDEB, multi-stakeholder workshop, 15 November, 2007, Lüderitz.

<sup>97</sup> Generic references to 'license-holders' have been used in this section of the document that contains the draft management plan, so that the conditions within the protected area remain relevant even when the right-holders and resource users change. SAMICOR, the existing mining concessionaires around the islands, have agreed to the conditions affecting them as contained in this document, through consultations from 2005 to 2007. Their mining licenses expire in 2019.

- No mining on rocky outcrop areas within 120 m from the l.w.m. of each island mentioned in this management proposal; however, mining allowed within specific unconsolidated sediment areas i.e. no mining or dumping on rocky areas. If and when license-holders mine these areas, compliance with environmental conditions as stipulated by MME. Conditional support expressed: Samicor Diamond Mining (Pty) Ltd<sup>98</sup> expresses its willingness to support the establishment and declaration of Marine Protected Areas, subject to existing rights in terms of the Minerals (Prospecting and Mining) Act No 33 of 1992 to conduct exploration and mining activities in an environmentally responsible manner. Samicor Diamond Mining (Pty) Ltd undertakes that no mining will take place in sediment-free areas (i.e. rocky areas) within 120 m horizontal distance from the islands' l.w.m.
- Eco-tourism: strictly limited to boat-based activities, with restrictions, including seasonal restrictions, numbers of boats and distance from the island. Conditional on permits issued by MFMR, which should be discussed and acknowledged by the section heads in the Lüderitz office first. If tourism is allowed on any of the islands then it should be restricted to Penguin and / or Seal Islands, as indicated in more detail below.
- Over-flight regulations of 1000 m / 3000 ft should apply over all islands mentioned in the document. Exceptions for research, medical emergencies. Over-flight regulations should include a 1 nautical mile radius from the islands' l.w.m.s.
- Such restrictions could also apply to Sylvia Hill, Oyster Cliffs, Spencer Bay, Van Reenen Bay, Wolf/Atlas Bay and Bakers Bay on the mainland as they are breeding seabird and seal colonies – disturbing seabirds and seals is contrary to existing legislation, EAF management and international Conventions; there is an existing, demarcated no-fly zone for Wolf and Atlas Bay colonies; a possible exception may be made for Diaz Point if necessary, as scenic flights may fly over Diaz Point and the town of Lüderitz before landing; however, Diaz Point should only be approached from the north;<sup>99</sup>
- No commercial sealing on the islands; no additional sealing concessions awarded, other than the existing ones that fall into the buffer zone, being the existing sealing concessions for the seal colonies at Wolf Bay and Atlas Bay. Namibia's main commercial sealing concessions and main seal colonies are outside the buffer zone. On the other hand, small-scale seal management (of individual rogue seals) is required and exercised on certain islands, in order to reduce threats to threatened seabird species.

#### Enforcement:

- Access to the islands, islets and / or rocks within the IUCN category VI MPA buffer zone is to be only allowed through a permit issued by MFMR. Guidelines regarding who should issue the permit are needed. It is suggested that permits should be issued by the Lüderitz office; this should be stipulated in the MPA Management Plan.
- According to existing mining legislation and regulations it is an offence to land on any island within 'diamond area no. 1' as defined, punishable by a fine of N\$ 400 and enforceable by MME.

<sup>98</sup> Reference is made interchangeably to SAMICOR as the same entity in this document.

<sup>99</sup> SAMICOR have expressed their support for these over-flight regulations in relation to the use of their helicopters during mining operations: *Pers. Comm.* Lionel Howes, Mining Manager, December 2007.

- Island-based staff should be empowered (in terms of sections 4 – 6 of Namibia's Marine Resources Act 27 of 2000) as fisheries inspectors (or honorary fisheries inspectors), for purposes of better enforcement and more expedient implementation of management activities and plans on and around the islands within the MPA.
- Most fishing vessels in Namibian waters have VMSs on board since 2007,<sup>100</sup> the exceptions being lobster vessels and small line fish boats. The same requirement applies for mining vessels. Activities within the buffer zone should thus be easy to control and manage.

### 3.4.2 Zone 2

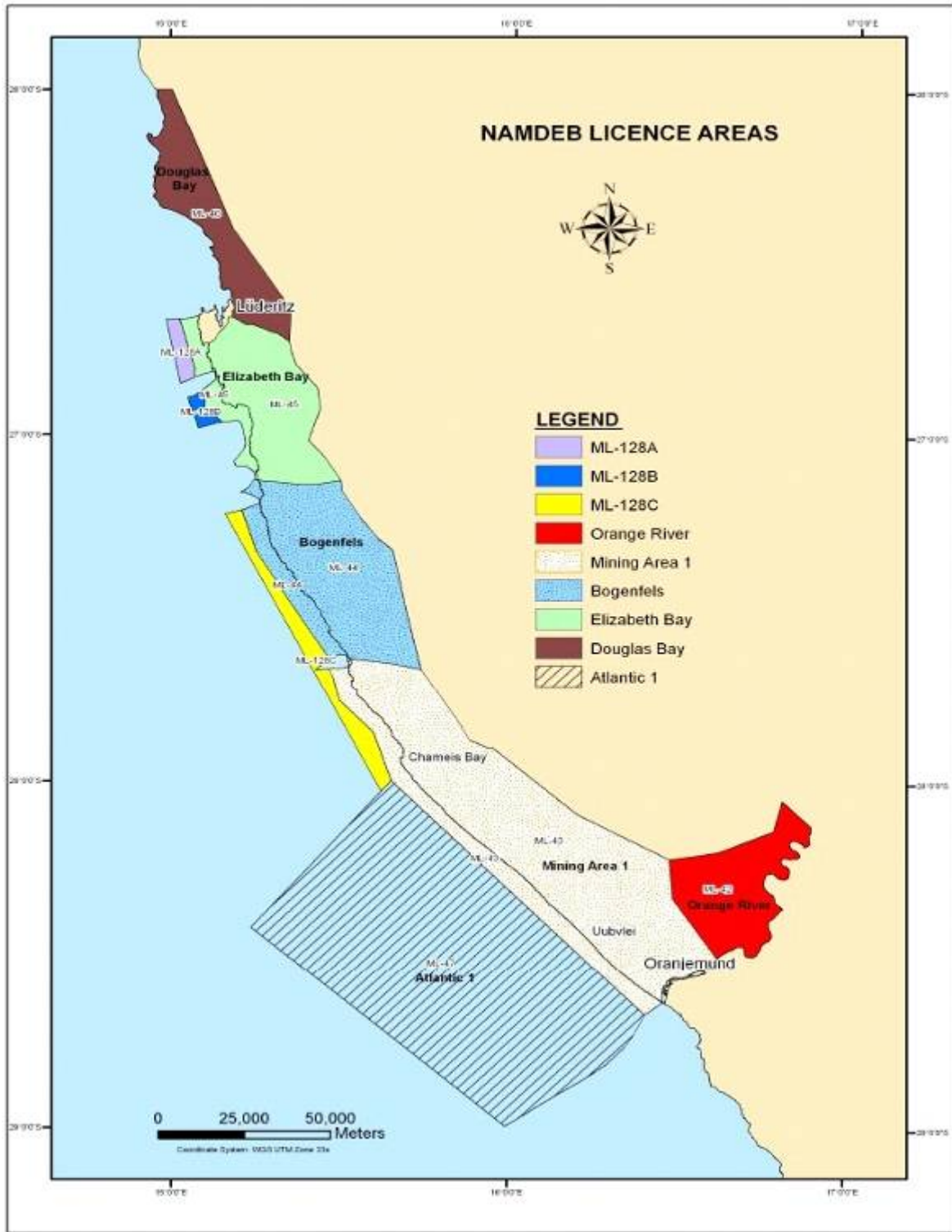
The main objective of proposing zone 2 (and associated conditions) is to minimize sediment discharge from mine processing plants onto beach areas as well as minimize seawall erosion which could lead to smothering of kelp beds and reefs, as well as the formation of land bridges. These measures are required in particular to protect the proposed lobster recruitment sanctuary between Prince of Wales Bay and Chamais Bay, including Albatross Rock, Pomona, Plumpudding and Sinclair islands, from the h.w.m. to 30 m depth around each island.<sup>101</sup>

Listed below are mining-related on-shore and near-shore (<30 m depth) conditions.

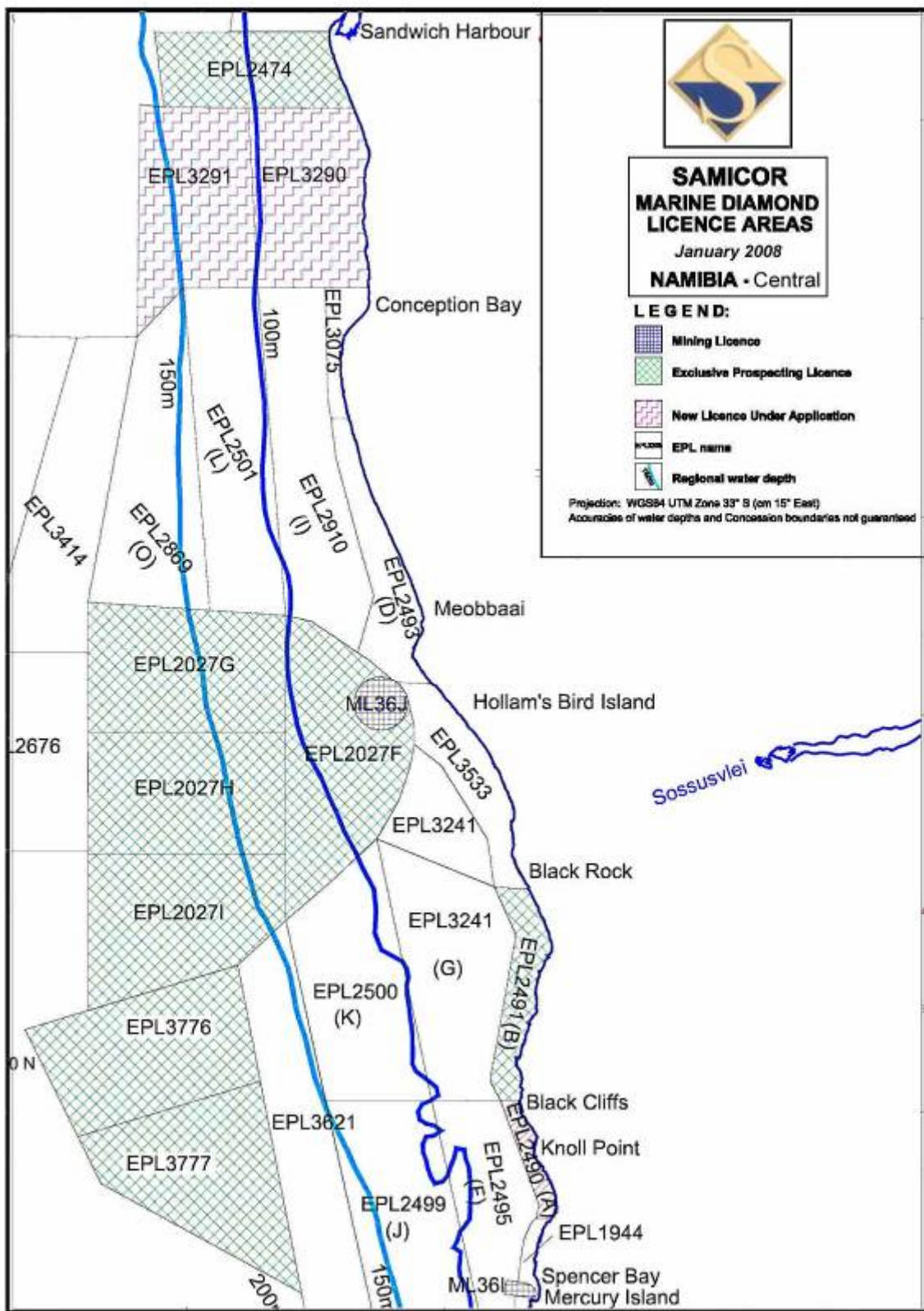
- Between Prince of Wales Bay and Chamais Bay minimal processing plant discharge points onto the beach or into the sea are allowed, only if settling pond systems are implemented. It needs to be emphasised that NAMDEB is already using a settling pond system in Chamais Bay, due to requests from, and negotiations with MFMR. This forthcoming approach is laudable and should promote similar co-operation from the remaining mining sector, both within Government (MME), as well as by other mining operators. NAMDEB has also issued statements that 20-30% of their mining area may be given up for the proclamation of MPAs. It is hoped that this may result in negotiated protected areas between Albatross Rock and Chamais Bay.
- Monitor and take remedial action concerning sediment buildup forming land bridges to any of the islands within the MPA area.
- No more than two active mining sites using seawalls at any given time in order to minimize the effect of sea-wall erosion (especially in the proposed mining activities at Bogenfels).
- Minimize processing plant discharge points onto the beach or into the sea with the development of new mining activities within the MPA.

<sup>100</sup> Except for smaller vessels including rock-lobster vessels.

<sup>101</sup> All of these requirements were formulated together with the existing mining license holders, NAMDEB, and finalized with approval at the multi-stakeholder workshop, day 2, 15 November 2007, Lüderitz. NAMDEB's current operations stretch from the land out to the edge of the 'land-based' diamond-mining licenses, at approximately 5,5 km offshore (which is from 45 to 70 m water depth).

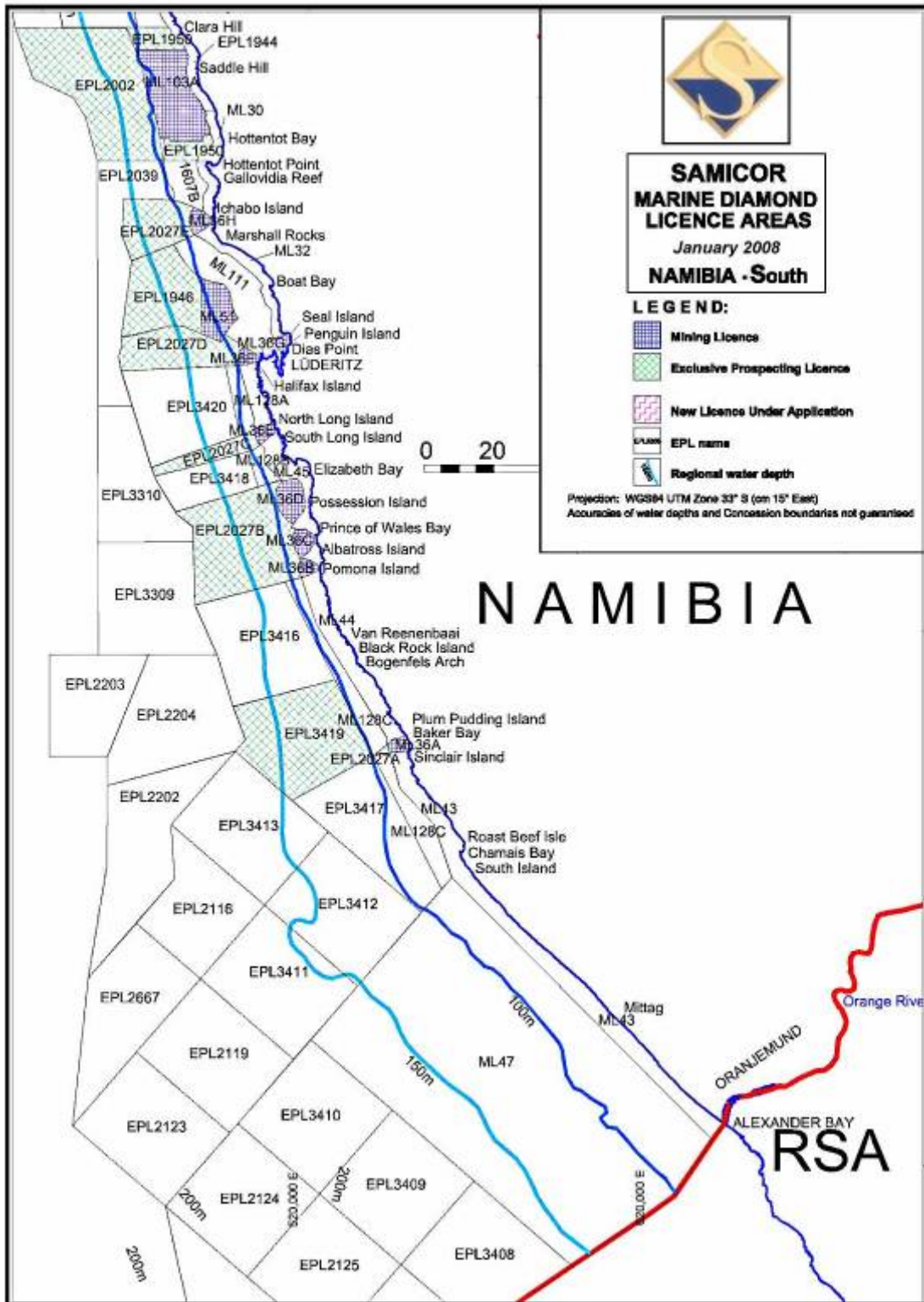


*NAMDEB license areas in southern Namibia*





**NAMIBIAN ISLANDS' MARINE PROTECTED AREA**



*SAMICOR license areas in central and southern Namibia*

### 3.4.3 Zone 3

Zone 3 consists of island-specific conditions applicable to an area around each mentioned island, as measured from the low water mark. For most of the islands, this applies to 120 m around the island.

Samicor Diamond Mining (Pty) Ltd<sup>102</sup> undertakes that, within the areas defined as Zone 3 above, no mining will take place in sediment-free areas (i.e. rocky areas) within 120 m horizontal distance from the islands' lwms. Every effort will be made not to disturb the rocky areas within the defined Zone 3. Furthermore, no mining will take place on any islands, defined as Zone 4.<sup>103</sup>

The concessions expressed by Samicor Diamond Mining (Pty) Ltd above are not to be construed as any waiver, cession or transfer of any existing mineral rights currently held by SAMICOR Diamond Mining (Pty) Ltd in terms of the Minerals (Prospecting and Mining) Act, 33 of 1992.

It is important to note that the offshore red border-line on the map above merely indicates the extent and limit of SAMICOR's mining concessions for the purposes of the proposed MPA, and in no way reflects any official maritime boundary delimitation between Namibia and South Africa, as this matter has not yet been settled.

As indicated below, Diamond Fields Namibia are the concession holders of mining license 32, which stretches from the l.w.m. to approximately 40 m depth, from Hottentot Point in the north to Dias Point, as well as leases over mining licenses 138, 139 and 111.<sup>104</sup>

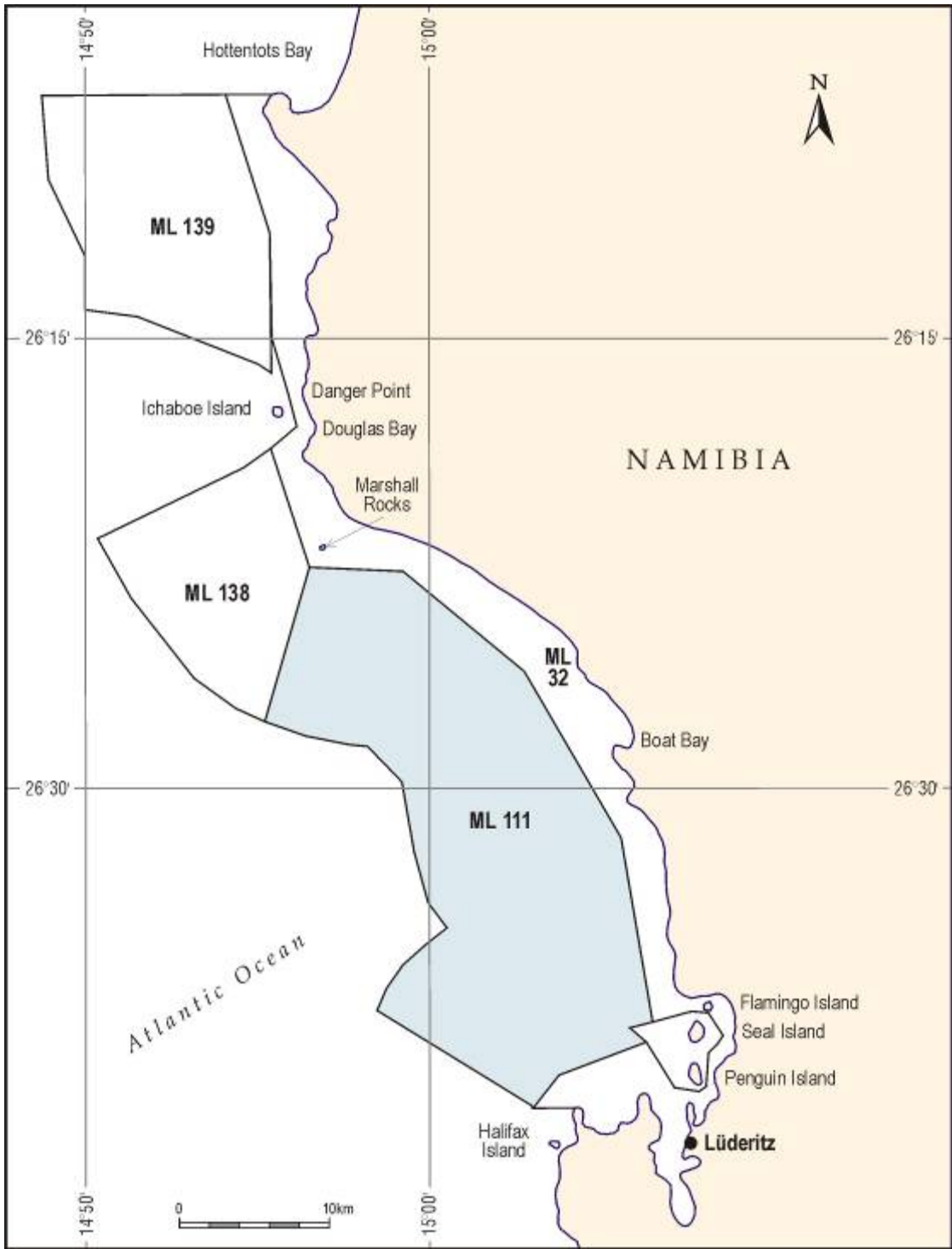
### 3.4.4 Zone 4

Zone 4 consists of the strictest island-specific conditions as detailed for each island below.

<sup>102</sup> SAMICOR and Samicor Diamond Mining (Pty) Ltd are used interchangeably, for ease of reference, in this document.

<sup>103</sup> Ministerial Submission by SAMICOR Diamond Mining (Pty) Ltd to MFMR, December 2007.

<sup>104</sup> *Pers Comm.* Jeremy Midgley, 28 April 2008; Veston Malango, General Manager of the Chamber of Mines: expressed full support of the process conducted and MPA proclamation.



*Diamond Fields Namibia concession areas*

**NAMIBIAN ISLANDS' MARINE PROTECTED AREA**

*Co-ordinates of Namibia's Islands' Marine Protected Area, including those for the islands, islets, rocks, line fish sanctuary and rock lobster sanctuary within the proposed area.*

	<b>Latitude South</b>	<b>Longitude East</b>
<b>Proposed Marine Protected Area</b>		
(A) NW corner*	24°29'10"	14°30'00"
(B) Point west of Black Reef	24°33'19"	14°29'15"
(C) Point west of Easter Point	25°17'34"	14°35'29"
(D) Point west of Dolphin Head	25°44'24"	14°39'16"
(E) Point south-west of Douglas Point	26°20'32"	14°44'25"
(F) Point west of Elizabeth Point	26°55'28"	14°55'44"
(G) Point north-west of Van Reenen Bay	27°21'13"	15°04'00"
(H) SW corner**	27°57'34"	15°28'05"
The eastern border is the h.w.m. on the coastline opposite the western border		
<b>Islands</b>		
Hollamsbird Island	24°38'22"	14°31'51"
Mercury Island	25°43'10"	14°49'58"
Ichaboe Island	26°17'20"	14°56'11"
Seal Island	26°35'45"	15°09'22"
Penguin Island	26°37'00"	15°09'14"
Halifax Island	26°39'04"	15°04'47"
Possession Island	27°00'45"	15°11'37"
Pomona Island	27°11'37"	15°15'28"
Plumpudding Island	27°38'30"	15°30'49"
Sinclair Island	27°39'55"	15°31'13"
<b>Islets and Rocks</b>		
Neglectus Islet	26°08'11"	14°56'46"
Disused jetty in Hottentot Bay	26°08'30"	14°56'44"
Unnamed rock (near Danger Point)	26°14'45"	14°57'16"
Marshall Rocks	26°21'21"	14°57'31"
Staple Rocks	26°21'15"	14°58'46"
Boat Bay Rocks	26°25'16"	15°05'24"
Dumfudgeon Rocks	26°29'34"	15°07'01"
Ladies Rocks (N Rock)	26°51'26"	15°09'10"
Ladies Rocks (S Rock)	26°51'37"	15°09'11"
Long Island – North	26°49'10"	15°07'30"
Long Island – South	26°49'54"	15°07'41"
Albatross Rock	27°07'08"	15°14'17"
<b>Proposed line fish sanctuary</b>		
NW corner of sanctuary (Northern border)*	24°29'10"	14°30'00"
Point west of Black Reef	24°33'19"	14°29'15"
Point west of Black Rock	24°57'23"	14°42'25"
SW corner of sanctuary (Southern border off Sylvia Hill)**	25°09'57"	14°44'02"
<b>Proposed rock lobster sanctuary</b>		
NW corner of sanctuary (Northern border)*	27°03'43"	15°11'56"
Point west of Prinzenbucht	27°06'33"	15°12'44"
Point west of Pomona	27°12'02"	15°13'25"
Point west of Van Reenen Bay	27°24'42"	15°19'25"
Point west of Baker's Bay	27°40'17"	15°27'00"
SW corner of sanctuary (Southern border off Chamais Bay)**	27°55'52"	15°38'15"

\*The northern border extends from this point straight east to the h.w.m. on the coastline

\*\*The southern border extends from this point straight east to the h.w.m. on the coastline

### 3.5 Island- specific zoning and management activities

Note that localities are listed north to south.

#### 3.5.1 Hollamsbird Island

Current activities

- None.

Objectives and rationale for protecting this area

- Northernmost Bank cormorant breeding colony (for the species).
- Seal breeding colony.
- Unique benthic biodiversity.
- Potential for human disturbance.

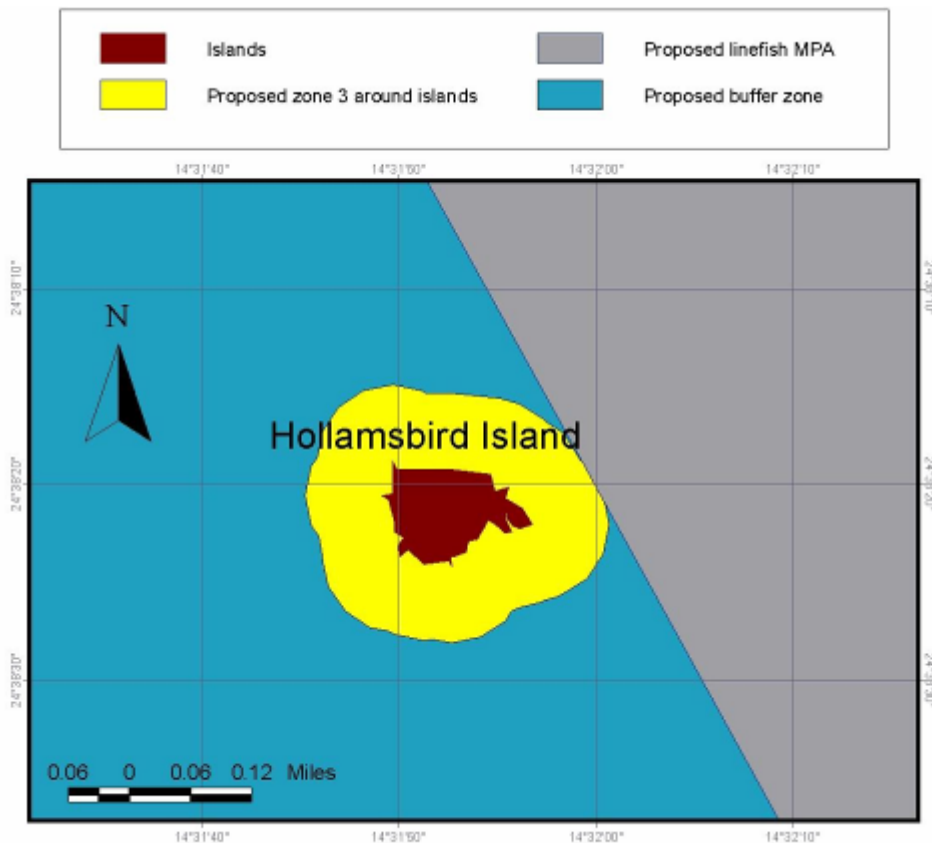
Controlled activities and restrictions

on the island itself (zone 4)

- No landing without a permit.
- No sealing.

120 m around the island (measured from the l.w.m.) (zone 3)

- No craft within 120 m of the island except for MFMR research vessels.



### 3.5.2 Mercury Island

#### Current activities

- Research.
- Automatic weather monitoring station.

#### Objectives and rationale for protecting this area

- Research and environmental monitoring of the state of the ecosystem, including for baseline purposes.
- Passage of Southern right whales, Heaviside's dolphins and African penguins through Spencer Bay.
- Largest African penguin colony in Namibia but decreasing by 3.7% per year.
- Second biggest of three Cape gannet colonies in Namibia (of only six Cape gannet colonies in the world).
- Largest Bank cormorant population, largest colony in Namibia and world-wide, 65% of global population breed on Mercury Island; 80-85% of the species breed in Namibia.
- Other breeding seabirds, e.g. Cape cormorants, Crowned cormorants.

#### Controlled activities and restrictions

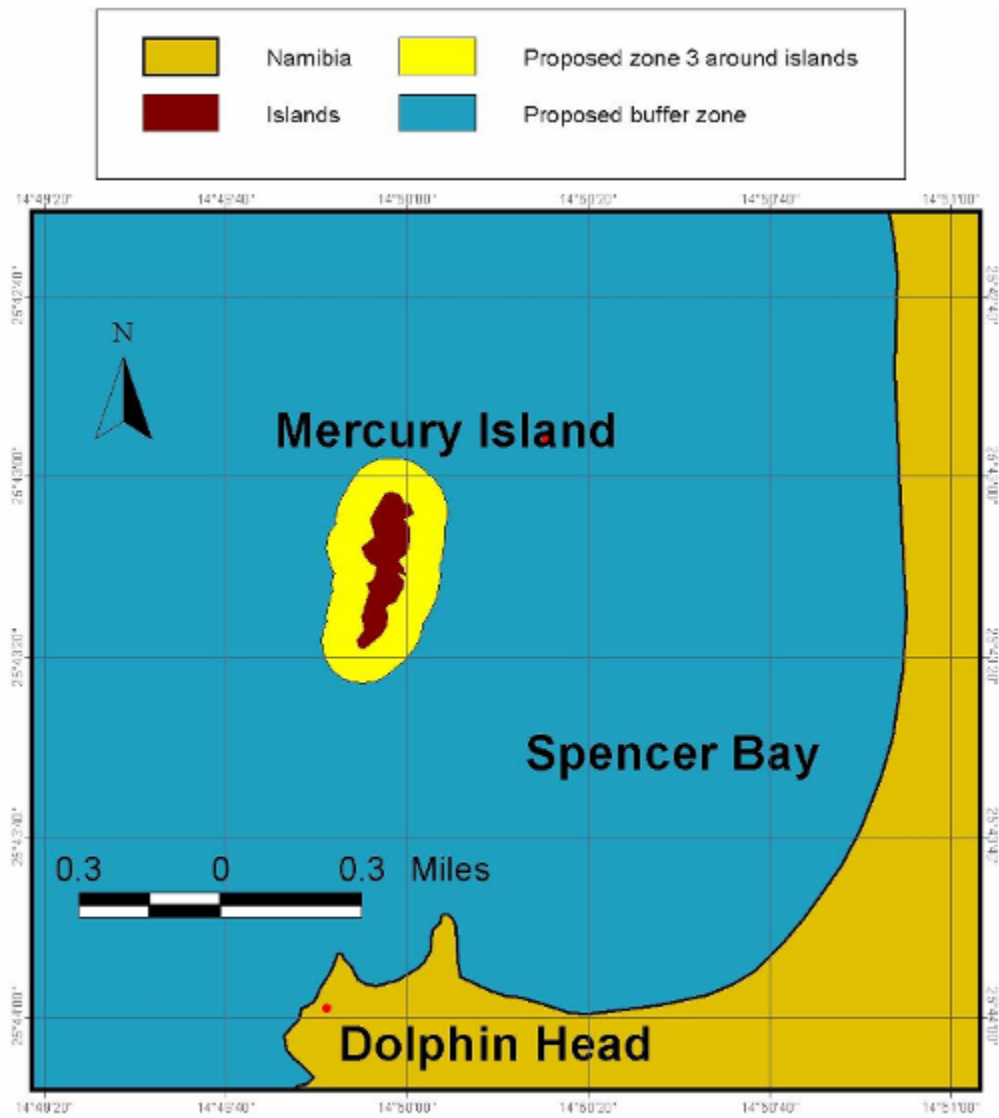
on the island itself (zone 4)

- No landing without a permit.
- No guano scraping.

120 m around the island (measured from the l.w.m.) (zone 3)

- Mining only subject to strict conditions within 120 m around the island, so as to protect the benthos, lobster habitat and marine biodiversity.
- Mining license-holder's<sup>105</sup> access controlled and subject to MME regulations. They have stated that mining will only take place within unconsolidated sediment and 'every effort will be made not to disturb the rocky areas' within this 120 m from the l.w.m.
- No anchorage within zone 3 (measured from the l.w.m.)
- Lobster fishing: allowed but limited to 50 m from the l.w.m. (marked by buoys), and outside of the area that stretches from the jetty to the northern tip of North Rock.
- Additionally, lobster fishing is only allowed subject to conditions that the industry make best efforts, in good faith, to remove all fishing gear after fishing.
- Mariculture allowed beyond zone 3, but no operations that could obstruct breeding paths of Southern right whales, Heaviside's dolphins and African penguins moving through Spencer Bay. Operational limits to be defined by co-ordinates in the island management plan.
- Boat-based eco-tourism allowed outside zone 3.

<sup>105</sup> currently SAMICOR.



### 3.5.3 Neglectus Islet

#### Current and potential future activities

- Lobster fishing.
- Tuna cage farming in Hottentot Point is a possibility, but the location is not known or decided yet.
- Hottentot Bay is an important anchoring bay during summer and / or during the lobster season as it is the only sheltered bay in the area.
- Hottentot Bay: 100 kg gurnard (*Triglidae*) per rock lobster vessel may be fished only during the lobster season (January to April) for immediate bait use only, using hand-lines; by special permission from the Permanent Secretary.

#### Objectives and rationale for protecting this area

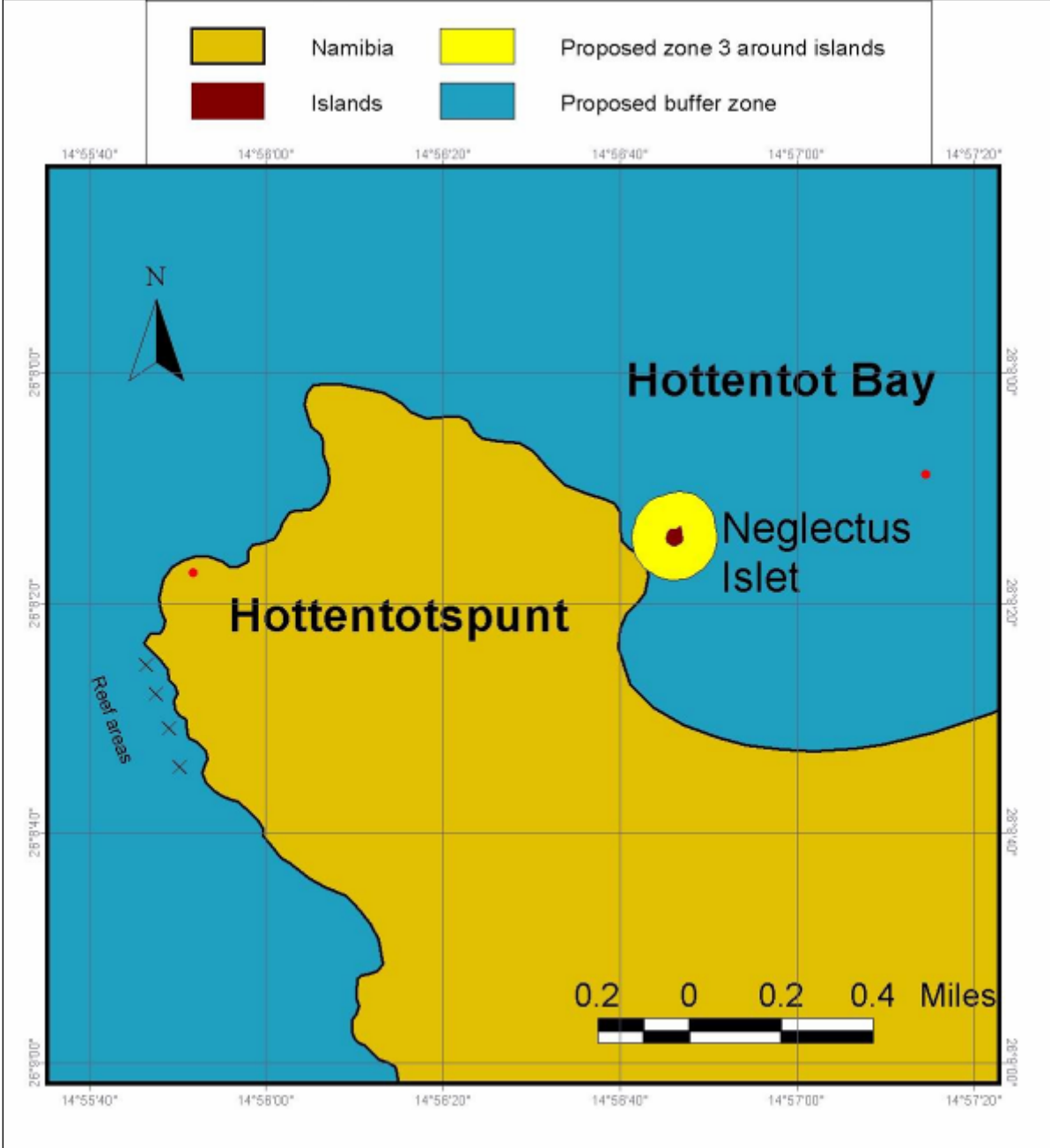
- Kelp beds.
- African penguins and Bank cormorant breeding locality.
- Close to the mainland therefore accessible and human disturbance potential is great.

#### Controlled activities and restrictions

on the island itself (zone 4)

- No landing without a permit.





### 3.5.4 Hottentot Bay – Disused main land jetty (near Neglectus Islet)

#### Current activities

- Boats seeking shelter in the bay may anchor close to the jetty.

#### Objectives and rationale for protecting this area

- Safe breeding platform for Bank, Cape, Crowned and White Breasted cormorants. No access by land predators, because the jetty is not connected to the mainland. This jetty presently has the largest breeding colony of White-breasted cormorants along the southern Namibian coast.
- Potential for human disturbance.

#### Controlled activities and restrictions

- No access onto the jetty from land or from sea. No approach to within 50 m of the jetty from the sea-side. Signposts with regards to this jetty's protective status as a breeding platform to be put up in the future.



### 3.5.5 Unnamed Islet/Rock (26° 14.975'S, 14° 57.488'E) north of Danger Point

#### Current activities

- Lobster fishing.
- Diamond mining in the vicinity – both land based and small vessel operators.

#### Objectives and rationale for protecting this area

- African black oystercatcher breeding site.
- Close to, and accessible from, mainland; under certain conditions a sand spit connects the islet to the mainland, thus creating potential disturbance to birds by terrestrial predators and human activity.

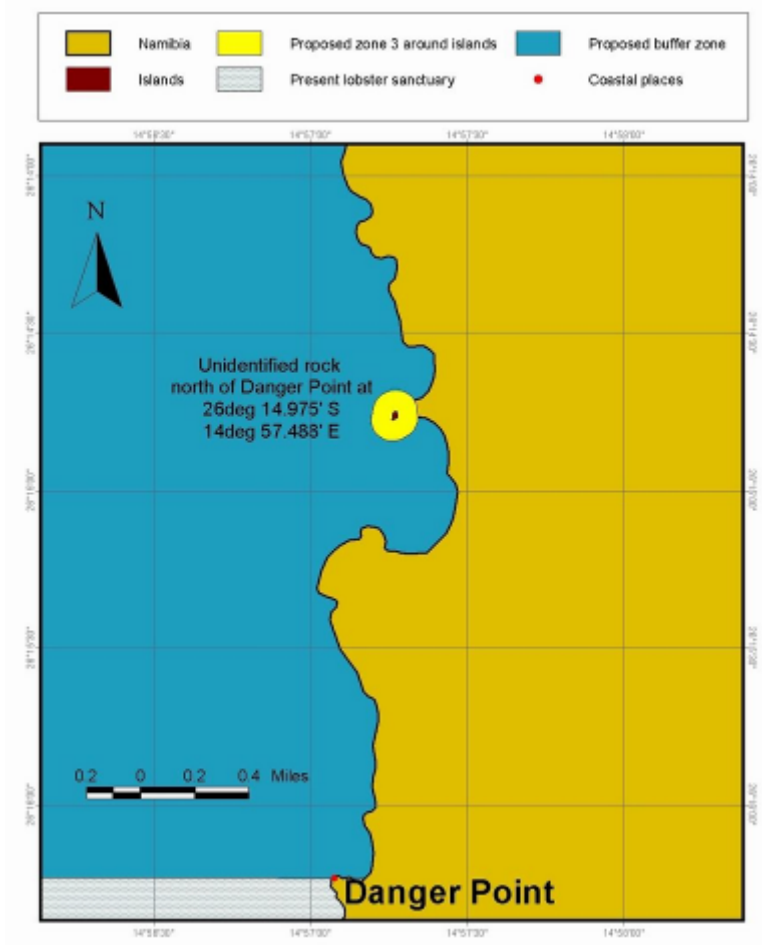
#### Controlled activities and restrictions

on the islet itself (zone 4)

- No landing without a permit.

around the island, measured from the l.w.m. (zone 3)

- No craft within 50 m around the islet, except for commercial rock lobster dinghies.



### 3.5.6 Ichaboe Island

#### Current activities

- Research.
- Automatic weather monitoring station.
- Guano scraping.

#### Objectives and rationale for protecting this area

- Research and environmental monitoring of the state of the ecosystem, including for baseline purposes.
- Important feeding grounds for cetaceans such as Minke whales and immature Humpback whales in the kelp beds around the island.
- Crucial benthic - , and lobster habitat to be protected from harmful activities, especially marine mining.
- Existing rock lobster sanctuary: eastern boundary: high water mark from Douglas Point to Danger point - two headlands (which also form the southern and northern borders respectively). Regulation 19 (1) a), promulgated in terms of section 61 of the Marine Resources Act provides the following: *A person may not in any manner or for any purpose harvest rock lobster in the following area: the area within 15 nautical miles from the high water-line, bounded in the north by a line drawn due west from a concrete beacon marked RL 1 situated at Danger Point and in the south by a line drawn due west from a concrete beacon marked RL 2 situated at Douglas Point.*
- 2<sup>nd</sup> largest African Penguin breeding colony in Namibia, Ichaboe population declining by 3.7 % per year, food limitation probably the main reason for decline.
- Breeding site for 4 species of cormorants, including the endangered Bank cormorants.
- Largest breeding colony of Cape gannets in Namibia (of only six colonies globally).
- African black oystercatcher, Kelp gull, Hartlaub's gull and Swift tern breeding site.
- Shorebird foraging habitat.

#### Controlled activities and restrictions

on the island itself (zone 4)

- No landing without a permit. Guidelines to be drafted as to who within MFMR controls and issues permits.
- Guano scraping under guidelines provided by management. Currently there is one rights-holder. The existing management policy should be revised and regulated in an island-specific manner (as opposed to the existing non-specific, 'blanket concessions').
- Once the current guano right expires (2008), no further guano-harvesting on any island, islet or rock within the MPA.
- No mining processing or processing plants or similar activities allowed on the island.

120 m around the island (measured from the l.w.m.) (zone 3)

- No mining within 120 m around the island in order to protect benthic biodiversity and lobster habitat. However, SAMICOR wishes to keep shallow water mining options open for their vessels of < 500 GRT; they have agreed to no mining on the rocky outcrop areas within this zone 3, excepting specific unconsolidated sediment areas; environmental conditions as stipulated by MME to be complied with if and when these areas are mined; SAMICOR controlled by RAPs as stipulated by MME.
- Co-enforcement: it is proposed to have fisheries inspectors on board mining vessels.
- Controlled, boat-based tourism no closer than 120 m from the island.

- Controlled access by permit according to conditions and activities regulated in the management plan (e.g. servicing the islands, maintenance purposes, food and water provision for the island staff, MFMR research priorities) activities other than tourism.
- Demarcate areas where visitors may land / access the island and move within the settlement (management plan to define co-ordinates).
- No anchorage within 120 m except for MFMR prioritized research, provision of supplies to the island staff or by permit; any anchorage only within a further demarcated zone: a corridor on either side of the jetty within zone 3. SAMICOR vessels may need to anchor here occasionally.
- No craft<sup>106</sup> within zone 3 except along the 'open jetty corridor' described above.<sup>107</sup>
- No lobster boat to anchor overnight inside the lobster sanctuary during the commercial lobster fishing season. During the day anchorage without a permit is only allowed outside of zone 3 (to be clearly indicated on the nautical charts) and only for vessels with no lobster fishing gear (traps or ring-nets) on deck.
- Any future mariculture activities by boat-based ranching or diving only (to be regulated in the management plans).



*Sunset at Mercury Island*

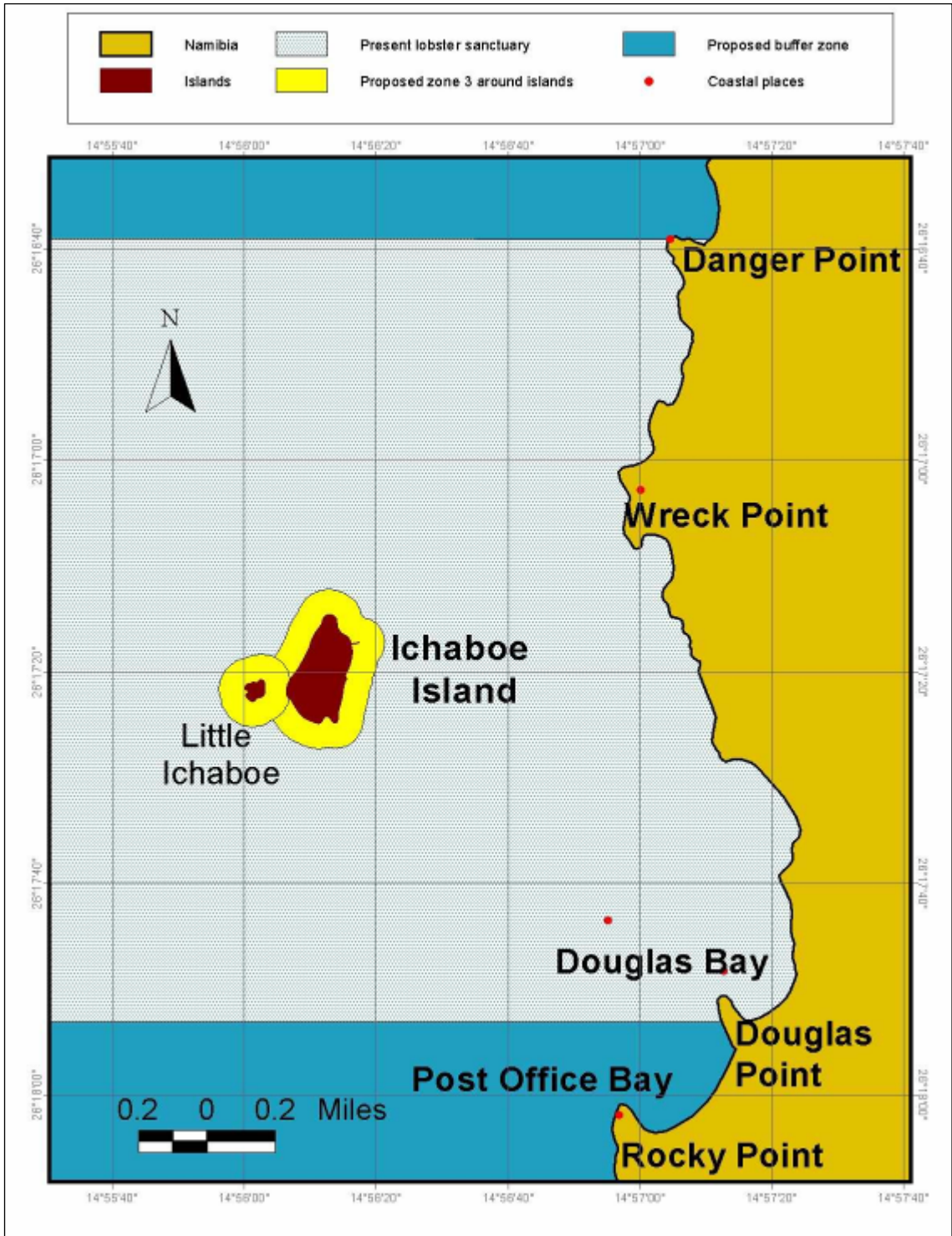


*Aerial view of Ichaboe Island*

<sup>106</sup> Including jet skis

<sup>107</sup> The only possible exception to this provision may relate to MFMR priority research activities, which could be controlled through the impending management plan for Ichaboe Island.

NAMIBIAN ISLANDS' MARINE PROTECTED AREA



### 3.5.7 Staple Rock, Marshall Rocks, Boat Bay Rock and Dumfudgeon Rock

**Current activities**

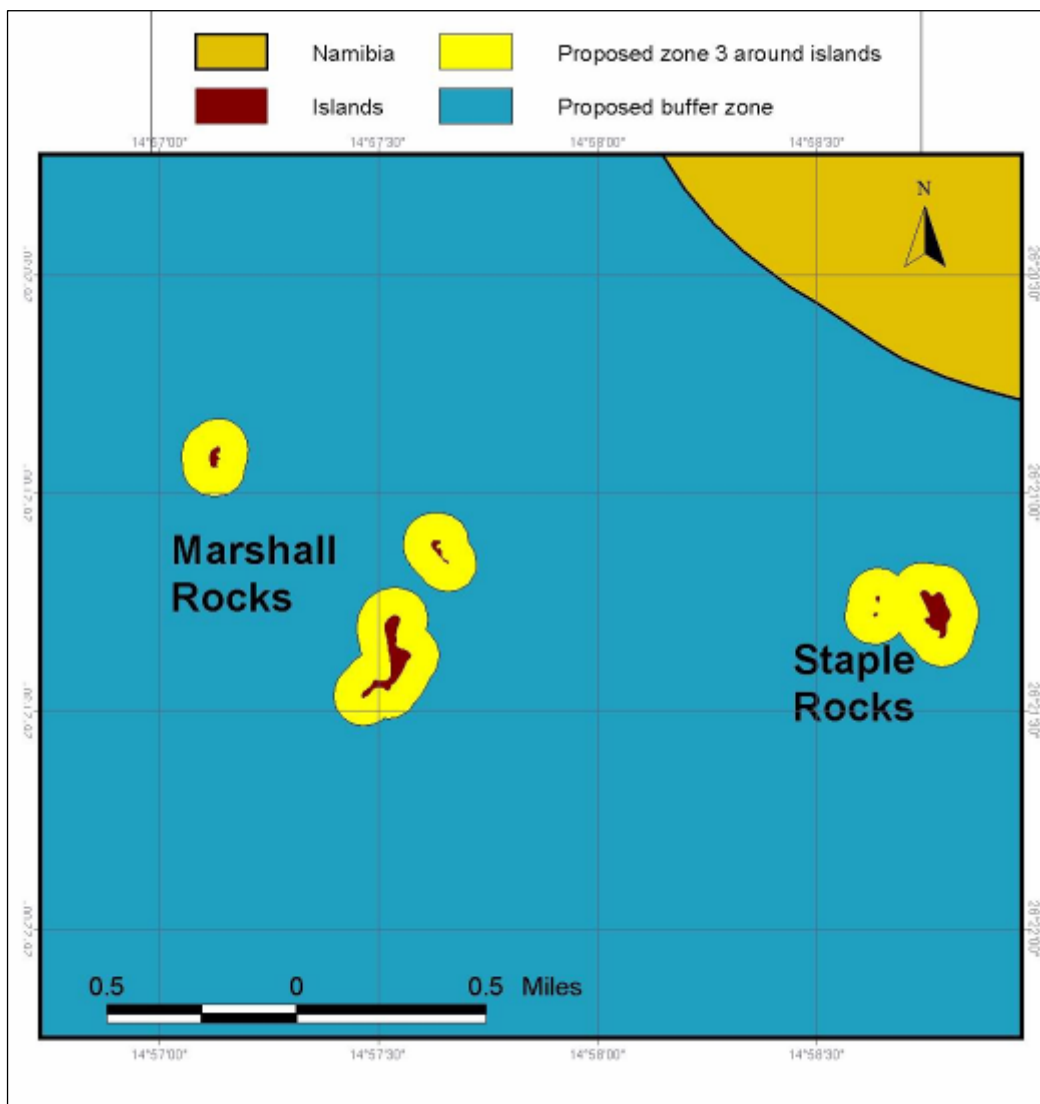
- Lobster fishing.
- Research.

**Objectives and rationale for protecting this area**

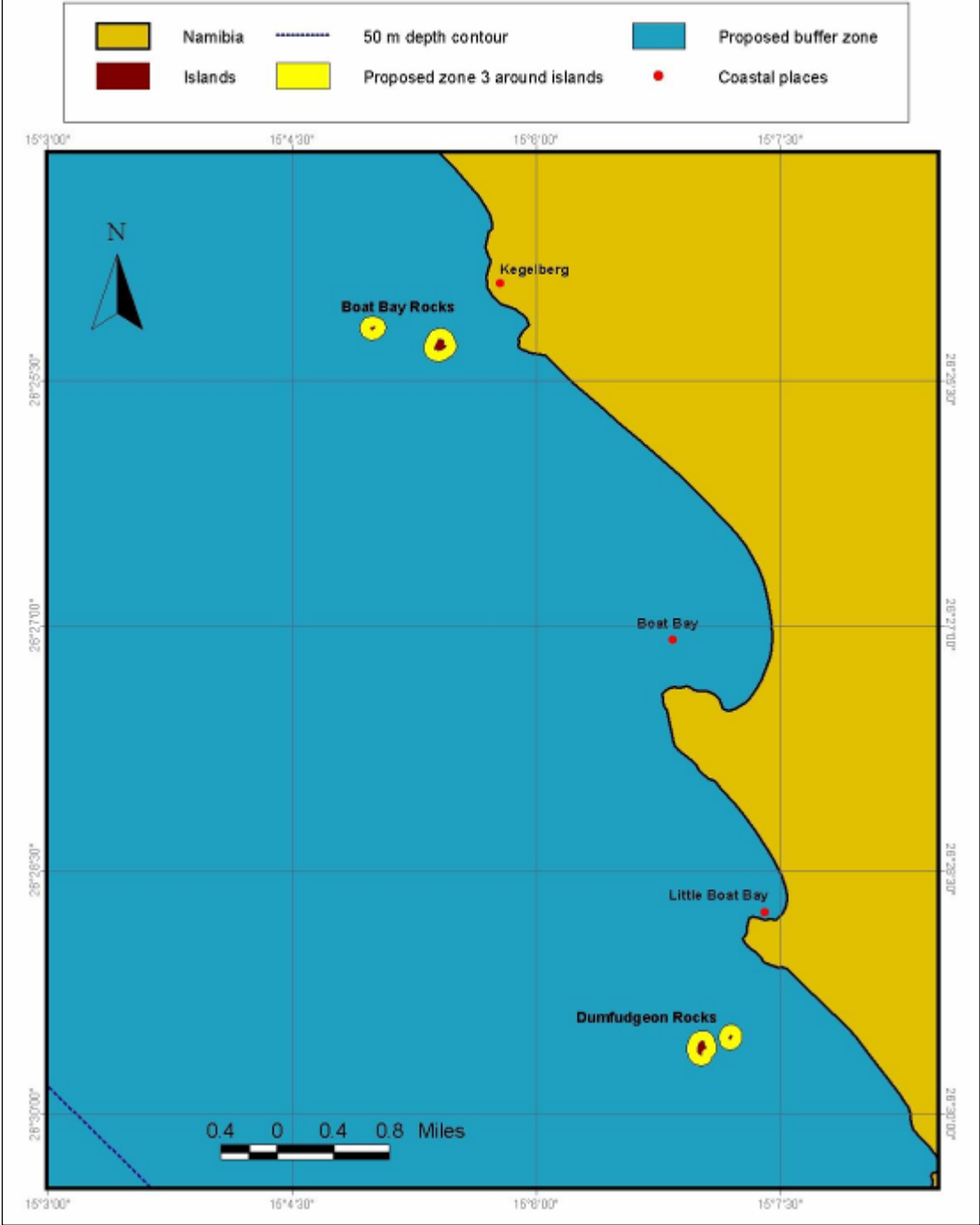
- Seal breeding colonies.
- Potential disturbance.

**Controlled activities and restrictions**

- No landing without a permit.



NAMIBIAN ISLANDS' MARINE PROTECTED AREA





### 3.5.8 Penguin and Seal Islands

#### Current and proposed activities

- Monitoring of seabird populations.
- Sporadic small-scale operator marine diamond mining around the islands (current license-holders are SAMICOR).
- Existing Lüderitz Lobster sanctuary: regulation 19(1)(b) provides: 'the area bounded by a line drawn from Diaz Point to a point North of Lüderitz Bay, where the 26 degree, 34' south latitude intersects the high water line and which is marked with a concrete beacon marked 'RL3'.'
- Aquaculture:
  - Abalone ranching in the kelp around the island – Abalone are placed on the seabed and are harvested once market size. Produces no effluent. Involves diving about once a year to monitor growth.
  - Ranching subject to permit conditions.
  - Historical mariculture site (mussel raft).
  - Possibility for tourists diving out their own abalone.<sup>108</sup>
  - No access to within 10 m from the shore.
- Gurnard caught (for bait purposes only) in the area.
- Potential for land-based eco-tourism, subject to strict conditions (as stated in the management plan).

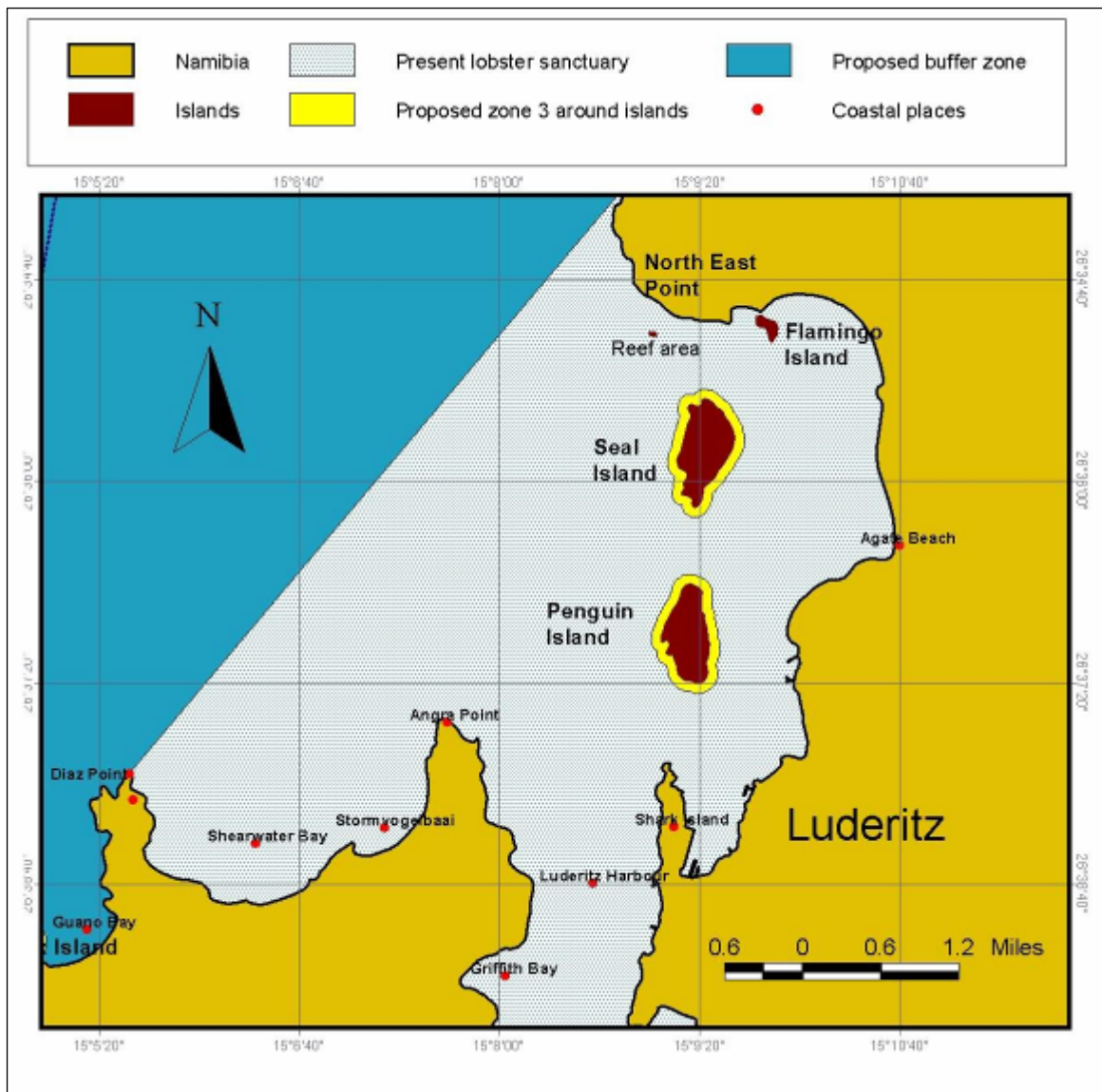
#### Objectives and rationale for protecting this area

- Breeding sites for Cape cormorants, Crowned cormorants, Bank cormorants, White-breasted cormorants, African black oystercatchers, Kelp gulls, Hartlaub's gulls.
- Swift terns roosting and possibly breeding after being displaced from harbour area during port building extensions.
- Historical seal colony, but few seals now frequent them.
- Potentially important Southern right whale calving site (entire Lüderitz Bay).
- Pollution from harbour (oil and plastic).
- Kelp gull colony is increasing mainly because of fish factory effluent and a growing town rubbish dump; this is contrary to EAF management.
- Feral pigeon colony (Penguin Island).
- These two islands fall within the Lüderitz port limits; which extend from Angra Point to just south of North-East point (channels and anchorage are demarcated with lights and markers). Co-management with Lüderitz town council and NAMPORT will be required.

#### Controlled activities and restrictions

- Boat-based tourism allowed to within 10 m of the shore.
- If an eco-tourism operation on Seal / Penguin Island is allowed, then without any additional structures, restrictions such as guided tours, restriction on numbers of visitors, seasonal restrictions, controlled access, restriction of access to breeding sites, particularly Bank cormorants.
- Penguin Island has been identified as more accessible and suitable to tourism, as Seal Island lies further away from Lüderitz and difficult to access.
- If guano operations are planned in future, Bank cormorant colonies must be excluded.

<sup>108</sup> consulted with Rassie Erasmus, Howard Head, both involved with aquaculture operations here.



### 3.5.9 Halifax Island

#### Current activities

- Research.
- Two existing boat-based tour operators from Lüderitz port to Guano Bay / Halifax.

#### Objectives and rationale for protecting this area

- Breeding site for African penguins (third largest colony in Namibia), Crowned cormorants, Kelp gulls and African black oystercatchers.
- The only African penguin colony in Namibia that is increasing in numbers (~8% per year).
- Damara terns feeding off the island.
- Densest population of Heaviside's dolphins in Guano Bay.
- Mining vessels offshore are a pollution threat, which must be monitored and regulated by MME, DMA (Department of Maritime Affairs, within the Ministry of Works, Transport and Communication) and MFMR (including the Inspectorate).
- Persons land illegally on the island as it is close to Lüderitz: human disturbance is a major threat – close to town and accessible to rowing dinghies and rubber ducks, island is only 200 m from the beach.

#### Controlled activities and restrictions

on the island itself (zone 4)

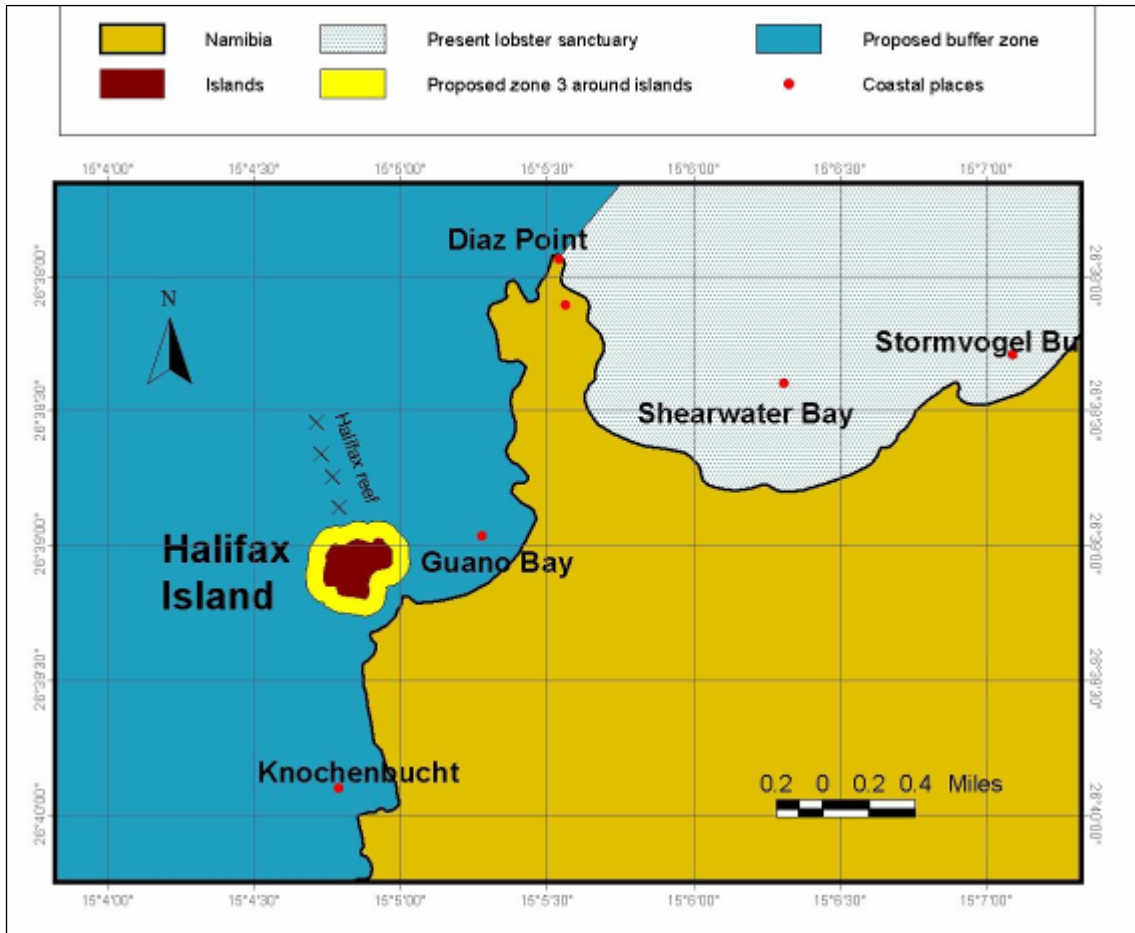
- No landing without a permit
- Signage prohibiting access onto island should be provided on mainland opposite the island; corresponding maps should be circulated to license-holders as part of the existing fishing regulations that are distributed with the recreational fishing licenses.
- No guano scraping.

120 m around the island (measured from the l.w.m.) (zone 3)

- No recreational lobster fishing within 120 m of the island shore.
- No commercial lobster fishing between Diaz Point and Grosse Bucht. As existing recreational fishing regulations (10) and restrictions are not being adequately enforced, stakeholders (scientists, industry and recreational users) suggested to open up Grosse Bucht to recreational lobster fishing and to close the area around Halifax Island.
- Any future mariculture activities will only be allowed subject to guidelines regarding particularly sensitive areas.
- No moorings, no lines, no floats in Guano Bay, in order to protect the high density of cetaceans between Halifax Island and the coast.
- No aquaculture operation which will obstruct the passage of the Heaviside's dolphins and African penguins within Guano Bay. This area is to be defined by coordinates in the management plans.
- Boat-based tourism up to 20 m of the island, as a privilege to showcase penguin colony so close to Lüderitz.<sup>109</sup> Boat numbers may be limited.
- No other craft within 20 m of the island.

<sup>109</sup> email correspondence with Howard Head, June 29, 2007, Namibia.

NAMIBIAN ISLANDS' MARINE PROTECTED AREA



### 3.5.10 Long Island North and South

#### Current activities

- Research.
- Diamond-mining (diver operators).

#### Objectives and rationale for protecting this area

- Large breeding colony of seals.
- The vicinity of 5 km of Long Island has the highest concentration of seals on the Namibian coast (Long Island, Wolf and Atlas Bays).
- Concentration of seabirds and shorebirds, including breeding Bank-, Crowned- and White-breasted cormorants within the areas of Long Island, Wolf and Atlas Bays.
- Tourism potential (land- and boat-based).
- Disturbance (of seals and seabirds) from land-based mining.

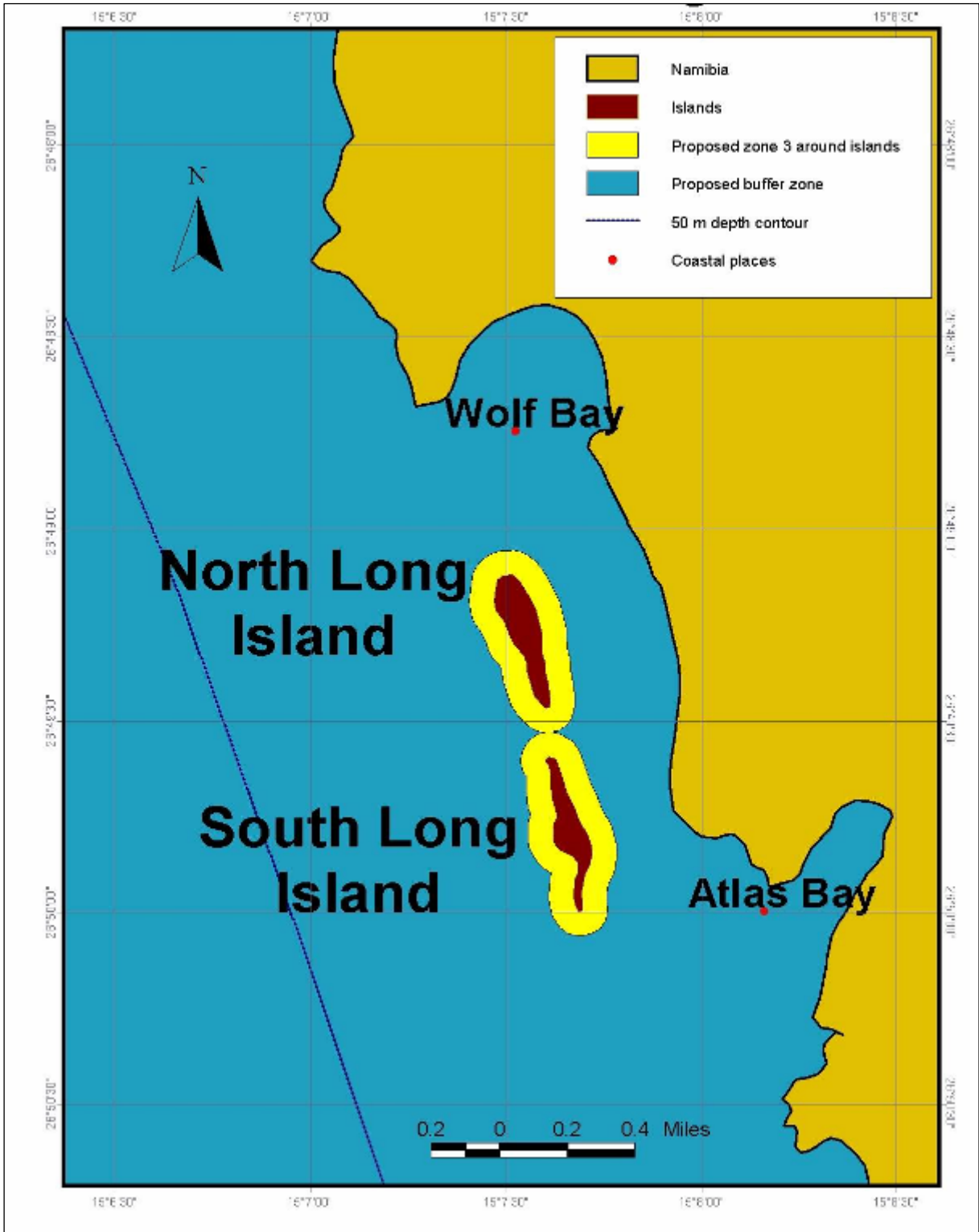
#### Controlled Activities and Restrictions

on the island itself (zone 4)

- No landing without a permit.
- No guano scraping.

30 m around the island (measured from the l.w.m.) (zone 3)

- Boat-based tourism not within 30 m from the islands.
- No anchorage or crafts within 30 m from the islands, including mining vessels, to avoid disturbance of seals, particularly because seal disturbance leads to seabird disturbance.



### 3.5.11 Ladies Rocks

#### Current activities

- Boat-based, small-scale diamond mining in the bay.
- Sheltered bay for small mining vessels and anchorage, potential disturbance to breeding Bank cormorants.
- Shore based mining.

#### Objectives and rationale for protecting this area

- ~50 pairs of breeding Bank cormorants.
- Scenic bay.
- Roosting areas for terns, gulls and cormorants in the bay.

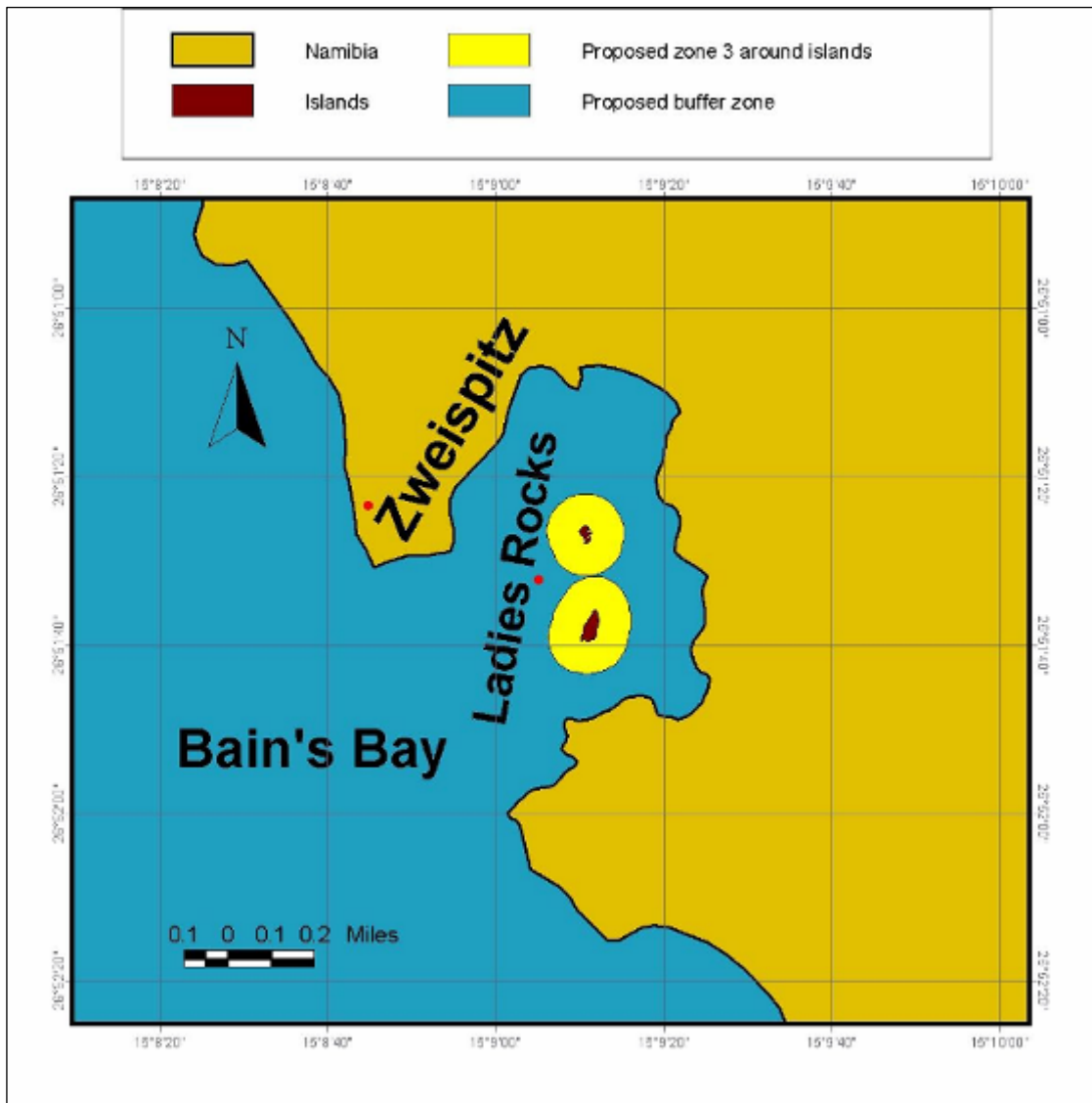
#### Controlled activities and restrictions

on the island itself (zone 4)

- No landing without a permit.
- No land-based tourism.

30 m around the island (measured from the l.w.m.) (zone 3)

- No anchorage or crafts within 30 m of the rocks except for safe anchorage.





### 3.5.12 Possession Island

#### Past, current and potential future activities

- Research.
- The island's shoreline was mined extensively in the past, but on a small scale.
- The present concessionaires, SAMICOR, do not plan shallow inshore mining for the near future, although this possibility is not altogether excluded.
- Possession Island could possibly be targeted for shallow boat-based mining as diamond divers were doing well when mining activities ceased here. Only the mining license holder<sup>110</sup> and MFMR may have access to these areas, which must be monitored and co-managed by MME and MFMR.
- An Experimental License for the harvesting of *Lutraria lutraria* has expired. Application for future harvesting has been made, but no licenses have been granted.

#### Objectives and rationale for protecting this area

- Research and environmental monitoring, including for baseline purposes.
- Important feeding grounds for cetaceans such as Minke whales and immature Humpback whales in the kelp beds around the island.
- The area between Possession Island up to Elizabeth Bay<sup>111</sup> constitutes the largest kelp bed in this zone of Possession Island, which is essential to the maintenance of marine biota, including rock lobster recruitment.
- 4<sup>th</sup> largest African penguin population in Namibia; once supported the largest population in Namibia. In the last 50 years, the population there has decreased from 46 000 individuals to 1 400 and continues to decrease at ~8% per year.
- Smallest of the three Namibian Cape gannet colonies.
- African penguins, Cape gannets and African black oystercatchers are particularly nervous because colony sizes are small, making breeding birds particularly vulnerable to disturbance.
- Breeding site for Hartlaub's gulls, Swift terns and White-fronted plovers.
- Bank cormorant breeding site on North Reef.
- Largest concentration of African black oystercatchers in Namibia.
- Damara tern breeding on and feeding around island.
- Important stop-over and feeding site for migratory species of shore birds and flamingoes (the highest concentration of waders of all the Namibian islands occur at Possession Island).
- Lack of food availability for birds appears to be most pronounced at this island.
- Important Southern right whale traditional calving site between Elizabeth Bay and Albatross Rock. Several calves were born in this area in recent times. 30 Southern right whales were surveyed off Possession Island, within the proposed Southern right whale sanctuary on 23 October 2007, which was announced as a historical event.

#### Controlled activities and restrictions

on the island itself (zone 4)

- No guano scraping.
- No landing without a permit.

<sup>110</sup> Currently SAMICOR

<sup>111</sup> The south end of Elizabeth Point

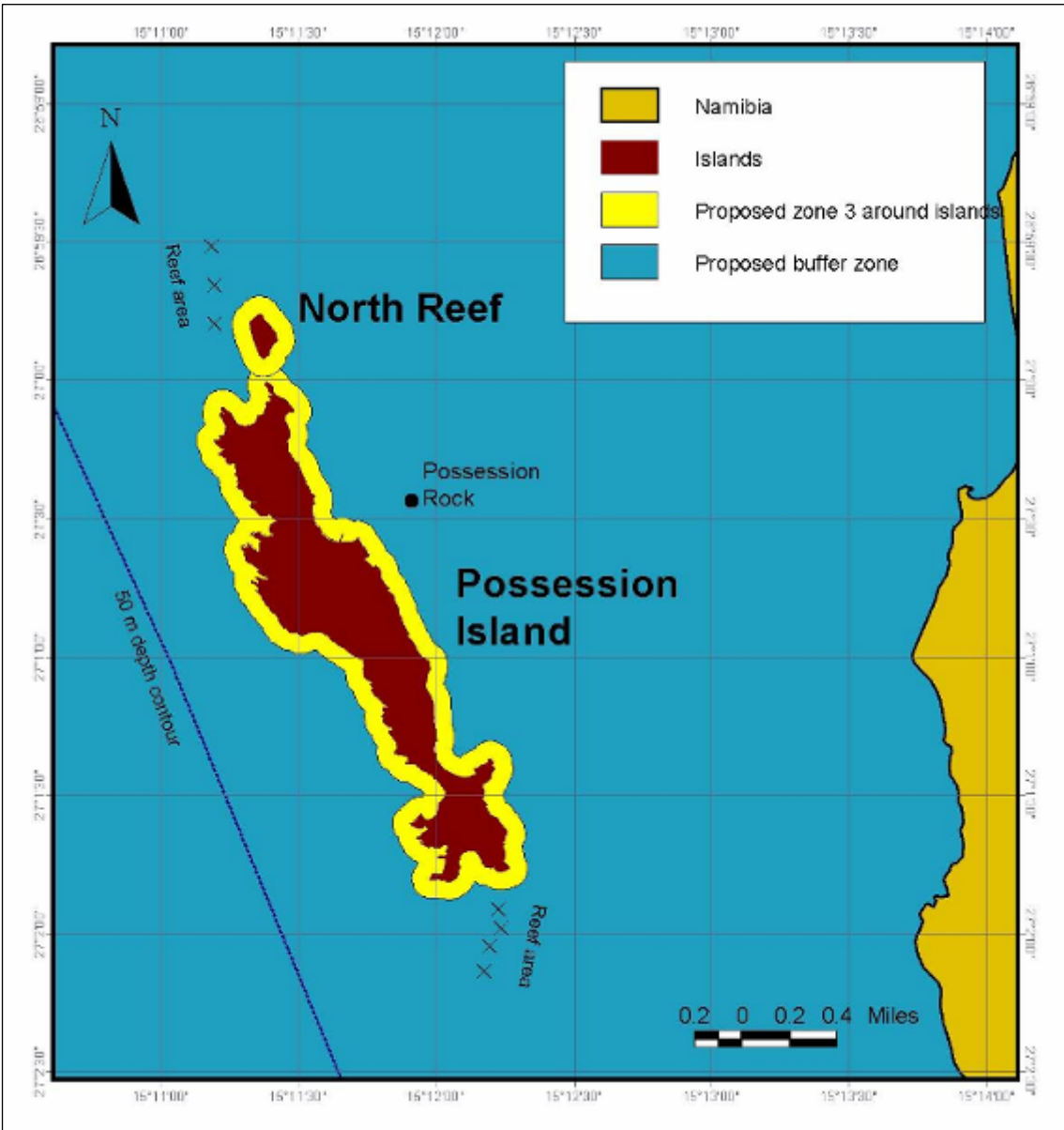
120 m around the island (measured from the l.w.m.) (zone 3)

- Mining within zone 3 only under the following conditions: anchorage in zone 3 only during diving operations and not in front of the building settlement, for reasons of seabird colony protection as well as island staff privacy.
- Boat-based tourism outside of zone 3; limits on numbers, areas and in consultation with Lüderitz MFMR section-heads; permits, licenses etc.
- Commercial lobster fishery only outside of zone 3 (for many years now there has been virtually no commercial lobster fishery around Possession Island).
- Mariculture operations only if these will not obstruct the passage and breeding areas of the Southern right whale: only ranching, no moorings, no lines and no floats; any future operations to be defined by co-ordinates: on the inside of the island / main bay as a line between Elizabeth Point and the northernmost point of Possession Island and a line from southernmost point of Possession Island to Albatross Rock and shore-wards to land.
- Provision of safe anchoring for vessels through the placement of limited mooring blocks in the bay of the southern inshore side of Possession Island in consultation with Lüderitz MFMR section heads.



*Humpback whales in Lüderitz Bay  
(acknowledgment: Jean-Paul Roux)*





### 3.5.13 Albatross Rock

#### Current activities

- Boat-based seabird monitoring.
- Boat-based, diver-operated mining activities in the vicinity; however, the license-holder (currently SAMICOR) has not granted any small boat operators permission to work here, so such illegal activities need to be better monitored, controlled, regulated and reported by all involved, including MME, MFMR and its Inspectorate and patrol vessels and the license-holder (currently SAMICOR).
- Small land-based mining operations (on mainland).

#### Objectives and rationale for protecting this area

- Breeding site for Cape-, Crowned- and Bank cormorants; Bank cormorants have a small breeding population on a separate islet to the north of Albatross Rock.
- Roosting site and potential breeding site for African black oystercatchers, Kelp gulls, Hartlaub's gulls.
- Few African penguins sporadically breed here.

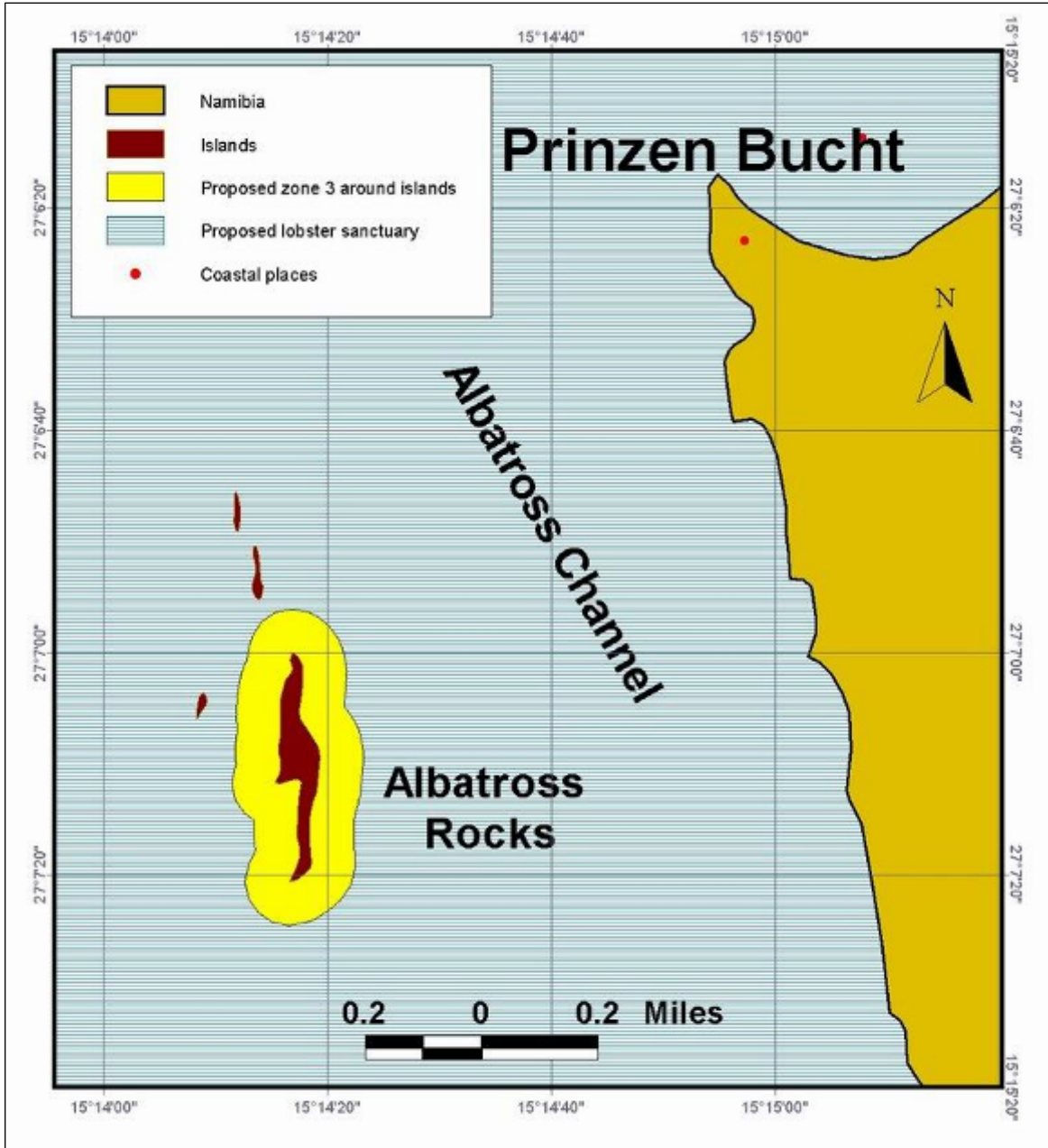
#### Controlled activities and restrictions

on the island itself (zone 4)

- No landing without a permit.
- No guano scraping.
- No eco-tourism.

30 m around the island (measured from the l.w.m.) (zone 3)

- Mariculture only under specified conditions.
- No boats or anchorage within 30 m of the rock, as well as 30 m from the rock to the north of the main island where the Bank cormorants breed.



### 3.5.14 Pomona Island

#### Current activities

- Research.
- Land-based diamond-mining: small-scale contractors subcontracted by the main license-holder (currently NAMDEB), with discharge points in the bay area (Jammerbucht) to the north-east of the island.

#### Objectives and Rationale for protecting this area

- Breeding site for African penguins, Cape-, Crowned- and Bank cormorants, Kelp- and Hartlaub's gulls, African black oystercatchers.
- Roosting- and foraging site for Swift terns, turnstones and other shorebirds.
- At spring low tides the island may be linked to the mainland, making breeding birds vulnerable to disturbance and predation. This link could become more permanent if sedimentation (for example from mining) were to increase. However, the mining sector has indicated that tailings plume offshore and would travel northwards. No mining of this area has occurred over the past five years. If mining were to recommence, this would be closely monitored in order to ascertain whether such sedimentation is related to the mining process or a natural phenomenon.

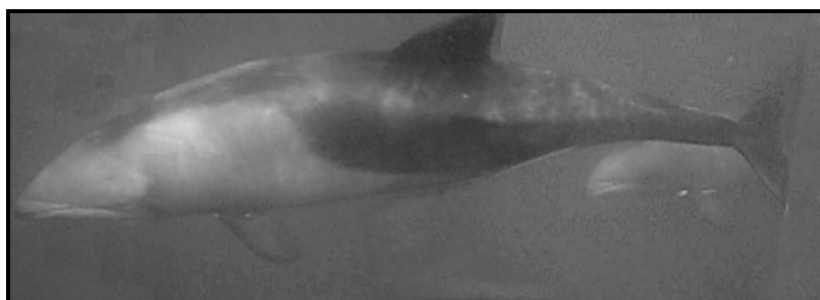
#### Controlled activities and restrictions

on the island itself (zone 4)

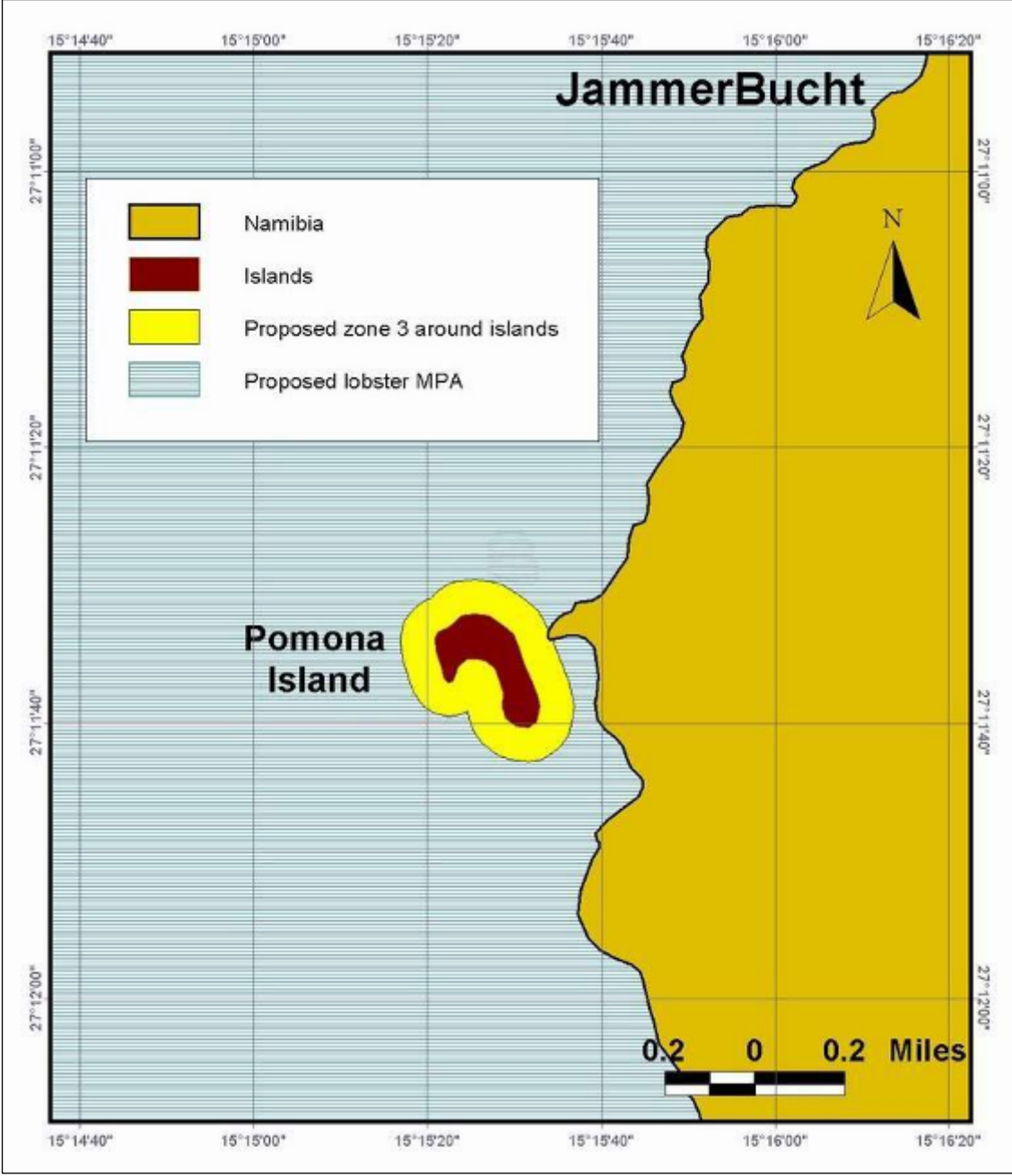
- No landing without a permit.
- No guano scraping.

30 m around the island (measured from the l.w.m.) (zone 3)

- No eco-tourism.
- No boats or anchorage within 30 m of the island.
- Mariculture only under specified conditions.



*Heaviside's Dolphin*



### 3.5.15 Plumpudding and Sinclair Islands

#### Current activities

- Research.
- Intensive marine diamond mining (both small operators and large vessels) in the vicinity.

#### Objectives and rationale for protecting this area

- Small but important African penguin breeding sites; these are the southernmost colonies and important "stepping stone" colonies, linking the Namibian penguin population with the nearest colony in South Africa.
- Breeding sites for Cape-, Crowned- and Bank cormorants, Kelp- and Hartlaub's gulls, African black oystercatchers.
- Roosting- and feeding sites for shorebird species.
- Potentially important calving site for Southern right whales.
- Sinclair Island is very close to the mainland and historically has been occasionally and briefly linked to the land: a permanent link would result in the loss of these islands as seabird breeding sites, owing to land predators then gaining access.
- Shifting of large amounts of sand and sediment during closely land / marine mining and pocket beach mining operations could potentially create a land bridge. However, the license-holder (currently SAMICOR) indicates that current marine mining activities occur to the west of the islands, with plumes flowing towards to the northwest, thus not necessarily resulting in the formation of a land bridge due to mining activities; it is also possible that land bridge formation and sedimentation buildups here are natural.
- These islands have the most intensive bulk marine mining in close. In the past the mining was carried out by boat-based divers. Currently, the mining is done by large drilling and dredging mining vessels. Side scan images indicate that sandy sea beds are mined (in contrast to mud bottom), so the plumes are not as marked as in the case of a mud bottom being mined. According to the license-holder's<sup>112</sup> monitoring activities, the sediments in water of less than 35 m depth are 'heavy' and dense, thus settling quickly and creating relatively small plumes.

#### Controlled activities and restrictions

on the island itself (zone 4)

- No landing without a permit.
- No guano scraping.
- No tourism.
- No commercial sealing.

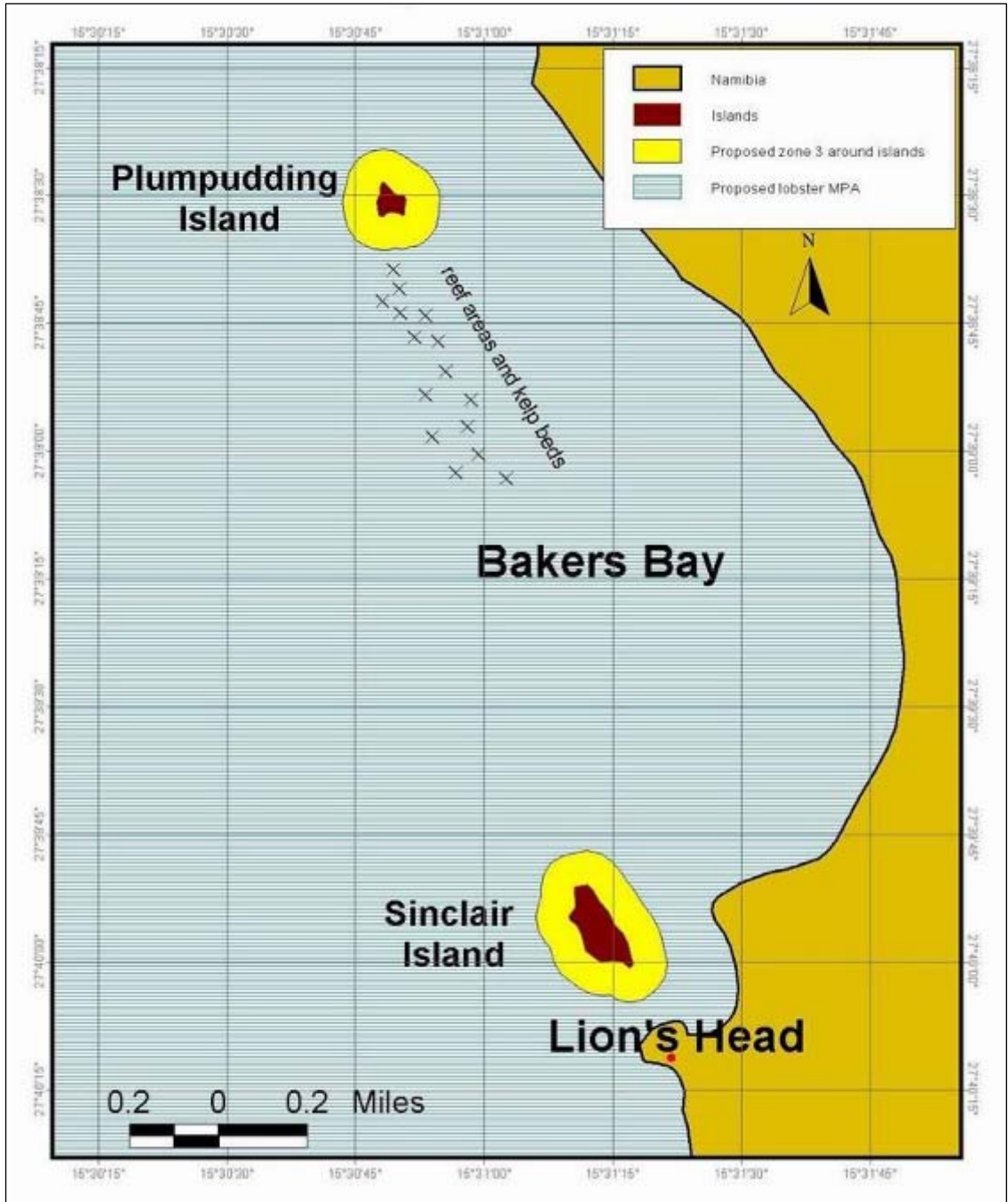
30 m around the island (measured from the l.w.m.) (zone 3)

- No boats and anchorage within 30 m of the island.
- Land bridge development must be monitored and remedial action must be taken to prevent Sinclair Island from becoming linked to the mainland.
- Mariculture only under specified conditions.

<sup>112</sup> currently SAMICOR



NAMIBIAN ISLANDS' MARINE PROTECTED AREA



### 3.5.16 Further Zonations

#### 3.5.16.1 Line fish sanctuary between Meob Bay and Sylvia Hill

The area between Meob Bay to Sylvia Hill, measured from the h.w.m. to 6 nautical miles offshore: proposed linefish sanctuary area within which no commercial or recreational fishing for line fish species (excepting snoek) may take place.

##### Current activities

- Research (regarding linefish).
- Linefish boats catching snoek, kob and steenbras.

##### Objectives and rationale for protecting this area

- Unique transition zone of inter-tidal biodiversity.
- Proposed line fish sanctuary in order to protect kabeljou and steenbras, snoek fishing may continue.
- African penguins and Bank. Crowned and Cape cormorants breeding in mainland sea caves at Sylvia Hill and Oyster Cliffs.
- Northernmost breeding colonies of African penguins.
- Human disturbance from land a potential threat to the African penguin colony at Sylvia Hill (address co-management issues with MET for implementation).

##### Controlled activities and restrictions

- No entry into the caves.
- No commercial lobster fishing within 120 m of the entrance of the cave (in order to allow unrestricted access for African penguins).
- no recreational or commercial line fishing (which includes ski-boats) is allowed and no harvesting of inter-tidal species (see also conditions applying to the IUCN category VI buffer zone at the beginning of part 3 of this document).

#### 3.5.16.2 Rock Lobster Sanctuary between Prince of Wales Bay and Chamais Bay

The area between Albatross Rock / Prince of Wales Bay<sup>113</sup> and Chamais Bay is proposed as an additional rock lobster sanctuary – measured from the high water mark to 30 m water depth. Negotiations with NAMDEB to surrender this as part of their 20 % for MPAs;<sup>114</sup> discussions and negotiations with conditions on rock lobster fishing are underway with the industry.<sup>115</sup>

<sup>113</sup> also referred to as 'Prinzenbucht'

<sup>114</sup> meeting and site visit, Wednesday, 28 August 2007, Oranjemund, Namibia.

<sup>115</sup> Briefing sessions and presentation, 26-29 August 2007, Lüderitz, MFMR.

Objectives and rationale for protecting this area

The main aim of the proposed lobster sanctuary is to protect the inshore kelp beds and reefs in an area that seems to be targeted by juvenile and immature lobsters, with very few adult lobsters being observed in this area. This area is also utilized for diamond-mining, both for land-based activities as well as ship-based marine mining. Although it is not intended to halt all mining activities in the entire area, it appears unreasonable to only ban lobster fishermen from this area in such a case, although commercial lobster fishermen have shown very limited interest in this area since early in the nineties.

Controlled activities and restrictions

- No commercial lobster fishery shallower than 30 m in the proposed lobster sanctuary. Approved by commercial rock lobster sector.<sup>116</sup>

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<sup>116</sup> Ronnie Koppen and Peter Raubenheimer (fleet manager) Seaflower, at a multi-stakeholder workshop, held in Lüderitz, 14-15 November 2007.

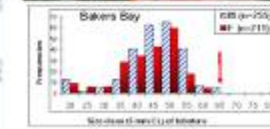
Proposed lobster sanctuary along the southern part of Namibia's coastline.



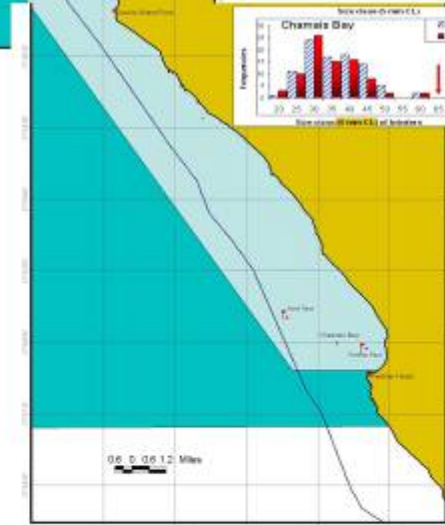
Prinzen Bucht



Bakers Bay



Pomona



## 4. CONCLUDING STATEMENT

Namibia's membership to the 1992 Convention on Biological Diversity (CBD) requires her to plan and develop protected area networks. Through the 1995 Jakarta mandate, the CBD's application to the marine environment was developed, culminating in advice to the 8th conference of parties, which set a global goal to develop a representative global network of MPAs by 2012.

The 2002 World Summit on Sustainable Development (WSSD) and the 2003 World Parks Congress collectively require States to develop representative networks of MPAs that amount to a minimum of 20-30% of each marine habitat.

The promulgation of the proposed Namibian MPA will greatly enhance Namibia's commitment and progress towards meeting her international legal obligations and policy commitments.

These include the:

- sound management and conservation of marine resource under her jurisdiction,
- responsible resource management as a developing fishing nation,
- development of representative networks of MPAs in her waters,
- proclamation of one of the first offshore island MPAs in the region, as the essential component to the country's relatively good standing regarding terrestrial protected areas.

The recommendations and arguments supporting the urgent proclamation of the proposed MPA as presented in this document are also required by Namibia's national and international laws. They are feasible and suitable to manage, implement and enforce, using current legislation, international, regional and national legal and policy instruments.

In accordance with the only existing legislation in Namibia directly aimed at the proclamation of marine reserves<sup>117</sup>, this project has sought to lay all the groundwork required in terms of the empowering section 51 of the Marine Resources Act. The requisite procedures and processes have been duly carried out. These requirements included a motivation for the proposed MPAs based on available scientific data and knowledge, as well as stakeholder consultation and workshops aimed at defining zonations, identifying suitable areas designated for MPA status and defining draft management guidelines for conditions applicable within the MPA. Affected stakeholders and Ministries have stated their support, including the Permanent Secretaries from the Ministries of Justice, Mines and Energy, Environment and Tourism, and Fisheries and Marine Resources, the diamond-mining concessionaires (currently SAMICOR and NAMDEB), NAMPORT, the Lüderitz town council, line fishing-, purse seine- and rock lobster sectors, eco-tourism and aquaculture, recreational fishers etc.

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<sup>117</sup> Section 51 of the Marine Resources Act

As indicated in the empowering provision outlined in the legal review<sup>118</sup> that preceded this project, the Honourable Fisheries Minister Dr. Iyambo may declare the proposed marine reserve, without necessarily taking the issue before cabinet beforehand. He may, however, elect to present the issue to cabinet.

Recently there has been a clear global thrust towards a holistic management approach that takes account of entire ecosystems, multiple sectors and various management objectives. Due to global fish stock collapses and possible negative ecosystem effects from mining and fishing activities, marine protected area design has recently become topical and necessary.<sup>119</sup> Representative MPA networks have been identified as a critical component of sustainable marine resource use and marine biodiversity conservation.<sup>120</sup>

MPAs and other spatial management initiatives provide important tools in ecosystem-based management and in the advancement of a multi-sectoral approach towards integrated ocean management.<sup>121</sup> The functions of MPAs as essential stock replenishment zones, reference points, management tools, scientific reserves and biodiversity protection for threatened species and habitats, and as representative areas of marine habitats are increasingly receiving recognition and support.<sup>122</sup> More specifically, MPAs are essential in protecting ecosystem components that are not protected through other forms of environmental or fisheries management. They provide a crucial role in the maintenance of marine biological diversity, which includes the maintenance of genetic diversity and that of ecological processes.<sup>123</sup> Ecosystems contained within MPAs tend to be more robust in the event of resource assessment uncertainty, management errors and climatic, ecological and social change.<sup>124</sup>

MPAs furthermore allow a comprehensive assessment of human impacts (including fisheries), monitoring of change and understanding of marine biodiversity<sup>125</sup> and provide important scientific reference sites for studies centered on fisheries management.<sup>126</sup> MPAs have helped to sustain fisheries in many cases.<sup>127</sup> A number of studies have clearly demonstrated the benefits of MPAs, including increased abundance, biomass, body-size and reproductive output of harvested species, recovery of impacted habitats, increased biodiversity, as well as associated socio-economic benefits and an improved understanding

<sup>118</sup> annexed to this document

<sup>119</sup> Hutchings 2000, Meyers *et al.* 1997, Pauley *et al.* 1998, Hall 1999, Meyers & Worm 2003, Worm *et al.* 2005

<sup>120</sup> Secretariat of the Convention of Biological Diversity (2004) and World Summit Sustainable Development (WSSD) Resolutions.

<sup>121</sup> ANZECC – Australian and New Zealand Environment and Conservation Council (1998) *Guidelines for Establishing the National Representative System of Marine Protected Areas*. ANZECC Task Force on Marine Protected Areas, Report December 1998. 15pp.

<sup>122</sup> IMCRA 1998, Kelleher 1999, Roberts *et al.* 2001, Ward *et al.* 2001, Roberts & Sargant 2002, Russ 2002, Gell & Roberts 2003b, Gjerde & Breide 2003, Blundell 2004

<sup>123</sup> Law, R. (2000) *Fishing, Selection and phenotypic evolution*. ICES Journal of Marine Science. **57**: 659-668

<sup>124</sup> Sink, K. (2007) *A review of the role of the Marine Protected Area in the Tsitsikamma National Park in conserving marine biodiversity, supporting applied science and sustaining fisheries in South Africa*.

<sup>125</sup> Secretariat of the Convention of Biological Diversity (2004)

<sup>126</sup> Roberts, C.M. and Hawkins, J.P. (2000) *Fully Protected marine reserves: a guide*. WWF Endangered Seas Campaign, 1250 24<sup>th</sup> street, NW, Washington Dc 20037, USA and Environment Department, University of York, York YO10 5DD, UK

<sup>127</sup> Attwood, C.G., Harris, J.M. and Williams, A. J. (1997a) *International Experience of marine protected areas and their relevance to South Africa*. South African Journal of Marine Science **18**: 311-322.

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Martin, K., Samoily, M. A., Hurd, A. K. Meliane, I. and Gustaf Lundin C.G. (2007) *Experience in the Use of marine protected areas with fisheries management objectives – A review of case studies in Report and documentation of the Expert workshop on marine protected areas and fisheries management: review of issues and considerations*, Rome, 12-14 June 2006. FAO Fisheries Report **825**, 21-109.

of marine biodiversity.<sup>128</sup> MPAs can have beneficial spillover effects on adjacent fished areas, particularly on harvested species, such as lobsters, that are slow-growing, have a low natural mortality and are highly susceptible to over-fishing and other impacts<sup>129,130</sup>.

The development of a multi-zoned marine protected area (MPA) along the Namibian coast, including 11 islands and islets, as well as a number of rocks, will greatly advance Namibia's progress in meeting international legal obligations and policy commitments, particularly with respect to the Ministry's Ecosystem Approach to Fisheries Management, and would significantly contribute to a national and global network of MPAs. Specifically, it is intended that the proposed MPA will contribute to:

- the sound management and conservation of marine resources under Namibia's jurisdiction;
- the protection of spawning and nursery grounds of the commercially exploited rock lobster and that of certain fish stocks and other marine resources to promote stock recovery;
- protecting the foraging and breeding requirements of top predators in the Benguela Upwelling Ecosystem, including a number of globally threatened seabirds;
- MFMR's "precautionary principle" management strategy, whereby representative habitats are set aside to mitigate potential future threats;
- improved vigilance with regard to risks posed by shipping-related threats, such as oil spills;
- raising awareness in a regional context regarding novel approaches to the declaration and management of offshore MPAs;
- enhance Namibia's international relations by illustrating steadfast commitment to international environmental treaties, regional and national needs and requirements, and international law.<sup>131</sup>
- continued collection of oceanographic and biological data from offshore island sites, constituting important monitored indicators of the state of Namibia's marine environment and coastal ecosystem (contributing an integral link to Namibia's environmental monitoring system);
- Maintaining the health and integrity of marine ecosystems is the foundation on which the multiple use management of the world's oceans needs to be pursued.<sup>132</sup> The sea is a valuable national resource and community asset, and the outlined legal and policy instruments need to be resourcefully used, in order to conserve, protect and use these marine resources wisely for the benefit of all Namibians and future generations.

<sup>128</sup> Roberts, C. M. and Hawkins, J. P. (2000) *Fully-protected Marine Reserves: A Guide*. WWF Endangered Seas Campaign, Washington, DC and "University of York, UK.

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## 6. APPENDICES

### *Appendix 1: Purse seine catches*

Commercial fishery catches, in terms of species and biomass, can be estimated through recorded purse seine sets. Table 1 shows that a relatively low proportion of catches are made south of 24°30'S as seen in Table 1 below, except for mackerel, which, however, is a deep-water catch and is only caught in water much deeper than within the proposed MPA border, i.e. well outside of the proposed MPA in waters of 200 m or deeper. It should be noted that catch positions are not always recorded accurately. Purse seine sets made are recorded by the skippers on log sheets.

*Table 1: Purse seine catches in tonnes*

	Pilchard	Anchovy	Horse Mackerel	Round Herring	Mackerel	Gobies	Other	Total
Estimated catch south of 24°30'S	1200	1700	4700	800	3800	0	22000	34200
Total Est. catch	242000	72000	472000	11700	4000	1000	129800	932500
<b>% South of total catch</b>	<b>0.5%</b>	<b>2.4%</b>	<b>1%</b>	<b>6.8%</b>	<b>95%</b>	<b>0%</b>	<b>17%</b>	<b>3.7%</b>
No. of sets south of 24°30'	39	43	71	17	66	0	317	564
Total No. of sets	3908	1243	9371	377	72	21	2393	17385
<b>% South of total No. of set</b>	<b>1%</b>	<b>3.5%</b>	<b>0.9%</b>	<b>4.5%</b>	<b>91.7%</b>	<b>0%</b>	<b>13.3%</b>	<b>3.2%</b>

## Appendix 2: Seabirds

Table 2: The conservation status of seabirds breeding in Namibia

Abbreviation	Common name	Latin name	Global status* (2002)	Global status Revision proposal**	Local status (Namibia)	Breeding range	Comments
AP	African Penguin	<i>Spheniscus demersus</i>	Vulnerable	-	Endangered <sup>#</sup>	Namibia / SA	Flightless; highly susceptible to marine pollution; Namibian population decreasing at ~2.5% per year
CG	Cape Gannet	<i>Morus capensis</i>	Vulnerable	-	Endangered <sup>#</sup>	Namibia / SA	Breeds on only six islands globally
BC	Bank Cormorant	<i>Phalacrocorax neglectus</i>	Vulnerable	Endangered <sup>**</sup>	Endangered <sup>#</sup>	Namibia / SA	~80% occur in Namibia; feeds in kelp beds close to shore
CrC	Crowned Cormorant	<i>Phalacrocorax coronatus</i>	Least Concern	-	Near Threatened <sup>#</sup>	Namibia / SA	Feeds in shallow water in kelp beds / near rocky shores
CaC	Cape Cormorant	<i>Phalacrocorax capensis</i>	Near Threatened	Vulnerable <sup>***</sup>	Near Threatened <sup>##</sup>	Angola / Namibia / SA	Move between breeding areas
WbC	White-breasted Cormorant	<i>Phalacrocorax lucidus</i>	Least Concern	-	Least Concern?	Southern Africa	Susceptible to human disturbance
KG	Kelp Gull	<i>Larus dominicanus vetula</i>	Least Concern	-	Least Concern?	Southern Africa	Population in Namibia possibly increasing
HG	Hartlaub's Gull	<i>Larus hartlaubii</i>	Least Concern	-	Vulnerable <sup>##</sup>	Namibia / SA	Frequently switch breeding localities
ST	Swift Tern	<i>Sterna bergii bergii</i>	Least Concern	-	Vulnerable <sup>##</sup>	Namibia / SA	
DT	Damara Tern	<i>Sterna balaenarum</i>	Near Threatened	-	Near Threatened <sup>**</sup>	Angola? / Namibia / SA	Mainly breed on mainland; feed inshore
ABO	African Black Oystercatcher	<i>Haematopus moquini</i>	Near Threatened	Least Concern	Vulnerable <sup>##</sup>	Namibia / SA	Small global population, susceptible to HABs and pollution

\*Recommended IUCN threat category

\*\*Revision of status proposed in February 2002. See du Toit, M., Boere, G.C., Cooper, J., de Villiers, M.S., Kemper, J., Lenten, B., Petersen, S.L., Simmons, R.E., Underhill, L.G., Whittington, P.A. and Byers, O.P. (eds). (2003) *Conservation Assessment and Management Plan for Southern African Coastal Seabirds*. Cape Town: Avian Demography Unit and Apple Valley: Conservation Breeding Specialist Group.

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##From: Robertson, A., Jarvis, A.M. and Brown, C.J. (1998) *Avian diversity and endemism in Namibia: patterns from the Southern African Bird Atlas Project*. Biodiversity and Conservation 7: 495-511 – latest status should be checked with Simmons and Brown in press.

###From: du Toit, M., Boere, G.C., Cooper, J., de Villiers, M.S., Kemper, J., Lenten, B., Petersen, S.L., Simmons, R.E., Underhill, L.G., Whittington, P.A. and Byers, O.P. (eds). (2003) *Conservation Assessment and Management Plan for Southern African Coastal Seabirds*. Cape Town: Avian Demography Unit and Apple Valley: Conservation Breeding Specialist Group.

**NAMIBIAN ISLANDS' MARINE PROTECTED AREA**

*Table 3: Main seabird breeding localities in Namibia within the proposed MPA, listed from north to south (abbreviations used as in table above)*

Breeding locality	Position	Size (ha)	IBA Status*	AP	CG	BC	CrC	CaC	WbC	KG	HG	ST	DT	ABO
Hollamsbird Island	24°38'S 14°32'E	1		?		X	?	X						
Sylvia Hill Cave	25°08'S 14°50'E	<0.5ha		X				X						
Oyster Cliffs Cave	25°20'S 14°49'E	?		X		X	X	X						
Mercury Island	25°43'S 14°50'E	3	global	X	X	X	X	X		X				
Hottentot's Bay (& Neglectus Islet)	26°08'S 14°57'E	(0.2)		X		X		?	X					
Ichaboe Island	26°17'S 14°56'E	6.5	global	X	X	X	X	X	X	X	X			X
Seal Island	26°36'S 15°09'E	44	global			?	X	X		X				X
Penguin Island	26°37'S 15°09'E	36	global	?		X	X	X	X	X	X			X
Halifax Island	26°37'S 15°04'E	10	global	X			X			X	X	?		X
Long Island	26°49'S 15°07'E	0.8				X	X	?			X			
North Reef	27°01'S 15°11'E	7					X			X				
Possession Island	27°01'S 15°12'E	90	global	X	X	X	X	X		X	X	X	X	X
Albatross Rock	27°05'S 15°14'E	2				X	X	X		X				
Pomona Island	27°11'S 15°15'E	3		X		X	X	X		X				X
Plumpudding Island	27°38'S 15°31'E	1		X		X	X	X		X				
Sinclair Island	27°40'S 15°31'E	3		X		X	X	X		X	X			X

\*IBA: Important Bird Area; these localities have been identified by BirdLife International as places of international significance for the conservation of birds at the global, regional or sub-regional level. They are identified according to a set of criteria determined by BirdLife International. These criteria are applied globally. They aim to inform decision-makers and their advisers at local, national and international levels of the existence and importance of these vital sites. Reference: Barnes, K.N. (ed.). 1998. The Important Bird Areas of southern Africa. BirdLife South Africa, Johannesburg.

## *Appendix 3: Legal Review*

### **ZA 1398 Proclamation of Namibia's offshore islands and surrounding waters as Marine Protected Areas**

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#### **Project Summary**

This report provides an outline of the legal procedures and institutions that need to be involved in order to formalize and implement the promulgation of MPAs on and around Namibia's offshore islands. The international and national legal framework and provisions for declaring Namibia's offshore MPAs and the requisite legal procedures have been outlined. Existing activities on and around the islands, as well as the stakeholders affected have also been included, in order to facilitate the development of management plans for MPAs, and potential zoning issues in the future.

My sincerest thanks go to all those helpful people I consulted and met with in Namibia (as per attached list), and especially Benedict Dundee from the Ministry of Fisheries and Marine Resources for all of his kind help and support.

#### **Acknowledgements**

Without the generous funding and forthcoming support from WWF-Marine, South Africa, none of this would have been possible. It is hoped and anticipated that this project will lead to the declaration of Namibia's islands and surrounding waters as MPAs by the Honourable Fisheries Minister, Dr. Iyambo, as well as the extension of a similar process to remaining stretches of the country's coastline. In turn, these will all contribute to an eco-system approach to resource management, environmental protection and the development of a representative MPA network within the region.

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## **The Declaration of Namibia's offshore islands and surrounding waters as Marine Protected Areas, in terms of section 51 of the Marine Resources Act 17 of 2000:**

### **Legislative Review:**

### **EXECUTIVE SUMMARY**

The protection and regeneration of marine resources are priority issues for coastal states globally and of particular significance to Namibia, whose marine resources contribute considerably to the socio-economic welfare of the country. Benefits of closed area management are increasingly apparent and recognized, from both resource management and conservation perspectives.

Section 51 of Namibia's Marine Resources Act requires protection and regeneration of marine resources. In this report the enabling legal provisions and procedures required for the declaration of Namibia's offshore island and surrounding waters as marine reserves are outlined and specified. Backed by national and international legal commitment, such Governmental action by the Ministry of Fisheries and Marine Resources (MFMR) would be commendable and complement this Ministry's responsible role in promoting sustainability of marine resources.

Namibia's national and international legal commitments have been outlined, together with more specific analysis of existing legal and institutional capacity. Marine Protected Areas in Namibia are presently lacking. Internationally politicians, fisheries managers and ecologists are aiming for a marine component of protecting 20 – 30 % of the world ocean. Forward-looking legal vision by the Ministry of Fisheries and Marine Resources to fulfill the country's obligations of protecting her marine resources, conserving marine biodiversity, replenishing fish stocks and establishing a protected areas network within the region, are clearly contained in the Marine Resources Act.

The administration of the offshore islands, formerly in South African possession, was handed over to the Ministry of Fisheries and Marine Resources in 1994, together with the return of Walvis Bay to Namibia. These islands fall firmly within the mandate of the Ministry of Fisheries and Marine Resources. A clear reading of the enabling legal provisions reveals that the Minister of Fisheries and Marine Resources may gazette promulgation of marine reserves. Effectively this does not preclude strictly managed and prescribed resource-use within these areas. The declaration of Namibia's islands and surrounding areas could serve as a useful and revolutionary precedent, in paving the way for further closed area management tools. This would align well with temporal, spatial fisheries management initiatives and tools, according to the eco-system approach to fisheries and other requirements in the SADC Fisheries Protocol. The promulgation of marine protected areas feeds favourably into Namibia's Vision 2030, the Benguela Current Large Marine Ecosystem programme, and the ecosystem approach for fisheries management as reinforced at the recent G8 meeting. In addition such declaration would serve as an essential complement to the NACOMA project, which has been initiated for the protection of biodiversity in Namibia's valuable, unique and fragile coastal zone.

That capacity within the Ministry to effectively manage and control Marine Protected Areas is underlined by presently enforced regulations pertaining to conservation measures, as contained in Section 51 of the Marine Resources Act. Resource-use control over commercial and recreational harvesting includes, *inter alia*, certain, specific prohibitions on the exploitation of some species, closed fishing areas, and restriction of trawl gear and selective fishing methods. Further regulation(s) can fully protect specified species. Significant in the context of the islands are the sub-regulations protecting birds on 'any island, rock or guano platform or in Namibian waters or on the shore seaward of the high-water mark or in the air above such areas.'

The relevant provision on the declaration of marine reserves found in section 51 of the MRA allows for the Fisheries Minister himself, by notice in the *Gazette*, to alter the boundaries of – or abolish a marine reserve. Regulation 22 in section 61 provides authorization to the Minister to regulate activities within marine reserves. Section 51 further authorizes the Permanent Secretary to authorize specific actions or activities within marine reserves, provided these are compatible with the objectives for which the area is declared a marine reserve.

Presently the southern Namibian coastal strip comprises part of the Sperrgebiet Plan compiled by the Ministry of Environment and Tourism. The so-called 'Diamond Area No. 1' has been used during latter phases of planning, which stretches three nautical miles into the sea along parts of the coast. This necessitates MFMR's approval and involvement. It is crucial to point out, that the empowering provision section 51 of the Marine Resources Act, as presented in this report, is the existing, legal provision governing any **marine** protected area or component thereof. Its legal status also precedes any cabinet decision, as the Minister may exercise his power enshrined hereunder independently of any requisite cabinet approval. Thus section 51 of the Marine Resources Act would be the obvious, modern, and legally the most correct, powerful and up-to-date provision to employ in the declaration of any marine component of protected areas. This would also serve to maintain the Ministry of Fisheries and Marine Resources' jurisdiction over marine resources as defined in the Act, which could otherwise likely become undermined and complicated, through the involvement of multiple use competencies.

The above merely serves to highlight the urgent need for the exercise of this Ministerial power, as enshrined in section 51 of the Marine Resources Act of 2000: Such a promulgation would provide the crucial marine component, as an essential supplement and complement to other ongoing initiatives involving protected area management, such as the present NACOMA<sup>133</sup>, SPAM<sup>134</sup> and Sperrgebiet processes and proclamations.

### **Introduction**

This legal review has been written as a background document, based upon which it is hoped that the declaration of Namibia's offshore islands and surrounding waters as Marine Reserves, by the Honourable Fisheries Minister, Dr. Iyambo, will follow. It is suggested that the urgent declaration of Namibia's islands and surrounding waters (falling within the mandate of the Ministry of Fisheries and Marine Resources as indicated below), is required, if the protection and regeneration of marine resources, as required by section 51 of Namibia's Marine Resources Act, is to be meaningful. The Minister has publicly indicated his intention of enacting this empowering provision, in order to formalize the protection of marine resources on and around Namibia's offshore islands, on numerous occasions.

The benefits of closed area management are increasingly becoming apparent and being recognized, both from a conservation as well as a resource management perspective.

Namibia's national and international legal commitments have been outlined below, as well as the more specific, enabling legal provisions, procedures and Institutions involved in declaring the country's offshore islands and surrounding waters as marine reserves. It is recommended that the specific powers granted to the Honourable Minister of Fisheries, Dr. Iyambo, in Namibia's forward-looking Marine Resources legislation, be utilized on an urgent basis, in order to fulfill the country's legal obligations of protecting her resources, biodiversity conservation, fish stocks replenishment and contributing to the establishment of a protected areas network within the region.

This document focuses on the empowering provisions and legal procedures required for the Fisheries Minister to proclaim Namibia's offshore islands and surrounding waters as marine reserves. Additional

<sup>133</sup> Namibia Coast Biodiversity Conservation and Management Project

<sup>134</sup> Strengthening Protected Area Management in Namibia (UNDP)

information and general background regarding current and potential activities around the islands, including mining and pollution laws, may be provided in an Annex at a later stage. (These are relevant to the future management objectives of the islands, reserves and surrounding waters).

The purpose of this draft review, is for it to serve as a discussion document at briefing sessions with affected stakeholders and interested participants. Based on the output gleaned from meetings with the Permanent Secretaries of Namibia's Ministries of Justice, Mining and Energy, Environment and Tourism, and Fisheries and Marine Resources, as well as the Honourable Minister Iyambo himself, it is hoped that the mooted declaration of our country's unique offshore islands and surrounding waters as protected areas will follow.

### Legal Review

Namibian legislation is comprised of South African legislation, South West African legislation and Namibian legislation passed since independence of the country in March 1990. Although a number of apartheid and pre-independence laws are specifically repealed in schedule 8 of Namibia's Constitution, Article 140 of this Constitution provides that all other laws in force (immediately) before independence remain in force until specifically repealed or amended by new legislation or declared unconstitutional by a competent court.

Article 95 (l) in chapter 11 of the Constitution commits the Namibian Government, *inter alia*, to the maintenance of ecosystems, essential ecological processes and the biological diversity of Namibia.

Thus so-called 'old order' legislation like the South African Sea Shore Act 21 of 1935 remains in force until specifically repealed. The same applies to the Sea Shore Ordinance of 37 of 1958. This ordinance defines the jurisdictional area of the sea-shore, up to the high water mark.

### Special legal status of Namibia's islands and marine resources

Namibia's marine islands constitute a special case. **The administration of these islands formerly in South African possession was handed over to the Ministry of Fisheries and Marine Resources in 1994, together with the return of Walvis Bay to Namibia.** To this effect the Walvis Bay and Off-shore Islands Act 1 of 1994 refers to '...the island of Ichaboe and the other islands, islets and rocks mentioned in the Ichaboe and Penguin Islands Act 4 of 1874 of the Cape of Good Hope.'<sup>135</sup>

Prior to this handing over of the islands to Namibia's MFMR, they were administered by the Cape Provincial Administration (CPA), in terms of Nature Conservation Ordinances.<sup>136</sup> These Ordinances do not however apply to marine resources, and place more emphasis on regulating access to the islands.<sup>137</sup> So-called 'Island Reserves Master Plans' in terms hereof were enforced in the past.

### Marine Resources

Namibia's Marine Resources Act governs the control, management, utilization and protection of marine resources, within the country's territory and Exclusive Economic Zone.<sup>138</sup>

The mandate of the Minister and Ministry of Fisheries and Marine Resources includes the following:

*To provide for the conservation of the marine ecosystem and the responsible utilization, conservation, protection and promotion of marine resources on a sustainable basis; for that*

<sup>135</sup> Section 1.b).

<sup>136</sup> 4 of 1975

<sup>137</sup> Pers. Comm. Kathie Peard, Environment Section, MFMR, Lüderitz, Namibia.

<sup>138</sup> Section 3(2)

*purpose to provide for the exercise of control over marine resources; and to provide for matters connected therewith.*

Legal Provisions specifically related to declaration and proclamation of Marine Protected Areas

Section 51 of Namibia's Marine Resources Act (MRA) of 2001 clearly empowers the Minister of Fisheries and Marine Resources, the Honourable Dr. Iyambo, to declare Marine Protected Areas as follows:

*The Minister may, by notice in the Gazette, describe the boundaries of any area of Namibian waters and **declare such area to be a marine reserve for the protection or regeneration of marine resources.***

Section 51(2) provides:

***Prior to the declaration of each reserve, the Minister shall, after consultation with interested persons, establish objectives for the management of the reserve and may by notice specify the activities that may be conducted within the reserve and such other requirements respecting the reserve as may be appropriate for achieving such objectives, including:***

- a) the species of marine resources, if any, that may or may not be harvested within the marine reserve;***
- b) the conditions subject to which such marine resources may be harvested; and***
- c) conditions of access to the marine reserve.***

Section 51 (3) provides:

*The Permanent Secretary may in a marine reserve perform any act or allow the performance of any act and take any measures which are not incompatible with the objectives for which the marine reserve has been set aside.*

Section 51 (4) gives the honorable Minister the following discretion:

*The Minister may, by notice in the Gazette, in accordance with subsection (1), abolish a marine reserve or alter its boundaries. (own emphasis added to all the above sections.)*

**International Dimension**

The 1992 Convention on Biodiversity (CBD)

The 1992 Convention on Biodiversity (CBD) was signed by Namibia in Rio in 1992, and ratified on 16 May 1997. The CBD came into force in 1993 and requires contracting parties to '...establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity; to promote protection of ecosystems and natural habitats; and to promote environmentally sound and sustainable development in areas adjacent to protected areas; to prevent introduction of species from outside a country that would threaten native ecosystems or species; to develop or maintain necessary legislation and other regulatory provisions for protection of threatened species and populations...'<sup>139</sup> Article 8 b) further requires parties to 'develop, where necessary, guidelines for the selection,

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<sup>139</sup> Article 8(5)

establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity.'

At a recent decision of the seventh Conference of Parties (COP7) of the CBD, held during 2004, the following definition of a marine protected area was incorporated:

*'Any defined area within or adjacent to the marine environment, together with its overlaying waters and associated flora, fauna and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings.'*<sup>140</sup>

At the 5th conference of parties (COP5) in November 1995, the *Jakarta Mandate on Marine and Coastal Biodiversity* was adopted, which identified five priority areas for action. These included, *inter alia* the establishment and maintenance of coastal and marine protected areas; the promotion of integrated coastal zone management (ICZM) as the mechanism for addressing human impacts on biodiversity; the prevention and control of alien species in ecosystems.

The 2003 World Parks Congress (WPC) recommendations V.22 include the aim for the protected marine and coastal area work under the CBD (Convention on Biodiversity) to constitute the 'establishment and maintenance of marine and coastal protected areas that are effectively managed, ecologically based, and contribute to a permanent, representative global network of marine and coastal protected areas, building upon national networks.'

International Recommendations are for 10 per cent of each country's surface area to constitute protected area(s). **From a marine perspective, the expectation is even higher. Politicians, fisheries managers and ecologists are aiming for a marine component of protecting 20 – 30 % of the ocean.**<sup>141</sup>

During consultations and at briefing sessions with Namibia's Ministry of Environment and Tourism (MET), the Permanent Secretary, Dr. Malan Lindeque, indicated that Namibia currently has a good conservation standing, but that protected areas on the marine side were definitely lacking and would be welcomed.

In the 1970's, the IUCN<sup>142</sup> classified varying degrees of protection into 6 different categories. (These are provided in the annex to this report, and were thoroughly revised and updated in 1994, and again in 2004.)

As the name suggests, these guidelines are not strictly, legally binding, although they serve to highlight the main purposes of managing protected areas: scientific research, wilderness protection, preservation of species and genetic diversity, maintenance of the environment, protection of specific natural and cultural features, education and the sustainable use of resources from natural ecosystems. These are regarded by the IUCN as the primary management objectives of protected areas. The key requirement is for the 'long term protection and maintenance of biodiversity to be assured.'<sup>143</sup>

Importantly, these indicated that varying levels of protection and usage zones can be incorporated into the management plans for protected areas, as is increasingly becoming the case.

<sup>140</sup> Decision VII/5

<sup>141</sup> See 'When can Marine Protected Areas improve Fisheries Management?' by Hilborn, Stokes, Maguire, Smith, Botsford, Mangel, Orensanz, Parma, Rice, Bell, Cochrane, Garcia, Hall, Kirkwood, Sainsbury, Stefansson, Walters.

<sup>142</sup> International Union for the Conservation of Nature, now referred to as the World Conservation Union (WCU)

<sup>143</sup> IUCN *Guidelines for Protected Area Management Categories* 1994 at 9.

MPAs covering the full range of IUCN Protected Area Management Categories have been widely accepted and recognized by coastal nations as valuable and flexible tools for scientifically based, integrated area management.<sup>144</sup> This includes highly protected marine parks as well as areas managed for multiple uses, to support ecosystem-based management, as they contribute to the conservation of critical habitats, foster the recovery of over-exploited and endangered species, promote sustainable use and maintain marine communities.

#### International Legal Commitments to Establish Representative Networks of MPAs

In September 2002, at the World Summit on Sustainable Development (WSSD) held in Johannesburg, governments committed themselves to the establishment of representative MPA networks by 2012, in accordance with international law and scientific evidence. Complementary WSSD targets and time-bound commitments include: the Ecosystem Approach to Fisheries (EAF) and ocean management by 2010; to maintain the productivity and biodiversity of important and vulnerable marine and coastal areas, including areas within and beyond national jurisdiction; and the maintenance or restoration of depleted fish stocks to levels that can produce maximum sustainable yields (MSY) (aiming to achieve this for depleted stocks on an urgent basis and where possible by 2015).

The above requirements are all contained and enunciated in the WSSD 2002 goals, specifically 29, 30 and 31. (Goal 29 d) of this instrument also refers to the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem). Goal 31 (c) of the WSSD Plan of Implementation specifically requires the development, facilitation and '...use of diverse approaches and tools, including the ecosystem approach, elimination of destructive fishing practices, establishment of marine protected areas in accordance with international law and based on scientific information, including representative networks by 2012 and time/area closures for the protection of nursery grounds and periods, proper coastal land use; and watershed planning and the integration of marine and coastal areas management into key sectors.'

The above WSSD targets were further reinforced and supported at the Seventh Conference of Parties to the Convention on Biodiversity (CBD/COP7). The aim for work under the CBD (in a coastal and protected areas context) is to establish and maintain effectively managed and ecologically based MPAs; this is to be implemented by building on national and regional systems, that contribute to a global MPA network and the WSSD approach.<sup>145</sup> These are to include a range of differential levels of protection, where human activities are managed, additionally through regional programmes, policies and international agreements, so as to maintain the proper functioning and structure of the entire range of marine and coastal ecosystems, as well as providing benefits to present and future generations.<sup>146</sup>

In addition, the Food and Agricultural Organization's (FAO) Code of Conduct on Responsible Fisheries emphasizes the integration of MPAs into the sustainable use of marine natural resources.

#### 1971 Convention on Wetlands of International Importance especially as Waterfowl Habitat ('Ramsar Convention')

The Ramsar Convention was adopted under the auspices of the United Nations Educational Scientific and Cultural Organisation (UNESCO) in 1971. Namibia acceded thereto on 23 December 1995. Article 3 requires parties, *inter alia*, to promote the 'wise use' of wetlands within their territory. The Convention

<sup>144</sup> See (2003) *World Parks Congress (WPC) Recommendation V.22: Building a Global System of Marine and Coastal Protected Area Networks* p. 190.

<sup>145</sup> See (August 2005, IUCN Information Paper) *Marine Protected Areas in the Context of CCAMLR – A Management Tool for the Southern Ocean* p. 5.

<sup>146</sup> *Supra*

recognizes that wetlands are rich in fauna and flora and crucial to a number of important ecological processes.

Article 1(1) defines wetlands widely, to include '...islands or bodies of marine water deeper than six metres at low tide...', as well as coastal zones, coastal waters, rivers, and coral reefs.

1968 African Convention on Conservation of Nature and Natural Resources (Algiers) and the revised 2003 African Convention

Namibia signed the revised African Convention on Nature and Natural Resources on 9 December 2003. This revolutionary regional treaty was adopted by the African Union in the same year, as a replacement treaty of the former Algiers Convention. One of the objectives was to '...take into account recent developments in the African environment and natural resources scenes, while bringing the Convention to the level and standard of current multilateral environmental agreements (MEAs).'<sup>147</sup> Leading authorities describe it as the most comprehensive and modern of all treaties on natural resources.<sup>148</sup>

The broad objectives of this novel African Convention are listed in article 2, and apply to all environmental media excepting the atmosphere. They include the declaration of marine protected areas, the fostering and sustainable use and conservation of natural resources, the protection and utilization of fauna and flora, and the harmonization and co-ordination of policies in these fields.

National Policy

(NBSAP)

Namibia's ten-year strategic plan of action for sustainable development through biodiversity conservation (NBSAP) 2001 – 2010 lists as one of its outputs and strategic aims<sup>149</sup>, the establishment and proclamation of MPAs around the Namibian islands.

Territorial Sea and Exclusive Economic Zone of Namibia Act 3 of 1990, as amended by Act 30 of 1991

The above Act determines Namibia's maritime zones (territorial sea, contiguous zone, exclusive economic zone and continental shelf in accordance with international law. In the 200 nautical mile EEZ established under this Act, Namibia's Ministry of Fisheries and Marine Resources (MFMR) has the mandate to control the use and conservation of living marine resources.)

**Summary of the Overall Present Legal Situation**

The above legal provisions all indicate that the special status of Namibia's offshore islands and surrounding waters, including all marine resources, fall firmly under the jurisdiction and within the mandate of the Ministry of Fisheries and Marine Resources (MFMR). Underwater shoreline – and sub-tidal areas fall under the management of MFMR. Periodic wash-overs (high tides) are known to completely submerge some of Namibia's offshore islets and rocks. Internationally, there is a growing trend towards marine jurisdiction over the sensitive coastal zone, up to 600 meters above the high water mark. The area of the islands is smaller than this.

A clear reading of the enabling provision to promulgate the islands and surrounding waters as marine reserves establishes that this does not explicitly require tabling before parliament, before being gazetted. On such an important issue however, the honourable Minister Iyambo may well seek

<sup>147</sup> African Union Assembly Resolution / AU/ Dec.9(11)

<sup>148</sup> Kiss and Sheldon (2004) International Environmental Law (3ed) Transnational Publications, p. 366.

<sup>149</sup> at 6.3

cabinet's approval before hand. This legal point has been discussed with Namibia's chief legal drafter, and is addressed in more detail below. Once declared, only the Minister himself can change the protected area status, although this does not preclude certain, prescribed activities from taking place in the marine reserve(s). The establishment of the required management objectives for the reserves, after consultation with the relevant stakeholders, is also analysed in more detail below.

Another growing international trend, is that the promulgation of protected areas does not necessarily preclude strictly managed and prescribed resource-uses within these areas. The declaration of Namibia's islands and surrounding areas could serve as a useful and revolutionary precedent, in paving the way for further closed area management tools. In other words, this would align itself well with temporal, spatial fisheries management initiatives and tools, according to the eco-system approach to fisheries, and other requirements in the SADC Fisheries Protocol. The promulgation of marine protected areas feeds well into Namibia's Vision 2030, the Benguela Current Large Marine Ecosystem programme, and the ecosystem approach as reinforced at the recent G8 meeting. In addition it would serve as an essential complement to the NACOMA<sup>150</sup> project, which has been initiated for the protection of biodiversity in Namibia's valuable, unique and fragile coastal zone.

A further ambitious suggestion, could be for the mining industry to indicate its commitment to the country and the environment, by surrendering a permanent 20 % block of the concessions around the islands. This would constitute a very small area, and the identification thereof could be highlighted as an example of industry co-operating with – and paving the way for government. The mining sector and NAMDEB have shown firm commitment to Namibia's natural resources in the past.

Further legal provisions enshrining the MFMR Minister's power to declare Marine Reserves on and around Namibia's offshore islands

Section 1 states that the Marine Resources Act itself, by definition, includes any notice or regulation made or issued thereunder.

The wide-ranging definition of marine resources in the same section is also instructive and important here, serving to strengthen the MFMR's authority over the islands, surrounding waters and related resources. To this effect, section 1 states that *"marine resources" means all marine organisms, including but not limited, to plants, vertebrate and invertebrate animals, monerans, protists, (including seaweeds), fungi and viruses, and also includes guano and anything naturally derived from or produced by such organisms;*

Section 1 of the Marine Resources Act furthermore contains the definition of Namibian waters (referred to in sub-section 1(a) of the empowering provision for the Ministerial declaration of marine reserves as outlined in this document).

This definition refers to the Territorial Sea and Exclusive Economic Zone Act 3 of 1990, as indicated above.

Section 37 of the Marine Resources Act empowers the Minister to implement appropriate international conservation and management measures in Namibia and Namibian waters. More specifically, it provides that the Fisheries Minister may, for the purpose of any international agreement to which Namibia is a party, make such regulations as he considers necessary or expedient for the carrying out and for giving effect to the provisions of any such agreement. 'Conservation and Management

<sup>150</sup> Namib Coast Biodiversity Conservation and Management Project



measures' are further defined in the same section as '...measure to conserve and manage one or more species...' of marine resources.<sup>151</sup>

Once published in the *Gazette* by the Minister, all conservation and management measures adopted under international agreements to which Namibia is a party, are deemed to be regulations made in terms of section 61 of the Act (addressed below).

In addition, article 144 of Namibia's Constitution provides:

*Unless otherwise provided by this Constitution or Act of Parliament, the general rules of public international law and international agreements binding upon Namibia under this Constitution shall form part of the law of Namibia...*

Section 47(3) of the Marine Resources Act, (under Part VIII headed 'Management and Control Measures') **empowers the Minister to '...prescribe measures for the conservation of marine resources, for the control of harvesting of such resources and for the protection of the marine environment...'** (own emphasis added).

In addition, section 61 empowers the Minister to make regulations concerning a wide variety of issues, including '...any matter which the Minister considers necessary or expedient to prescribe for the purposes of the Act...', 'prescribing criteria for determining the duration of any right, exploratory right, quota, license or authorization issued or given under ...' the Marine Resources Act, 'prescribing the conditions and restrictions which shall apply in relation to any rights, exploratory right, quota, license or authorization issued or given under this Act; requiring a permit for any equipment or conduct of any activity in connection with marine resources not already covered in the Act, and providing for the issue of such permit and the payment of any fees in connection therewith.'<sup>152</sup>

Subsection 2 further provides that regulations made in terms of the above may '...be made to apply to marine resources in general or a particular marine resource or may differentiate between different marine resources, different fishing vessels, or in respect of any other matter which the Minister may consider necessary.'<sup>153</sup> According to the same section, the Minister may also prescribe appropriate penalties for contraventions or omissions relating to these regulations.

So-called 'Regulations Pertaining to the Exploitation of Marine Resources' have indeed been enacted in terms of the above section 61, as set out in Government Notice No. 153. These regulate, among others, prohibited species (including the use of red bait, worms etc.), closed areas (recreational fishing within two miles seaward of the high-water line of the sea shore of any of the islands along the Namibian coast).<sup>154</sup>

Part IV of these regulations, headed 'Conservation Measures', provides for gear restrictions on commercial fishing,<sup>155</sup> regulates trawling equipment, methods and attachments<sup>156</sup>.

Regulation 18 prohibits the harvesting of specified protected species and protects the following from human disturbances: marine turtles, marine mammals other than seals, penguins, gannets, albatrosses, pelicans, flamingos, egrets, various further seabirds and their eggs.<sup>157</sup> **Sub-regulation c) hereunder specifically prevents the harvesting of any bird on 'any island, rock or guano**

<sup>151</sup> Consistent with the 1982 UN Convention on the Law of the Sea (UNCLOS) and the Implementation Agreement Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks

<sup>152</sup> Section 61 (1) a), c), d), e).

<sup>153</sup> Section 61(2) (a)

<sup>154</sup> Regulations 9 a), b) and 10 h) respectively.

<sup>155</sup> Regulation 12

<sup>156</sup> Regulations 14 and 17 respectively.

<sup>157</sup> Subject to the granting of a right, exploratory right or exemption under section 62(1)(a) of the Marine Resources Act.

platform or in Namibian waters or on the shore seaward of the high-water mark or in the air above such areas.<sup>158</sup>

As will become apparent from current activities affecting the islands as indicated in the attached annex, there has been a query as to the existing protection on and around the islands. The above regulation clearly includes and extends this protection to the '...Namibian waters...' around the islands.

Regulation 18 further governs actions to be taken in the event of 'accidental harvesting' of protected species, the protection of the great white shark and related matters.

Regulation 19 provides for closed areas, seasons and stages pertaining to the harvesting of rock lobster.

**Regulation 22, headed 'Marine Reserves', provides the following: 'A person may not enter or remain in any marine reserve declared by the Minister in terms of section 51 of the Act, except in the performance of his or her duties under the Act or these regulations or on a written authorization by the Minister.'**

Part V of these same regulations is headed 'Protection of the Marine Environment'. Regulation 23 governs the presence and controls the removal of fishing gear and non-biodegradable objects in and from the marine environment, as well as the recovery of costs incurred with removing such objects.<sup>159</sup>

Regulation 24 further regulates waste and by-catch discards.

Section 63 provides that the Minister may delegate any power conferred upon him by the MRA to any staff member of MFMR, except the power to make regulations. Subsection b) further provides, that '...by notice in the *Gazette*, and on such conditions as may be specified therein by the delegate, in respect of any marine resource or defined area, any power conferred upon the Minister by or under this Act, except the power to make regulations, to any person employed by a local authority as defined...'

Any person to whom such powers have been delegated by the Minister, may further delegate these powers, subject to: i) the Minister's written approval, ii) to any other person to whom the Minister could have delegated the relevant power.

Subsection 3 of the above section 63 provides that the Permanent Secretary may, on conditions that she may determine, delegate to a staff member of MFMR, any power conferred upon her by the MRA.

Legal Analysis of the Empowering Provision and other legal requirements, for the promulgation of Namibia's islands and surrounding waters as Marine Reserves:

The relevant provision on the declaration of marine reserves in section 51 of the MRA only allows for the Fisheries Minister himself, by notice in the *Gazette*, to alter the boundaries of – or abolish a marine reserve.

Subsections 2) a) to c) provide for the regulation of activities and harvesting of marine resources within declared marine reserves. It is the Minister's discretion to specify which marine resources, if

<sup>158</sup> Regulation 18 c)

<sup>159</sup> Regulation 23

any, may be harvested; he may also determine the conditions under which these may be harvested, as well as the conditions of access to the marine reserve.<sup>160</sup>

The Permanent Secretary may authorise the performance of (or perform him or herself) specific actions within marine reserves, provided these are compatible with the objectives for which the area in question was declared a marine reserve.

The above provisions indicate that it is possible to control specified resource use in protected areas, by permit conditions, management plans and / or regulations, or a combination of these. These could be gazetted, as by-regulations or secondary legislation, either as an adjunct to the protected area proclamation, or thereafter, in terms of the Act.

Section 53 states that any person who '...dredges or extracts sand or gravel, discharges or deposits waste or any other polluting matter, or constructs or erects any building or structure in any way disturbs, alters or destroys the natural environment' **in a marine reserve**, without having been granted permission to do so under section 51(3), commits an offence and is liable on conviction to fine(s) up to N\$500 000.

This provision indicates that it is possible to incorporate protected area status around the islands concerned, in conjunction with certain, existing concessions, if the Permanent Secretary exercises his or her authority as provided for in subsection 3 quoted above.

## II Step by step guide to promulgating Namibia's offshore islands and surrounding waters as protected areas

As the outlined section states, the Fisheries Minister has been granted the powers in terms of the Marine Resources Act, to declare marine reserves.

As the provision stipulates, this may be done by notice in the *gazette*.

As the Minister's exercise of his powers in terms of section 51 of the Marine Resources Act does not constitute the enactment of a new Bill of Law by Parliament, this process would not require specific instructions to Namibia's cabinet committee on legislation.<sup>161</sup>

Subordinate legislation, including regulations and government notices do not generally have to be submitted to cabinet for approval by the National Assembly, as is the case with primary legislation, like Bills and Acts of Parliament.<sup>162</sup>

Due to the importance of this matter however, the Honourable Minister in his discretion may well decide to indicate his intention of declaring Namibia's offshore islands and surrounding waters as marine reserves, (in terms of section 51 of the Marine Resources Act), to Cabinet.<sup>163</sup>

<sup>160</sup> See regulation 22, outlined above.

<sup>161</sup> Pers. Comm. Ms Van der Merwe, Chief legislative drafter, Ministry of Justice.

<sup>162</sup> *supra*

<sup>163</sup> During consultations and briefing sessions with affected stakeholders and Ministries, it became apparent that a parallel process is currently underway, regarding the terrestrial component of protected area management in the Sperrgebiet Park. It is crucial to point out here, that the Ministry of Environment and Tourism agreed that the operational management of the areas involved would best be served through the maintenance and enforcement of separate marine and terrestrial jurisdictions, as legally stipulated. This does not necessarily preclude co-ordinated and co-operative management, but serves to strengthen institutional and enforcement capacity, for optimal protection and operational aspects of the protected areas concerned. In other words, the Ministry of Fisheries and Marine Resource would maintain control over all aspects affecting marine resources, the islands, coastline and Namibian waters, as is currently the case.

The Act provides for management objectives of the marine reserves to be established, prior to declaration and following on consultation with interested persons. These may include possible harvestable species within the reserve, the conditions subject to which marine resources may be exploited and conditions of access to the reserve.<sup>164</sup> The annex attached to this report contains a summary of most of the pertinent activities currently affecting and occurring on and around the islands. There is also a major, complementary project underway, the findings of which could well be incorporated into management plans for the islands and surrounding waters in the future. The title of the main project (which is further divided into five components) is the following: '*Marine Biodiversity Status Assessment and Conservation Planning for the Benguela Current and its Components*.'<sup>165</sup> The aim of this Biodiversity spatial assessment is to classify and map the different habitats of the Benguela Current Large Marine Ecosystem (BCLME) onto a geographic information system (GIS), in order to develop a representative network of habitat protection across the BCLME region. This project and its main components (including aspects relating more specifically to estuaries, biology, threat analyses, data retrieval, mapping and planning) is in the process of being executed, and set to be completed at the beginning of 2007. As indicated above, certain regulations governing some of the activities taking place on and around the islands generally, (but not in a formalized, proclaimed protected areas sense), already exist in terms of section 61 and regulations 22 of the Marine Resources Act (MRA). These could be incorporated and elaborated on in future management plans and objectives for declared marine reserves on and around the islands.

On this basis it is submitted, that the provision in sub-section 2 of section 51 above, does not constitute a bar on the Ministerial power of presently declaring the offshore islands and surrounding waters as marine reserves. Part of the requirements mentioned in subsection 2, for example access to and presence on the islands etc, have already been gazetted. Once so declared, subsection 3 provides for the Permanent Secretary to allow certain acts within the reserves.

An alternative route could be the following:

Firstly, management objectives for Namibia's islands and surrounding waters as marine reserves will be established by the Minister, as provided in section (51)2. (These may include harvestable species, the conditions under which marine resources may be utilized, and conditions of access. To this end, interested persons are to be consulted. Allowable activities within the reserve and further appropriate measures can be included. The knowledge from related projects and experts' experience and so forth could be drawn upon.) Thereafter, a formal declaration by the Minister, in terms of section 51 of the Marine Resources Act, stipulating Namibia's offshore islands and surrounding waters as marine reserves, can follow. This is to be gazetted, as indicated in section 51 (1).

According to the above-mentioned requirements, affected stakeholders have been consulted, and the top management of each interested Ministry has indicated approval and support of the process. A list of the individuals, Permanent Secretaries, Directors, Managers and Non-Governmental Organisations (NGOs) that have been consulted, briefed and provided valuable input to this report is attached in the annex.<sup>166</sup>

<sup>164</sup> Section 51(2)

<sup>165</sup> Project number BEHP/BAC/03/01

<sup>166</sup> An anomaly that has become apparent in the process of the Sperrgebiet Proclamation needs to be highlighted at this point. This Sperrgebiet Proclamation draws on so-called land use plans initiated in 2001. None of these background documents indicate that the Ministry of Fisheries and Marine Resources was included in the process. Presumably this is because there was little or no jurisdictional impact. Presently however, a different jurisdictional boundary has been incorporated into the Sperrgebiet Plan. The so-called 'Diamond Area No. 1' has been used, which stretches three nautical miles into the sea along parts of the coast. This necessitates MFMR's approval and involvement. It is crucial to point out, that the empowering provision section 51 of the Marine Resources Act, as presented in this report, is the existing, legal provision governing any **marine** protected area or component thereof. Its legal status also precedes any cabinet decision, as the Minister may exercise his power enshrined hereunder independently of any requisite cabinet approval. Thus section 51 of the Marine Resources Act would be the obvious, modern, and legally the most correct,

Once declared a marine reserve in terms of section 51 of the Marine Resource Act, only the Minister himself could alter the boundaries, or withdraw such protective status. This would again require notice in the gazette as mentioned in the section.

Section 63 does not allow for the Ministerial discretion pertaining to the enactment of regulations to be delegated. Certain, delineated powers of the Permanent Secretary, relating to permissible activities within marine reserves, provided these are compatible with the 'objectives for which the reserve has been set aside'<sup>167</sup>, have also been outlined above.

In order to provide the necessary, formalized protection for Namibia's unique marine heritage, islands and surrounding marine environment, it is recommended that the Honourable Minister urgently avails himself of the power specifically granted to him for this purpose.

In addition to strengthening Namibia's international commitment to biodiversity conservation, such a step would feed well into an eco-systems approach to fisheries management, and provide for the additional protection required for Namibia's marine resources, unique environmental heritage and contribute towards a growing network of marine protected areas, both within the region and internationally.

According to Dr. Lindeque, the honourable Permanent Secretary of the Ministry of Environment and Tourism, Namibia currently boasts a good conservation standing. On the marine side however, Namibia has not formalized protected areas, and the present proclamation would well complement other existing initiatives, parks and conservancies. It would also provide the crucial marine component and stakeholder involvement to the related, terrestrial initiatives, under the GEF-funded NACOMA<sup>168</sup>, SPAN<sup>169</sup> and Sperrgebiet projects.

It is advisable that the relevant fisheries managers, policy and decision-makers and scientists, after liaison with stakeholders from other potentially affected Ministries<sup>170</sup>, decide upon and draw up the appropriate, mentioned management plans and objectives for the islands and surrounding waters as marine protected areas. Much scientific and further (fisheries) resource-management evidence already exists, supporting the need for marine protected areas, for dually-functional / multiple reasons. These contribute to both biodiversity protection, as well as resource utilization. At the 2002 world summit for sustainable Development held on our continent, world leaders agreed to create representative networks of marine protected areas by 2012. This is to 'turn the tide to healthy oceans.' The declaration of Namibia's unique and special islands and surrounding waters as marine reserves would leave our country's concerted stamp in her national and international relations, as an example of taking her legal, social and environmental commitments seriously. At the same time, this would provide crucial contributions to the Millennium Development Goals (MDG) and feed well into Namibia's third National Development Plan (NDP III).

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powerful and up-to-date provision to employ in the declaration of any marine component of protected areas. This would also serve to maintain MFMR's jurisdiction over marine resources as defined in the Act, which could otherwise likely become undermined and complicated, through the involvement of multiple use competencies.

The above merely serves to highlight the urgent need for the exercise of this Ministerial power, as enshrined in section 51 of the Marine Resources Act of 2000: Such a promulgation would provide the crucial marine component, as an essential supplement and complement to other ongoing initiatives involving protected area management, such as the present NACOMA, SPAM and Sperrgebiet processes and proclamations.

<sup>167</sup> Section 51 (3) of the Marine Resources Act.

<sup>168</sup> Namib Coast Biodiversity Conservation and Management Project

<sup>169</sup> Strengthening the Protected Areas Network Project

<sup>170</sup> For example MME, MET.

ANNEX

**Report prepared after a meeting held in Lüderitz, Friday 9 September 2005, among the research and inspectorate staff, concerning marine protected areas (MPAs) for the southern Namibian coastline.**

**Follow-up meetings will be necessary to discuss the details around the various potential MPAs listed in this report, but this can be done at a later stage.**

**Meeting held at the Lüderitz Research office on Namibia's potential marine protected areas (MPA's) or marine reserves - 9 September 2005**

(This meeting considered only the area Orange River to Hollamsbird Island.)

A) Areas to be considered as potential MPAs

1. Orange River Wetland - RAMSAR site. It is not clear what the status of the Namibia-SA border is at present.
2. All islands + the immediate marine area around each island (further discussions are needed to determine the size of the marine area around each island, ie either a depth contour or NM limit and the area may be different for large and small islands). *(More discussions are required on whether all islands need the same protection status, or whether only those islands with important breeding seabird populations should be considered.)*
3. The main African penguin (endangered species), bank cormorant (endangered species) and crowned cormorant (near threatened) feeding sites. So far two important penguin foraging areas have been identified: one just north of Mercury Island and one inside Elizabeth Bay. More telemetry studies are required to identify other sites.
4. Lobster sanctuaries - presently two sanctuaries - Ichaboe (between Danger Point and Douglas Point) and Luderitz (the area inshore of a line drawn from Diaz Point to North East Point, thus including the lagoon area, Shearwater Bay, the harbour area and Penguin and Seal Islands). An additional sanctuary was proposed for the inshore region (within the 30 m depth contour) from Prince of Wales Bay to Chamais Bay.
5. Whale calving sites.
6. Air space within 1000 feet above all islands and main seal colonies.

B) What needs to be protected in the above areas

1. Orange River Wetland: Namibia has only two permanent estuaries that form coastal wetlands, at the Orange River mouth and Kunene River mouth. The Orange River wetland is an important feeding site for various wetland bird species, including migratory species (waders). It is important that the biodiversity of this estuary and its freshwater-marine interactions are

protected. The Orange River wetland is already a declared RAMSAR site, and as such does have some protection.

2. Islands: Various marine bird species, especially those species that are considered threatened in Namibia (penguins, bank cormorants, crowned cormorants, oystercatchers and gannets). The marine area immediately around each island which seabirds use as a source of food and nesting material, and which the fledglings use as a base from which to do their first activities (feeding/flying/swimming) off the island.
3. Penguin, bank- and crowned cormorant feeding sites: Recent telemetry studies off Possession and Mercury Islands showed that penguins target specific sites for feeding. So far two sites have been identified but more studies are required for different seasons and for Ichaboe Island. Penguins are very vulnerable to oil from ships, thus limiting vessel activities in the main feeding sites could reduce the frequency with which penguins are oiled each year. Bank- and crowned cormorants target shallow water (<10 m depth), particularly kelpbeds close to the islands and/or mainland for feeding activities.
4. Lobster sanctuaries: (i) The Ichaboe lobster sanctuary has existed for many years and is an important recruitment area for small juvenile lobsters, as well as an area sheltering female lobsters with eggs during the winter breeding months. It also serves as a control area for scientific purposes since it is surrounded by commercial lobster fishing grounds. This sanctuary will fall within the marine area to be set aside as part of the island MPAs. (ii) The Luderitz lobster sanctuary is an important lobster recruitment area, both in the lagoon area and around Shark, Penguin and Seal Islands. This sanctuary should be declared a MPA (using the same borders), not only to protect juvenile lobsters, but also the saltmarsh in the second lagoon and the tidally inundated areas between Diaz Point and Sturmvoegel Bucht, which various wetland birds species are using as feeding areas. It should be noted that the Luderitz lagoon saltmarsh is the only extensive and permanently vegetated coastal saltmarsh on the Namibian coast. The Walvis Bay lagoon saltmarsh vegetation was destroyed by the salt-producing industry's activities there. (iii) The inshore reef areas (<30 m) from Prince of Wales Bay to Chamais Bay are important lobster recruitment areas, and more than 90% of lobsters found here are juvenile and immature lobsters. It also contains benthic species communities that differ substantially from the benthic communities north of Luderitz, and it is thus important to protect this area from a biodiversity point of view.
5. Whale calving sites: Southern right whales have been completely displaced from Namibian waters during historical whaling activities and have only recently returned to the Namibian coast to calve. Their calving sites do not need to be protected all year, but only during those months when peak calving and nursing activities occur. The sites and months of main calving and nursing activities will have to be determined from results of the BENEFIT whale project (this could not be done during this meeting since Dr Roux could not attend), but are known to include Elizabeth Bay and Hottentot Bay.
6. Airspace above islands, wetlands and seal colonies: No flying activities should be allowed above islands or seal colonies. The current restriction above MET legislation National parks in Namibia is 3000 ft/ 1000 m, however it was found to be practically very difficult to enforce. In view of the critical sensitivity of breeding and roosting seabirds to disturbance, the airspace should be designated NO FLYING ZONE above the islands. This should be enforced by Dept of Civil Aviation, and become noted in GPS databases , Jeppesen Charts and Notice to Airmen (NOTAMS). In addition to islands this restriction should be extended to the air space above the main seal colonies (Atlas Bay, Wolfbay, Van Reenen Bay, Sylvia Hill and Dolphin Head), since low flying planes/helicopters cause stampedes amongst the seals and eventually

result in them increasingly seeking shelter on the islands where they interfere with seabirds. The restriction should also extend to the wetlands defined above.

C) Present activities in the above areas

1. Orange River Wetland: Recreational activities (canoeing, bird watching, fishing), mining, scientific surveys.
2. Islands and surrounding marine area: Diamond mining, commercial lobster fishing, guano harvesting, linefishing (snoek), experimental fishing (clams off Possession Island), research activities, aquaculture (tuna cage farming and abalone off Penguin Island).
3. Penguin & bank- and crowned cormorant feeding sites: Mining, fishing, (and possibly other activities?)
4. Lobster sanctuaries: (i) Ichaboe: mining; (ii) Luderitz: mining, mariculture, fishing for mullets, recreational activities (including line fishing), port activities. (iii) Inshore reefs Prince of Wales Bay to Chamais Bay: mining (both marine and landbased). An important note that needs to be added here, is that if the islands are included in the Sperrgebiet Proclamation, the following anomaly will arise: the entire, existing lobster fishing industry will be forced to close, due to the present definition of nature reserve, as contained in the old order, completely outdated, South African legislation. Presently there exists no equivalent, new, environmental legislation for the declaration of protected areas, in contradistinction to the novel, marine jurisdiction as outlined in this report.
5. Whale calving sites: Elizabeth Bay - mining, Hottentot Bay - lobster fishing, others to be determined by Dr Roux.
6. Airspace above islands, wetlands and seal colonies: Recreational flights (planes), crew transfers and geology surveys by mining companies (helicopters), government flights (planes and helicopters), scientific flights (planes) for whale, seabird, seal and kelp bed surveys.

D) Activities to be / not to be allowed

(These need to be further discussed with various staff members and other relevant people.)

1. Orange River Wetland: NO commercial fishing, mining, aquaculture. NO low flying planes and helicopters below 3000 feet. NO motorised vehicles and people on the wetland islands unless it is for scientific purposes. YES to recreational activities under the condition that it does not disturb birds.
2. Islands: NO commercial fishing and NO mining within a certain distance around each island. This needs to be discussed further with the relevant MFMR and MME staff and people from the mining industry – It has been ascertained that SAMICOR presently has the relevant concessions around the offshore islands, and they are in the process of being contacted. These expire in 2019. Various avenues and negotiations are being explored, in order to possibly ascertain certain 'no-go' areas, as the islands and surrounding waters constitute a minute section of the overall concessions. This could serve as a valuable example of industry and government cooperating, in order to best secure Namibia's future, developmental interests in meeting her legal obligations).

NO activities at the main penguin landing sites (to be determined by the relevant research staff). NO aquaculture within a certain distance of some islands (this still need to be

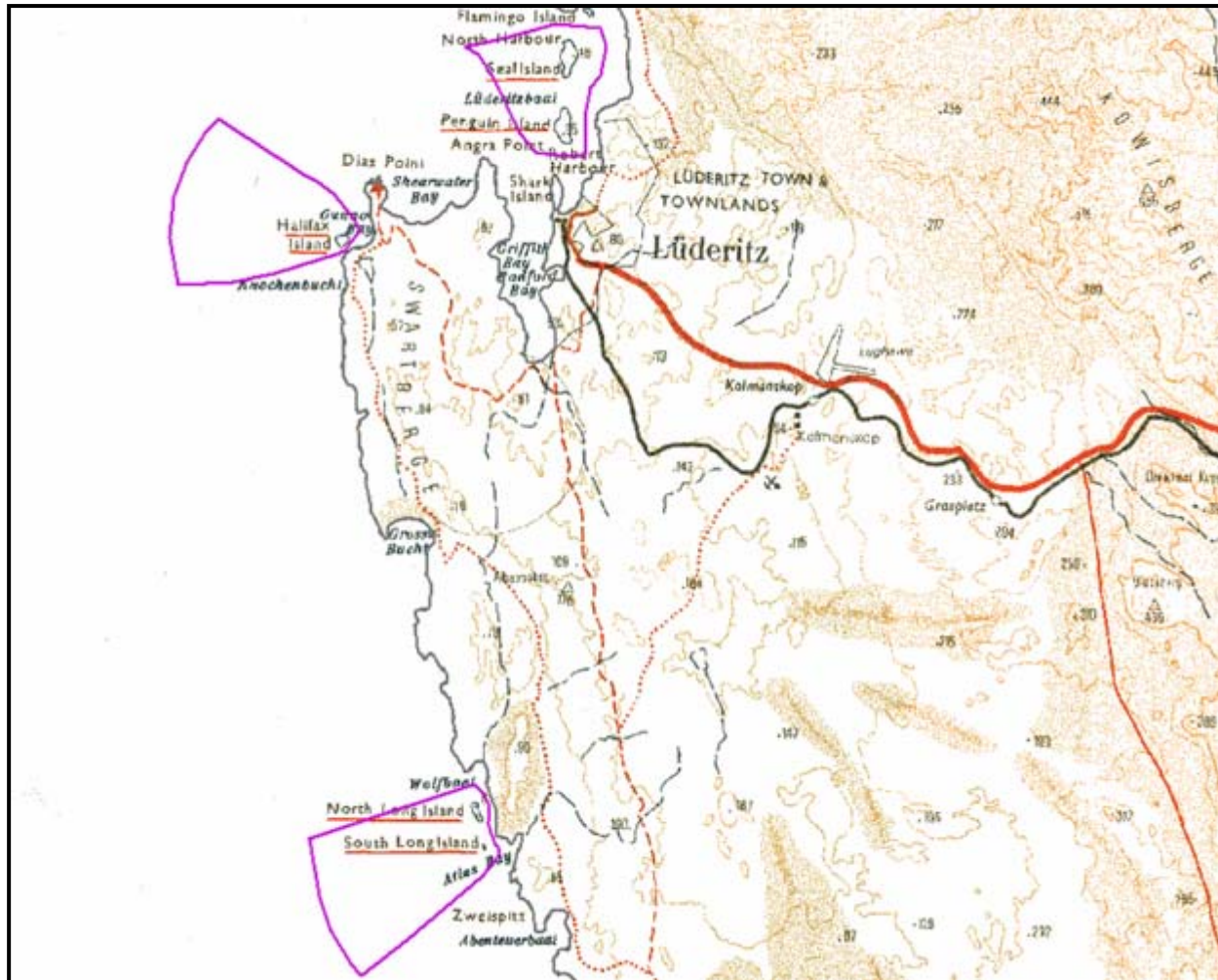


determined). NO tourism on the islands. NO seal harvesting on the islands. Preferably NO guano harvesting, but if this is to continue then ONLY on Ichaboe and under very restricted & controlled conditions (to be determined by the island staff and seabird scientist). NO overflying. YES to controlled recreational activities around some islands (NOT on the islands) like boatbased tourism, lobster fishing, line fishing, diving, etc. - this need to be further discussed. YES to controlled scientific studies. *[A COMMENT: we need to have a clear definition of what is "island", and what is "around an island". It is not clear whether the islands are currently only protected ABOVE the high water mark. Most of the oystercatcher foraging on the islands is on the mussels / limpets at low tide; so the areas below the high water mark are potentially very important. Also, at islands like Halifax and Mercury, lobster fishing takes place within about 3 m of penguin landing stages, which can cause a substantial disturbance, so again if activities are allowed "around islands" these need to be well defined and controlled].* This is exactly why the Minister should urgently avail himself of the entrenched and protective power provided for in section 51 of the Marine Resources Act, and declare reserves in the relevant areas.

3. Penguin & bank- and crowned cormorant feeding sites: NO commercial fishing, mining, vessel activities of vessels > 10 m or > 20 tonnes (unless it is for research purposes).
4. Lobster sanctuaries: (i) Ichaboe - NO lobster fishing , NO mining. (ii) Luderitz - NO lobster fishing. Only small scale fishing of other fish species e.g. mullets. NO mining. YES to any recreational activities like boatbased tourism, line fishing, diving, water-skiing, canoeing, etc. (iii) Inshore reefs Prince of Wales Bay to Chamais Bay - The protection level required for this area is different from the Ichaboe and Luderitz sanctuaries and still needs to be properly defined. It should be considered only as a protected area for juvenile lobsters and benthic habitat. Thus commercial fishing of adult lobsters could still take place and small-scale diamond mining (eg diver operated). Activities that should NOT take place are bulk mining or sampling with large vessels using airlifts, dredging or any other remotely controlled underwater mining tools (because of the large scale damage to seabed habitats and the large volumes of overburden sediments dumped on the seabed). Additionally NO direct discharge points from land based mines should be allowed along this part of the coastline. Instead, sediments or seawater discharged into the ocean from the land-based mines should be done through a pond system where sediments are allowed to settle first before the clean seawater is pumped back into the ocean).
5. Whale calving sites: Follow international boat based whale watching regulations. Other activity restrictions to be determined by Dr Roux.
6. Airspace above islands, wetlands and seal colonies: NO flights below 3000 feet above wetlands, no flying over islands or seal colonies, except for research purposes or medical emergency on staffed islands.

Maps indicating the extent of SAMICOR's concessions around the islands are provided below.





Map showing SAMICOR's mining concessions around Seal, Penguin, Halifax, North Long and South Long Islands

**Minutes of a meeting held with Toby Lambooy (SAMICOR) on environmental related issues with regards to their marine mining activities - 23 March 2005, Fisheries Boardroom**

*(These are not official minutes, but merely Kolette's own notes made during the meeting.)*

The meeting was held on request from Fisheries staff in view of various reports/concerns raised by sea going staff and the lobster industry about increased activities of the Samicor vessels in the inshore areas.

1. Concessions: Around islands - previously ODM. At Marshall Fork & off Hottentot Bay - previously NAMCO.
2. SAMICOR intends to take over the NAMCO EIA and upgrade this through consultants such as Jeremy Mitchley (env monitoring), Robin Carter (env monitoring), Bruce Spilander (mainly equipment). The first set of monitoring work is presently done at Bakers Bay, the second will be off Possession Island. A report on this (which may also include their first round of sampling work, but this needs to be confirmed) would be available by end June 2005.
3. Three different mining techniques are to be used: airlift, centrifugal pump and dredging techniques. During both former methods the vessels will be relatively stationary using anchor spreads, whilst during the latter they will be mining/sampling in a more mobile fashion.
4. Vessels: *Lady S* - airlift; *Kawambo* - centrifugal pump system; *Sakawe Explorer* - airlift; *Sakawe Miner* - airlift; *Nautilus* - dredger?.
5. Mining process: Airlifts & centr. pump system: As usual, with each vessel both mining & processing. Dredge method: The dredger pumps up material into its storage holds, then connects with and pumps material to the *Sakawe Miner* where it will be processed. As for tailings, fine sediments will be washing into sea as part of the overflow, and larger tailings material will be returned onto mined out sites in deeper waters (at the present site off Bakers Bay this is mainly sand and gravel, thus most material will be retained).
6. Areas, depths & time periods: *Lady S* - sampled off Ichaboe during Feb-Mar 05, presently off Long Island at depths >60m. *Kawambo* - mining - 30-35 m off Bakers Bay (presently here); 100 m off Hottentot Bay (although the concession extend to about 45 m they do not intend to mine this shallow off HP in the near future). *Sakawe Explorer* - sampling off Albatross Island/Long Island/Bakers Bay at about 30 m. Dredger/*Sakawe Miner* - bulk sampling off Bakers Bay, 22-30 m, for 5 weeks (busy with this at present) and then for 3 weeks north (location to be confirmed) of Possession Island (same depth). No immediate plans have been made for mining on Marshall Fork - Kathie requested that extra monitoring/env sampling will be required for this area due to the sulphuric muds here.
7. Other requests: Kolette: If the vessels move to new areas (from where they are now) to operate at depths <60m, we (MFMR) need to be informed (in view of potential conflict between lobster and mining vessels in the inshore areas at certain times of the year, as well as the impact on lobster reef areas). Will need positions of areas operated on off the Bakers Bay area so Fisheries divers can survey the sites during their April 2005 dive survey. Have/will the plumes from the dredger be modelled? Toby answer: No modelling has been done yet, but they intend to do so. Kolette can contact him when she wants to survey the site. Kathie: Wave rider data? Is historical data available? Will a waverider be put into the sea again? Toby answer: Yes to all questions, wave rider to be put off Diaz Point (centre to the Samicor concessions). He agrees that samples with polluted water (diesel/chemicals?) collected off Ichaboe Island when *Lady S* was operating next to the island during February, can be sent to Walvisbay for analysis and that Samicor will have to pay for the analysis. JP: No flights over the islands due to disturbance to birds. Toby: Will inform the pilots.
8. Contact person for future concerns/queries etc: Toby Lambooy (ph 061 225 433, fax 061 249 253, cell 081 128 1201, email tlambooy@sakawe.com)

## International Guidelines on the Definition and Classification of Certain Closed and Protected Areas

The IUCN<sup>171</sup> (now referred to as the *World Conservation Union- WCU*) formulated the following succinct definition of a protected area:

*An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.*<sup>172</sup>

More recently, this definition has been updated as follows:

*Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means, to protect part or all of the enclosed environment.'*

The United Nation's Environmental Programme (UNEP) has been identifying and compiling information on the protected areas of the world, to produce comprehensive global datasets and maps since 1981.

The IUCN initiated a model system of classifying protected areas worldwide in the early 1970s. After a thorough review and revision of modern day needs and priorities in 1994, this useful framework was updated and refined. Accordingly, six different categories of protected areas are provided.

*Category I: Strict Nature Reserve / Wilderness Area: protected area managed mainly for science or wilderness protection.*

This is further broken down into two further categories: *Category 1a: Strict Nature Reserve: protected area managed mainly for science.* This sub-category is defined by the IUCN as an 'area of land and / or sea possessing some outstanding or representative ecosystems, geological or physiological features and / or species, available primarily for scientific research and / or environmental monitoring.'<sup>173</sup>

*Category 1b: Wilderness Area: protected area managed mainly for wilderness protection* is defined as 'large area of modified or slightly modified land and/or sea, retaining its natural character and influence without permanent or significant habitation, which is protected and managed, so as to preserve the natural condition.'<sup>174</sup>

*Category II: National Park: protected areas managed mainly for ecosystem protection and recreation.* The IUCN defines this as a 'natural area of land and/or sea, designated a) to protect the ecological integrity of one or more ecosystems for present and future generations, b) exclude exploitation or occupation inimical to the ecosystems for present and future generations, c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.'<sup>175</sup>

*Category III: Natural Monument: protected areas managed mainly for conservation of specific natural features* defined as an 'area containing one or more specific natural or natural / cultural features which

<sup>171</sup> International Union for the Conservation of Nature

<sup>172</sup> IUCN *Guidelines for Protected Area Management Categories* 1994 at 7

<sup>173</sup> supra

<sup>174</sup> IUCN *Guidelines for Protected Area Management Categories* 1994 at 17

<sup>175</sup> IUCN (1994) *Guidelines for Protected Area Management Categories* p. 18.

are of outstanding or unique value because of their inherent rarity, representative or aesthetic qualities or cultural significance.<sup>176</sup>

*Category IV: Habitat / Species Management Area: protected area managed mainly for conservation through management intervention* defined as an 'area of land and/or sea subject to active intervention, for management purposes, so as to ensure the maintenance of habitats, and/or to meet the requirements of specific species.'<sup>177</sup>

*Category V: Protected Landscape / Seascape: protected area managed mainly for landscape, seascape, conservation and recreation:* 'an area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character, with significant aesthetic, ecological and / or cultural value, has often produced an area of distinct character, with significant aesthetic, ecological and / or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.'<sup>178</sup>

*Category VI: Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems,* defined as an '...area containing predominantly unmodified natural systems, managed to ensure long term protection and maintenance of biological diversity while providing at the same time a sustainable flow of natural products...'

#### List of People Briefed and / or Consulted so far

I would like to express my sincerest thanks to all of the following, who were extremely helpful and forthcoming in the preparation of this report. It has always been a pleasant experience working with you.

- Advocate Mbako, Permanent Secretary, Ministry of Fisheries and Marine Resources (MFMR)
- Ms. L. Shapwa, Permanent Secretary, Ministry of Justice (MOJ).
- Dr. Malan Lindeque, Permanent Secretary, Ministry of Environment and Tourism (MET).
- Joseph Iita, Permanent Secretary, Ministry of Mines and Energy (MME)
- Paul Nichols, Special Advisor to the Minister, Ministry of Fisheries and Marine Resources (MFMR)
- Dr Ben Van Zyl, Deputy Director, NatMirc, Ministry of Fisheries and Marine Resources (MFMR)
- Dr. Neville Sweijid, Director, BENEFIT
- Dr. G. I. C. Schneider, Director, Geological Surveys, Ministry of Mines and Energy (MME)
- Dr. Stephen Frindt, Division of Economic Geology, Geological Surveys, Ministry of Mines and Energy (MME)
- Chris Bartholomae, Chief Scientist, Subdivision Environment, NatMirc, Ministry of Fisheries and Marine Resources (MFMR)
- Benedict, L. Dundee, Senior Fisheries Biologist, Subdivision Environment, Section: Seabirds and Offshore Islands, Ministry of Fisheries and Marine Resources (MFMR)

<sup>176</sup> IUCN (1994) *Guidelines for Protected Area Management Categories* p. 19.

<sup>177</sup> *Supra*, p. 21.

<sup>178</sup> IUCN *Guidelines for Protected Area Management Categories* 1994 at 22.

- Timo Mufeti, Project Coordination, NACOMA (Namibian Coast Biodiversity Conservation and Management) Project.
- Keith Wearne, Chairperson, Coastal Environmental Trust of Namibia (CETN)
- Aina Iita, Principal Biologist, Integrated Coastal Zone Management (ICZM) and Pollution Control, Ministry of Fisheries and Marine Resources (MFMR)
- Kolette Grobler, Shark Island, Ministry of Fisheries and Marine Resources (MFMR)
- Bronwen Currie, Chief Biologist, Aquaculture, Disease and Quality Control, Ministry of Fisheries and Marine Resources (MFMR)
- Kathie Peard, Subdivision Environment, Ministry of Fisheries and Marine Resources (MFMR)

## ***Appendix 4: Regulation of Closed Areas - Legislative Aspects***

The Minister's mandate to make regulations regarding closed areas and exclusion zones stems from the provision indicated below.

Part 10 of Namibia's Marine Resources Act (MRA) No. 27 of 2000 empowers the Minister to enact regulations, that are not inconsistent with the above Act, in regard to *inter alia* the following:

- Any license or authorization required, issued or given in terms of the MRA;
- Prescribe conditions and restrictions applicable to fishing rights, exploratory rights, quotas, licenses or other authorizations granted under the MRA.
- Regulate and prohibit the sale or disposal of marine resources, as well as the transportation, importation or exportation thereof.
- Prescribe rules to be observed during operations for the harvesting of marine resources and measures aimed at preventing interference with or conflict between such operations;
- Regulating or prohibiting the discharge in the sea or discarding on the sea-shore and land of specified substances or materials, or substances or materials not complying with specified requirements or having specified properties;
- The erection, maintenance, use and protection of and control over boundary beacons, buoys, notices, notice-boards or other marks used in connection with the harvesting or protection of marine resources;
- The regulation and control of research and development activities in connection with the harvesting and protection of marine resources;

Regulations pertaining to the above-mentioned provisions can be made applicable to marine resources in a general manner, or apply to a specified marine resource or may differentiate between different marine resources, different fishing vessels, or any other matter the Minister considers necessary.

Closed and Prohibited Areas have been promulgated in Government notice no. 153: *Regulations Relating to the Exploitation of Marine Resources*.

In terms of section 65 of the Marine Resources Act 27 of 2000, the Minister promulgated the following regulations pertaining to closed areas:

### *Regulation 10: Prohibited Areas in respect of Fishing for Recreational Purposes*

**10.** (1) *A person may not harvest marine resources for recreational purposes within a distance of two nautical miles seaward from the high-water line in any of the following areas –*

*(a) from the middle of the mouth of the Kunene River to the concrete beacon marked TB 1 situated approximately 5 km north of Terrace Bay;*

*(b) from the concrete beacon marked TB 2 situated approximately 25 km south of Terrace Bay to the concrete beacon marked TB 3 situated approximately 10 km north of Torra Bay;*

*(c) from the concrete beacon marked TB 4 situated approximately 10 km south of Torra Bay to the southern bank of the mouth of the Ugab River;*



(d) from the concrete beacon marked CC1 situated at latitude 21degrees 45.24 south to the concrete beacon marked CC2 situated at latitude 21 degrees 51.380' south;

(e) from the southern limits of the quay in the harbour of Walvis Bay, along the coastline to Pelican Point;

(f) from the concrete beacon marked SV2 situated at the northern limits of Sandwich Harbour to a concrete beacon marked RL 3 situated approximately at latitude 26 degrees 34' south;

(g) from a concrete beacon marked P 1 situated approximately at latitude 26 degrees 44' south to a concrete beacon marked P 2 situated approximately at latitude 27 degrees 12' south;

(h) the sea shore of any of the islands along the Namibian coast.

Regulation 19: Rock Lobster

**19.** (1) A person may not, in any manner or for any purpose, harvest rock lobster within any of the following areas -

(a) the area within 15 nautical miles from the high water-line, bounded in the north by a line drawn due west from a concrete beacon marked RL 1 situated at Danger Point and in the south by a line drawn due west from a concrete beacon marked RL 2 situated at Douglas Point;

(b) the area bounded by a line drawn from Diaz Point to a point north of Luderitz Bay, where the 26 degrees 34' south latitude intersects the high water-line and which is marked with a concrete beacon marked RL 3.

Rock Lobster is defined in Part I of these regulations as '*...any individual of the species Jasus lalandii*'.

Trawling and longlining is prohibited in waters shallower than 200 metres, and enforced by means of attaching this prohibition as a condition, in the form of annexure 'C' to the fishing licenses granted to the commercial sector. The co-ordinates for the 200 metre bathometric line, running along the Namibian coastline, creating the Eastern boundary of the area in which trawling and longlining are prohibited, are provided below:

A: 17 degrees, 14'S x 11 degrees, 24'E

B: 18 degrees, 45'S x 11degrees, 39'E

C: 22 degrees, 03'S x 13 degrees, 19'S

D: 26 degrees, 11'S x 14 degrees, 27'S

E: 27 degrees, 46'S x 14 degrees, 45'E

F: 29 degrees, 00'S x 14 degrees, 47'S

Section 40 (3) of the Marine Resources Act empowers the Minister to subject fishing vessel licenses to conditions that he may determine in this regard.

Presently there are discussions under way to refine the above-mentioned 200 metre depth contour, in order to provide for more accuracy for the purposes of installing and regulating Vessel Monitoring Systems (VMS).<sup>179</sup> A meeting has been arranged with the Minister, to propose new and more frequent co-ordinates, consisting of 40 points as opposed to the present above 6 points. Depending on the outcome of this meeting, the above-mentioned license conditions may soon be amended. A significant advantage of implementing, regulating and enforcing closed areas through the use of license conditions, as opposed to gazetting regulations, is that the former displays much more flexibility and can be altered in a faster manner with less cumbersome procedures and / or bureaucracy.

There are further conditions applicable to those hake trawling vessels fishing in the area south of 25 degrees latitude, where the fishing exclusion has been extended to a depth of 300 metres.

In addition, the freezer trawlers fishing in this area, are confined to fishing in depths of 350 metres or more.

Apart from the above exclusion zones and single-species sanctuary areas, there are currently no formally declared Marine Protected Areas (MPAs) in Namibian waters. The Minister of Fisheries is however empowered to declare MPAs, in terms of section 51 of the Marine Resources Act no. 27 of 2000.<sup>180</sup>

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<sup>179</sup> *Pers. Comm.* Rudi Cloete, MFMR, Swakopmund, 15 May 15, 2007.

<sup>180</sup> See Currie, H. (2005) WWF project ZA 1398 *Proclamation of Namibia's Offshore Islands and Surrounding Waters as Marine Protected Areas*.

## ***Appendix 5: Coastal Mining Studies Commissioned by NAMDEB***

### **PISCES ENVIRONMENTAL SERVICES (PTY) LTD**

#### **Reports and Publications for Namdeb and De Beers Marine Namibia**

##### **MA1 Mining Licence Area**

PULFRICH, A., 1998. Assessment of the impact of diver-operated nearshore diamond mining on marine benthic communities in the Kerbe Huk area, Namibia. *Report to NAMDEB Diamond Corporation (Pty) Ltd*, 29pp.

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PULFRICH, A., 2005. An assessment of the effects of dredging-related suspended sediments on intertidal and subtidal communities in the Chameis Bay area. Marine Dredging Project: Specialist Study. Prepared for De Beers Marine Namibia, August 2005, 61pp.

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PULFRICH, A., 2004. The potential impacts of marine dredging operations on nearshore reef communities and the rock lobster fishery. Specialist Study Report. In: PISCES ENVIRONMENTAL SERVICES (PTY) LTD, 2004. *Marine Dredging Project Pre-Feasibility Study, Environmental Impact Assessment, Volume II: Specialist Studies & Appendices*. Prepared for De Beers Marine (Pty) Ltd. and Namdeb Diamond Corporation (Pty) Ltd. 52pp.

STEFFANI, C.N. & A. PULFRICH, 2004. The potential impacts of marine dredging operations on benthic communities in unconsolidated sediments. Specialist Study Report. In: PISCES ENVIRONMENTAL SERVICES (PTY) LTD, 2004. *Marine Dredging Project Pre-Feasibility Study, Environmental Impact Assessment, Volume II: Specialist Studies & Appendices*. Prepared for De Beers Marine (Pty) Ltd. and Namdeb Diamond Corporation (Pty) Ltd. 46pp.

### **Bogenfels Mining Licence Area**

PULFRICH, A., 2002. The potential effects of sediments derived from proposed pocket-beach mining in the Bogenfels Licence Area, on intertidal and subtidal benthic communities. *Prepared by Pisces Environmental Services (Pty) Ltd for Namdeb Diamond Corporation (Pty) Ltd*. 116pp.

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