

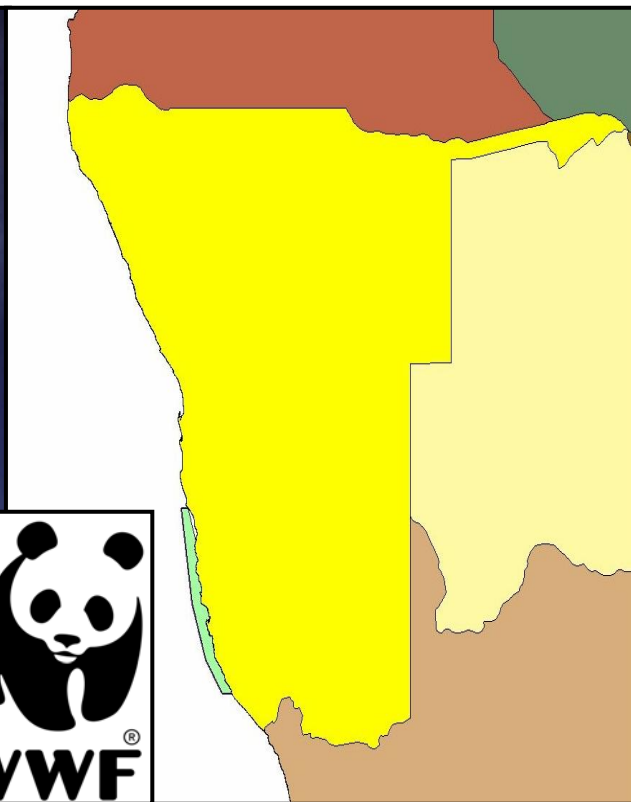
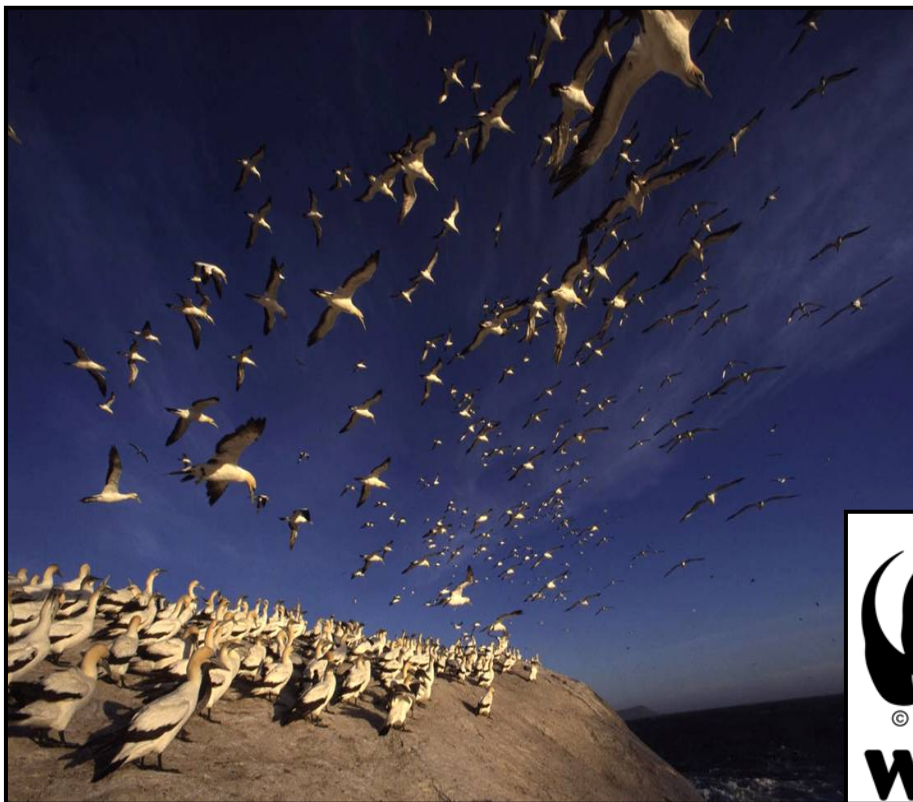


**MINISTRY OF FISHERIES AND MARINE RESOURCES**

**NACOMA**



**PROPOSED MARINE PROTECTED AREAS**





REPUBLIC OF NAMIBIA

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MINISTRY OF FISHERIES AND MARINE RESOURCES

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NACOMA – Namibian Coast Conservation & Management Project

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CONCEPT NOTE, BACKGROUND DOCUMENT AND MANAGEMENT PROPOSAL  
FOR THE DECLARATION OF MARINE PROTECTED AREAS  
ON AND AROUND THE NAMIBIAN OFFSHORE ISLANDS  
AND ADJACENT COASTAL AREAS.

2007

compiled by Heidi Currie and Colette Grobler, with contributions from Jean-Paul Roux, Bronwen Currie, Nadine Mohroff, Katta Lydinia, Rian and Joan Jones, Kathie Peard, Jessica Kemper Vera de Cower and Dr. Hannes Holtzhausen

*(fotographs on cover above and in document below acknowledged to Tom Peschak, Rian and Joan Jones, Colette Grobler, MFMR, and Katta Lydinia)*

## EXECUTIVE SUMMARY

In recent times there has been a clear global thrust towards a holistic management approach that takes account of entire ecosystems, multiple sectors and various management objectives. MPAs and other spatial management initiatives provide important tools in ecosystem-based management and in the advancement of a multi-sectoral approach towards integrated management.<sup>1</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>2</sup>

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>3</sup>

Numerous studies have clearly demonstrated the benefits of MPAs. These derived advantages include increased abundance, biomass, bodysize and reproductive output of harvested species, recovery of impacted habitats, increased biodiversity, socio-economic benefits and an improved understanding of marine biodiversity.<sup>4</sup>

The development of a multi-zoned marine protected area (MPA) along the Namibian coast, including 16 islands, islets and 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 recovery of fish stocks, mainly by protecting spawning and nursery grounds, of specifically the commercially exploited rock lobster (*Jasus lalandii*);

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<sup>1</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>2</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>3</sup> Hutchings 2000, Meyers *et al.* 1997, Pauley *et al.* 1998, Hall 1999, Meyers & Worm 2003, Worm *et al.* 2005

<sup>4</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.

N.R.C. (National Research Council) (2001) *Marine Protected Areas. Tools for Sustainable Ocean Ecosystems*. National Academy Press, Washington, DC.

Halpern, B. S. and Warner, R.R. (2002) Marine Reserves have rapid and lasting effects. *Ecology Letters* **5**, 361 – 366.

<sup>4</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.

Halpern, B. S. (2003) The impact of marine reserves: do reserves work and does size matter? *Ecological Applications* **13**(1), 117 – 137.

Secretariat of the Convention on Biological Diversity 2004.

- the sound management and conservation of marine resources under Namibia's jurisdiction;
- protecting 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;
- 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>5</sup>

Oceanographic data collected from these offshore islands constitutes important ecosystem indicators, contributing an integral link to Namibia's environmental monitoring activities and ecosystem indicators.

Representative MPA networks have been identified as a critical component of sustainable marine resource use and marine biodiversity conservation.<sup>6</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, the capacity for ecological change and ecological processes.<sup>7</sup> MPAs complement traditional fisheries management measures and have helped to sustain fisheries in many cases.<sup>8</sup> MPAs are also more robust in the event of resource assessment uncertainty, management errors and climatic, ecological and social change.<sup>9</sup> Without MPAs, the proper assessment of human impacts, monitoring of change and understanding of marine biodiversity is very difficult if not impossible.<sup>10</sup> MPAs also

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<sup>5</sup> See the legal instruments referred to in the 'Legal Review on the Declaration of Marine Protected Areas on and around Namibia's offshore islands.' by Currie, H. (2005)

<sup>6</sup> Secretariat of the Convention of Biological Diversity (2004) and World Summit Sustainable Development (WSSD) Resolutions.

<sup>7</sup> Law, R. (2000) *Fishing, Selection and phenotypic evolution*. ICES Journal of Marine Science. **57**: 659-668

<sup>8</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., 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.

<sup>9</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>10</sup> Secretariat of the Convention of Biological Diversity (2004)

provide important scientific reference sites for studies centered on fisheries management.<sup>11</sup> Many studies clearly demonstrate the benefits of MPAs, which include increased abundance, body size, biomass and reproductive output of harvested species, increased biodiversity, recovery of impacted habitats, an improved understanding of marine biodiversity, as well as social and economic benefits.<sup>12</sup> Such benefits 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>13</sup>

The above indicates that MPAs are an essential component of the ecosystem approach to fisheries (EAF) management, and are required to protect aspects of the ecosystem that are not conserved by traditional fisheries management; they are also necessary in order for ecosystem effects to be identified.

Within the context of natural or accelerated environmental change, MPAs play a critical role by providing reference areas for understanding the impact of fishing and other activities.<sup>14</sup>

MPAs have been shown to have large spillover effects to adjacent fished areas and provide an important role in sustaining spiny lobster fisheries.<sup>15</sup> Because lobsters are slow-growing and have low natural mortality, they are highly susceptible to overfishing and other extractive, destructive impacts, and need to be managed with caution.<sup>16</sup>

Maintaining the health and integrity of marine ecosystems is fundamental to good oceans management.<sup>17</sup> Man's actions may not threaten the biological diversity and ecological processes on which continued ocean uses depend. This is the foundation on which the multiple use management of our oceans needs to be pursued.<sup>18</sup>

Ocean Users have a responsibility to assure the ecological sustainability of their operations and an obligation to identify and implement precautionary measures.

Incomplete information on potential impacts should not be used as a reason for postponing precautionary measures intended to avoid or reduce unacceptable levels of change or to prevent serious or irreversible environmental degradation of the oceans.

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<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

<sup>12</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>13</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>14</sup> Barrett, N. S., Edgar, G. J., Buxton, C. D. and Haddon, M. (2007) *Changes in fish assemblages following ten years of protection in Tasmanian marine protected areas*. JEMBE 345 141-157.

<sup>15</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>16</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>17</sup> Australia's Ocean's Policy, 1998, p. 3.

<sup>18</sup> supra

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>19</sup> This essentially encapsulates three International Law principles, namely the precautionary - , preventative and polluter pays principles, which arguably should attained 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.

*(photographs on cover above and in document below acknowledged to Tom Peschak, Rian and Joan Jones, Colette Grobler, MFMR and Katta Lydinia)*

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<sup>19</sup> See Australia's Oceans Policy, 1998

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## 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). 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 include policy declarations issued by the World Summit on Sustainable Development and the World Parks Congress.<sup>20</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. The Argentinean example has reaped such extensive benefits and shown such great success, that the Argentinean fishing industry<sup>21</sup> now expresses staunch support towards the use of MPAs and closed areas as positive fisheries management tool. 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.”

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 Fishery Management” (EAF) 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>

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<sup>20</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>21</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>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.

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>24</sup>, NAMPORT, local authorities and diamond mining sectors. The meeting suggested a review of old and current marine and environmental legislation with respect to their relevance and implications for the declaration and management of MPAs by MFMR. It was agreed to follow a phased approach, whilst prioritizing areas in critical need of conservation.

This report documents the process initiated and followed to select, define and delineate potential MPAs on and around the Namibian offshore islands and adjacent coastal environs. 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.

## **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; 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>25</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

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<sup>24</sup> Subsequently, the two islands closest to Luederitz, 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>25</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.

habitats and roosting grounds for a range of seabirds of high conservation and economic importance.

## 2.1. The Islands

A total of 16 natural islands<sup>26</sup> found off the Namibian coast are considered for MPA status in this report. 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 (Neglectus Islet) to 90 ha (Possession Island). Although the combined surface area of the islands amounts to approximately 235 ha or less than 0.1% of the total area of Namibia (823 144 ha), their importance and significance rests on the marine species they support and protect, as well as the rich surrounding intertidal and kelp-bed communities. Details of the islands and the seabird species breeding on them are given in Tables X and XI of the Appendixes.

\*\*\*map of islands\*\*\*\*\*

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 longshore southerly and south-westerly winds, account for the cold and nutrient-rich waters upwelled to the surface.<sup>27</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 is 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>28</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.

The islands are situated in the ocean, along Namibia's southern coast-line between latitudes 24 degrees south and 27 degrees south. Air temperatures range in average from 9 degrees to 25 degrees Celsius, with extreme conditions up to 38 degrees Celsius experienced during the brief eastwind periods in autumn and winter. Sea surface temperatures generally range between 12° and 14° C but may vary in relation to upwelling

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<sup>26</sup> Including their surrounding waters and some adjacent coastal areas as indicated below

<sup>27</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>28</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.

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, e.g. Plumpudding and Sinclair Islands; Seal and Penguin Islands. All 16 islands described in this report are relatively low in height, 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 the islands and islets are washed over by waves.

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 higher vascular plants. Seal, Penguin, Halifax and Possession 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.

### 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>29</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 Walvis (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

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<sup>29</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.

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>30</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>31</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 Gannets *Morus capensis* at Ichaboe Island are still scraped occasionally, most recently in 2005.

## 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. |

\*\*\*| co-ordinates\*\* The only virtually continuous rocky coast in Namibia occurs between Bogenfels (\*\*\*)LAT) and Luderitz (about 80 km). South of this, the coast is interspersed with rocky outcrops. In comparison to sandy shores, rocky shores harbour rich, attached plant and animal life. Subtidally the sandy 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 offer a wide variety of niches, occupied abundantly by both seaweeds and representatives of most invertebrate phyla. For this reason, rocky reefs support the highest biomass of mussels per unit area.<sup>32</sup> Species diversity however is low to moderate. Rocky shores provide feeding and breeding grounds for not only the attached fauna, but also for fishes, birds, and marine mammals. The

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<sup>30</sup> Wagner, P.A. (1971) *The diamond fields of southern Africa*. C. Struik, Cape Town, South Africa.

<sup>31</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.

<sup>32</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.

complex structure of the kelp beds offers food, protection and shelter to young and vulnerable life stages of many marine mammals.

All the Namibian islands possess rich rocky intertidal zones deepening into kelp bed reefs, thereby valuably and substantially increasing the proportion of rocky shore and enhancing biomass accordingly. Most of the shallow (<20 m) subtidal 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 lobster – 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.

The rocky reefs support a host of reef fish, such as galjoen, steenbras, blackspot, kabeljou, hottentot. 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>33</sup> Many intertidal and reef species (such as the kelp *Ecklonia maximus*, some mollusks 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.

Therefore, with regards to both species-richness and biomass, it is advantageous to preserve, as well as possible, the rocky shore fauna and flora in the proposed Marine Protected Area buffer zone, as indicated in part 3 below. 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 eco-systems 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. Large parts of these inshore areas and habitats have already been 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), 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, appear

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<sup>33</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.

to 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 intertidal 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>34</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, Albatros Rock, Pomona, Plumpudding Island, Black Sophie's rock and Chamais Bay were surveyed) various kelp beds exist. Kelp bed surveys (mainly for *Laminaria pallida/schinzi*) are generally small, and 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*)

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<sup>34</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.

Table 1: List of some main 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	Spp ?
	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>
Porifera	Compound/encrusting ascidians	Various spp
	Upright and encrusting sponges	Various spp
Cnidarians	Sea anemone - long-tentacled	<i>Anthopleura michaelsoni</i>
	Other sea anemones	Various spp
	Nippled seafans	<i>Eunicella papilosa</i>
Annelida	Hydroids	Various spp
	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 payracae</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 CL) in this area, compared to commercial lobster fishing grounds).

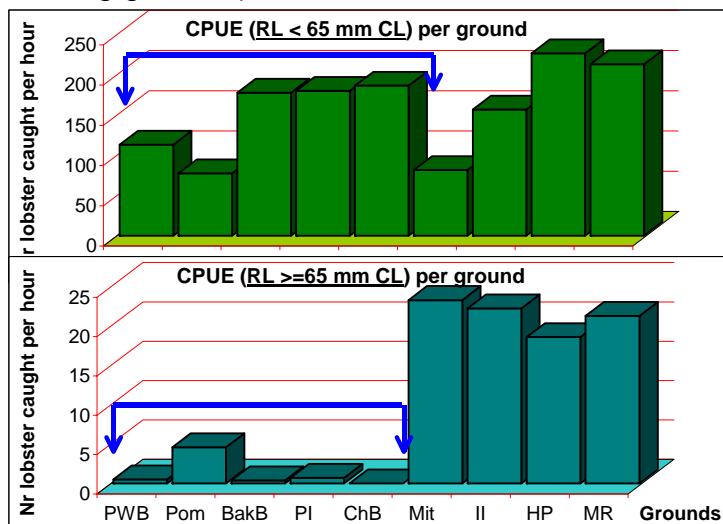


Figure 1: CPUE of legal and sub-legal size lobsters at various grounds north and south of Luderitz. PWB = Prince of Wales Bay, Pom = Pomona, BakB = Bakers Bay, PI = Possession Island, ChB = Chamais Bay, Mit = Mittag, II = Ichaboe Island, HP = Hottentot Point, MR = Marshall Reef.

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).

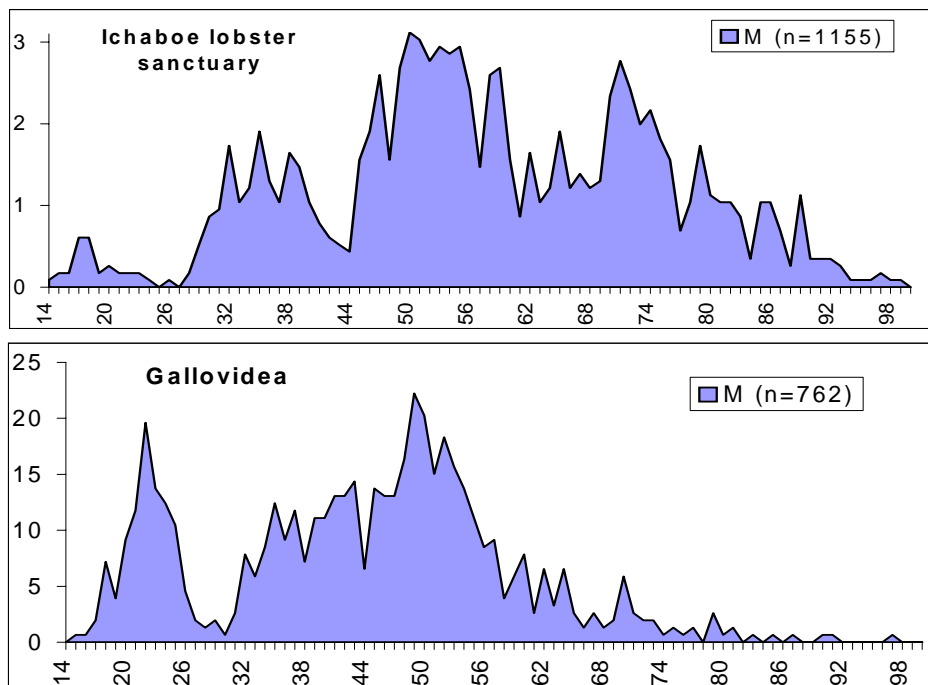


Figure 2: Lobsters (males) size distribution compared between the Ichaboe lobster sanctuary and commercial grounds at Galloveida.

As for benthic species, the same species occur around Ichaboe as those listed in Table 1. 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 10m, compared to any of the other dive 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 Lobster (*Jasus Lalandii*) is 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 Luderitz mainly in the area between Affenrucken and Mittag, which does fall outside of the MPA area and buffer zone, as the latter has its border at Chamais Bay.

(See map below, indicating some of the main commercial lobster grounds and main coastal diamond mining activities between the Orange River and Mercury Island.)



Rock lobster 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 (<2m/l) is experienced for extended time periods.<sup>35</sup> Research dive and trapping surveys since the early nineties have focused mainly on areas north of Luderitz, targeting those grounds that are the most intensively used by the rock lobster industry. Along the coastline *north* of Luderitz, bottom dissolved oxygen follows a seasonal cycle with levels at deeper depths (exceeding 30 m) low during spring – to - summer and higher during autumn – to – winter. Consequently, the rock lobster move closer inshore during summer, where dissolved oxygen levels are higher due to wave action, and 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 metres, 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 lobster 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 Luderitz, environmental surveys have been very infrequent in the past, and it is consequently unclear whether similar high and low bottom dissolved oxygen cycles occur in this area. In order to address this, a long term monitoring program with surveys was initiated in 2004.

### **2.3.2. Existing Lobster sanctuaries and Conservation Status already present in the area**

Two lobster sanctuaries exist along Namibia's coastline: the Ichaboe lobster sanctuary and the Luderitz 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 de west from a concrete beacon marked RL 2 situated at Douglas Point.'*<sup>36</sup> However, no western border has been defined, so for practical purposes a western border should be defined in the near future. The effect of no fishing in this sanctuary can be seen in the lobster population size structure shown in Figure 2, in comparison 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 Luderitz 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*

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<sup>35</sup> Grobler, C. (2005) MFMR: *Report on Issues regarding diamond mining activities near the southern lobster grounds between Luderitz and the Orange River*, p. 2.

<sup>36</sup> Regulation 19(1)a) of government notice no. 153: *'regulations pertaining to the exploitation of marine resources'*.

lobster within any of the following areas: 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.<sup>37</sup> This area seems to 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.



### 2.3.3. Cetaceans, Whales and their calving sites

The southern right whale was heavily exploited in the 19<sup>th</sup> 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.

Along the Namibian coast, the breeding population was probably eradicated through over-exploitation before the species was granted protection in 1935 (Roux et al. 2001). 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 (Roux et al. 2001 and Roux unpubl. data). 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

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<sup>37</sup> Regulation 19(1)b) of government notice no. 153: 'regulations pertaining to the exploitation of marine resources'.

(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. Right whales are dependent of these inshore areas as calving grounds and are at risk from entanglement in fishing gear and other man made obstructions as well as collisions with vessels. The future of this tiny population is probably conditional to the protection of these sites.

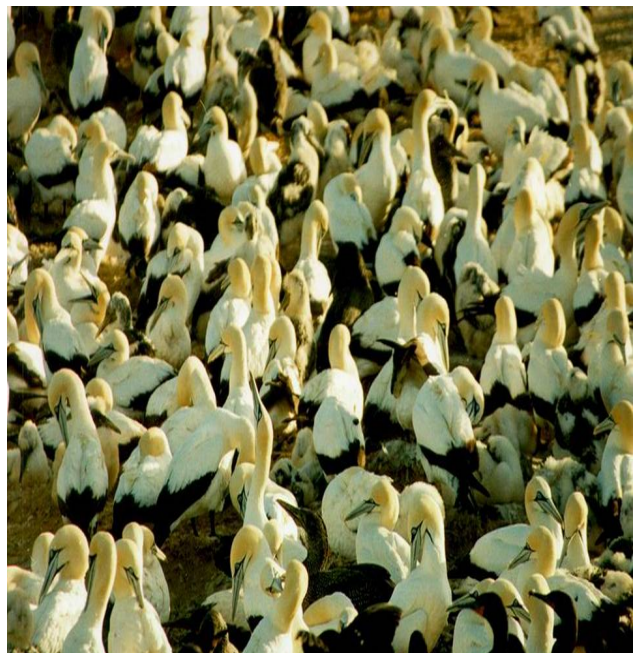
#### Minke whale



### 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>38</sup> Of these, nine species are endemic to southern Africa, with only the Kelp Gull and White-breasted Cormorant being found outside that region. A summary of the main seabirds breeding in Namibia, their conservation status and occurrence on the Namibian islands is presented in Table X of the Appendixes. 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 outside their breeding season.

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.



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<sup>38</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.

## 2 3.5. Seals

The seals on the islands represent a small proportion of Namibia's seal population. Due to limited space on the islands, these seal populations are not increasing, as the seals do not re-colonise the islands where there are large bird numbers. It is recommended that for the manned Islands of Mercury, Possession and Ichaboe, the old method of seal management is still practiced, by chasing them off the islands. Seal numbers on little Ichaboe, Sinclair, North Reef (near Possession), Hollamsbird, Marchall and Stable Rocks, Long Island and Albatross Island also need to be limited.

## 2.4. Existing Concerns

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

None of the islands have any rocks that are commercially exploitable. However, 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 on in certain areas 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 end in 2019.

Namdeb's landbased mining (such as pocket beach mining) could affect some islands that are very close to the main land (Z2), whilst some of their subcontractors mine inshore close to the main land. According to NAMDEB's Managing Director, Chris Sivertson, NAMDEB's land-based mining licenses extend approximately 5 km offshore, which include so-called 'shallow water' and 'mid water areas'.<sup>39</sup>

Historically, diamond mining activities have consisted of the following:

a) landbased marine mining:

- large scale overburden strip mining between Chamais Bay and the Orange River;
- pocket beach mining between Bogenfels and Chamais Bay;

b) 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.

<sup>39</sup> Email correspondence, 14 August 2007, Namibia.

The diamond mining license areas south of Luderitz belong to NAMDEB (inshore areas out to three nautical miles as well as all landbased 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).

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, is far to the south of the southernmost Namibian island, and thus 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.

#### **2.4.2. Guano harvesting**

After Independence, guano harvesting continued at Ichaboe, the only island where it is still economically and ecologically viable. The island was last scraped in 2005. Ichaboe can produce approximately 1000 metric tonnes of guano annually. This quantity of guano will decrease as the number of guano-producing seabirds, especially Cape Gannets, the main guano-producing species, continue to decrease. Guano harvesting is thus seen likely to remain at, or below its current value.

Increased human appreciation of the environment, will lead to increased demand for tourists to be allowed to visit the islands.

##### **2.4.3.1. Surf Zone Fish**

##### **2.4.3.2. Biological Boundary**

A natural biological barrier exists in the vicinity of Meob Bay and Sylvia Hill which prevents fish species from crossing. Aggenbach and Shannon<sup>40</sup> suggested that the cold core of the Benguela in the vicinity of Luderitz 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 longshore 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 degrees 30' South in the vicinity of Meob Bay. Upwelling in the Luderitz 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, 1060 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

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<sup>40</sup> Aggenbach, 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.

dos Tigres, showing it to be a warm-temperate species. Kensley postulates that the presence of this isolated relic population, living in the offshore surf-zone, can possibly be ascribed to the sea-temperature (range: 9.5 – 19.5 degrees Celsius) 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.

Angling fish or surf zone fish that occur south of Witklip (24.450 degrees South, 14.600 degrees East) down to Sylvania Hill (25.13918 degrees South, 14.85451 degrees East) 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 Sylvania Hill and Gibraltar (26.01841 degrees South, 14.95548 degrees East) Hottentot (*Pachymetopon blochii*) replaces silver kob and West Coast steenbras.

The Meob Bay research angling area lies between Langewand (24 degrees 46' south, 14 degrees 46' east) and Witklip (24 degrees 27' south, 14 degrees, 36' east, 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. Brown mussels (*Perna perna*) and black mussels (*Choromytilus meridionalis*), 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 and the more southern 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>41</sup> Lineboats target the cob and West Coast steenbras resources in the Meob Bay area intermittently. Regarding West coast steenbras, the gravest concern is that these lineboats target the female component of the stock, 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 demonstrate 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 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 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. Although Namibian sea fisheries regulations prohibit recreational fishing in restricted areas, such as Meob Bay, they do allow commercial linefishing boats to fish along the entire Namibian coastline. Due to this concession to linefishing boats, the existing closed or restricted

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<sup>41</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.

areas, that cover approximately 80 % of the coastline, cannot be classified as areas where linefish stocks are totally protected from fishing activities.

In addition, future marine diamond mining in the area may be possible, as various Environmental Impact Assessments (EIAs) are being conducted nearby. Marine diamond mining stirs up the sediments and sand from the ocean floor, which the current then transports northwards. This could 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.

Marine Protected Areas seems to be an effective tool to protect fish populations by protecting a part of the population from fishing mortality. However, such areas should be large enough to protect the breeding populations of sedentary or resident species, which would then seed adjacent areas through egg and larval transport and / or migration of juveniles and adults.

Guenette and Pitcher<sup>42</sup> studying the effects of marine reserves to control overexploitation, emphasised that marine reserves should not be regarded as the ultimate solution, but should rather be used as a complementary tool to the traditional management techniques aimed at controlling effort.

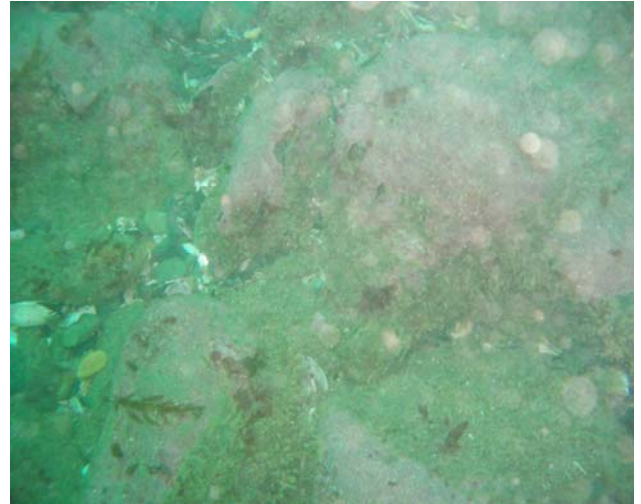
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<sup>42</sup> (1999)

## 2.5 Threats to Marine Biodiversity, Effects of Uncontrolled Human Exploitation and Disturbance

Listed below are the main threats to marine life on and around the islands and along the coast:

### 2.5.1.1. Marine Mining



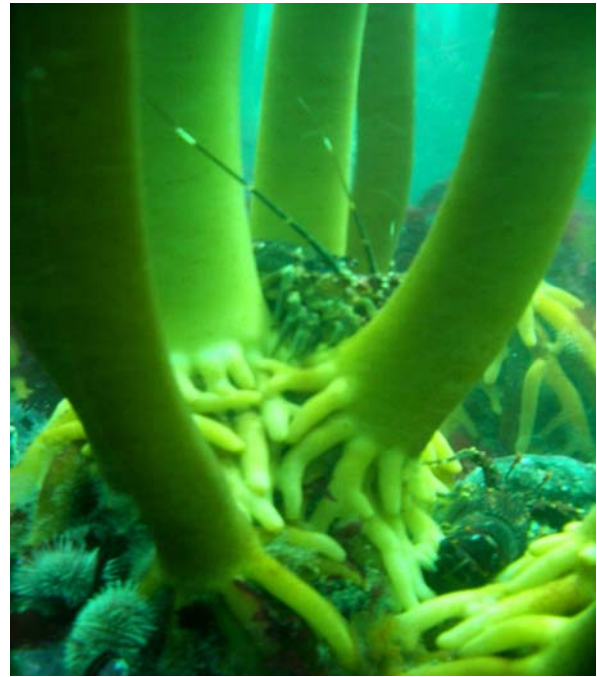
*Sub-tidal areas west of Plumpudding Island showing impacts of mining. The far left photograph indicates the unspoilt marine habitat before mining.*

Dredge-mining and pocket beach diamond mining in the vicinity of Sinclair, Plumpudding and Pomona Islands, where large amounts of sediments are removed from the sea bottom and dumped back into the sea after processing, could potentially result in the formation of land bridges to the mainland. While these may not be permanent, even short-term access could allow land predators to cause large-scale mortalities and disturbance of breeding seabirds on these islands. Large-scale sediment disturbance around breeding localities could also affect local prey availability. Sediment movement (including from discharges from mine processing plants on land) potentially covers kelp beds and rocky outcrops and therefore may affect a host of organisms associated with these habitats, including Rock Lobster. Kelp-cutting, which has been done by small operators in the past is also very destructive to the kelp bed habitat. These habitats are particularly important for juvenile

recruits that shelter at the base of the kelp plants, as indicated below in the underwater photographs from the annual survey conducted in 2006.



Possession Island



Baker's Bay

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.*

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.*

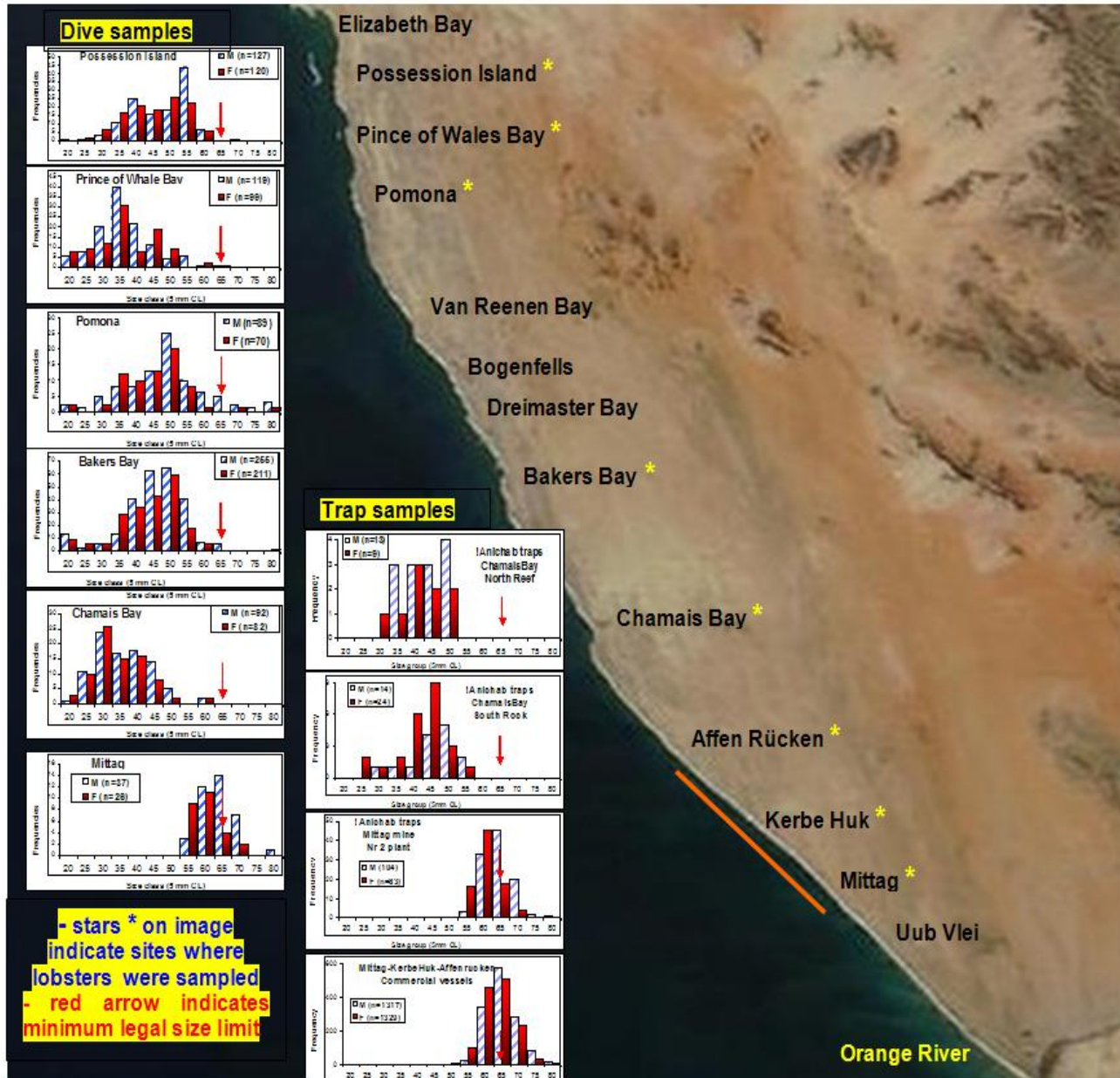
Subsection 5 provides that any of the above fines may also be recovered as if they were imposed in a civil judgement.

#### **2.5.1.2. Potential Conflict between Mining and Rock lobster Industry**

Fisheries Independent Monitoring Surveys (FIMS) were organised by de Beers Marine, in order to study the impact of dredge mining activities in Chamais Bay. One of the main conclusions so far from this FIMS data is the confirmation that Chamais Bay constitutes a

rock-lobster recruitment area. The commercial rock-lobster fishing area however, only falls south of Chamais Bay, up to Affenrucken, and therefore falls outside of the proposed MPA buffer zone area. Results from FIMS indicate that the size distribution of lobster populations in this area increase southwards up to the commercial fishing grounds, where adult lobsters make up the majority of the trap catches. This confirms present theories, that the area north of Chamais Bay (falling within the proposed MPA) constitutes a rock lobster recruitment area for the commercial fishing grounds south of Chamais Bay.<sup>43</sup>

The satellite image below indicates various southern rock lobster sites surveyed.



Satellite image of the southern part of the Namibian coastline indicating the location of the various southern sites surveyed. 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,

<sup>43</sup> Grobler, C. (2005) Report on Issues regarding diamond mining activities near the southern lobster grounds between Luderitz and the Orange River p. 13.

*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.*

### **2.5.1.2. a) Land-based mining activities**

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. NAMDEB 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. Beach erosion at Chamais Bay has completely smothered nearby subtidal kelp beds, so much so, that these areas have now become intertidal areas. The photograph below shows a subtidal kelp bed from this area that has been smothered to the extent that only the tips of the kelp leaves still appear recognisable. It is such subtidal kelp beds that are so crucial in a natural environment where they provide crucial shelter and habitat for lobster recruits, as indicated below. Such effects will have to be prevented and at the very least mitigated.





*The photograph above shows a sub-tidal kelp bed near the Chamais Bay pocket beach mining sites, which has become smothered with sand due to beach accretion (Image: Debeers Marine Namibia / PISCES)*

#### **2.5.1.2. b) 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. During 2005 SAMICOR commenced with bulk sampling (using a dredger) in the Bakers Bay area at depths of less than 30 metres. Although the sandy seabed areas south of the reef areas are targeted, any sediment plumes need to be closely monitored, especially if full scale mining by larger vessels so close inshore is likely to be considered or commence. \*\*\*

Experimental dredge mining was conducted off Chamais Bay, over a period of a few days, during January 2005. Dredged material was pumped to shore, where it was processed by an existing plant, and the discard material was pumped onto the shoreline via the existing discharge point. During this dredge experiment, the dredged material was pumped into existing ponds, created by the pocket beach mining activities. Excess seawater was discharged back onto the shoreline via a different discharge point, in other words not the same one used by the mining plant. Importantly, as sediments in this dredged material first settled in a large pond, the seawater flowing out onto the shore line was relatively 'clean', i.e. sediment-free, and consequently did not contribute significantly to the sediment discharged by the mining plant.

#### **2.5.1.2.c) Concerns regarding the impact of diamond mining on the inshore and midwater regions of the coastline**

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

- a) Destruction of healthy reef areas during the removal of diamondiferous gravels. Usually seabed with a soft sediment or gravel surface is targeted, so this mentioned concern is unlikely to be very extensive, however more surveys are required in order to confirm this.
- b) When kelp beds are very dense and mining pipes tend to get entangled, kelp cutting by diamond divers may occur, although this is prohibited.

c) The size and affected area from the dumping of overcast material from mining and dredging vessels onto unmined seabed sites adjacent to mined sites may become problematic; the mining industry has repeatedly been requested to dump this overcast material, (that consists of sand, boulders, mud etc.), only onto previously mined sites, and not onto 'untouched' areas.

d) Presently the main concern relates to the threat of sediment plumes and beach accretion on inshore reef habitats and kelp beds. These inshore reef areas and kelp beds provide a crucial role as food source and shelter for juvenile rock lobster, and need to be protected at all costs.<sup>44</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>45</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 is to be kept to a minimum. North of this locality, at Elizabeth Bay, mining operations are too extensive and large-scale for a settling pond system to be used. In the above-mentioned area of concern (between Prince of Wales Bay and Chamais Bay), the main sources of sediment pollution are: 1) discharge points from mine treatment plants onto the beaches, 2) erosion of sea walls and 3) mining vessels.

#### **2.5.1.2. d) 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 affected (NAMDEB in this case) 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. Monitoring surveys on the impact of beach accretion at the Chamais Bay sites should continue. At present it is not clear what the impact of sediment plumes and beach accretion on the subtidal reefs and kelp beds in this

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<sup>44</sup> Grobler, C. (2005) *Report on Issues regarding diamond mining activities near the southern lobster grounds between Luderitz and the Orange River* p. 13.

<sup>45</sup> Grobler, C. (2005) *Report on Issues regarding diamond mining activities near the southern lobster grounds between Luderitz and the Orange River* p. 13.

area is, nor what the state of the subtidal reefs downstream of the pocket beach mining sites is.<sup>46</sup>

Some of the areas of the gravest concern are those falling between Prince of Wales Bay and Chamais Bay: sources of sediment pollution and unnatural sediment plumes in the inshore areas along this part of the coastline must be minimised.<sup>47</sup>

### **2.5.2. Lack of food for predators and overfishing**

Large-scale commercial fishing by foreign fleets started in South West African waters in 1947, when 1 000 tons of Sardine, a preferred prey species of African Penguins, were first caught (Hampton 2003). This industry grew rapidly and by 1953 catches, by more than 100 purse seiners, had risen to 262 000 tons. Sardine stocks declined dramatically in the late 1960s and early 1970s, particularly during 1968, when 1.4 million tons were landed.<sup>48</sup> Declines were attributable to overfishing 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>49</sup>

After the collapse of Sardine, the fishing industry turned to Anchovy, another preferred penguin prey, but this fishery also collapsed when stocks became severely depleted and after 1996, catches were negligible.<sup>50</sup> Seabird 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.

### **2.5.3. 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.

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<sup>46</sup> Surveys have however been conducted at Bogenfels in this regard.

<sup>47</sup> This does not include Elizabeth Bay, which falls further north, and where the scale of mining activity is too large to allow for settling pond systems to be applied at this stage.

<sup>48</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>49</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>50</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.

Although Namibia does have in place a National Oil Spill Contingency Plan, there are severe shortcomings in Namibia's implementation of the International Convention on the Prevention 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.

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>51</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 judgement.

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<sup>51</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.

#### **2.5.4. General Pollution and / or Habitat Loss Issues**

Mining discharge (from both land-based and marine mining) generally results in smothered kelp beds, which has a significant impact on the shelter required for successful rock lobster recruitment.

If guano harvesting is not sufficiently controlled, this may potentially have a severe impact in terms of removing too much of the substrate required for the penguins to burrow in.

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>52</sup> This excludes 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 most of these islands are situated between two or three nautical miles away from the coast.

The aquaculture industry is increasingly being promoted as an alternative to fishing in a system which is 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 penguin breeding islands. This will need to be carefully monitored, so as to prevent the release of supplements into the water, entanglement incidents 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.

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<sup>52</sup> Regulation 24(3)

### 3. RECOMMENDED MARINE PROTECTED AREAS AND MULTIPLE USE PROTECTION AND MANAGEMENT ZONES

#### 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>53</sup> whilst simultaneously providing for a sustained flow of natural products and services to meet local and national development needs.<sup>54</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>55</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 an even more 'user-friendly' buffer zone, following a line that runs roughly 20 kms offshore, as indicated in the maps 1 to 5 at the end of this document. 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 highlighted co-ordinates (yellow marked positions) 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>56</sup>

The maps and diagrams below clearly show that the suggested buffer zone falls well outside the existing 200-meter trawl depth limit, thereby not interfering with the hake fishery in any negative way. Namibia's EEZ, as well as our 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 discussed as follows: so-called 'zone 1' consists of conditions generally applicable to all the islands, islets, rocks and areas specifically mentioned in this document, whilst 'zone 2' consists of stricter conditions, as these apply to the so-called lobster-sanctuary areas and proposed land-based mining restrictions (currently applicable to NAMDEB). In this way, increasing levels of protection are 'narrowed down' as they apply to more specific and stricter-controlled areas, within the broader buffer zone. (see diagram provided below).

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<sup>53</sup> See the Draft Management and Development Plan for the Sperrgebiet National Park, January 2006, p. 24

<sup>54</sup> *supra*

<sup>55</sup> see maps 1 to 5 below

<sup>56</sup> We are extremely grateful to the expertise and efforts by Katrin Ludynia, from the University of Kiel, for providing these on-going, skillful and user-friendly maps and diagrams.

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

#### Description

- 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 orange River), and the existing Namib Naukluft national park (starting at the latter cut-off point of 26 degrees, extending further north.)

#### Proposed borders of this buffer Zone

Meob Bay<sup>57</sup> to 42km south of Sinclair island: defined by co-ordinates: (6 nmiles offshore from h.w.m. between Hollamsbird<sup>58</sup> and Meob Bay; 20 x 30km blocks around each island in a southerly direction, including Hollamsbird. (see maps and diagrams below.)

- Eastern border up to the high water mark (hwm) as MFMR's stipulated jurisdiction over all marine resources.
- Western border as defined (co-ordinates on diagram).
- A small part of this category VI buffer zone falls within Luderitz's port-waters, and the port authorities are in the process of being briefed and consulted.<sup>59</sup>
- This area falls within Luderitz's port-waters (except for Seal and Penguin islands themselves, which, as indicated in the legal review section, fall under MFMR's jurisdiction.)

#### Conditions applicable within the broader buffer zone (IUCN category VI):

It is anticipated that these recommendations be incorporated as flexible management plans, which could and should be reviewed on a periodic basis, as new scientific information becomes available, and / resource extracting technologies improve from an environmental perspective.

It is also important to stress, that the suggestions below have been considered in the context of interfering minimally with existing activities in the 'larger buffer-area', as the co-

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<sup>57</sup> Co-ordinates for Meob Bay: 24:31.096S, 14:36.483E

<sup>58</sup> Co-ordinates for Hollamsbird Island: 24:38S, 14:32E

<sup>59</sup> Aune, the economic development manager of Luderitz'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.

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 lobster-fishing and mullet-fishing.
- Existing regulations (10.1.h) presently prohibit recreational fishing in most of the buffer zone area, and this includes all ski-boats as well as lobster fishers that have not been granted commercial licenses.
- Drift netting and gillnets are currently also illegal<sup>60</sup> in **all** Namibian waters, and subject to a fine of half a million dollars upon conviction.
- Trawling and longlining is prohibited in waters shallower than 200 metres, by means of attaching this condition to commercial fishing licenses, referred to as 'Annexure C' in the commercial license.
- Propose prohibition on long-lining, linefishing (between Meob Bay and Sylvia Hill hwm to 6 nautical miles offshore), harvesting of inter-tidal species (between Meob Bay and Sylvia Hill hwm to 6 nautical miles offshore) and purse seining. (Only minimal purse seining activities may be affected, as indicated by the estimates of catch and logsheets attached as an annexure at the end of this document.<sup>61</sup> Currently there is no linefishery or harvesting of intertidal species in the proposed buffer zone area, except in the area between Hollamsbird and Meob Bay; the co-ordinates provided above, (6 nmiles offshore from h.w.m. between Hollamsbird (24:38S, 14:32E) and Meob Bay (24:31.096S, 14:36.483E) constitute the proposed linefish sanctuary.
- All of the above thus indicate that the proposed conditions have minimal impact on current commercial fisheries. (It is anticipated and hoped that line sets (of effort and catch data) derived from this imminent survey will prove that possibly less than half per cent of commercial purse seine catches will be affected by these recommended management activities within this buffer zone.) As Namibian vessels will have VMSs on board from 2007, 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. If the purse seining sector feels too hard affected, an exception to the general buffer area could be made around Hollamsbird island, by 'narrowing this down to one nautical mile around the island (\*\*north and west), measured from the l.w.m.
- 
- 1. b) In future, possible new fishing methods to be evaluated and subject to revision of the management plan before introduction into this area
- No kelp cutting
- No underwater explosion or under water blasting allowed: or if necessary then subject to conditions including permit requirement; awaiting license conditions as

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<sup>60</sup> Section 52 (3) 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>61</sup> See Table 1 in the annexures.

promised by SAMICOR, consulted Kudu Gas and ascertained that their operations (including 170 km pipeline controlled from shore) fall to the south of the proposed buffer area; site visit and consultation with NAMDEB in process

### Zone 1

(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
- SAMICOR: conditions within 120 meters around each island, as measured from the low water mark: only vessels < 500 GRT allowed;
  - No mining on rocky outcrop areas within 120 meters from LWM of each island mentioned and named in this management proposal; however, mining allowed within specific unconsolidated sediment areas; if and when SAMICOR mine these areas, compliance with environmental conditions as stipulated by MME \*\*\*
- Ecotourism: strictly limited to boat-based activities, with restrictions (numbers & distance from the island). Conditional on permits issued by MFMR, which should be discussed and acknowledged by the section heads in the Luderitz office first. If tourism is allowed on any of the islands then it should be restricted to Possession and Seal Islands, as indicated in more detail below. (seasonal regulation etc.)
- Overflight regulations of 1500m / 3000 feet should apply over all islands mentioned in the document. Exceptions for research, medical emergencies. Overflight regulations should include a 1 nautical mile radius from the islands' low water marks. (If possible, 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 marine resources is contrary to existing legislation, the eco-system approach to fisheries management (EAF) and international Conventions); existing, de-marcated no-fly zone for Wolf and Atlas Bay colonies; possible exception for Diaz Point if necessary\*\*\*, as scenic flights may fly over here and the town of Luderitz before landing
- No commercial sealing on the islands; no additional sealing concessions awarded, other than the existing ones that fall into the buffer zone IUCN category VI area, being the existing sealing concessions for the seal colonies at Wolf Bay and Atlas Bay. In relation to the remaining (roughly speaking) two thirds of Namibia's coastline, falling outside of this suggested 'buffer zone', these do not include the country's main commercial sealing concessions or colonies in any event. On the other hand, active seal management and population control is required and exercised on certain islands, in order to reduce threats to endangered – and red-listed bird species. \*\*\*

### Enforcement

- Access to the islands, islets and / or rocks within the IUCN category VI MPA buffer zone regulated only by a permit issued by the MFMR (guidelines re where and who

should issue the permit – should be issued by regional (Luderitz) office and stipulated in management plan); i.e. no persons on the islands.

- The 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.
- As vessels in Namibian waters are to have VMSs on board from 2007, activities within the buffer zone will be easy to control and manage.

## Zone 2

### (Terrestrial Mining Related Restrictions – NAMDEB)

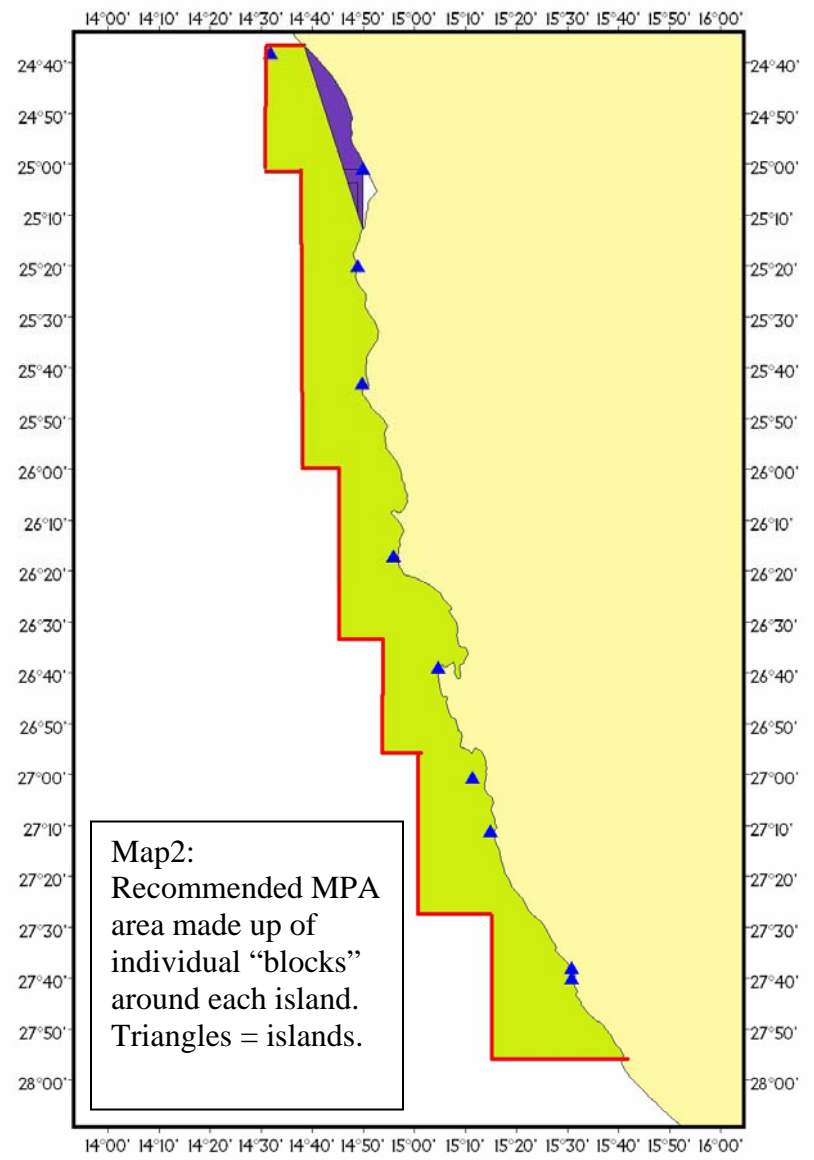
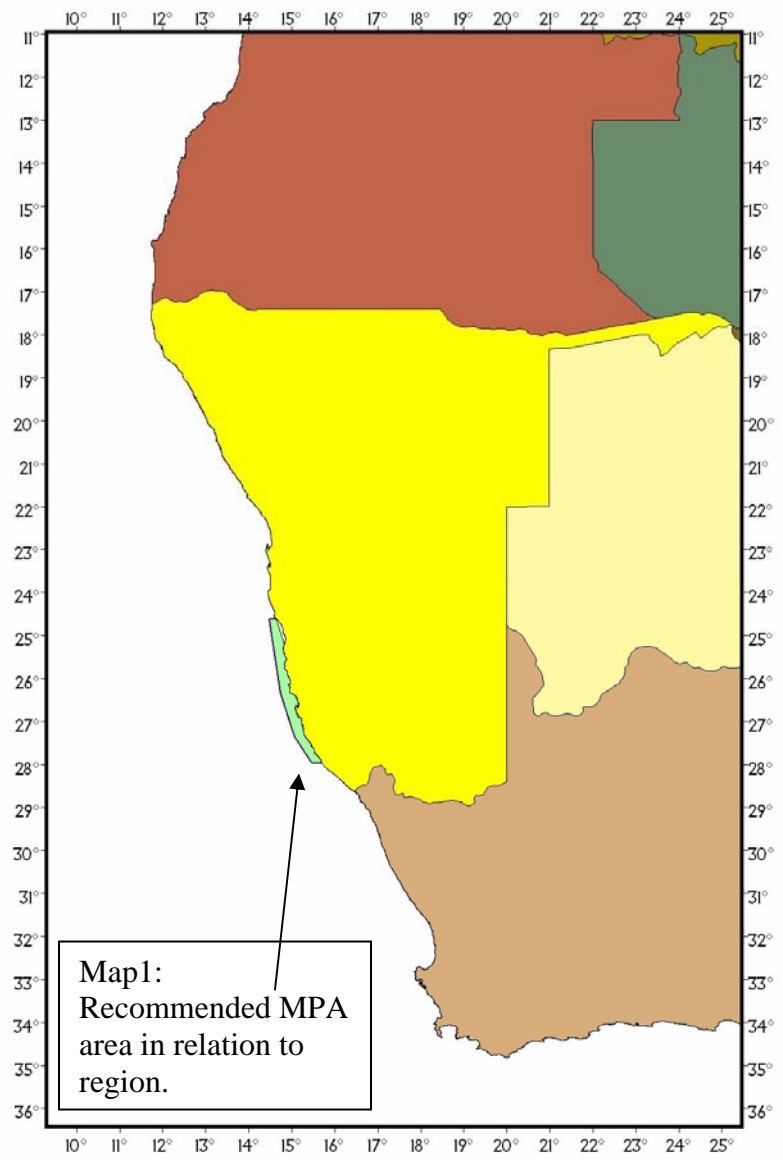
Objectives: The prevention of sediment discharges from mine processing plants on land that can result in:

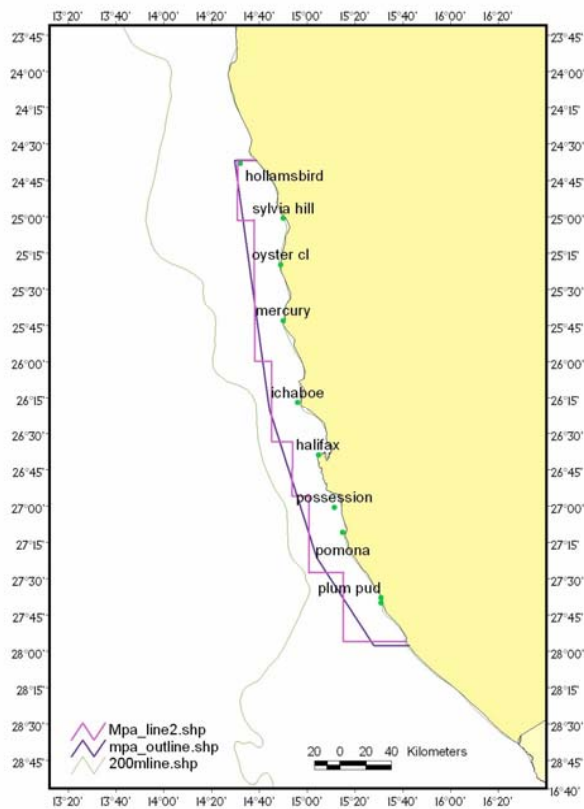
- a) the smothering of kelp beds that destroys lobster habitats, especially for the important juvenile recruits that shelter at the base of the kelp plants (underwater photograph from annual survey)
- b) temporary or permanent build-ups or formations of soil and / or sediment resulting in 'land bridges' existing between Namibia's coastline and the islands, thereby allowing predators from the coastline access onto the islands to feed on breeding seabird colonies, nests, eggs and chicks; instead, in the areas between Pomona, Sinclair and Plumpudding Islands (i.e. Baker's Bay), which are all close to the mainland, no discharge points may result in the formation of such land bridges
- 
- As there is a Lobster recruitment sanctuary between Prince of Wales Bay and Chamais bay, including Albatross, Pomona, Plumpudding and Sinclair islands, from the H.W.M. to 30meters around each island, no kelp-smothering nor discharge from (land based) mining activities is allowed.
- Between Chamais and Prince of Wales Bay no processing plant discharge points onto the beach or into the sea are allowed, in other words, settling pond systems are to be applied. (It needs to be emphasised here, 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 exemplarise similar co-operation from the remaining mining sector, both within Government (Ministry of Mines and Energy), 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 Marine Protected Areas. It is hoped that this may result in negotiated protected areas between Albatross Island and Chamais Bay.

#### Suggested Mitigating actions:

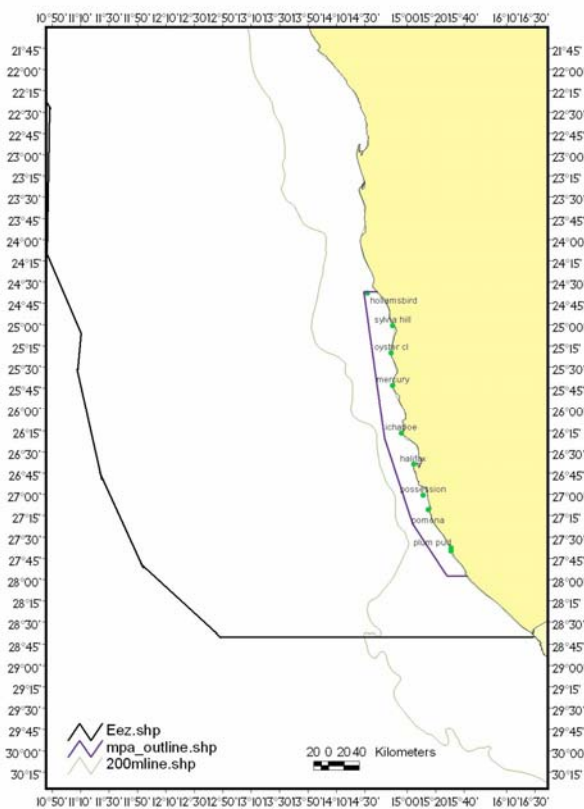
- Monitor and take remedial action concerning sediment buildup forming a land bridge to any of the islands within the MPA area

- Take remedial action if erosion of seawall or mining activities causes smothering of kelp beds, and minimize sea-wall erosion (especially in the proposed mining activities at Bogenfels)
- No processing plant discharge points onto the beach or into the sea with the development of new mining activities within the MPA.

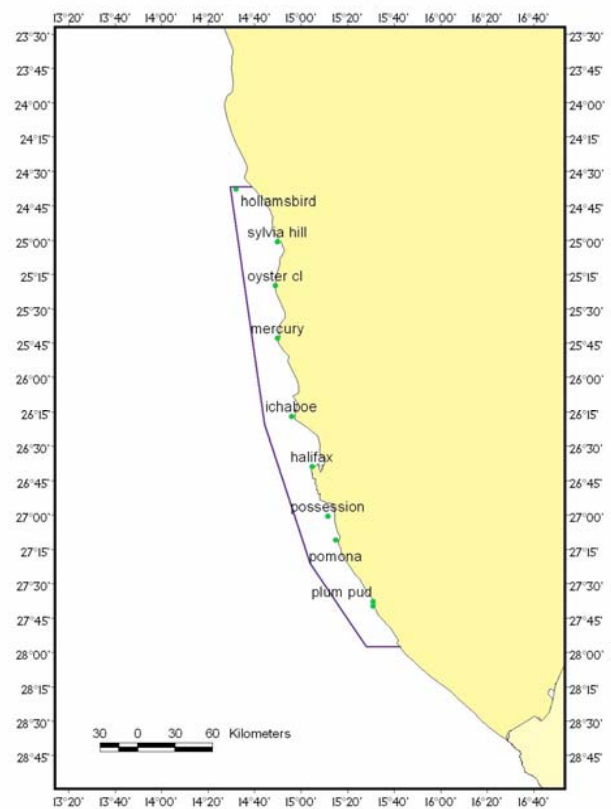




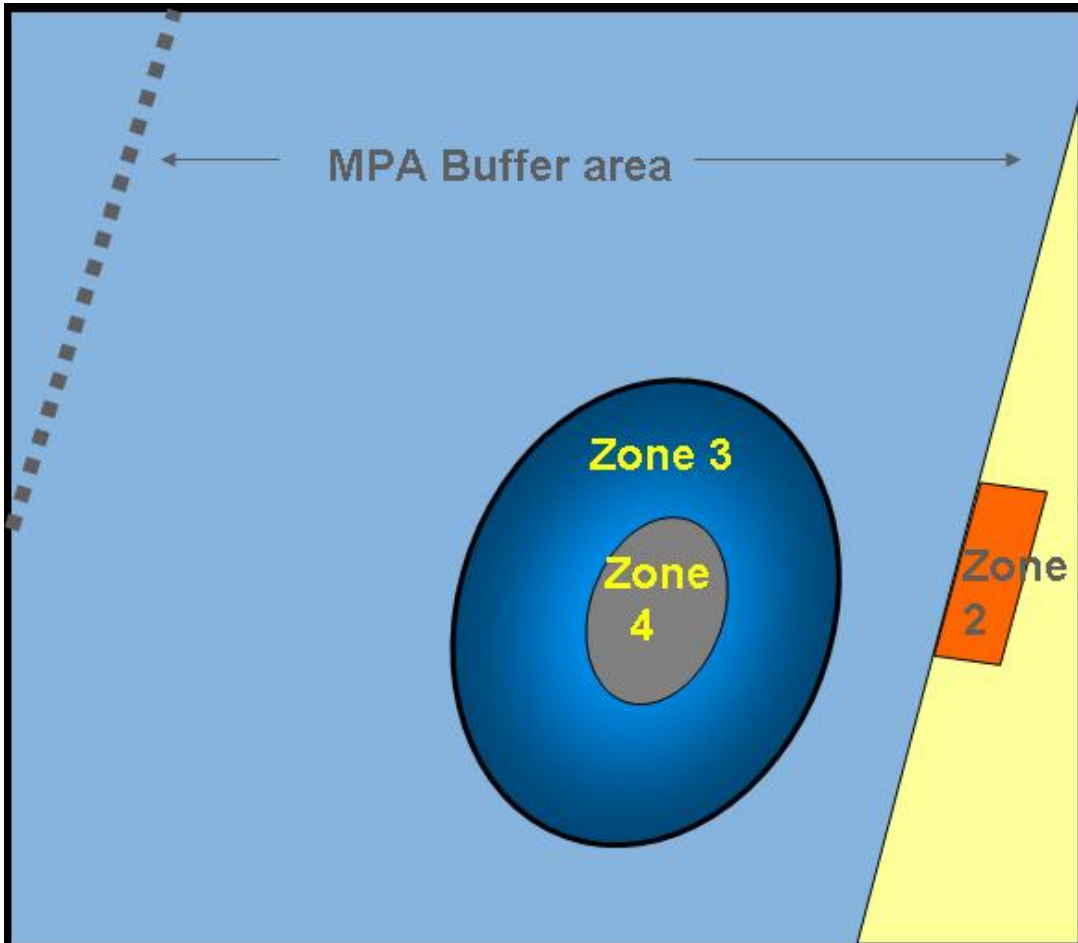
Map3: Showing final outline of MPA area (over the “blocks” shown in Map2)



Map4: Recommended MPA area in relation to the EEZ and the 200 m depth contour line (within which no trawling is allowed).



Map5: Recommended MPA area along the southern part of Namibia's coastline.



GIS maps \*\*\*\*

## Island- specific zoning and management activities

### ICHABOE

#### Current activities:

- Guano scraping
- Research
- Mining

#### Objectives and Rationale for protecting these areas:

- Research and (environmental) monitoring of the state of the ecosystem, environment and marine resources, including for baseline purposes.
- Crucial benthic - , biodiversity and lobster habitat to be protected from harmful activities, especially marine mining
- Existing 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.*
- Seabirds: listed red data species Table X contained at the end of this document
- African Penguins (together with the bank cormorant, these currently constitute the two most endangered bird species in Namibia): 2<sup>nd</sup> largest African Penguin breeding colony in Namibia, Ichaboe population declining by 3.7 % per year, food limitation main reason for decline
- Bank cormorant, and 3 other species of cormorants breed (cape, crowned and white-breasted)
- Largest gannet colony– gannets declining to 17000 breeding pairs, currently not restricted by breeding space on Ichaboe
- African Black Oystercatcher breeding locality
- Kelp and Hartlaub's Gulls
- Shorebirds

### Controlled Activities

- i) on the island itself (zone 4):
- a) No landing on the island.
  - b) 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'.
  - c) no processing or similar plants or activities allowed on the island
- ii) 120 meters around the island (measured from the l.w.m.) (zone 3):
- a) no mining within this 120 – meter zone 3 around the island, so as to protect the benthos, lobster habitat and marine biodiversity. (see pictures of mining impacts in the above sections \*\*\*); 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 Restricted Area Permits (RAPs) as stipulated by MME .
  - b) Controlled, boat-based eco-tourism no closer than this 120 – meter zone 3 around the island.
  - c) Visits controlled by permits: guidelines as to who (within MFMR) controls and issues permits.
  - d) 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.
  - e) Demarcate areas where visitors may land / access the island and move within the settlement (management plan –gives co-ordinates).
  - f) No anchorage within this 120-meter zone 3 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 this zone 3. SAMICOR vessels may need to anchor here on odd occasion.
  - g) No lobster boat to anchor inside the lobster sanctuary. Anchorage without a permit only allowed outside of the 120-meter zone 3 around the island (to be clearly indicated on the nautical charts).
  - h) No craft<sup>62</sup> within this 120 meter zone 3 except along the 'open jetty corridor' described above.<sup>63</sup>
  - i) Mariculture activities: by boat-based ranching or diving only (to be regulated in the management plans)

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<sup>62</sup> Including jetskis

<sup>63</sup> The only possible exception to this provision may relate to MFMR priority research activities, which could be controlled in the immanent management plan.

## MERCURY

### Current activities:

- Environmental Monitoring and Research: There is currently a very important weather monitoring station on Mercury.

### Objectives and Rationale for protecting these areas:

- Research and (environmental) monitoring of the state of the ecosystem, environment and marine resources including for baseline purposes.
- passage and / or breeding paths of the southern right whales, heaviside dolphins and African penguins moving through Spencer bay (see zone 3 below)
- largest African Penguin colony in Namibia but decreasing by 3.7% per year. African Penguins are classified “endangered” in Namibia and overall are decreasing by ~2.5% per year. Lack of food is the main reason for the decline.
  - second biggest of three Cape Gannet colonies in Namibia (of only six Cape Gannet colonies in the world). Cape Gannets are classified “endangered” in Namibia
  - Largest Bank Cormorant population, largest colony in Namibia – endangered status, ~75% of global population on Mercury and Ichaboe Islands; 80-85% of the species breed in Namibia
  - other breeding seabirds, e.g. Cape cormorants, Crowned cormorants

### Controlled Activities and Restrictions:

#### i) On the island itself (zone 4)

- M. a) No guano scraping

#### ii) 120 meters around the island (measured from the LWM) (zone 3):

- a) mining only subject to strict conditions within this 120 – meter zone 3 around the island, so as to protect the benthos, lobster habitat and marine biodiversity. SAMICOR’s 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 metres'-from-the-LWM-zone 3

- b) no anchorage within the 120 meter zone 3 around the island (measured from the LWM)
- c) lobster fishing: allowed but limited to 50 meters from the LWM (marked by buoys), and outside of the area that stretches from the jetty to the northern tip of north rock.
- Additionally, lobster fishing only allowed subject to conditions that the industry immediately report positions and numbers of traps, and make best efforts, in good faith, to remove these after fishing
- d) mariculture allowed beyond the 120-meter zone 3 area , but no operations that could obstruct the passage and / or breeding paths of the southern right whales, heaviside dolphins and African penguins moving through Spencer bay: to be defined by coordinates in the management plans.
- e) Boat-based eco-tourism allowed outside of the 120-meter zone 3



Fotograph gratefully acknowledged to Rian and Jone James: *"This picture in itself is motivation for the conservation efforts of these offshore islands! Greetings, the Mercurians."*

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## POSSESSION ISLAND

Objectives and Rationale for protecting these areas:

- Research and (environmental) monitoring of the state of the ecosystem, environment and marine resources including for baseline purposes.
- The area between Possession Island up to Elizabeth Bay<sup>64</sup> constitutes the largest kelp bed in this zone of Possession Island, which is essential to the maintenance of marine biota, biodiversity and 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 46000 individuals to 1400 and continues to decrease at ~8% per year.
- smallest of three Namibian Cape Gannet colonies
- large, increasing Kelp Gull population
- African Penguins, Cape Gannets and African Black Oystercatchers are particularly nervous because colony sizes are small, breeding birds are thus more vulnerable to disturbance
- Lack of food availability for birds most pronounced at this island
- largest concentration of African Black Oystercatchers in Namibia
- Damara Tern breeding and feeding around island
- Southern Right Whale traditional calving site Elizabeth Bay (E. Bay) to Albatross rock: several calves born in this area in recent times (BENEFIT project- JPRoux – Luderitz). E.Bay channel, Walvis Bay, and Sandwich Harbour were traditional calving sites but most are not available anymore except for this E.Bay channel.

Current and potential management activities occurring on and around Possession Island:

- The island shoreline was mined extensively (but on a small scale) in the past. 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 they halted mining activities here. Only SAMICOR, as the mining license holder (and MFMR) may have access to these areas, which must be monitored and co-managed by MME and MFMR.

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<sup>64</sup> The south end of Elizabeth Point

- Aquaculture: no licenses have been granted. License for Lutreria has expired. Aquaculture proposals have been submitted: tuna farming and holding cages; **these could be heavily influenced by Elizabeth Bay mining operations (dynamite explosions and sediment).** (Aquaculture license applications are considered before an Inter-ministerial committee according to the Aquaculture legal framework.)
- Ecotourism: could be allowed under strict regulations set out in the management plan, in consultation with the island staff: (there are relatively speaking fewer birds on this island, and sites of historical interest (graves). This is also the largest island. Seasonal restrictions to ecotourism will have to be applied in order to limit disturbance during the seabirds' breeding season.
- - Further regulations for this management plan: A walking trail to be strictly abided by, on this island, which may not lead to the gannetry or any seabird nursery and breeding spots.
  - Guided tours only, if any with size limitations on the tour party.
  - The route of this trail to be determined with guidance from the existing island technician.

*Minke whale*



### Controlled Activities

#### i) On the island itself (zone 4)

- No guano scraping

#### ii) 120 meters around the island (measured from the l.w.m.) (zone 3):

- mining within the 120 meter zone 3 only under 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 Islanders' privacy;
- boat based eco-tourism outside of the 120 meter zone 3
- commercial lobster fishery outside of the 120 meter zone 3, there is currently no lobster fishing affected by this in any case

- aquaculture operations only if these will not obstruct the passage of the southern right whale and breeding areas: no moorings for line culture, only ranching; **to be defined by coordinates**: on the inside of the island: line between Elizabeth point and northernmost point of Possession, line from southernmost point of Possession to albatross rock and shore-wards to land.

*Minke calf*



## NEGLECTUS ISLET

Objectives and rationale for protecting this area:

- Kelp beds
- African Penguins and Bank Cormorant breeding locality

Current activities:

- Close to the mainland therefore accessible and human disturbance potential is great
- Lobster fishing
- Tuna cage farming in Hottentot Point a possibility, location not known / decided yet

Controlled activities :

i) On the island itself (zone 4)

- No landing on the island without a permit

ii) zone around the island, measured from the lwm (zone 3)

- No commercial lobster fishing within 20 meters around the island (to be marked / buoyed);
- Ecotourism?

## HOLLAMSBIRD

### Reasons for protection:

- Northernmost Bank Cormorant breeding colony (for the species)
- Seal breeding colony
- Unique benthic biodiversity

### Problems:

- human disturbance

### Controlled Activities and Restrictions:

#### i) on the island itself (zone 4)

- no access on land without a permit (zone 4)
- no sealing (zone 4)

#### ii) 120 metres around the island (zone 3)

- no craft within 120m of the island (zone 3)

Staple Rock, Marshall Rocks, Boat Bay Rock, Dumfudgeon Rock

### Reason for protection?

- breeding seal colonies

### Current Activities:

- lobster fishing
- scientific research

### Problems:

- potential disturbance

Restrictions:

- No persons landing on these rocks without permits

Penguin and Seal islands

Reason for protection?

- Cape Cormorants, Crowned Cormorants, Bank Cormorants, African Black Oystercatchers, Kelp Gulls, Hartlaub's Gulls breeding
- 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

Current and proposed activities:

- Current activities on the islands are limited to research (monitoring of seabird populations)
- If guano operations are planned, bank cormorant colonies must be excluded
- Sporadic small operator marine diamond mining (SAMICOR)
- Existing Luederitz Lobster sanctuary: regulation 19 (1)(b) provides: 'the area bounded by a line drawn from Diaz Point to a point North of Luederitz 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.
- Possibility here for eco-tourism, tourists 'diving out their own' abalone<sup>65</sup>
- Ranching subject to permit conditions.
- Historical mariculture site (mussel raft)
- No access to within 10m from the shore

Problems:

- Pollution from harbour (oil and plastic)

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<sup>65</sup> consulted with Rassie Erasmus, Howard Head, both involved with aquaculture operations here

- Kelp gull colony is increasing mainly ascribable to fish factory effluent and growing rubbish dump; this is contrary to the Ecosystem Approach to Fisheries.
- Feral pigeon colony (Penguin Island)
- These two islands fall within the Luderitz port limits; which extend from Angra Point to just south of North-East point (regulate channels and anchorage, lights and markers). Co-management with Luderitz town council and NAMPORT required here.

#### Controlled Activities and Restrictions:

- No persons on the island
- Boat based Ecotourism allowed to within 10m of the shore
- 10m distance restriction from the island for crafts
- if land-based ecotourism, then not on Penguin Island
- if ecotourism operation on Seal Island is allowed, then without any additional structures, restrictions such as guided tours, restriction of access to breeding sites, particularly bank cormorants

## HALIFAX

#### Reason for protection?

- African Penguins (third largest colony in Namibia), Crowned Cormorants, Kelp Gulls and African Black Oystercatchers are breeding
- 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 dolphins in Guano Bay.

#### Current activities and Existing Problems:

- Two existing boat based tour operators from Luderitz port to Guano Bay / Halifax
- Mining vessels offshore – pollution threat, which must be monitored and regulated by MME, DMA (Department of Maritime Affairs, within the Ministry of Works, Transport and Communication MWTC) and MFMR (including the Inspectorate)
- Persons land illegally on the island as it is close to Luderitz: human disturbance is a major threat – close to town and accessible to rowing dinghies and rubber ducks, island is only 200m from the beach.

#### Restrictions:

- No landing on the island, all landing on the island is prohibited (in order to protect Penguin colony at all costs, and showcase them so close to Luderitz as a great privilege (z4)<sup>66</sup>)
- No guano scraping (zone 4)
- No recreational lobster fishing within 50m of the island shore (zone 3)
- No commercial lobster fishing between Dias point and Grossebucht (to be included in lobster regulations from November 06 onwards) (zone 3)
- No mariculture within 120m of the shore (zone 3)
- No aquaculture operation which will obstruct the passage of the heaviside dolphins and African penguins within guano bay. This to be defined by coordinates in the management plans.
- No tourism on the island, due to the small penguin colonies, as the potential for disturbance that can cause them to emigrate permanently is great. (zone 4)<sup>67</sup>
- Boat based tourism (limit to number of boats?) but not within 30m of the island (falls within zone 3)

Consulted with R. Rossler and Howard Head of Sedina Tours (sailing boat): the island is approached within 20m.

## LONG ISLAND NORTH AND SOUTH

### Reasons for protection?

- Large breeding colony of seals
- The vicinity of 5km of Long island has the highest concentration of seals on the Namibian coast (long island wolf and atlas bay)
- It has boat based and land based ecotourism potential
- Within the area long island wolf and atlas bay: scenic concentration of seals and sealing and tourism, seabirds and shorebirds including breeding crowned cormorants (land) and roosting oystercatchers (land)
- breeding cormorants whitebreasted / crowned?

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<sup>66</sup> consulted with Howard Head

<sup>67</sup> (in order to protect Penguin colony at all costs, and showcase them so close to Luderitz as a great privilege (z4))

### Current Activities:

- Research
- Diamond-mining (diver operators)

### Problems:

- Disturbance from land based mining

### Controlled Activities and Restrictions:

- No guano scraping (z4)
- Access only by permit; no persons on the island without permits (z4)
- Boat based tourism not within 30m from the shore of the island (z3)
- No anchorage or crafts within 30m from the shore of the island including mining vessels to avoid disturbance of seals, due to the reason that this impacts on the marine birds (z3)

## LADIES ROCKS

### Reason for protection?

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

### Problems:

- sheltered bay for small mining vessels and anchorage, potential disturbance to bank comorants
- shore based mining

### Restrictions

- no persons on the island without permits (z4)
- no land based tourism (z4)
- no anchorage or crafts within 30m of the island (z3)

## ALBATROSS ISLAND

### Reasons for protection?

- Cape, Crowned and Bank cormorants (Bank cormorants are a small population on a separate islet to the north of the island),
- African Black Oystercatchers, Kelp Gulls, Hartlaub's Gulls roosting
- no African Penguins in recent times

### Problems:

- boat based, diver operated mining activities in vicinity; however, 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 SAMICOR
- small land based operations

### Controlled Activities and Restrictions:

- no persons on the island (z4)
- no guano scraping (z4)
- no ecotourism (z4 and z3)
- Mariculture only under certain conditions
- no boats or anchorage within 10 - 30m of the island, in this case also 10 – 30m from the islet to the north of the main island where the bank cormorants breed. (z3)

## POMONA ISLAND



heavy-side dolphin

### Reasons for protection?

- Breeding locality for African Penguins, Cape , Crowned and Bank cormorants, Kelp and Hartlaubs gulls, African Black Oystercatchers
- Roosting swift terns, turnstones and other shorebirds

### Activities:

- Research
- Land-based diamond-mining: small contractors subcontracted by NAMDEB, with discharge points in the bay area (Prince of Whales Bay) opposite the island

### Problems:

- At spring low tides the island is linked to the mainland, making breeding birds very vulnerable to disturbance and predation. This link could become even 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 commence, this would be closely monitored in order to ascertain whether such sedimentation is more related to the mining process or a natural phenomenon.

### Controlled Activities and Restrictions:

- No persons on the island (z4)
- No guano scraping (z4)
- No ecotourism (z4 and z3)



- 10 - 30m: no boats or anchorage (z4 and z3)
- Mariculture only under certain conditions

## PLUMPUDDING AND SINCLAIR

### Reasons for protection?

- Small but important African Penguin colonies; these are the southernmost colonies and an important “stepping stone” colony, linking the Namibian penguin population with the nearest colony in South Africa
- Other breeding seabirds: Cape, Crowned and Bank cormorants , Kelp and Hartlaubs gulls, African Black Oystercatchers
- Roosting sites for shorebird species

### Current activities:

- Research;
- Intensive marine diamond mining (both small operators and large vessels)

### Problems:

- Sinclair Island is very close to the mainland and historically was occasionally and briefly linked to the land: a permanent link would be the end of the seabirds breeding on that island owing to land predators such as Brown Hyenas and Black-backed Jackals then gaining access to and foraging at the breeding colonies
- Shifting of large amounts of sand and sediment during land / marine mining and pocket beach mining operations could potentially create a land bridge. However, SAMICOR indicates that their mining activities occur to the West of the islands, with plumes flowing towards the North West, thus not necessarily resulting in the indicated problem, unless such land bridge formation and sedimentation build ups are the result of natural phenomenon.
- These are the islands which have the most intensive bulk marine mining in close proximity to the islands. Historically this has been done by boat-based divers, and currently by very 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 so intense. According to SAMICOR's monitoring activities, the sediments in water of less than 35 metres depth are 'heavy' and dense, thus settling quickly and creating relatively small plumes.

### Controlled Activities and Restrictions:

- no persons on the island (z4)
- no guano scraping (z4)
- no ecotourism (z4 and z3)
- 30m no boats and anchorage within 30m of the island. (z3)
- No sealing (z4)

- 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 certain conditions

Further zonations required:

1. the area between Albatross rocks and Chamais as a mpa – high water mark (hwm) to 30m. Want to give it up for mining as part of the 20% offered.
2. Meob Bay to Sylvia Hill hwm to 6 nmiles offshore a special zone within which no recreational or commercial linefishing is allowed (Hannes Holtzhausen \*\*\*) and no harvesting of intertidal species. (see IUCN category VI buffer zone at the beginning of part 3 of this document)

Reasons for protection?

- unique transition zone of intertidal biodiversity
- Hannes for linefish reasons
- African Penguins and Bank Cormorants breeding in mainland sea caves at Sylvia Hill and Oyster Cliffs. It is the northernmost breeding colony of African Penguins

Activities:

- Research

Problems:

- Human disturbance from land (MET co-management).

Restrictions:

- No entry into the caves
- No commercial lobster fishing within 5m of the entrance of the cave to allow unrestricted access for African Penguins ([check with Kolette](#))

#### 4. CONCLUDING STATEMENT

Namibia's membership to the 1992 Convention on Biodiversity (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.

##### Conclusion:

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, and
- 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 MPAs as presented in this document are also required by our 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.

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.

In recent times there has been a clear global thrust towards a holistic management approach that takes account of entire ecosystems, multiple sectors and various management objectives. MPAs and other spatial management initiatives provide important tools in ecosystem-based management and in the advancement of a multi-sectoral approach towards integrated management.<sup>68</sup>

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<sup>68</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.

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>69</sup>

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>70</sup>

Numerous studies have clearly demonstrated the benefits of MPAs. These derived advantages include increased abundance, biomass, bodysize and reproductive output of harvested species, recovery of impacted habitats, increased biodiversity, socio-economic benefits and an improved understanding of marine biodiversity.<sup>71</sup>

The development of a multi-zoned marine protected area (MPA) along the Namibian coast, including 16 islands, islets and 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 recovery of fish stocks, mainly by protecting spawning and nursery grounds, of specifically the commercially exploited rock lobster (*Jasus lalandii*);
- the sound management and conservation of marine resources under Namibia's jurisdiction;
- protecting the foraging requirements of top predators in the Benguela Upwelling Ecosystem, including a number of globally threatened seabirds;

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<sup>69</sup> IMCRA 1998, Kelleher 1999, Roberts *et al.* 2001, Ward *et al.* 2001, Roberts & Sargent 2002, Russ 2002, Gell & Roberts 2003b, Gjerde & Breide 2003, Blundell 2004

<sup>70</sup> Hutchings 2000, Meyers *et al.* 1997, Pauley *et al.* 1998, Hall 1999, Meyers & Worm 2003, Worm *et al.* 2005

<sup>71</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.

N.R.C. (National Research Council) (2001) *Marine Protected Areas. Tools for Sustainable Ocean Ecosystems*. National Academy Press, Washington, DC.

Halpern, B. S. and Warner, R.R. (2002) Marine Reserves have rapid and lasting effects. *Ecology Letters* **5**, 361 – 366.

<sup>71</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.

Halpern, B. S. (2003) The impact of marine reserves: do reserves work and does size matter? *Ecological Applications* **13**(1), 117 – 137.

Secretariat of the Convention on Biological Diversity 2004.

- 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>72</sup>

Oceanographic data collected from these offshore islands constitutes important ecosystem indicators, contributing an integral link to Namibia’s environmental monitoring activities and ecosystem indicators.

Representative MPA networks have been identified as a critical component of sustainable marine resource use and marine biodiversity conservation.<sup>73</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, the capacity for ecological change and ecological processes.<sup>74</sup> MPAs complement traditional fisheries management measures and have helped to sustain fisheries in many cases.<sup>75</sup> MPAs are also more robust in the event of resource assessment uncertainty, management errors and climatic, ecological and social change.<sup>76</sup> Without MPAs, the proper assessment of human impacts, monitoring of change and understanding of marine biodiversity is very difficult if not impossible.<sup>77</sup>

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<sup>72</sup> See the legal instruments referred to in the ‘Legal Review on the Declaration of Marine Protected Areas on and around Namibia’s offshore islands.’ by Currie, H. (2005)

<sup>73</sup> Secretariat of the Convention of Biological Diversity (2004) and World Summit Sustainable Development (WSSD) Resolutions.

<sup>74</sup> Law, R. (2000) *Fishing, Selection and phenotypic evolution*. ICES Journal of Marine Science. **57**: 659-668

<sup>75</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., 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.

<sup>76</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>77</sup> Secretariat of the Convention of Biological Diversity (2004)

MPAs also provide important scientific reference sites for studies centered on fisheries management.<sup>78</sup> Many studies clearly demonstrate the benefits of MPAs, which include increased abundance, body size, biomass and reproductive output of harvested species, increased biodiversity, recovery of impacted habitats, an improved understanding of marine biodiversity, as well as social and economic benefits.<sup>79</sup> Such benefits 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>80</sup>

The above indicates that MPAs are an essential component of the ecosystem approach to fisheries (EAF) management, and are required to protect aspects of the ecosystem that are not conserved by traditional fisheries management; they are also necessary in order for ecosystem effects to be identified.

Within the context of natural or accelerated environmental change, MPAs play a critical role by providing reference areas for understanding the impact of fishing and other activities.<sup>81</sup>

MPAs have been shown to have large spillover effects to adjacent fished areas and provide an important role in sustaining spiny lobster fisheries.<sup>82</sup> Because lobsters are slow-growing and have low natural mortality, they are highly susceptible to overfishing and other extractive, destructive impacts, and need to be managed with caution.<sup>83</sup>

Maintaining the health and integrity of marine ecosystems is fundamental to good oceans management.<sup>84</sup> Man's actions may not threaten the biological diversity and ecological processes on which continued ocean uses depend. This is the foundation on which the multiple use management of our oceans needs to be pursued.<sup>85</sup>

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<sup>78</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>79</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>80</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>81</sup>Barrett, N. S., Edgar, G. J., Buxton, C. D. and Haddon, M. (2007) *Changes in fish assemblages following ten years of protection in Tasmanian marine protected areas*. JEMBE 345 141-157.

<sup>82</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>83</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>84</sup>Australia's Ocean's Policy, 1998, p. 3.

<sup>85</sup>supra



(foto: Tom Peschak)

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## 6. APPENDIXES

Purse seine sets made are recorded by the skippers on logsheets. These can be used to find out how much is caught south of 24°30'S. There are two problems though:

- 1) The catch positions are not always recorded correctly as there seem to be problems with the GPS.
- 2) The catch values are only estimates, which are often proven to be very wrong, especially for pilchard.

Nonetheless the data can be used to show that not much is caught south of 24°30'S as seen in Table 1, except for Mackerel.

**Table 1:**

	<b>Pilchard</b>	<b>Anchovy</b>	<b>Horse Mackerel</b>	<b>Round Herring</b>	<b>Mackerel</b>	<b>Gobies</b>	<b>Other</b>	<b>Total</b>
Estimated Catch south of 24°30'	1200	1700	4700	800	3800	0	22000	34200
Total Est. Catch	242000	72000	472000	11700	4000	1000	129800	932500
<b>% South of total C</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>

Date By Year	Degree South	Min South		Count OfPilchard	CountOfAnchovy	Count OfHorse mackerel	Count OfRound herring	Count OfMackerel	CountOfGoby	CountOfOther	Total
1997	27	35.00	30.00	0	0	0	0	0	0	3	
1997	27	30.00	30.00	0	0	3	0	3	0	10	
1997	27	31.00	30.00	0	0	1	0	1	0	2	
1997	27	32.00	30.00	0	0	1	0	0	0	1	
1997	27	32.40	30.00	0	0	1	0	0	0	0	
1997	27	33.00	30.00	0	0	0	0	5	0	0	
1997	27	37.00	30.00	0	0	0	0	0	0	1	
1997	27	33.60	30.00	0	0	0	0	1	0	0	
1997	27	35.40	30.00	0	0	0	0	1	0	0	
1997	27	36.00	30.00	0	0	0	1	0	0	6	
1997	27	54.00	30.00	0	0	0	0	0	0	1	
1997	27	34.00	30.00	0	0	0	0	0	0	2	
1997	24	52.00	30.00	0	1	0	0	0	0	0	
1997	24	53.00	30.00	0	0	0	0	0	0	0	
1997	24	56.00	30.00	0	1	0	0	0	0	0	
1997	24	37.00	30.00	0	1	0	0	0	0	0	
<b>1997</b>				<b>0</b>	<b>3</b>	<b>6</b>	<b>1</b>	<b>11</b>	<b>0</b>	<b>26</b>	<b>47</b>
1998	27	32.00	30.00	0	0	1	0	0	0	0	1
<b>1998</b>				<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>
1999	24	31.20	30.00	1	0	0	0	0	0	0	1
1999	24	33.20	30.00	1	0	0	0	0	0	0	1
1999	24	42.00	30.00	1	0	0	0	0	0	0	1
1999	24	41.00	30.00	1	0	0	0	0	0	0	1
1999	27	40.10	30.00	0	0	0	0	0	0	1	1
1999	27	44.30	30.00	0	0	0	0	0	0	1	1
1999	27	54.00	30.00	0	0	1	0	0	0	0	1
1999	27	56.00	30.00	0	0	0	0	0	0	2	2
<b>1999</b>				<b>4</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>9</b>
2001	28	33.30	30.00	0	0	0	0	0	0	1	1
<b>2001</b>				<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
2002	24	30.60	30.00	1	1	0	0	0	0	0	2
2002	24	31.80	30.00	0	1	0	0	0	0	0	1
2002	24	33.00	30.00	0	1	0	0	0	0	0	1

2002	24	31.00	30.00	1	3	0	0	0	0	0	4
2002	24	30.10	30.00	0	1	0	0	0	0	0	1
2002	24	30.00	30.00	1	5	0	0	0	0	1	7
2002	25	59.00	30.00	0	1	0	0	0	0	0	1
2002	24	30.40	30.00	0	2	0	0	0	0	0	2
2002	24	54.00	30.00	0	1	0	0	0	0	0	1
<b>2002</b>				<b>3</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>20</b>
2003	28	51.00	30.00	0	0	0	0	0	0	1	1
2003	28	34.00	30.00	0	0	0	0	0	0	1	1
2003	28	33.40	30.00	0	0	0	0	0	0	1	1
2003	24	40.00	30.00	2	0	2	0	0	0	2	6
2003	28	30.00	30.00	0	0	0	0	0	0	1	1
2003	26	51.00	30.00	0	0	0	0	0	0	0	0
<b>2003</b>				<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>10</b>
2004	28	47.70	30.00	0	0	0	0	1	0	0	1
2004	28	50.00	30.00	0	0	1	0	0	0	4	5
2004	28	49.50	30.00	0	0	0	0	0	0	1	1
2004	28	49.30	30.00	0	0	0	0	1	0	0	1
2004	28	49.10	30.00	0	0	0	0	0	0	1	1
2004	28	48.20	30.00	0	0	0	0	0	0	1	1
2004	28	48.00	30.00	0	0	0	0	0	0	3	3
2004	28	47.00	30.00	0	0	0	0	0	0	2	2
2004	24	57.20	30.00	0	0	0	1	0	0	0	1
2004	28	41.00	30.00	0	0	0	0	0	0	1	1
2004	28	47.60	30.00	0	0	0	0	0	0	1	1
2004	28	44.00	30.00	0	0	0	0	0	0	6	6
2004	24	57.50	30.00	1	0	1	0	0	0	0	2
2004	24	58.50	30.00	1	1	0	2	0	0	0	4
2004	28	42.00	30.00	0	0	0	0	0	0	1	1
2004	28	41.80	30.00	0	0	0	0	0	0	1	1
2004	28	43.00	30.00	0	0	0	0	1	0	0	1
2004	28	46.70	30.00	0	0	0	0	1	0	0	1
2004	24	58.70	30.00	0	0	0	1	0	0	0	1
2004	28	46.00	30.00	0	0	0	0	0	0	4	4
2004	28	46.30	30.00	0	0	0	0	0	0	1	1
2004	28	40.30	30.00	0	0	0	0	0	0	1	1
2004	24	30.30	30.00	1	0	0	0	0	0	0	1
2004	28	35.30	30.00	0	0	0	0	0	0	1	1
2004	28	45.00	30.00	0	0	0	0	0	0	4	4

2004	28	34.20	30.00	0	0	0	0	0	0	0	1	1
2004	28	34.10	30.00	0	0	0	0	1	0	0	0	1
2004	24	30.40	30.00	0	0	1	0	0	0	0	0	1
2004	25	57.00	30.00	1	0	0	0	0	0	0	0	1
2004	25	31.00	30.00	0	0	0	0	0	0	0	0	0
2004	28	40.20	30.00	0	0	0	0	0	0	0	1	1
2004	28	38.40	30.00	0	0	0	0	0	0	0	1	1
2004	24	54.50	30.00	0	0	1	0	0	0	0	0	1
2004	28	36.00	30.00	0	0	0	0	0	0	0	1	1
2004	28	51.00	30.00	0	0	0	0	0	0	0	2	2
<b>2004</b>				<b>4</b>	<b>1</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>39</b>	<b>57</b>
2005	28	50.00	30.00	0	0	0	0	0	0	0	2	2
2005	28	48.00	30.00	0	0	0	0	0	0	0	0	0
2005	28	49.00	30.00	0	0	0	0	0	0	0	1	1
2005	24	42.10	30.00	1	0	0	0	0	0	0	0	1
2005	24	41.40	30.00	1	0	0	0	0	0	0	0	1
2005	28	47.00	30.00	0	0	1	0	0	0	0	0	1
2005	25	51.00	30.00	0	0	0	0	0	0	0	1	1
<b>2005</b>				<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>7</b>
2006	24	34.00	30.00	1	1	1	0	0	0	0	1	4
2006	24	31.00	30.00	0	1	0	0	0	0	0	0	1
2006	24	30.00	30.00	1	1	0	0	0	0	0	0	2
2006	24	35.00	30.00	1	3	1	0	0	0	0	1	6
2006	24	36.00	30.00	1	1	1	0	0	0	0	1	4
<b>2006</b>				<b>4</b>	<b>7</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>17</b>
				<b>19</b>	<b>27</b>	<b>18</b>	<b>5</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>84</b>	<b>169</b>

year	Pilchard	Anchovy	Horse mackerel	Round herrin g	Mackere l	Goby	Other	Total
1997	0	3	6	1	11	0	26	47
1998	0	0	1	0	0	0	0	1
1999	4	0	1	0	0	0	4	9
2000								0
2001	0	0	0	0	0	0	1	1
2002	3	16	0	0	0	0	1	20
2003	2	0	2	0	0	0	6	10
2004	4	1	4	4	5	0	39	57

<b>2005</b>	2	0	1	0	0	0	4	7
<b>2006</b>	4	7	3	0	0	0	3	17
<b>Total</b>	<b>19</b>	<b>27</b>	<b>18</b>	<b>5</b>	<b>16</b>	<b>0</b>	<b>84</b>	<b>169</b>

Table X: Coastal 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	Spheniscus demersus	Vulnerable	-	Endangered <sup>#</sup>	Namibia / SA	Flightless; highly susceptible to marine pollution; Namibian population decreasing at ~2.5% per year
CG	Cape Gannet	Morus capensis	Vulnerable	-	Endangered <sup>#</sup>	Namibia / SA	Breeds on only six islands globally
BC	Bank Cormorant	Phalacrocorax neglectus	Vulnerable	Endangered	Endangered <sup>#</sup>	Namibia / SA	~80% occur in Namibia; feeds in kelp beds close to shore
CrC	Crowned Cormorant	Phalacrocorax coronatus	Least Concern	-	Near Threatened <sup>#</sup>	Namibia / SA	Feeds in shallow water in kelp beds / near rocky shores
CaC	Cape Cormorant	Phalacrocorax capensis	Near Threatened	-	Near Threatened <sup>##</sup>	Angola / Namibia / SA	Move between breeding areas
WbC	White-breasted Cormorant	Phalacrocorax carbo	Least Concern	-	Least Concern?	Southern Africa	Susceptible to human disturbance
KG	Kelp Gull	Larus dominicanus	Least Concern	-	Least Concern?	Southern Africa	Population in Namibia possibly increasing
HG	Hartlaub's Gull	Larus hartlaubii	Least Concern	-	Vulnerable <sup>##</sup>	Namibia / SA	Frequently switch breeding localities
ST	Swift Tern	Sterna bergii	Least Concern	-	Vulnerable <sup>##</sup>	Namibia / SA	
DT	Damara Tern	Sterna balaenarum	Near Threatened	-	Near Threatened <sup>**</sup>	Angola? / Namibia / SA	Mainly breed on mainland; feed inshore
ABO	African Black Oystercatcher	Haematopus moquini	Near Threatened	-	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.

#From: Simmons, R.E. and Brown, C.J. in press. Birds to watch in Namibia: red, rare and endemic species. National Biodiversity Programme, Windhoek, Namibia.

##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.

Table XI: Main seabird breeding localities in Namibia, south of Swakopmund (*Abbreviations used as in table above*)

Breeding locality	Position	Size (ha)	IBA Status *	AP	CG	BC	Cr C	Ca C	Wb C	KG	HG	ST	DT	AB O
Hollamsbird	24°38'S 14°32'E	1		?		X	?	X						
Sylvia Hill	25°08'S 14°50'E	<0.5h a		X				X						
Oyster Cliffs	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 Island)	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	27°01'S 15°12'E	90	global	X	X	X	X	X		X	X	X	X	X
Albatross Island	27°05'S 15°14'E	2				X	X	X		X				
Pomona	27°11'S	3		X		X	X	X		X				X

Island	15°15'E							
Plum pudding	27°38'S	1		X	X	X	X	X
Island	15°31'E							
Sinclair Island	27°40'S	3		X	X	X	X	
	15°31'E							

\*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.

## **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 honorable 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 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>86</sup>, SPAM<sup>87</sup> and Sperrgebiet processes and proclamations.

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<sup>86</sup> Namibia Coast Biodiversity Conservation and Management Project

## **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 fulfil 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 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**

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<sup>87</sup> Strengthening Protected Area Management in Namibia (UNDP)

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>88</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>89</sup> These Ordinances do not however apply to marine resources, and place more emphasis on regulating access to the islands.<sup>90</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>91</sup>

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

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<sup>88</sup> Section 1.b).

<sup>89</sup> 4 of 1975

<sup>90</sup> Pers. Comm. Kathy Peard, Environment Section, MFMR, Luederitz, Namibia.

<sup>91</sup> Section 3(2)

*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 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 honourable 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>92</sup> Article 8 b) further requires parties to ‘develop, where necessary, guidelines for the selection, 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>93</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.’

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<sup>92</sup> Article 8(5)

<sup>93</sup> Decision VII/5

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>94</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>95</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>96</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.

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>97</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

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<sup>94</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>95</sup> International Union for the Conservation of Nature, now referred to as the World Conservation Union (WCU)

<sup>96</sup> IUCN *Guidelines for Protected Area Management Categories* 1994 at 9.

<sup>97</sup> See (2003) *World Parks Congress (WPC) Recommendation V.22: Building a Global System of Marine and Coastal Protected Area Networks* p. 190.

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>98</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>99</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 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

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<sup>98</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>99</sup> Supra

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.’<sup>100</sup> (MEAs) Leading authorities describe it as the most comprehensive and modern of all treaties on natural resources.<sup>101</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>102</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

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<sup>100</sup> African Union Assembly Resolution / AU/ Dec.9(11)

<sup>101</sup> Kiss and Sheldon (2004) *International Environmental Law* (3ed) Transnational Publications, p. 366.

<sup>102</sup> at 6.3

offshore islands. 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 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>103</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 Fisheries' 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 fisheries' Ministry'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;*

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<sup>103</sup> Namib Coast Biodiversity Conservation and Management Project

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 measures’ are further defined in the same section as ‘...measure to conserve and manage one or more species...’ of marine resources.<sup>104</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>105</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

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<sup>104</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>105</sup> Section 61 (1) a), c), d), e).

Minister may consider necessary.<sup>106</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>107</sup>

Part IV of these regulations, headed ‘Conservation Measures’, provides for gear restrictions on commercial fishing,<sup>108</sup> regulates trawling equipment, methods and attachments<sup>109</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>110</sup> **Sub-regulation c) hereunder specifically prevents the harvesting of any bird 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.’<sup>111</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.’**

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<sup>106</sup> Section 61(2) (a)

<sup>107</sup> Regulations 9 a), b) and 10 h) respectively.

<sup>108</sup> Regulation 12

<sup>109</sup> Regulations 14 and 17 respectively.

<sup>110</sup> Subject to the granting of a right, exploratory right or exemption under section 62(1)(a) of the Marine Resources Act.

<sup>111</sup> Regulation 18 c)

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>112</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 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>113</sup>

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

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<sup>112</sup> Regulation 23

<sup>113</sup> See regulation 22, outlined above.

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 PS, Adv. Mbako, exercises 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 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>114</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>115</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>116</sup>

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

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<sup>114</sup> Pers. Comm. Ms Van der Merwe, chief legislative drafter, Ministry of Justice.

<sup>115</sup> *supra*

<sup>116</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.

exploited and conditions of access to the reserve.<sup>117</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, complimentary 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>118</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>119</sup>

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<sup>117</sup> Section 51(2)

<sup>118</sup> Project number BEHP/BAC/03/01

<sup>119</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

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>120</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>121</sup>, SPAM<sup>122</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>123</sup>, decide upon and draw up the appropriate, mentioned management plans and objectives for the islands and surrounding

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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 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>120</sup> Section 51 (3) of the Marine Resource Act.

<sup>121</sup> Namib Coast Biodiversity Conservation and Management Project

<sup>122</sup> Strengthening the Protected Areas Network Project

<sup>123</sup> For example MME, MET.

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 Millenium Development Goals (MDG) and feed well into Namibia's third National Development Plan (NDP III).

## ANNEX

1.

Report prepared after a meeting held in Luderitz, 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 Luderitz 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 penguin sites 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 Wale 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 Wale 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 3000ft/ 1000m, 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 Wale 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 kelpbed surveys.

#### **D) Activities to be / not to be allowed**

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

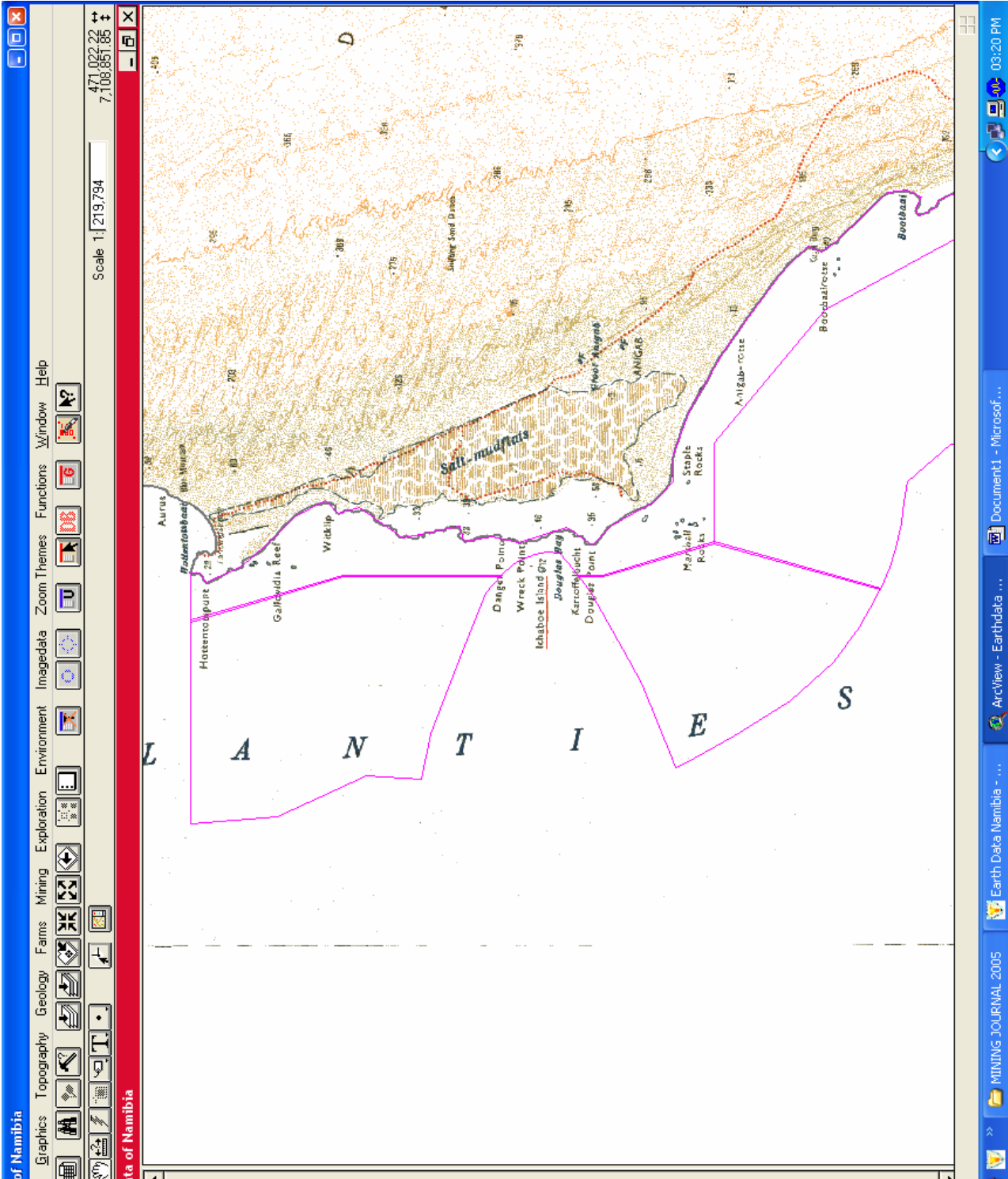
1. Orange River Wetland: NO commercial fishing, mining, aquaculture. NO low flying planes and helicopters below 3000 feet. NO motorised vehicles and people on the wetland islands unless it is for scientific purposes. YES to recreational activities under the condition that it does not disturb birds.
2. 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).

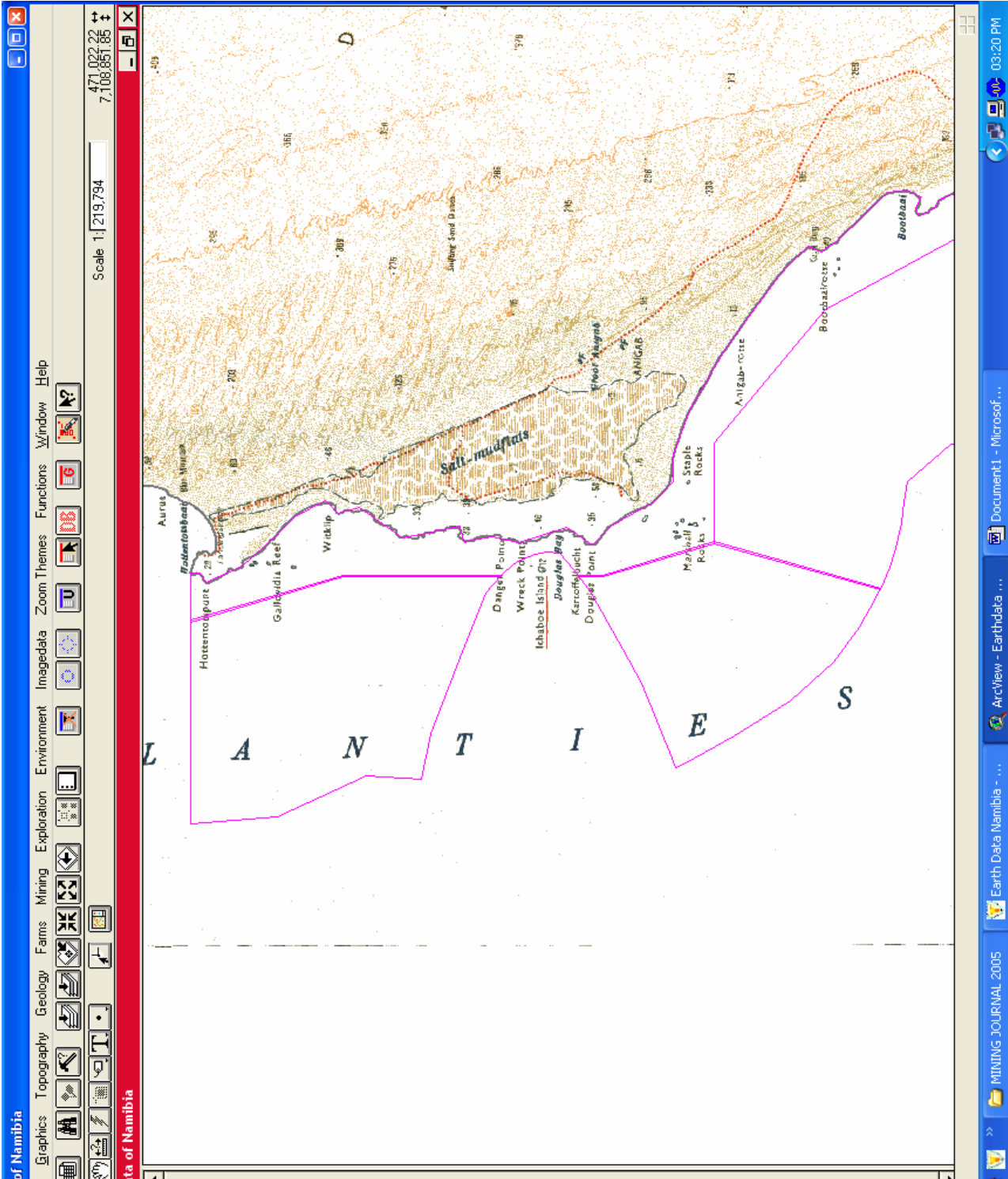
NO activities at the main penguin landing sites (to be determined by the relevant research staff). NO aquaculture within certain distance of some islands (this still need to be determined). NO tourism on the islands. NO seal harvesting on the islands. Preferably NO guano harvesting, but if this is to 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 metres 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.

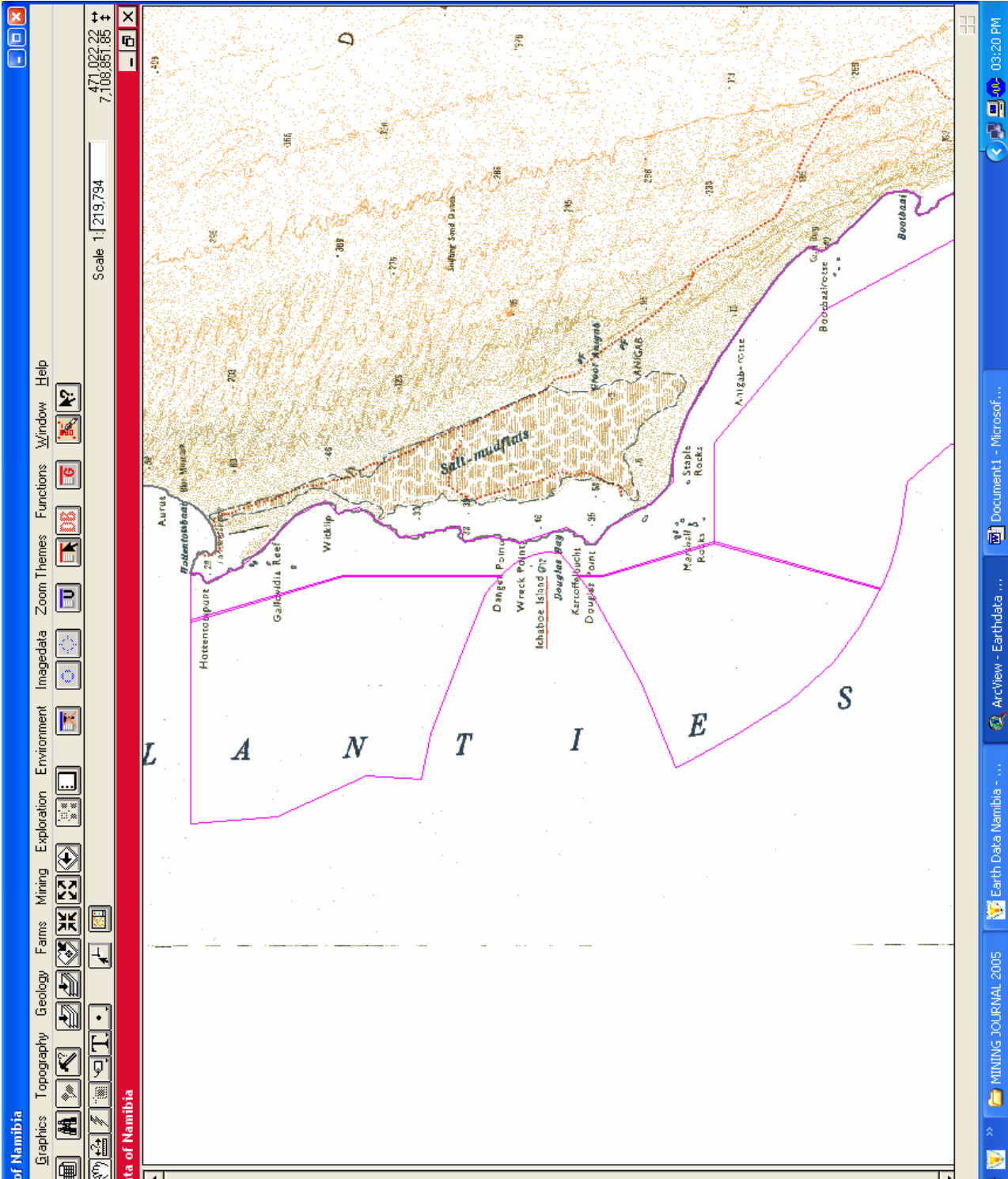
3. Penguin & bank- and crowned cormorant feeding sites: NO commercial fishing, mining, vessel activities of vessels > 10 m or > 20 tonnes (unless it is for research purposes).

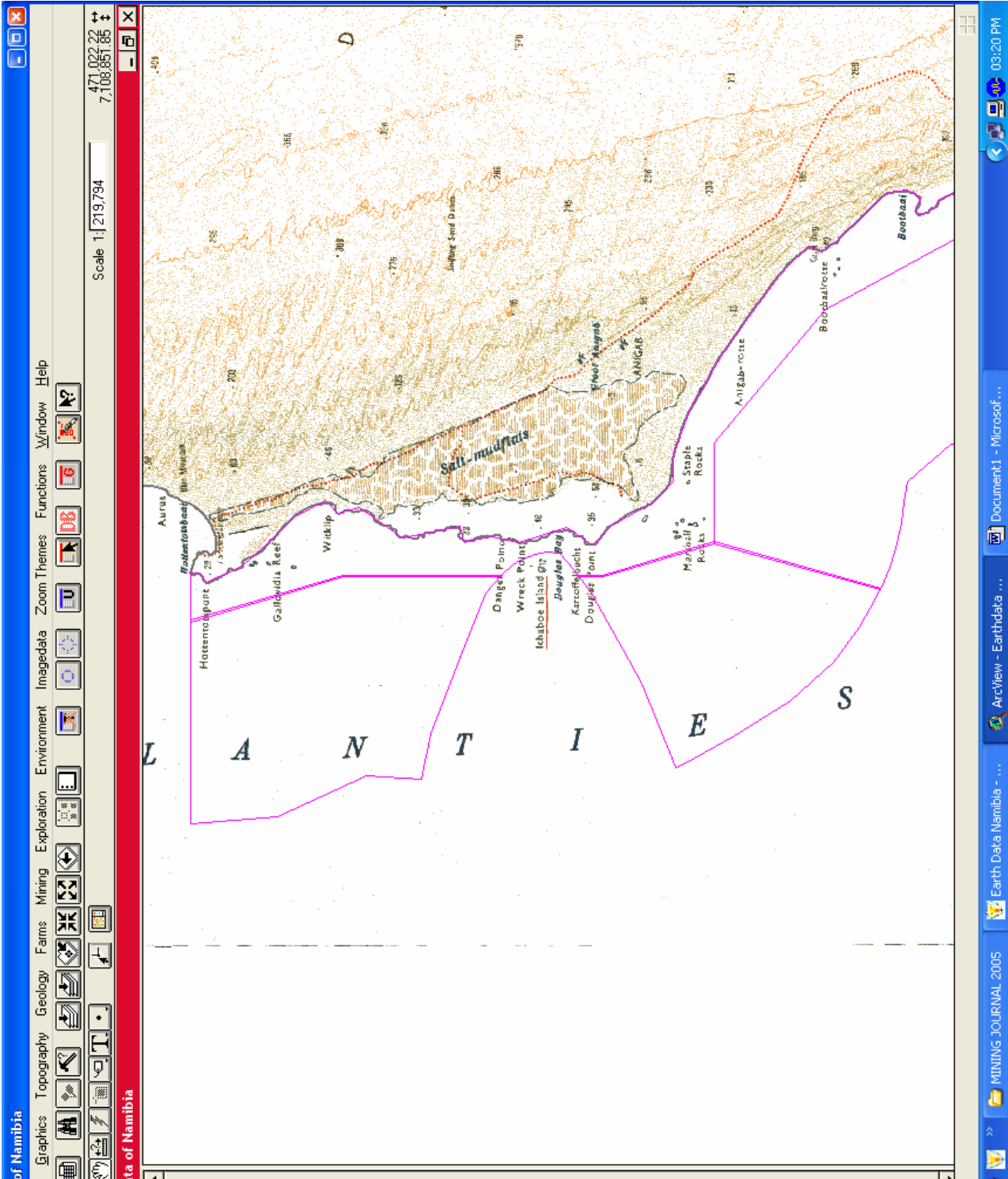
4. Lobster sanctuaries: (i) Ichaboe - NO lobster fishing , NO mining. (ii) Luderitz - NO lobster fishing. Only small scale fishing of other fish species e.g. mullets. NO mining. YES to any recreational activities like boatbased tourism, line fishing, diving, water-skiing, canoeing, etc. (iii) Inshore reefs Prince of Wale Bay to Chamais Bay - The protection level required for this area is different from the Ichaboe and Luderitz sanctuaries and still need 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 landbased 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.

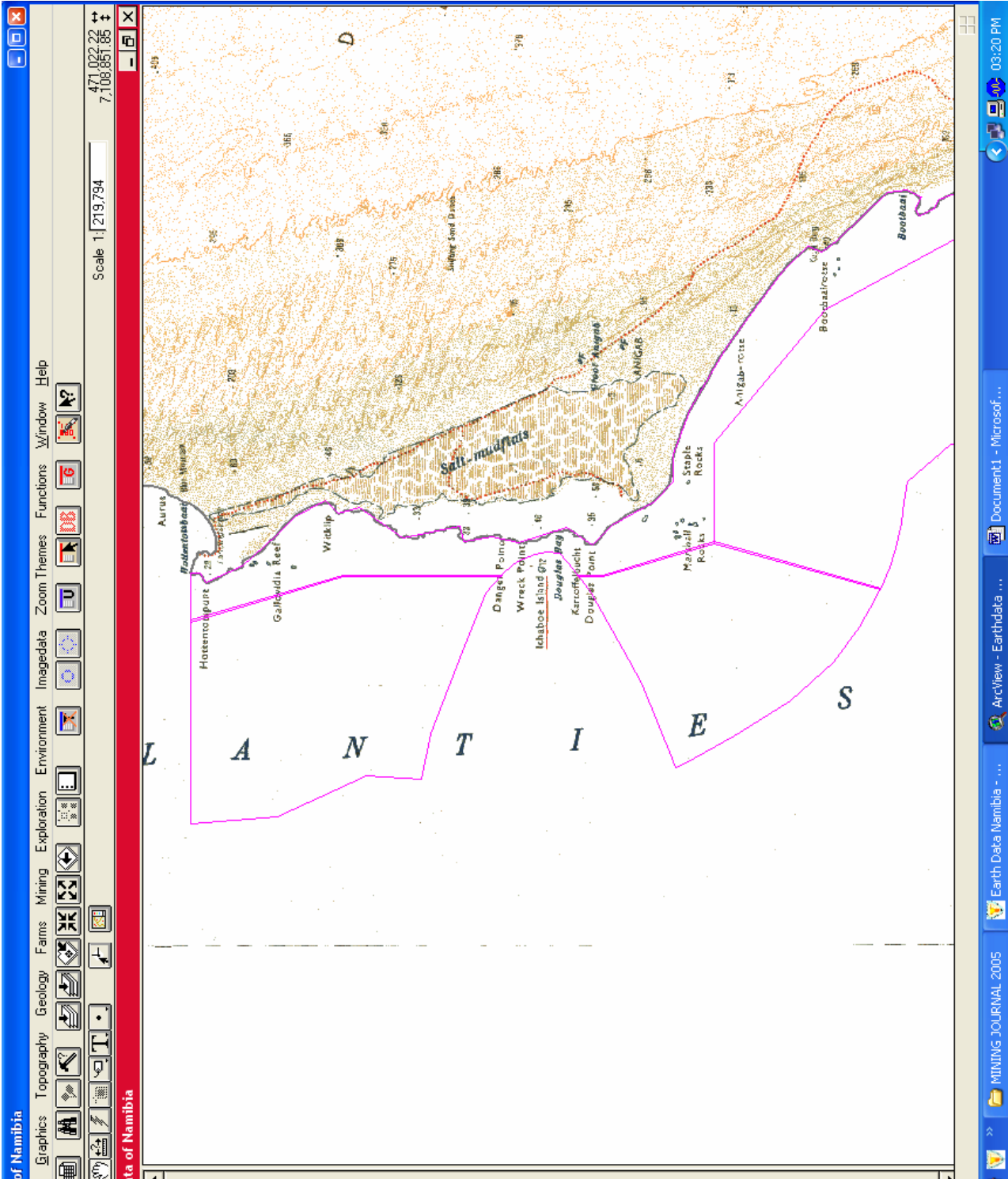
Maps indicating the extent of SAMICOR's concessions around the islands are provided below.

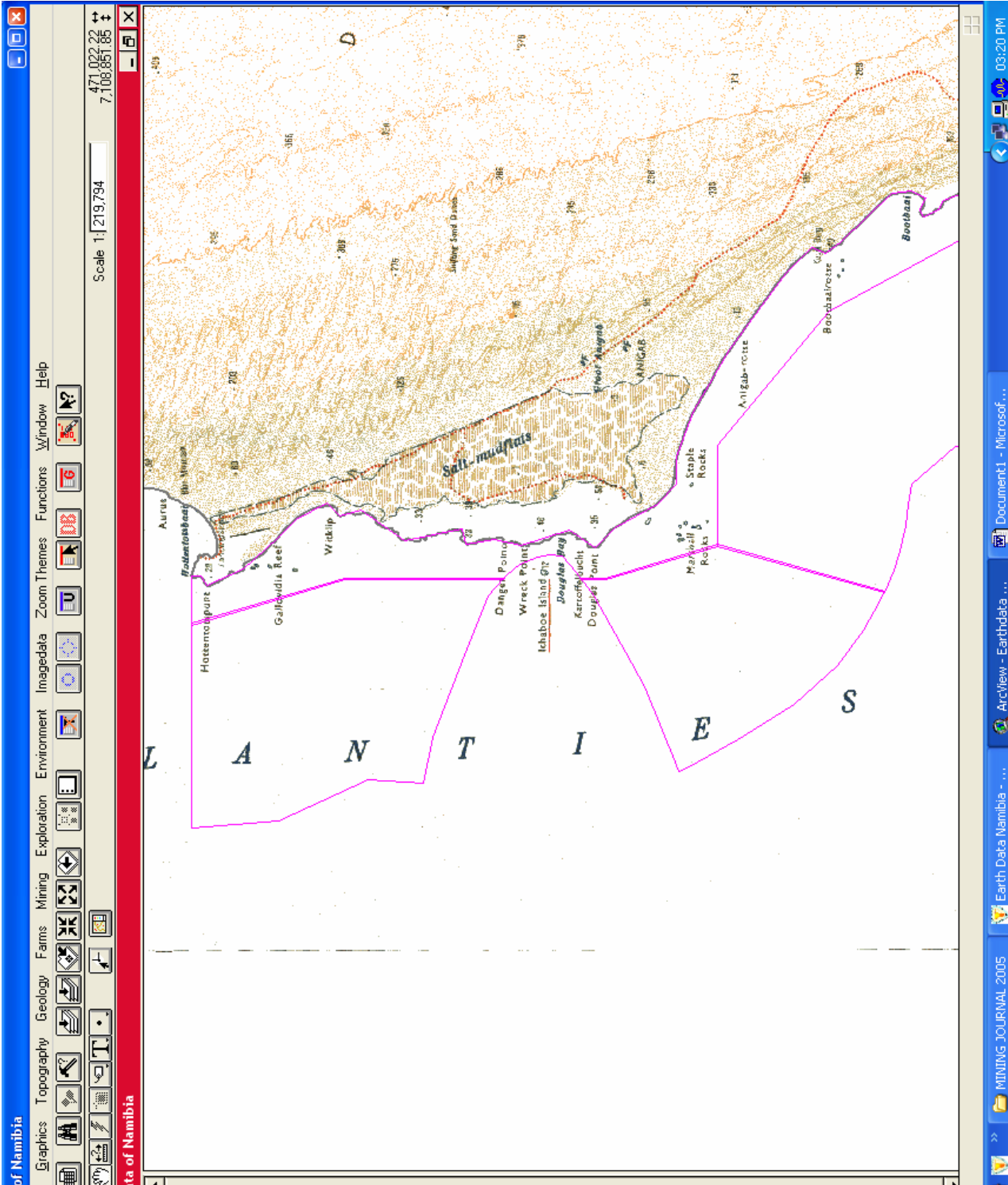




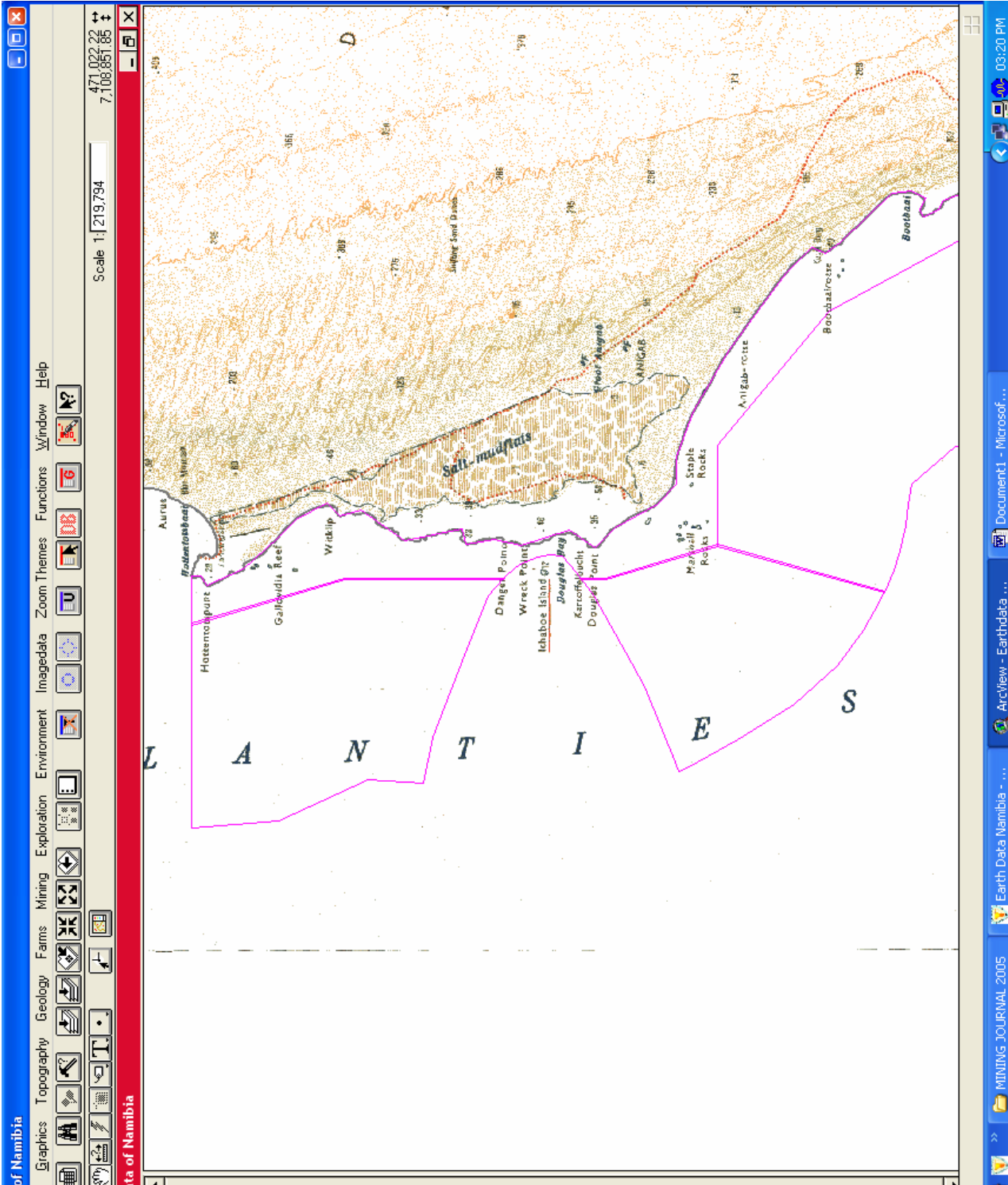


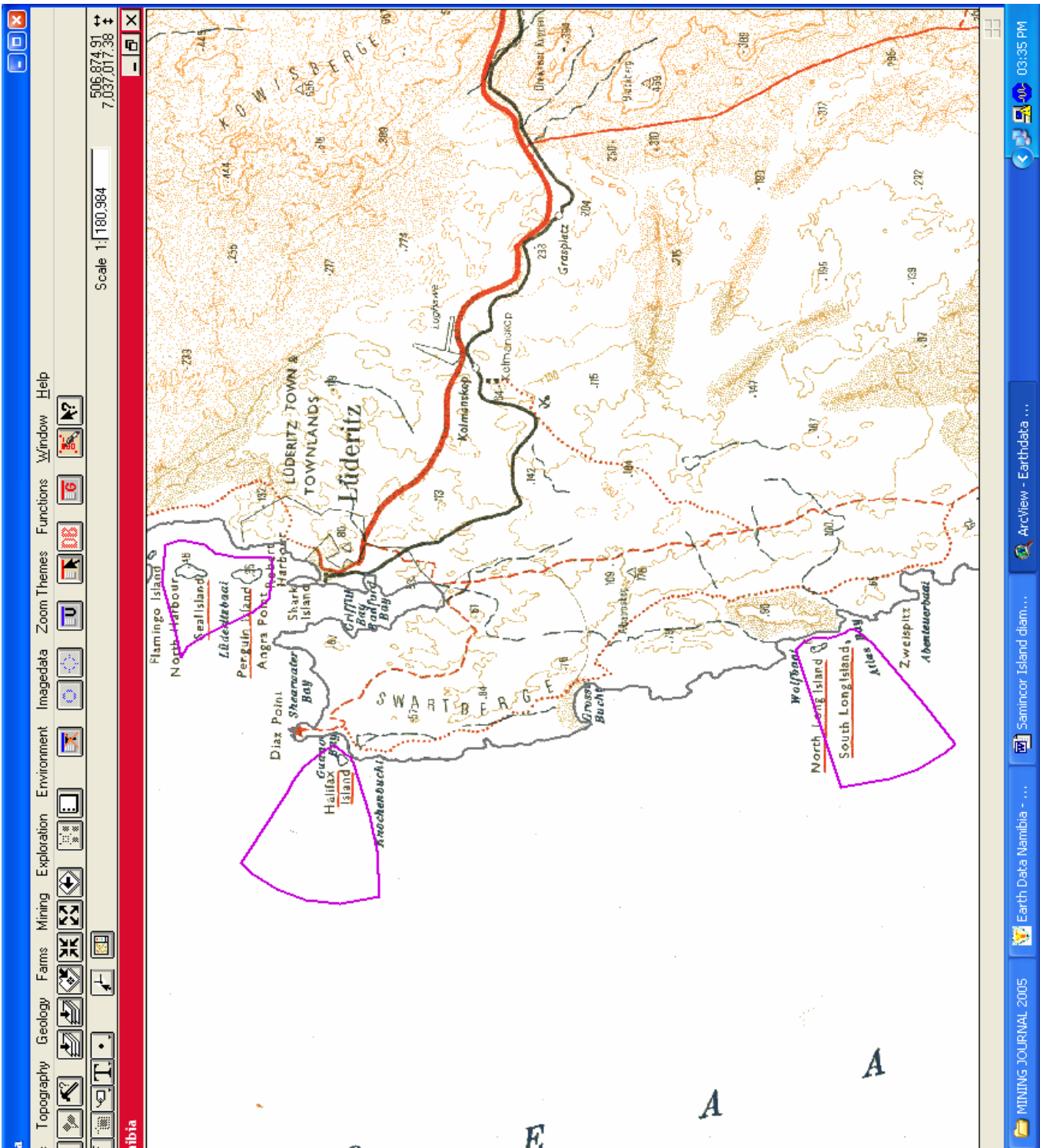


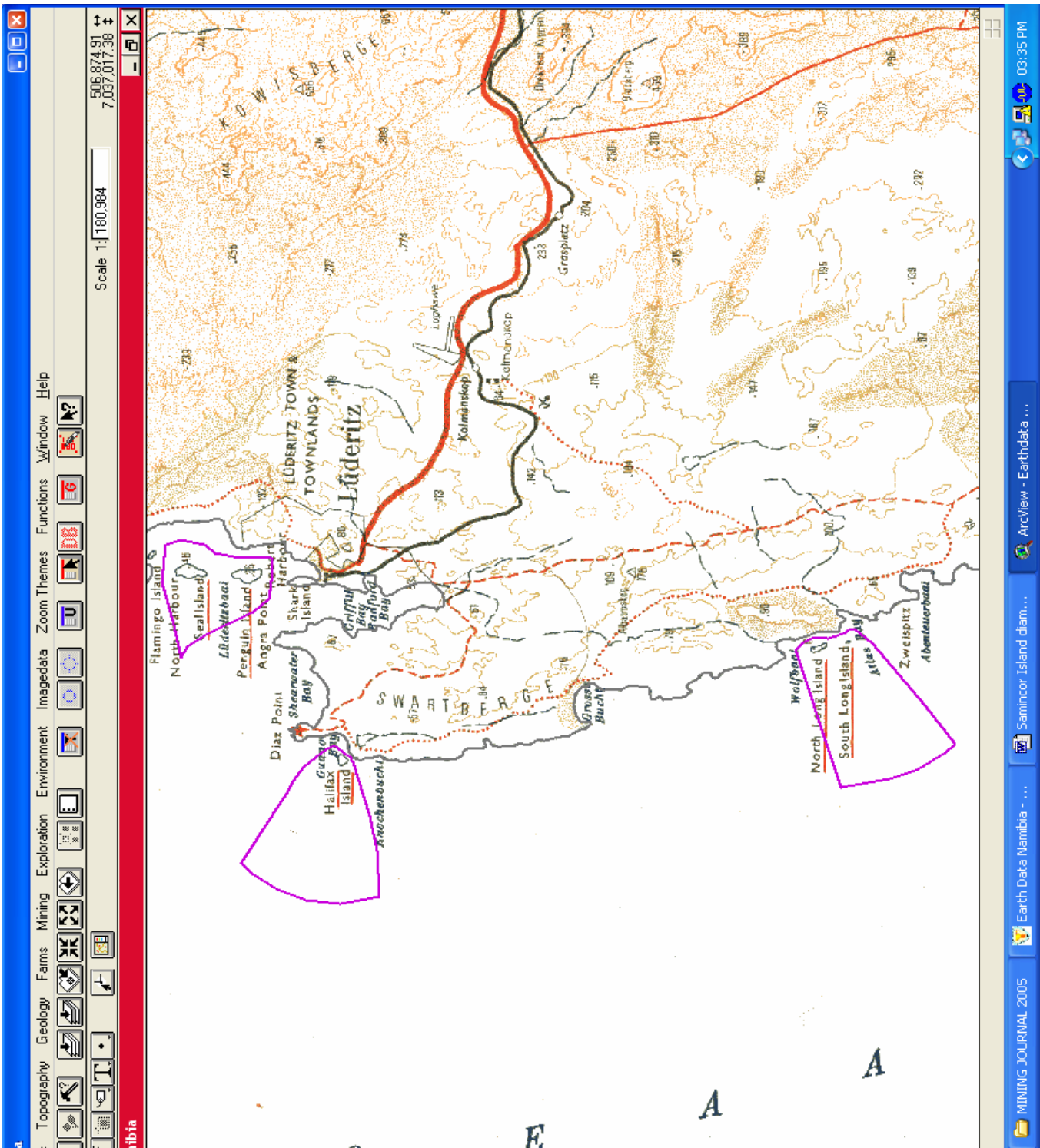


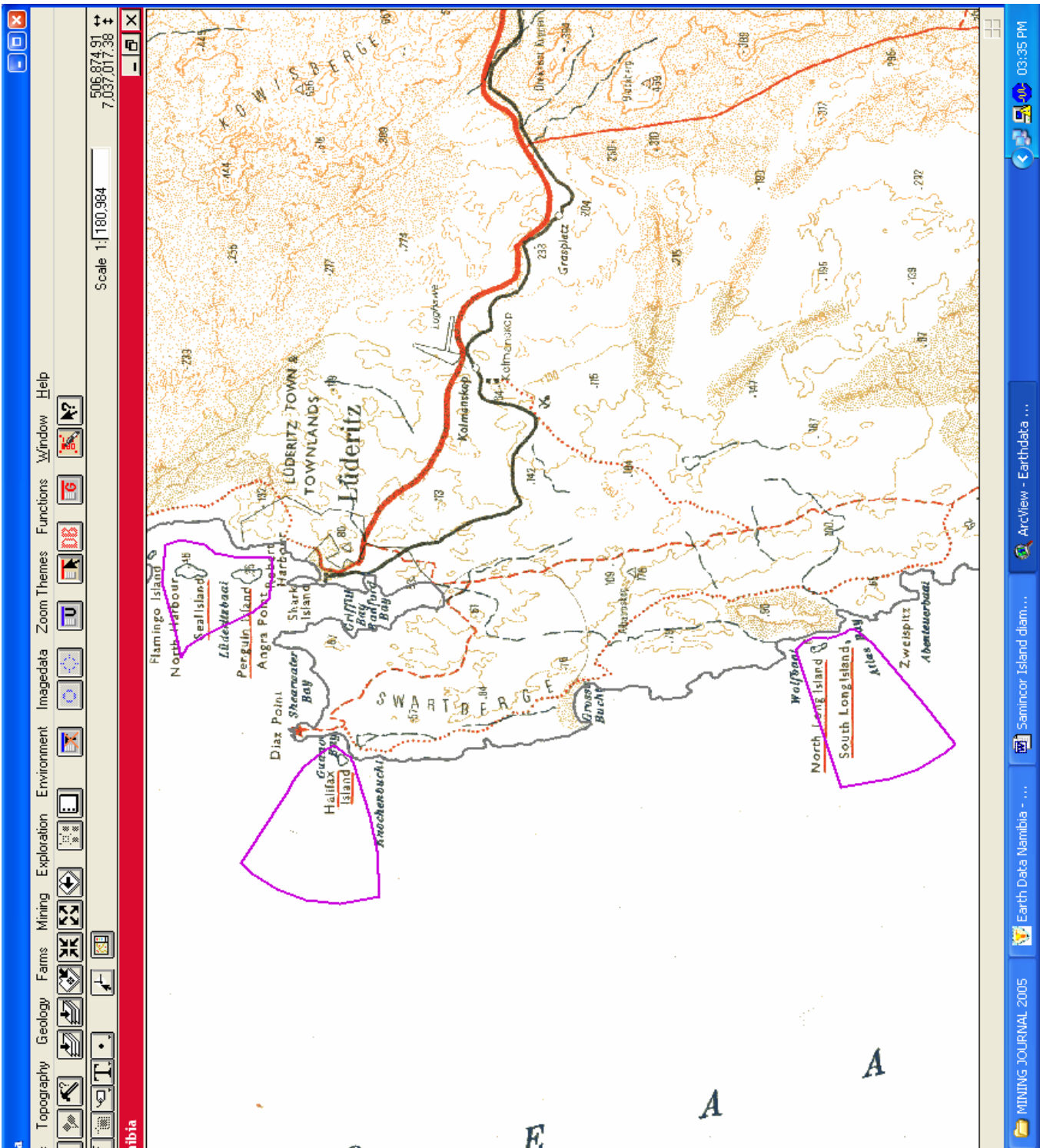




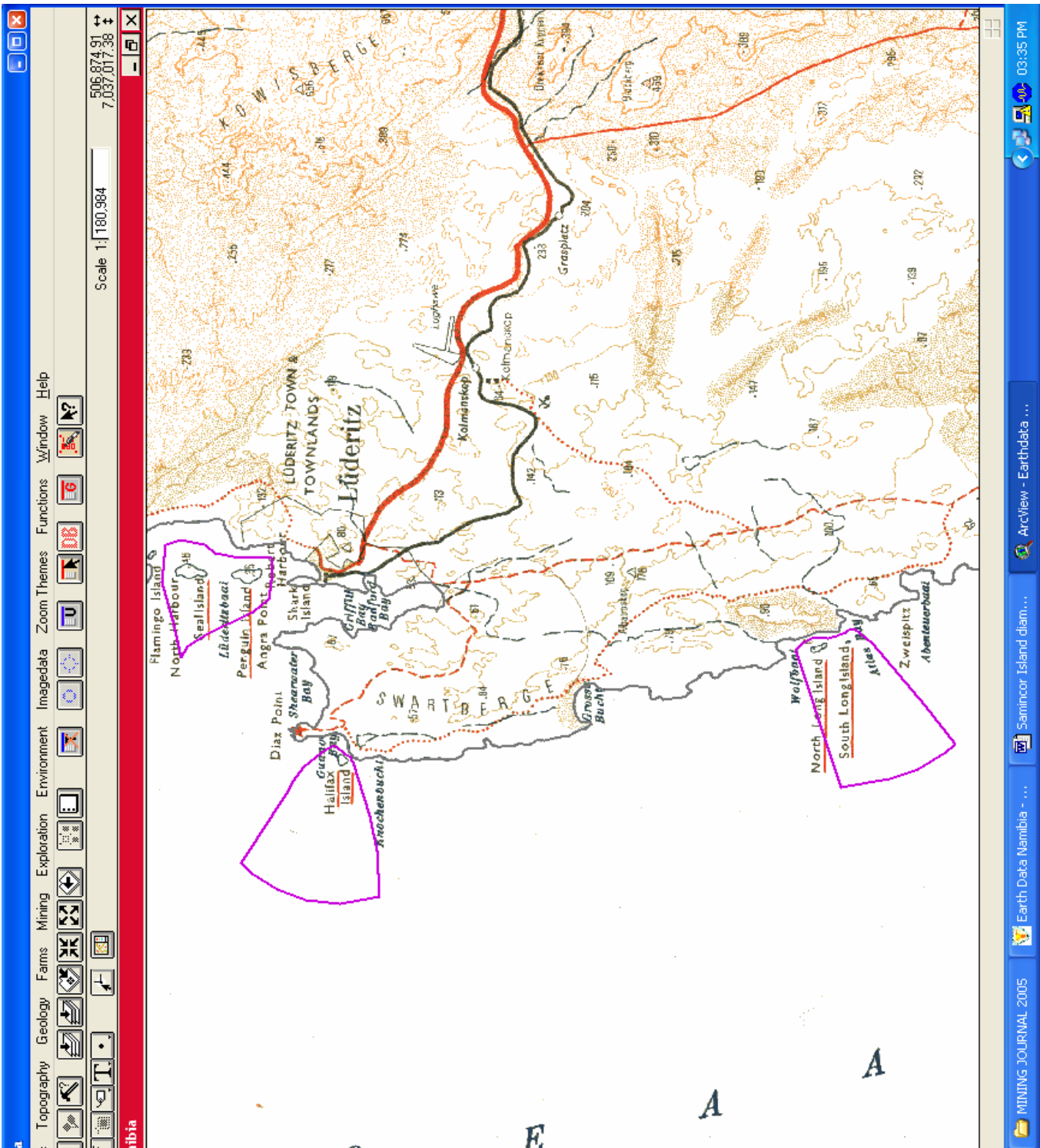


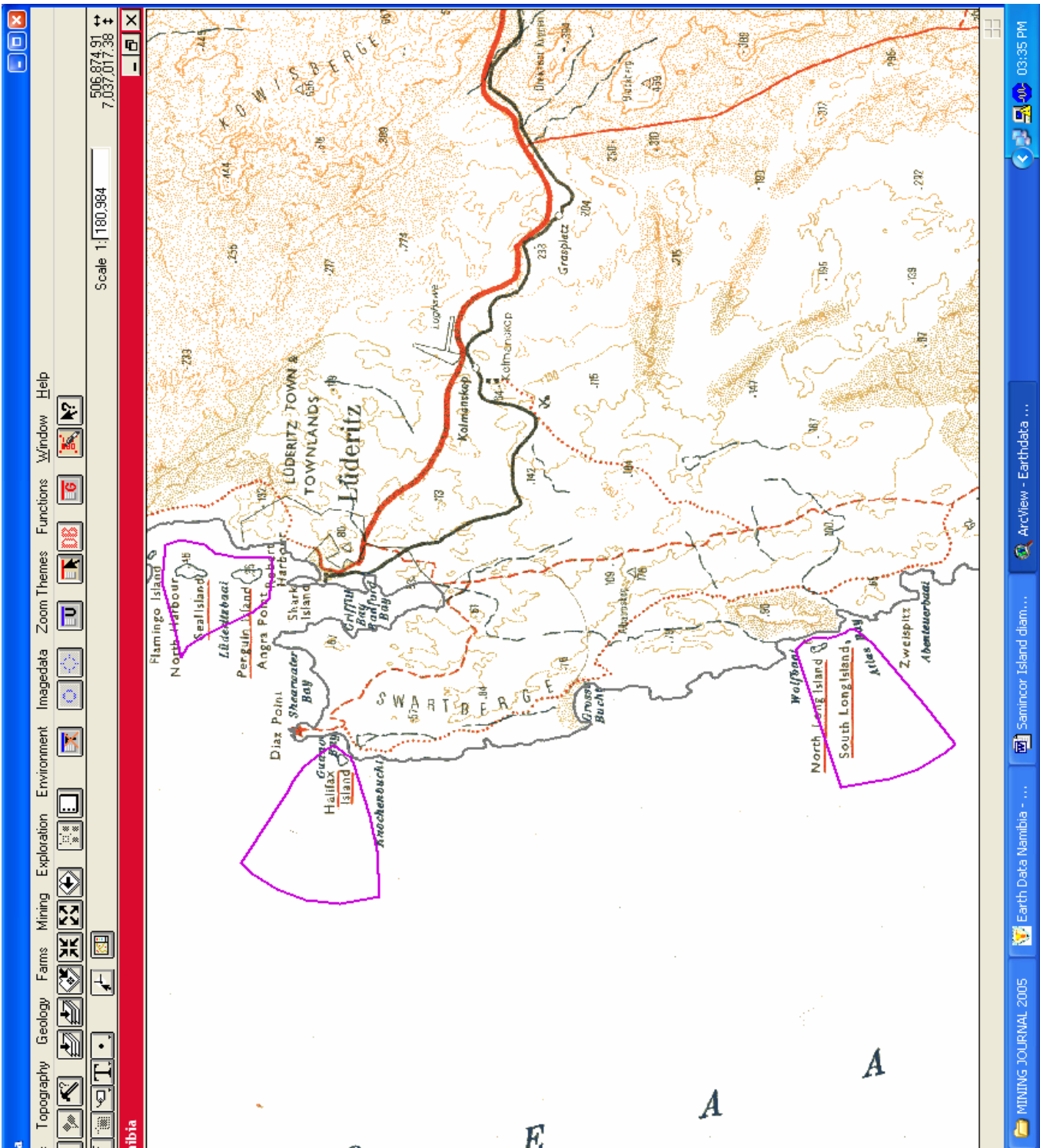


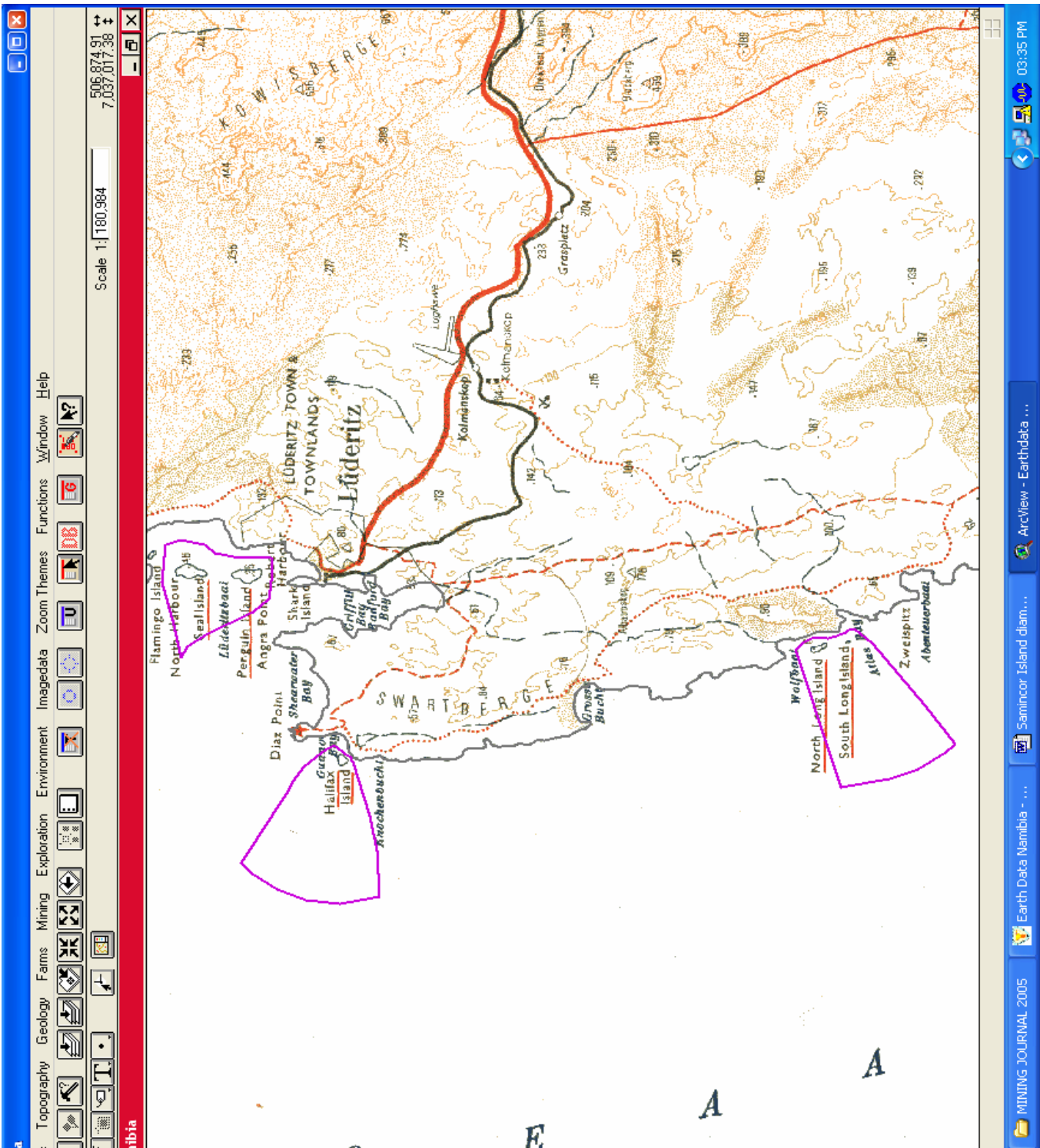












## Minutes of a meeting held with Toby Lambooy (SAMICOR) on environmental related issues with regards to their marine mining activities - 23 March 2005, Fisheries Boardroom

*(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 the former methods the vessels will be relatively stationary using anchor spreads, whilst during the latter they will be mining/sampling in 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 pump up material into its storage holds, then connect with and pump 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 45m they do not intend to mine this shallow off HP in the near future). *Sakawe Explorer* - sampling off Albatros Island/Long Island/Bakers Bay at about 30m. 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 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 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](mailto:tlambooy@sakawe.com))

## International Guidelines on the definition and classification of certain, closed and protected areas

The IUCN<sup>124</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>125</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 Ia: 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>126</sup>

*Category Ib: 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>127</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>128</sup>

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<sup>124</sup> International Union for the Conservation of Nature

<sup>125</sup> IUCN *Guidelines for Protected Area Management Categories* 1994 at 7

<sup>126</sup> supra

<sup>127</sup> IUCN *Guidelines for Protected Area Management Categories* 1994 at 17

<sup>128</sup> IUCN (1994) *Guidelines for Protected Area Management Categories* p. 18.

*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 are of outstanding or unique value because of their inherent rarity, representative or aesthetic qualities or cultural significance.’<sup>129</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>130</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>131</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...’

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<sup>129</sup> IUCN (1994) *Guidelines for Protected Area Management Categories* p. 19.

<sup>130</sup> *Supra*, p. 21.

<sup>131</sup> IUCN *Guidelines for Protected Area Management Categories* 1994 at 22.

List of People Briefed and / or Consulted so far

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Advocate Mbako, Permanent Secretary, Ministry of Fisheries and Marine Resources (MFMR)

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Kathie Peard, Subdivision Environment, Ministry of Fisheries and Marine Resources (MFMR)

### 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 45.249' 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>132</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 beaurocracy.

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>133</sup>

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<sup>132</sup> *Pers. Comm.* Rudi Cloete, MFMR, Swakopmund, 15 May 15, 2007.

<sup>133</sup> *See* Currie, H. (2005) WWF project ZA 1398 *Proclamation of Namibia’s offshore islands and surrounding waters as Marine Protected Areas.*

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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. Especially, I would like to thank Hannes Holtzhausen, Colette Grobler, Bronwen Currie, Jessica Kemper, Jean-Pierre Roux, Kathie Peard, Nadine Mohroff and Rian and Joan Jones for their valuable and appreciated input and contributions towards the compilation of this document, it was truly a collaborative effort!

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