ECOLOGICALLY OR BIOLOGICALLY SIGNIFICANT MARINE AREAS

in the Benguela Current Large Marine Ecosystem

New and Revised EBSA Descriptions

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NAMIBIA

Descriptions of new and revised EBSAs in Namibia. Other existing EBSAs that extend beyond national jurisdiction are not covered by the review and remain unchanged.

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General Information

Summary

The Namib Flyway is a highly productive area in the Benguela system that attracts large numbers of sea- and shorebirds, marine mammals, sea turtles and other fauna. It contains two marine Ramsar sites, six terrestrial Important Bird and Biodiversity Areas (IBAs), two proposed marine IBAs, and key spawning and nursery areas for some fish species. The upwelling cell off Lüderitz has its effect further north with the longshore drift and predominant onshore winds. Thus, primary production of the Benguela current is highest in the central regions of the Namibian coast, driven by delayed blooming. In summary, this area is highly relevant in terms of its importance for life-history stages of species, threatened, endangered or declining species and/or habitats, and biological productivity.

Introduction of the area

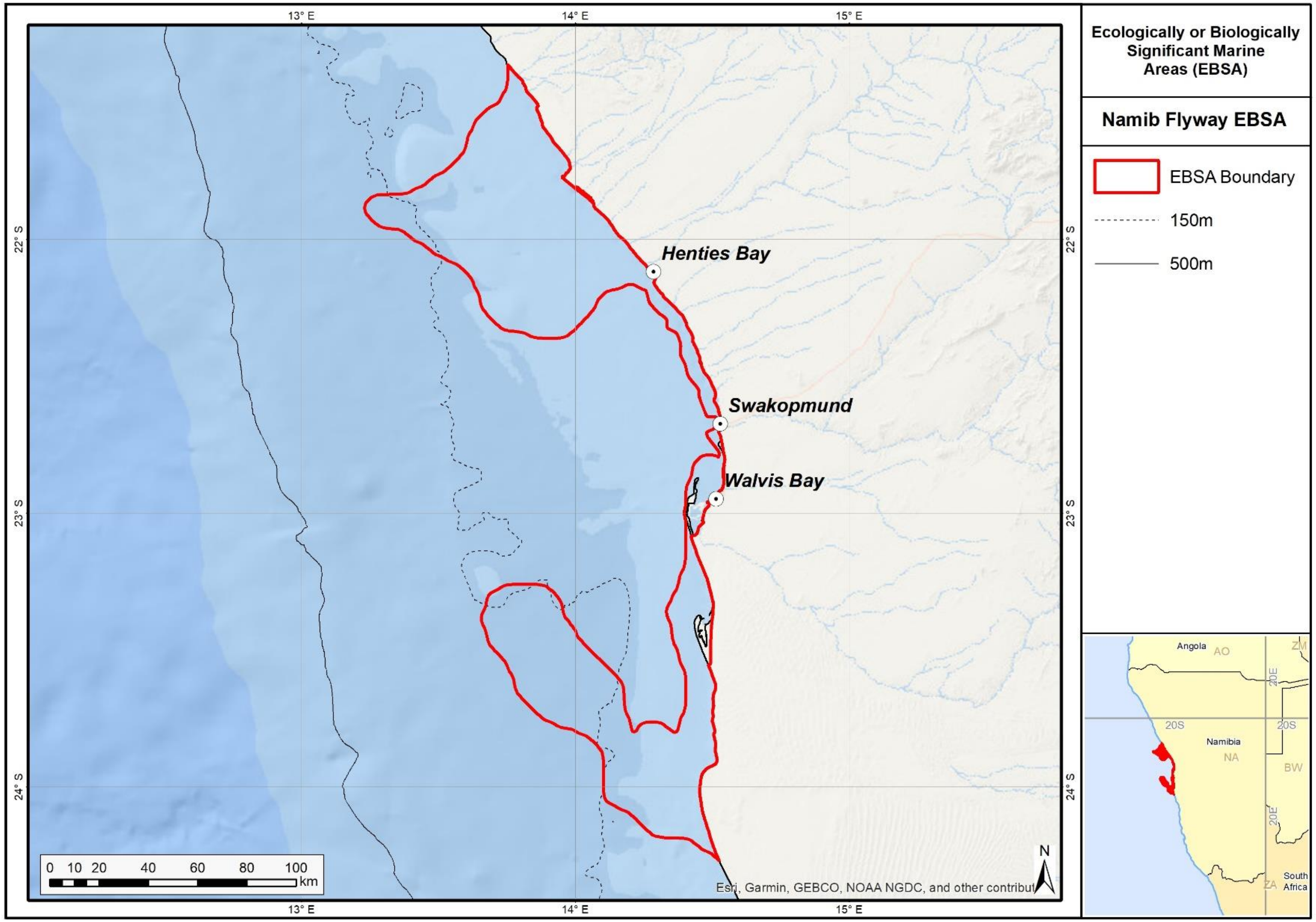
The main coastal features contain two sheltered bays (Walvis Bay and Sandwich Harbour), another north-facing but less sheltered bay (Conception Bay), three lagoons (Cape Cross lagoons, Swakop River Mouth Lagoon, and Walvis Bay Lagoon), one cape (Cape Cross) and one man-made shallow water habitat (Mile 4 salt works); the remaining coastline is high energy. The sheltered bays and shallow waters lead to warmer waters and higher productivity. There is a weak upwelling cell off Walvis Bay, which adds to the productivity. The area has been recognized as an important area by the United Nations Environment Programme, African Eurasian Migratory Waterbird Agreement; and the Convention on Migratory Species or “Bonn Convention”. BirdLife International has been funding a seabird breeding project in this area through its Rio Tinto BirdLife Partnership action fund. Two of Namibia’s five Ramsar sites (Walvis Bay and Sandwich Harbour) are included; both Ramsar sites are of international importance for resident bird species as well as resident and transient marine mammals, and constitute key refueling and roosting habitats for many species of migrating waterbirds. Of Namibia’s 19 IBAs, six border or fall in the area (viz., Cape Cross Lagoon, Namib-Naukluft Park, Mile 4 salt works, 30 km beach Walvis-Swakopmund, Walvis Bay and Sandwich Harbour). The area also encompasses key spawning and nursery areas of various fish species, including sardine and anchovy - important forage fish for a range of marine predators.

Since the original description and delineation, the boundary of this EBSA has been refined to improve precision, based on local knowledge of this area and its processes. The Namib Flyway comprises two foraging areas in the north and south of the EBSA, which are connected by a much narrower flyway corridor. Because this site comprises a collection of features and ecosystems that are connected by the same ecological processes, it is proposed as a Type 2 EBSA (sensu Johnson et al., 2018).

Description of the location

EBSA Region

South-Eastern Atlantic



Revised delineation of the Namib Flyway EBSA.

Description of location

The Namib Flyway EBSA extends from 18 km north of Cape Cross to 30 km south of Conception Bay, spanning about 380 km of coastline on the inshore area that borders the Dorob National Park, Cape Cross Seal Reserve and the Namib-Naukluft Park, roughly between latitudes 21 and 24 degrees South. The northern and southern parts extend offshore for up to 83 km, and the central portion is a narrow strip that extends no further than 7 km offshore. The entire area falls within the national jurisdiction of Namibia.

Feature description of the area

The coastline includes mixed rocky and sandy shoreline, which together with the adjacent marine inshore environment supports resident, Palearctic, Oceanic and intra-African migrant bird species. These include seabirds (e.g., terns, gulls, cormorants, gannets, shearwaters, albatrosses, petrels, skuas); shorebirds (e.g., plovers, sandpipers, turnstones, whimbrels, stints, oystercatchers, curlews, knots, godwits, avocets) and waterbirds (e.g., flamingos, ducks, grebes, coots, gallinules, herons). At least 17 threatened bird species occur in the area, either throughout the year or seasonally (Wearne & Underhill 2005, Simmons et al., 2015, IUCN 2016, SABAP_2 2017). Up to about 400,000 birds may be found during summer at Walvis Bay and Sandwich Harbour alone (Simmons 2002, Wearne & Underhill 2005). Cetaceans such as Bottlenose Dolphins, Heaviside's Dolphins and Southern Right Whales also breed in this area; the small local inshore population of Bottlenose Dolphins appears to be discrete, utilizing a core area between Cape Cross and Sandwich Harbour (Findlay et al., 1992, Elwen & Leeney, 2009). Humpback and Minke whales are common in the area, whereas other species like Fin Whales, beaked whales and other cetaceans also occur there occasionally (e.g. Findlay et al., 1992); however, detailed distribution and population data for most cetacean species in the area are lacking. Seven threatened fish and condricthian species have been recorded in the Namib Flyway area (OBIS 2017), and it is also an important foraging area for leatherback turtles (Shackelton 1993, De Padua Almeida et al., 2003). Four Cape Fur Seal breeding colonies exist at Cape Cross, Pelican Point, Sandwich Harbour and Conception Bay (Kirkman et al., 2013); and the area includes seal foraging hotspots (Skern-Mauritzen et al., 2009). Altogether, there are records for 247 species from this area (OBIS 2017).

The Namib Flyway also includes three Endangered ecosystem types (Central Namib Outer Shelf, Kuiseb Lagoon Coast and Kuiseb Mixed Shore), with the area being particularly important for Central Namib Outer Shelf and Kuiseb Lagoon Coast. These threat statuses were estimated by assessing the weighted cumulative impacts of various pressures (e.g., extractive resource use, pollution, development, and others) on each ecosystem type for Namibia (Holness et al., 2014; Table in Other relevant website address or attached documents section).

Feature conditions and future outlook of the proposed area

The terrestrial part of the area to the low water mark is protected in three national parks, namely Dorob National Park, Cape Cross Seal Reserve and Namib-Naukluft Park. The area has three towns and a village: the main harbour town of Namibia: Walvis Bay, in addition to Swakopmund and Henties Bay and the village of Wlotzkasbaken. There is a political drive to expand the towns and village into the Dorob National Park irrespective of the biodiversity importance of the bordering terrestrial and coastal areas. This will require deproclamation. The marine component is partially protected by fishery management regulations such as a “no trawl zone” up to the 200-m depth contour; however, purse-seining activities in the area threaten already depleted local pelagic fish stocks on which a number of marine predators depend (e.g. Sherley et al., 2017). The area is under threat from a large-scale harbour expansion at Walvis Bay, a proposed industrial park, and seabed mining (e.g., for phosphates). Uncontrolled coastal development and off-shore oil exploration are additional threats. Climate change may alter productivity and therefore the area’s capacity to support the large number of animals that are dependent on this area (Roux 2003). Revision of the EBSA boundary has resulted in an improvement in the site’s overall naturalness because many areas of direct impact in the previous delineation are now excluded. Most of the EBSA area is now in a Good (87%) or fair ecological condition (9%) (Holness et al., 2014). Nevertheless, the area is likely to be significantly impacted by activities directly adjacent to the EBSA, and this assessment of condition is likely to be highly optimistic.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for Namib Flyway. Data from Holness et al. (2014).

Threat Status	Ecosystem type	Area (km^2)	Area (%)
Endangered	Central Namib Outer Shelf	2 041.2	19.9
	Kuiseb Lagoon Coast	148.8	1.4
	Kuiseb Mixed Shore	28.4	0.3
Least Threatened	Central Namib Inner Shelf	6 461.1	62.9
	Kuiseb Dissipative-Intermediate Sandy Beach	39.1	0.4
	Kuiseb Exposed Rocky Shore	0.03	0.0
	Kuiseb Inshore	1 361.6	13.2
	Kuiseb Intermediate Sandy Beach	148.8	1.4
	Kuiseb Reflective Sandy Beach	32.3	0.3
	Kuiseb Sandy Beach Sandy Beach	16.3	0.2
Least Threatened Total		**8 059.2**	**78.4**
Grand Total		**10 277.6**	**100**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity High

Justification

This is the only high-productivity area featuring bays and lagoons on the Namibian coast apart from Lüderitz. It is also one of only two globally Important Bird and Biodiversity Areas in Africa that feature sandy bays and spits. A number of species that are endemic or near-endemic to the Benguela region occur here, including breeding residents such as the Damara Tern, Cape Cormorant and Heaviside's Dolphin (Sakko 1998; Simmons et al., 1998; Maartens 2003; Kemper et al., 2007; Elwen & Leeney 2009).

C2: Special importance for life-history stages of species High

Justification

The Namib Flyway is an important over-wintering area for several threatened bird species, such as Lesser and Greater Flamingos, Chestnut-banded Plovers and Black-necked Grebes. Numerous sea- and shorebird species, migratory species (Palaearctic and intra-African birds), and resident species use the area for roosting and feeding. This area includes four Cape fur seal colonies, and turtle and cetacean breeding and foraging areas, and includes a small, discrete inshore population of Bottlenose Dolphins (Shackelton 1993; Sakko 1998; Simmons et al., 1998; De Padua Almeida et al., 2003; Maartens 2003; Kemper et al., 2007; Elwen & Leeney 2009; Kirkman et al., 2013; Simmons et al., 2015). It is also a key foraging area for recently fledged African Penguins originating from southern Namibia and the west coast of South Africa (Sherley et al., 2017). Furthermore, the area encompasses known spawning and key nursery areas for several fish species, including sardine and silver kob (Holtzhausen et al., 2001; Hutchings et al., 2002).

C3: Importance for threatened, endangered or declining species and/or habitats High

Justification

Leatherback turtles from the Indian Ocean (regionally Critically Endangered), southwest Atlantic (regionally Critically Endangered), and southeast Atlantic (regionally Data Deficient) come to forage in the offshore waters off Walvis Bay and Sandwich Harbour, where certain jellyfish species occur in great numbers. Other globally threatened species like African Penguins, Cape, Bank and Crowned Cormorants, Damara Terns, Lesser Flamingos and Chestnut-banded Plovers (IUCN 2016) are attracted to this area's high productivity to forage and/or to breed (Shackelton 1993; Sakko 1998; De Padua Almeida et al., 2003; Kemper et al., 2007; Simmons et al., 2015; IUCN 2016). Seven threatened fish and condricthian species have been recorded in the area, including the Endangered *Lithognathus lithognathus, Argyrosomus hololepidotus,* and *Petrus rupestris*, and Vulnerable *Mustelus mustelus, Oxynotus centrina, Alopias vulpinus, Cetorhinus maximus* (OBIS 2017). Holness et al. (2014) identified three Endangered ecosystem types (Central Namib Outer Shelf, Kuiseb Lagoon Coast and Kuiseb Mixed Shore), with the area being particularly important for Central Namib Outer Shelf and Kuiseb Lagoon Coast.

C4: Vulnerability, fragility, sensitivity, or slow recovery Medium

Justification

This area is highly sensitive to hydrocarbon and other industrial pollution. Sheltered bays and lagoons are not able to dilute or flush pollutants out of the system easily (Shackelton 1993). Climate change, including a rise in sea surface temperatures, may contribute to an increased vulnerability of the habitats and species in the area (Roux 2003).

C5: Biological productivity High

Justification

The central Namibian coast is situated down-stream of the intensive Lüderitz upwelling cell, and it features sheltered bays; it thus boasts a high level of plankton production, which in turn provides a rich food source to other marine organisms. Migratory species are able to fatten up rapidly here to prepare for long journeys. Leatherback turtles, for example, come from as far as the Indian Ocean, Brazil and Gabon to forage in this area. The Namib Flyway also supports an important nursery area for sardine and other fish species and sustains the highest abundance of cetaceans and seals in relation to the rest of the Namibian coastline (Sakko 1998; Holtzhausen et al., 2001; Hutchings et al., 2002; Maartens 2003; Kemper et al., 2007).

C6: Biological diversity Medium

Justification

The area is characterized by significant habitat heterogeneity, which results in relatively high diversity of species, particularly waterbirds and marine mammals, in comparison to other areas along the Namibian shore (Shackelton 1993; Sakko 1998; Simmons et al., 1998; De Padua Almeida et al., 2003; Maartens 2003; Kemper et al., 2007). There are records for 247 different species from this area (OBIS 2017).

C7: Naturalness Medium

Justification

Coastal town developments and, more recently, the large-scale expansion of the Walvis Bay harbour have impacted the naturalness of the broader area and impacts are very likely to spill over into the EBSA footprint. The area has also experienced high fishing pressure in the past. Some coastal parts have also been modified for large-scale salt production, as well as for guano harvesting (Maartens 2003). The coastal area south of Sandwich Harbour, however, remains largely intact. Revision of the EBSA boundary has resulted in an improvement in the site's overall naturalness because many areas of direct impact in the previous delineation are now excluded. Most of the EBSA area is now in a Good (87%) or fair ecological condition (9%) (Holness et al., 2014). Nevertheless, because it is likely that spillover effects from adjacent development are significantly underestimated in the assessment of condition, the EBSA was ranked as Medium rather than High in terms of the naturalness criterion.

Status of submission

The Namib Flyway EBSA was recognized as meeting EBSA criteria by the Conference of the Parties. The revised description and boundaries have been submitted to the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) for consideration by the Conference of the Parties to the Convention on Biological Diversity.

COP Decision

dec-COP-12-DEC-22

End of proposed EBSA revised description

Namibian Islands

Revised EBSA Description

General Information

Summary

The Namibian Islands are located offshore in the central region of the Benguela Current Large Marine Ecosystem (BCLME) within the intensive Lüderitz Upwelling Cell. These islands and their surrounding waters are described primarily in terms of their significance for life history stages of threatened seabird species. The islands are crucial seabird breeding sites within the existing Namibian Islands

Marine Protected Area (NIMPA). The surrounding waters are also key foraging grounds for these seabirds for both the adults and as they provide for their chicks, and for Critically Endangered leatherbacks from the Western Indian Ocean that nest in South Africa. The boundaries of the NIMPA are largely based on the foraging ecology of key threatened, breeding seabirds. These features were used here too to expand the boundary of the Namibian Islands EBSA to include the full ecological and biological significance of the islands and adjacent marine environment, not just to represent the islands themselves.

Introduction of the area

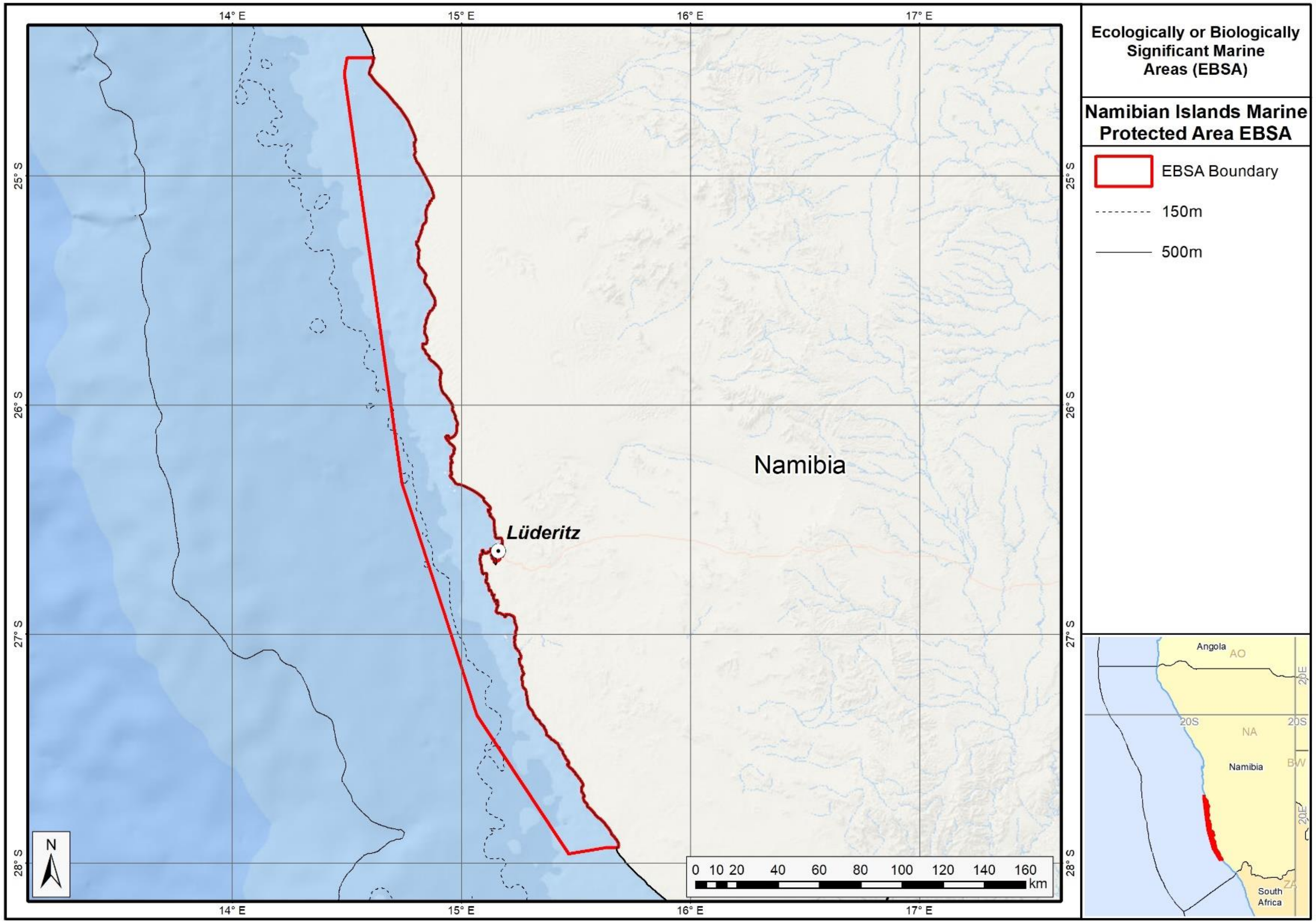
The Namibian Islands is a coastal EBSA that is located in the central region of the BCLME within the Lüderitz Upwelling Cell. This upwelling cell plays a significant role in regulating the biomass of fish stocks of central Namibia. Consequently, the islands and adjacent productive waters provide important breeding and foraging habitat for threatened seabirds and marine mammals, and includes important nursery grounds for the commercially important west coast rock lobster, *Jasus lalandii* (Currie et al., 2008). It is also recognized as a foraging site for regionally Critically Endangered leatherbacks from the Western Indian Ocean that nest in South Africa (Harris et al., 2017). Thus, although the focus of this EBSA is on seabird breeding and foraging, there are several other important species for which this site is important.

The key ecological value of this site was recognised prior to the EBSA process, and in 2009, the Namibian Ministry of Fisheries and Marine Resources (MFMR) gazetted the Namibian Islands Marine Protected Area (NIMPA). The NIMPA covers nearly 1 million ha of coastal waters that encompass all the natural seabird breeding islands in Namibia and the key supporting seabird foraging areas in the surrounding sea. It was later recognised that the original EBSA delineation had focussed on only the breeding islands, and had omitted the critical foraging grounds surrounding the islands that provide fish for the adult birds and as they provision for their chicks. Consequently, the EBSA boundary was revised to include the full extent of this significant ecological feature, following a similar delineation process to how the NIMPA was defined. Because this site comprises a collection of features and ecosystems that are connected by the same ecological processes, it is proposed as a Type 2 EBSA (sensu Johnson et al., 2018).

Description of the location

EBSA Region

South-Eastern Atlantic



Revised delineation of the Namibian Islands EBSA.

Description of location

The original boundary of the Namibian Islands EBSA has been extended to include key seabird foraging areas, much like how the boundary of the NIMPA was defined. It extends alongshore about 400 km from Meob Bay to Chameis Bay and, on average, 30 km offshore from the high-water mark. It is located between the latitudes of 24°S and 28°S, within the national jurisdiction of Namibia.

Feature description of the area

The Namibian Islands EBSA is described for both benthic and pelagic features, primarily as a key breeding and foraging area for threatened seabirds, but also as breeding, nursery or foraging areas for several other species that are iconic, threatened or of commercial importance. Eleven seabird species breed on the islands, of which eight are endemic to southern Africa (Kemper et al., 2007). Of these, the African Penguin (*Spheniscus demersus*), Bank Cormorant (*Phalacrocorax neglectus*) and the Cape Cormorant (*P. capensis*) are listed as globally Endangered; the Cape Gannet (*Morus capensis*) is listed as globally Vulnerable and locally Critically Endangered (Simmons et al., 2015, IUCN 2016). The Namibian populations of African Penguins, Cape Gannets and Bank Cormorants breed exclusively within this EBSA. Productivity at this site is also particularly high because it is situated in the Lüderitz Upwelling Cell in the Benguela Current, which plays a significant role in regulating the biomass of fish stocks of central Namibia. However, the depletion of small pelagic fish stocks in the late 1960s through over-fishing, particularly in southern Namibia, has negatively impacted this area (Roux et al., 2013). This provides special justification for protecting this area to conserve the important threatened species that are so dependent on it.

In recognition of the ecological significance of this area, the design of the NIMPA took seabird tracking data into account to ensure inclusion of critical foraging areas of resident breeding birds (Ludynia et al., 2010a, 2012). Three rock lobster sanctuaries, one linefish sanctuary and key calving areas of southern right whales were also included (Currie et al., 2008). This site is a foraging area for regionally Critically Endangered leatherbacks from the Western Indian Ocean that nest in South Africa (Harris et al., 2017). The NIMPA, which adjoins the Namib-Naukluft and Tsau//Khaeb national parks on the landward side, is sectioned into zones of increasing protection levels, with the highest protection status afforded to the islands. Six of the islands are also designated as Important Bird and Biodiversity Areas (IBAs; Simmons et al., 2015). Altogether, 140 species have been recorded in the EBSA (OBIS 2017).

Feature conditions and future outlook of the proposed area

A lack of quality food poses the greatest threat to seabird populations breeding on Namibia's islands (Ludynia et al., 2010b, Simmons et al., 2015). The collapse of sardine stocks in the 1960s and anchovy populations in the 1990s (Roux et al., 2013), both significant prey species, threaten the viability of African Penguin, Cape Gannet and Cape Cormorant populations in particular. The recovery of small pelagic fish stocks in southern Namibia is therefore crucial to the continued survival of these species. The coast is vulnerable to marine pollution, especially oil spills, and even a small oil spill at a key breeding site such as Mercury Island could put a significant proportion of the global population of

African Penguin, Cape Gannets and/or Bank Cormorants at risk. Namibia's National Oil Spill Contingency Plan is currently being updated, and a process to draft the Oil Spill Sensitivity Mapping is underway for improved monitoring and prevention. Breeding habitat degradation and associated disturbance (e.g. from guano harvesting) has further rendered breeding seabirds, particularly African Penguins and Cape Gannets, at risk. An increasing emphasis on marine mining, including inshore and coastal mining south of Lüderitz may pose additional threats to seabirds, rock lobsters and marine mammals, such as prey displacement and modification of key marine habitats.

Holness et al. (2014) estimated habitat threat status by assessing the weighted cumulative impacts of various pressures (e.g., extractive resource use, pollution, development and others) on each ecosystem type for Namibia (Table in Other relevant website address or attached documents section). The results identified small areas of two Critically Endangered ecosystem types (*viz*. the Namaqua Intermediate Sandy Beach and Namaqua Reflective Sandy Beach) within the Namibian Islands EBSA. The Critically Endangered status implies that very little (<= 20%) of the total area of these habitats are in natural/pristine condition, and it is expected that important components of biodiversity pattern have been lost and that ecological processes have been heavily modified. Furthermore, one Endangered ecosystem type (*viz*. the Kuiseb Mixed Shore) and three Vulnerable ecosystem types (*viz*. the Lüderitz Outer Shelf, Namaqua Exposed Rocky Shore, and Namaqua Inshore) were identified. In particular, the Namibian Islands EBSA is very important for the Lüderitz Outer Shelf, Namaqua Inshore and Kuiseb Mixed Shore ecosystem types. Overall, Holness et al. (2014) classified 91% of the Namibian Islands area as being in good condition, which is consistent with the inclusion of the entire area in the NIMPA as part of the EBSA's boundary revision.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for the Namibian Islands EBSA. Data from Holness et al. (2014).

Threat Status	Ecosystem type	Area (km^2)	Area (%)
Critically Endangered	Namaqua Intermediate Sandy Beach	2.1	0.0
	Namaqua Reflective Sandy Beach	0.3	0.0
Endangered	Kuiseb Mixed Shore	10.1	0.1
Vulnerable	Lüderitz Outer Shelf	706.7	7.4
	Namaqua Exposed Rocky Shore	3.6	0.0
	Namaqua Inshore	62.6	0.7
Least Threatened	Central Namib Inner Shelf	1 074.8	11.3
	Kuiseb Dissipative-Intermediate Sandy Beach	3.2	0.0
	Kuiseb Exposed Rocky Shore	3.1	0.0
	Kuiseb Inshore	586.0	6.2
	Kuiseb Intermediate Sandy Beach	40.1	0.4
	Kuiseb Reflective Sandy Beach	13.1	0.1
	Lüderitz Dissipative Sandy Beach	4.7	0.0
	Lüderitz Dissipative-Intermediate Sandy Beach	4.3	0.0
	Lüderitz Exposed Rocky Shore	42.6	0.4
	Lüderitz Inner Shelf	4 654.8	49.0
	Lüderitz Inshore	356.2	3.8
	Lüderitz Intermediate Sandy Beach	40.8	0.4
	Lüderitz Island	1 331.5	14.0
	Lüderitz Lagoon Coast	3.2	0.0
	Lüderitz Mixed Shore	35.0	0.4
	Lüderitz Reflective Sandy Beach	13.5	0.1
	Lüderitz Sheltered Rocky Shore	4.1	0.0
	Lüderitz Very Exposed Rocky Shore	1.0	0.0
	Namaqua Dissipative-Intermediate Sandy Beach	7.6	0.1
	Namaqua Inner Shelf	486.0	5.1
	Namaqua Mixed Shore	0.2	0.0
Grand Total		**9 491.1**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity High

Justification

The entire Namibian population of African Penguins (25% of the global population), Cape Gannets (11%) and Bank Cormorants (89%) breed in the EBSA (Kemper et al., 2007, Ludynia et al., 2012). Cape Gannets breed on only six islands globally; three of these are in Namibia, all of which form part of the EBSA. Of the eleven seabird species that breed on the islands, eight are endemic to southern Africa (Kemper et al., 2007).

C2: Special importance for life-history stages of species High

Justification

The islands (and two coastal caves) support the entire Namibian breeding populations of three threatened seabird species. Due to their inaccessibility by terrestrial predators, these sites offer safe breeding and moulting habitat (Kemper 2006, Kemper et al., 2007). Breeding penguins and cormorants forage almost exclusively within the boundaries of the EBSA; breeding gannets have larger foraging ranges, but core feeding activities take place within the EBSA (Ludynia et al., 2010a, 2012). In Namibia, the majority of calving sites for Southern Right Whales (a species that was nearly hunted to extinction in Namibia and has only recently returned to Namibian waters to breed) fall within the EBSA (Roux et al., 2001). Namibian Islands also provides crucial breeding and feeding habitat to a large proportion of the global population of Heaviside's dolphins at the centre of its distribution (Roux et al., 2001). Furthermore, the extensive kelp beds between Sylvia Hill and Chameis Bay provide important habitat for rock lobsters, including juveniles, immature and egg-bearing females (Currie et al., 2008). Leatherbacks from the Western Indian Ocean also use the EBSA as a foraging ground (Harris et al., 2017).

C3: Importance for threatened, endangered or declining species and/or habitats High

Justification

The Namibian Islands EBSA constitute crucial breeding habitat for several seabird species endemic to the southern African region, including the globally Endangered African Penguin, Cape Cormorant and Bank Cormorant, as well as the locally Critically Endangered Cape Gannet (Simmons et al., 2015). The breeding populations of these species continue to decline globally, and certainly the depletion, and lack of recovery, of small pelagic fish stocks (e.g., sardine, anchovy) in southern Namibia continue to play a key role in the decline of these species locally (IUCN 2016). Also, some regionally Critically Endangered leatherback turtles from the Western Indian Ocean that nest in South Africa use this area as a foraging ground (Harris et al., 2017). Furthermore, the Namibian Islands EBSA includes important threatened habitats (Holness et al., 2014). These include two Critically Endangered ecosystem types (Namaqua Intermediate Sandy Beach and Namaqua Reflective Sandy Beach), one Endangered type (Kuiseb Mixed Shore), and three Vulnerable types (Lüderitz Outer Shelf, Namaqua Exposed Rocky Shore, Namaqua Inshore; Table in the Other relevant website address or attached documents section.).

C4: Vulnerability, fragility, sensitivity, or slow recovery **High**

Justification

Breeding seabirds, particularly penguins, are vulnerable to extreme environmental events such as heat waves or severe storms, in part because the nesting habitat has been modified by historic and, to a limited extent, more recent guano harvesting. This may be exacerbated further by the effects of climate change (Griffiths et al., 2005; Kemper et al., 2007). Sea-level rise will threaten the existence and/or spatial extent of the low-lying islands (Roux 2003). In addition, the lack of good-quality small pelagic prey (because of stock depletion followed by a lack of recovery) has led to degraded seabird foraging habitats. These habitats may be further degraded through increasing marine mining activities and coastal industrialization, as well as changes in climate (including warm-water and/or low-oxygen events) in the vicinity of the islands and in key foraging areas.

C5: Biological productivity **Medium**

Justification

The Namibian Islands EBSA is situated within the intensive Lüderitz Upwelling Cell, which induces high levels of productivity and thus abundant fish and higher trophic level populations. However, the depletion of small pelagic fish stocks in the late 1960s through over-fishing, particularly in southern Namibia, has resulted in a degraded marine ecosystem (Roux et al., 2013), characterized by a decrease in productivity and changes in the overall trophic function in this area.

C6: Biological diversity **Low**

Justification

As a cold-water and predominantly sandy-bottomed marine environment, the northern Benguela Current ecosystem is considered relatively poor in biological diversity compared to more tropical or substrate-diverse marine ecosystems. However, the coastline and near-shore waters along which the EBSA is situated are characterized by both rocky and sandy substrates, which support a limited (and poorly studied) array of micro- and macroscopic benthos, including seaweeds and invertebrate species (Sakko 1998, Harris et al., 1998). The biodiversity in the inter-tidal zones of the islands tends to be greater than elsewhere in the area, possibly due to high nutrient input from seabird guano. Altogether, 140 species have been recorded in the EBSA (OBIS 2017).

C7: Naturalness **High**

Justification

The islands themselves have been modified from their pristine states through anthropogenic impacts such as intensive guano scraping activities on the islands (Griffiths et al., 2005). However, the area overall is in good and improving condition, and is fully included in the Marine Protected Area. The surrounding marine environment is well within the Namibian 200 m no-trawl protection zone. Purse-seining is prohibited within the EBSA (as per NIMPA regulations) in order to encourage the recovery of small pelagic fish stocks that are vital to the area's ecosystem health and functioning. A commercial and recreational lobster fishery is located along the southern coast of Namibia. Coastal development and marine mining in the area have been limited but are expected to expand. Although there have been significant historical impacts (especially on the islands specifically) and there are regional risks from adjacent areas, 91% of the Namibian Islands EBSA was classified as being in good condition, based on current levels of impacting activities (Holness et al., 2014). This is consistent with the inclusion of the entire area in the NIMPA as part of the EBSA's boundary revision.

Status of submission

The Namibian Islands EBSA was recognized as meeting EBSA criteria by the Conference of the Parties. The revised description and boundaries have been submitted to the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) for consideration by the Conference of the Parties to the Convention on Biological Diversity

COP Decision

dec-COP-12-DEC-22

End of proposed EBSA revised description

New EBSAs

Cape Fria

Proposed EBSA Description

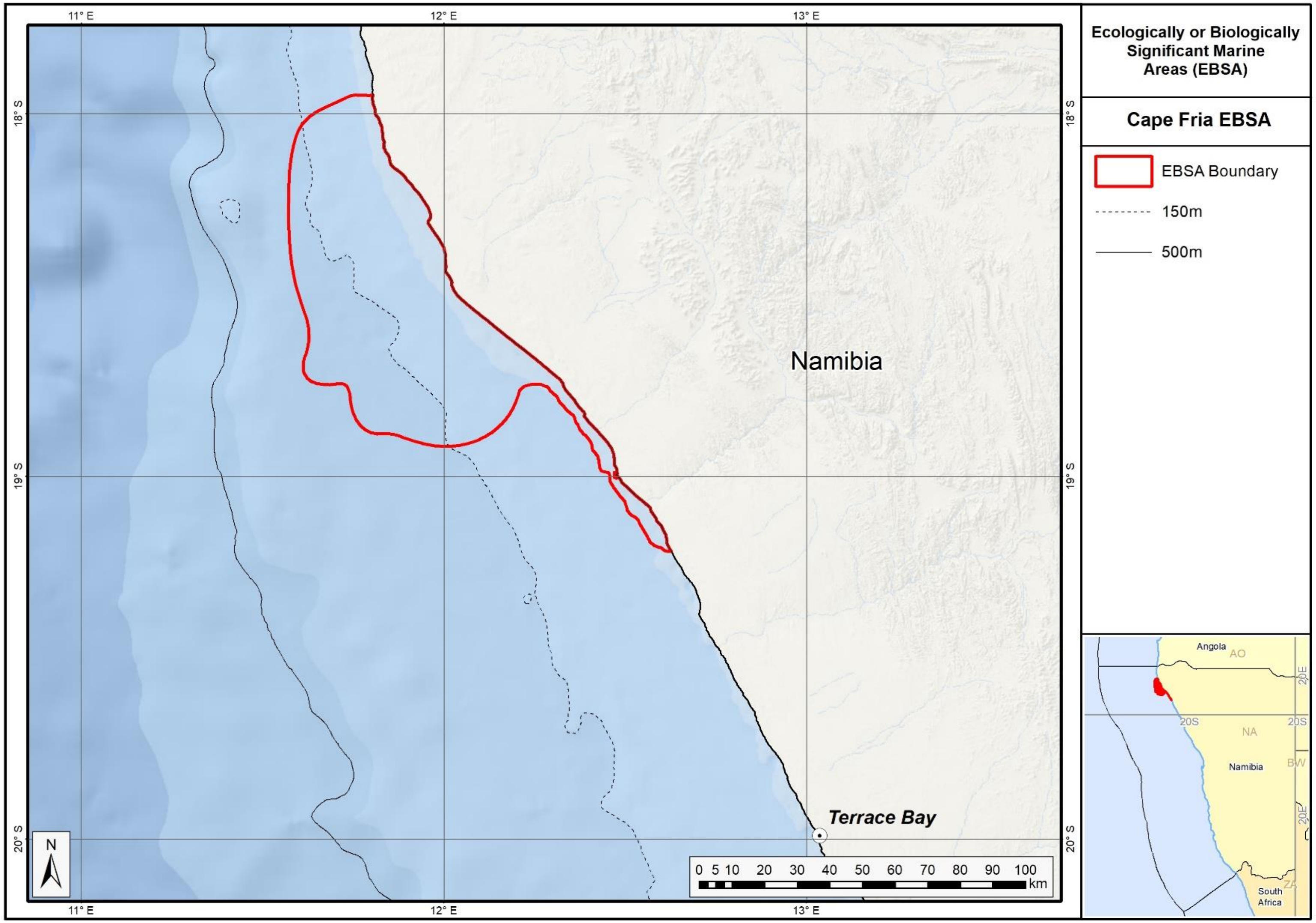
Abstract

Cape Fria is a coastal EBSA in northern Namibia, 50 km south of the border with Angola. The EBSA encompasses Cape Fria itself, and Angra Fria: a small, prominent bay to the north. Here, the continental shelf is at its narrowest in Namibia, and there is an intense upwelling cell, second only to that found at Lüderitz, which enhances local productivity. Consequently, several top predators use this area as a foraging ground. The EBSA thus extends 100 km along the shore, and 40 km offshore to depths of <250 m in the north (where seals forage) and 5 km offshore in the south (where Damara Terns forage). The upwelling cell also marks the northern boundary of the Benguela Current. Therefore, Cape Fria falls within a biogeographic transition zone, with a relatively high local biodiversity because it comprises species at both the northern and southern limits of their distributions. There is evidence that the area is critical for aggregations of almost the entire global population of Damara Tern, a Benguela System endemic, during specific periods of the year. It is also an important breeding site for Cape fur seals. Given its remote location, the coast is in relatively pristine condition, but may be threatened by industrial development in the future.

Introduction

Cape Fria, also known as Cape Frio, is located along the northern Namibian coast, adjacent to the Skeleton Coast Park. This site was not included in the initial set of EBSAs proposed for Namibia because: it was identified only during a gap analysis of the Namibian EBSA network; local knowledge of the Damara Tern aggregations (see below) was not available at the original South Eastern Atlantic EBSA Workshop in 2013 (UNEP/CBD/RW/EBSA/SEA/1/4); and data and information on the area are both relatively limited because it is so remote. During the gap analysis, it was determined that Cape Fria is a separate EBSA from the Namibe EBSA (previously named: Kunene-Tigres), rather than an extension of it, because it is centred around a separate upwelling cell that is not connected to the upwelling cell that enhances productivity in Namibe.

The Cape Fria EBSA lies at the northern limit of the Benguela Current, possibly influenced by the Angola-Benguela Frontal Zone, and thus within the transition zone between the temperate and sub-tropical bioregions. The larger component extends 40 km offshore, and includes inshore waters on the narrowest portion of the Namibian shelf, spanning a depth range of 0-250 m. It also includes a narrower coastal extension for approximately 60 km alongshore to the south, and approximately 5 km offshore. The unusual shape of this EBSA reflects the foraging ranges of different species that are responding to the upwelling-driven productivity. The broad northern portion is the foraging range of Cape fur seals, because that area supports an important breeding Cape fur seal colony. The narrower southern portion represents the foraging range of Damara Terns that rest on the adjacent shore. Interestingly, this EBSA appears to contain almost the entire global population of Damara Tern on a seasonal basis. Cape Fria EBSA also includes important threatened benthic shelf habitats. This site comprises a collection of features and ecosystems that are connected by the same ecological processes, but some features (e.g., the Damara Tern aggregations) are ephemeral; therefore, it is proposed as a Type 2/3 EBSA (sensu Johnson et al., 2018).



Proposed delineation of the Cape Fria EBSA.

Description of the location

EBSA Region

South-Eastern Atlantic

Location

Cape Fria is located about 50 km south of the border between Namibia and Angola. The main body of the Cape Fria EBSA extends 40 km offshore and 100 km along the coast, while an additional section of inshore habitat extends alongshore for approximately 60 km southwards and has a width of approximately 5 km offshore. It lies entirely within Namibia's national jurisdiction.

Feature description of the proposed area

The Cape Fria EBSA includes coastal and nearshore elements, and thus described for both benthic and pelagic features. It was identified in a gap analysis (using a systematic conservation planning approach) as an important inshore focus area for conservation of biodiversity features that are not yet sufficiently represented in the existing Namibian EBSA and marine protected area network (Holness et al., 2014). Local habitat heterogeneity is relatively high in this area, with 17 ecosystem types identified (Holness et al., 2014; Table in the Other relevant website address or attached documents section). Two of these habitats are Endangered: Central Namib Outer Shelf and Kunene Outer Shelf, with the EBSA being particularly important for the latter. In addition, a small portion of the Vulnerable Kunene Shelf Edge ecosystem type is also found within the Cape Fria EBSA. These threat statuses were determined by assessing the weighted cumulative impacts of various pressures (e.g., extractive resource use, pollution, development, and others) on each ecosystem type for Namibia (Holness et al., 2014; Table in the Other relevant website address or attached documents section).

Importantly, productivity offshore of Cape Fria is high because it is the site of the second-most intensive upwelling cell in Namibia. Here upwelling is driven both by wind and bottom topography because the site is at the narrowest portion of the continental shelf (Sakko, 1998); further, the wind shadow and poleward currents also contribute to phytoplankton blooms (Jury, 2017). This elevated productivity is at the heart of the EBSA, because it consequently forms a key foraging area for several top predators. The Cape Fria coast supports an important breeding site for Cape fur seals, *Arctocephalus pusillus pusillus*, with an increasing local population, compared to largely declining populations in southern Namibia (Kirkman et al., 2012). These seals spend time foraging in the northern portion of the EBSA. Cape Fria also supports several species of shore- and seabirds, including over-wintering Palearctic migrant bird species. Most notably, there is evidence that Cape Fria may contain, either seasonally or episodically, almost the entire global population of Damara Tern, *Sternula balaenarum*, a vulnerable species, endemic to the Benguela System (Braby et al., 1992). The focus area appears to be an annual congregation site prior to the flock migrating northwards. It has been suggested that this is likely to be linked to high food availability, i.e., a high-energy coastline with a presumably reliable food source that is available at night and within about 5 km of the shore. Damara Terns forage more in the southern portion of the EBSA, closer to the shore compared to that of the seals.

Although bird diversity and abundance are fairly low at Cape Fria (Tarr & Tarr, 1987), it may support a relatively high local biodiversity overall because it is situated within the transition zone between the temperate and sub-tropical bioregions (Sakko 1998). Consequently, the communities at Cape Fria comprise species from both bioregions at the northern and southern limits of their respective distributions. This includes various linefish and other commercially important species, such as deep-water hake (Holtzhausen et al., 2001, Kirchner et al., 2011), large-eye dentex (*Dentex macrophthalmus*), thinlip splitfin (*Synagrops microlepis*), longfin bonefish (*Pterothrissus belloci*) and the African mud shrimp (*Soleonocera africana*; Bianchi et al., 1999).

Feature condition and future outlook of the proposed area

Cape Fria and surrounds is a remote coastal area adjacent to the Skeleton Coast National Park. The focus area is inaccessible to the public, with only limited tourism permitted in the area, and consequently, this area is near-pristine. According to data from Holness et al. (2014) nearly 90% of the area is classified as being in good condition, with almost all of the remaining area classified as being in fair ecological condition. Inshore and coastal habitats are in particularly good condition and are effectively well protected as a result of their remote location and the terrestrial Skeleton Coast National Park. However, pending plans to build an industrial port and associated infrastructure at Cape Fria or Angra Fria (Paterson, 2007) could potentially impact this. Onshore and offshore prospecting and mining (i.e., diamonds, oil, precious metals) is minimal at present but is expected to occur in the future.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for Cape Fria. Data from Holness et al. (2014).

Threat Status	Ecosystem type	Area (km²)	Area (%)
Endangered	Central Namib Outer Shelf	243.0	5.0
	Kunene Outer Shelf	1 342.5	27.8
Vulnerable	Kunene Shelf Edge	3.8	0.1
Least Threatened	Central Namib Inner Shelf	829.4	17.2
	Kunene Exposed Rocky Shore	0.3	0.0
	Kunene Inner Shelf	1 551.1	32.2
	Kunene Inshore	275.4	5.7
	Kunene Intermediate Sandy Beach	61.0	1.3
	Kunene Mixed Shore	6.3	0.1
	Kunene Reflective Sandy Beach	1.9	0.0
	Hoanib Dissipative-Intermediate Sandy Beach	9.8	0.2
	Hoanib Dissipative Sandy Beach	7.0	0.1
	Hoanib Exposed Rocky Shore	0.4	0.0
	Hoanib Inshore	445.4	9.2
	Hoanib Intermediate Sandy Beach	38.4	0.8
	Hoanib Mixed Shore	7.9	0.2
	Hoanib Sheltered Rocky Shore	0.03	0.00
Grand Total		**4 823.8**	**100.0**

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Description** (Annex I to decision IX/20)	**Ranking of criterion relevance**
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.	Medium

Explanation for ranking

Cape Fria is both unique and rare for several reasons. It falls within a transition zone between the temperate and sub-tropical bioregions, and includes a relatively rare upwelling cell, second in intensity only to the Lüderitz upwelling cell. Further, a systematic conservation planning assessment (that was undertaken as a gap analysis) identified Cape Fria as an important inshore focus area for place-based conservation of biodiversity features that were not yet sufficiently represented in the existing Namibian EBSA and marine protected area network (Holness et al., 2014). Portions of this focus area were always required to meet biodiversity conservation targets, and hence it can be considered to be “irreplaceable”. Finally, existing evidence indicates that the area may either seasonally or episodically contain almost the entire global population of Damara Tern, *Sternula balaenarum*, a Benguela System endemic species (Braby et al., 1992). The area appears to be an annual congregation area prior to the flock migrating northwards. It has been suggested that this is likely to be a congregation area linked to high food availability, i.e., a high-energy coastline with a presumably reliable food source that is available at night and within about 5 km of the shore.

Special importance for life-history stages of species	Areas that is required for a population to survive and thrive.	High

Explanation for ranking

Cape Fria is an important site for Cape fur seals, which, although it was only relatively recently established as a breeding colony, supports an increasing seal population (Kirkman et al., 2012). This site also exhibits strong terrestrial links because the expanding seal colony supports an expanding population of the Endangered Lappet-faced Vulture, *Torgos tracheliotos* (Braby, pers. comm.). The Cape Fria EBSA is also an overwintering site for Palearctic waders, although at fairly low densities (Tarr & Tarr, 1987). Further, as noted previously, Cape Fria hosts almost the entire global population of Damara Tern either seasonally or episodically, in what seems to be an annual congregation area prior to the flock migrating northwards (Braby et al., 1992). It is likely that this is linked to high food availability at the site, i.e., a high-energy coastline with a presumably reliable food source that is available at night, and within about 5 km of the shore. Finally, Cape Fria is a transition zone between

the cool, temperate southern areas that are influenced by the Benguela current, and a more sub-tropical climate to the north of Namibia (Tarr 1987), and thus may possibly be an important area for adaptation to climate change and range shifts. This is supported by the fact that the area constitutes the northern or southern limit for a number of fish species (Bianchi et al., 1999; Holtzhausen et al., 2001; Kirchner et al., 2011).		
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.	High
Explanation for ranking The Cape Fria EBSA contains two Endangered ecosystem types: Central Namib Outer Shelf and Kunene Outer Shelf, with the area being particularly important for the latter. In addition, a small portion of the Vulnerable Kunene Shelf Edge ecosystem type is found in this EBSA. As noted previously, the site is also important for the Vulnerable Damara Tern, *Sternula balaenarum* (Braby et al., 1992), and for Cape fur seals that seem to be generally declining in abundance at rookeries in southern Namibia but increasing here (Kirkman et al., 2014).		
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.	Data Deficient
Explanation for ranking There is no information to guide ranking the EBSA on this criterion. It could possibly be ranked low because the conditions are unstable and unpredictable, preventing very vulnerable species from persisting (Sakko 1998). However, it could also be argued that the Cape Fria upwelling cell is vulnerable to impacts from climate change.		
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.	High
Explanation for ranking There is an upwelling cell at Cape Fria that enhances local productivity (Sakko, 1998). Upwelling is year-round, but is intensified in winter and early spring (Hutchings et al., 2006; Jury, 2017). It is driven both by wind and bottom topography because the Namibian continental shelf is at its		

<table>
<tr><td colspan="3">narrowest around Cape Fria (Sakko, 1998); further, the wind shadow and poleward currents also contribute to the phytoplankton blooms (Jury, 2017). This upwelling cell is second in intensity only to the Lüderitz upwelling cell, and the high productivity here that underpins the top predator foraging areas is at the heart of this site’s value as an EBSA.</td></tr>
<tr><td>Biological diversity</td><td>Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.</td><td>Medium</td></tr>
<tr><td colspan="3">Explanation for ranking

Shorebird and coastal seabird diversity and density are relatively low in the focus area (Ryan et al., 1984; Tarr & Tarr, 1987). However, the Cape Fria focus area may be an area of high sub-tidal and coastal biodiversity because it is at the transition between temperate and sub-tropical biogeographic regions, with communities comprising species at their southern and northern bioregional limits (Sakko 1998). It is possible that this is enhanced by high productivity from the Cape Fria upwelling cell, and the close proximity to the Walvis Ridge, which has high habitat heterogeneity. The speculated higher biodiversity in the area could be locally important because Namibia generally has low marine species richness (Sakko 1998). Local habitat heterogeneity is also high, with 17 habitats represented within the EBSA.</td></tr>
<tr><td>Naturalness</td><td>Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.</td><td>High</td></tr>
<tr><td colspan="3">Explanation for ranking

Cape Fria is a remote coastal area adjacent to the Skeleton Coast Park. The focus area is inaccessible to the public, with only limited tourism permitted in the area, and because of this, is currently near-pristine.</td></tr>
</table>

Status of submission

The description of Cape Fria has been submitted to the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) for consideration by the Conference of the Parties to the Convention on Biological Diversity.

COP Decision

Not yet submitted.

End of proposed EBSA revised description

Walvis Ridge Namibia

Proposed EBSA Description

General Information

Summary

The Walvis Ridge Namibia EBSA lies contiguous to the Walvis Ridge EBSA in the high seas. Together, these two EBSAs span the full extent of the significant hotspot track (seamount chain formed by submarine volcanism) that comprises the aseismic Walvis Ridge and the Guyot Province. This unique feature forms a submarine ridge running north-east to south-west from the Namibian continental margin to Tristan da Cunha and Gough islands at the southern Mid-Atlantic Ridge. The Walvis Ridge Namibia EBSA encompasses the globally rare connection of a hotspot track to continental flood basalt in the Namibian EEZ. Given the high habitat heterogeneity associated with the complex benthic topography, it is likely that the area supports a relatively higher biological diversity, and is likely to be of special importance to vulnerable sessile macrofauna and demersal fish associated with seamounts. Productivity in the Namibian portion of Walvis Ridge is also particularly high because of upwelling resulting from the interaction between the geomorphology of the feature and the nutrient-rich, north-flowing Benguela Current. Although there are fisheries operating over Walvis Ridge in northern Namibia, the EBSA focus area is currently in good condition.

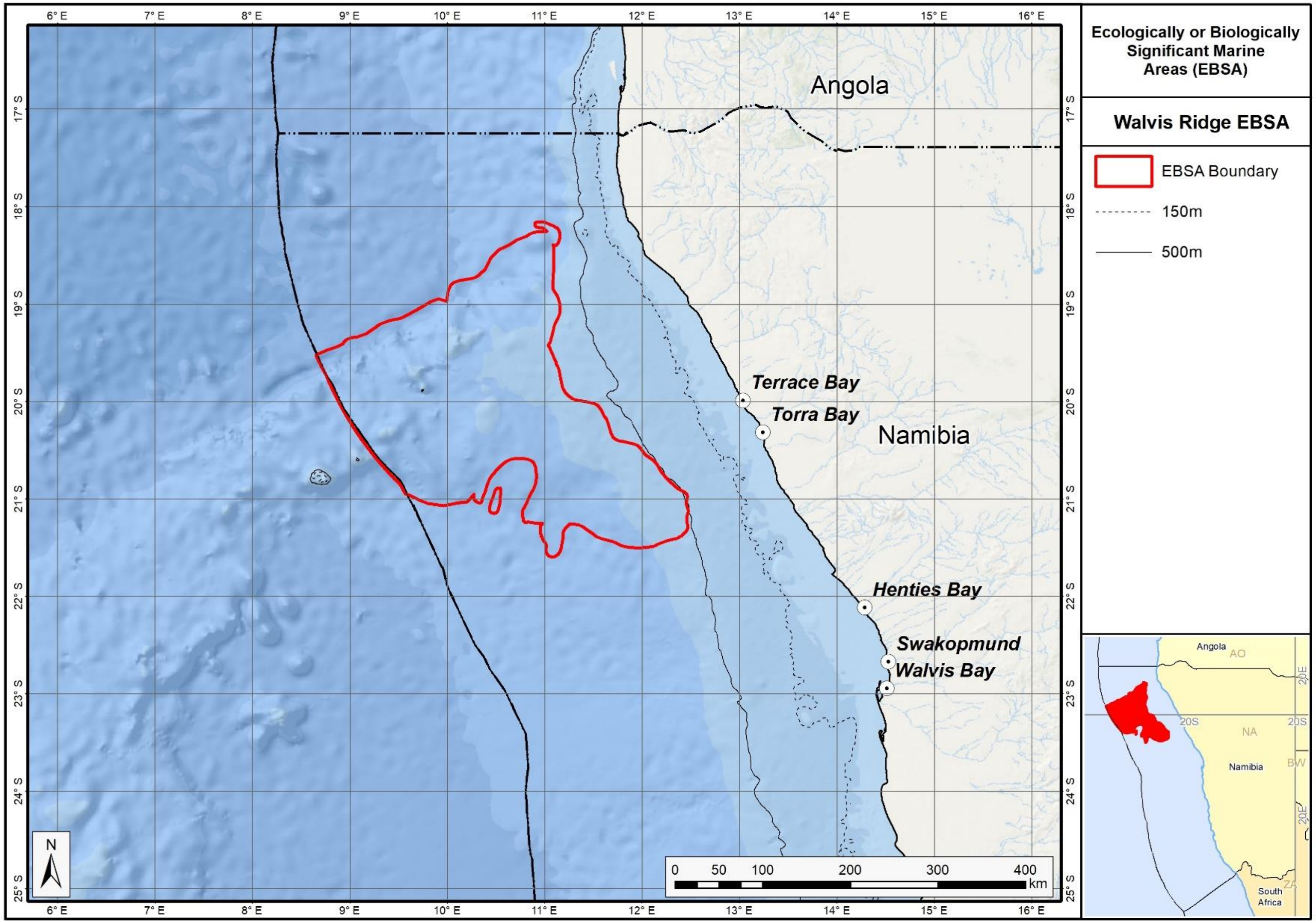
Introduction of the area

The aseismic Walvis Ridge is a seamount chain formed by hotspot submarine volcanism, some of which are guyots, that is connected to a continental flood basalt province in northern Namibia. The ridge presents a barrier between North Atlantic Deep Water to the north and Antarctic Bottom Water to the south. The surface oceanographic regime is the South Atlantic Subtropical Gyre bounded by the productive waters of the Benguela Current System and the Subtropical Convergence Zone. The feature described here is depth-bound around the 4000-m isobath, and contains significant areas within the likely vertical extent of near-surface zooplankton migration (1000 m). Although biologically significant, data from research cruises are patchy and variable, however the greater area is known to support a high diversity of seabirds, some of which are threatened. Further, the steep slopes and seamounts that are characteristic of the ridge likely support enhanced primary production, abundance and species richness. Because this site comprises a complex of features and ecosystems that are connected by the same ecological processes, it is proposed as a Type 2 EBSA (sensu Johnson et al., 2018).

Description of the location

EBSA Region

South-Eastern Atlantic



Proposed boundaries of the Walvis Ridge Namibia EBSA.

Description of location

The Walvis Ridge extends obliquely (NE-SW) across the south east Atlantic Ocean from the northern Namibian shelf (18°S) to the Tristan da Cunha island group at the Mid-Atlantic Ridge (38°S). The part of the ridge that lies beyond national jurisdiction is included in the existing Walvis Ridge EBSA that has its north eastern boundary at the Namibian EEZ. The proposed Walvis Ridge Namibia EBSA is contiguous with this high seas EBSA, spanning only that portion of the ridge within Namibia's national jurisdiction. Given the global rarity of the connection between a hotspot track and the continental flood basalt province, it is imperative that the full extent of this feature is encompassed within an EBSA, including the portion in the Namibian EEZ.

Area Details

Feature description of the area

Walvis Ridge is both a benthic and water column feature: it is a chain of seamounts that individually and collectively constitute an ecologically and biologically significant deep-sea feature, as also recognized by the Census of Marine Life project (CenSeam: http://censeam.niwa.co.nz). Walvis Ridge also includes a number of deep-sea features in addition to the seamounts and guyots, such as steep canyons, embayments formed by massive submarine slides, trough-like structures, a graben, abyssal plains, and a fossilized cold-water coral reef mound community (GEOMAR 2014). Based on these physical features, the ridge can be divided into three sections (GEOMAR 2014). The portion of the ridge within the proposed EBSA forms part of the northern section, which extends SW from the Namibian shelf, with a steep NW scarp, ridge-type seamounts, and guyots with rift arms (GEOMAR 2014).

The high habitat heterogeneity supports moderately diverse biological communities, including benthic macrofauna such as brachiopods, sponges, octocorals, deep-water hexacorals, gastropods, bivalves, polychaetes, bryozoans, cirriped crustaceans, basket stars, ascidians, isopods and amphipods (GEOMAR 2014). Presumably this diversity extends along the full extent of the ridge, and into the Namibian portion. Productivity seems to increase from SW to NE along Walvis Ridge, with sediment organic carbon and the abundance and diversity of phytoplankton communities increasing towards the Namibian shelf, likely reflecting patterns of nutrient transport and upwelling in the north-flowing Benguela Current that are more intense closer to the African continent (GEOMAR 2014).

This EBSA was not included in the original South Eastern Atlantic Workshop that was held in 2013 (UNEP/CBD/RW/EBSA/SEA/1/4) because it was highlighted only in a gap analysis of the national and regional EBSA networks, using systematic conservation planning (Holness et al., 2014). Further, new information has since become available following a recent research cruise (GEOMAR 2014), which has added certainty of the significance of the features. The EBSA boundary links tightly to important benthic features comprising the ridge (produced by combining GEBCO data with that from www.bluehabitats.org: see Harris et al., 2014, and data from Holness et al., 2014). Those features that are continuous with the ridge, as well as isolated hills that are in close proximity are included. The EBSA also includes areas with a high selection frequency in the regional gap analysis (Holness et al., 2014), which suggests that they are irreplaceable areas in the region.

Feature conditions and future outlook of the proposed area

The Walvis Ridge EBSA is primarily recognized as a geological feature but the biota in the area could be vulnerable to fishing (e.g., orange roughy; SEAFO report in FAO Statistical Area 47). The fisheries within the Namibian EEZ are managed by Namibia's Ministry of Fisheries and Marine Resources. Oil exploration has already taken place within the EBSA, namely Welwitschia-1 well, which was drilled in 2014 at 20°11'9.79"S, 11°19'3.27"E. Although it was found to be dry, future drilling activities in the area are likely. The EBSA is largely in good condition, though some impacted areas exist on the far eastern edge (Holness et al., 2014).

The Walvis Ridge and Walvis Ridge Namibia EBSAs should ideally be merged because they both represent the same feature; however, the former is in the high seas and the latter is under national jurisdiction. Consequently, this merger will depend on international processes around EBSAs that span across country EEZs and ABNJ. It is thus recommended that ABNJ and BBNJ processes are engaged to understand the link between these two EBSAs and how they might be merged in the future.

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Summary of ecosystem types and threat status for Walvis Ridge Namibia. Data from Holness et al. (2014).

Threat Status	Ecosystem type	Area (km^2)	Area (%)
Vulnerable	Central Namib Shelf Edge	18,113	26.1
	Kunene Shelf Edge	6,458	9.3
Least Threatened	Kunene Abyss	5,920	8.5
	Kunene Lower Slope	8,664	12.5
	Kunene Seamount	3,818	5.5
	Kunene Upper Slope	2,298	3.3
	Namib Abyss	383	0.6
	Namib Lower Slope	16,573	23.9
	Namib Seamount	2,290	3.3
	Namib Upper Slope	4,931	7.1
Grand Total		**69,448**	**100.0**

Additional Information

Additional criteria: BirdLife Important Bird Areas Criteria (BirdLife 2009, 2010) A1 Regular presence of threatened species; A4ii >1% of the global population of a seabird.

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity High

Justification

As the only extensive seamount chain off of the Mid-Atlantic Ridge in the Southeast Atlantic, the Walvis Ridge is a unique geomorphological feature. It is also one of the few hotspot tracks on earth that connects to continental flood basalt. This rare connection falls within the Walvis Ridge Namibia EBSA.

C2: Special importance for life-history stages of species High

Justification

Seamount chains may facilitate connectivity between individual seamounts over extensive distances. The varied topography and geomorphology support demersal fish resources (based on demersal fisheries records in locations shallower than 2000 m). The varied bathymetry dictates the distribution area and provides significant habitat for bentho-pelagic species (e.g., hotspots for orange roughy), and is also likely to do so for epi-pelagics (Clark et al., 2007, Rogers and Gianni, 2010). These seamounts are significant habitats for cold-water corals and sponges (Zibrowius and Gili, 1990; GEOMAR 2014). Thus, the Walvis Ridge is of special importance for sessile macrofauna and for demersal fish associated with seamounts (FAO FIRMS species distribution maps) (http://firms.fao.org). It includes parts of the foraging areas for globally threatened seabirds, such as the Tristan Albatross (*Diomedea dabbenena*), Wandering Albatross (*Diomedea exulans*) and Atlantic Yellow-nosed Albatross (www.seabirdtracking.org). The series of seamounts provides a potential stepping stone feature for organisms from coast to mid ocean (e.g., dispersion of the benthic octopod, *Scaeurgus unicirrhus*; Sanchez and Alvarez, 1988).

C3: Importance for threatened, endangered or declining species and/or habitats Medium

Justification

Bluefin and big-eye tuna occur in the area (e.g., FishBase), and orange roughy hotspots within the area are known (SEAFO information). Several threatened seabird species also use the Namibian portion of the Walvis Ridge for foraging, e.g., the endangered Atlantic Yellow-nosed Albatross (www.seabirdtracking.org; BirdLife International, 2017).

C4: Vulnerability, fragility, sensitivity, or slow recovery High

Justification

Habitat-forming sessile megafauna are fragile and vulnerable to bottom contact fishing gears and slow to recover from damage. Habitat prediction models and observational data (Durán Muñoz et al., 2012, GEOMAR 2014, Perez et al., 2012) indicate presence of cold-water corals and sponges, and other delicate fauna such as basket and feather stars (see also the OBIS database for species records: http://www.iobis.org/explore/#/area/351). Based on empirical evidence (e.g., observations from Spanish/Namibian cruises on the Valdivia Bank, and along the whole ridge; GEOMAR 2014) the seamounts and deep-sea features along the Walvis Ridge have sensitive habitats, biotopes and species, justifying high criterion ranking.

C5: Biological productivity Medium

Justification

Productivity appears to increase from SW to NE along the Walvis Ridge, as seen in the sediment organic carbon load, and abundance and diversity of plankton that both increase closer to the Namibian shelf (GEOMAR 2014). Several seamounts also extend into the photic zone and may have enhanced primary production. Significant areas are within the likely vertical range of epipelagic zooplankton migration (Jacobs and Bett, 2010).

C6: Biological diversity Medium

Justification

Data on biological diversity associated with the Walvis Ridge are limited, however there are some data on seabirds, fish, and benthic mega-, macro- and meiofauna (see Perez et al., 2012 for a review, and GEOMAR 2014), including 17 922 records of 907 species listed on the OBIS database (OBIS 2017). Observations and the range of habitats created by the seamount chain and immediately adjacent abyssal area suggest comparatively higher diversity of ecosystems, habitats, communities, and species. This has been confirmed to some extent through bathymetric/geological surveys and biological sampling of the benthos, which revealed a variety of benthic macrofauna (GEOMAR 2014). Presumably the comparatively higher biodiversity associated with this geological feature extends into the Namibian portion of the ridge that comprises the Namibian EBSA focus area.

C7: Naturalness High

Justification

Human influence along the Walvis Ridge is largely historic, fisheries were and are mainly confined to seamount summits (SEAFO information, Clark et al., 2007, and relevant papers cited in Perez et al., 2012), and oil exploration drilling has been limited to date. Apart from seamounts that are likely to have been impacted by bottom-fishing, the remainder of the area is considered to have a high degree of naturalness. The EBSA focus area is largely in good condition, though some impacted areas exist on the far eastern edge (Holness et al., 2014).

Status of submission

The description of Walvis Ridge Namibia has been submitted to the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) for consideration by the Conference of the Parties to the Convention on Biological Diversity.

COP Decision

Not yet submitted.

End of proposed EBSA revised description

Transboundary EBSAs

Revised EBSAs

Namibe (Formerly Kunene-Tigres)

Revised EBSA Description

General Information

Summary

Namibe is a trans-boundary area shared by Namibia and Angola. The EBSA is a modification, and extension of the original Kunene-Tigres EBSA. The Kunene River, its mouth and associated wetland influence the salinity, sediment and productivity within the Tigres Island-Bay complex about 50 km north of the river mouth. This link, underpinning elevated local productivity, is a regionally unique feature. However, the original EBSA delineation also included but overlooked the presence of shelf-incising canyons and seamounts in EBSA footprint, which also contribute to elevated productivity and foraging habitat. New information since the initial description has facilitated a northward extension of the EBSA to include adjacent canyons and seamounts, as well as the full extent of the coastline of Iona National Park. In short, Namibe comprises a highly diverse collection of species and habitats in very close proximity, many of which are also threatened, with unique and other features that promote high productivity. In turn this drives importance of the area for supporting the life-histories of key species, such as providing foraging, breeding and resting habitats for seals, fish, turtles, and migratory and resident birds.

Introduction of the area

Adjacent to the arid, mostly uninhabited, and remote 100 km of the southern Angolan coastline is an area of limited geographic but notable ecological prominence. Tigres Island and adjacent bay are a remnant of the pre-1970s peninsula formed by sediment discharged from the Kunene River. These features form a rare coastal wetland that plays an important role in the life cycles of many marine and terrestrial fauna (Simmons et al., 2006, Paterson 2007). The predominantly sandy island, measuring ~6 km at its widest point and ~22 km in length, has withstood the weathering effects of the Atlantic since the breaching of the isthmus in 1973, and has become an important site for a number of migratory and resident aquatic fauna (Morant 1996b, Simmons et al., 2006, Dyer 2007, Meÿer 2007). Approximately 50 km south of Tigres Island is an ecologically significant natural marine-freshwater feature: the Kunene River mouth. Although discharge volumes are erratic, this sub-tropical, perennial river may discharge up to 30 million m^3 of fresh water per day into the sea. This has pronounced physicochemical influences on the adjacent marine habitat (sublittoral to littoral coastal region) to an extent of ~100 km from the river mouth, mostly northwards, but also southwards during certain times of the year and during abnormal climatic events, such as Benguela Niños (Simmons et al., 1993, Shillington 2003). A lagoon extends 2 km south from the river mouth (Simmons et al., 1993). These features provide foraging, roosting and breeding habitat for a range of fauna, including sea- and shorebirds (Braine 1990, Simmons et al., 1993, Anderson et al., 2001, Dyer 2007, Simmons 2010), marine and freshwater reptiles (Griffin & Channing 1991, Simmons et al., 1993, Griffin 1994, Carter & Bickerton 1996, Griffin 2002), crustaceans (Carter & Bickerton 1996), marine and freshwater fish species (Simmons et al., 1993, Hay et al., 1997, Fishpool & Evans 2001, Holtzhausen 2003), as well as resident (Meÿer 2007) and transient marine mammals (Paterson 2007). In this region the presence of the Cape Fur Seal (*Arctocephalus pusillus*) is verified. This species is strongly associated with the cooler waters of the Benguela Current ecosystem and, therefore, its distribution extends to the western coast of southern Africa to the south of Angola. *A. pusillus* are most common in southern Angola, where there is a large colony in Tigres Bay (Morais et al., 2006). Weir (2013) found that this was the most common marine mammal species in the Benguela region but rarely seen in the northern-most regions. This confirms the link between the northern Angolan section of the EBSA and the Namibian sections.

The revised boundary for this EBSA now includes the full extent of the coastline of the adjacent Iona National Park, which is an Important Bird and Biodiversity Area that similarly supports migratory and resident birds in this area. Further, since the original description, a regional map of marine ecosystems has become available for Namibia and Angola (Holness et al., 2014). It was then noted that the original Kunene-Tigres EBSA contained seamounts and canyons that were also likely contributing to the elevated productivity that underpins the key foraging areas for the species noted above. Therefore, the EBSA was extended northward to include adjacent seamounts and canyons that were in close proximity to Tigres Island and adjacent to the Iona National Park IBA. The southern boundary was also refined to improve precision based on the new habitat map. The habitats that are influenced by the Kunene River, i.e., those formed from terrigenous sediments flowing out of the river, are now included in their full extent. Furthermore, the real extent of the Kunene Estuary, on which this whole EBSA depends, is now included to improve precision over the much smaller representation of the estuary in the original boundary. Namibe is thus proposed as a Type 2 EBSA (sensu Johnson et al., 2018) because it comprises a collection of features and ecosystems that are connected by the same ecological processes.

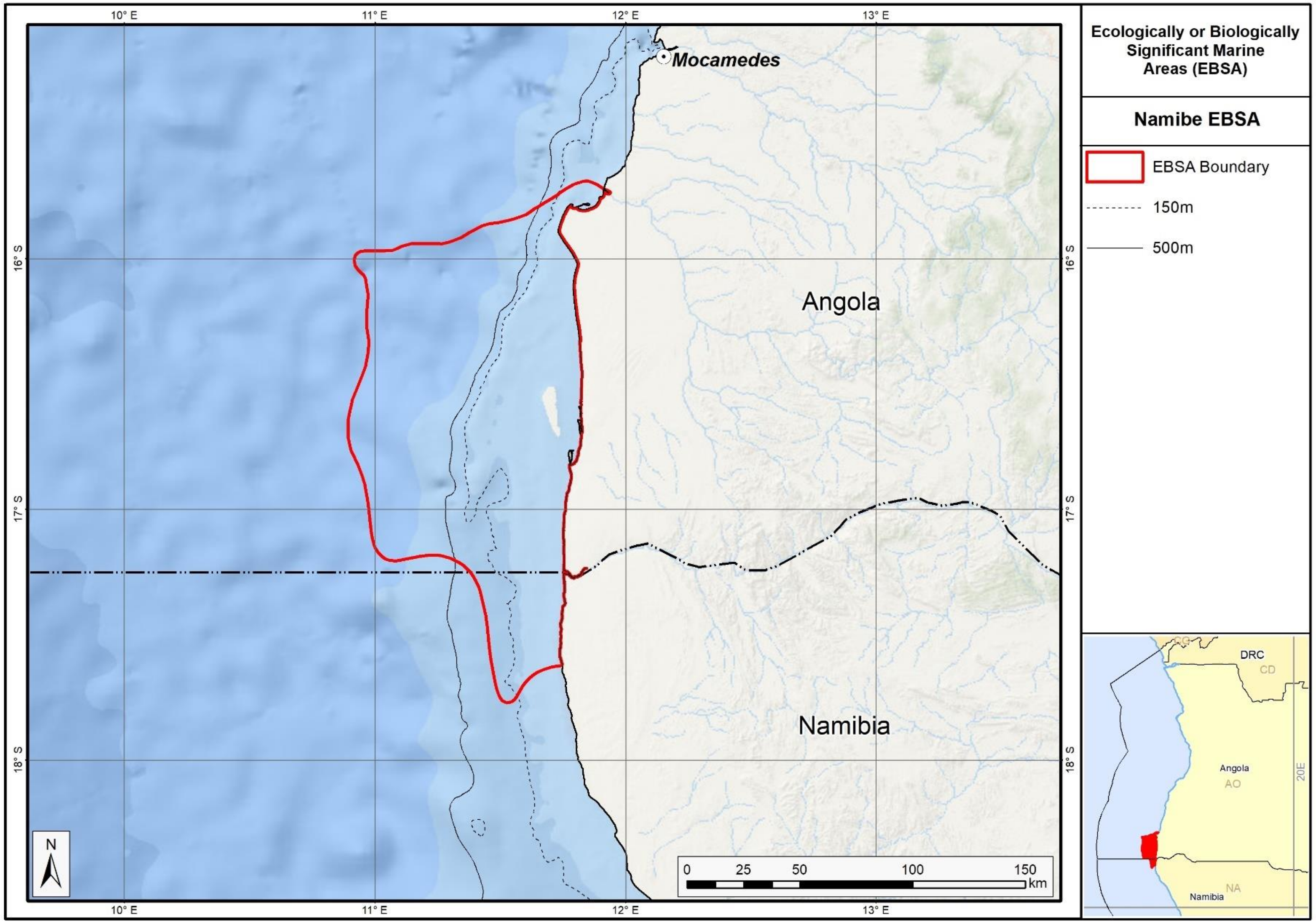
Description of the location

EBSA Region

South-Eastern Atlantic

Description of location

The delineated area extends along the shore approximately 170 km north of the Kunene mouth into southern Angola (to the northern boundary of Iona National Park at Curoca River), and 40 km south of the Kunene mouth into northern Namibia. The maximum offshore extent is approximately 100 km, although the Namibian section extends only 40 km offshore. The EBSA includes the Tigres Bay lagoon and approximately 12 km of the Kunene estuary. Namibe is well within the national jurisdictions of the two neighbouring countries it straddles (i.e., Angola and Namibia), with >80% of the area falling within Angolan jurisdiction. In Namibia, this EBSA borders the Skeleton Coast National Park; and in Angola it borders the Iona National Park. It has a total area of approximately 15,000km^2.



Revised boundary of the Namibe EBSA.

Feature description of the area

Namibe comprises a rich diversity of features, species and habitats. The southern portion includes the Kunene estuary and surrounding river-influenced ecosystems, with the bulk of the influence from the river (freshwater, sediment and nutrients) transported north, connecting to Tigres Island and Tigres Bay in Angola. The surrounding ecosystems also include canyons and seamounts that contribute to the productivity and diversity in the EBSA. Tigres Bay is approximately 11 km at its widest point (northern region of Tigres Bay) and ~8.5 km at its narrowest point (southern limit of Tigres Island from the mainland), with a longitudinal extent of ~60 km.

Surveys of the area have recorded 26 bird species with abundances of around 13000 individuals (Simmons et al., 1993, Simmons et al., 2006, Simmons 2010). Several bird species breed on Tigres Island or along the bay (including globally threatened Cape Cormorants and Damara Terns, and locally threatened Great White Pelicans and Caspian Terns; Simmons et al., 2006; Dyer 2007; Simmons 2010) and Cape fur seals breed on the island (Meÿer 2007). The Kunene River mouth and adjacent marine habitat supports a lower bird density (~4000 individuals) than does Tigres Bay, but a higher species richness, and serves as a refuelling and resting area for Palearctic migrant bird species (Simmons et al., 1993). At least 119 bird species have been recorded at the Kunene River mouth (Paterson 2007), and there are records of 381 species in the EBSA area, of which 2 are Critically Endangered, 3 are Endangered, and 9 are Vulnerable (OBIS, 2017). Iona National Park in Angola is an Important Bird and Biodiversity Area. Furthermore, the Kunene-Namib area is known to support the largest density of green turtles in Namibia (Griffin & Channing 1991; Simmons et al., 2006), with olive ridleys also present. In addition, there are many species of fish, sharks and cetaceans in the area, some of which are threatened, that breed and/or forage in this EBSA (Hay et al., 1997, Holtzhausen 2003, Paterson 2007).

Habitat heterogeneity is high, with 15 habitats present in the EBSA. These include representation of two threatened ecosystem types: the Endangered Kunene Outer Shelf, and Vulnerable Kunene Shelf Edge. These threat statuses were determined by assessing the weighted cumulative impacts of various pressures (e.g., extractive resource use, pollution, development and others) on each ecosystem type for Namibia and Angola (Table in the Other relevant website address or attached documents section; Holness et al., 2014).

Feature conditions and future outlook of the proposed area

Due to the remoteness of the Namibe focus area, limited human impacts (apart from current mining/prospecting) on the marine and coastal areas have resulted in this area being relatively pristine. However, threats to the pristine nature of this ecologically important area include industrial interests upstream of the Kunene River mouth (including proposals to dam the river for power generation) and recent increases in fishing, mining and tourism interests on both sides of the Kunene River mouth (Simmons et al., 1993, Paterson 2007). The Namibian portions of the area are generally in good condition, although most of the Angolan area is in fair ecological condition, primarily due to the high intensity of artisanal and commercial fishing taking place there (Holness et al., 2014). Consequently, 63% of the overall area has been identified as being in fair ecological condition, and 25% in good condition.

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Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **High**

Justification

The Namibe area is unique in the sense that it is the only sheltered, predominantly marine, sandy bay with a link to a perennial river for a 1500 km stretch along the Namibian coast and a 200 km stretch along the Angolan coast (Simmons et al., 2006). Being both geographically and biologically isolated, this area is ranked amongst the most threatened in Namibia (Simmons et al., 1993, Carter and Bickerton 1996, Barnard and Curtis 1998, Bethune 1998, De Moor et al., 2000) and supports reptilian fauna unique to Southern Africa (Kolberg & Simmons 1998). Furthermore, the Kunene wetland is globally unique as it is the only freshwater input area that is located adjacent to an upwelling cell, viz. the Kunene upwelling cell, and wedged within the longitudinal range of a warm-cold water frontal system, i.e., the Angola-Benguela frontal system (Lutjeharms & Meeuwis 1987, Paterson 2007).

C2: Special importance for life-history stages of species High
Justification
The Namibe wetlands serve as resting grounds for Palearctic migratory birds that use the area to build up energy reserves during their seasonal migrations (Simmons et al., 1993). The area (particularly Tigres Island) also serves as the breeding site for several bird species (Simmons et al., 2006, Simmons 2010). In addition to a colony of Cape fur seals, a number of other marine mammals (in particular Heaviside's dolphins, long-finned pilot whales, bottlenose dolphins, beaked whales and Atlantic humpback dolphins) have also been recorded in the general area (Dyer 2007, Paterson 2007). However, little research has been done on cetaceans there, and they are currently considered to be only transient visitors to the area (Paterson 2007). Namibe is very important for green turtles, with high densities of these animals known to occur in the area, which also represents the southern-most distribution of the species along the African west coast (Carr & Carr 1991, Griffin and Channing 1991, Carter & Bickerton 1996, Branch 1998, Griffin 2002, Fretey 2001, Paterson 2007). Furthermore, Namibe is an important spawning area for many marine fish species found along the northern and central Namibian coast (Hay et al., 1997, Holtzhausen 2003).

C3: Importance for threatened, endangered or declining species and/or habitats Medium
Justification
The EBSA contains portions of two threatened habitats, assessed by determining the weighted cumulative impacts of various pressures (e.g., extractive resource use, pollution, development and others) on each ecosystem type for Namibia and Angola (Table in the Other relevant website address or attached documents section; Holness et al., 2014): the Endangered Kunene Outer Shelf, and Vulnerable Kunene Shelf Edge. Further, the Kunene-Tigres area (including the island, the bay, the river mouth and adjacent marine environment) supports threatened and/or regionally endemic bird species – in particular the Great White Pelican: *Pelecanus onocrotalus*, Cape Cormorant: *Phalacrocorax capensis*, Lesser Flamingo: *Phoeniconaias minor*, African Black Oystercatcher: *Haematopus moquini*, Hartlaub's Gull: *Chroicocephalus hartlaubii*, Caspian Tern: *Hydroprogne caspia* and Damara Tern: *Sternula balaenarum* (Barnard & Curtis 1998, Anderson et al., 2001, Simmons et al., 2006, Simmons et al., 2015). Cetaceans that are endemic to the region (e.g., Heaviside's dolphin: *Cephalorhynchus heavisidii*), or are threatened (e.g., the Vulnerable sperm whale, *Physeter microcephalus*; OBIS 2017) also make use of this area during their life cycles (Paterson 2007). Other threatened species in the area include the fish and condricthian species: *Squatina oculata* and *Squatina aculeate* (Critically Endangered); *Argyrosomus hololepidotus, Rostroraja alba,* and *Sphyrna lewini* (Endangered); and *Thunnus obesus, Mustelus mustelus, Rhinobatos albomaculatus, Oxynotus centrina, Oreochromis macrochir,* and *Centrophorus squamosus* (Vulnerable; OBIS, 2017). The resident

edible freshwater prawn: *Macrobrachium vollenhovenii* is also believed to be geographically, ecophysiologically and morphologically distinct here due to the physical characteristics of the Kunene River mouth (Carter and Bickerton 1996, Patterson 2007). Large aggregations of green turtles, *Chelonia mydas*, found in the area further support the significance of the area in relation to this EBSA criterion; Vulnerable olive ridley turtles, *Lepidochelys olivacea*, are also present. This criterion is ranked as medium because the cetaceans listed are probably non-resident here, and there are other areas along the Namibian coast that are considered more important in terms of supporting threatened and endemic bird species.

C4: Vulnerability, fragility, sensitivity, or slow recovery **Medium**

Justification

The EBSA is largely underpinned by the influence of the Kunene River. Consequently, there is a moderate level of vulnerability and sensitivity to disturbance because changes to the freshwater outflow could result in significant changes to the ecosystems it influences by altering sediment delivery, salinity and nutrient concentrations. The vulnerability of the site to changes in productivity is, in part, buffered by the numerous other features that also contribute to productivity in the area, including the upwelling cell and the seamounts and canyons. The Kunene wetlands are believed to be vulnerable to environmental change mainly as a result of anthropogenic stress from activities such as fishing, mining and industrial development (Schneider & Miller 1992; Simmons et al., 1993; De Moor et al., 2000; Paterson 2007). The species at the site include turtles, cetaceans, sharks, seals and birds that are sensitive to delines in population abundance, and would be slow to recover from impacts.

Historically, dams constructed along the upper reaches of the Kunene River (six in total) have not had significant negative impacts on the flow characteristics of the river and naturalness of the adjacent wetland (Paterson 2007). This may be linked to the fact that the six dams have never been in operation at the same time due to structural damages sustained during the historic civil unrest in the region. This, however, may change as there is a proposal for a new hydroelectric dam to be built in the vicinity of the Epupa Falls (Dentlinger 2005), and potential still exists for the renovation of the existing six dams (Paterson 2007). Limited fishing occurs in the area that poses threats to vulnerable species such green turtles (which are often targeted by small military contingents near the Kunene River mouth) and marine mammals, which can get entangled in gillnets used by the fishers on the Angolan side of the border (Paterson 2007). On the Namibian side, diamond mining poses a threat to the area; prospecting taking place some 10 km south of the Kunene River mouth (Schneider & Miller 1992; Paterson 2007). There has also been a proposal for a deepwater harbour at one of two locations (viz. Cape Fria or Angra Fria), which are located roughly 160 and 130 km south of the Kunene River mouth, respectively (Paterson 2007). There have also been calls for the investigation of aquaculture viability at the Kunene River mouth, focusing on the edible freshwater prawn that is resident to the area (Paterson 2007). Furthermore, limited tourism interests are already established on the Namibian side and with tourism gaining momentum on the Angolan side, this industry could also pose a threat to the naturalness of the area if not properly regulated (Simmons et al., 2006, Paterson 2007).

C5: Biological productivity **High**

Justification

The Namibe area is considered to be productive due to its unique geographical location. It is situated within the moderately strong Kunene Upwelling Cell, within the longitudinal range of the Angola-

Benguela frontal system (Lutjeharms & Meeuwis 1987, Paterson 2007), and at the mouth of one of only two perennial rivers in Namibia. The nutrients carried by the Benguela Current are supplemented by nutrient inputs from the Kunene River, providing a rich food supply that supports a diverse fish community in the area (Paterson 2007). In addition, the EBSA contains ecosystems that are characteristically associated with relatively higher productivity, including wetlands, seamounts and canyons. Jointly, this collection of productive features results in a site of high productivity that in turn provides foraging areas for several species, including seals, birds and turtles that breed or rest in the coastal areas (e.g., Simmons et al., 2006; Dyer 2007; Simmons 2010), as well as supporting many fish species that spawn in the area (Paterson 2007).

C6: Biological diversity High
Justification
Habitat heterogeneity in Namibe is high, with 15 distinct ecosystem types present in the EBSA (Holness et al., 2014). The Namibe wetlands also support a high diversity of species, including terrestrial, freshwater and marine fauna (Paterson 2007). Over and above freshwater and marine reptiles (e.g., Nile soft-shelled terrapin, Nile crocodile, green turtle and Nile monitor), and cetaceans, the area also supports a large colony of Cape fur seals (Griffin & Channing 1991, Simmons et al., 1993, Carter & Bickerton 1996, Patterson 2007). The Kunene river mouth is also one of Namibia’s most diverse bird areas, with a total of at least 119 bird species (including 8 resident waders, 22 palearctic waders, 32 wetland-, 19 marine- and 38 non-wetland bird species; Ryan et al., 1984, Braine 1990, Simmons et al., 1993, Anderson et al., 2001, Paterson 2007). In terms of ichthyofauna, 65 freshwater fish species (five of which are endemic to the area) and 19 marine fish species have been recorded in Namibe (Hay et al., 1997, Holtzhausen 2003, Paterson 2007).

C7: Naturalness Medium
Justification
In Namibia, human impacts on the Namibe area have been limited due to its remoteness. However, historic and current fishing activities, combined with dam construction, mining and prospecting activities in and around the area have had some impacts on the local naturalness (Simmons et al., 1993, De Moor et al., 2000, Paterson 2007). Much of the Angolan area was identified as being in fair ecological condition by Holness et al. (2014) largely due to the high intensity of artisanal and commercial fishing. Consequently, overall 63% of the area is in fair ecological condition and 25% in good condition.

Other relevant website address or attached documents

Summary of ecosystem types and threat status for Namibe. Data from Holness et al. (2014).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Endangered	Cunene Outer Shelf	919.6	6%
Vulnerable	Cunene Shelf Edge	601.9	4%
	Tombua Estuarine Shore	3.8	0%
	Tombua Inshore	56.6	0%
	Tombua Mixed Shore	0.5	0%
	Tombua Reflective Sandy Beach	22.1	0%
	Tombua Sheltered Rocky Shore	2.4	0%
Least Threatened	Cunene Dissipative-Intermediate Sandy Beach	11.6	0%
	Cunene Estuarine Shore	6.2	0%
	Cunene Inner Shelf	2,220.9	15%
	Cunene Inshore	655.8	4%
	Cunene Intermediate Sandy Beach	56.6	0%
	Cunene Island	860.6	6%
	Cunene Lagoon Coast	5.1	0%
	Cunene Low-energy Reflective Sandy Beach	14.3	0%
	Cunene Lower Slope	3,720.9	25%
	Cunene Mixed Shore	28.5	0%
	Cunene Reflective Sandy Beach	57.6	0%
	Cunene Shelf	2,443.9	16%
	Cunene Upper Slope	3,112.2	21%
	Namibe Shelf	148.4	1%
	Namibe Shelf Edge	61.4	0%
	Namibe Upper Slope	25.9	0%
	Tombua Intermediate Sandy Beach	5.7	0%
	Tombua Low-energy Reflective Sandy Beach	12.8	0%
Grand Total		**15,055.4**	**100%**

Status of submission

The Kunene – Tigres EBSA was recognized as an area meeting EBSA criteria that were considered by the Conference of the Parties. The revised name, description and boundaries have been submitted to the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) for consideration by the Conference of the Parties to the Convention on Biological Diversity

COP Decision

dec-COP-12-DEC-22

End of proposed EBSA revised description

Orange Seamount and Canyon Complex (formerly Orange Shelf Edge)

Revised EBSA Description

General Information

Summary

The Orange Seamount and Canyon Complex occurs at the western continental margin of South Africa and Namibia, spanning the border between the two countries. On the Namibian side, it includes Tripp Seamount and a shelf-indenting canyon. The EBSA comprises shelf and shelf-edge habitat with hard and unconsolidated substrates, including at least eleven ecosystem types. According to recent threat status assessments of coastal and marine habitat in South Africa and Namibia, three ecosystem types represented in the EBSA are threatened, one of which is Endangered and another two that are Vulnerable. However, the area is one of few places where these threatened ecosystem types are in relatively natural/pristine condition. Based on an analysis of long-term trawl-survey data, the Orange Seamount and Canyon Complex is a persistent hotspot of demersal fish biodiversity, which may be a result of the local habitat heterogeneity. In summary, this area is highly relevant in terms of the following EBSA criteria: 'Importance for threatened, endangered or declining species and/or habitats', 'Biological diversity' and 'Naturalness'.

Introduction of the area

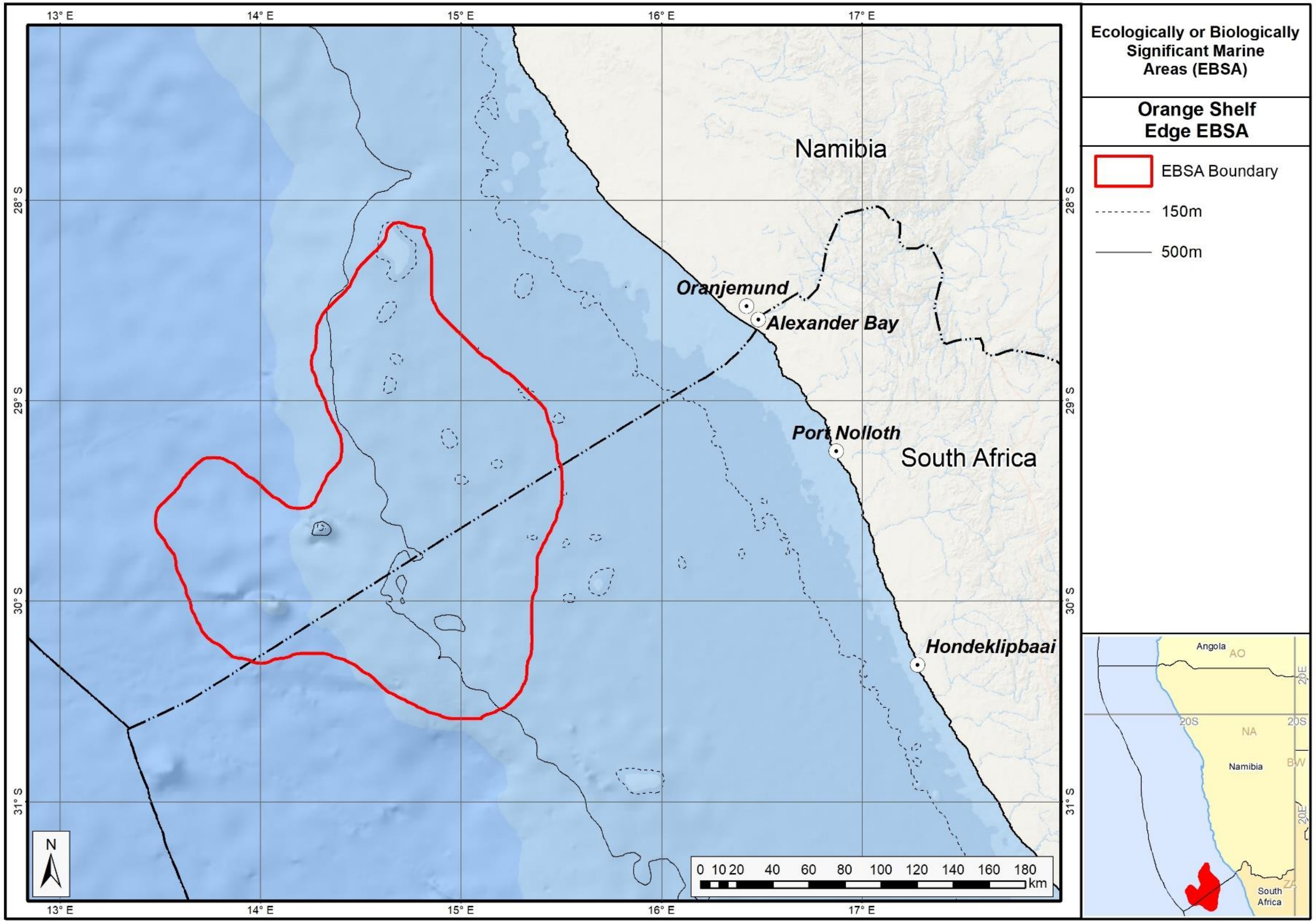
The area occurs at the outer shelf and shelf edge of the western continental margin of South Africa and Namibia, spanning the border between the two countries. It includes hard and unconsolidated (sand) shelf and shelf edge benthic habitat at depths of approximately 350-1200 m on the South African side (Sink et al., 2012, 2019). On the Namibian side, it includes Tripp seamount and a shelf-indenting submarine canyon, providing a heterogeneous habitat (Holness et al., 2014). The pelagic environment in the area is characterized by medium productivity, cold to moderate Atlantic temperatures (SST mean = 18.3 °C) and moderate chlorophyll levels related to the eastern limit of the Benguela upwelling on the outer shelf (Lagabrielle 2009).

Since the original description and delineation, the boundary of this EBSA has been revised largely because of new evidence that has emerged after South Eastern Atlantic Workshop to identify EBSAs in 2013 (UNEP/CBD/RW/EBSA/SEA/1/4). A new map of Namibian Ecosystem Types has been generated, and the new boundary builds on existing (SA) and new (Namibia) spatial assessment and prioritisation (Holness et al., 2014; Sink et al., 2012, 2019). These new datasets, and others (e.g., GEBCO Compilation Group 2019; Harris et al., 2014; Kirkman et al., 2013) have facilitated more accuracy in the boundary definition such that the EBSA now better represents the underlying features that make this site regionally significant for threatened species and habitats and diverse assesmblages, in a highly natural area. Orange Seamount and Canyon Complex is thus proposed as a Type 2 EBSA (sensu Johnson et al., 2018) because it comprises a collection of features and ecosystems that are connected by the same ecological processes.

Description of the location

EBSA Region

South-Eastern Atlantic



Revised delineation of the Orange Seamount and Canyon Complex EBSA.

Description of location

The area occurs at the outer shelf and shelf edge of the western continental margin of South Africa and Namibia, spanning the border between the two countries. It is entirely within the national jurisdiction of the two countries.

Area Details

Feature description of the area

The area includes a high diversity of shelf and shelf-edge habitats with hard or unconsolidated (sand) substrates (Sink et al., 2012, 2019; Holness et al., 2014). It includes eleven ecosystem types that have been identified for South Africa and Namibia (Sink et al., 2019; Holness et al., 2014). On the Namibian side, it includes Tripp seamount and a shelf-indenting canyon. The pelagic environment of the area is characterized by medium productivity, cold to moderate temperatures, and moderate chlorophyll levels related to the limit of the Benguela upwelling on the outer shelf (Lagabrielle 2009).

The area has been subjected to annual demersal fish trawl surveys conducted by the Department of Agriculture, Forestry and Fisheries (now Department of Environment, Forestry and Fisheries) of South Africa (see Atkinson et al., 2011 for details), and under the Nansen Programme in Namibia (see Jonsen and Kathena 2012 for details). Based on spatial modeling of nearly 30 years of distribution and abundance data from these surveys, Kirkman et al., (2013) identified a persistent hotspot of species richness for demersal fish species that coincides with part of the area. This may be related to the local habitat heterogeneity, including the presence of a shelf-indenting submarine canyon and the close proximity of a seamount. Generally, however, seamounts and canyons in the region have been poorly studied (Sink et al., 2011).

Feature conditions and future outlook of the proposed area

Sink et al., (2012, 2019) estimated the threat status of coastal and marine habitats in South Africa by assessing the cumulative impacts of various pressures (e.g., extractive resource use, pollution and others) on each ecosystem type. This analysis was extended to Namibia by Holness et al. (2014). The EBSA has a lot of natural habitat, although there are some portions that have been moderately modified, largely because this area has been subjected to relatively little extractive resource use (e.g., fishing, mining) pressure, and is relatively remote from sources of pollution. Overall, the assessments of Sink et al. (2019) and Holness et al. (2014) classified 73% of the Orange Seamount and Canyon Complex area as being in good condition, with an additional 18% being in fair condition.

Previously, the Orange Seamount and Canyon Complex area was identified by Majiedt et al. (2013) as one of six marine 'primary focus areas' for spatial protection in South Africa, with the good condition of threatened habitats and the relative absence of anthropogenic pressures as the major drivers of this selection. This has resulted in two portions of the EBSA being proclaimed as marine protected areas. On the Namibian side, the assessment of Holness et al. (2014) identified the Namibian portions of the EBSA as being of high priority for place-based conservation measures. Tripp seamount on the Namibian side of the border is the location of a productive pelagic pole-and-line tuna fishery (FAO 2007). Although no research is currently planned for this area, it is recommended for this EBSA, particularly towards informing appropriate spatial management of this site.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for the Orange Seamount and Canyon Complex. Data from Sink et al., 2019 and Holness et al., 2014.

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Endangered	Namaqua Shelf Edge	3065.9	10.5
Vulnerable	Southern Benguela Rocky Shelf Edge	751.7	2.6
	Southern Benguela Sandy Shelf Edge	1780.6	6.1
Least Concern	Southeast Atlantic Lower Slope	139.9	0.5
	Southeast Atlantic Mid Slope	993.1	3.4
	Southeast Atlantic Upper Slope	2133.3	7.3
	Southern Benguela Sandy Outer Shelf	3003.1	10.3
	Namaqua Outer Shelf	8702.9	29.7
	Namib Lower Slope	4315.1	14.7
	Namib Seamount	393.1	1.3
	Namib Upper Slope	3988.7	13.6
Grand Total		**29267.4**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **Low**

Justification

Neither the benthic nor pelagic ecosystem types that are known to occur in the area are unique to the area (Sink et al., 2011).

C2: Special importance for life-history stages of species **Medium**

Justification

Elsewhere it has been shown that seamounts, shelf breaks and submarine canyons (all of which occur in the EBSA) constitute important foraging habitats for pelagic-feeding vertebrates such as seabirds, cetaceans and large fish species, including migratory species, which exploit elevated primary production and high standing stocks of zooplankton, fish, and other organisms at these features (Dearden and Topelko 2005, Sydeman et al., 2006, Morato et al., 2008). Generally, however, seamounts and canyons in the region have been poorly studied (Sink et al., 2011).

C3: Importance for threatened, endangered or declining species and/or habitats **High**

Justification

Threat status assessments of ecosystem types by Sink et al. (2012, 2019) and Holness et al., (2014) highlighted several threatened ecosystem types that are represented in the EBSA. Threatened ecosystem types include the Endangered Namaqua Shelf Edge and Vulnerable Southern Benguela Rocky Shelf Edge and Southern Benguela Sandy Shelf Edge. This implies that, although there are sufficient areas of intact biodiversity of these habitats to meet the conservation targets, there has been habitat degradation and some loss of ecosystem processes. The importance of the area for the conserving the threatened ecosystem types represented in the Orange Seamount and Canyon Complex was emphasized by Majiedt et al. (2013) and Holness et al. (2014).

C4: Vulnerability, fragility, sensitivity, or slow recovery **Medium**

Justification

The threatened status of three ecosystem types (Sink et al., 2012, 2019) implies that degradation and some loss of ecosystem processes has been associated with these ecosystem types in other areas, and therefore that they are vulnerable to the effects of human activities. Seamounts, submarine canyons and the shelf break, all of which occur in the area, are all vulnerable and sensitive ecosystems (FAO 2009). Seamount communities are particularly vulnerable to human activities (e.g. trawling) due to intrinsic biological factors that are characteristic of seamount-associated species (e.g. slow growth rate, late maturation), with the likelihood of very long time scales of recovery if damaged (Gjerde & Breide, 2003, Clark et al., 2006).

C5: Biological productivity **Medium**

Justification

The area is at the eastern limit of the Benguela upwelling region (Hutchings et al., 2009), where the pelagic environment is characterized by medium productivity, and moderate chlorophyll levels (Lagabrielle 2009). However, shelf edge environments (e.g. Springer et al., 1996, Piatt et al., 2006, Coleman et al., 2011), seamounts (e.g. Moore et al., 2002, Pitcher et al., 2011) and submarine canyons (e.g. de Leo et al., 2010, McClain and Barry 2010), all of which occur in the proposed area, are associated with elevated productivity and biomass levels, spanning several trophic levels. Tripp seamount on the Namibian side of the border supports a productive pole-and-line tuna fishery (FAO 2007).

C6: Biological diversity **High**
Justification
Based on spatial modelling of 20-30 years of distribution and abundance data from demersal trawl surveys in Namibian and South African waters, Kirkman et al. (2013) identified the area as a persistent hotspot of species richness for demersal fish species. This may be linked to the habitat heterogeneity of the area, including the shelf edge, the presence of a shelf-indenting submarine canyon and the close proximity of a seamount. Further, 487 species have been recorded in the area (OBIS 2017). Diversity of ecosystem types is also high, with 11 ecosystem types occurring in the area (Sink et al., 2012; Holness et al., 2014).

C7: Naturalness **High**
Justification
The area on the South African side is one of the few areas where the threatened ecosystem types are in good condition (relatively natural/pristine), largely because it has been subjected to relatively low levels of anthropogenic pressures (Sink et al., 2011, 2019). The importance of the area for the conservation of the threatened ecosystem types represented there has therefore been emphasized by Majiedt et al., (2013). Although there are impacted areas, much of the Namibian portion of the area is also in good condition (Holness et al., 2014). Overall, 73% is in good ecological condition, 18% is fair and 9% is poor.

Status of submission
The Orange Shelf Edge EBSA (now Orange Seamount and Canyon Complex) was recognized as meeting EBSA criteria by the Conference of the Parties. The revised boundaries and description have been submitted to the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) for consideration by the Conference of the Parties to the Convention on Biological Diversity

COP Decision
dec-COP-12-DEC-22

End of proposed EBSA revised description.

Orange Cone
Revised EBSA Description

General Information
Summary
The Orange Cone is a transboundary area between Namibia and South Africa that spans the mouth of the Orange River (South Africa and Namibia's major river in terms of run-off to the marine environment). The estuary is biodiversity-rich but modified, and the coastal area includes 10 threatened ecosystem types: two Critically Endangered, four Endangered and four Vulnerable types. The marine environment experiences slow, but variable currents and weaker winds, making it

potentially favourable for reproduction of pelagic species. Furthermore, given the proven importance of river outflow for fish recruitment at the Thukela Banks (a comparable shallow, fine-sediment environment on the South African east coast), a similar ecological dependence for the inshore Orange Cone is likely. Evidence supporting this hypothesis is growing but has not yet been consolidated. Comparable estuarine/inshore habitats are not encountered for 300 km south (Olifants River) and over 1300 km north (Kunene) of this system. The Orange River Mouth is a transboundary Ramsar site between Namibia and South Africa. The river mouth also falls within the Tsau//Khaeb (Sperrgebiet) National Park in Namibia, is under consideration as a protected area by South Africa, and is also an Important Bird and Biodiversity Area. Although there are substantially impacted areas especially on the coast and in the estuary, much of the area remains in a natural state. In summary, this area is highly relevant in terms of: 'Uniqueness or rarity', 'Importance for threatened, endangered or declining species and/or habitats' and 'Special importance for life history stages of species'.

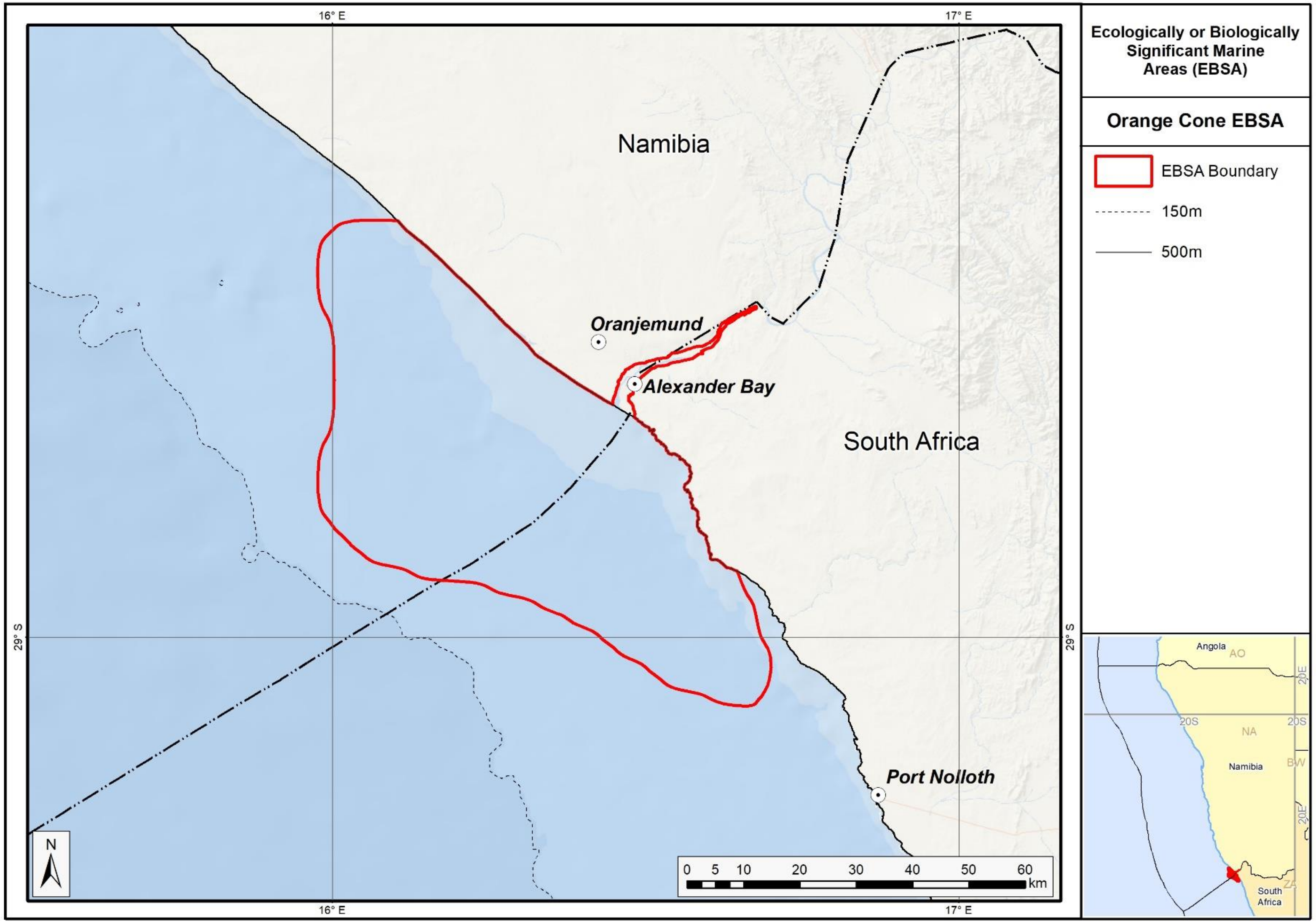
Introduction of the area

The Orange Cone spans the coastal boundary between South Africa and Namibia. The Orange River estuary extends approximately 10 km inland of the sea in a hydrological sense, although estuarine-dependent species migrate much further upstream. The estuary is substantially modified but under rehabilitation. Boundaries of the marine area that is ecologically coupled to the estuary are not accurately known, but could be extensive: seasonally and inter-annually, the marine habitat affected by freshwater outflow varies from a few kilometres to hundreds of kilometres in the longshore direction during floods, particularly southwards (Shillington et al., 1990). This area is located 50 km north and south of the Orange River, extending 30 - 45 km offshore, and includes the full extent of the estuary. There are 16 marine and coastal ecosystem types represented in the area (Sink et al., 2012, 2019; Holness et al., 2014). The associated pelagic environment is characterized by upwelling, giving rise to cold waters with high productivity/chlorophyll levels (Lagabrielle 2009). However, the winds in the area are weaker compared to that to the north or south of the river mouth, leading to less local upwelling (Boyd, 1988). The site is presented as a Type 1 EBSA because it contains "Spatially stable features whose positions are known and individually resolved on the maps" (sensu Johnson et al., 2018).

Description of the location

EBSA Region

South-Eastern Atlantic



Revised delineation of the Orange Cone EBSA.

Description of location

The Orange River estuary is located at 29°S and forms the boundary between South Africa and Namibia. The northern and southern boundaries of the Orange Cone EBSA are located 50 km north and south of the Orange River, respectively, with the eastern boundary extending 30 – 45 km offshore, and includes the full extent of the estuary. However, the broader area has characteristics of the Orange Cone marine environment as far as 100 km offshore. This EBSA straddles coastal and marine areas within the national jurisdictions of South Africa and Namibia.

Area Details

Feature description of the area

There are 16 ecosystem types represented in this EBSA (Sink et el., 2012, 2019; Holness et al., 2014). The associated pelagic environment is characterized by upwelling, giving rise to cold waters with high productivity (Lagabrielle 2009). However, the winds in the Orange Cone are weaker than those north or south of the area, leading to some stratification (Boyd 1988). Moreover, currents in the inshore region, and indeed over much of the Orange Cone area, have slower speeds than those occurring further north or south, and movements in both upper and lower layers are dominated by diurnal and/or inertial motions (Iita et al., 2001, Largier and Boyd, 2001).

The river and estuary have received substantial research attention over the last decade; the adjacent marine environment much less so, apart from some research during the Large Marine Ecosystem (LME) project from 1995-2000. However, given the proven role of the Thukela River outflow for the recruitment of fish stocks in the adjacent marine area on the South African east coast (Turpie and Lamberth 2010), it is hypothesized that the Orange River plays a similar role on the South African west coast. Although not formally described, evidence is mounting to support this hypothesis, because there are seemingly many relationships between Orange River flow volumes and demersal, pelagic and nearshore fish biomass (S.J. Lamberth, pers.com, unpublished). For example, the sole fishery collapse was associated with a change in local sediment particle size, because it altered burying difficulty and exposure to predators. Also, anchovy (mostly juveniles) appear to be positively correlated with the size of the plume, because the plume probably serves as a turbidity refuge. Furthermore, the conditions in the area are consistent with the criteria proposed for supporting pelagic species' reproduction (Parrish et al., 1983).

Because of a previous lack of research, the boundaries of the marine zone that is ecologically coupled to the estuary were not accurately known, but were thought to be extensive. For example, geological research suggests that the sediment from the Orange River travels as far north as southern Angola (1750 km north of the mouth), and makes up >80% of the dune sand along the Skeleton Coast in Namibia (Garzanti et al., 2014); according to these authors, "this is the longest cell of littoral sand transport documented so far". A particular challenge to determining the river's extent of influence is that the marine habitat affected by freshwater outflow varies greatly both seasonally and inter-annually, from a few to hundreds of kilometres in the longshore direction (mainly southwards) during floods (Shillington et al., 1990). Submarine delta deposits off the mouth of the Orange River extend 26 km offshore, and 112 km alongshore (Rodgers & Rau 2006). The terrigenous material exiting the Orange River has a heterogeneously integrated catchment signal (Hermann et al., 2016) that is generally confined to about 50 km from the shore (Rodgers & Rau 2006). Since the original description of this EBSA, recent work on marine sediments and delineation of muddy sediment associated habitats have allowed a far more accurate delineation of the Orange Cone (Karenyi, 2014; Karenyi et al., 2016). It is largely these new data that were used to refine the Orange Cone EBSA boundary, which was noted in the original description as being an approximation that needed further research so it could be properly delineated. New, fine-scale coastal mapping (Harris et al., 2019) also allowed a more accurate coastal boundary to be delineated, with other recent data also included (e.g., Holness et al., 2014; Sink et al., 2012, 2019).

In terms of uniqueness of habitat (i.e., refuge for estuarine-dependent or partially dependent fish, and birds), approximately similar estuarine and adjacent inshore habitats are not encountered for over 300 km further south to the Olifants River and over 1300 km further north, until the Kunene River (Lamberth et al., 2008, van Niekerk et al., 2008). The fact that the estuary is a declared Ramsar site (Ramsar 2013; note that the adjacent Namibian and South African Ramsar sites were joined into a transboundary site) and an Important Bird and Biodiversity Area (IBA; BirdLife International 2013) is an important recognition of its importance to birds as well as other species. Altogether, 206 species have been recorded in the EBSA, including 4 threatened fish and condricthian species (OBIS 2017).

Feature conditions and future outlook of the proposed area

The impact of reduced and altered flow at the estuary mouth and into the marine environment has had a negative impact on the estuarine habitat, including the salt marsh, which was exacerbated by inappropriate developments associated with mining at the site (van Niekerk and Turpie 2012). The impact of these changes on the marine offshore environment is not yet known. Both the flow regime (as it will reach the mouth and the marine area) and rehabilitation of the estuary and salt marsh area need to be addressed. However, an estuary management plan is in an advanced stage, and protected area status for the estuary is well advanced as well (van Niekerk and Turpie 2012). Regarding the marine and coastal habitats and biodiversity of the area, the coastline and inshore area to 30 m depth is under considerable threat from mining impacts and is currently unprotected (Sink et al., 2012).

Ecosystem threat status has been estimated in South Africa (Sink et al., 2012, 2019) and Namibia (Holness et al., 2014; Table in the Other relevant website address or attached documents section) by assessing the weighted cumulative impacts of various pressures (e.g., extractive resource use, pollution, development and others) on each ecosystem type. These include two Critically Endangered, four Endangered and four Vulnerable ecosystem types, and another one ecosystem type that is Vulnerable. The Critically Endangered status implies that very little (<= 20%) of the total area of the habitats assessed are in natural/pristine condition, and it is expected that important components of biodiversity pattern have been lost and that ecological processes heavily modified. However, within the area, much of the EBSA was assessed to be in good ecological condition (56%), some fair (33%), and a lesser extent (11%) in poor ecological condition.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for the Orange Cone [data sources: Sink et al. (2019) and Holness et al. (2014)].

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Critically Endangered	Namaqua Intermediate Sandy Beach	29.7	0.9
	Namaqua Reflective Sandy Beach	3.1	0.1
Endangered	Cool Temperate Large Fluvially Dominated Estuary	30.2	1.0
	Orange Cone Inner Shelf Mud Reef Mosaic	338.8	10.7
	Orange Cone Muddy Mid Shelf	858.0	27.2
	Southern Benguela Reflective Sandy Shore	0.2	0.0
Vulnerable	Namaqua Exposed Rocky Shore	4.9	0.2
	Namaqua Kelp Forest	0.3	0.0
	Namaqua Mixed Shore	2.7	0.1
	Namaqua Inshore	322.9	10.2
Near Threatened	Southern Benguela Intermediate Sandy Shore	0.6	0.0
Least Concern	Namaqua Sandy Mid Shelf	0.5	0.0
	Southern Benguela Dissipative Sandy Shore	1.8	0.1
	Southern Benguela Dissipative-Intermediate Sandy Shore	0.1	0.0
	Namaqua Estuarine Shore	4.3	0.1
	Namaqua Inner Shelf	1560.1	49.4
Grand Total		**3158.3**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **High**

Justification

In terms of habitat uniqueness (i.e., refugia for estuarine-dependent or partially estuarine-dependent fish and birds, and freshwater outflow to the marine environment), approximately similar estuarine and adjacent inshore habitat are not encountered for over 300 km further south to the Olifants River, and over 1300 km further north, until the Kunene River (van Niekerk et al., 2008, Lamberth et al., 2008). The marine area is fed by the estuarine outflow, and also has its own oceanographic characteristics in terms of inertial currents and stratification, thus being largely "sheltered" from Benguela System forcing (Boyd 1988, Largier and Boyd 2001) that influences the whole Benguela region. This system is also the longest cell of littoral sand transport that has been recorded to date, with sediment moving as much as 1750 km north to southern Angola, and providing 80% of the sand that comprises the dunes along the Namibian Skeleton Coast (Garzanti et al., 2014).

C2: Special importance for life-history stages of species **High**

Justification

A total of 33 fish species from 17 families have been captured from the Orange River estuary (van Niekerk et al., 2008). Out of these species, 34% showed some degree of estuarine (i.e., euryhaline) dependence, 24% were marine and the remaining 42% were freshwater species. The high diversity and abundance of estuarine-dependant and marine species suggests that this is an extremely important estuarine nursery area, especially for Kob species (van Niekerk and Turpie 2012), and not just a freshwater conduit as previously thought (van Niekerk et al., 2008). Certainly, oceanographic conditions in the area are consistent with the criteria proposed by Parrish et al. (1983) for the reproduction of pelagic species, and the system is also hypothesised to play a similar role to that of the comparable Thukela River/Thukela Banks (on the South African east coast) where the freshwater outflow is proven to support recruitment of fish stocks (Turpie and Lamberth 2010). Evidence is continually mounting to confirm the role of the Orange Cone in supporting key life-history stages. For example, the area is the northern margin of the important west coast nursery ground for pelagic fish species with periodic spawning (Hutchings et al., 2002). The Orange Cone is also an important recruitment/nursery area and one of three primary population components for shallow water hake (Jansen et al., 2016). Furthermore, northern sections of the Orange Cone, particularly a coastal reef called "Mittag", are important for the Namibian commercial rock lobster fishery (Currie et al., 2008).

The estuary and wetland area are also an important stopover site for migrating shorebirds and other waterbirds, and provides breeding habitat for birds such as White-breasted Cormorants (Crawford et al., 2013) and Cape Cormorants. However, due to the destruction of breeding islands by the 1988 flood, the latter have not bred there since (H. Kolberg pers. obs). The value of the site is recognised internationally with both Ramsar and IBA status. In fact, the Orange River Mouth Wetlands are said to be the sixth most important coastal wetlands for birds, supporting as many as 26000 individuals of 56 species (BirdLife International, 2018).

South of the Kunene River (over 1300 km to the north of the Orange River), the only permanently open estuaries on the west coast of the sub-region include the Orange, Olifants and Berg Rivers (Lamberth et al., 2008). Migration up and down the west coast of southern Africa by marine and estuarine species, e.g., Angolan dusky kob, and west coast steenbras, may be dependent on the availability of warm water refugia offered by these estuary mouths and their plumes, especially during upwelling months (Lamberth et al., 2008).

C3: Importance for threatened, endangered or declining species and/or habitats **High**
Justification
The area is also an important nursery for coastal fish species, such as kob (van Niekerk and Turpie 2012), which are overexploited (Mann 2000). The estuary includes important breeding habitat for Endangered Cape Cormorants (Crawford et al., 2016), and also contains Endangered Ludwig's bustard and Vulnerable Damara Terns (Birdlife International, 2018). Four fish and condricthian species recorded in the EBSA are threatened, including the Endangered *Rostroraja albai* and *Mustelus mustelus*, and Vulnerable *Galeorhinus galeus* and *Squalus acanthias* (OBIS 2017).

Ten of the 16 ecosystem types represented in this EBSA are threatened, including two Critically Endangered, four Endangered and four Vulnerable ecosystem types (Holness et al., 2014; Sink et al., 2019). Because ecosystem types are generally a very good surrogate for species-level biodiversity patterns, the implication, therefore, is that the species and biological communities that are associated with and unique to these habitats are similarly declining and threatened.

C4: Vulnerability, fragility, sensitivity, or slow recovery **Medium**
Justification
The estuarine salt marsh area is vulnerable and has been slow to show recovery despite rehabilitation efforts (van Niekerk and Turpie 2012). There has also been a marked decline in certain fish stocks that

were previously exploited in the region (Lamberth et al., 2008). Mining and habitat modification are thought to have had an impact with respect to these changes.

C5: Biological productivity **Medium**
Justification
Winds in the Orange Cone are weaker than those that occur to the north or south of the area, leading to some stratification (Boyd 1988). This, and the effect of the freshwater inflow, may serve to concentrate productivity within the area.

C6: Biological diversity **Medium**
Justification
Altogether, 206 species have been recorded in the Orange Cone EBSA (OBIS 2017). A high diversity of fish species (33 species from 17 families) has been captured from the Orange River estuary (van Niekerk et al., 2008), including freshwater, marine and estuarine-dependent species. The marine area served as the conduit supporting the estuary's biodiversity for migratory marine and estuarine-dependent species, as well as marine pelagic and demersal species, including their juvenile stages. Furthermore, the fact that the estuary is a declared Ramsar site (Ramsar 2013) and an IBA (BirdLife International 2013) are important recognitions of its importance to birds and other species. There are 16 ecosystem types represented in this EBSA (Holness et al., 2014; Sink et al., 2019).

C7: Naturalness **Medium**
Justification
The estuary and nearshore are impacted, including notable infestation by alien plants around the estuary that persist in spite of rehabilitation efforts. Nevertheless, the estuary still provides many ecological services such as recruitment. There are significant impacts from coastal diamond mining in Namibia and, to a lesser extent, in South Africa (Sink et al., 2012; Holness et al., 2014). Although data are sparse, the area has been shown to be largely in fair condition (Sink et al., 2012; Holness et al., 2014), but there have been long-term declines in fish catch.

Status of submission

The Orange Cone EBSA was recognized as meeting EBSA criteria by the Conference of the Parties. The revised boundaries and description have been submitted to the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) for consideration by the Conference of the Parties to the Convention on Biological Diversity

COP Decision

dec-COP-12-DEC-22

End of proposed EBSA revised description.