ECOLOGICALLY OR BIOLOGICALLY SIGNIFICANT MARINE AREAS

in the Benguela Current Large Marine Ecosystem

SOUTH AFRICA

New and Revised EBSA Descriptions and Motivations

On behalf of:
Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
of the Federal Republic of Germany

Ecologically or Biologically Significant Marine Areas in the Benguela Current Large Marine Ecosystem

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Descriptions and motivations for new and revised EBSAs in South Africa. Other existing EBSAs that extend beyond national jurisdiction or are shared with Mozambique are not covered by the review and remain unchanged.

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Childs Bank and Shelf Edge (Formerly Childs Bank)

Revised EBSA Description

General Information

Summary

Childs Bank and Shelf Edge is a unique submarine bank feature occurring within South Africa's EEZ, rising from -400 m to -180 m on the western continental margin on South Africa. This area includes seven ecosystem types, including those comprising the bank itself, the outer shelf and the shelf edge, supporting hard and unconsolidated ecosystem types. Two of these ecosystem types are Vulnerable and five are Least Concern. The benthic area of the bank is considered to be largely in Good ecological condition, indicating that the ecological patterns and processes are intact. Childs Bank and associated habitats are known to support structurally complex cold-water corals, hydrocorals, gorgonians and glass sponges; species that are particularly fragile, sensitive and vulnerable to disturbance, and recover slowly. The Childs Bank and Shelf Edge area is highly relevant in terms of the following EBSA criteria: "Uniqueness or rarity", "Vulnerability, fragility, sensitivity or slow recovery" and "Naturalness". Since its original description, the boundary of this EBSA has been refined to improve precision based on new bathymetric data, ecosystem information (condition and threat status of local benthic and pelagic ecosystem types, and presence of key features including fragile species), and to align with new MPA expansion initiatives.

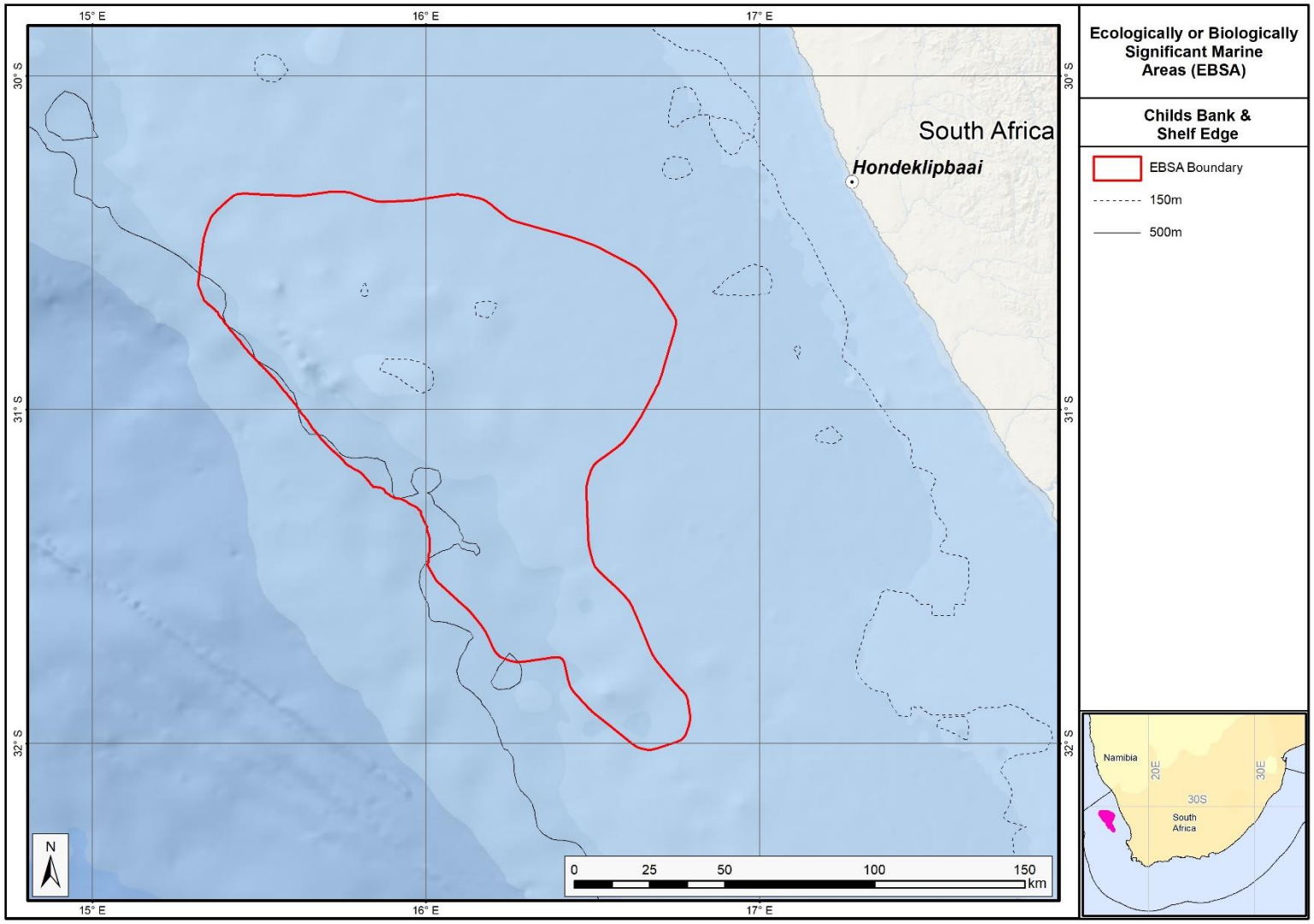
Introduction of the area

Childs Bank is the only known submarine bank in South Africa. It's a rugged limestone feature found on the shelf, close to the shelf edge, on the western continental margin of South Africa, approximately 125 km offshore. It rises from a depth of -260 m in the east and -350 m in the west to form a large, flattened plateau at -200 m (De Wet 2012). The margins of the bank slope gently on the north, east and south sides, but the western edge is a slump-generated outer face of 150 m in height that lies at the edge of the continental shelf, dropping steeply from -350 to -1500 m across a short distance of <60 km (De Wet 2012; Birch and Rogers 1973). The bank area has been estimated to cover 1450 km^2 (Sink et al., 2012a). The EBSA includes Childs Bank, the shelf and the shelf edge adjacent to the bank, the latter of which is considered likely to host vulnerable hard-ground species. The sediment adjacent to the bank is predominantly fine sand with approximately 25% mud, and in some locations, small amounts of gravel have been detected (Atkinson 2010). This area was identified as a priority area for protection through two planning studies identifying areas for offshore protection (Sink et al., 2011, Majiedt et al., 2013). Benthic protection in the region of Childs Bank and Shelf Edge would ensure protection of the only submarine bank within South Africa's EEZ, some protection of the adjacent shelf edge and protection of areas where coral records have been detected. This has been achieved through recent proclamation of the Childs Bank Marine Protected Area (MPA).

Description of the location

EBSA Region

South-Eastern Atlantic



Proposed boundaries of the Childs Bank and Shelf Edge EBSA.

Description of location

The Childs Bank and Shelf Edge area is located approximately 125 km off Hondeklipbaai on the west coast of South Africa, with its northern edge about 90 km from national border with Namibia. It lies entirely within South Africa's national jurisdiction, largely on the outer shelf but also extending across the shelf edge and slope in some places.

Feature description of the area

Childs Bank is a unique offshore submarine bank within South Africa's EEZ; no other known submarine banks occur in this area. The EBSA comprises seven ecosystem types, two of which are Vulnerable (Childs Bank Coral Slope, Southern Benguela Sandy Shelf Edge), the rest of which are Least Concern (Childs Bank Plateau and Sandy Slope, Southern Benguela Hard Shelf Edge Mosaic, Southern Benguela Muddy Sands, Southern Benguela Outer Shelf Rocky Sand Mosaic, Southern Benguela Sandy Outer Shelf; Sink et al., 2019). 37% of the Childs Bank and Shelf Edge slopes are trawled (Sink et al., 2012b), highlighting the importance of this site for marine living resources. However, there are several very fragile, vulnerable and sensitive species present in the area. Hydrocorals (e.g. *Stylaster* sp.), cold-water coral fragments, gorgonians (*Acbaria rubra*) and glass sponges (*Rossella antarctica*) were sampled at a virtually untrawled site adjacent to Childs Bank (Atkinson 2010; see also Gilchrist 1922, 1925, Van Bonde 1928, Atkinson et al., 2011). Further, skippers and deck hands from the trawl industry report fragments of corals sometimes caught in isolated locations in this area and that there are several patches of hard ground, requiring additional footrope protection (e.g., bobbins and rockhopper gear, Sink et al., 2012b).

The shelf edge area adjacent to Childs Bank is also a biodiversity hotspot for demersal fish and cephalopods in the southern Benguela (Kirkman et al., 2013). Benthic communities sampled adjacent to the Childs Bank mound revealed high abundance and biomass of benthic infauna and epifauna (Atkinson 2010, Atkinson et al., 2011), indicating that a rich benthic fauna occurs in this region. Two species of burrowing urchins (*Spatangus capensis* and *Brissopsis lyrifera capensis*) and a burrowing anemone species (*Actinauge granulosus*) were detected in high abundances in the Childs Bank and Shelf Edge region, contributing to the bioturbation and oxygenation of sediment, which are important ecological functions.

The boundary of this EBSA has been refined since its original delineation to improve precision based on new information (e.g., De Wet 2012; GEBCO Compilation Group 2019; Harris et al., 2014; Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019). The new delineation was based on new bathymetric data, new ecosystem information, site selection frequency in two systematic conservation plans covering the area to meet biodiversity targets, the condition and threat status of the local benthic and pelagic ecosystem types, key features including the bank itself and associated fragile species, and focus areas for MPA expansion in South Africa. The new boundary comprises about two thirds of the original EBSA area and falls mostly within the previous delineation, except for a protrusion along the south east edge. It is presented as a Type 2 EBSA because it contains "spatially stable features whose individual positions are known, but a number of individual cases are being grouped" (sensu Johnson et al., 2018).

Feature conditions and future outlook of the proposed area

Childs Bank and Shelf Edge is currently in Good ecological condition, based on cumulative impact scores from multiple anthropogenic pressures (Sink et al., 2012a; Sink et al., 2019). Good-condition sites are those which, based on the low levels of pressure, are expected have both biodiversity pattern and process largely intact and hence can be considered to be in a largely "natural" or "pristine" state. However, the area south and towards the shelf edge of Childs Bank were categorized as Fair and Poor, indicating that there is some impact on biodiversity pattern and/or ecological processes in a small component of the broader area (Sink et al., 2012a; Sink et al., 2019).

The trawl fishing intensity in the northern region of the fishing grounds, including Childs Bank and Shelf Edge, has declined since the mid-1990s (Russell Hall, Sea Harvest pers. comm.), and it is unlikely that this region was as intensively fished as the western grounds, closer to the port of Cape Town. No trawling occurs on the top of the bank, with most fishing taking place around the slope where hard ground, supporting vulnerable habitat-forming species, is most likely to occur. A new MPA came into effect in 2019, and covers most of Childs Bank itself.

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Summary of ecosystem types and threat status for Childs Bank and Shelf Edge EBSA. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Vulnerable	Childs Bank Coral Slope	505.5	3.7
	Southern Benguela Sandy Shelf Edge	2221.6	16.4
Least Concern	Childs Bank Plateau & Sandy Slope	1620.3	11.9
	Southern Benguela Hard Shelf Edge Mosaic	1497.7	11.0
	Southern Benguela Muddy Sands	9.7	0.1
	Southern Benguela Outer Shelf Rocky Sand Mosaic	5989.2	44.1
	Southern Benguela Sandy Outer Shelf	1742.8	12.8
Grand Total		**13586.7**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **High**

Justification

The Childs Bank submarine mound is the only such feature known to occur within South Africa's EEZ and therefore represents a unique feature in this region (Sink et al., 2011, Sink et al., 2012, Majiedt et al., 2013). The selection of this area in a systematic biodiversity plan for the South African west coast is driven by the uniqueness of the site and reduced cost values (few anthropogenic pressures) in the area (Majiedt et al., 2013).

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

Justification

There is little known evidence that the Childs Bank and Shelf Edge area is of special importance for life history stages of particular species or populations. However, the ecosystem types comprising the bank feature are unique to this EBSA, and it is possible that they may support key ecological processes that are, as yet, unstudied (Sink et al., 2011). More research is required to determine the significance of this site for key life-history stages. For example, tuna fishers report that this area is a feeding area for tuna (Sink et al., 2011).

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

Justification

There are two threatened ecosystem types in Childs Bank and Shelf Edge: the Vulnerable Childs Bank Coral Slope and Southern Benguela Sandy Shelf Edge ecosystem types (Sink et al., 2019). This area also has some importance for declining species. Some long-lived pelagic species (e.g., blue shark (IUCN Near Threatened) and mako shark (IUCN Vulnerable)) are also caught in fair numbers (~15% of total Atlantic catch) around Childs Bank (DAFF Linefish Section). Populations of these species are believed to be in global decline (Camhi et al., 2009).

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

Justification

This area has hard ground habitats on the outer shelf and shelf edge that are considered sensitive to demersal trawling and mining (FAO 2006, FAO 2009, Rogers et al., 2008, Sink et al., 2011, 2012a, 2012b). Samples of cold-water corals, sponges and gorgonians have been reported from this area (Gilchrist 1922, Von Bonde 1928 and Atkinson 2010, 2011) and more recently, skippers and deck hands from commercial trawl vessels have indicated occurrences of such species in their nets when fishing in this area (Sink et al., 2012b).

C5: Biological productivity **Low**

Justification

Fine-scale variability within this area has not been examined but this area falls within the highly productive shelf area of the Benguela upwelling region (Lagabrielle 2009, Sink et al., 2011, Roberson et al., 2017).

C6: Biological diversity **Medium**

Justification

There are seven ecosystem types represented in the EBSA (Sink et al., 2019). Further, this area is considered to host high levels of species diversity, e.g., infauna and epifauna (Atkinson 2010, Atkinson

et al., 2011), demersal fish and cephalopods (Kirkman et al., 2013) and fragile and sensitive habitat-forming species.

C7: Naturalness **High**
Justification
Childs Bank and Shelf Edge is largely natural, with cumulative impact scores from multiple anthropogenic pressures indicating that 73% of the area is in good ecological condition, 22% fair and only 5% poor ecological condition (Sink et al., 2019). This suggests that, based on the low levels of pressure, the site is expected have both biodiversity pattern and process largely intact and hence can be considered to be mostly in natural/pristine state.

Status of submission

The Childs Bank EBSA was recognized as meeting EBSA criteria 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

Motivation for Revisions

Some technical revisions and updates to the description were made, even though little additional information was available. Small additions, such as biodiversity information from OBIS were made, but none of these edits were significant enough to drive a change in the EBSA criteria ranks. A supplementary table of the habitats represented in the EBSA and their associated threat status were also included.

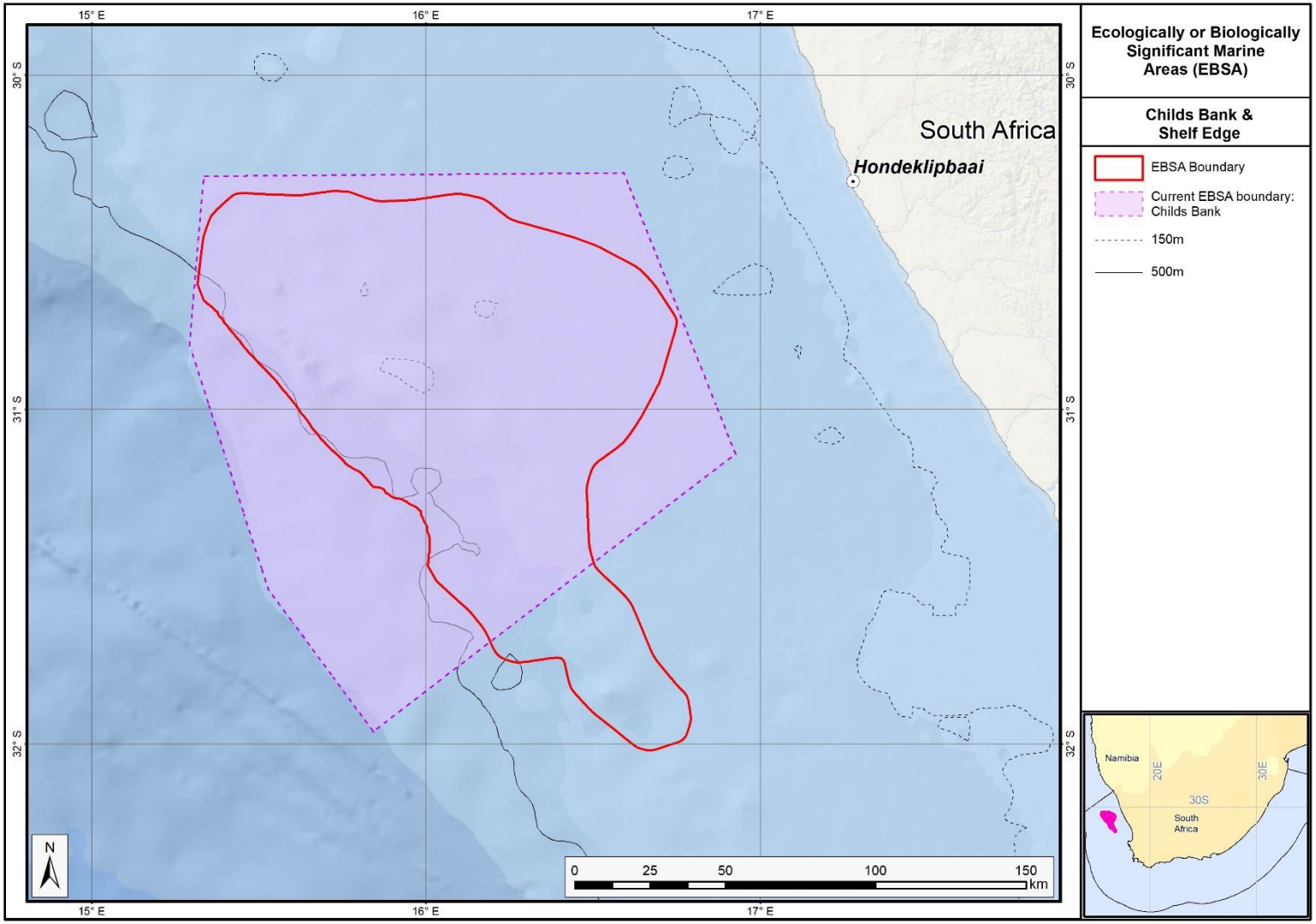
The boundary of this EBSA has been refined to focus the EBSA more closely on the key biodiversity features that underlie its EBSA status. The delineation process included an initial stakeholder review, a technical mapping process and then an expert review workshop where boundary delineation options were finalised. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA.
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as focus areas identified in the SCP undertaken for the BCLME by Holness et al. (2014) and Majiedt et al. (2013) were incorporated. In addition, focus areas for marine protection identified by Sink et al. (2011) were included.
- Key physical features such as the submarine bank from the National Biodiversity Assessment 2011 (Sink et al., 2011) and BCC spatial mapping project (Holness et al., 2014) were incorporated. These data were refined using the latest GEBCO data (GEBCO Compilation

Group 2019) and global benthic geomorphology mapping (www.bluehabitats.org, Harris et al., 2014), and new national bathymetric data (De Wet 2012).

- Areas of high relative naturalness identified in the National Biodiversity Assessment 2011 (Sink et al., 2011), the West Coast (Majiedt et al., 2013) and the BCLME spatial assessments (Holness et al., 2014) were included in the analysis. Both pelagic and benthic and coastal condition were incorporated.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).

The multi-criteria analysis resulted in a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop. The new boundary comprises about two thirds of the original EBSA area and falls mostly within the previous delineation, except for a protrusion along the south east edge.



The proposed revised boundaries for the Childs Bank and Shelf Edge EBSA in relation to the original boundaries of the Childs Bank EBSA.

Namaqua Fossil Forest

Revised EBSA Description

General Information

Summary

The Namaqua Fossil Forest itself is a small (2 km^2) seabed outcrop composed of fossilized yellowwood trees in the 136-140 m depth range, approximately 30 km offshore on the west coast of South Africa. The EBSA boundaries are larger at approximately 25 km by 35 km as this is necessary to accommodate likely extended area of the feature, which is not precisely known. The fossilized tree trunks have been colonized by fragile, habitat-forming scleractinian corals, confirmed by images from submersible surveys. The outcrops are composed of laterally extensive slabs of rock of dimensions >5 x <1 x <0.5 m. Based on interpretations of regional side scan sonar, the outcrop is believed to be unique to the area. The site is un-mined although it falls within a current diamond mining lease area; however, there is a "no go" buffer area around the known locations of the fossils. Hard grounds have been reported north of the original fossil forest discovery that are hypothesized to be part of this fossil forest. Further, a newly described habitat-forming sponge is present in the area. In summary, the Namaqua Fossil Forest is a unique feature with substantial structural complexity that is highly vulnerable to benthic impacts.

Introduction of the area

The Namaqua Fossil Forest is a small (2 km^2) seabed outcrop composed of fossilized yellowwood trees in the 136-140 m depth range on the mid-shelf off the Namaqualand coast in South Africa. The EBSA boundaries are larger at approximately 25 km by 35 km as this is necessary to accommodate likely extended area of the feature which is not precisely known. The area is approximately 30 km offshore between Port Nolloth and Kleinsee. Fossilized tree trunks have been colonized by fragile, habitat-forming scleractinian corals. Based on regional side-scan sonar interpretations, the outcrop is believed to be unique to the area. Fragments of fossil tree trunks were, however, recovered from mined areas about 60 km away from this site but those fragments are no longer in-situ and were removed from the seabed. The site is within the productive southern Benguela ecosystem but there is no information on local-scale oceanography for this area.

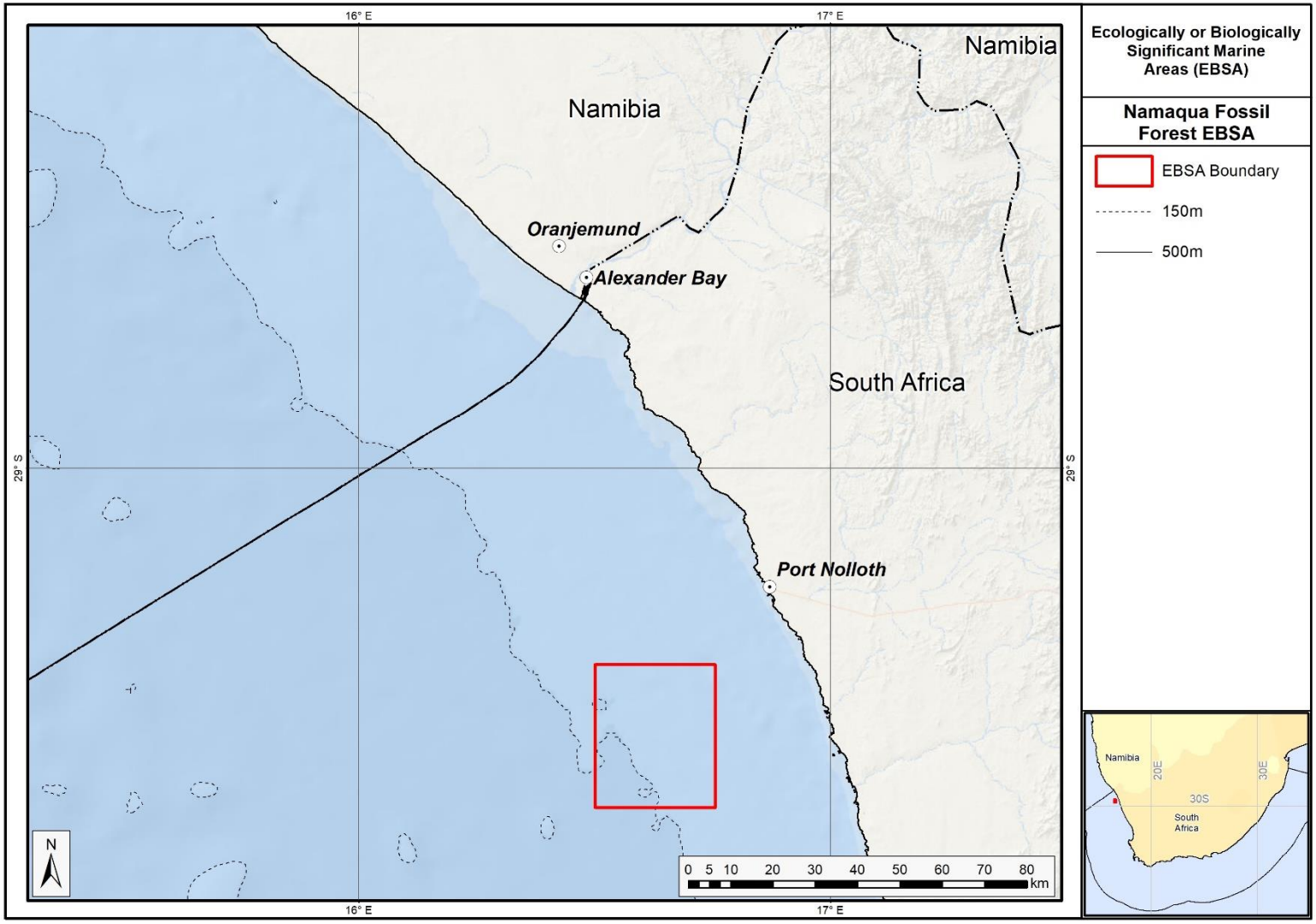
Description of the location

EBSA Region

South-Eastern Atlantic

Description of location

This area occurs on the mid-shelf in the 136-140 m depth range off the Namaqualand coast in South Africa. It is entirely within the EEZ of South Africa.



Proposed boundaries of the Namaqua Fossil Forest EBSA.

Area Details

Feature description of the area

This is a benthic feature composed of laterally extensive slabs of rock of lengths greater than 5 m and usually less than 1 m in width. The fossilized wood is reported to extend to 0.5 m in height although the geology of the broader area includes erosion-resistant, high-relief areas (up to 5 m) (Stevenson and Bamford 2003). The lithology has not been sampled directly, but is believed to be claystone. According to in-situ observations during submersible surveys, the fossilized wood has been colonized by scleractinian corals. Apparently, no biological sampling has been conducted previously at the site, with research activities being focused rather on the geology of the area. Two species of fossil wood were documented in the area, both from the Podocarpidae family; *Podocarpus jago* and *P. umzambense*, the former being a species described from this site (Bamford & Stevenson, 2002).

Since the original description and delineation of this EBSA, more recent surveys in the area have revealed hard grounds immediately north of the known location of the fossil forest, which are believed to be part of the same feature. Further, a newly described habitat-forming sponge has been recorded in the area (Samaai et al., 2017). Consequently, the boundary of the Namaqua Fossil Forest has been expanded to cover a broader area, which includes the delineation of a currently proposed MPA in South Africa. Although the boundary is still a geometric shape, the revision has improved the precision of the delineation by encompassing a more realistic representation of the full extent of the feature. More dedicated research in this area is required to refine the boundary further to the actual extent of the feature rather than this current approximation. Consequently, this site is presented as a Type 3 EBSA: Spatially stable features whose individual positions are not known (sensu Johnson et al., 2018).

Feature conditions and future outlook of the proposed area

The *in-situ* surveys of this unique site showed large, intact, fossilized tree trunks that support habitat-building corals and sponges. The site is considered to be unmined. It used to fall within a mining licence area (South African Sea Area MPT 25/2011 (in Concessions 5C and 4C)) where De Beers Consolidated Mines held a marine diamond mining right, but they have subsequently abandoned it. Since then, Belton Park Trading 127 (Pty) Ltd have been granted Prospecting Rights for marine diamonds in Concessions 2C, 3C, 4C and 5C, which overlaps with this EBSA (in 4C and 5C). However, the Basic Assessment Report requires a 250 m “no-go” buffer around all known locations of fossilized yellowwood trees (CCA Environmental (Pty) Ltd, 2015). Currently, sampling operations have been undertaken in Concession 2C and 3C, but not near the EBSA (Andrea Pulfrich, pers. comm). There is no known future research planned for the area.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for Namqua Fossil Forest. Data from Sink et al. (2019).

Threat status	Ecosystem Type	Area (km^2)	Area (%)
Least Concern	Namaqua Mid Shelf Rock Outcrops	20.1	2.4
	Namaqua Muddy Mid Shelf Mosaic	331.2	39.8
	Namaqua Sandy Mid Shelf	230.0	27.7
	Southern Benguela Muddy Sands	250.3	30.1
Grand Total		**831.6**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **High**

Justification

Based on interpretations of regional side-scan sonar covering more than 2300 km2 between the area offshore of Chamais Bay in Namibia and offshore of the Buffels River in South Africa, there are no other known in situ fossilized yellowwood forests in the region (Stevenson and Bamford 2003). Further, the published images of in situ habitat-building corals prove this site to be one of the few

confirmed localities of in situ cold-water corals in the region (Stevenson and Bamford 2003). Other fragments of fossil tree trunks were recovered from test-mine areas north-west of the area that meets the EBSA criteria, but these were buried fragments (Stevenson and Bamford 2003).

C2: Special importance for life-history stages of species **No information**
Justification
Little is known about the biodiversity and ecology of this small area (Sink et al., 2012a).

C3: Importance for threatened, endangered or declining species and/or habitats **No information**
Justification
Little is known about the local-scale biodiversity and ecology of this small area (Sink et al., 2012a). However, at a national scale, the most recent map of ecosystem types indicates that there are four ecosystem types present in the area, all of which are Least Concern (Sink et al., 2019).

C4: Vulnerability, fragility, sensitivity, or slow recovery **High**
Justification
The fossilized wood, accompanying cold-water coral colonies, and habitat-forming sponges are considered vulnerable to any activities that could impact on the seabed (FAO 2006, Rogers et al., 2008, FAO 2009, Sink et al., 2012a,b).

C5: Biological productivity **Medium**
Justification
This small localized area is unlikely to be more or less productive than the area surrounding it, but it does occur within the productive Southern Benguela ecosystem (Lagabrielle 2009, Sink et al., 2012a).

C6: Biological diversity **No information**
Justification
Little is known about the biodiversity and ecology of this small area (Sink et al., 2012a). However, the most recent map of ecosystem types indicates that there are four ecosystem types present in this small area (Sink et al., 2019).

C7: Naturalness **High**
Justification
The area has some overlap with a diamond mining lease area but apparently, it has not yet been mined (Leslie Roos, De Beers, South Africa pers. comm.). Although there is currently no mining within this offshore diamond mining lease, the future of mining in the area is uncertain (Sink et al., 2011, 2012a). Based on a cumulative-pressures assessment of known activities and impacts, almost the entire area (>99%) is in good ecological condition (Sink et al., 2019), and there is no known fishing activity within the site.

Status of submission

The Namaqua Fossil Forest 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

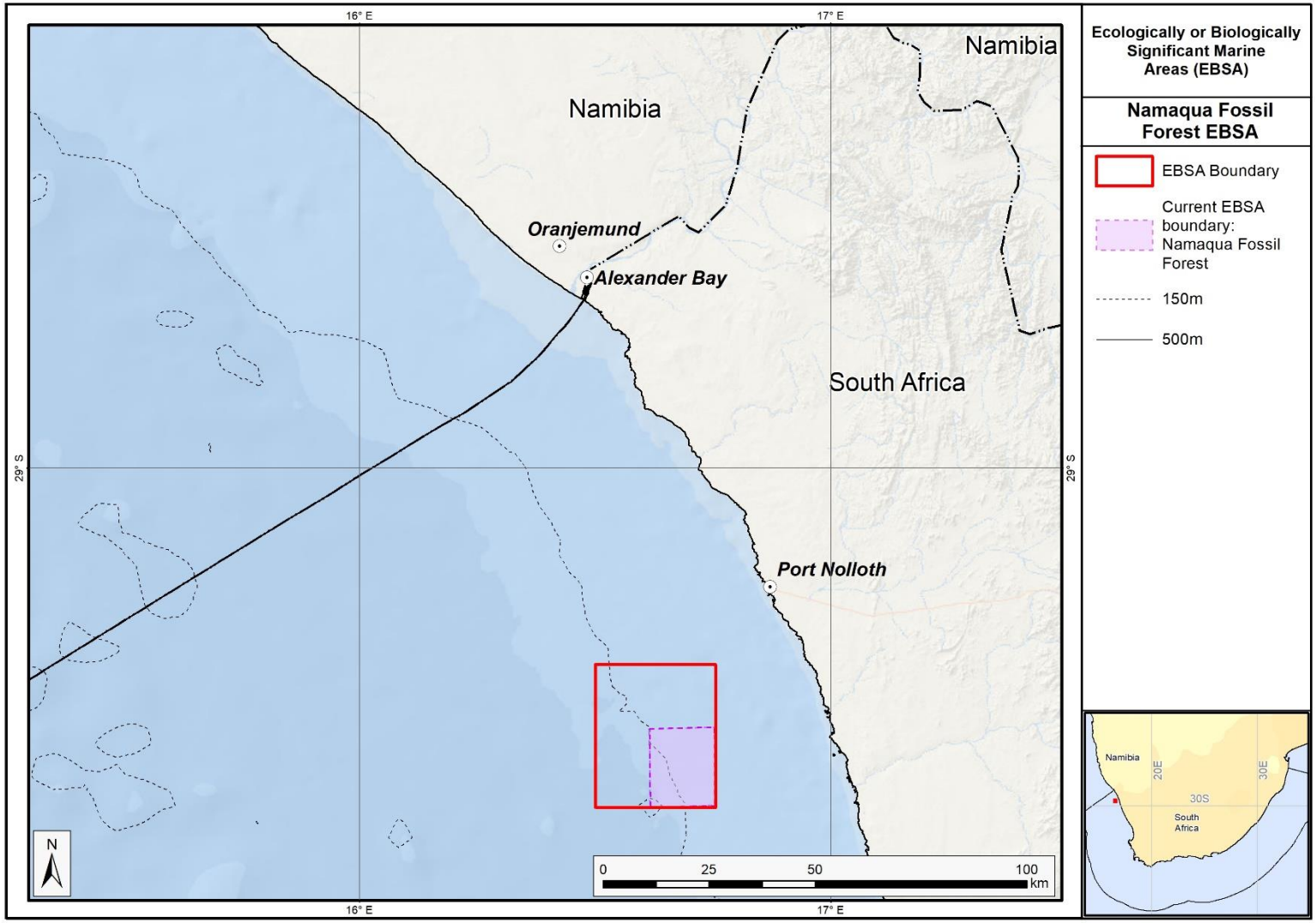
COP Decision

dec-COP-12-DEC-22

End of proposed EBSA revised description

Motivation for Revisions

A few technical revisions and updates to the description were made, even though little additional information was available. The boundaries were expanded based on new information from recent surveys in the adjacent area so that the new delineation now includes the likely full extent of the fossil outcrop. The new boundaries also include the extent of the proposed Namaqua Fossil Forest MPA, which also contains an adjacent unprotected inner shelf mud ecosystem type. Based on new information from the National Biodiversity Assessment 2018 (Sink et al., 2019), the Naturalness criterion was changed from Data Deficient to High.



The proposed Namaqua Fossil Forest EBSA in relation to its original extent.

Namaqua Coastal Area

Revised EBSA Description

General Information

Summary

The Namaqua Coastal Area is on the west coast of South Africa, within the Namaqua bioregion, and is characterized by high productivity and community biomass along its shores. A large proportion of the area is characterized by habitat that is in relatively good (natural/pristine) condition due to much lower levels of anthropogenic pressures relative to other coastal areas in the Northern Cape Province. Consequently, the area is important for several threatened ecoystem types represented there (including two Endangered and four Vulnerable ecosystem types). The area is also important for conservation of estuarine areas and coastal fish species. In summary, the area is highly relevant in terms of the following EBSA criteria: "productivity", "importance for threatened, endangered or declining species and/or habitats" and "naturalness". Since its original delineation, the boundary of this EBSA has been extended further offshore by approximately 7-20 km to better align with the underlying biodiversity features following recent research, rather than following an old proposed MPA boundary that was not adopted nor proclaimed.

Introduction of the area

The Namaqua Coastal Area is located from the estuary of the Spoeg River to the estuary of the Sout River in the Namaqua bioregion of South Africa (Sink et al., 2012), and from the dune base to approximately 33-36 km offshore. It consists of Namaqua coastal, inner, mid and outer shelf ecosystem types (Sink et al., 2019). The associated pelagic environment is characterized by upwelling, giving rise to very cold waters with very high productivity/chlorophyll levels (Lagabrielle 2009, Roberson et al., 2017). Altogether, the area includes three estuaries (van Niekerk and Turpie, 2012).

Description of the location

EBSA Region

South-Eastern Atlantic

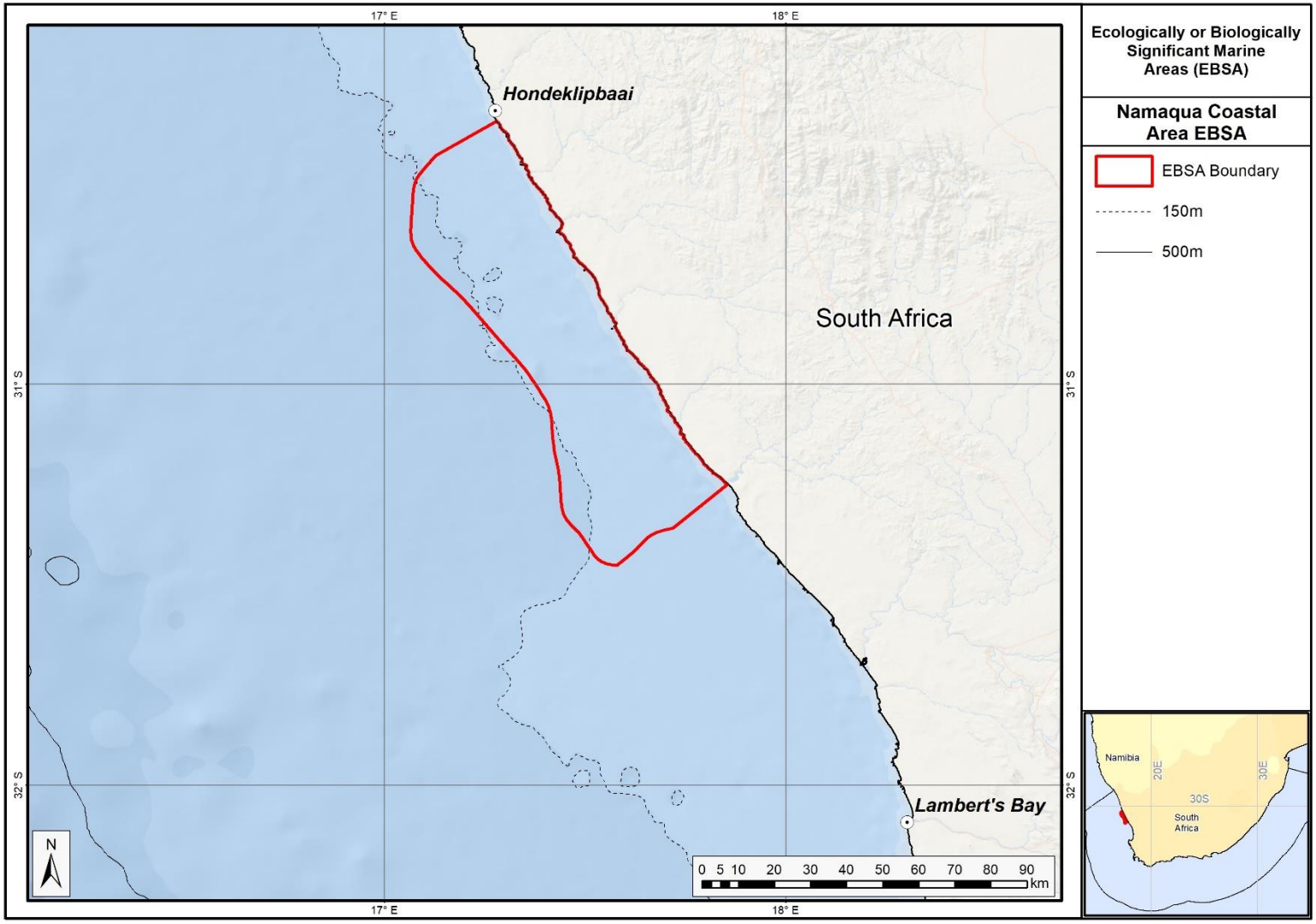
Description of location

The area is within the national jurisdiction of South Africa, occurring on the west coast, in the Namaqua bioregion. It is bounded to the north and south by the Spoeg and the Sout estuaries, respectively, extending offshore by approximately 33-36 km.

Area Details

Feature description of the area

The area consists of Namaqua coastal, inner, mid and outer shelf ecosystem types (Sink et al., 2019). There are also three estuaries in the area (van Niekerk and Turpie 2011). The associated pelagic environment is characterized by very high productivity, high chlorophyll and very cold water (mean



Proposed boundaries of the Namaqua Coastal Area EBSA.

SST = 15.2°C) caused by upwelling (Lagabrielle 2009, Roberson et al., 2017), also serving as an important area for coastal fish (Turpie et al., 2000). There is a small part of the EBSA (midway along the shore) that was recently declared as a marine protected area that came into effect in 2019. The terrestrial habitat adjacent to the part of the EBSA that stretches between the Groen and Spoeg estuaries is within the Namaqua National Park and is, therefore, also protected.

Since original description, the EBSA has been extended offshore by approximately 7-20 km so that the new offshore extent is 36 km at its widest point. The alongshore extent remains the same as before between the Spoeg and Sout estuaries. The extension was based on better alignment with the features comprising the EBSA, and their condition and threat status, based on the best available information (e.g., Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019). This was also based on new research (Karenyi 2014) that has allowed better ecosystem mapping in the area, thus affording more accuracy in the EBSA boundary rather than following an old proposed MPA boundary that was not adopted. New fine-scale mapping of the coast (Harris et al., 2019) also allowed a more accuracte coastal boundary to be delineated. 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).

Feature conditions and future outlook of the proposed area

Sink et al. (2012, 2019) determined the threat status of coastal and marine ecosystem types in South Africa by assessing the (weighted) cumulative impacts of various pressures (e.g., extractive resource use, pollution, development, and others) on each ecosystem type. Six of the ecosystem types represented in the area are threatened, including two Endangered (Cool Temperate Arid Predominantly Closed Estuary; Southern Benguela Reflective Sandy Shore) and four Vulnerable types (Namaqua Exposed Rocky Shore; Namaqua Kelp Forest; Namaqua Mixed Shore; Namaqua Very Exposed Rocky Shore; Southern Benguela Intermediate Sandy Shore). This implies that there has been substantial degradation in natural/pristine condition of these ecosystem types, and it is expected that important components of biodiversity pattern have been lost and that ecological processes have been moderately to heavily modified.

Part of the coastal extent of the area (between the Brak and Sout rivers) is the only stretch of coast in the Northern Cape province of South Africa that is in good (natural/pristine) condition (Sink et al., 2012). This is because very little mining (the most prominent anthropogenic pressure on this coastline) or other pressures have affected this section. Moreover, other habitat in the area (particularly that between the Spoeg and Groen estuaries) was assessed to be mainly in fair condition, with little industry present in the area except for some boat-based mining for which SCUBA is used (Majiedt et al., 2013). Of the three estuaries in the EBSA, two (the Groen and the Spoeg) have been identified as national priorities for estuarine protection (van Niekerk and Turpie 2012). The lack of marine protected areas in South Africa's Northern Cape province was previously highlighted as an issue of concern (Sink et al., 2012, Majiedt et al., 2013). Considering this and the following characteristics of the area: (i) the threatened ecosystem types represented there, (ii) the relative lack of human industry and consequently the good condition of much of the habitat in the area, (iii) the connectivity between part of the area and an established terrestrial national park, and (iv) the priority for national estuarine

conservation of two of the river mouths in the area, most of the extent of the area has been identified as priority marine/coastal habitat for spatial protection (Sink et al., 2012, Majiedt et al., 2013). Furthermore, a complementarity analysis based on fish distribution data indicated that the coast within the area is a priority area for the conservation of coastal fish species in South Africa (Turpie et al., 2000). Therefore, among the newly proclaimed MPAs in South Africa is a relatively small Namaqua National Park MPA in the middle of this EBSA.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for the Namaqua Coastal Area. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Endangered	Cool Temperate Arid Predominantly Closed Estuary	0.5	0.0
	Southern Benguela Reflective Sandy Shore	1.4	0.0
Vulnerable	Namaqua Exposed Rocky Shore	12.1	0.3
	Namaqua Kelp Forest	1.7	0.0
	Namaqua Mixed Shore	19.2	0.5
	Namaqua Very Exposed Rocky Shore	1.2	0.0
Near Threatened	Southern Benguela Intermediate Sandy Shore	3.1	0.1
Least Concern	Namaqua Muddy Mid Shelf Mosaic	2333.1	66.5
	Namaqua Sandy Inner Shelf	303.7	8.7
	Namaqua Sandy Mid Shelf	230.9	6.6
	Southern Benguela Dissipative-Intermediate Sandy Shore	4.2	0.1
	Southern Benguela Muddy Sands	345.1	9.8
	Southern Benguela Sandy Outer Shelf	250.6	7.1
Grand Total		**3507.1**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **Low**

Justification

None of the ecosystem types or features represented in the area are unique to the area (Sink et al., 2012, 2019, Majiedt et al., 2013).

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

Justification

The area is part of the important west coast nursery area for commercially caught pelagic fish species in South Africa (Hutchings et al., 2002). Further, it includes three estuaries that may also provide nurseries for coastal fish species (van Niekerk and Turpie 2000), many of which species are in an over-exploited state (Mann 2000). The site also includes breeding habitat for birds, such as white breasted cormorants (Crawford et al., 2013) and roost sites for African black oystercatchers (Rao et al., 2014).

C3: Importance for threatened, endangered or declining species and/or habitats **High**
Justification
Two of the ecosystem types represented in the area (Cool Temperate Arid Predominantly Closed Estuary; Southern Benguela Reflective Sandy Shore) are Endangered (Sink et al., 2019). This implies that very little of the total area of these ecosystem types in South Africa is in natural/pristine ecological condition. The Vulnerable Namaqua Exposed Rocky Shore, Namaqua Kelp Forest, Namaqua Mixed Shore, Namaqua Very Exposed Rocky Shore and Southern Benguela Intermediate Sandy Shore are also found in the area. The portions of these ecosystem types inside the EBSA were all found to be in good ecological condition, therefore emphasizing the importance of the EBSA for the conservation of these threatened ecosystem types (Majiedt et al., 2013). The Namaqua Coastal Area is also important for estuarine conservation, given the presence of three estuaries and the fact that the conservation status of ±80% of South Africa's estuarine area is classified as threatened (van Niekerk and Turpie 2012). Furthermore, populations of many coastal fish species in South Africa are under severe conservation threat, mainly due to overexploitation (Mann 2000), and the Namaqua Coastal Area is a key site for protection of coastal fish species in South Africa (Turpie et al., 2000).

C4: Vulnerability, fragility, sensitivity, or slow recovery **Medium**
Justification
The threatened status of ecosystem types that occur in the EBSA (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 effects of human activities.

C5: Biological productivity **High**
Justification
The pelagic environment associated with this area is characterized by very cold water, high chlorophyll concentrations and high biological productivity due to wind-induced upwelling (Hutchings et al., 2009, Lagabrielle 2009, Roberson et al., 2017). As a result of the abundance of nutrients associated with the upwelling, the biomass of communities along the shore (intertidal) is significantly higher than that in the other two bioregions of South Africa (Bustamante and Branch 1996).

C6: Biological diversity **Low**
Justification
Although the productivity and biomass of communities along the shore of the Namaqua bioregion (where the EBSA occurs) is higher than elsewhere in the country, the species diversity is lower than elsewhere (Bustamante and Branch 1996). Notwithstanding, there are 13 ecosystem types present in this EBSA (Sink et al., 2019) that likely harbour a variety of species collectively.

C7: Naturalness **High**
Justification
There is a relative lack of human activities (past and present) in the Namaqua Coastal Area. A recent analysis of cumulative anthropogenic pressure of South Africa's marine environment showed that 98% of this EBSA is considered in good ecological condition, 2% fair and <1% poor ecological condition (Sink et al., 2019). Consequently, even ecosystem types that are threatened at a national level are in good ecological condition in this area (Sink et al., 2012), and hence have been highlighted as conservation priority areas along the South African west coast (Majiedt et al., 2013).

Status of submission

The Namaqua Coastal Area 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

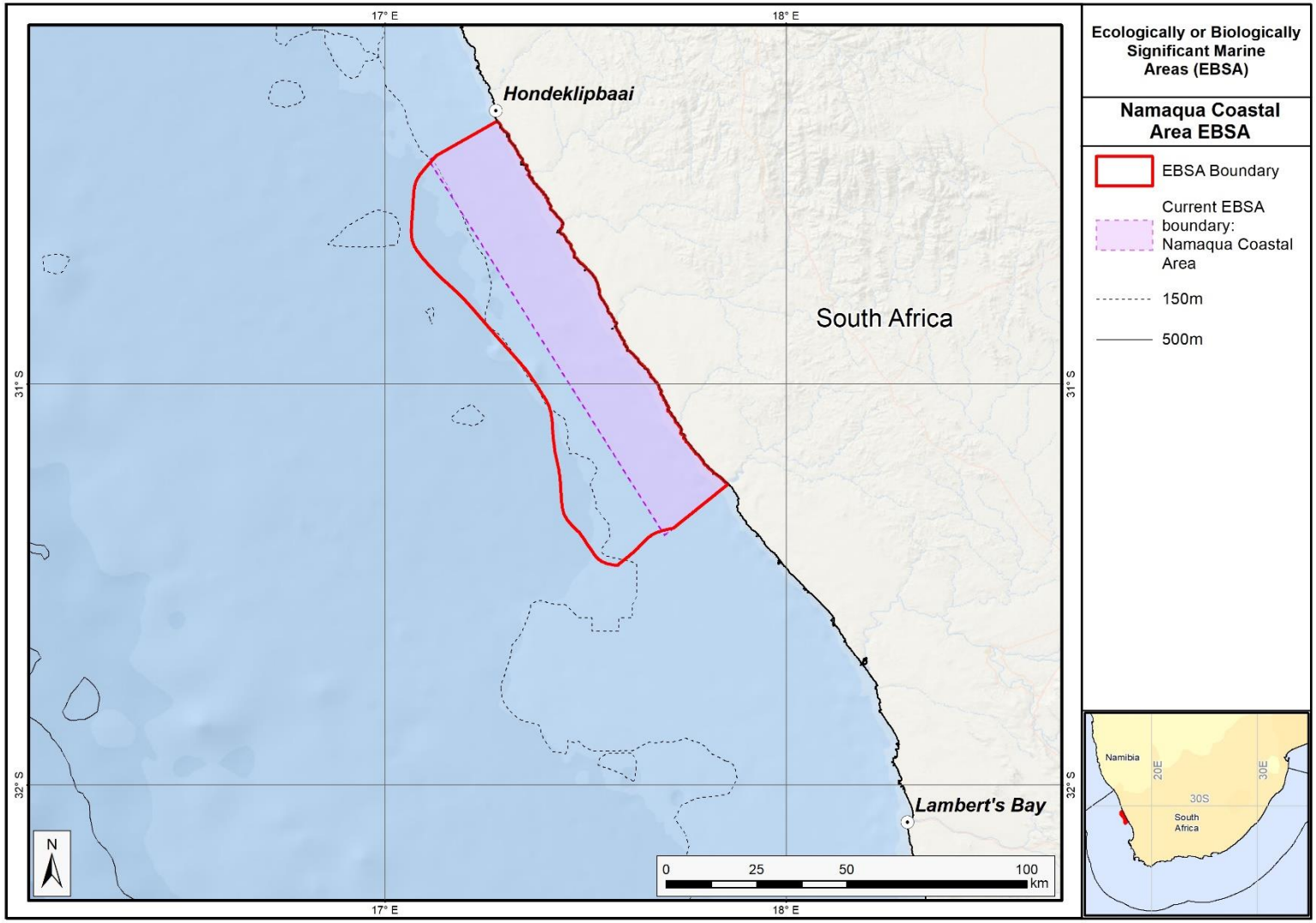
Motivation for Revisions

Some technical revisions and updates to the description were made, even though little additional information was available, and no new research has been carried out in the area since its original adoption in 2014. Small additions were made, but none of these edits were significant enough to drive a change in the EBSA criteria ranks. A supplementary table of the habitats represented in the EBSA and their associated threat status was also included.

The boundary of this EBSA has been refined to focus the EBSA more closely on the key biodiversity features that underlie its EBSA status. The delineation process included an initial stakeholder review, a technical mapping process and then an expert review workshop where boundary delineation options were finalised. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA.
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as focus areas identified in the SCP undertaken for the West Coast by Majiedt et al. (2013) and for the BCLME by Holness et al. (2014) were incorporated.
- Areas of high relative naturalness of benthic and coastal systems identified in the National Biodiversity Assessment 2011 (Sink et al., 2012), the West Coast (Majiedt et al., 2013) and the BCLME spatial assessments (Holness et al., 2014) were included in the analysis.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).
- The coastal boundary was refined to be more accurate based on new data (Harris et al., 2019).

The multi-criteria analysis resulted in a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.



The proposed revised boundaries for the Namaqua Coastal Area EBSA in relation to the original boundaries of the EBSA.

Cape Canyon and Associated Islands, Bays and Lagoon (Formerly Cape Canyon and Surrounds)

Revised EBSA Description

General Information

Summary

Cape Canyon is one of two submarine canyons off the west coast of South Africa (the other being the Cape Point Valley). This broader area, including St Helena Bay, has been recognized as important in three systematic conservation plans. Both benthic and pelagic features are included, and the area is important for pelagic fish, foraging marine mammals and several threatened seabird species. The area is also important for threatened ecosystem types; there are nine Endangered and 12 Vulnerable ecosystem types, and two that are Near Threatened. There is evidence that the submarine canyon hosts fragile habitat-forming species, and there are other unique and potentially vulnerable benthic communities in the area. The hard ground areas, particularly those outside of the trawl footprint, are also likely to be susceptible to damage and there are increasing petroleum and mining applications in this area. There are several small coastal MPAs within the EBSA.

Introduction of the area

Cape Canyon and Associated Islands, Bays and Lagoon is bounded along the shore from the Sixteen Mile Beach MPA in the south to about 10 km south of Lamberts Bay in the north, extending further offshore in the southern part compared to the northern part. The EBSA includes Langebaan Lagoon, Saldanha Bay, eight islands (Robben, Dassen, Vondeling, Marcus, Malgas, Jutten, Schaapen, Meeuw), the Cape Canyon submarine canyon and adjacent shelf edge, and has been extended to include the whole of St Helena Bay. This area was identified as a priority area through a national plan to identify areas for offshore protection (Sink et al., 2011) and by a systematic biodiversity plan for the west coast (Majiedt et al., 2013). It was also identified as an important area for pelagic ecosystems and species (Grantham et al., 2011). Langebaan Lagoon and Dassen Island Nature Reserves are also both Ramsar sites.

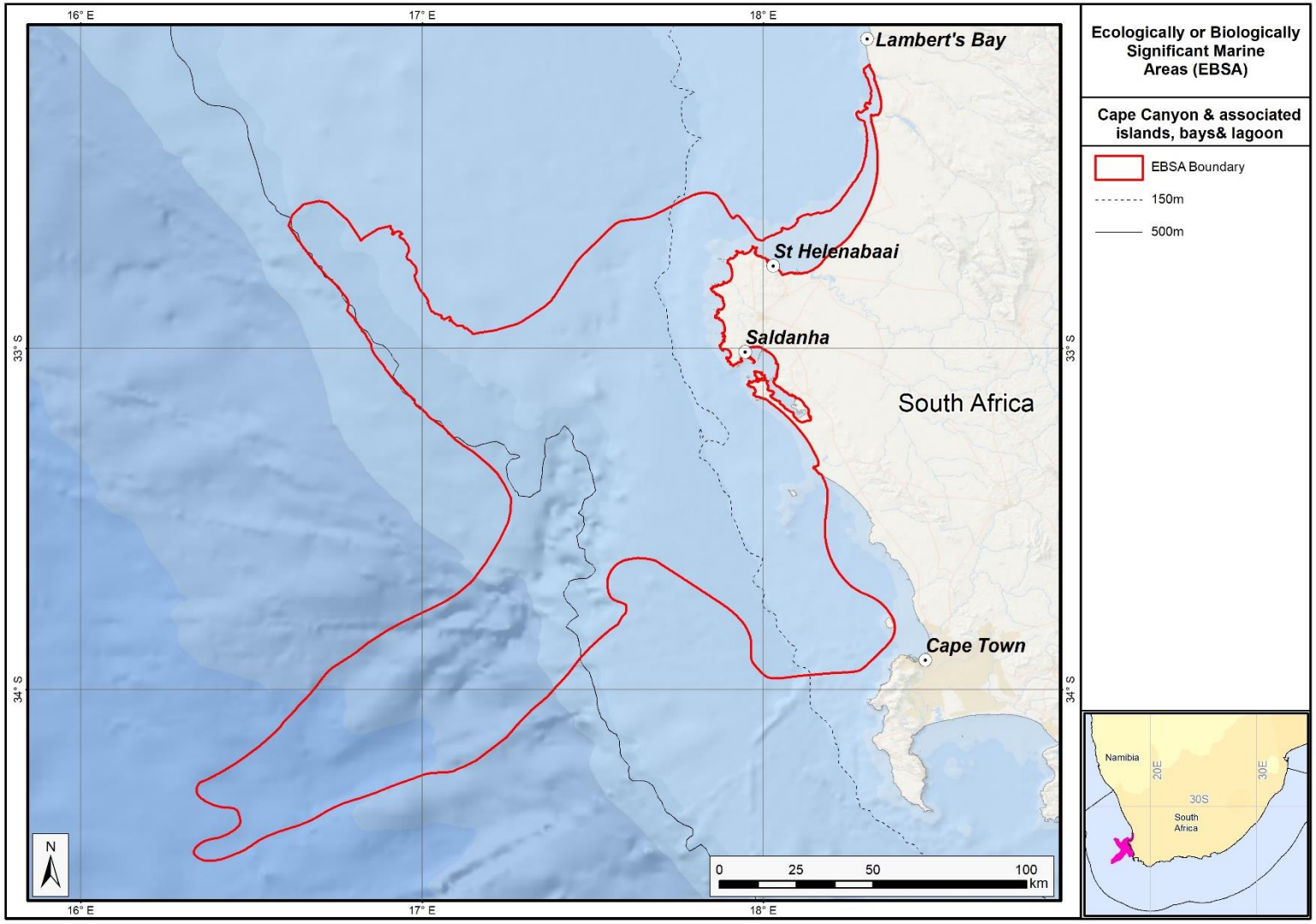
Description of the location

EBSA Region

South-Eastern Atlantic

Description of location

This focus area is located around the southwest coast of South Africa and is completely within South Africa's national jurisdiction. Cape Canyon and Associated Islands, Bays and Lagoon is bounded along the shore from the Sixteen Mile Beach MPA in the south to about 10 km south of Lamberts Bay in the north, extending much further offshore (approximately 70 km) in the southern part compared to that in the northern part (<10 km).



Proposed revised boundaries of the Cape Canyon and Associated Islands, Bays and Lagoon EBSA.

Area Details

Feature description of the area

Cape Canyon and Associated Islands, Bays and Lagoon is a productive area with important benthic and pelagic habitats and physical features that jointly support important life-history stages of species, and threatened, fragile and vulnerable species and habitats. The main geological feature of this EBSA is Cape Canyon itself. It is one of two canyons on the South African west coast (the other being the Cape Point Valley), which has its head about 23 km offshore of Cape Colombine at -168 m depth, and incises to a depth of about -900 m (De Wet 2012). New bathymetry data clearly show that the main channel (at the canyon head) comprises two separate, parallel channels in the northern and middle sections that combine to form a deeply incised main channel in the south that runs all the way to the outer continental slope, ending at about -3500 m in the Cape Basin (De Wet 2012). The western branch of the main channel is much more deeply incised than is the eastern branch by up to 100 m, and the slope of the western canyon margin is much steeper than that of the eastern side (De Wet 2012). The eight islands are other key geological features in this EBSA, as well as the adjacent lagoon and bay system on the coast. The area includes unconsolidated sand, mud and gravel benthic habitats and a pelagic ecosystem type that is characterised by elevated productivity and frequent fronts associated with shelf-edge upwelling (Lutjeharms et al., 2000, Lagabrielle 2009, Roberson et al., 2017).

The key geological features, described above, in turn support important biological communities: from fragile to threatened species. These include four distinct benthic macrofaunal communities characterized by molluscs, polychaetes, amphipods and brittle stars (Karenyi 2014), and hard-ground habitats that are poorly known (Sink et al., 2012b). Fragile cold-water corals have been collected within the area. Further, a recent survey sighted seapens, anemones, starfish and cloaked hermit crabs (Sink 2016); all of which species are sensitive to impacts to the seabed. Parts of this dynamic area, particularly within St Helena Bay, experience low-oxygen water that may support unique biological communities (Sink et al., 2011) that are also sensitive to disturbances. The small islands contained in the EBSA provide breeding habitat for several endemic seabird species, most of which are threatened, or seals (Kemper et al., 2007). The area encompasses a key foraging area for marine mammals (Best 2006, Barendse et al., 2011) and the following Important Bird Areas: West Coast National Park and Saldanha Bay Islands; Robben Island; and Dassen Island, and is adjacent to the Berg River Estuary and Veloerenvlei Estuary IBAs. The focus area has also been included in annual demersal fish trawl surveys conducted by the Department of Agriculture, Forestry and Fisheries.

Since the original description and delineation of the EBSA, new research has been conducted within the area, allowing a more comprensive understanding of the features and communities at this site. Consequently, the boundary has been revised to improve accuracy in representing the key benthic and pelagic ecosystem types and features, as well as key biodiversity features that underpin the EBSA status, such as: fragile and sensitive habitat-forming species, islands, the canyon, and key species (e.g., colonial seabirds). Revisions were based on the best available information (e.g., De Wet 2012; GEBCO Compilation Group 2019; Harris et al., 2014; Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019). Much of the improvement in the delineation was based on new bathymetry data (De Wet 2012), which has allowed a more precise, data-driven boundary for the EBSA rather than an expert-based boundary. It also also based on new biological sampling that, for example, motivates for extending the EBSA to include the full extent of St Helana Bay to encompass those sensitive communities (Karenyi 2014, Sink 2016). The new boundary also better aligns with South Africa's

recently expanded MPA network, and new, fine-scale coastal mapping (Harris et al., 2019). It is presented as a Type 2 EBSA because it contains "spatially stable features whose individual positions are known, but a number of individual cases are being grouped" (sensu Johnson et al., 2018).

Feature conditions and future outlook of the proposed area

Habitat condition within this broad area ranges from good to poor (Sink et al., 2012a, 2019). Pressures are increasing, although the area includes several coastal MPAs (Langebaan, Sixteen Mile Beach, Marcus Island, Malgas Island and, Jutten Island) that protect habitats and species to varying extents. It was recommended that MPAs in the area should be considered for consolidation, extension, or re-zoning to resolve existing resource conflicts, protect threatened species in their core areas, and minimize stakeholder impacts (Sink et al., 2011). As a result, several new MPAs were recently proclaimed within this EBSA, including Cape Canyon MPA, Benguela Mud MPA, and Robben Island MPA. The lagoon system is vulnerable to further impacts, and the islands with their associated seabird colonies are all threatened (Kemper et al., 2007). Petroleum exploration is increasing in the area, and there are new applications for seabed mining for phosphates and other minerals.

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Summary of ecosystem types and threat status for the Cape Canyon and Associated Islands, Bays and Lagoon. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Endangered	Cape Bays	114.3	0.7
	Cape Island Shore	2.9	0.0
	Cape Sheltered Rocky Shore	1.4	0.0
	Cape Upper Canyons	1893.8	11.4
	Cool Temperate Arid Predominantly Closed Estuary	0.1	0.0
	Cool Temperate Estuarine Lake	0.2	0.0
	Cool Temperate Predominantly Open Estuary	0.3	0.0
	Southern Benguela Muddy Shelf Edge	814.0	4.9
	Southern Benguela Reflective Sandy Shore	5.7	0.0
Vulnerable	Cape Boulder Shore	1.3	0.0
	Cape Exposed Rocky Shore	16.0	0.1
	Cape Kelp Forest	4.7	0.0
	Cape Lower Canyons	2483.7	15.0
	Cape Mixed Shore	12.4	0.1
	Cape Rocky Inner Shelf	249.3	1.5
	Cape Rocky Mid Shelf Mosaic	2714.0	16.4
	Cape Sandy Inner Shelf	253.9	1.5
	Cool Temperate Estuarine Lagoon	60.2	0.4
	Southern Benguela Rocky Shelf Edge	1457.2	8.8
	Southern Benguela Sandy Shelf Edge	6.7	0.0
	St Helena Bay	545.3	3.3
Near Threatened	Cape Very Exposed Rocky Shore	0.2	0.0
	Southern Benguela Intermediate Sandy Shore	11.3	0.1
Least Concern	Cape Basin Abyss	628.4	3.8
	Namaqua Sandy Mid Shelf	9.4	0.1
	Southeast Atlantic Lower Slope	1994.2	12.0
	Southeast Atlantic Mid Slope	7.1	0.0
	Southeast Atlantic Upper Slope	180.3	1.1
	Southern Benguela Dissipative Sandy Shore	14.1	0.1
	Southern Benguela Dissipative-Intermediate Sandy Shore	21.2	0.1
	Southern Benguela Outer Shelf Rocky Sand Mosaic	555.8	3.3
	Southern Benguela Sandy Outer Shelf	2526.0	15.2
Grand Total		**16585.5**	**99.9**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **High**

Justification

This area was identified by two systematic plans because of rare ecosystem types including the canyon, rare muds and low-oxygen benthic habitats (Sink et al., 2011, 2012a, 2012b, Majiedt et al., 2013). The Southern Benguela Muddy Shelf Edge comprises only two patches off Saldahna, covering

an estimated 567 km^2, which is included in the EBSA. Cape Canyon is the largest of only two reported submarine canyons on the west coast of South Africa and in the southern Benguela. Further, this site contains the only lagoon in South Africa, and Saldanha Bay is the largest natural harbour in the country.

C2: Special importance for life-history stages of species **High**
Justification
The area encompasses a key foraging area for marine mammals including humpback and southern right whales (Best 2006, Barendse et al., 2011) and two marine Important Bird Areas. Closer to shore, Cape Canyon is adjacent to several terrestrial IBAs, with Dassen Island also being a Ramsar site. The seas extending from these sites have been proposed as a marine IBA for the following seabird species: African Penguin, Bank Cormorant, Cape Cormorant, Cape Gannet, Caspian Tern, Crowned Cormorant, Damara Tern, Great Crested Tern, Kelp Gull and Hartlaub's Gull. Further offshore, along the shelf edge where commercial fisheries are concentrated, BirdLife International has identified a large area, which overlaps with the Cape Canyon area, as a potential marine IBA for Atlantic Yellow-nosed and Black-browed albatrosses and Cory's Shearwater. Several other species (e.g. Shy Albatross and White-chinned Petrel) are likely to qualify as trigger species in this area, but tracking data or analyses are lacking. Grantham et al. (2011) also showed that this area had the highest density of breeding seabirds that feed on pelagic species. High densities of sardine and anchovy eggs contributed to the high selection frequency of this broader area in the offshore systematic biodiversity plan for South Africa (Sink et al., 2011). Spawning and nursery habitat for Cape hakes is also included in this area (Sink et al., 2011, Kone et al., 2013).

C3: Importance for threatened, endangered or declining species and/or habitats **High**
Justification
This area is important for several threatened seabirds, including four Endangered seabirds – African Penguin, Bank Cormorant, and Black-browed and Atlantic Yellow-nosed albatrosses. These animals are highly dependent on this area for some or all of their life stages, particularly for foraging. In addition, several species of lower conservation threat status are similarly dependent on this area: the Vulnerable White-chinned Petrel, Cape Cormorant and Cape Gannet. Dassen Island is recognised for its value for these species as a Ramsar site.

The area is dominated by a plethora of threatened ecosystem types identified in the National Biodiversity Assessment 2011 (Sink et al., 2012), BCC assessment Holness et al. (2014), and National Biodiversity Assessment 2018 (Sink et al., 2019), with the results from the most recent assessment (NBA 2018) reported here (Sink et al., 2019). Altogether, there are 21 (of 32) ecosystem types represented in the EBSA that are threatened. These include nine Endangered ecosystem types, namely: Cape Bays, Cape Island Shore, Cape Sheltered Rocky Shore, Cape Upper Canyons, Cool Temperate Arid Predominantly Closed Estuary, Cool Temperate Estuarine Lake, Cool Temperate Predominantly Open, Southern Benguela Muddy Shelf Edge and Southern Benguela Reflective Sandy Shore. A further 12 Vulnerable ecosystems are found in the area, namely: Cape Boulder Shore, Cape Exposed Rocky Shore, Cape Kelp Forest, Cape Lower Canyons, Cape Mixed Shore, Cape Rocky Inner Shelf, Cape Rocky Mid Shelf Mosaic, Cape Sandy Inner Shelf, Cool Temperate Estuarine Lagoon, Southern Benguela Rocky Shelf Edge, Southern Benguela Sandy Shelf Edge and St Helena Bay. There are also two ecosystem types that are Near Threatened (Sink et al., 2019).

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

Justification

The submarine canyon in this area is considered vulnerable to impact because cold-water corals, gorgonians and other slow-growing, habitat-forming species were observed within this area on submersible footage (Diamondfields International unpublished footage, Sink and Samaai 2009). Gilchrist (1921) also reported cold water corals, black corals and two hundred large sponges in a single otter trawl in this area in 1920, and it was only in the 1990s that trawling was initiated in the hard-ground habitats within this area (Sink et al., 2012b). Deep reefs and hard grounds in the area are also likely to host fragile three-dimensional, habitat-forming species, although this has not been confirmed by in-situ research. These habitats are all considered sensitive to demersal trawling and mining (Sink et al., 2011, 2012a, 2012bb). The low-oxygen habitats and likely biological communities they support are also considered vulnerable.

C5: Biological productivity **High**

Justification

The most persistent and intense upwelling cell on the entire South African west coast is found within this area at Cape Columbine, resulting in the area downstream having the highest productivity, organic loading (Demarq et al., 2007) and organic carbon deposits on the seafloor (Bailey 1991) on this coast. St Helena Bay has also been identified as the area having the most persistent oxygen-deficient water in the region (Bailey 1991). South of Cape Columbine, a different set of oceanographic features dominate, and frequent pulse upwelling events result in high productivity over shorter periods (Demarq et al., 2007). Cape Canyon and Surrounds includes part of the area with highest copepod biomass on the west coast (Grantham et al., 2011). Large populations of marine top predators forage and/or breed within the area, including several species of seabirds, cetaceans and seals (Best 2006, Barendse et al., 2011, Hutchings et al., 2012).

C6: Biological diversity **High**

Justification

South Africa's national marine ecosystem map indicates 32 ecosystem types in this area (Sink et al., 2019), and this diversity of ecosystem types is a key driver of this area's selection in two systematic biodiversity plans (Sink et al., 2011, Majiedt et al., 2013). The submarine canyon, sand and mud habitats, patches of low oxygen water, bays, islands and the adjacent lagoon system contribute to the high habitat diversity in this area (Sink et al., 2011, 2012a, 2019, Majiedt et al., 2013). This is also the only place where two genomic clusters for *Zostera capensis* are present (in Langebaan). The importance of sites like Langebaan and Dassen Island for biodiversity are highlighted by the fact that they are both Ramsar sites.

C7: Naturalness **Medium**

Justification

There is a moderate level of naturalness within this area. Of the two mapped submarine canyons, there is lower trawling effort and fewer pressures in Cape Canyon, which is the closer canyon to the city of Cape Town (Sink et al., 2011, Sink et al., 2012a,b). Some of the canyon habitat is outside of the trawling footprint, and there are adjacent hard ground areas that are also untrawled (Wilkinson 2009, Sink et al., 2012b). However, there is a port at Saldanha, and several fisheries sectors operate within this area. An assessment of cumulative anthropogenic pressure on South Africa's marine environment

indicates that 17% of the EBSA is in good ecological condition, 40% fair and 43% poor ecological condition (Sink et al., 2019).

Status of submission

The Cape Canyon and Surrounds EBSA was recognized as meeting EBSA criteria 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

Motivation for Revisions

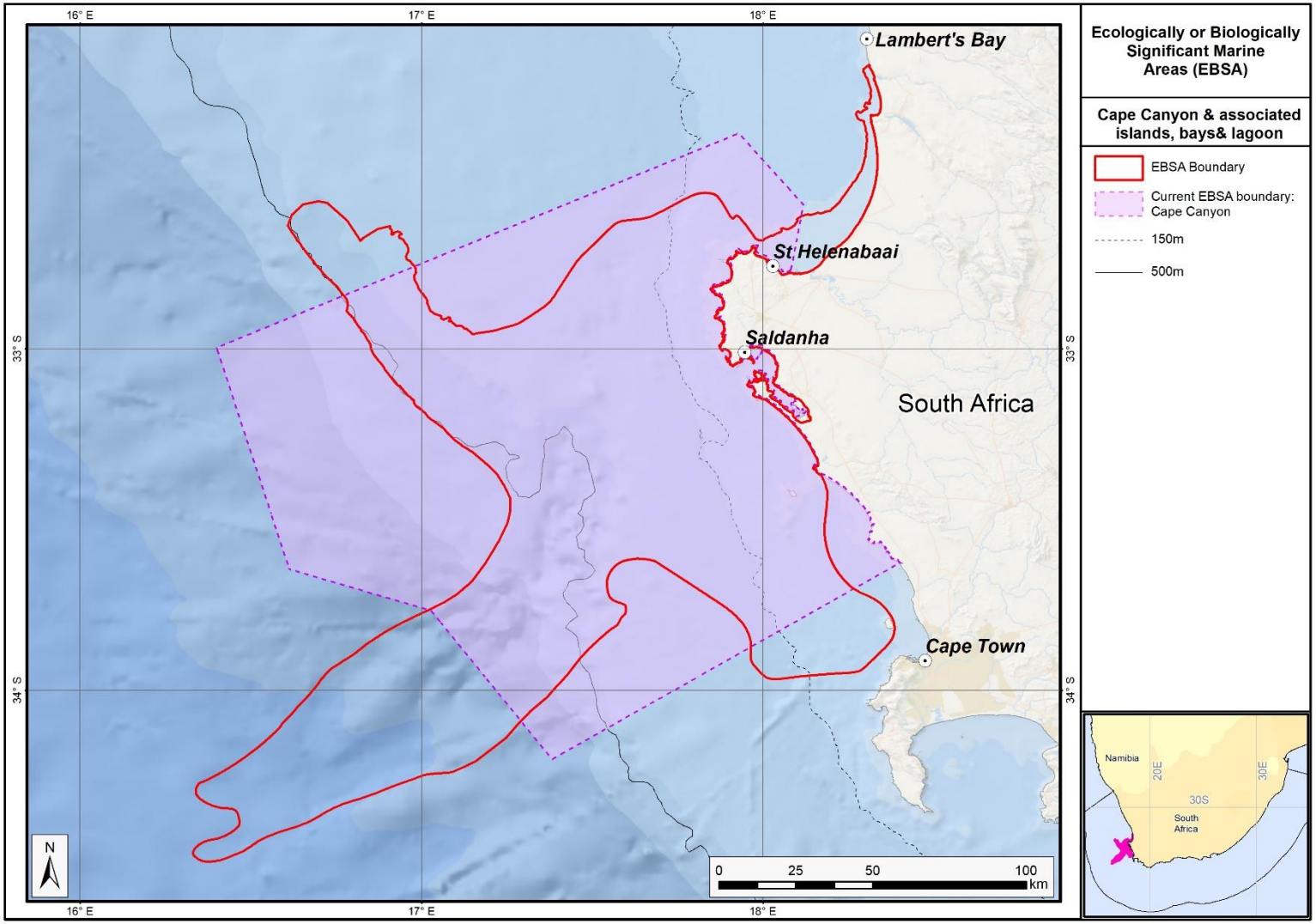
Some technical revisions and updates to the description were made, with two of the criteria being upgraded from medium to high (criterion 1 and criterion 6) given the more substantiated evidence. A supplementary table of the habitats represented in the EBSA and their associated threat status was also included.

The main change is that the boundary of this EBSA has been significantly refined to focus the EBSA more closely on the key biodiversity features that underlie its EBSA status. The delineation process included an initial stakeholder review which identified the need to include additional features such as the full extent of the Cape Canyon and St Helena Bay, a technical mapping process and then an expert review workshop where boundary delineation options were finalised. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Key physical features (i.e. canyons and islands) from GEBCO data (GEBCO Compilation Group 2019), global benthic geomorphology mapping (www.bluehabitats.org, Harris et al., 2014), new national bathymetric data (De Wet 2012), and data from the South African National Biodiversity Assessment (Sink et al., 2012) and BCC spatial mapping project (Holness et al., 2014) were compiled. In addition, bays were mapped and included as these have been identified as important features in the new National Biodiversity Assessment 2018 (Sink et al., 2019).
- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA (Sink et al., 2019).
- Areas of high relative naturalness of benthic and coastal systems and pelagic systems identified in the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019), the West Coast (Majiedt et al., 2013) and the BCLME spatial assessments (Holness et al., 2014) were included in the analysis.

- Areas important for threatened and special species were included. The priority areas and buffer distances around colonies were from Holness et al. (2014). Note that the full extent of the buffer was not necessarily included in the EBSA. Features included in the analysis were:
    - African Penguin colonies and a 20-km buffer.
    - Bank Cormorant, Cape Cormorant, White Breasted Cormorant and Crowned Cormorant colonies and a 40-km buffer.
    - Gannet colonies with a 40-km buffer.
    - Seal Colonies and a 20-km buffer.
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as focus areas identified in the SCP undertaken for the West Coast by Majiedt et al. (2013), offshore areas (Sink et al., 2011) and for the BCLME by Holness et al. (2014) were incorporated.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).
- The coastal boundary was refined to be more accurate based on new data (Harris et al., 2019).

The multi-criteria analysis resulted in a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.



The proposed revised boundaries for the Cape Canyon and associated Islands, Bays and Lagoon EBSA in relation to the original boundaries of the Cape Canyon and Surrounds EBSA.

Browns Bank

Revised EBSA Description

General Information

Summary

Browns Bank includes benthic and pelagic habitats of the outer shelf and shelf edge along the western continental margin of South Africa. The area includes reef-building cold-water corals and untrawled hard grounds. It is an important fish spawning area for demersal and pelagic species. The spawning area is linked to nursery grounds on the inshore area of the west coast and the Agulhas Bank, and has better retention than that of areas further north. The Agulhas and Southern Benguela ecoregions meet at the south-eastern boundary of the area and sporadic shelf edge upwelling enhances the productivity along the outer margin. The area is important for threatened habitats and species, including a Critically Endangered benthic ecosystem type and overlapping substantially with two proposed marine Important Bird Areas, namely for Cory's Shearwater and Atlantic Yellow-nosed Albatross. The area was also identified as a priority area through two systematic biodiversity plans, meeting targets for habitat representation, hake spawning, and fragile and sensitive habitat-forming species. The boundary of this EBSA has been refined since its first description to improve precision based on focus-area delineation for national MPA expansion, threat status of benthic ecosystem types, and presence of vulnerable, sensitive, fragile and slow-growing species.

Introduction of the area

The area is along the outer shelf and shelf edge of the western continental margin of South Africa, south and slightly east of Cape Agulhas. It includes benthic habitats, including rocky, sandy and reef substrates (Sink et al., 2019), and a pelagic ecosystem type that is characterised by elevated productivity and frequent fronts due to shelf-edge upwelling (Lutjeharms et al., 2000, Lagabrielle 2009, Roberson et al., 2017). The area ranges from approximately 150 m – 800 m depth and the Agulhas and Southern Benguela ecoregions meet at the its south-eastern edge (Sink et al., 2012), with sporadic shelf-edge upwelling that enhances the productivity along its outer margin (Lagabrielle, 2009, Roberson et al., 2017). The area includes the western Agulhas Bank spawning ground, and is part of a critical area for retention of spawning products (Hutchings et al., 2002). It was identified as a priority area through a national plan to identify areas for offshore protection (Sink et al., 2011) and by a systematic biodiversity plan for the South African west coast (Majiedt et al., 2013).

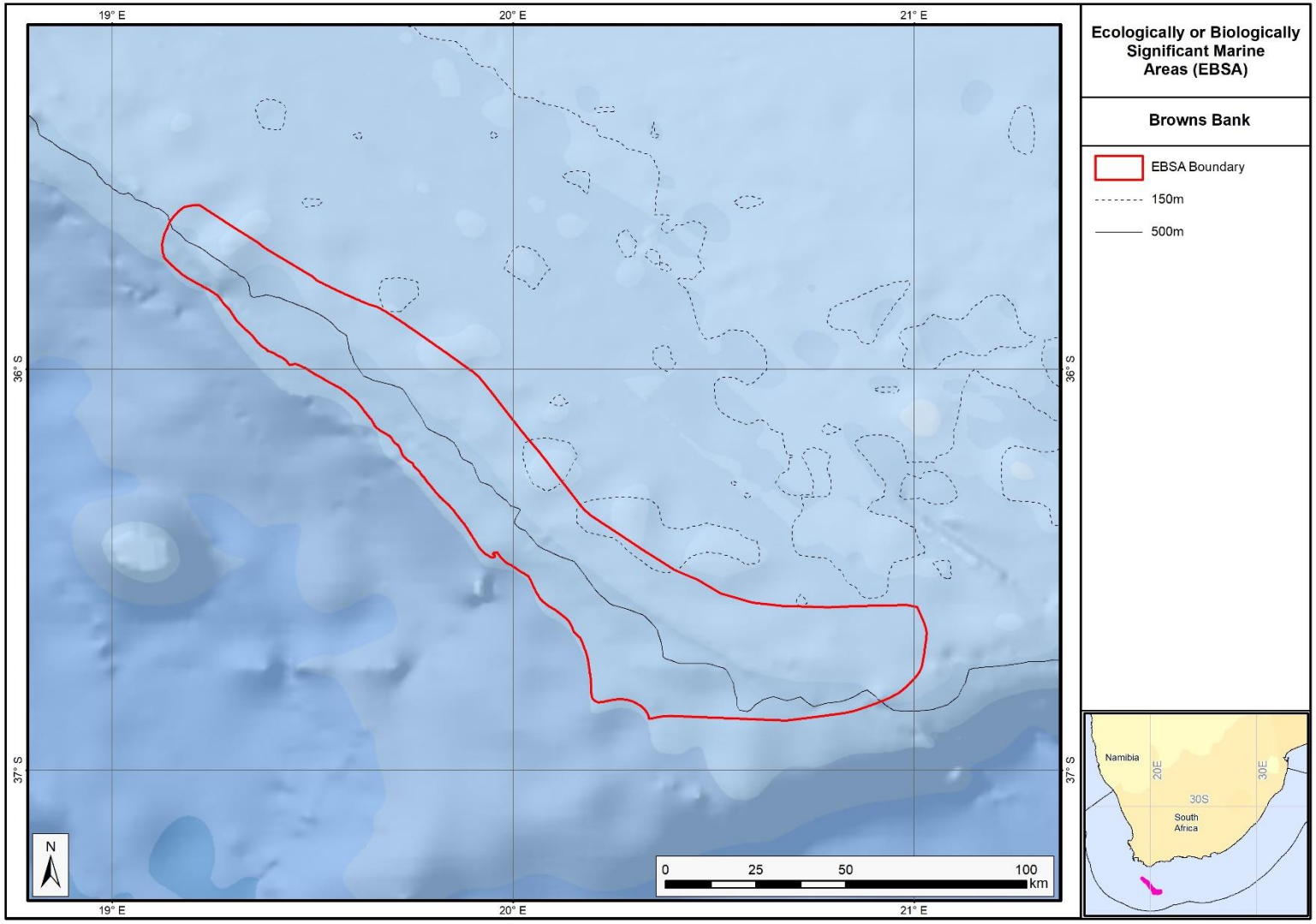
Description of the location

EBSA Region

South-Eastern Atlantic

Description of location

Browns Bank includes benthic and pelagic habitats of the outer shelf and shelf edge along the western continental margin of South Africa. This area is off the southwest coast of South Africa, almost directly south of Cape Agulhas, and is completely within national jurisdiction.



Proposed revised boundaries of the Browns Bank EBSA.

Area Details

Feature description of the area

The Browns Bank area includes unconsolidated sandy habitats, hard ground and reef habitats (Sink et al., 2019). The pelagic habitat is characterised by elevated productivity and frequent fronts due to shelf edge upwelling (Lutjeharms et al., 2000, Lagabrielle 2009, Roberson et al., 2017). The biodiversity at Browns Bank includes benthic macrofaunal communities characterized by high abundances of brittle stars and many species of polychaetes (Karenyi, 2014); cold-water corals, brisingid starfish, and 77 morphospecies of macroinvertebrates have also been collected within the area (Sink 2016). Further, it is a proposed marine Important Bird Area (IBA) for two species of seabirds, Cory's Shearwater and Atlantic Yellow-nosed Albatross (BirdLife International 2013), indicating that it holds a significant proportion of the global population of these species during some periods of each year for which data are available. Wandering, Shy, Black-browed, and Atlantic yellownose albatrosses sighted in the area, and Pintado petrels are noted as commonly occurring (Sink 2016). Browns Bank is also part of the western Agulhas Bank spawning ground as described by Hutchings et al. (2002). This area has been included in annual demersal fish trawl surveys conducted by the Department of Agriculture, Forestry and Fisheries, and was surveyed during the *Deep Secrets* cruise in 2016 (Sink 2016).

The boundary of this EBSA has been refined since it was first described, using the best available data (e.g., Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012a, 2019). The new boundary falls almost entirely within the old boundary, comprising an area about two thirds of the original delineation. It was refined to improve precision based on selection frequency in the two systematic biodiversity plans covering this area (Sink et al., 2011; Majiedt et al., 2013), MPA expansion in South Africa, presence of fragile and sensitive habitat-forming species, and benthic ecosystem types that are threatened. 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).

Feature conditions and future outlook of the proposed area

According to Wilkinson (2009) there are three areas of untrawled hard grounds on the shelf edge within this area, suggesting they are still intact. However, a recent assessment of cumulative pressures to South Africa's marine environment showed that there is a small portion of the EBSA that is in good ecological condition, some parts in fair condition, but that most of the EBSA has been heavily modified and is in poor ecological condition (Sink et al., 2019).

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Summary of ecosystem types and threat status for the Browns bank EBSA. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Critically Endangered	Southern Benguela Rocky Shelf Edge Mosaic	1197.1	21.2
Least Concern	Agulhas Outer Shelf Reef Coarse Sediment Mosaic	385.5	6.8
	Agulhas Rocky Shelf Edge	414.8	7.3
	Southeast Atlantic Upper Slope	1938.1	34.3
	Southern Benguela Sandy Outer Shelf	1541.7	27.2
	Southwest Indian Upper Slope	180.5	3.2
Grand Total		**5657.7**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **High**

Justification

When first described, Browns Bank was identified by two systematic plans as a priority area because it is the only place where targets for the Southern Benguela Gravel Outer Shelf habitat (which is Critically Endangered) can be met (Majiedt et al., 2013, Sink et al., 2011). It should be noted that this ecosystem type has a limited extent with an estimated total area of less than 450 km^2. Since the revision of the National Marine Ecosystem Type Map (Sink et al., 2019) and the EBSA boundary, this is still true; however, the ecosystem type is now called Southern Benguela Rocky Shelf Edge Mosaic. It is still Critically Endangered, but does extend a little beyond the extent of the EBSA along the shelf edge; the most intact parts of this ecosystem type are included in the EBSA.

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

Justification

This area is part of the western Agulhas Bank spawning ground as described by Hutchings et al. (2002). The gadoid Cape hakes *Merluccius capensis* and *M. paradoxus*, the gempylid *Thyrsites atun* (snoek) and the clupeid *Etremeus whiteheadii* (round herring) move to the western Agulhas Bank and southern west coast to spawn, generally in late winter and early spring when offshore Ekman losses are at a minimum. The eggs and larvae drift northwards and inshore to the west coast nursery grounds. Browns Bank, an apex area of the Agulhas Bank, is recognized as a critical area for retention of spawning products because eddies in this area help to re-circulate water inshore and link important nursery areas with this spawning habitat on the shelf edge. Strong jet currents on the west coast oblige adult hake to shift southwards to spawn, to ensure that juveniles enter the west coast nursery grounds downstream (Hutchings et al., 2002). The area is also important for juvenile spiny lobsters (Santos et al., 2014). This shelf-edge area also constitutes foraging area for offshore seabirds (BirdLife International 2013). Limited tracking datasets have shown that the shelf edge is heavily used by a diversity of pelagic seabirds. In particular, the Browns Bank site is a proposed marine IBA for two species of seabird: Cory's Shearwater and Atlantic Yellow-nosed Albatross (BirdLife International 2013). Additional seabird tracking datasets may result in this site being an IBA for additional species in future.

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

Justification

The Atlantic Yellow-nosed Albatross is globally Endangered, and Browns Bank is a proposed marine IBA site for this species, indicating that it holds a significant proportion of the global population of this species during some periods of each year for which data are available (BirdLife International 2013). This area also contains the last moderately intact patches of Southern Benguela Rocky Shelf Edge Mosaic, a rare habitat type that is considered Critically Endangered (Sink et al., 2012a,b, 2019). Wandering albatross, Shy, Black browed, Atlantic yellownose and Pintado petrels are common in area (Sink 2016).

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

Justification

This area has hard ground habitats on the outer shelf and shelf edge that are considered sensitive to demersal trawling and mining (Sink et al., 2011, 2012a, 2012b). Recently, fisheries observers collected

two species of cold-water corals within this area (Capricorn Fisheries Monitoring, unpublished information). The specimens are in the invertebrate collection at iZiko, the South African Museum in Cape Town. Further, recent samples of coral, *Thouarella*, hermit crabs, and brisingid sea stars have been collection or seen, and 77 invertebrate morpho-species were identified from the area in a recent survey (Sink 2016).

C5: Biological productivity **Medium**
Justification
The Agulhas and Southern Benguela ecoregions meet at the southeastern boundary of the area and sporadic shelf edge upwelling enhances the productivity along its outer margin. Based on tracking data, the area holds a significant proportion of the global population of at least two species of seabirds, namely Cory's Shearwater and the globally Endangered Atlantic Yellow-nosed Albatross (BirdLife International 2013).

C6: Biological diversity **Low**
Justification
The national marine ecosystem map indicates a moderate number of ecosystem types within the area (Sink et al., 2019).

C7: Naturalness **Medium**
Justification
There are three areas of untrawled hard grounds on the shelf edge within this area (Wilkinson 2009). The Southern Benguela Rocky Shelf Edge Mosaic ecosystem type is in poor condition and there is no remaining area of this ecosystem type left in good condition, and only fragments in moderate condition (Sink et al., 2012a,b, 2019). Across the EBSA, 2% of the habitat is in good ecological condition, 26% is in fair ecological condition and 72% is in poor ecological condition (Sink et al., 2019).

Status of submission

The Browns Bank 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

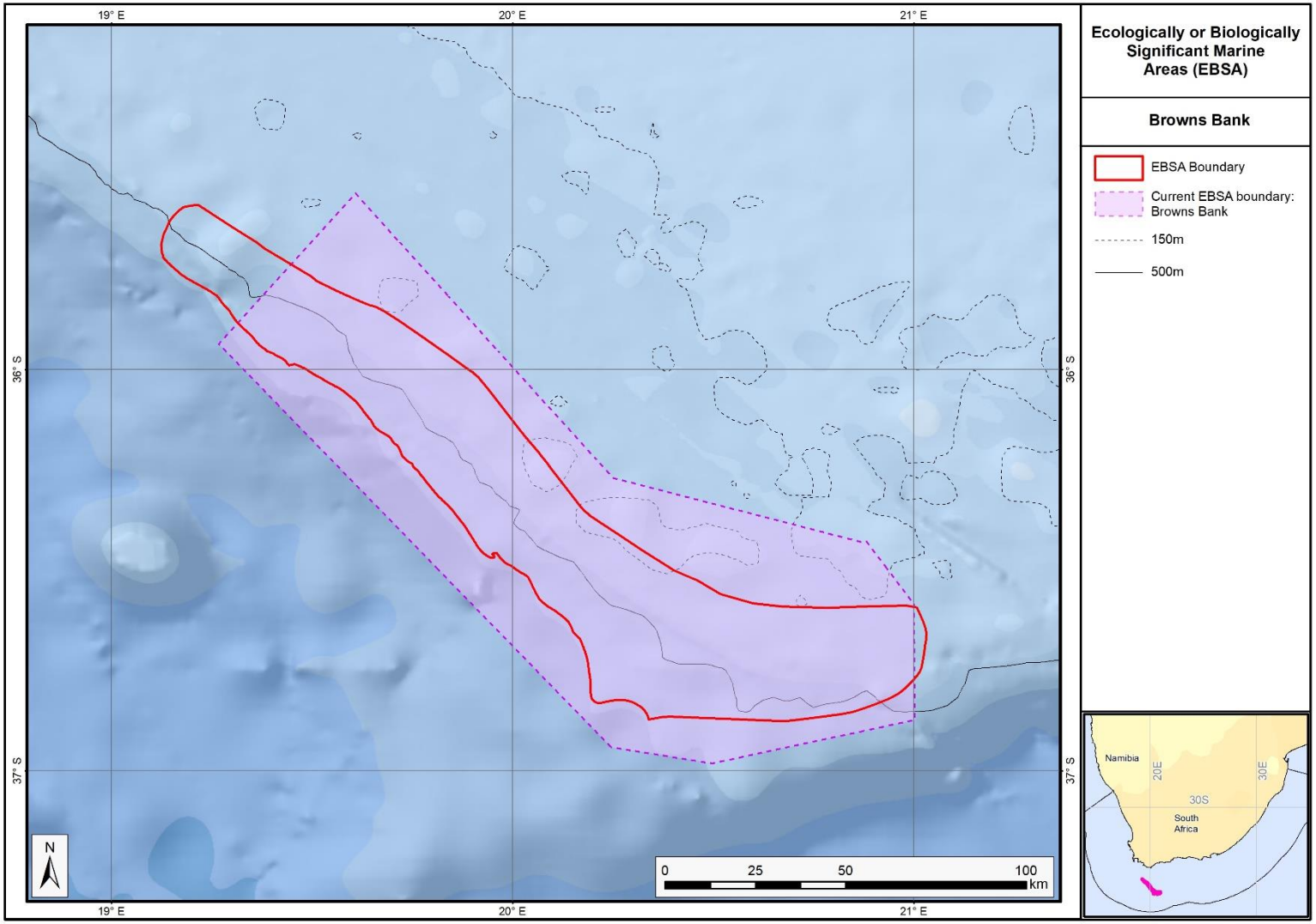
Motivation for Revisions

Some technical revisions and updates to the description were made, even though little additional information was available. However, given the most recent assessment of ecological condition (Sink et al., 2019), the Naturalness criterion was downgraded from medium to low. A supplementary table of the habitats represented in the EBSA and their associated threat status was also included.

The main change is that the boundary of this EBSA has been slightly adjusted to focus the EBSA more closely on the key biodiversity features that underlie its EBSA status. The delineation process included an initial stakeholder review which identified the need to update boundaries, a technical mapping process and then an expert review workshop where boundary delineation options were finalised. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as focus areas identified in the SCP undertaken for the West Coast by Majiedt et al. (2013), offshore areas (Sink et al., 2011) and by Holness et al. (2014) were incorporated.
- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA.
- Areas of high relative naturalness of benthic and coastal systems and pelagic systems identified in the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012a, 2019) were included in the analysis.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).

The multi-criteria analysis resulted in a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.



The proposed revised boundaries for the Browns Bank EBSA in relation to its original boundaries.

Mallory Escarpment and Trough (Formerly Agulhas Slope and Seamounts)

Revised EBSA Description

General Information

Summary

The outer margin along the southern tip of the Agulhas Bank is a dynamic offshore area with high productivity and high pelagic and benthic habitat heterogeneity. The Agulhas and Southern Benguela ecoregions meet at this point, and sporadic shelf-edge upwelling enhances the productivity along the outer margin. The area is recognized as a spawning area for sardine, anchovy, horse mackerel and hake, and this apex area of the Agulhas Bank is recognized as a critical area for retention of spawning products. Eddies in this area help recirculate water inshore and link important nursery areas with spawning habitat on the shelf edge. Importantly, the EBSA includes the Mallory escarpment and trough segment of the Agulhas-Falkland Fracture Zone. This is a unique feature in the region, and certainly slopes as steep as this one (20°) are globally very rare. The area was identified as a priority through a national spatial plan because of high habitat diversity. Since the original description (of Agulhas Slope and Seamounts), the boundary has been refined and split into two EBSAs to better represent the underlying EBSA features. No ecological research has been conducted in this EBSA but is strongly recommended.

Introduction of the area

Mallory Escarpment and Trough includes the outer margin along the southern tip of the Agulhas Bank in South Africa, chiefly encompassing the key features of the Agulhas-Falkland Fracture Zone, including a slope as steep as 20° in some places (De Wet 2012). The Agulhas and Southern Benguela ecoregions (Sink et al., 2012) meet at this point, resulting in a dynamic offshore area with high pelagic and benthic habitat heterogeneity. Further, sporadic shelf-edge upwelling enhances the productivity along the outer margin (Lagabrielle, 2009, Roberson et al., 2017). The area is recognized as a spawning area for sardine, anchovy, horse mackerel and hake, and this apex of the Agulhas Bank is recognized as a critical area for retention of spawning products (Hutchings et al., 2002). Eddies in this area help recirculate water inshore and link important nursery areas with spawning habitat on the shelf edge. Leatherback turtles also frequent this area along their migrations (Harris et al., 2018). This area was identified as a priority through a national plan to identify focus areas for offshore protection (Sink et al., 2011) because it has relatively high habitat diversity and can meet multiple benthic and pelagic habitat conservation targets in a small area. It also contains regionally unique, globally very rare features.

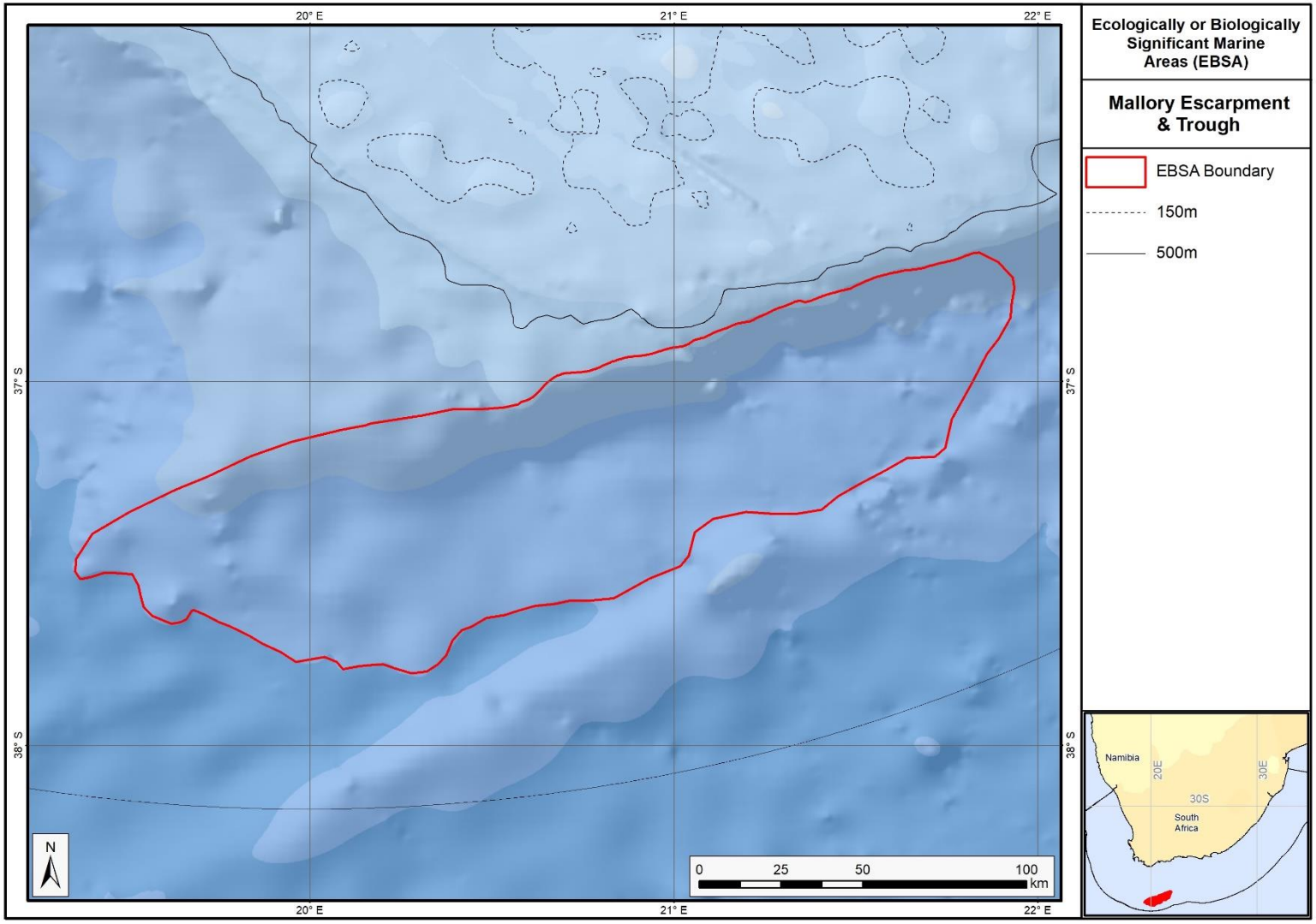
Description of the location

EBSA Region

Southern Indian Ocean

Description of location

The EBSA is at the apex of the Agulhas Bank at the southern tip of the continental shelf edge off southern Africa. It is directly south of Cape Infanta and Cape Agulhas in the Agulhas-Falkland Fracture Zone, and is entirely within South Africa's EEZ. It contains the Mallory escarpment and trough, and lies immediately west of the Shackleton Seamount Complex EBSA.



Proposed revised boundaries of the Mallory Escarpment and Trough EBSA.

Area Details

Feature description of the area

The area includes benthic and pelagic features, including: the shelf edge, a very steep slope and a trough as part of the Agulhas-Falkland Fracture Zone; shelf-edge driven upwelling; and fragile and sensitive habitat-forming species. Habitat diversity is thus particularly high for a location this far offshore. This dynamic area consequently supports numerous ecological processes, such as spawning and foraging, and comprises a rich diversity of both resident (e.g., benthic gorgonians) and transient (e.g., migrating leatherbacks) species.

The delineation of this EBSA was refined since its first description, based on the best available data (e.g., De Wet 2012; GEBCO Compilation Group 2019; Harris et al., 2014; Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019). It is now split into two EBSAs: one for the seamounts, and one for the escarpment and trough features. The revision was based on high selection frequency of sites in the two systematic biodiversity plans covering the area, tighter alignment to the benthic topography (from a new national dataset: De Wet 2012), presence of fragile and sensitive habitat-forming species, and new delineation of the constitutent ecosystem types (Sink et al., 2019). Effectively, these new data helped to improve the precision of the EBSA boundary so that it better reflects the underlying features. It is presented as a Type 2 EBSA because it contains "spatially stable features whose individual positions are known, but a number of individual cases are being grouped" (sensu Johnson et al., 2018).

Feature conditions and future outlook of the proposed area

The shelf edge, slope and trough have not been sampled, although *in-situ* research is recommended in this area. Nevertheless, there are various fisheries operating in the area, but some of the hard grounds represented in the EBSA are outside of the trawl footprint. Broadly speaking, there is relatively little pressure in this area at present, and the ecosystem types are in good ecological condition.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for the Mallory Escarpment and Trough EBSA. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Least Concern	Agulhas Basin Abyss	7799.9	59.7
	Cape Basin Abyss	357.1	2.7
	Southeast Atlantic Lower Slope	527.7	4.0
	Southeast Atlantic Mid Slope	3.0	0.0
	Southwest Indian Lower Slope	3487.2	26.7
	Southwest Indian Mid Slope	898.0	6.9
Grand Total		**13072.9**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **High**

Justification

The steep slope (20°) of Mallory Trough is the steepest portion of the entire South African continental shelf. It is also the only trough system in the Benguela region, and slopes as steep as 20° are globally very rare.

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

Justification

The EBSA is recognized as a spawning area for small pelagic fish (sardine, anchovy, horse mackerel) and hake (Hutchings et al., 2002, Sink et al., 2011). This apex area of the Agulhas Bank is also recognized as a critical area for retention of spawning products. Eddies in this area help re-circulate water inshore and link important nursery areas with spawning habitat on the shelf edge. The shelf edge constitutes foraging area for offshore seabirds (Birdlife data, see references).

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

Justification

One of the pelagic ecosystem types in the area is characterised by elevated productivity and frequent fronts due to shelf edge upwelling (Lutjeharms et al., 2000, Lagabrielle 2009, Roberson et al., 2017). Consequently, regionally Critically Endangered leatherback turtles frequent this area (Petersen et al., 2009a; Harris et al., 2018), and the shelf edge is a feeding area for threatened seabirds such as albatross (Petersen et al., 2009b).

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

Justification

This area includes hard shelf edge and a very steep slope. These are likely to support fragile long-lived biota. Video images of the shelf edge show cold-water corals, gorgonians and large sponges (Sink et al., 2011). Vulnerable biota that use this area include long-lived seabirds, turtles and sharks, and the area has been identified by analyses aimed at identifying priority areas for reducing by-catch in the large pelagic fishery (Sink et al., 2011.)

C5: Biological productivity **High**

Justification

There is higher productivity here, which is related to the eastern limit of the Benguela upwelling on the outer shelf (Pelagic ecosystem type Ab3) and very frequent SST and chlorophyll fronts (Lutjeharms et al., 2000, Lagabrielle 2009, Sink et al., 2011, 2012, Roberson et al., 2017). Cool productive water is advected onto the shelf in this sheer zone through Agulhas Current–driven upwelling cells (Lutjeharms et al., 2000).

C6: Biological diversity **High**

Justification

This area has high pelagic and benthic habitat heterogeneity for an offshore site, comprising six ecosystem types at the confluence of the Indian and Atlantic Ocean basins. The very steep slope is also expected to host a rich diversity of species because it spans a very large depth range over a proportionately small area.

C7: Naturalness **High**

Justification

Rough grounds and strong currents already offer some protection from pressures to this area (Sink et al., 2011, 2012). Relatively lower levels of disturbance occur in this area (Sink et al., 2012), and most of the local hard areas fall outside of the hake trawl footprint (Sink et al., 2011). Across the EBSA, 55% is in good ecological condition, 45% fair, and <1% in poor ecological condition (Sink et al., 2019).

Status of submission

The Agulhas Slope and Seamounts EBSA was recognized as meeting EBSA criteria by the Conference of the Parties. The revised Mallory Escarpment and Trough EBSA 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

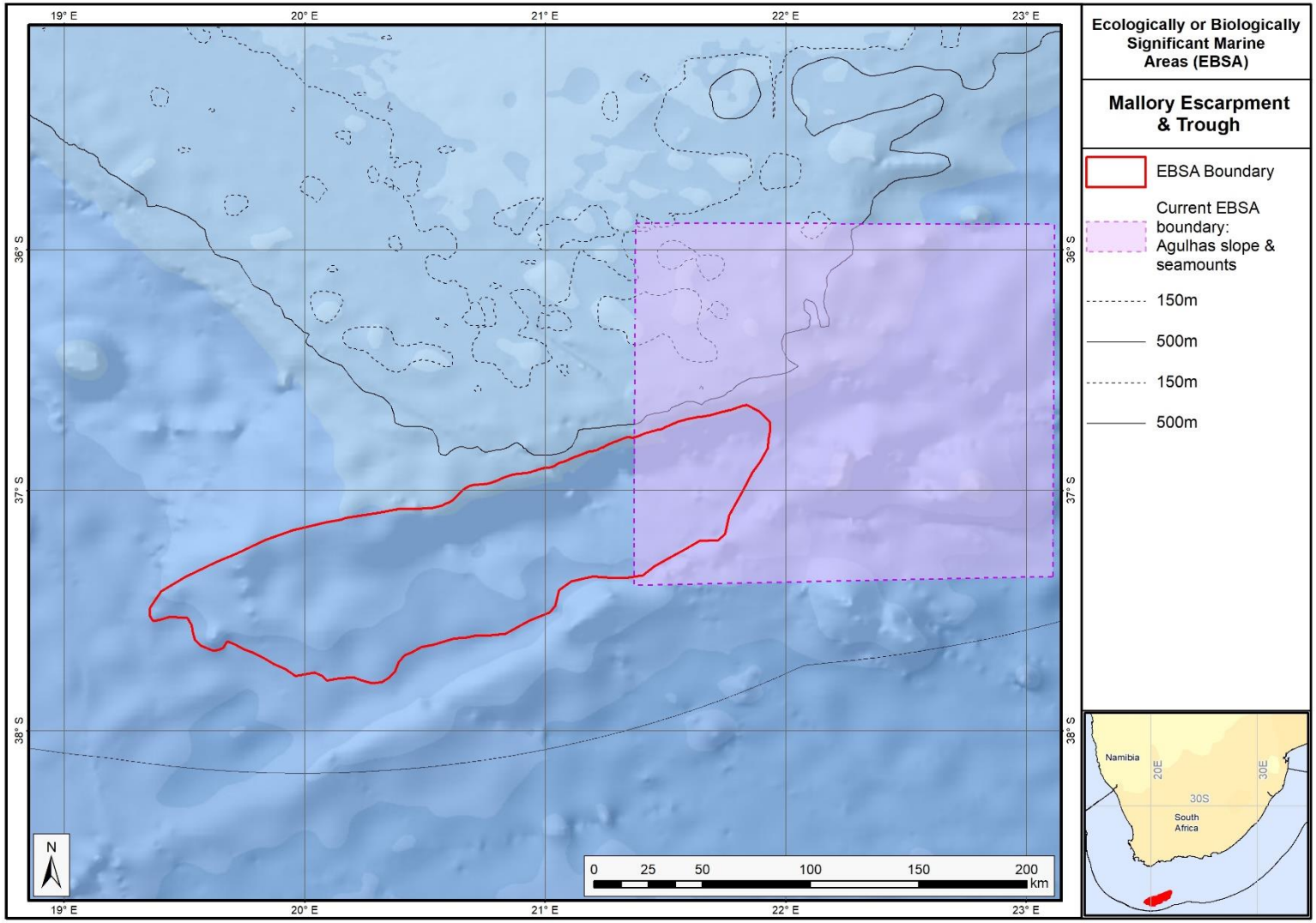
Motivation for Revisions

Significant changes have been made to the delineation of the original Agulhas Slope and Seamounts EBSA and to the description, such that it is necessary to split the original EBSA into two, and revise the name of this EBSA to Mallory Escarpment and Trough to accurately reflect the consistuent features. This also resulted in an upgrade in criterion 1 from medium to high because of the uniqueness of the geomorphic features. Additional references have been added and updates to the description were made. A supplementary table of the ecosystem types represented in the EBSA and their associated threat status was also included.

An important change has been the significant delineation change of this EBSA to focus the EBSA more closely on the key biodiversity features in this area that support its EBSA status. The delineation process included an initial stakeholder review which identified the need to update boundaries, a technical mapping process and then an expert review workshop where boundary delineation options were reviewed, revised and finalised. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Key physical features (i.e. the seamounts, escarpment and trough) identified from the latest GEBCO data (GEBCO Compilation Group 2019), global benthic geomorphology mapping (www.bluehabitats.org, Harris et al., 2014), new national bathymetric data (De Wet 2012), the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) and BCC spatial mapping project (Holness et al., 2014) were incorporated.
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as focus areas identified in the Systematic Conservation Plans undertaken for the West Coast by Majiedt et al. (2013), offshore areas (Sink et al., 2011) and by Holness et al. (2014) were incorporated.
- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA.
- Areas of high relative naturalness of benthic and coastal systems and pelagic systems identified in the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) were included in the analysis.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).

The multi-criteria analysis resulted a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.



The proposed revised boundaries for the Mallory Escarpment and Trough EBSA in relation to the original Agulhas Slope and Seamounts EBSA.

Shackleton Seamount Complex (Formerly Agulhas Slope and Seamounts)

Revised EBSA Description

General Information

Summary

The outer margin along the southern tip of the Agulhas Bank is a dynamic offshore area with high productivity and high pelagic and benthic habitat heterogeneity. The Agulhas and Southern Benguela ecoregions meet at this point, and sporadic shelf-edge upwelling enhances the productivity along the outer margin. The area is recognized as a spawning area for sardine, anchovy, horse mackerel and hake, and this apex area of the Agulhas Bank is recognized as a critical area for retention of spawning products. Here, eddies help recirculate water inshore and link important nursery areas with spawning habitat on the shelf edge. Notably, this EBSA also contains the Mallory, Shackleton and Natal Seamounts. This area was identified as a priority through a national spatial plan because of high habitat diversity. Since the original description, the boundary of this EBSA has been refined to better represent the underlying EBSA features, and split into two: Shackleton Seamount Complex, and Mallory Escarpment and Trough. Although a recent cruise surveyed two sites at the northern edge of Shackleton Seamount Complex, deteriorating weather conditions limited operations; further research and *in situ* surveys of the unexplored hard shelf edge and seamounts are recommended in this area.

Introduction of the area

Shackleton Seamount Complex includes the outer margin along the southern tip of the Agulhas Bank in South Africa. It is a dynamic offshore area with high pelagic and benthic habitat heterogeneity. The area includes outer shelf, shelf edge, slope and seamount habitats. The Agulhas and Southern Benguela ecoregions meet at this point (Sink et al., 2012), and sporadic shelf edge upwelling enhances the productivity along the outer margin (Lagabrielle, 2009, Roberson et al., 2017). The site is recognized as a spawning area for sardine, anchovy, horse mackerel and hake, and this apex of the Agulhas Bank is recognized as a critical area for retention of spawning products (Hutchings et al., 2002). Here, eddies help recirculate water inshore and link important nursery areas with spawning habitat on the shelf edge. Leatherback turtles also frequent these seamounts along their migrations (Harris et al., 2018). This area was identified as a priority through a national plan to identify focus areas for offshore protection (Sink et al., 2011) because it has relatively high habitat diversity and can meet multiple benthic and pelagic habitat conservation targets in a small area.

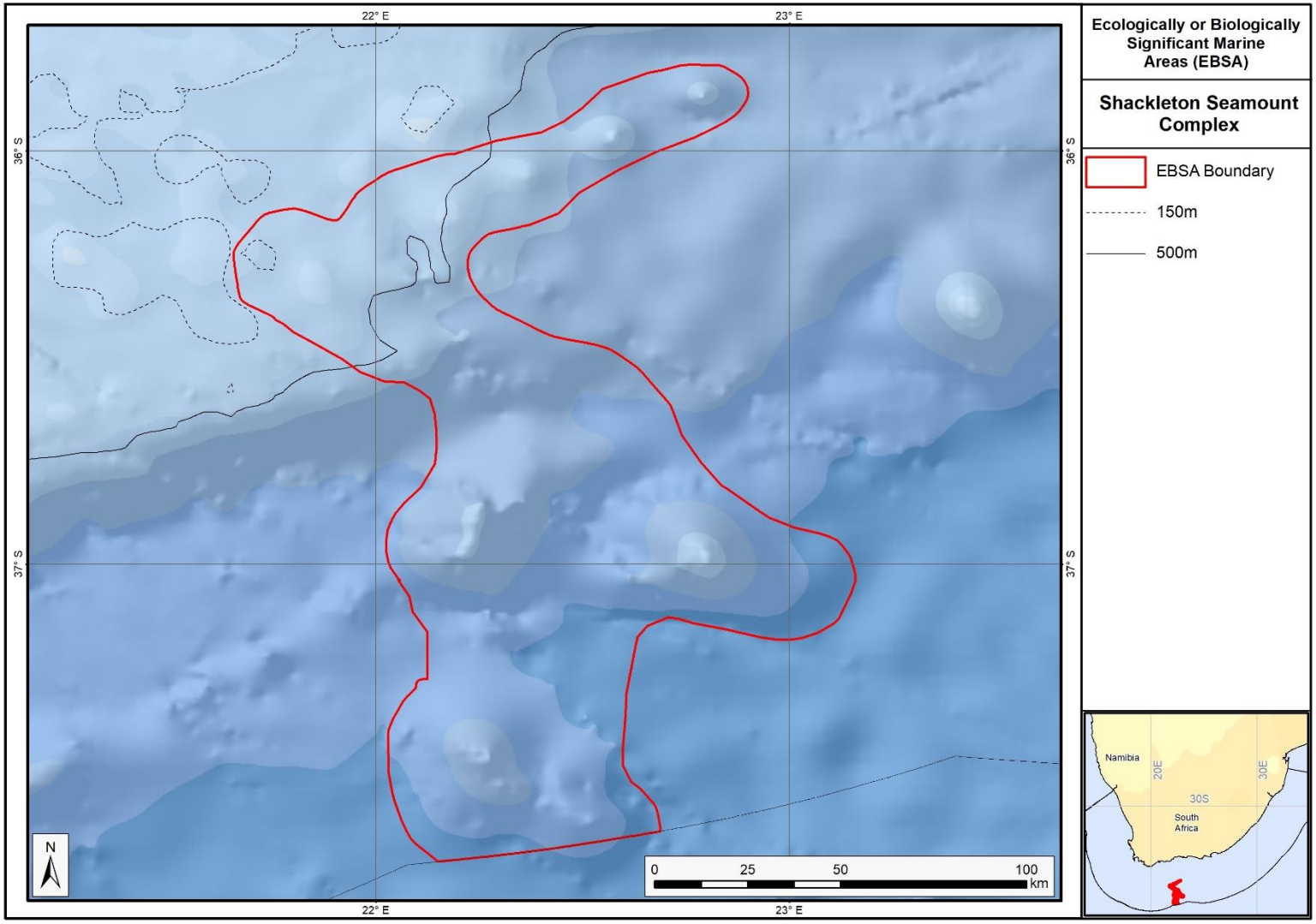
Description of the location

EBSA Region

Southern Indian Ocean

Description of location

The EBSA is at the apex of the Agulhas Bank at the southern tip of the continental shelf edge off southern Africa. It is directly south of Mossel Bay in the Agulhas-Falkland Fracture Zone, and is entirely within South Africa's EEZ. It contains the Mallory, Shackleton and Natal Seamounts, and lies immediately east of the Mallory Escarpment and Trough EBSA.



Proposed revised boundaries of the Shackleton Seamount Complex EBSA.

Area Details

Feature description of the area

The area includes benthic and pelagic features, including shelf edge, slope and seamounts, shelf-edge-driven upwelling, and fragile and sensitive habitat-forming species. Habitat diversity is thus particularly high, with eight ecosystem types occurring in this dynamic area. It consequently supports numerous ecological processes, such as spawning and foraging, and comprises a rich diversity of both resident (e.g., benthic gorgonians) and transient (e.g., migrating leatherbacks) species. Two sites at the northern edge of the EBSA were recently surveyed; however, deteriorating weather conditions limited research operations (Sink 2016). Nevertheless, the sites were reported to be less muddy than expected, and samples of yellow scleractinian coral, stylasterine corals and bryozoans were collected (Sink 2016).

The delineation of this EBSA was refined since its first description, based on the best available evidence (e.g., De Wet 2012; GEBCO Compilation Group 2019; Harris et al., 2014; Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019). It is now split into two EBSAs: one for the seamounts, and one for the escarpment and trough features. The revision was based on high selection frequency of sites in the two systematic biodiversity plans covering the area, tighter alignment to the benthic topography (from a new national dataset: De Wet 2012), MPA expansion in South Africa, presence of fragile and sensitive habitat-forming species, and presence of threatened benthic ecosystem types. Effectively, these new data helped to improve the precision of the EBSA boundary so that it better reflects the underlying features. It is presented as a Type 2 EBSA because it contains "spatially stable features whose individual positions are known, but a number of individual cases are being grouped" (sensu Johnson et al., 2018).

Feature conditions and future outlook of the proposed area

The shelf edge and seamounts have not been sampled, although *in-situ* research is recommended in this area. Nevertheless, there are various fisheries operating in the area, but some of the hard grounds in the EBSA are outside of the trawl footprint. Broadly speaking, there is relatively little pressure in this area at present, and the ecosystem types are in good condition.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for the Shackleton Seamount Complex EBSA. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Least Concern	Agulhas Basin Abyss	3403.0	28.4
	Agulhas Outer Shelf Reef Coarse Sediment Mosaic	805.8	6.7
	Agulhas Rocky Shelf Edge	1003.6	8.4
	Southwest Indian Lower Slope	1765.0	14.7
	Southwest Indian Mid Slope	1260.7	10.5
	Southwest Indian Seamount	2072.4	17.3
	Southwest Indian Slope Seamount	888.7	7.4
	Southwest Indian Upper Slope	733.0	6.1
Grand Total		**11932.2**	**99.6**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **Medium**

Justification

This area includes 3 of 4 known seamounts within the Davie Seamount cluster (Sink et al., 2011, 2012). These seamounts are relatively isolated and are thus likely to host distinct communities.

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

Justification

Shackleton Seamount Complex is recognized as a spawning area for small pelagic fish (sardine, anchovy, horse mackerel) and hake (Hutchings et al., 2002, Sink et al., 2011). This apex area of the Agulhas Bank is also recognized as a critical area for retention of spawning products. Eddies in this area help re-circulate water inshore and link important nursery areas with spawning habitat on the shelf edge. The shelf edge constitutes foraging area for offshore seabirds (Birdlife data, see references below), and the seamounts are a foraging area for leatherback turtles (Harris et al., 2018). It is also an important Mako shark nursery area.

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

Justification

One of the pelagic ecosystem types in the area is characterised by elevated productivity and frequent fronts due to shelf-edge upwelling (Lutjeharms et al., 2000, Lagabrielle 2009, Roberson et al., 2017). Consequently, regionally Critically Endangered leatherback turtles frequent this area (Petersen et al., 2009a; Harris et al., 2018), and the shelf edge is a feeding area for threatened seabirds such as albatross (Petersen et al., 2009b).

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

Justification

This area includes hard shelf edge and seamounts (some of the hard grounds are untrawled). These are likely to support fragile long-lived biota. Video images of the shelf edge show cold-water corals, gorgonians and large sponges (Sink et al., 2011). Vulnerable biota that use this area include long-lived seabirds, turtles and sharks, and the area has been identified by analyses aimed at identifying priority areas for reducing by-catch in the large pelagic fishery (Sink et al., 2011.)

C5: Biological productivity **High**

Justification

There is higher productivity here, which is related to the eastern limit of the Benguela upwelling on the outer shelf (Pelagic ecosystem type Ab3) and very frequent SST and chlorophyll fronts (Lutjeharms et al., 2000, Lagabrielle 2009, Sink et al., 2011, 2012, Roberson et al., 2017). Cool productive water is advected onto the shelf in this sheer zone through Agulhas Current-driven upwelling cells (Lutjeharms et al., 2000).

C6: Biological diversity **High**

Justification

This area has high pelagic and benthic habitat heterogeneity. Four pelagic ecosystem types (Ab3, Bc1, Cb3 and Cb4) and occur in this dynamic area (Sink et al., 2011, 2012), with eight ecosystem types present that include shelf, slope, seamount and abyssal types (Sink et al., 2019).

C7: Naturalness **High**

Justification

Rough grounds and strong currents already offer some protection from pressures to this area (Sink et al., 2011, 2012). Relatively lower levels of disturbance occur in this area (Sink et al., 2012), and most of the local hard areas fall outside of the hake trawl footprint (Sink et al., 2011).

Status of submission

The Agulhas Slope and Seamounts EBSA was recognized as meeting EBSA criteria by the Conference of the Parties. The revised Shackleton Seamount Complex EBSA 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

Motivation for Revisions

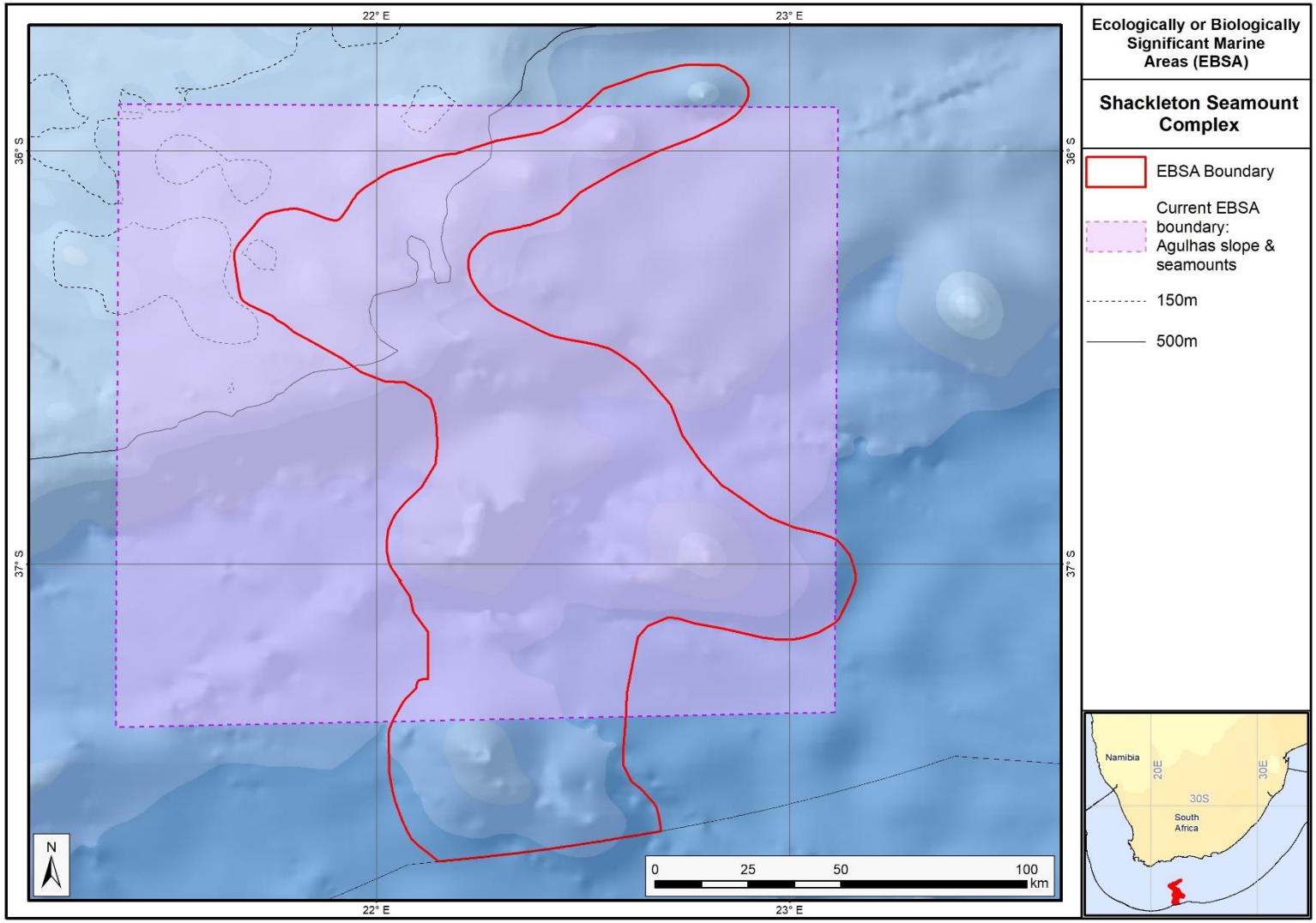
Significant changes have been made to the delineation of the original Agulhas Slope and Seamounts EBSA and to the description, such that it is necessary to split the original EBSA into two, and revise the name of this EBSA to Shackleton Seamount Complex to accurately reflect the features. Additional references have been added and updates to the description were made. A supplementary table of the habitats represented in the EBSA and their associated threat status was also included.

An important change has been the significant delineation change of this EBSA to focus the EBSA more closely on the key biodiversity features in this area that support its EBSA status. The delineation process included an initial stakeholder review which identified the need to update boundaries, a technical mapping process and then an expert review workshop where boundary delineation options were reviewed, revised again and then finalised. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Key physical features (i.e. the seamounts, escarpment and trough) identified from the latest GEBCO data (GEBCO Compilation Group 2019), global benthic geomorphology mapping (www.bluehabitats.org, Harris et al., 2014), new national bathymetric data (De Wet 2012), the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) and BCC spatial mapping project (Holness et al., 2014) were incorporated.
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, and focus areas identified in the Systematic Conservation Plans undertaken for the West Coast by Majiedt et al. (2013), offshore areas (Sink et al., 2011) and by Holness et al. (2014) were incorporated.
- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA.
- Areas of high relative naturalness of benthic and coastal systems and pelagic systems identified in the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012a, 2019) were included in the analysis.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).

The multi-criteria analysis resulted a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a

cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.



The proposed revised boundaries for the Shackleton Seamount Complex EBSA in relation to the original Agulhas Slope and Seamounts EBSA.

Agulhas Bank Nursery Area

Revised EBSA Description

General Information

Summary

The Agulhas Bank is a spawning ground and nursery area, and is the centre of abundance of numerous warm-temperate species, including several endemic sparids. The bank is an area of wider shelf along the otherwise relatively narrow shelf of South Africa. It is the only warm temperate nursery area for species that spawn on the narrow shelf in the north, and is important for retention, recruitment, and food provision. Dense benthic copepod communities provide a rich food source. The area includes Critically Endangered mud habitats and unique high-profile volcanic offshore reefs that support cold-water coral communities. There is a spawning aggregation area for the threatened endemic reef fish, *Petrus rupestris*, within this area. Agulhas Bank Nursery Area has been identified as important in two systematic planning initiatives, and contains two existing MPAs at De Hoop and Still Bay. The EBSA boundary has been refined since original delineation to better align with South Africa's expanding MPA network, and with the underlying biodiversity features, including fragile and sensitive habitat-forming species.

Introduction of the area

This area within the Agulhas Bank, on the south coast of South Africa, includes benthic and pelagic features that extend from the dune base to shallower than -150 m. Key benthic features include Critically Endangered mud habitats, high-profile volcanic deep reefs, low-profile deep reefs and rare gravels. The Agulhas Bank is important for numerous ecological processes, including spawning, larval retention, recruitment, connectivity and provision of nursery and foraging areas (Hutchings et al., 2002). This area is the centre of abundance of numerous warm temperate species, including several endemic sparids. Some of these species are threatened or overexploited (sparids and sciaenids), and the deep-reef habitats are considered important for the recovery of overexploited deep-reef fish species. However, two coastal MPAs at De Hoop and Still Bay provide some protection for some of the over-exploited species. A spawning area for the threatened endemic reef fish, *Petrus rupestris*, is located within this area, and aggregations of this species have recently been observed within this EBSA (Sink et al., 2010). The Agulhas Bank area has been identified as a priority using data provided through a national systematic planning initiative (Sink et al., 2011). Hutchings et al. (2002) emphasise the importance of this area as one of three key nursery areas in South Africa and the only one in the warm temperate ecoregion.

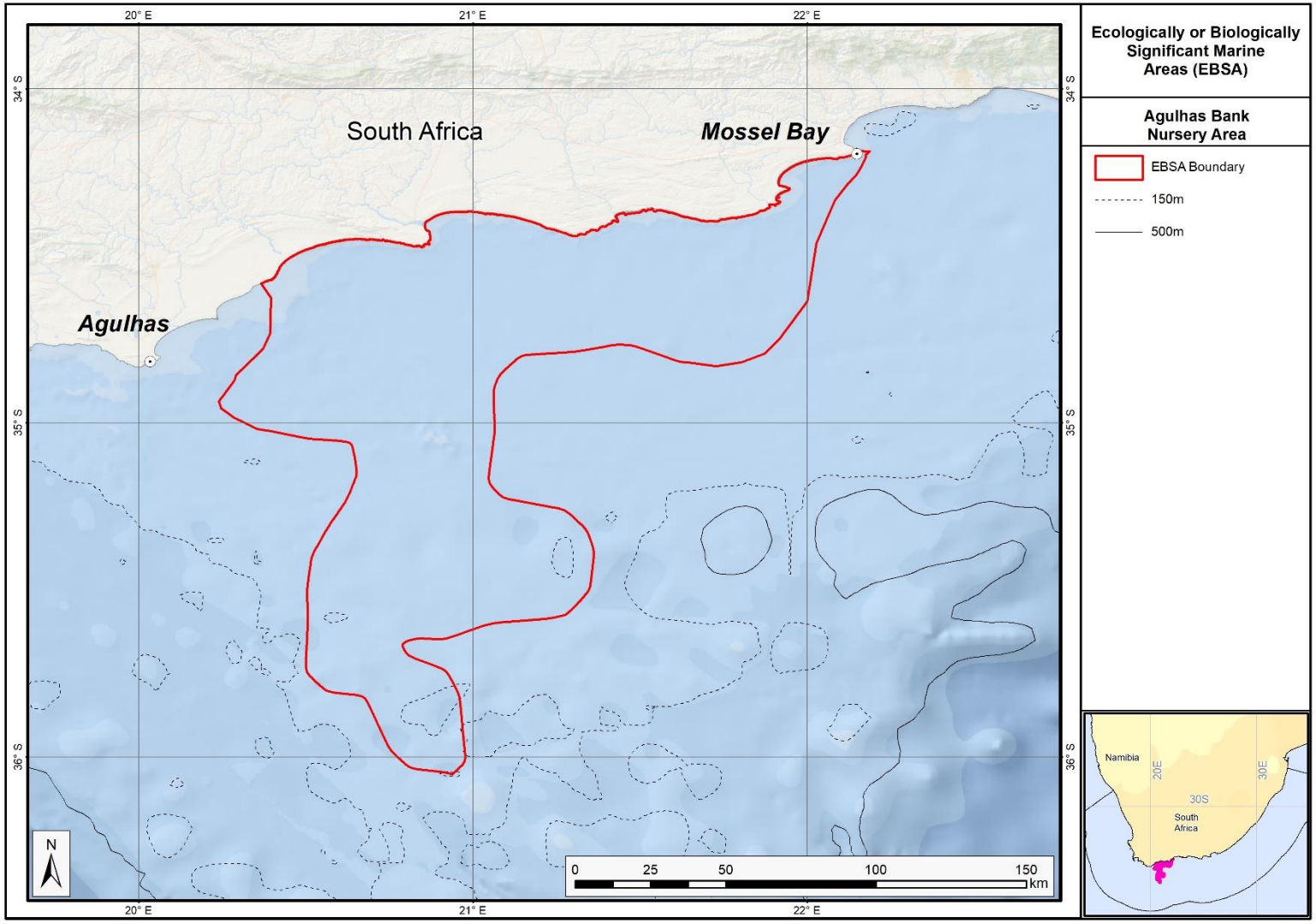
Description of the location

EBSA Region

Southern Indian Ocean

Description of location

This EBSA extends from the dune base across to the outer shelf, 175 km south of Cape Infanta in the Western Cape of South Africa, to almost as deep as -150 m. Along the shore it spans the De Hoop MPA in the west, to the headland that marks the start of Mossel Bay in the east. The area includes part of the Alphard and Agulhas Banks, and is entirely within South Africa's Exclusive Economic Zone (EEZ).



Proposed revised boundaries of the Agulhas Bank Nursery Area EBSA.

Area Details

Feature description of the area

Key benthic features include sandy and mud habitats, high-profile volcanic deep reefs, low-profile deep reefs and rare gravels. The Agulhas Bank is an important nursery area for species that spawn on the narrow shelf further north, including shad (*Pomatomus saltatrix*) and the sciaenid (*Attractoscion aequidens*). Squid also spawn in this area, and their paralarvae that hatch from the benthic eggs are dispersed across the bank, where they feed on a dense layer of copepods that occurs close to the seabed in this area (Hutchings et al., 2002). The Agulhas Bank area is moderately productive but has areas of relatively higher productivity within the broader area. There is a cold ridge of water on the central Agulhas Bank, which is a prominent subsurface feature during most summers (Swart and Largier 1987) and is associated with elevated phytoplankton concentrations (Probyn et al., 1994) and dense concentrations of copepods (Verheye et al.1994) and clupeoid fish eggs (Roel et al., 1994). The area is also frequented by migrating regionally Near Threatened loggerhead and regionally Critically Endangered leatherback turtles (Harris et al., 2018). Threatened ecosystem types in the area include: Critically Endangered Agulhas Muddy Mid Shelf; Endangered Agulhas Bays – West; and Vulnerable Agulhas Exposed Rocky Shore, Agulhas Inner Shelf Reef Sand Mosaic, Agulhas Kelp Forest, Agulhas Sandy Inner Shelf, Agulhas Sheltered Rocky Shore, and Agulhas Very Exposed Rocky Shore (Sink et al., 2019). The Agulhas Blues, Agulhas Mid Shelf Reef Sand Mosaic, Agulhas Mixed Shore, Agulhas Muddy Outer Shelf, Agulhas Sandy Mid Shelf and Warm Temperate Predominantly Open Estuary are Near Threatened (Sink et al., 2019). Overexploited and threatened linefish include the endemic red steenbras (*Petrus rupestris*, Endangered), Dageraad (*Chrysoblephus cristiceps*, Endangered) and black musselcracker (*Cymatoceps nasutus*, Vulnerable) (Sink et al., 2012; Sink et al., 2010). The area is also important for juvenile silver kob *(Argyrosomus inodorus*; Lombard et al., 2010, Attwood et al., 2011). The reef habitats range from low to very high profile, most have low rugosity, and support a variety of wall sponges, corals, red algae, kelp, gorgonians, fish and sharks (Gotz et al., 2014; Makwela et al., 2016). Some of these threatened and over-exploited species are protected in the De Hoop and Still Bay MPAs along the coast.

Since the original description, the boundary of this EBSA has been refined to improve precision so that it better represents the features comprising the EBSA, such as benthic ecosystem types and their condition, and fragile and sensitive habitat-forming species, using the best available data (e.g., Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019). The new delineation reduces the size of the EBSA to about a third of its original extent, and also aligns better with the recently expanded MPA network in South Africa. 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).

Feature conditions and future outlook of the proposed area

South Africa’s National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) indicated a range in ecological condition in this area based on an assessment of cumulatives pressures. The latest assessment (Sink et al., 2019) and EBSA boundary revision now indicates that 41% of the EBSA is in good ecological condition; the rest is in fair (19%) and poor (40%) ecological condition. There are deep reefs in the Agulhas Bank Nursery Area that are estimated to be in good ecological condition, even though pressures elsewhere have led to these habitats being considered threatened. Key activities in

the area include commercial demersal trawl and longline fisheries, a midwater trawl fishery, trap fisheries for rock lobster, linefishing and expanding petroleum activities.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for the Agulhas Bank Nursery Area EBSA. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Critically Endangered	Agulhas Muddy Mid Shelf	1731.8	12.7
Endangered	Agulhas Bays - West	323.4	2.4
	Agulhas Sheltered Rocky Shore	0.2	0.0
Vulnerable	Agulhas Exposed Rocky Shore	19.5	0.1
	Agulhas Inner Shelf Reef Sand Mosaic	389.5	2.9
	Agulhas Kelp Forest	0.5	0.0
	Agulhas Sandy Inner Shelf	12.4	0.1
	Agulhas Very Exposed Rocky Shore	1.4	0.0
	Warm Temperate Predominantly Open Estuary	2.6	0.0
Near Threatened	Agulhas Blues	850.3	6.2
	Agulhas Mid Shelf Reef Sand Mosaic	723.0	5.3
	Agulhas Mixed Shore	41.6	0.3
	Agulhas Muddy Outer Shelf	358.0	2.6
	Agulhas Sandy Mid Shelf	7156.4	52.3
Least Concern	Agulhas Dissipative-Intermediate Sandy Shore	12.6	0.0
	Agulhas Intermediate Sandy Shore	2.7	0.0
	Agulhas Outer Shelf Gravel Sand Mosaic	773.1	5.7
	Agulhas Rocky Outer Shelf	1250.0	9.1
	Alphard Bank	31.9	0.2
	Warm Temperate Small Temporarily Closed Estuary	0.2	0.0
Grand Total		**13681.0**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **High**

Justification

The volcanic offshore Alphard Bank is a unique feature that supports kelp, soft corals, stylasterine corals, and sponges (Sink et al., 2010; Makwela et al., 2016). Rare habitats within this area include some of the muddy and gravel ecosystem types (Sink et al., 2012a, 2019).

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

Justification

The Agulhas Banks Nursery Area is of particular importance for the life-history stages of multiple fish species, including *inter alia* endemic, threatened, and commercially important species. Fish that use the area for spawning, are: Red steenbras (*Petrus rupestris*, Endangered) and other linefish species (Hutchings et al., 2002) including anchovy (Mhlongo et al., 2015). There have also been recent observations of spawning aggregations of the endemic reef fish *Petrus rupestris* within this area (Sink et al., 2010). It also serves as a nursery area for silver kob (*Argyrosomus inodorus*; Attwood et al., 2011), geelbek, shad, white stumpnose (Hutchings et al., 2002). This area also supports a relatively high proportion of juvenile hake (*Merluccius capensis*; Sink et al., 2011). Squid paralarvae (Downey-Breedt et al., 2016) and mussel larvae are also present, with mussel veligers found in high abundances up to 87 km from the shore (Weidberg et al., 2015).

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

Justification

Threatened ecosystem types in the area include: Critically Endangered Agulhas Muddy Mid Shelf; Endangered Agulhas Bays – West; and Vulnerable Agulhas Exposed Rocky Shore, Agulhas Inner Shelf Reef Sand Mosaic, Agulhas Kelp Forest, Agulhas Sandy Inner Shelf, Agulhas Very Exposed Rocky Shore (Sink et al., 2019). The Agulhas Blues, Agulhas Mid Shelf Reef Sand Mosaic, Agulhas Mixed Shore, Agulhas Muddy Outer Shelf, and Agulhas Sandy Mid Shelf are Near Threatened (Sink et al., 2019). This area has also been identified through systematic planning as containing habitat important for overexploited and threatened linefish. This includes the endemic overexploited sparids such as red steenbras (*Petrus rupestris*), Dageraad (*Chrysoblephus cristiceps*, Endangered) and black musselcracker (*Cymatoceps nasutus*, Vulnerable) (Sink et al., 2012). The area is also recognized as important for the recovery of the overexploited silver kob (*Argyrosomus inodorus*; Attwood et al., 2011), and the reefs serve as aggregating structures for some overexploited fish species, such as the carpenter (*Argyrozona argyrozona*; Gotz et al., 2014). The overexploitation of linefish species is reported by Griffiths (2000). Further, regionally Near Threatened loggerheads and regionally Critically Endangered leatherbacks frequent this area on their migrations, also using the Agulhas Banks as a foraging ground (Harris et al., 2018).

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

Justification

High-profile deep reefs and hard grounds with stylasterine corals, black corals, gorgonians and wall sponges have been observed in this area through in-situ ROV surveys (Sink et al., 2010; Makwela et al., 2016). All of these are fragile species that are sensitive to disturbance, taking very long to recover from any impacts to the seabed.

C5: Biological productivity **Medium**

Justification

The Agulhas Bank area is moderately productive (Hutchings et al., 2002 and references therein) but has areas of relatively higher productivity within the broader area. There is a ridge of cold water, which is a prominent subsurface feature during most summers on the central Agulhas Bank (Swart and Largier 1987) and is associated with elevated phytoplankton concentrations (Probyn et al., 1994) and dense concentrations of copepods (Verheye et al.1994) and clupeoid fish eggs (Roel et al., 1994).

C6: Biological diversity **Medium**

Justification

There is high sparid and invertebrate biodiversity (core of the distribution of several endemic species) in the Agulhas Bank Nursey Area. The reef habitats range from low to very high profile, most have low rugosity, and support a variety of wall sponges, corals, red algae, kelp, gorgonians, fish and sharks (Gotz et al., 2014; Makwela et al., 2016). The site includes fish such as shad (*Pomatomus saltatrix*), geelbek (*Attractoscion aequidens*), red steenbras (*Petrus rupestris*), Dageraad (*Chrysoblephus cristiceps*), black musselcracker (*Cymatoceps nasutus*), and silver kob *(Argyrosomus inodorus*; Lombard et al., 2010; Sink et al., 2010; Attwood et al., 2011; Sink et al., 2012). Other well-known species include squid (Hutchings et al., 2002) and loggerhead and leatherback turtles (Harris et al., 2018). Further, this area was selected as a priority in systematic planning because of the relatively higher habitat diversity and thus opportunities to meet multiple biodiversity targets efficiently.

C7: Naturalness **Medium**

Justification

There is only one pelagic ecosystem type (Ab2) within this area, which is in good ecological condition (Sink et al., 2012). Benthic condition ranges from poor to good (Sink et al., 2012, 2019), but some deep reefs are apparently untrawled and in good ecological condition. The volcanic feature known as the Alphard Banks is in good ecological condition (Sink et al., 2010). The two MPAs in the EBSA also provide protection from many pressures and are in better ecological condition compared to that of the surrounding area. Overall, 41% of the EBSA is in good ecological condition; the rest is in fair (19%) and poor (40%) ecological condition (Sink et al., 2019).

Status of submission

The Agulhas Bank Nursery Area EBSA was recognized as meeting EBSA criteria by the Conference of the Parties. The revised description, criteria assessment 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

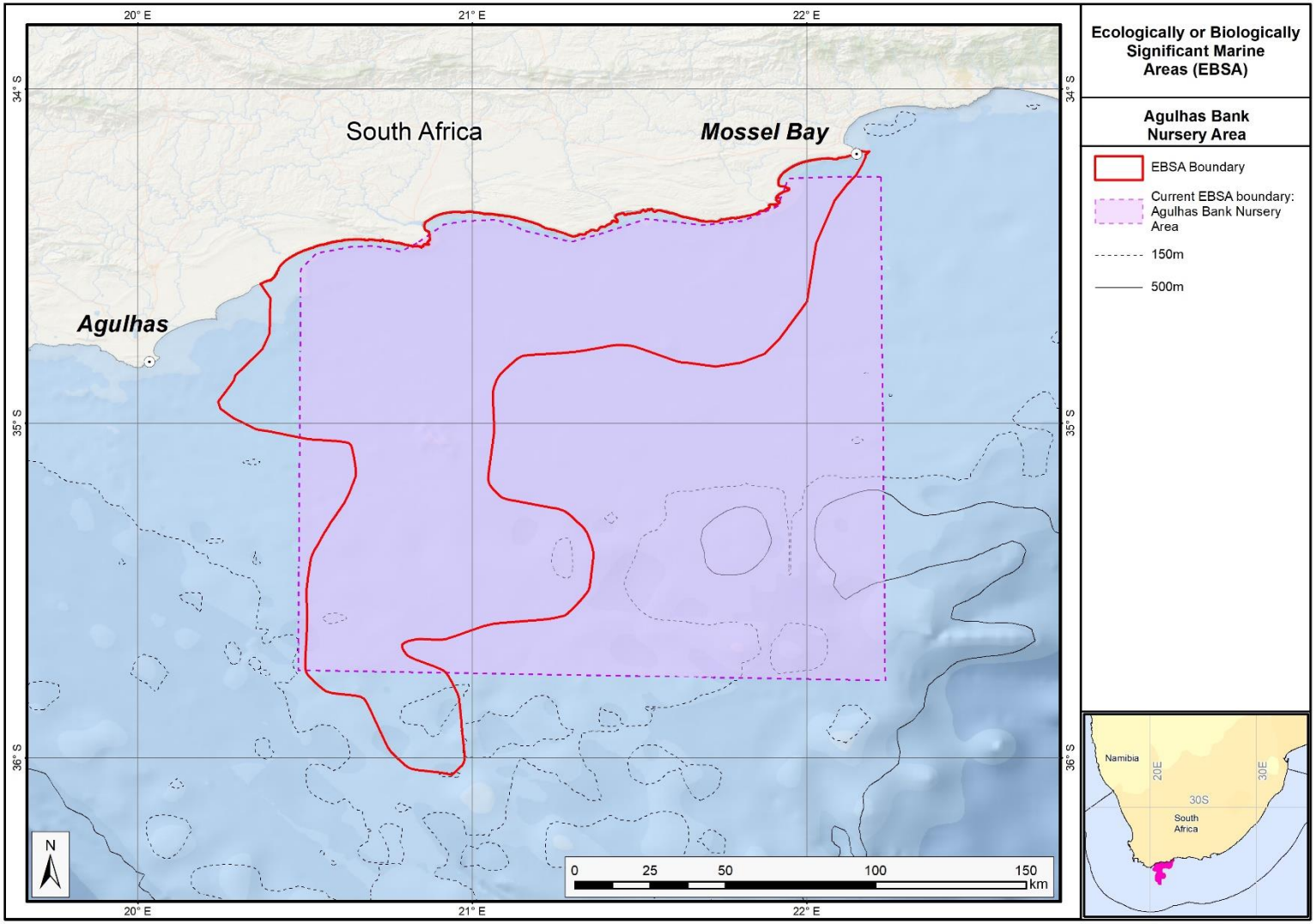
Motivation for Revisions

Significant changes have been made to the Agulhas Bank Nursery Area EBSA description. Additional data have resulted in further substantiated evaluations of two of the EBSA criteria, namely Criterion 2: importance for life-history stages, and Criterion 3: importance for threatened species. Additional references have been added and updates to the description were made. A supplementary table of the habitats represented in the EBSA and their associated threat status was also included.

There has also been a significant delineation change of this EBSA to focus the EBSA more closely on the key biodiversity features that underlie its EBSA status. The delineation process included an initial stakeholder review that identified the need to update boundaries, a technical mapping process and then an expert review workshop where boundary delineation options were discussed. The boundaries were revised a final time to accommodate the latest NBA 2018 assessment results and the review workshop discussion. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as focus areas identified in the Systematic Conservation Plans undertaken for the West Coast by Majiedt et al. (2013), offshore areas (Sink et al., 2011) and by Holness et al. (2014) were incorporated.
- Delineations and threat status of consitituent ecosystem types (Sink et al., 2019) in the area were included in the analysis and used to refine the boundary of the EBSA.
- Areas of high relative naturalness of benthic and coastal systems and pelagic systems identified in the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012a, 2019) were included in the analysis.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).
- The coastal boundary was refined to be more accurate based on new data (Harris et al., 2019).

The multi-criteria analysis resulted in a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.



The proposed revised boundaries for the Agulhas Bank Nursery Area EBSA in relation to its original boundaries.

Kingklip Corals (Formerly Offshore of Port Elizabeth)

Proposed EBSA Description

Abstract

The recent discovery of important benthic features that were only partially represented in the Offshore of Port Elizabeth EBSA prompted that EBSA to be split into two, with Kingklip Corals EBSA better representing the new features. Secret Reef is a newly discovered biogenic coral reef structure that is outside of the trawl footprint on the shelf edge of the South African south coast. Notably, it contains dense communities of fragile and sensitive coral and bryozoan species. Such features are relatively rare in the area. Secret Reef links to the Kingklip Ridge and Kingklip Koppies, offshore of St Francis Bay. These are a newly discovered unique rocky ridge and undersea hills (*koppies* in Afrikaans) that support fragile corals and are covered by dense clouds of plankton and hake. Three of the five ecosystem types represented in the EBSA are threatened, including the Endangered Kingklip Ridge and Vulnerable Kingklip Koppies and Agulhas Coarse Sediment Shelf Edge ecosystem types. Further research is encouraged for this site.

Introduction

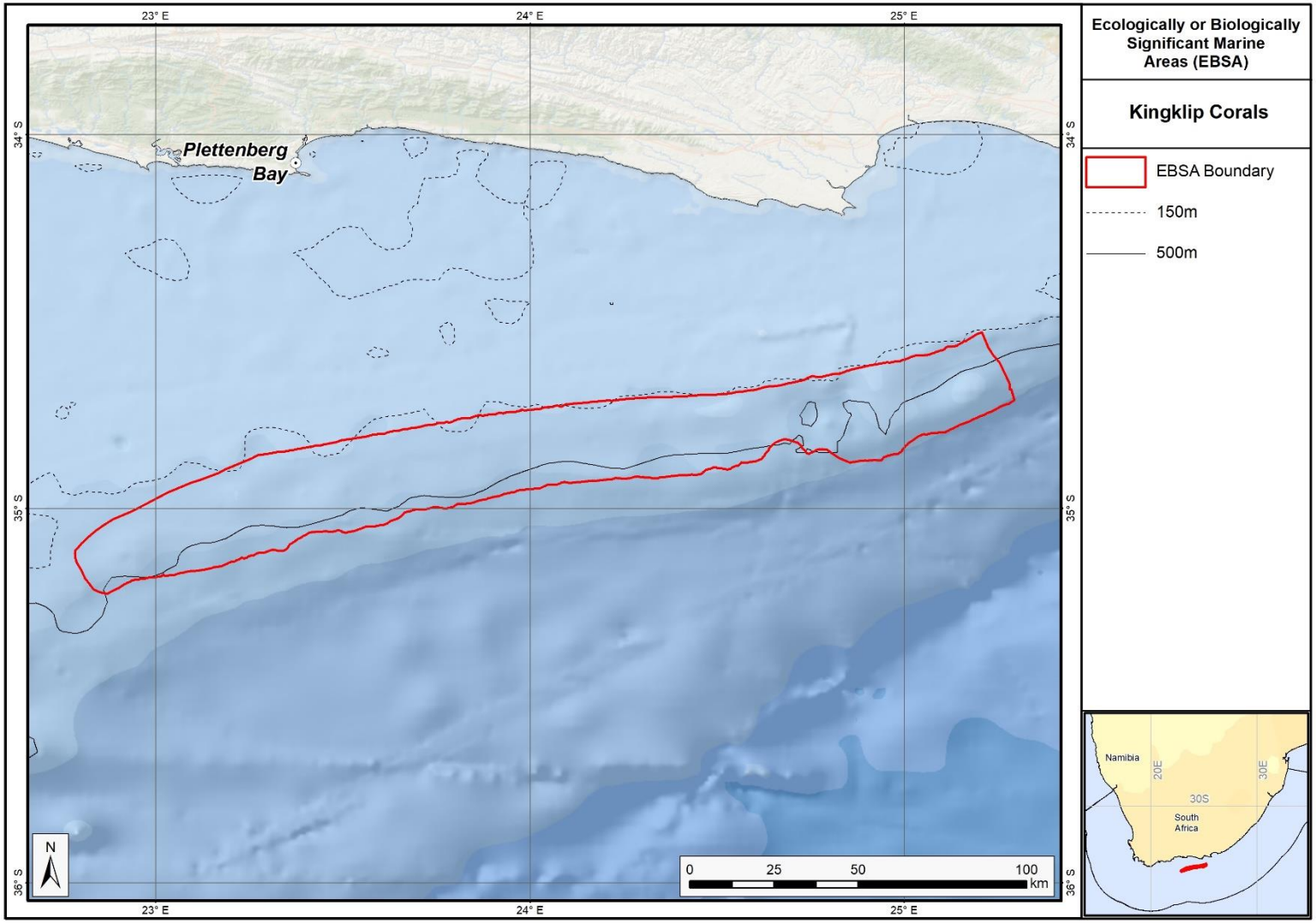
An interesting feature was recently discovered inside the Offshore of Port Elizabeth EBSA: a unique rocky ridge protruding out of the upper slope that supports corals and is covered by dense clouds of plankton and hake (Sink 2016). Adjacent to the ridge is a series of rocky koppies (Afrikaans for 'hills'). A little further west, also on the shelf edge and upper slope of the South African south coast, is Secret Reef. This is a newly discovered biogenic coral reef structure that supports fragile and sensitive corals and byrozoans. Given that these special benthic features appear to be connected along the shelf edge and upper slope, it prompted a split in the Offshore of Port Elizabeth EBSA into Algoa to Amathole, which comprises the bulk of the original EBSA, and this EBSA: Kingklip Corals. This allowed for a better delineation of an EBSA that more accurately reflected the underlying features, which in this case are largely benthic features.

Given its position on the shelf edge and upper slope, despite being a relatively small EBSA (approximately 23 km x 233 km), it spans a broad depth range of -150 to -1000 m. It comprises five ecosystem types, three of which are threatened, including an Endangered type. This area is also an important place in which to meet biodiversity targets because it had high selection frequency in a national systematic conservation plan (Sink et al., 2011; SANBI unpublished results in analysis for Madjiedt et al., 2013).

The reason this area was not fully included in the original Offshore of Port Elizabeth EBSA is because the constituent features were not yet discovered, and thus the information was not available at the Southern Indian Ocean Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas (UNEP/CBD/RW/EBSA/SIO/1/4) in 2013. The revision is thus based on the best available information (e.g., Holness et al., 2014; Majiedt et al., 2013; Sink 2016, Sink et al., 2012, 2019). It is presented as a Type 2 EBSA because it contains "spatially stable features whose individual positions are known, but a number of individual cases are being grouped" (sensu Johnson et al., 2018).

EBSA Region

Southern Indian Ocean



Proposed boundaries of the Kingklip Corals EBSA.

Description of the location

Secret Reef lies on the Grue Bank, about 100 km offshore of Knysna, approximately halfway along the South African south coast in the Agulhas Current. The EBSA spans from here to offshore of the middle of St Francis Bay, along the shelf edge and a little down the slope. The EBSA falls entirely within South Africa's EEZ.

Feature description of the proposed area

Kingklip ridge rises like a wall on the upper slope, offshore of Cape St Francis. It has dimensions of 530 m wide and about 40 km long, running parallel to the shelf edge on the slope that goes from -200 m to -600 m and deeper (Sink 2016). At the crest and edges of the northern end of the ridge, at approximately -350 m, are reef-forming scleratinean corals (Sink 2016). Above the ridge are dense clouds of plankton and hake, and demersal trawlers reportedly use this feature against which they herd fish (Sink 2016). The Kingklip koppies, west of the ridge, are rocky hills that also support fragile benthic species. Even further west, Secret Reef is a newly discovered biogenic coral reef structure on the shelf edge and upper bathyal area (Sink 2016). It includes threatened benthic habitats and fragile, sensitive, vulnerable species, such as: scleractinian corals, stylasterine corals, bryozoans, molluscs, and crabs that have been sampled in this area (Sink 2016). Given the connections among these similar benthic features, they were delineated as a single EBSA. Thus, the EBSA is most important for benthic features, although the overlying water column is also relevant.

The ecosystem types represented in the EBSA include the Endangered Kingklip Ridge, Vulnerable Agulhas Coarse Sediment Shelf Edge and Kingklip Koppies, and Least Concern Agulhas Rocky Shelf Edge, and Southwest Indian Upper Slope (Sink et al., 2019). Because these features are so recently discovered, there is very little information available about them, other than the data that were collected on the cruise when they were found (Sink 2016). These data include single-beam echo sounder depth transects, in situ samples, and ROV footage (Sink 2016).

Feature condition and future outlook of the proposed area

Ecological condition is estimated in South Africa by assessing cumulative pressures to the marine environment (Sink et al., 2012, 2019). Ecological condition is poor in the northern and eastern portions of the EBSA (over Kingklip Ridge and the easternmost Kingklip Koppies), and moderate to mostly good in the south west corner (over Secret Reef; Sink et al., 2019). The primary pressures in the area are from fishing for large pelagic fish, and demersal and pelagic sharks, with some influence from shipping and other fishing industries to a lesser degree. Secret Reef itself is outside of the trawl footprint so the site is high in live coral cover (Sink 2016). However, all of the reef-building coral observed on the Kingklip Ridge was broken, with evidence of both recent and older damage. This is presumed to be the result of trawling damage to the reef (Sink 2016). Research was recently conducted in the area as part of a larger programme to survey South Africa's marine environment (Sink 2016). No future research is currently planned, although it has been strongly recommended (Sink 2016).

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for the Kingklip Corals EBSA. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Endangered	Kingklip Ridge	103.6	1.9
Vulnerable	Agulhas Coarse Sediment Shelf Edge	2440.1	44.8
	Kingklip Koppies	642.9	11.8
Least Concern	Agulhas Rocky Shelf Edge	1673.4	30.7
	Southwest Indian Upper Slope	582.5	10.7
Grand Total		**5442.5**	**100.0**

Assessment of the area against CBD EBSA Criteria

C1: Uniqueness or rarity **High**

Justification

The coral mound comprising Secret Reef is a relatively rare feature in the broader area. It also contains the only known portions of the Kingklip Ridge and Kingklip Koppies ecosystem types, both of which are unique in South Africa (Sink et al., 2019).

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

Justification

Further research is required to determine if this area supports important life-history stages of species. However, given the uniqueness of the ecosystem types and the dense clouds of plankton and hake

above the Kingklip Ridge and Kingklip Koppies (Sink 2016), it is presumed that this area is important for species' life-histories.

C3: Importance for threatened, endangered or declining species and/or habitats **High**
Justification
The area includes three threatened ecosystem types, two of which are found exclusively in the EBSA: Endangered Kingklip Ridge and Vulnerable Kingklip Koppies (Sink et al., 2019). It is not yet known whether this site is important for threatened or declining species, and this would require more research in the area. However, it is presumed that the two unique ecosystem types (Kingklip Ridge and Kingklip Koppies) both support threatened species given that the ecosystem types are threatened.

C4: Vulnerability, fragility, sensitivity, or slow recovery **High**
Justification
Secret Reef is a biogenic coral mound that has fragile scleractinian corals, stylasterine corals, and bryozoans (Sink 2016). Similarly, Kingklip Ridge was observed to contain reef-building scleratinian corals, and Kingklip Koppies contained *Thouarella* (a primnoid coral), bamboo coral, and many mobile invertebrates (Sink 2016). All of these are fragile, sensitive species that are vulnerable to damage, and that take long to recover from impacts.

C5: Biological productivity **Medium**
Justification
There are dense clouds of plankton and hake over Kingklip Ridge (Sink 2016), suggesting high localised productivity at the site. However, time-averaged MODIS Aqua data on chlorophyll concentration (NASA Giovanni Portal: https://giovanni.gsfc.nasa.gov) shows that productivity inside Secret Reef is not higher compared to that of the surrounding area.

C6: Biological diversity **Medium**
Justification
Because Secret Reef is outside of the trawl footprint, reef diversity inside the EBSA is relatively higher than that in the surrounding area (Sink 2016). Further, the relatively small EBSA comprises five ecosystem types that span a depth range of 850 m.

C7: Naturalness **Medium**
Justification
Secret Reef itself is outside of the trawl footprint, so this feature is close to pristine and high in live coral cover (Sink 2016). Based on a national assessment of cumulative pressures on the marine environment, the broader EBSA has portions in good (28%) and poor (53%) ecological condition, with one fifth (19%) that is moderately modified and in fair ecological condition (Sink et al., 2019).

Status of submission

The Offshore of Port Elizabeth EBSA was recognized as meeting EBSA criteria by the Conference of the Parties. The revised Kingklip Corals EBSA 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

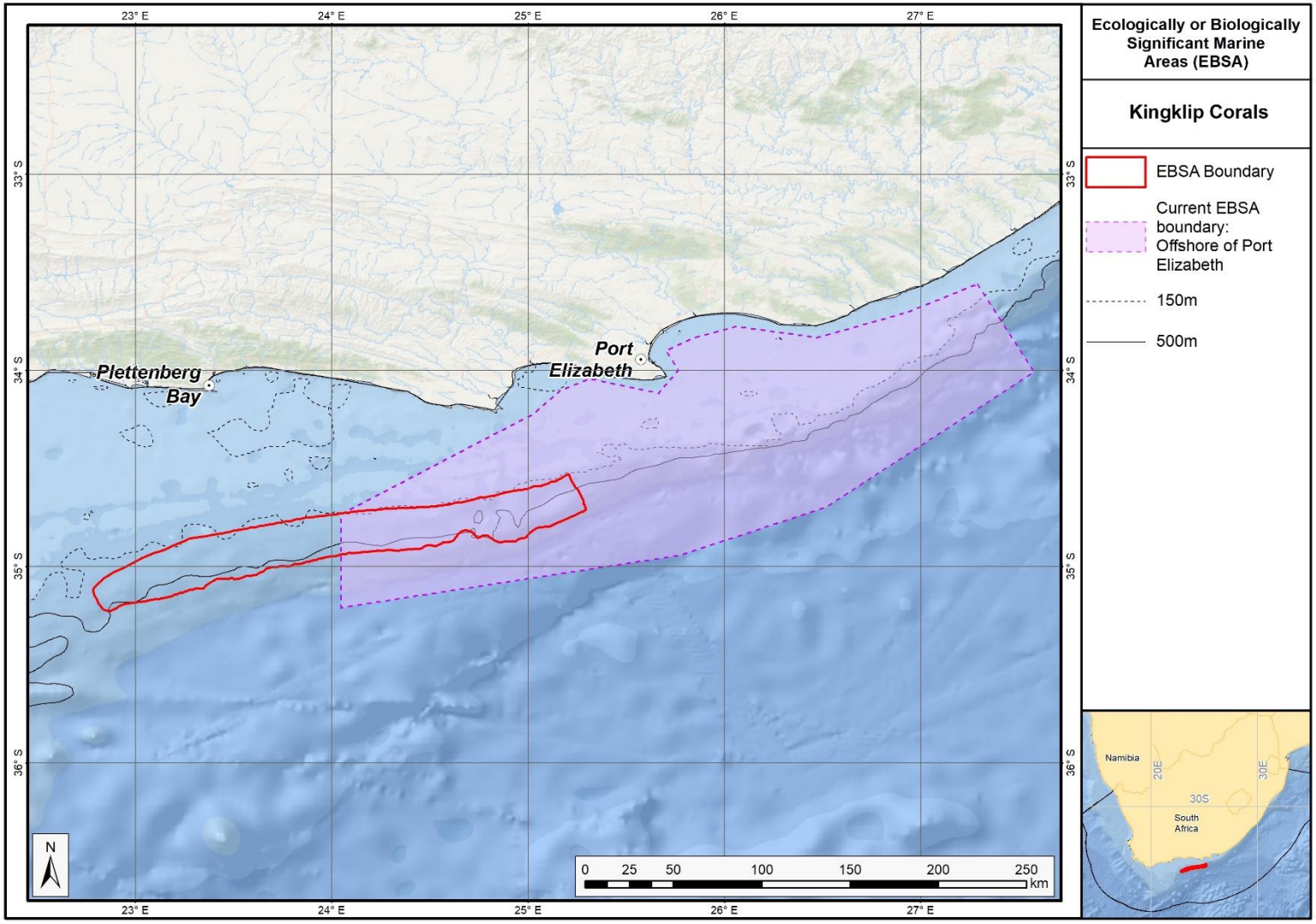
Motivation for Revisions

Recent survey data indicated that Kingklip Corals are small but rare and very vulnerable features justifying conservation attention, which were only partly represented in the original Offshore of Port Elizabeth EBSA. Significant changes have been made to the delineation of the Offshore of Port Elizabeth EBSA, such that it was necessary to split the EBSA into two, and revise the name of this one to Kingklip Corals EBSA to accurately reflect the features comprising the EBSA. This then also required a substantial revision to the description and criteria ranks. A supplementary table of the habitats represented in the EBSA and their associated threat status was also included. Given the new extent and inclusion of additional features, changes were made to almost all criteria ranks. Criterion 1 and 4 were upgraded from Medium to High; Criteria 2, 5 and 6 were downgraded from High to Medium; Criterion 7 was upgraded from Low to Medium; and Criterion 3 remained the same.

The delineation process included an initial stakeholder review, a technical mapping process and then an expert review workshop where boundary delineation options were finalised. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Key physical features (i.e. the coral mound, ridge, koppies and surrounds) from recent survey work (Sink, 2016).
- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA.
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites which relate closely to the EBSA criteria of “Uniqueness and rarity” from the Systematic Conservation Planning process undertaken for Majiedt et al. (2013) and the broader analysis for the BCLME by Holness et al. (2014).
- Areas of high relative naturalness identified in the National Biodiversity Assessment 2011 (Sink et al., 2012), the West Coast (Majiedt et al., 2013) and the BCLME spatial assessments (Holness et al., 2014) were included in the analysis. Both pelagic and benthic and coastal condition were incorporated.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).

The multi-criteria analysis resulted a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.



Proposed revised boundaries of the Kingklip Corals EBSA.

Algoa to Amathole (Formerly Offshore of Port Elizabeth)

Revised EBSA Description

General Information

Summary

This EBSA encompasses the likely biggest single collection of significant and special marine features in all of South Africa that also jointly support key ecological processes, including important land-sea connections. Complex ocean circulation occurs here, where the Agulhas Current leaves the coast, following the shelf break. This results in the formation of cold-water eddies, intrusions of Agulhas water onto the shelf and large offshore meanders of the Agulhas Current. Consequently, this EBSA includes spawning areas, nursery areas and key transport pathways for demersal and pelagic fish. In turn this supports a myriad of top predators, including shark and seabird breeding and foraging areas. Notably, the islands in Algoa Bay support the easternmost colony of Endangered African penguins and the largest colony of Cape Gannets in southern Africa. Given the regional oceanography, regionally Critically Endangered leatherback and regionally Near Threatened loggerhead turtles migrate through the EBSA between their nesting and foraging grounds, with hatchlings of both species also passing through during their dispersal from the nesting beaches. Green turtles have also been sighted in the area. Further, the EBSA includes 36 ecosystem types, 18 of which are threatened and a further seven that are Near Threatened. Sensitive features and species include submarine canyons, steep shelf edge, deep reefs, outer shelf and shelf edge gravels, and reef-building cold-water corals ranging in depth between 100 and 1000 m. It also contains several key biodiversity features, including: stromatolites; sites where coelocanths are present; a Critically Endangered localised endemic estuarine pipefish; several priority estuaries; rare ecosystem types of limited spatial extent; and a few existing coastal marine protected areas.

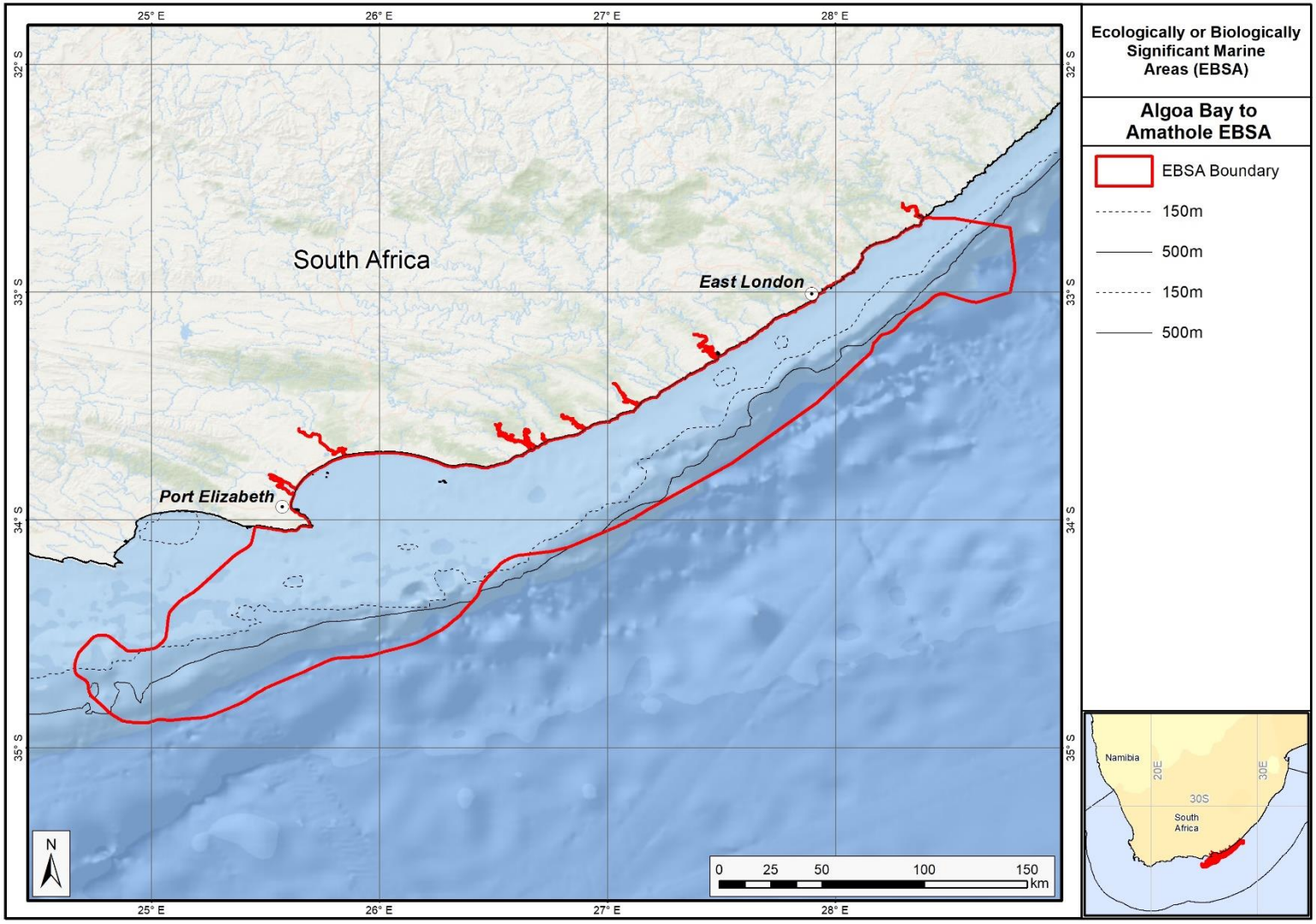
Introduction of the area

This EBSA spans the Eastern Cape shoreline in South Africa between Sardinia Bay MPA and Amathole MPA/Kei River mouth. It extends from the dune base to approximately the continental shelf break/slope, thus spanning a depth range of approximately 0-2000 m. It is important for both benthic and pelagic features, comprising an offshore area of high habitat complexity, and containing a myriad of unique and interesting biodiversity features. Benthic features include a large shelf-intersecting canyon (Sink et al., 2011), and rare seabed ecosystem types (Sink et al., 2012). The pelagic environment is characterised by complex ocean circulation patterns because the EBSA includes the point where the Agulhas Current leaves the coast, following the shelf break. This results in the formation of cold-water eddies, intrusions of Agulhas water onto the shelf, large offshore meanders of the Agulhas Current, and upwelling. This oceanography supports key ecological processes. Given the close proximity of the Eastern Cape universities, there is substantial ecological research and data available for this coastal area, and an extensive array of in-water devices for long-term ecological research within Algoa Bay.

Description of the location

EBSA Region

Southern Indian Ocean



Proposed revised boundaries of the Algoa to Amathole EBSA.

Description of location

This EBSA spans the Eastern Cape shoreline between Sardinia Bay MPA and Amathole MPA / Kei River mouth in South Africa. It extends from the dune base to approximately the continental shelf break, as far west as south of Cape St Francis, and also encompasses the functional zone of several priority estuaries. It lies entirely within South Africa's national jurisdiction.

Area Details

Feature description of the area

Algoa to Amathole EBSA is one of the most ecologically and biologically significant areas in South Africa. This area contains a myriad of rare, unique and diverse physical and biological features that are found on the seabed and in the overlying water column, that in turn support many key processes, including critical land-sea connections. The EBSA centres approximately around Algoa Bay, which also aligns with where the Agulhas Current leaves the coast, following the shelf break. This results in complex ocean circulation, including the formation of cold-water eddies, intrusions of Agulhas water onto the shelf, and large offshore meanders of the Agulhas Current; and productivity is enhanced by coastal upwelling (Goschen et al., 2015) and relatively rare surf diatom accumulations in the surf zone (Campbell & Bate 1988, Campbell 1996). Consequently, the area serves as spawning and/or nursery grounds for certain commercially-important demersal and pelagic fish species (Pattrick et al., 2016; Rishworth et al., 2015), squid (Downey-Breedt et al., 2016; Lipiński et al., 2016) sharks (Smale et al., 2015) and whales (Melly et al., in press); as transiting/foraging areas for seabirds, sharks, cetaceans (e.g., Koper et al., 2016; Melly et al., in press), and turtles; and forms part of the migration routes of loggerhead and leatherback turtles (Harris et al., 2018), with hatchlings of both species passing through the area during their dispersal. Green turtles, killer whales and coelocanths have also been sighted in the area. Notably, Algoa Bay hosts the largest groups of bottlenose dolphins (Bouveroux et al., 2018), largest colony of Endangered African penguins (Pichegru et al., 2010), and largest colony of Cape gannets (Crawford et al., 2007) in the world.

The new delineation of this EBSA to include priority estuaries, now includes breeding sites of the Critically Endangered, and locally endemic pipefish: *Syngnathus watermeyeri* (Vorwerk et al., 2007). These estuaries, together with the extension to include the coastal areas, also better represents some critical ecological processes that support the important offshore features. For example, these include key linkages among spawning, post-hatch and nursery areas commercially important fish species that span the surf zone to nearshore and the shelf (Pattrick et al., 2016). Many of the fish in the area also use the estuaries for part of their life-histories. The EBSA thus contains the following Important Bird Areas: 1. Algoa Bay Islands: Addo Elephant National Park; 2. Swartkops Estuary - Redhouse and Chatty Saltpans; and is adjacent to the Woody Cape Section: Addo Elephant National Park IBA.

Habitat diversity is also high within the EBSA. There are 36 ecosystem types represented (Sink et al., 2019), with benthic features including stromatolites, canyons, steep shelf edge, deep reefs, outer shelf and shelf edge gravels, and reef-building cold-water corals ranging in depth between -100 and -1000 m. There is also growing research (with interesting results) into marine biochemistry, microbiology, and potential pharmaceuticals and natural products from the biota in Algoa Bay and surrounds (e.g., Matobole et al., 2017; Ntozonke et al., 2017; Waterworth et al., 2017), as well as research into the recently discovered stromatolites on the shore (Perissinotto et al., 2014).

There has been substantial research in the area since the EBSA was first proposed, which has contributed significantly to identifying the features that are present, their extent and importance. The boundary of this EBSA was refined to align with initiatives to expand South Africa's MPA network, and better represent the underlying features comprising the EBSA to improve precision in the delineation, including: the canyons, rocky ridge, fragile and sensitive habitat-forming species, other key species, and key (threatened) habitats. This was based on the best available data (e.g., GEBCO Compilation Group 2019; Harris et al., 2014; Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019). New fine-scale mapping of the coast (Harris et al., 2019) also allowed a more accuracte coastal boundary to be delineated. Further, the new boundary includes more of the existing coastal MPAs in the region. It is presented as a Type 2 EBSA because it contains "spatially stable features whose individual positions are known, but a number of individual cases are being grouped" (sensu Johnson et al., 2018).

Feature conditions and future outlook of the proposed area

The South African National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) indicated declining conditions overall in this area (based on pressure data and an ecosystem-pressure matrix) with conditions ranging from fair to poor across this broad area. Key pressures include commercial demersal trawl and longline fisheries, a midwater trawl fishery, linefishing, trap fisheries for rock lobster, shark fisheries and mining (prospecting and mining) activities. Red tides have also become more common in recent years, some of which have been toxic (Pitcher et al., 2014). However, a large portion of Algoa Bay has been proclaimed as a marine protected area, which will serve as a marine extension to the existing terrestrial Greater Addo Elephant National Park. The Amathole Offshore MPA has also come into effect, in addition to the several small existing coastal MPAs included in the new boundary. Research is ongoing in this area.

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Summary of ecosystem types and threat status for the Algoa to Amathole EBSA. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Endangered	Kei Fluvial Fan	40.8	0.2
	Kei Reef Complex	93.0	0.5
Vulnerable	Agulhas Bays - East	1003.0	5.1
	Agulhas Coarse Sediment Shelf Edge	1221.5	6.2
	Agulhas Exposed Rocky Shore	6.2	0.0
	Agulhas Exposed-Stromatolite Rocky Shore	3.6	0.0
	Agulhas Inner Shelf Reef Sand Mosaic	373.3	1.9
	Agulhas Island Shore	3.0	0.0
	Agulhas Mid Shelf Reef Complex	35.1	0.2
	Agulhas Sandy Inner Shelf	411.4	2.1
	Agulhas Sandy Outer Shelf	4525.8	23.0
	Agulhas Stromatolite Mixed Shore	4.0	0.0
	Agulhas Upper Canyons	102.0	0.5
	Agulhas Very Exposed Rocky Shore	0.4	0.0
	Amathole Hard Shelf Edge	468.7	2.4
	Warm Temperate Large Fluvially Dominated Estuary	5.7	0.0
	Warm Temperate Large Temporarily Closed Estuary	9.0	0.0
	Warm Temperate Predominantly Open Estuary	76.5	0.4
Near Threatened	Agulhas Boulder Shore	0.6	0.0
	Agulhas Dissipative Sandy Shore	1.5	0.0
	Agulhas Mid Shelf Reef Sand Mosaic	396.0	2.0
	Agulhas Mixed Shore	60.4	0.3
	Agulhas Sandy Mid Shelf	3615.3	18.4
	Agulhas Very Exposed-Stromatolite Rocky Shore	0.2	0.0
	Amathole Lace Corals	131.7	0.7
Least Concern	Agulhas Dissipative-Intermediate Sandy Shore	50.5	0.3
	Agulhas Intermediate Sandy Shore	0.8	0.0
	Agulhas Lower Canyons	1152.5	5.9
	Natal Deep Shelf Edge	370.7	1.9
	Natal Pondoland Lower Canyons	612.7	3.1
	Pondoland Mid Shelf Coarse Sediment Reef Mosaic(B)	1316.4	6.7
	Pondoland Shelf Edge Gravel Reef Mosaic	261.8	1.3
	Southwest Indian Mid Slope	2128.7	10.8
	Southwest Indian Upper Slope	1172.7	6.0
	Warm Temperate Small Temporarily Closed Estuary	3.6	0.0
N/A	Warm Temperate Micro-estuary	0.5	0.0
Grand Total		**19659.6**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **High**

Justification

Rare ecosystem types in this region include outer shelf mixed sediments, canyons and stromatolites (Sink et al., 2019), and relatively rare – nationally and globally – surf diatom accumulations (Campbell

1996, Campbell & Bate 1988). This site includes a large canyon that intersects with the shelf (Sink et al., 2011). It also contains a Critically Endangered localised endemic estuarine pipefish, and sites where coelocanths are present.

C2: Special importance for life-history stages of species **High**
Justification
This area includes breeding and foraging areas for African penguins and Cape gannets (Sink et al., 2011). BirdLife International data also indicate importance for damara terns, kelp gulls and roseate terns, with three IBAs within or adjacent to the EBSA. Species that have shown spawning activity in this area include (among others) kingklip, squid, sparids, sardine, anchovy, kob and hake (Hutchings et al., 2002, Sink et al., 2011; Mhlongo et al., 2015, Downey-Breedt et al., 2016; Lipiński et al., 2016; Pattrick et al., 2016). This is considered an area of crucial importance for the eggs and larvae spawned upstream to enter the Agulhas Bank nursery area (Hutchings et al., 2002). Algoa to Amathole is also particularly important for mussel larvae (Weidberg et al., 2015) and spiny lobsters (Santos et al., 2014). This area is also important as a nursery area for sharks (Smale et al., 2015) and whales (Melly et al., in press), and as transiting/foraging areas for seabirds, sharks, cetaceans (e.g., Koper et al., 2016; Melly et al., in press), and turtles (Harris et al., 2018).

C3: Importance for threatened, endangered or declining species and/or habitats **High**
Justification
This EBSA includes areas important for the survival of several IUCN Red-listed species, including the African penguin *Spheniscus demersus* (Endangered on the IUCN Red List) and the Cape Gannet *Morus capensis* (Vulnerable on the IUCN Red List). This area is also used by green, loggerhead, and leatherback turtles (respectively listed as Endangered, Near Threatened and Critically Endangered on the IUCN global redlist for the South West Indian Ocean region; Petersen et al., 2009, Harris et al., 2018).

There are 18 threatened ecosystem types, and a further seven Near Threatened ecosystem types. The threatened types include the Endangered Kei Fluvial Fan and Kei Reef Complex ecosystem types, and the Vulnerable Agulhas Bays - East, Agulhas Coarse Sediment Shelf Edge, Agulhas Exposed Rocky Shore, Agulhas Exposed-Stromatolite Rocky Shore, Agulhas Inner Shelf Reef Sand Mosaic, Agulhas Island Shore, Agulhas Mid Shelf Reef Complex, Agulhas Sandy Inner Shelf, Agulhas Sandy Outer Shelf, Agulhas Stromatolite Mixed Shore, Agulhas Upper Canyons, Agulhas Very Exposed Rocky Shore, Amathole Hard Shelf Edge, Warm Temperate Large Fluvially Dominated Estuary, Warm Temperate Large Temporarily Closed Estuary and Warm Temperate Predominantly Open Estuary ecosystem types.

C4: Vulnerability, fragility, sensitivity, or slow recovery **Medium**
Justification
This area includes submarine canyons, steep shelf edge, deep reefs and outer shelf and shelf edge gravels. These habitats may support fragile habitat-forming species. Cold-water corals (*Goniocorella dumosa, Solenosmilia variabilis*) have been recorded in the area (Sink et al., 2011) and are in the Iziko South African museum invertebrate collection.

C5: Biological productivity **High**

Justification

Productivity offshore of Port Elizabeth is medium to high, and very variable. Chlorophyll-a concentrations are also highly variable, associated with frequent SST and chlorophyll fronts on the steep outer shelf (Lagabrielle 2009, Sink et al., 2011, Roberson et al., 2017). Coastal upwelling may be driven, or at least enhanced, by the formation of Natal pulses (Goschen et al., 2015).

C6: Biological diversity **High**

Justification

There are 36 ecosystem types comprising this EBSA, including rocky, mixed and boulder shores, stromatolites, estuaries, beaches, bays, shelf, shelf edge, and canyons (Sink et al., 2019). The associated communities supported by these habitats are thus also diverse.

C7: Naturalness **Medium**

Justification

Although some areas are assessed as in poor condition (based on pressure data, see South Africa's National Biodiversity Assessment 2011, 2018; Sink et al., 2012, 2019), there are many examples of ecosystem types in good condition and include examples of features that may support fragile and vulnerable habitat forming species (Sink et al., 2012). Overall, 32% of the EBSA is in good ecological condition, 44% fair and 24% poor (Sink et al., 2019).

Status of submission

The Offshore of Port Elizabeth EBSA was recognized as meeting EBSA criteria by the Conference of the Parties. The revised Algoa to Amathole EBSA 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

Motivation for Revisions

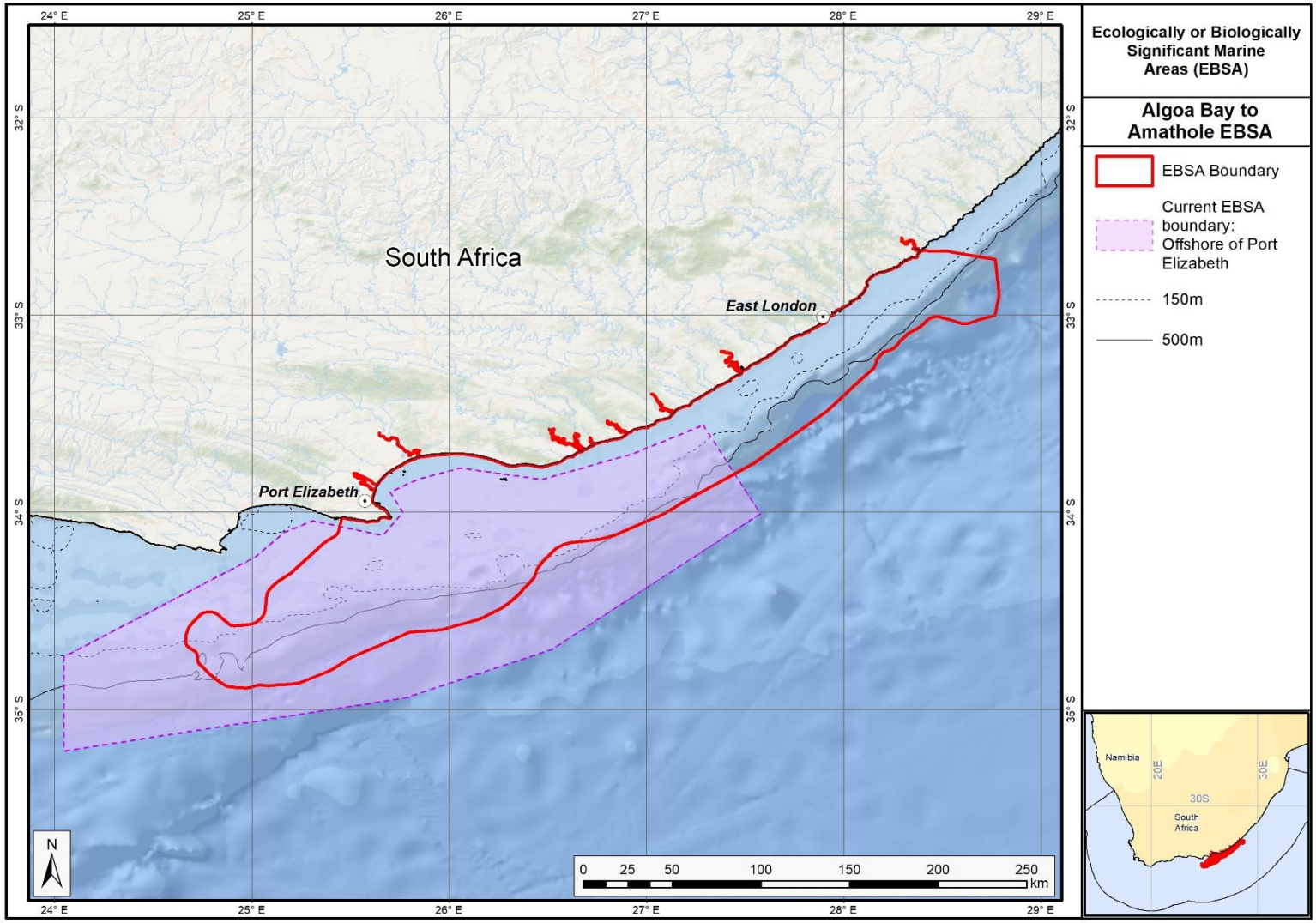
Significant changes have been made to the delineation of the original Offshore of Port Elizabeth EBSA and to the description, such that it was necessary to split the EBSA into two, and revise the name of this one to Algoa to Amathole EBSA to accurately reflect the geographical location of the EBSA. Additional references have been added and significant updates to the description were made. A supplementary table of the habitats represented in the EBSA and their associated threat status was also included. Given the new extent and inclusion of additional features, criteria level changes were made to Criterion 1: Uniqueness or rarity and Criterion 7: Naturalness, respectively upgraded from medium to high, and low to medium.

An important change has been the significant revision of the EBSA boundaries to reflect the key biodiversity features in this area. The delineation process included an initial stakeholder review which identified the need to update boundaries, a technical mapping process and then an expert review workshop where boundary delineation options were finalised. The delineation process used a

combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Key physical features (especially canyons) identified from the latest GEBCO data (GEBCO Compilation Group 2019), global benthic geomorphology mapping (www.bluehabitats.org, Harris et al., 2014), the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) and BCC spatial mapping project (Holness et al., 2014) were incorporated. In addition, island-linked ecosystem types were included (Harris et al., 2019; Sink et al., 2019).
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as focus areas identified in the Systematic Conservation Plans undertaken for the West Coast by Majiedt et al. (2013), offshore areas (Sink et al., 2011) and by Holness et al. (2014) were incorporated.
- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA.
- Areas important for threatened and special species were included. The priority areas and buffer distances around colonies were from Holness et al. (2014). Note that the full extent of the buffer was not necessarily included in the EBSA. Features included in the analysis were:
    - African Penguin colonies and a 20 km buffer.
    - Cape Cormorant and White Breasted Cormorant colonies and a 40 km buffer.
    - Gannet colonies with a 40 km buffer.
    - Seal Colonies and a 20 km buffer.
- Areas of high relative naturalness of benthic and coastal systems and pelagic systems identified in the National Biodiversity Assessment 2011 (Sink et al., 2012a) were included in the analysis.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).
- The coastal boundary was refined to be more accurate based on new data (Harris et al., 2019).

The multi-criteria analysis resulted in a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.



The proposed revised boundaries for the Algoa to Amathole EBSA in relation to the original Offshore of Port Elizabeth EBSA.

Protea Banks and Sardine Route

Revised EBSA Description

General Information

Summary

Protea Banks and Sardine Route is a coastal EBSA that includes a key component of the migration path for several fish (known as the sardine run) and an offshore area of high habitat complexity. Benthic features include a unique deep-reef system known as Protea Banks, steep shelf edge and slope, and several submarine canyons. The sardine run is a temporary feature associated with foraging top predators, including seabirds, mammals, sharks and gamefish. Protea Banks is also an aggregating area, with spawning of sciaenids and sparids reported. Some of these species are in decline and are considered threatened. This area has moderate productivity, and the sardine run represents an important ecological process that facilitates the transfer of nutrients from the more productive Agulhas Bank into the more oligotrophic environment further north. This EBSA includes five existing coastal MPAs, two of which were expanded to improve protection of key marine biodiversity assets.

Introduction of the area

The Protea Banks and Sardine Route includes a key component of the migration path for several fish (known as the sardine run) and an offshore area of high habitat complexity. Benthic features include a unique deep reef system known as Protea Banks, steep shelf edge and slope, and several canyons. Protea Banks comprises a relatively shallow "seamount" that drops to extensive rocky flats that extend towards the shelf edge (the full extent of which is currently uncertain). Diversity is high in this area, with 40 ecosystem types represented in the EBSA, 20 of which are threatened and a further seven are Near Threatened. It constitutes a site of fish spawning aggregations and is home to an abundance of soft corals, algae and molluscs, many of which are endemic. The area includes benthic and pelagic features, with further details on habitats, processes and species detailed in Mann (2000), Freon et al. (2010), Sink et al. (2011), Harris et al. (2011) and Ezemvelo KZN Wildlife (2012). The sardine run is an annual, temporary feature usually associated with foraging top predators, including seabirds, mammals (O'Donoghue et al., 2010a, 2010b), sharks and gamefish (Dudley and Cliff 2010, Fennessy et al., 2010).

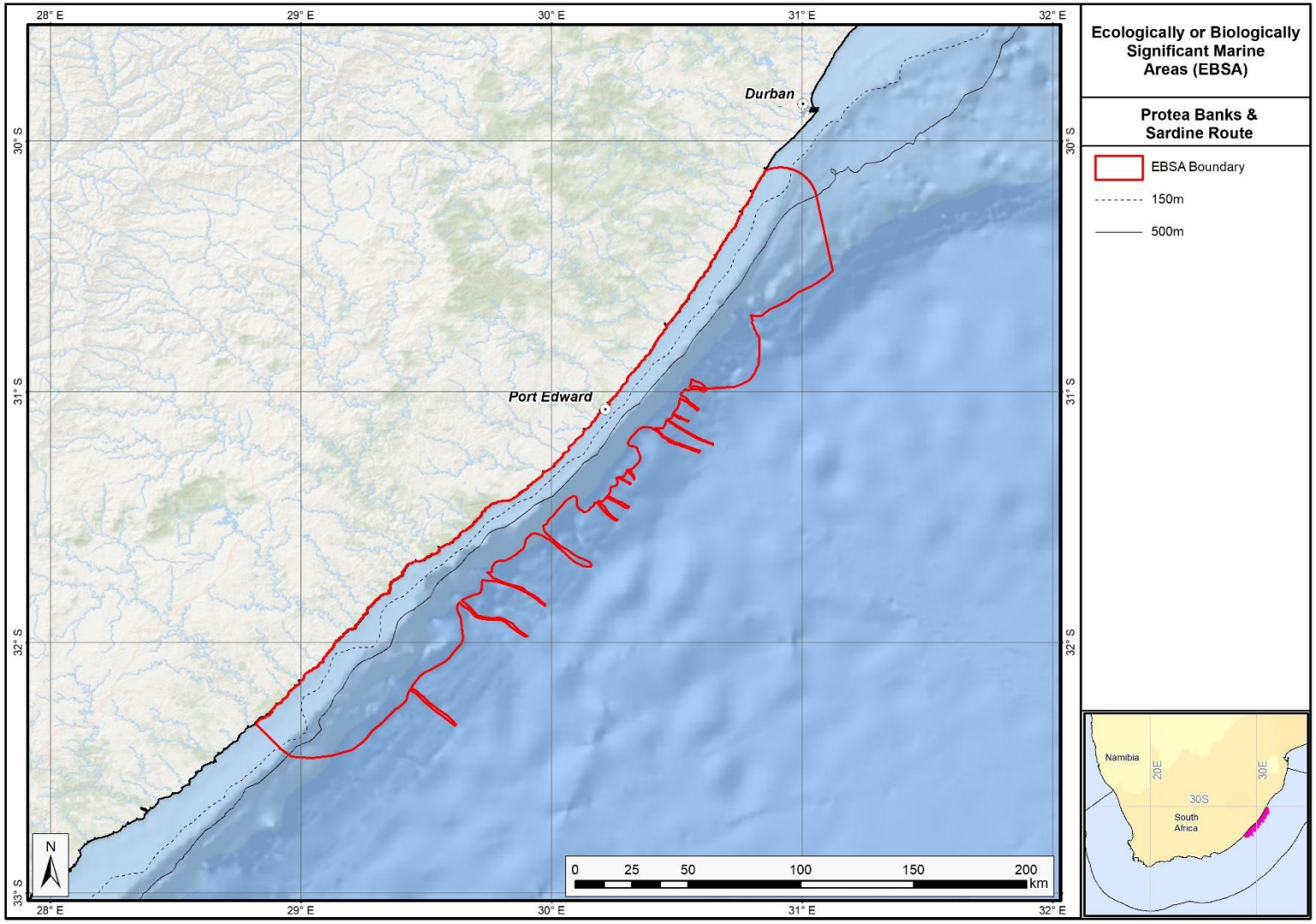
Description of the location

EBSA Region

Southern Indian Ocean

Description of location

Protea Banks and Sardine Route is a coastal EBSA, entirely with the South African EEZ. Alongshore, it extends from the Aliwal Shoal MPA in the north, to the Dwesa-Cwebe MPA in the south. Although it extends only 25-35 km offshore from the dune base across most of the EBSA, it covers a vast depth range because the continental shelf is so narrow in this area. Most of Protea Banks and Sardine Route extends from 0 m to -1800 m or deeper.



Proposed revised boundaries of the Protea Banks and Sardine Route EBSA.

Area Details

Feature description of the area

This area includes benthic and pelagic features, with details on habitats, processes and species in Mann (2000), Freon et al., (2010), Sink et al., (2011), Harris et al., (2011) and Ezemvelo KZN Wildlife (2012). The EBSA includes 40 ecosystem types, seven of which are Endangered, 13 are Vulnerable and a further seven are Near Threatened (Sink et al., 2019). This spans a rich diversity of types, including a variety of shore types (including estuarine shores), reefs, unconsolidated-sediment benthic types, slope types and canyons (Sink et al., 2019). The area includes part of a key migration pathway (known as the sardine run) that is an important ecological process believed to play a role in the transfer of productivity from the productive Agulhas Bank into the less productive area in southern KwaZulu-Natal. Some research has been conducted on the sardine migration (see Freon et al., 2010, Van der Lingen et al., 2010) but the heterogeneous benthic habitats in deep water are poorly studied. Key habitats include a unique deep-reef feature, submarine canyons (with seven reef-building cold-water coral records, representing three different species, in the national invertebrate museum collection), hard shelf edge and unconsolidated shelf and shelf edge sediments. In situ research is needed in the deeper areas of this EBSA.

There has been new research in the area since the EBSA was first proposed, which has contributed significantly to identifying the features that are present, their extent and importance. The boundary of this EBSA was also refined to align with initiatives to expand South Africa's MPA network, and better represent the underlying features comprising the EBSA to improve precision in the delineation. This was based on the best available data (e.g., GEBCO Compilation Group 2019; Harris et al., 2014; Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019). New fine-scale mapping of the coast (Harris et al., 2019) also allowed a more accurate coastal boundary to be delineated. It is presented as a Type 2/4 EBSA (sensu Johnson et al., 2018) for containing "spatially stable features whose individual positions are known, but a number of individual cases are being grouped" and "features that are inherently not spatially fixed. The position of this feature moves seasonally and among years.". The benthic features (e.g., reefs and canyons) are spatially fixed and grouped, and the sardine run is a seasonal phenomenon that occurs in the same area, but the exact position is variable across years.

Feature conditions and future outlook of the proposed area

South Africa's National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) indicated declining conditions in the original delineation (based on pressure data and an ecosystem-pressure matrix), with conditions ranging from fair to poor. In an updated assessment, and in the new delineation, cumulative pressure was moderate across the EBSA overall; however, cumulative pressure in the northern portion and along the coast is high (Sink et al., 2019). There are five existing MPAs in this EBSA, some of which have moderate to high cumulative pressure within them. Protection of biodiversity assets in this EBSA will be strengthened since the recent, notable expansion of two of the existing reserves. Fish species in the area include threatened or depleted species. There is planned research in the Protea Banks area through the African Coelacanth Ecosystem Program Phase III.

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Other relevant website address or attached documents

Summary of ecosystem types and threat status for the Protea Banks and Sardine Route EBSA. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Endangered	Natal Inner Shelf Reef Sand Mosaic	215.5	2.3
	Natal Mid Shelf Reef Gravel Mosaic	841.1	9.0
	Protea Mid Shelf Reef Complex	15.5	0.2
	Subtropical Large Fluvially Dominated Estuary	1.7	0.0
	Subtropical Large Temporarily Closed Estuary	7.5	0.1
	Subtropical Predominantly Open Estuary	4.2	0.0
	Trafalgar Reef Complex	58.7	0.6
Vulnerable	Agulhas Exposed Rocky Shore	0.7	0.0
	Agulhas Very Exposed Rocky Shore	0.3	0.0
	Aliwal Shoal Reef Complex	5.2	0.1
	Natal Boulder Shore	0.3	0.0
	Natal Mixed Shore	40.5	0.4
	Natal-Delagoa Reflective Sandy Shore	0.8	0.0
	Pondoland Inner Shelf Reef Sand Mosaic (C)	249.3	2.7
	Port St Johns Inner Shelf Reef Mosaic (A)	48.5	0.5
	Port St Johns Muddy Mid Shelf	124.8	1.3
	Port St Johns Muddy Shelf Edge	129.4	1.4
	Subtropical Small Temporarily Closed Estuary	7.7	0.1
	Warm Temperate Large Temporarily Closed Estuary	0.5	0.0
	Warm Temperate Predominantly Open Estuary	0.2	0.0
Near Threatened	Agulhas Dissipative Sandy Shore	0.2	0.0
	Agulhas Mixed Shore	2.4	0.0
	Natal Exposed Rocky Shore	28.7	0.3
	Natal Pondoland Shelf Edge Coarse Sand Reef Mosaic	593.9	6.4
	Natal Very Exposed Rocky Shore	1.0	0.0
	Natal-Delagoa Dissipative Sandy Shore	0.7	0.0
	Natal-Delagoa Intermediate Sandy Shore	10.1	0.1
Least Concern	Agulhas Dissipative-Intermediate Sandy Shore	0.1	0.0
	Natal Deep Shelf Edge	695.6	7.4
	Natal Pondoland Lower Canyons	868.7	9.3
	Natal Pondoland Upper Canyons	83.1	0.9
	Natal-Delagoa Dissipative-Intermediate Sandy Shore	9.2	0.1
	Pondoland Mid Shelf Coarse Sediment Reef Mosaic(B)	676.2	7.2
	Pondoland Shelf Edge Gravel Reef Mosaic	859.1	9.2
	Southwest Indian Lower Slope	384.5	4.1
	Southwest Indian Mid Slope	2234.1	23.9
	Southwest Indian Upper Slope	1146.3	12.3
	Warm Temperate Small Temporarily Closed	0.5	<0.1
N/A	Subtropical Micro-estuary	1.6	<0.1
	Warm Temperate Micro-estuary	<0.1	<0.1
Grand Total		**9344.7**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **High**

Justification

This area includes two unique features: a large component of the migratory route of a migratory population of sardines and a unique deep-reef feature that hosts species known only from this location. It is noted that this could be perceived as unique because deep reefs are poorly studied in this region, but no similar bathymetric features have been noted in this depth range in the province (Sink et al., 2011). The migratory route component is a key part of the migration path for several species and is part of a globally unique phenomenon referred to as the "sardine run" (Freon et al., 2010). The term "sardine run" is part of the cultural heritage of the South African nation and refers to a natural phenomenon that involves the coastal, alongshore movement during early austral winter of a small and variable fraction of the South African population of sardine (*Sardinops sagax*) from the eastern Agulhas Bank to the KwaZulu-Natal (KZN) coast. The sardine run is associated with foraging top predators such as seabirds, mammals (O'Donoghue et al., 2010a, 2010b), sharks and gamefish (Dudley and Cliff 2010, Fennessy et al., 2010) that facilitate its visual detection. This site also contains some endemic seaweed species (De Clerck et al., 2005).

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

Justification

This area includes the Protea Banks, a known spawning aggregation site for several species (Mann 2000) and an area that is part of an important migration path for several species, most notably the "sardine run". A genetically distinct portion of the South African population of sardine *Sardinops sagax* migrates through this area as part of a well-known phenomenon that is less well understood from a process perspective (Van der Lingen et al., 2010). The sardines are followed by large numbers of sharks, cetaceans and seabirds. Key species in this migration event include Geelbek (*Atractoscion aequidens*) and Garrick (*Lichia amia*), and the area is also important for the endemic and threatened sparid Seventy-four (*Polysteganus undulosus*) (Mann et al., 2000, Fennessey et al., 2010). This area is considered a nursing ground for the sparid *Chrysoblephus puniceus* (Ezemvelo KZN Wildlife 2012). BirdLife data indicate that this area is important for foraging white chinned petrels, and the sardine run is a key ecological event providing forage fish for Cape gannets (Freon et al., 2010, O'Donoghue et al., 2010).

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

Justification

This area has some importance for overexploited sparids and sciaenids (Mann 2000) and Vulnerable (IUCN global redlist) seabirds. Overexploited sparid and scienids include *Chrysoblephus puniceus* (Mann 2000). Cape gannets and white chinned petrels utilise this area (Freon et al., 2010, Birdlife tracking data). The Protea Banks and Sardine Route is also a key component of the regionally Critically Endangered leatherback turtles' migration route (Harris et al., 2018), with hatchlings of both leatherbacks and (regionally Near Threatened) loggerheads also dispersing through the area. Green turtles and hawksbills are also present on reefs in the area as well, both of which species are also threatened. The 20 threatened ecosystem types within this EBSA include the Endangered: Natal Inner Shelf Reef Sand Mosaic, Natal Mid Shelf Reef Gravel Mosaic, Protea Mid Shelf Reef Complex, Subtropical Large Fluvially Dominated Estuary, Subtropical Large Temporarily Closed Estuary, Subtropical Predominantly Open Estuary, Trafalgar Reef Complex; and the Vulnerable: Agulhas

Exposed Rocky Shore, Agulhas Very Exposed Rocky Shore, Aliwal Shoal Reef Complex, Natal Boulder Shore, Natal Mixed Shore, Natal-Delagoa Reflective Sandy Shore, Pondoland Inner Shelf Reef Sand Mosaic (C), Port St Johns Inner Shelf Reef Mosaic (A), Port St Johns Muddy Mid Shelf, Port St Johns Muddy Shelf Edge, Subtropical Small Temporarily Closed Estuary, Warm Temperate Large Temporarily Closed Estuary, and Warm Temperate Predominantly Open Estuary. A further seven ecosystem types are Near Threatened (Sink et al., 2019).

C4: Vulnerability, fragility, sensitivity, or slow recovery **Medium**
Justification
This area includes submarine canyons, an area of steep shelf edge and a unique deep-reef system. These habitats may support fragile habitat-forming species. Seven records of two species of reef-building coldwater corals (*Goniocorella dumosa, Solenosmilia variabilis*) have been recorded in the area (Sink et al., 2011) and are in the Iziko South African museum invertebrate collection. In-situ surveys have not been undertaken in this area, and further research is needed to provide more information on habitat sensitivity.

C5: Biological productivity **Medium**
Justification
This steep area has a relatively high frequency of chlorophyll-a and SST fronts (Lagabrielle 2009, Sink et al., 2012, Roberson et al., 2017). Further, the sardine run phenomenon provides a huge, albeit temporary, increase in productivity.

C6: Biological diversity **High**
Justification
Sink et al. (2011, 2019) showed high benthic habitat diversity in this area, with 40 ecosystem types represented in a relatively small area. The dynamic pelagic environment and the sardine run also contribute to the high diversity in the pelagic ecosystems (Freon et al., 2010, Van der Lingen et al., 2010).

C7: Naturalness **Medium**
Justification
Cumulative pressure overall is moderate, with some coastal areas under much higher cumulative pressure (Sink et al., 2019). Consequently, the bulk of the EBSA is in either good (62%) or fair (33%) ecological condition with only 5% in poor ecological condition (Sink et al., 2019). There is no pelagic longlining inshore of 20 nm in this area (Sink et al., 2011).

Status of submission

The Protea banks and Sardine Route 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

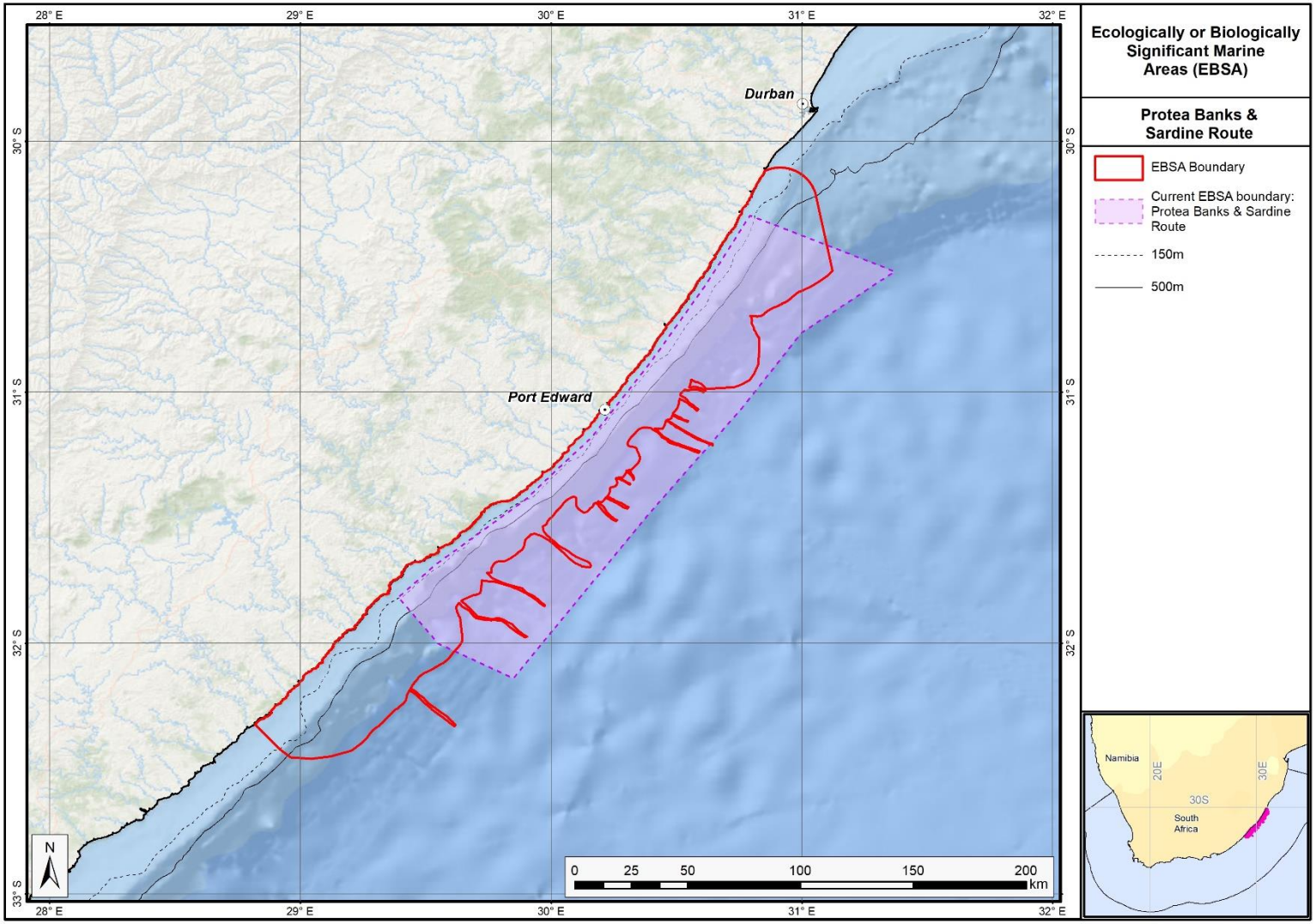
Motivation for Revisions

Some technical revisions and updates to the description were made, even though little additional information was available. A supplementary table of the habitats represented in the EBSA and their associated threat status was also included. Criterion 3: importance for threatened species was particularly much better substantiated, but this did not result in a change in the rank evaluation.

The main change is that the boundary of this EBSA has been slightly adjusted to focus the EBSA more closely on the key biodiversity features that underlie its EBSA status. The delineation process included an initial stakeholder review which identified the need to update boundaries, a technical mapping process and then an expert review workshop where boundary delineation options were discussed. The boundaries were revised a final time to accommodate the latest NBA 2018 assessment results and the review workshop discussion. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as focus areas identified in the national SCP analysis undertaken for the West Coast by Majiedt et al. (2013), offshore areas (Sink et al., 2011) and by Holness et al. (2014) were incorporated.
- Key physical features (especially canyons) identified from the latest GEBCO data (GEBCO Compilation Group 2019), global benthic geomorphology mapping (www.bluehabitats.org, Harris et al., 2014) and the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) were incorporated.
- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA (Sink et al., 2019).
- Areas of high relative naturalness of benthic and coastal systems and pelagic systems identified in the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) were included in the analysis.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).
- The coastal boundary was refined to be more accurate based on new data (Harris et al., 2019).

The multi-criteria analysis resulted a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.



The proposed revised boundaries for the Protea Banks and Sardine Route EBSA in relation to its original boundaries.

KwaZulu-Natal Bight and uThukela River (Formerly Natal Bight)

Revised EBSA Description

General Information

Summary

The KwaZulu-Natal Bight and uThukela River is important for numerous ecological processes, including terrestrial-marine connectivity, larval retention, recruitment and provision of nursery and foraging areas. The area includes rare ecosystem types and supports some species known to exist in few localities. Cool productive water is advected onto the shelf through Agulhas-driven and wind-driven upwelling cells, and continental runoff from the large uThukela River is important for the delivery of detritus to the bight (which drives food webs), and maintenance of mud and other unconsolidated-sediment habitats. The turbid, nutrient-rich conditions are important for life-history phases (breeding, nursery and feeding) for crustaceans, demersal fish, migratory fish, turtles and sharks, some of which are threatened. Particularly vulnerable and fragile ecosystems and species include submarine canyons, cold-water corals and slow-growing sparids. This EBSA is particularly important for threatened ecosystem types. Of the 28 ecosystem types represented, 21 (75%) are threatened including one Critically Endangered, nine Endangered and 11 Vulnerable types, with a further three types that are Near Threatened.

Introduction of the area

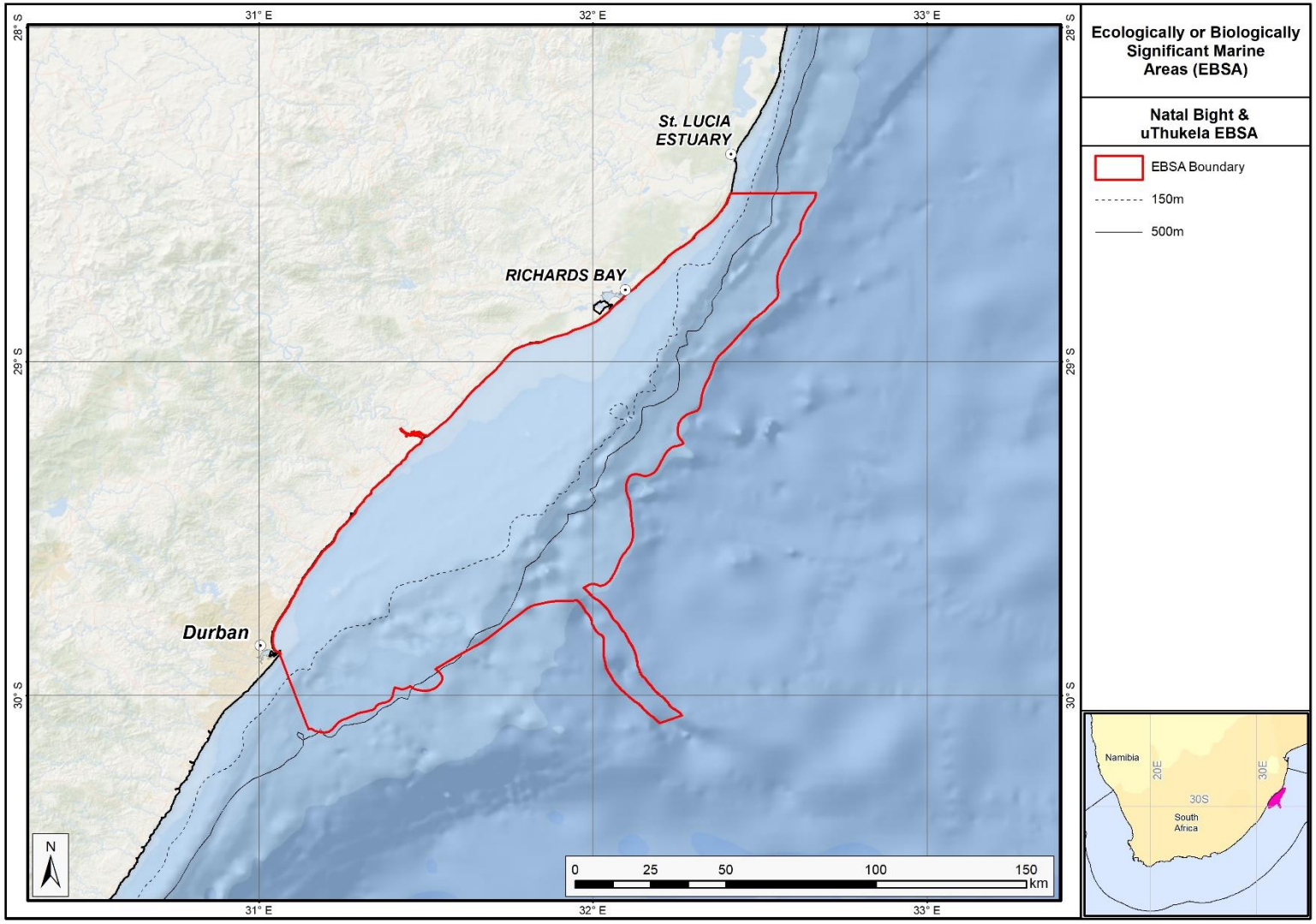
The KwaZulu-Natal Bight and uThukela River is important for numerous ecological processes, including terrestrial-marine connectivity, larval retention, recruitment and provision of nursery and foraging areas. The area incorporates rare ecosystem types and supports some species known to exist in only a few localities. The terrigenous sediments underpin many of the river-influenced marine ecosystem types, and associated, productive communities. The turbid, nutrient-rich conditions are important for life-history phases (breeding, nursery and feeding) for crustaceans, demersal fish, migratory fish, turtles and sharks. The EBSA also includes a canyon, and numerous threatened ecosystem types.

Since the original description and delineation, the boundary of the EBSA has been revised to improve accuracy and better represent the underlying features based on the best available data (e.g., GEBCO Compilation Group 2019; Harris et al., 2014; Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019). Importantly, the lower reaches of the uThukela River are now included because it is the key driver of the system, particularly for the river-influenced marine ecosystem types. It is the conduit for sediment delivery to the near- and offshore ecosystems of the KwaZulu-Natal Bight, and provides the critical link between land and sea that underpins this EBSA. In fact, it was considered such an important addition that it prompted a name change for this EBSA, from Natal Bight to KwaZulu-Natal Bight and uThukela River. Further, recent research in the area has, *inter alia,* improved knowledge of the seabed composition, and thus the extent of the mud habitats and the bight itself is now better understood and mapped, allowing a more accurate delineation of the EBSA. New fine-scale mapping of the coast (Harris et al., 2019) also allowed a more accuracte coastal boundary to be delineated. It is presented as a Type 2 EBSA because it contains “spatially stable features whose individual positions are known, but a number of individual cases are being grouped” (sensu Johnson et al., 2018).

Description of the location

EBSA Region

Southern Indian Ocean



Proposed revised boundaries of the KwaZulu-Natal Bight and uThukela River EBSA.

Description of location

East coast of South Africa, extending from Maphelane to Durban, from the shore to -2000 m, including the Thukela Banks, the KwaZulu-Natal Bight nursery area, the shelf edge and upper bathyal zone. The area is entirely within South Africa's EEZ.

Area Details

Feature description of the area

The area is characterized by extensive alluvial deposits forming banks, primarily off the uThukela River but also off the Mgeni River to a lesser degree (see Sink et al., 2011). The seafloor is thus sedimentary in nature but varies in the degree to which it is consolidated. The banks are productive in terms of benthic and deposit feeeders, an attribute typical of such features. Cool, productive water is advected onto the shelf through Agulhas-driven and wind-driven upwelling cells, and continental runoff from the large uThukela River is important for the delivery of detritus to the bight (which drives food webs), and maintenance of mud and other unconsolidated-sediment habitats. The turbid, nutrient-rich conditions are important for life-history phases (breeding, nursery and feeding) for crustaceans, demersal fish, migratory fish, turtles and sharks. Some of these species are threatened (turtles, scalloped hammerhead) or overexploited (sparids and sciaenids), and the deep reef and palaeo-shoreline habitats are considered important for the recovery of overexploited deep-reef fish species. Other particularly vulnerable and fragile ecosystems and species include submarine canyons, cold-water corals and slow-growing sparids. One Critically Endangered and nine Endangered ecosystem types occur in this area and a further 11 are Vulnerable (Sink et al., 2019). The Thukela Banks have been identified as a priority area by two different systematic biodiversity plans, a national plan to identify focus areas for offshore protection (Sink et al., 2011) and a fine-scale provincial plan for the province of KwaZulu-Natal (Harris et al., 2011).

Feature conditions and future outlook of the proposed area

The National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) indicated declining condition overall in the original EBSA (based on pressure data and an ecosystem-pressure matrix) with conditions ranging from fair to poor across the overall area. An updated assessment (Sink et al., 2019) on the new delineation shows ecological condition ranges from good to poor across the EBSA, with condition generally worse closer to the shore. Key pressures include the crustacean trawl fishery, a line fishery targeting sparids and sciaenids, and there are emerging mining and petroleum applications. A submarine cable has recently been laid in the area. Research on a number of the aforementioned aspects has been undertaken (but not all published) by the Oceanographic Research Institute in Durban. There is planned research in the area through the African Coelacanth Ecosystem Program Phase III.

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Summary of ecosystem types and threat status for the KwaZulu-Natal Bight and uThukela River EBSA. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Critically Endangered	Subtropical Estuarine Bay	0.1	0.0
Endangered	Durnford Inner Shelf Reef Complex	460.5	4.3
	Natal Bight Deep Shelf Edge	1654.6	15.6
	Natal Bight Mid Shelf Reef Complex	23.0	0.2
	Natal Bight Mid Shelf Reef Sand Mosaic	534.7	5.0
	Natal Bight Sandy Inner Shelf	145.9	1.4
	Subtropical Estuarine Lake	1.7	0.0
	Subtropical Large Fluvially Dominated Estuary	13.0	0.1
	Subtropical Large Temporarily Closed Estuary	1.0	0.0
	Subtropical Predominantly Open Estuary	2.7	0.0
Vulnerable	Durnford Mid Shelf Reef Complex	431.8	4.1
	Natal Bight Muddy Inner Shelf	328.7	3.1
	Natal Bight Muddy Shelf Edge	400.6	3.8
	Natal Bight Outer Shelf Coarse Sediment Reef Mosaic	647.8	6.1
	Natal Mixed Shore	13.9	0.1
	Natal-Delagoa Reflective Sandy Shore	5.7	0.1
	St Lucia Sandy Mid Shelf	496.0	4.7
	Subtropical Small Temporarily Closed Estuary	0.5	0.0
	uThukela Mid Shelf Coarse Sediment Reef Mosaic	789.4	7.4
	uThukela Mid Shelf Mud Coarse Sediment Mosaic	1348.7	12.7
	uThukela Outer Shelf Muddy Reef Mosaic	531.8	5.0
Near Threatened	Natal Exposed Rocky Shore	0.7	0.0
	Natal-Delagoa Intermediate Sandy Shore	23.3	0.2
	uThukela Canyon	417.8	3.9
Least Concern	Natal-Delagoa Dissipative-Intermediate Sandy Shore	12.2	0.1
	Southwest Indian Mid Slope	0.8	0.0
	Southwest Indian Upper Slope	2281.4	21.5
	St Lucia Sandy Inner Shelf	31.6	0.3
Grand Total		**10599.8**	**100.0**

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity **Medium**

Justification

Endemic and rare species include: Spotted legskate (*Anacanthobatis marmoratus*), Porcupine stingray (*Urogymnus asperrimus*); the Bearded Goby (*Taenioides jacksoni*) is also endemic (Haupt 2010, Livingston et al., 2012). There are rare gravel and mud ecosystem types in the area, as well as a submarine canyon of limited extent (Sink et al., 2012). There is also a unique demersal fish community near the Thukela Banks (Fennesey 2016), and it is the only portion of the South African east coast that has a relatively wide shelf area.

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

Justification

The KwaZulu-Natal Bight and uThukela River supports important life-history stages for a myriad of species. These functions include serving as a migration corridor for fish (e.g., Geelbek – *Atractoscion aequidens*, White stumpnose – *Rhabdosargus holubi*, Shad - *Pomatomus saltatrix*, Dusky kob - *Argynosomus japonicas* (Vulnerable), and Garrick – *Lichia amia*). It is also part of the migration route and spawning area for sardine – *Sardinops sagax*; many shark and fish species also spawn in the KwaZulu-Natal Bight (e.g., Bull shark – *Carcharhinus leucas*, Sand tiger shark – *Carcharias taurus*, Black musselcracker – *Cymatoceps nasutus*, and King mackerel – *Scomber japonicas*). The KwaZulu-Natal Bight and uThukela River is also an important nursery area for sharks and fish (e.g., Scalloped hammerhead – *Sphyrna lewini* (EN), Slinger – *Chrysoblephus puniceus*, Black musselcracker – *Cymatoceps nasutus*), and an important feeding and migration area for Critically Endangered leatherback turtles (*Dermochelys coriacea*; Haupt 2010, Harris et al., 2011, Vogt 2011, Sink et al., 2011, Ezemvelo KZN Wildlife 2012; Harris et al., 2018). There are also critical linkages between the Thukela Bank prawn-trawling ground and the estuarine nursery areas, emphasising the area's role in ecosystem connectivity and supporting recruitment of many commercially important species (Scharler et al., 2016).

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

Justification

The KwaZulu-Natal Bight and uThukela River contains many threatened species, including: the Critically Endangered Seventy-four (*Polysteganus undulosus*), leatherbacks (*Dermochelys coriacea*) and hawksbills (*Eretmochelys imbricata*); Endangered Scalloped hammerhead (*Sphyrna lewini*), great hammerhead (*Sphyrna mokarran*), dageraad (*Chrysoblephus christiceps*), red stumpnose (*Chrysoblephus gibbiceps*), and green turtles (*Chelonia mydas*); and Vulnerable Flapnose houndshark (*Scylliogaleus quecketti*), porcupine stingray (*Urogymnus asperrimus*), dusky kob (*Argynosomus japonicas*), bearded goby (*Taenioides jacksoni*), and Natal shyshark (*Haploblepharus kistnasamyi*). There are also endemic sparids of conservation concern: *Polysteganus coeruleopunctatus*, as well as Near Threatened loggerheads (*Caretta caretta*). There are 20 threatened ecosystem types, including nine Endangered types, and 11 Vulnerable types (Sink et al., 2019).

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

Justification

The KwaZulu-Natal Bight and uThukela River contains features and species that are slow growing, fragile, and sensitive to disturbance, e.g., submarine canyons, shelf edge, deep reefs and cold-water corals (Sink et al., 2011, 2012).

C5: Biological productivity **High**

Justification

The KwaZulu-Natal Bight and uThukela River contains Indian Ocean water, with high but variable chlorophyll-a levels associated with very frequent SST and chlorophyll-a fronts (Lagabrielle 2009, Roberson et al., 2017). This pelagic habitat (Cb3) is characterised by cool productive water that has been advected onto the shelf in this sheer-zone through Agulhas Current-driven upwelling cells (Lutjeharms et al., 2000, Lutjeharms et al., 2000). Upwelling in the KwaZulu-Natal Bight is largely wind-driven (Roberts & Nieuwenhuys, 2016). Further, it has recently been discovered that substantial inputs of (mainly terrigenous) detritus from the uThukela River drive food webs in the KwaZulu-Natal Bight and uThukela River, particularly of the benthic communities which dominate the local food webs (Scharler et al., 2016).

C6: Biological diversity **High**

Justification

There is high habitat heterogeneity in the KwaZulu-Natal Bight and uThukela River EBSA, with 27 ecosystem types represented (Sink et al., 2019) and new evidence of diverse demersal fish communities in the area (Fennessey 2016).

C7: Naturalness **Medium**

Justification

Half (52%) of the area is in poor ecological condition, however, there is still 48% of the EBSA that is in good (15%) or fair (33%) ecological condition (Sink et al., 2019).

Status of submission

The Natal Bight EBSA was recognized as meeting EBSA criteria 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

Motivation for Revisions

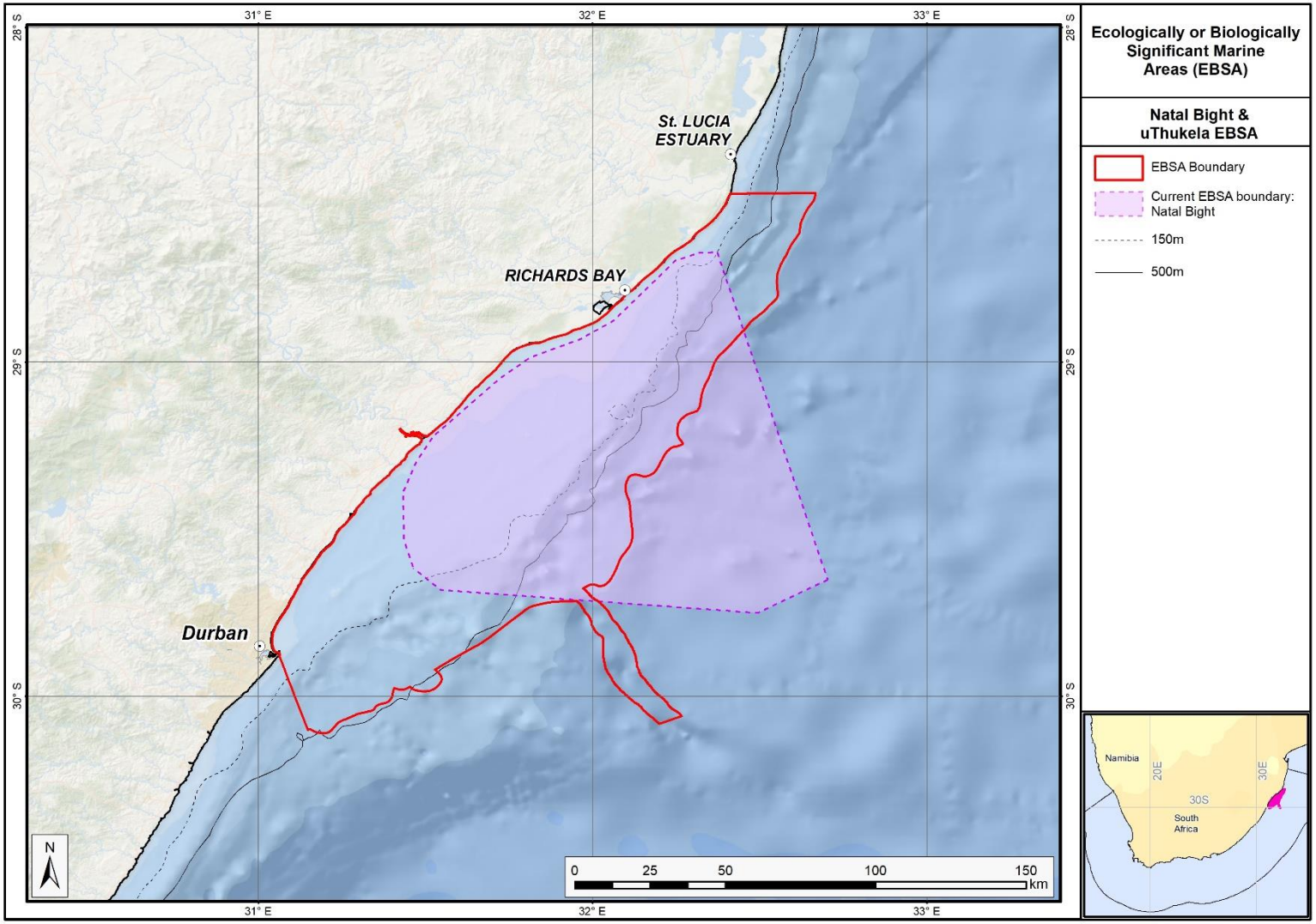
Some technical revisions and updates to the description were made based on recent research. A supplementary table of the habitats represented in the EBSA and their associated threat status was also included. A criteria level change was made on Criterion 5: Biological productivity and Criterion 6: Biological diversity, with ranks respectively upgraded from Medium to High, and Low to Medium. This was based on new research for productivity (Scharler et al., 2016) and demersal fish diversity (Fennessey 2016). Further, empirical evidence from the National Biodiversity Assessment (Sink et al.,

2012, 2019) showed that a rank of Low for Criterion 7: Naturalness was not justified for this EBSA, and thus the rank was upgraded to Medium.

The main change is that the boundary of this EBSA has been slightly adjusted to focus the EBSA more closely on the key biodiversity features that underly its EBSA status. In particular, this includes adding the lower reaches of the uThukela River, which provides the critical link between land and sea in delivering sediment to the near- and offshore ecosystems comprising the Natal Bight. The delineation process included an initial stakeholder review which identified the need to update boundaries, a technical mapping process and then an expert review workshop where boundary delineation options were finalised. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- The key KwaZulu-Natal Bight ecosystems (i.e. those shelf and inshore types dominated by sediment inputs) were focussed on (Sink et al., 2019).
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as focus areas identified in the national SCP analysis undertaken as part of Majiedt et al. (2013) and focus areas for offshore protection (Sink et al., 2011) were included.
- Key physical features (especially canyons) identified from the latest GEBCO data (GEBCO Compilation Group 2019), global benthic geomorphology mapping (www.bluehabitats.org, Harris et al., 2014) and the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) were incorporated.
- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA (Sink et al., 2019).
- Areas of high relative naturalness of benthic and coastal systems and pelagic systems identified in the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) were included in the analysis.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).
- The coastal boundary was refined to be more accurate based on new data (Harris et al., 2019).

The multi-criteria analysis resulted in a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.



The proposed revised boundaries for the Natal Bight and uThukela River EBSA in relation to the original boundaries of the Natal Bight EBSA.

New EBSAs

Protea Seamount Cluster

Proposed EBSA Description

Abstract

The Protea Seamount Cluster is in the south Atlantic abyss off the SSW flank of the Agulhas continental shelf, within the South African EEZ. It is a unique feature in that it is the only seamount cluster in the south Atlantic abyss in South Africa's EEZ. The seamounts support more productivity and diversity compared to adjacent sites, and offer a site for migratory species to aggregate around. Notably, the Protea Seamount Cluster contains vulnerable and sensitive ecosystems and species, some of which are threatened, e.g. the site is visited by regionally Critically Endangered leatherback turtles. It is in good condition given the currently low anthropogenic pressure in the area, promoting the importance of its protection. This EBSA is particularly relevant for its: Uniqueness and rarity; Importance for threatened or declining species and habitats; Vulnerability and sensitivity; and Naturalness.

Introduction

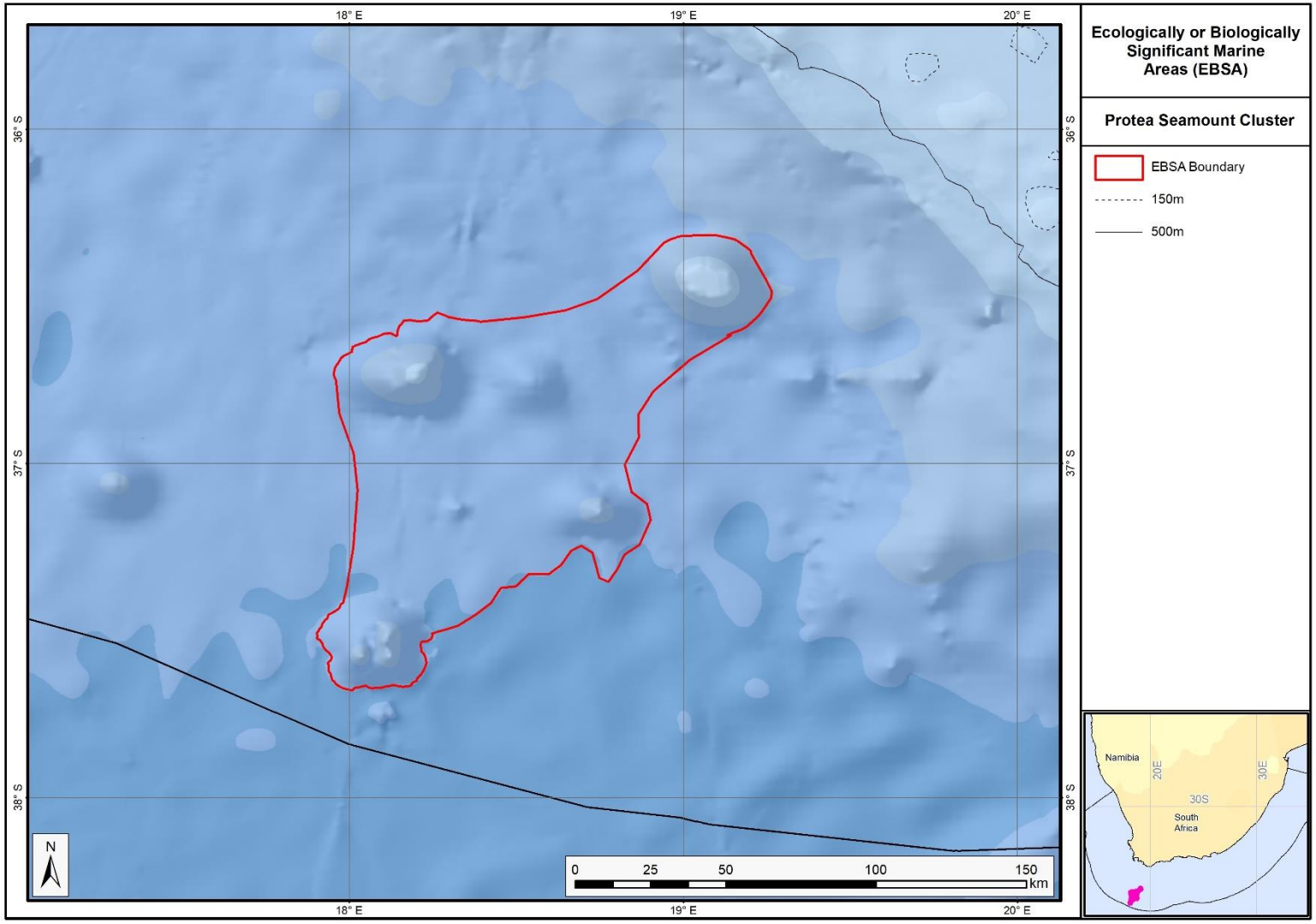
The Protea Seamount Cluster focus area lies on the SSW flank of the Agulhas continental shelf: an oceanic plateau that extends several hundreds of kilometres south of South Africa. The focus area is south west of the Browns Bank EBSA, entirely within the South African EEZ. The site includes the base of the lower slope, but falls mainly within the south Atlantic abyss. Late Eocene volcanism created the seamount cluster in this focus area, including Protea and Argentina Seamounts (among others). The Agulhas Current, which flows south-westward along the eastern coast of South Africa, has its retroflection in this area. Given this position, and its location relative to the Agulhas basin and Agulhas continental shelf, the seamount cluster is an important aggregation site for several migratory species, such as sharks, tuna, and turtles. These animals are also likely attracted to the site for the higher local productivity that is usually associated with seamounts. The Protea Seamount Cluster also contains vulnerable, fragile and sensitive ecosystems and species, and thus the EBSA includes and is important for both benthic and pelagic features. It is highly relevant in terms of these EBSA criteria: "Uniqueness and rarity", "Importance for threatened or declining ecosystems and species", and "Naturalness".

This site was recognised as important at the original South Eastern Atlantic Workshop for EBSA Identification in 2013, but that there was not enough information available to score it against the EBSA criteria at the time (see UNEP/CBD/RW/EBSA/SEA/1/4 Annex 6, Area 5). However, some new data and information have now made description and delineation of the EBSA possible (e.g., GEBCO Compilation Group 2019; Harris et al., 2014; Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019), although criterion rankings still rely heavily on inferred information in many cases. Therefore, the criteria were benchmarked against those ranks given to other EBSAs described for seamounts specifically (see the section: Other relevant website address or attached documents). The seamounts are the underpinning feature of this EBSA, but it also comprises additional features and ecosystems that are connected by seamount-related ecological processes. Consequently, 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 Protea Seamount Cluster EBSA.

Location

The Protea Seamount Cluster focus area occurs within the national jurisdiction of South Africa. It is found in the south Atlantic abyss off the SSW flank of the Agulhas continental shelf: an oceanic plateau that extends several hundreds of kilometres south of South Africa. It lies south west of the Browns Bank EBSA, and extends almost to the boundary of South Africa's EEZ.

Feature description of the proposed area

The Protea Seamount Cluster area is important for both its benthic and pelagic features, notably for supporting threatened habitats and species, and vulnerable, fragile and sensitive ecosystems and species. It comprises a seamount cluster that includes the Protea Seamount, and a few others, that rise from the southeast Atlantic abyss. The Agulhas Current, which flows south-westward along the eastern coast of South Africa, has its retroflection in this area. Given this position, and its location relative to the Agulhas basin and Agulhas continental shelf, local productivity is high at the site. Consequently, it serves as an important aggregation site for migratory species, such as sharks, seabirds (Halpin et al., 2009), and tuna. Further, adult female leatherback turtles have been satellite tracked to these seamounts and surrounds following nesting (Luschi et al., 2003, 2006, Robinson 2014, Harris et al., 2018), with the site likely used by juvenile turtles as well. There has been one previous scientific expedition to Protea Seamount (in 2001), which was focused on deep-sea pelagic birds.

The Protea Seamount Cluster had a high selection frequency in two systematic conservation plans to represent biodiversity efficiently (Majiedt et al., 2013; Sink et al., 2011). The EBSA was delineated based on this selection frequency, key features (seamounts, fragile and sensitive habitat-forming species, and portions of threatened habitat in good condition), and to align with a national initiative to expand MPAs in South Africa. Protecting this site is important because of its vulnerability to both pelagic fishing and benthic trawling. Although no research is currently planned for this area, it is recommended for this EBSA, particularly towards informing appropriate spatial management of this site.

Note that there are other seamounts in the surrounding area that are not included in the delineation of the EBSA because they are much smaller, unnamed, or there are no records of fragile, habitat-forming species for these sites and they are considered data deficient. There is a matrix of abyssal and and bathyal habitat in between the seamouts that is included in the delineation because it represents the broader area where the top predators aggregate in the water column in response to the elevated productivity of the site, likely also encompassing the full extent of seamount-related ecological processes. In addition, it is an efficient way to include a natural, near-pristine portion of these ecosystem types in the EBSA network that is likely to be taken up in spatial management processes for the seamounts themselves, especially because these areas were identified as a priority in the two systematic conservation plans mentioned above.

Feature condition and future outlook of the proposed area

Sink et al. (2012, 2019) estimated the threat status of marine ecosystem types in South Africa by assessing the cumulative impacts of various pressures (e.g. extractive resource use, pollution and others) on each ecosystem type. The latest assessment (Sink et al., 2019) shows the whole area to be in natural ecological condition, with a portion of the EBSA recently proclaimed as a marine protected

area. The EBSA is in a good condition, largely because it has been subjected to relatively little extractive resource use (e.g. fishing, mining) pressure, and is relatively remote and often subjected to high seas with winds of around 50 knots.

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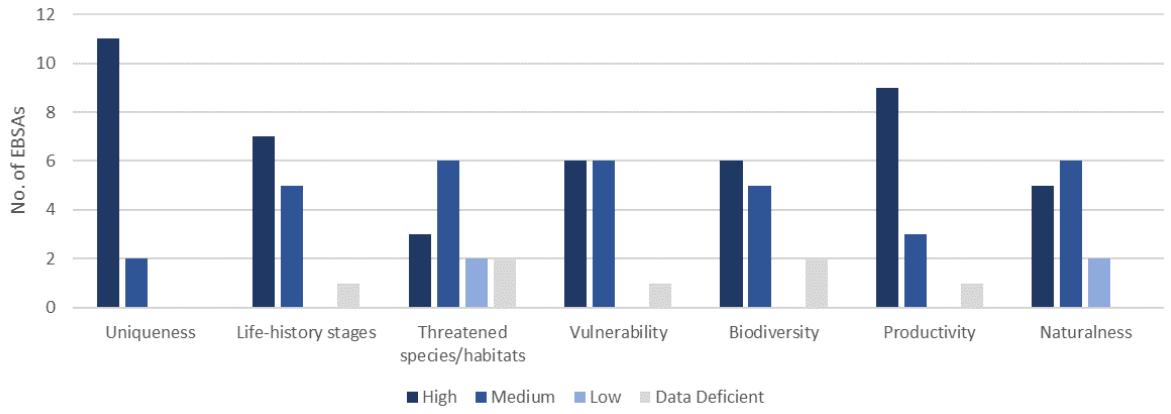
Other relevant website address or attached documents

Summary of ecosystem types and threat status for Protea Seamount Cluster. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Least Concern	Cape Basin Abyss	1241.9	13.8
	Cape Basin Complex Abyss	5318.4	59.0
	Southeast Atlantic Lower Slope	0.2	0.0
	Southeast Atlantic Seamount	1576.3	17.5
	Southeast Atlantic Slope Seamount	882.7	9.8
Grand Total		**9019.5**	**100.0**

To benchmark the criteria ranking for this proposed EBSA, the frequency of all criteria ranks were plotted for seamount-related EBSAs in the global network (figure below).



Frequency of the criteria ranks for EBSAs in the global network that are described specifically for seamounts (n=13): Juan Fernández Ridge Seamounts; Emperor Seamount Chain and Northern Hawaiian Ridge; North-east Pacific Ocean Seamounts; New England and Corner Rise Seamounts; Tabou Canyon and Seamount; Cayar Seamount; Atlantis Seamount; Coral Seamount and Fracture Zone Feature; Agulhas Slope and Seamounts; Central Louisville Seamount Chain; Monowai Seamount; Seamounts of West Norfolk Ridge; and Sagami Trough and Island and Seamount Chain of Izu-Ogasawara.

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 This is the only seamount cluster in the Atlantic Ocean portion of the South African EEZ, although there are other seamount clusters in the surrounding area beyond national jurisdiction.		
Special importance for life-history stages of species	Areas that is required for a population to survive and thrive.	Medium
Explanation for ranking Data are relatively limited for assessing this criterion. However, given the locally high productivity in the focus area, it is expected that the Protea Seamount Cluster is a key foraging site for migratory species in particular. Further, all other EBSAs globally that include seamounts rank the site at medium or high importance for this criterion, indicative of the ecological role that the feature plays in offshore systems that can be inferred here too. OBIS-SEAMAP (Halpin et al., 2009) shows 1-10 records of megavertebrate (marine mammal, seabird, sea turtle and ray and shark) observations for most of the area around these seamounts in the southeast Atlantic, and a 10-100 records within the EBSA region.		
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.	Medium
Explanation for ranking This is a site where regionally Critically Endangered leatherback turtles have been recorded based on satellite tracking data (Harris et al., 2018), and a site where other threatened species (e.g., tuna, sharks and seabirds) are expected or known to occur. Global rankings for seamount-specific EBSAs are either High or Medium for this criterion; data are limited for this site specifically, thus it is scored as Medium.		
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.	High
Explanation for ranking Almost all other seamount-specific EBSAs rank this criterion as Medium or High. This is because seamounts are habitats for many indicator species of vulnerable marine ecosystems (Watling & Auster 2017). Therefore, within Protea Seamount Cluster, it is likely that there are fragile, sensitive species, such as corals and sponges, that are vulnerable to impacts on the seabed and that would		

take a long time to recover if impacted. This is supported by known presence localities of fragile, vulnerable and sensitive habitat-forming species (Unpublished SANBI and SAEON data) within the EBSA area. Further, the top predators that frequent this site (e.g., Harris et al., 2018) are also slow to recover from population impacts, particularly leatherback turtles given how long they take to reach sexual maturity, and the low survivorship from hatchling to adult (approximately 1 in 1000 survive).		
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.	Medium
Explanation for ranking Seamounts are considered to be relatively productive systems, with most other EBSAs for seamounts ranking this criterion as High. No data are available for the Protea Seamount Cluster; however, Chlorophyll-a concentrations (MODIS-Aqua data on the NASA Giovanni Portal: https://giovanni.gsfc.nasa.gov/giovanni) show marginally higher values within this area compared to the surrounding abyss.		
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.	Medium
Explanation for ranking No are data available, however, given the habitat heterogeneity as a result of the seamount cluster, local biodiversity is expected to be higher than adjacent sites, which is confirmed by the global rankings of seamount-specific EBSAs that score this criterion either High or Medium. Further, given the productivity and physical location that makes aggregation of migratory species likely, biodiversity is expected to be higher than the surrounding area. This is supported by the relatively greater abundances (likely representing a greater diversity of species) of megavertebrates in the EBSA region compared to that of the surrounding area (Halpin et al., 2009), and records of up to 100 species of animals in the OBIS database (http://www.iobis.org) within this EBSA. There are three main ecosystem types that make up this EBSA, with a very small portion of a fourth ecosystem type (Sink et al., 2019).		
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.	High
Explanation for ranking The area is all assessed to be in natural/good ecological condition (Sink et al., 2012, 2019), largely because the area has been subjected to relatively low levels of anthropogenic pressures because it is relatively remote and often subjected to rough seas with winds of around 50 knots. This contrasts with many seamounts further north in the Benguela system that are not in good ecological condition because they have high fishing pressure.		

Status of submission

The description of Protea Seamount Cluster 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

Motivation for Submission

A previous tentative description for a Protea Seamount EBSA was previously compiled, but was not submitted to CBD due to data limitations. Subsequent expert and systematic review of gaps in the EBSA network highlighted the requirements for the Protea Seamount Cluster EBSA, and delineation and description became possible due to improved spatial datasets. Initial draft EBSA boundaries were determined, and these were then evaluated against the EBSA criteria. Once it was determined that the area would meet EBSA criteria a formal boundary delineation and evaluation process was undertaken. The delineation process included an initial stakeholder review, a technical mapping process and then an expert review workshop where boundary delineation options were finalised. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Key physical features (i.e. the seamounts and seamount linked ecosystems) from the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) and BCC spatial mapping project (Holness et al., 2014) were incorporated. These data were refined using the latest GEBCO data (GEBCO Compilation Group 2019) and global benthic geomorphology mapping (www.bluehabitats.org, Harris et al., 2014).
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites which relate closely to the EBSA criteria of "Uniqueness and rarity", as well as focus areas identified in the SCP undertaken for the BCLME by Holness et al. (2014) and Majiedt et al. (2013) were incorporated. In addition, focus areas for marine protection identified by Sink et al. (2011) were included.
- Threatened and under-protected ecosystem types. The analysis attempted to focus on the inclusion of the most threatened and under-protected ecosystem types found in the area (Sink et al., 2012, 2019; Holness et al., 2014). However, as all types in the broader area were Least Concern and not protected, this aspect was not informative. (Although, since delineated, a new marine protected area has been proclaimed in the EBSA).
- Areas of high relative naturalness identified in the National Biodiversity Assessment 2011 (Sink et al., 2012), the West Coast (Majiedt et al., 2013) and the BCLME spatial assessments (Holness et al., 2014) were included in the analysis. Both pelagic and benthic and coastal condition were incorporated.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).

The multi-criteria analysis resulted a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.

Seas of Good Hope

Proposed EBSA Description

Abstract

The proposed Seas of Good Hope EBSA is located at the coastal tip of Africa, wrapping around Cape Point and Cape Agulhas, within South Africa's EEZ. It extends from the coast to the inner shelf, and includes key islands, two major bays (False Bay and Walker Bay). This EBSA is of key importance for threatened species and habitats, and for supporting life-history stages, notably for some of the threatened species, with Dyer and Geyser Islands being a Ramsar site. The threatened habitats include coastal, inshore and inner shelf ecosystem types. The important life-history stages supported by the area are breeding and/or foraging grounds for a myriad of top predators, including sharks, whales, and seabirds, some of which are threatened species, such as the Endangered African penguin. The EBSA also includes some relatively rare features. For example, it contains one of a few locations where surf diatom accumulations occur in South Africa, which in turn fuel sandy shores with heightened productivity. This EBSA is also the place where the Benguela and Agulhas Currents meet, and thus where the Indian and Atlantic Oceans meet.

Introduction

Seas of Good Hope is a coastal EBSA at the southernmost tip of Africa that includes both benthic and pelagic features, and key links between the terrestrial and marine realms. The proposed EBSA extends from the shore to depths that are mostly shallower than 150 m. The Agulhas and Benguela Currents meet offshore of this EBSA, with the sea surface temperature between Cape Point and Cape Agulhas being generally cooler than that further offshore where the warmer Agulhas Current has a greater influence. The area is important for many commercially important fish species (e.g., Watermeyer et al., 2016), and forms part of their spawning grounds. Consequently, it provides key foraging habitat for numerous top predators, including sharks, whales, seals and seabirds (e.g., Crawford et al., 2008; Pichegru et al., 2010; Best et al., 2015). The EBSA also contains important breeding and resting sites for these top predators, both on the mainland, in bays and on several islands that are contained within the EBSA (e.g., Best 2000; Underhill et al., 2006; Kirkman et al., 2013). Seas of Good Hope also includes areas of high productivity formed by relatively rare surf diatom accumulations. Given the close proximity of the EBSA to key research institutions, and the rich diversity of key marine species and features in the area, there are many datasets available for the site.

The reason this site was not part of the original list of EBSAs first proposed in the South Eastern Atlantic EBSA Identification Workshop in 2013 (UNEP/CBD/RW/EBSA/SEA/1/4) is because the value of the area was recognised only afterwards in a gap analysis. The delineation was based on the best available data (e.g., Harris et al., 2019; Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019). It is

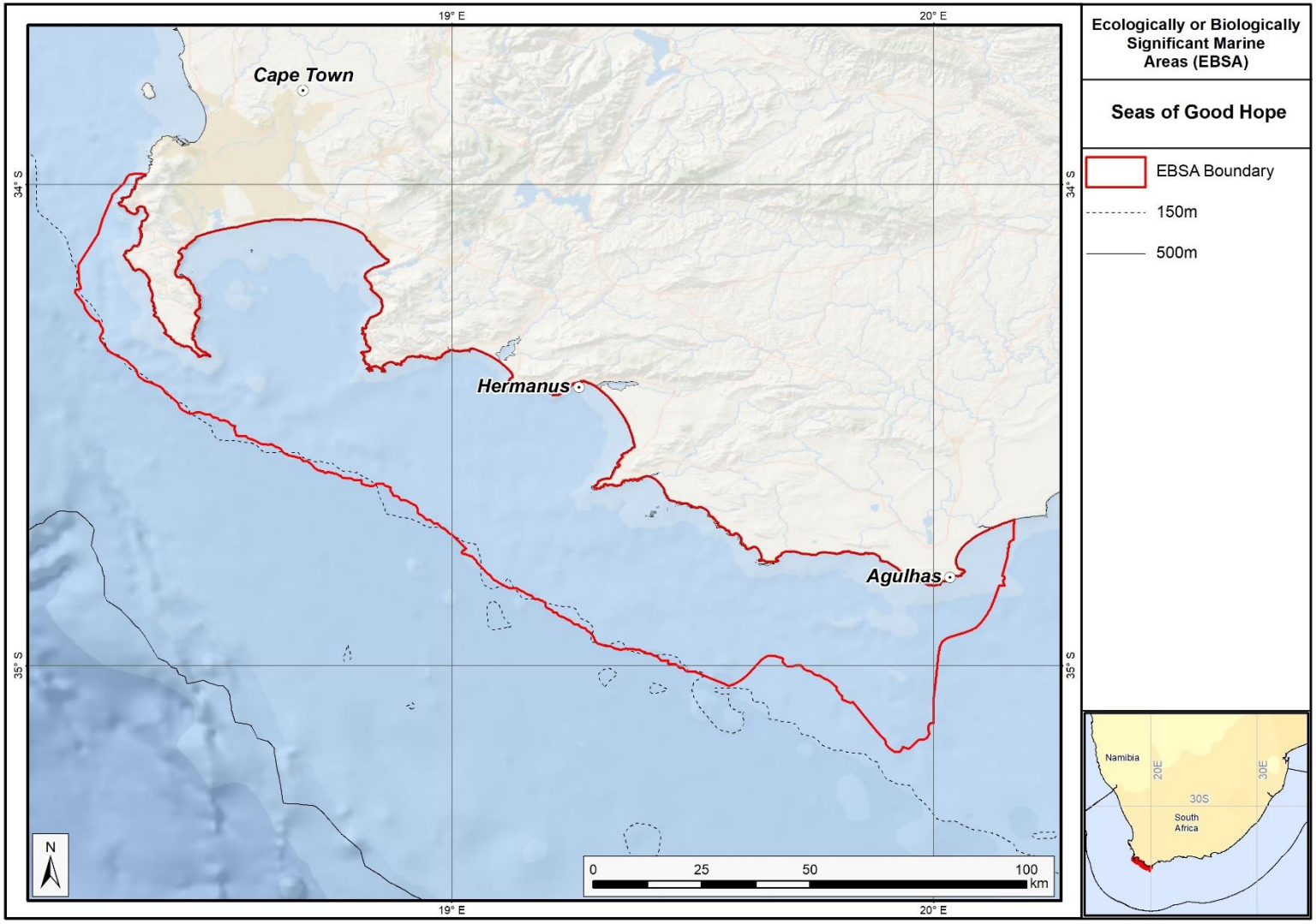
presented as a Type 2 EBSA because it contains “spatially stable features whose individual positions are known, but a number of individual cases are being grouped” (sensu Johnson et al., 2018).

EBSA Region

South-Eastern Atlantic

Location

The proposed Seas of Good Hope EBSA is located at the coastal tip of Africa, within South Africa’s EEZ. It starts just south of Camps Bay, wraps around the tip of Cape Point, extends along the shore to the



Proposed boundaries of the Seas of Good Hope EBSA.

western end of the terrestrial De Mond Nature Reserve in Struisbaai, just past Cape Agulhas. It extends from the dune base to the inner shelf, mostly following the -150m isobath.

Feature description of the proposed area

Seas of Good Hope is important for both benthic and pelagic features. The benthic features include ecosystem types comprising mosaics of sand and reef, kelp beds, and several islands (Seal Island, Dyer Island, Geyser Rock, Quoin Rock; (Sink et al., 2019), and shore habitats including rocky, sandy, mixed and estuarine shores (Harris et al., 2019); the pelagic features include important spawning and foraging grounds for a variety of fish and top predators, and areas of high primary productivity. Benthic-pelagic coupling is also a key feature of this EBSA, particularly important in the two important bay systems that are in the EBSA, and for land-sea connectivity among ecosystem types. Overall, the EBSA's most key attributes are that it includes many threatened species and 23 threatened ecosystem types, and supports important life-history stages of many species, including some of the threatened taxa. The site also include the Dyer Island Provincial Nature Reserve and Geyser Island Provincial Nature Reserve (https://rsis.ramsar.org/ris/2384).

Of the 32 ecosystem types represented in Seas of Good Hope, two thirds (n=23) are threatened, including one Critically Endangered and eight Endangered and 14 Vulnerable types (Sink et al., 2019). By implication, these support biological communities that are also threatened. The EBSA forms part of the spawning grounds for many commercially important fish species (e.g., Watermeyer et al., 2016). Consequently, it provides key foraging habitat for numerous top predators, including sharks, whales, seals and seabirds (e.g., Crawford et al., 2008; Pichegru et al., 2010; Best et al., 2013, Kock et al., 2018), many of which species are also threatened. It also contains important breeding and resting sites for top predators in bays, on the islands and the mainland. For example, it contains island-based (Seal Island, Dyer Island, Geyser Rock) and the only mainland-based (Boulders Beach, Stony Point) colonies of breeding Endangered African penguins (Underhill et al., 2006), and Seal Island, Geyser Rock and Quoin Rock support breeding colonies of Cape fur seals (Kirkman et al., 2013). The EBSA may also include areas where southern right whales give birth to and nurse their calves, and possibly mate (Best 2000).

Secondary attributes of Seas of Good Hope support all other EBSA criteria except for Naturalness. The EBSA includes relatively rare surf diatom accumulations that are present at a few sites along the South African south coast, and only several other places, globally (Campbell & Bate., 1988, Campbell 1996). These surf diatom accumulations fuel sandy beach food webs with particularly high productivity. The kelp beds in the adjacent habitat also provide beach-cast kelp wrack, which also creates particularly productive sandy shore systems (e.g., Dugan et al., 2003; Rodil et al., 2018). Cape Point is a biogeographic break between the warm and cold temperate coastal systems (Sink et al., 2012, 2019), and thus diversity at this site is comparatively higher than adjacent sites because it includes representatives from both bioregions. And finally, the reef and hard ground habitats all support fragile species, that are slow growing and sensitive to disturbance.

Feature condition and future outlook of the proposed area

Although the Cape peninsula is protected in a marine protected area, there are numerous threats to the marine environment in this EBSA, particularly within False Bay and Walker Bay. There are several fisheries operating in the area, including those for west coast rock lobster, squid, linefish, and sharks, as well as subsistence and recreational shore and boat-based fishing, kelp harvesting, and bait

collecting (Sink et al., 2012). Given the close proximity to the Cape Town harbour, and the numerous smaller ports within the EBSA, shipping is a relatively high pressure here. The coast is under particular pressure from coastal development (outside the many terrestrial nature reserves in the western half of the EBSA), with associated pressures such as wastewater discharge. There are also several invasive invertebrates that are primarily associated with rocky shores that have affected native populations (Sink et al., 2012, 2019). Global change pressures are affecting the distribution of local fish stocks, which in turn are affecting some of the top predators, including Endangered African penguins, and Endangered Cape gannets (Crawford et al., 2008; Pichegru et al., 2010). A recent assessment of the ecological condition of the marine realm shows that this EBSA is in fair to poor ecological condition (Sink et al., 2019).

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Summary of ecosystem types and threat status for Seas of Good Hope. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Critically Endangered	Cool Temperate Large Temporarily Closed Estuary	4.4	0.1
Endangered	Agulhas Sheltered Rocky Shore	0.6	0.0
	Cape Island Shore	0.1	0.0
	Cape Sheltered Rocky Shore	0.1	0.0
	Cool Temperate Estuarine Lake	5.0	0.1
	Cool Temperate Predominantly Open Estuary	0.4	0.0
	Cool Temperate Small Temporarily Closed Estuary	2.4	0.0
	Southern Benguela Reflective Sandy Shore	0.1	0.0
	Warm Temperate Estuarine Lake	0.9	0.0
Vulnerable	Agulhas Exposed Rocky Shore	22.6	0.3
	Agulhas Inner Shelf Reef Sand Mosaic	520.8	7.7
	Agulhas Island Shore	3.4	0.1
	Agulhas Kelp Forest	11.7	0.2
	Agulhas Outer Shelf Reef Sand Mosaic	1899.6	28.2
	Agulhas Reflective Sandy Shore	0.8	0.0
	Agulhas Very Exposed Rocky Shore	2.5	0.0
	Cape Boulder Shore	1.0	0.0
	Cape Exposed Rocky Shore	7.7	0.1
	Cape Kelp Forest	3.6	0.1
	Cape Mixed Shore	7.7	0.1
	Cape Rocky Inner Shelf	188.6	2.8
	Cape Rocky Mid Shelf Mosaic	335.1	5.0
	False and Walker Bays	1681.2	24.9
Near Threatened	Agulhas Boulder Shore	0.9	0.0
	Agulhas Dissipative Sandy Shore	21.9	0.3
	Agulhas Mid Shelf Reef Sand Mosaic	1970.5	29.2
	Agulhas Mixed Shore	35.1	0.5
	Cape Very Exposed Rocky Shore	0.3	0.0
	Southern Benguela Intermediate Sandy Shore	0.2	0.0
Least Concern	Agulhas Dissipative-Intermediate Sandy Shore	12.3	0.2
	Agulhas Intermediate Sandy Shore	2.2	0.0
	Southern Benguela Dissipative Sandy Shore	0.3	0.0
	Southern Benguela Dissipative-Intermediate Sandy Shore	0.4	0.0
N/A	Cool Temperate Micro-estuary	0.8	0.0
Grand Total		**6745.5**	**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 The EBSA contains three of 14 sites in South Africa where surf diatom accumulations are present (Campbell 1996), and the only mainland colonies of Endangered African penguins (Underhill et al., 2006). False Bay and Walker Bay are also relatively rare geomorphic features in the BCLME. It also encompasses the only coastal area where the Indian and Atlantic Oceans meet.		
Special importance for life-history stages of species	Areas that is required for a population to survive and thrive.	High
Explanation for ranking Seas of Good Hope is an important spawning ground for commercially important fish species (e.g., Watermeyer et al., 2016). Consequently, it provides key foraging habitat for numerous top predators, including sharks, whales, seals and seabirds (e.g., Crawford et al., 2008; Pichegru et al., 2010; Best et al., 2013). It also contains important breeding and resting sites for top predators, in bays, on the islands and the mainland. For example, it contains island-based and the only mainland-based colonies of breeding Endangered African penguins (Underhill et al., 2006), and Seal Island, Geyser Rock and Quoin Rock support breeding colonies of Cape fur seals (Kirkman et al., 2013), with Dyer Island and Geyser Island (Rock) being a Ramsar site (https://rsis.ramsar.org/ris/2384). The EBSA may also include areas where southern right whales give birth to and nurse their calves, and possibly mate (Best 2000).		
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 There are a number of threatened species that depend on this EBSA for foraging and/or breeding, including Vulnerable white sharks, Endangered Indian Ocean humpback dolphins, Endangered Cape gannets, Endangered African penguins, Endangered Cape cormorants, Endangered bank cormorants, white-breasted cormorants, and Near Threatened crowned cormorants. Importantly, some of these species have high residency within the EBSA, e.g., white sharks have specific locations within False Bay where they have high levels of occurrence (Kock et al., 2018), and are especially resident in inshore areas between Walker Bay and around Cape Agulhas (A. Kock, Unpublished tracking data). The area includes a very high diversity of threatened ecosystem types. Of the 34 ecosystem types in the EBSA, 23 are threatened, including one Critically Endangered, eight Endangered and 14 Vulnerable ecosystem types (Sink et al., 2019). By implication, the biological communities associated with these		

ecosystems are also likely to be threatened. There are also a further six ecosystem types in the EBSA that are considered Near Threatened (Sink et al., 2019).		
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.	Medium
Explanation for ranking The top predators represented in this EBSA have a slow recovery time following impacts to their respective populations. Further, the reefs and hard grounds contain fragile species that are slow growing, and sensitive to disturbance.		
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.	Medium
Explanation for ranking The kelp beds and surf diatom accumulations contribute to elevated productivity for coastal ecosystems, notably the sandy shores (Campbell and Bate, 1988, Rodil et al., 2018). As a spawning area for commercially important fish species, productivity across the shelf is also relatively high.		
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.	High
Explanation for ranking The Agulhas and Benguela Currents also meet in the broader area surrounding the EBSA. Consequently, Cape Point is a biogeographic break between the warm and cold temperate bioregions, and thus biodiversity in the area is expected to relatively higher here compared to that of surrounding areas. This is additionally true because the conditions range from fully sheltered within the bays, to fully exposed on the open coast, and because it contains 34 different ecosystem types, each likely supporting their own biological communities (Sink et al., 2019). The EBSA is also known to support diverse assemblages of key species (e.g., Best et al., 2013).		
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.	Low
Explanation for ranking Although there are some areas that are protected or under relatively low pressure within this EBSA, the bays in particular are under high pressure from human activities, and the condition of the ecosystem types across the EBSA as a whole is generally quite poor (Sink et al., 2012, 2019). Global change pressures are also strongly felt in this area, with the knock-on effects observed at the top-predator level (Crawford et al., 2008; Pichegru et al., 2010). Only 1% of the area is in good ecological condition; 46% is fair and 53% is in poor ecological condition (Sink et al., 2019).		

Status of submission

The description of Seas of Good Hope 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

Motivation for Submission

Expert and systematic review of gaps in the EBSA network highlighted the requirements for the Seas of Good Hope EBSA. The area had high selection frequency in spatial assessments (Majiedt et al., 2013; Holness et al., 2014) and contained a number of threatened ecosystem types identified in the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019). Initial draft EBSA boundaries were determined, and these were then evaluated against the EBSA criteria. Once it was determined that the area would meet EBSA criteria, a formal boundary delineation and evaluation process was undertaken. The delineation process included an initial stakeholder review, a technical mapping process and then an expert review workshop where boundary delineation options were discussed. The boundaries were revised a final time to accommodate the latest NBA 2018 assessment results (Sink et al., 2019) and the review workshop discussion. The delineation process used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Key physical features (i.e. islands) from the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019) and BCC spatial mapping project (Holness et al., 2014) were incorporated. In addition, bays were mapped and included as these have been identified as important features in the new National Biodiversity Assessment 2018 (Sink et al., 2019). Fine-scale coastal mapping was also included (Harris et al., 2019).
- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA (Sink et al., 2019).
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites that relate closely to the EBSA criteria of “Uniqueness and rarity” from the Systematic Conservation Planning process undertaken for Majiedt et al. (2013) and the BCLME by Holness et al. (2014).
- Areas of high relative naturalness identified in the National Biodiversity Assessment 2011 (Sink et al., 2012), the West Coast (Majiedt et al., 2013) and the BCLME spatial assessments (Holness et al., 2014) were included in the analysis. Both pelagic and benthic and coastal condition were incorporated.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).
- Areas important for threatened and special species were included. The priority areas and buffer distances around colonies were from Holness et al. (2014). Note that the full extent of the buffer was not necessarily included in the EBSA. Features included in the analysis were:
    - African Penguin colonies and a 20 km buffer.
    - Bank Cormorant, Cape Cormorant, White Breasted Cormorant and Crowned Cormorant colonies and a 40 km buffer.
    - Seal Colonies and a 20 km buffer.

The multi-criteria analysis resulted in a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above

features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.

Tsitsikamma-Robberg

Proposed EBSA Description

Abstract

Tsitsikamma-Robberg is a coastal EBSA on the South African south coast. It includes Tsitsikamma MPA (South Africa's oldest MPA), Robberg MPA, Goukamma MPA, and part of the Garden Route Biosphere Reserve. It extends from the shore largely to the back of the middle shelf (-100 m isobath), with some extension onto the shallow outer shelf, and includes the extent of five estuaries, including Knysna. The protection afforded to the inshore reefs from these MPAs has contributed to a high diversity and abundance of species, including fragile, vulnerable, sensitive and slow-growing species, that in turn support many top predators. Numerous threatened species occur within this EBSA, including an Endangered endemic seahorse species and several Critically Endangered fish species, with the area also supporting important life-history stages of these threatened and other species. Several Critically Endangered and Endangered ecosystem types are also represented in the EBSA, which by implication support threatened biological communities. The area is mostly in good or fair ecological condition. However, Tsitsikamma MPA has recently been opened to recreational fishing in certain areas.

Introduction

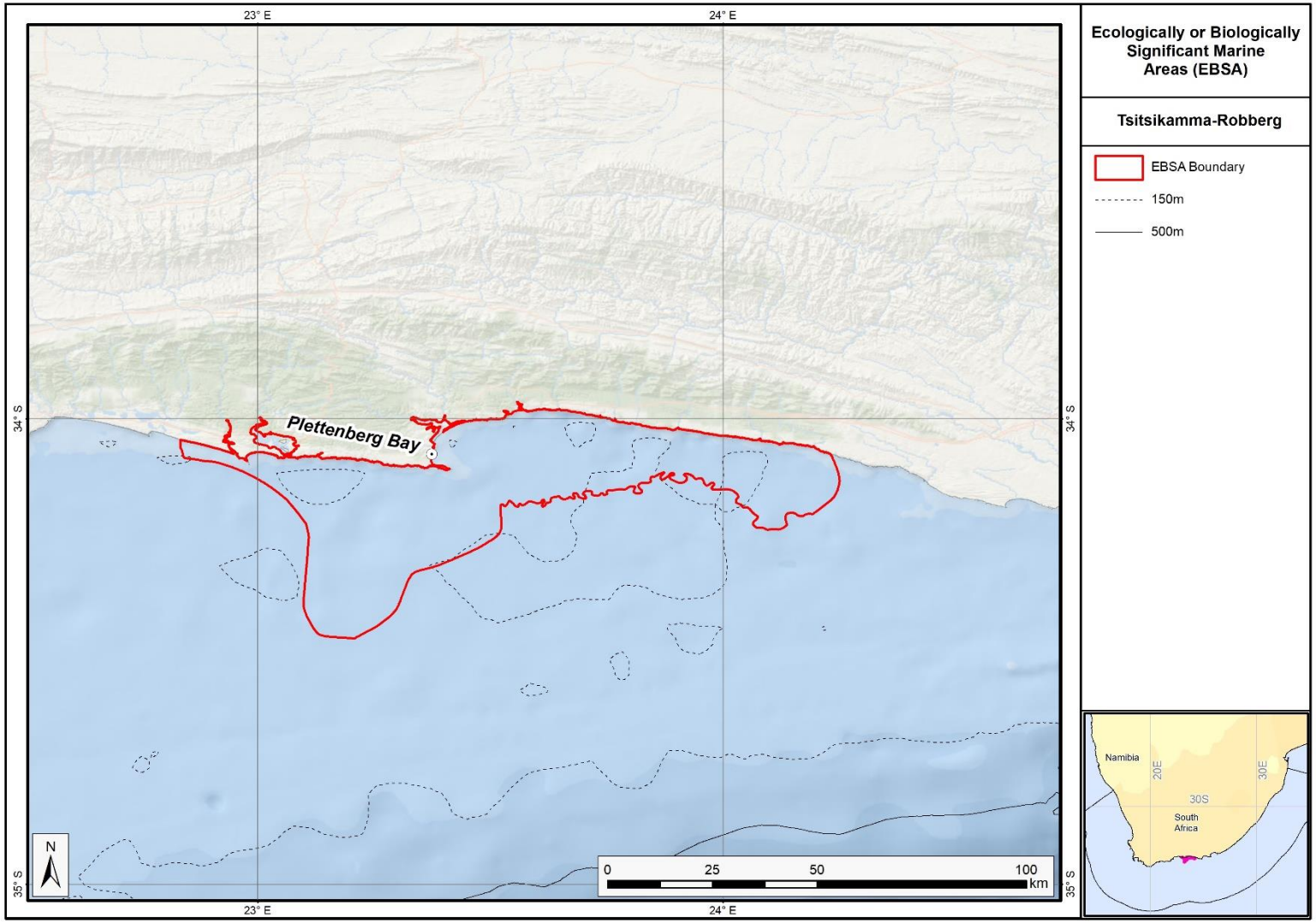
Tsitsikamma-Robberg is a coastal EBSA that includes the Tsitsikamma, Robberg and Goukamma MPAs, and is bordered along most of its shore length by the Garden Route National Park. The EBSA also forms part of the Garden Route Biosphere Reserve. Fourteen estuaries open into this EBSA, with the Keurbooms, Groot, Sout, Knysna and Goukamma Estuaries included in the EBSA boundary. As a coastal EBSA, the depth range is relatively shallow, with most of the area covering the middle shelf. Depths are generally shallower than -100 m, although slightly deeper waters are contained in the western offshore extension. The EBSA contains important inshore reefs, vulnerable, fragile and sensitive species, and is also rich in top predators (sharks, cetaceans and marine mammals), some of which are threatened species. Inclusion of the Keurbooms and Knysna Estuaries in the EBSA means that it also contains two of only three estuaries in South Africa where the Knysna seahorse (*Hippocampus capensis*) is found: one of the two Endangered seahorse species globally. Given the diversity contained within the EBSA, there are many ecotourism operators (whale watching, fishing charters) and marine researchers working in this area. Notably, Tsitsikamma MPA is Africa's oldest marine reserve, and therefore, there is a lot of research on the reef and fish communities contained within it. The EBSA had a high selection frequency in a national systematic conservation plan, and was also identified as a key site in South Africa's protected area expansion strategy.

The reason this site was not part of the original list of EBSAs first proposed in the South Eastern Atlantic EBSA Identification Workshop in 2013 (UNEP/CBD/RW/EBSA/SEA/1/4) is because the value of the area was recognised only afterwards in a gap analysis.The significance of this site is largely underpinned by the inshore reefs. However, it also includes several other biodiversity features, such as critical linkages between land and sea via the five key estuaries, and important shore habitats that support critical life

history stages of animals such as seals. Consequently, this site is proposed as a Type 2 EBSA (sensu Johnson et al., 2018).

EBSA Region

Southern Indian Ocean



Proposed boundary of the Tsitsikamma-Robberg EBSA.

Location

The Tsitsikamma-Robberg EBSA extends along the South African south coast from the eastern boundary of the Goukamma MPA, to about 8 km west of the Robberg Peninsula, and offshore by approximately 15-18 km, largely following the -100 m isobath. The western half of the EBSA has an offshore extension, roughly opposite the Knysna Estuary. It also includes the five largest estuaries in the EBSA: Keurbooms, Groot, Sout, Knysna and Goukamma. Tsitsikamma-Robberg is entirely within South Africa's national jurisdiction.

Feature description of the proposed area

The features contained within the EBSA are largely benthic, but several of the top predators are associated more with the pelagic environment. The EBSA status of this site is largely underpinned by the inshore reefs, and those in Tsitsikamma MPA have been protected since the 1964, making it the oldest marine reserve in Africa. These reefs comprise numerous fragile and sensitive species that are slow growing, including both habitat-forming reef species, as well as animals such as sparids. Echo-sounder and stereo-BRUV data show that reefs within the EBSA have high structural complexity (which tends to be associated with higher diversity and abundance of fish and), and in some places include boulder reefs that appear to be a unique ecosystem type in South Africa, supporting abundant carpenter, panga and giant octopus communities (Anthony Bernard, SAIAB, pers. comm.). As a result of the large, old, no-take reserves, species abundance and diversity in this EBSA's MPAs are much higher compared to that of the surrounding area. In turn, the area supports key populations of top predators, including Cape fur seals, sharks, seabirds and cetaceans by providing breeding and foraging habitat for them. There are several threatened species in this area, including top predators and species of commercial importance. There are also 19 ecosystem types in the EBSA (Harris et al., 2019; Sink et al., 2019), including 10 threatened ecosystem types (Sink et al., 2019), which by implication support biological communities that are also threatened.

Given the abundant marine life in the area, and the large no-take reserve that serves as a pristine reference site, there is a long history of marine research in this area, and a thriving ecotourism industry, including Blue Flag boats and beaches. The EBSA had a high selection frequency in a national systematic conservation plan indicative that this is a key area in which biodiversity targets need to be met (Sink et al., 2011, 2012, SANBI unpublished results), and it is also recognised as a focus area for protected area expansion in South Africa. The broader area, including the terrestrial side, is similarly recognised for its key ecological value. Most of the EBSA is backed by the terrestrial Garden Route National Park, and it forms part of the much larger Garden Route Biosphere Reserve that was declared by UNESCO in 2017. It also includes the Tsitsikamma-Plettenberg Bay Important Bird and Biodiversity Area, within which at least 300 species of birds have been recorded (Marnewick et al., 2015). The EBSA boundary was delineated based on all the best available data (e.g., Harris et al., 2019; Holness et al., 2014; Majiedt et al., 2013; Sink et al., 2012, 2019).

Feature condition and future outlook of the proposed area

The EBSA is in good (37%) to fair (35%) ecological condition, with the remaining 28% in poor condition based on a national analysis of cumulative threats to the marine realm (Sink et al., 2012, 2019). Notably, the South African government recently opened sections of the previously no-take Tsitsikamma MPA for recreational fishing.

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Summary of ecosystem types and threat status for the Tsitsikamma-Robberg EBSA. Data from Sink et al. (2019).

Threat Status	Ecosystem Type	Area (km^2)	Area (%)
Endangered	Agulhas Bays - West	118.8	4.5
	Agulhas Sheltered Rocky Shore	0.3	0.0
Vulnerable	Agulhas Exposed Rocky Shore	26.0	1.0
	Agulhas Inner Shelf Reef Sand Mosaic	178.2	6.7
	Agulhas Mid Shelf Reef Complex	12.1	0.5
	Agulhas Sandy Outer Shelf	14.8	0.6
	Agulhas Very Exposed Rocky Shore	0.8	0.0
	Warm Temperate Estuarine Bay	30.1	1.1
	Warm Temperate Large Temporarily Closed Estuary	3.1	0.1
	Warm Temperate Predominantly Open Estuary	16.6	0.6
Near Threatened	Agulhas Boulder Shore	0.1	0.0
	Agulhas Mixed Shore	9.2	0.3
	Agulhas Sandy Mid Shelf	1636.0	61.9
Least Concern	Agulhas Dissipative-Intermediate Sandy Shore	8.5	0.3
	Agulhas Inner Shelf Reef Complex	17.7	0.7
	Agulhas Intermediate Sandy Shore	2.6	0.1
	Agulhas Outer Shelf Reef Coarse Sediment Mosaic	566.6	21.4
	Warm Temperate Small Fluvially Dominated Estuary	0.7	0.0
	Warm Temperate Small Temporarily Closed Estuary	1.5	0.1
Grand Total		**2643.6**	**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 The uniqueness of the area is largely driven by the effect of Africa's oldest MPA, providing a reference site for ecological research. Other rare features include presence of Endangered humpback dolphins, the tombolo at Robberg Peninsula, and some endemic species, such as the Knysna seahorse (Lockyear et al., 2006) and African Black Osytercatcher (Marnewick et al., 2015). There is a boulder reef present in the EBSA that appears to be a unique ecosystem type in South Africa (Anthony Bernard, SAIAB, pers. comm.). The site also had a high selection frequency, meaning that the area is important for meeting biodiversity feature targets.		

Special importance for life-history stages of species	Areas that is required for a population to survive and thrive.	High
Explanation for ranking As an IBA, the site supports many breeding bird species, e.g., White-breasted Cormorants, Caspian Terns and White-fronted Plovers, and is also a notably important breeding site (1% or more of the congregatory population threshold) for Kelp Gulls, (Endangered) Cape Cormorants, and (endemic) African Black Oystercatchers (Marnewick et al., 2015). In fact, the Keurbooms Estuary mouth is the largest breeding colony of Kelp gulls on the South African south coast, and one of the largest in the country (Whittington et al., 2015). The EBSA supports a Southern right whale breeding area, and a breeding colony of Cape fur seals at Robberg (Huisamen et al., 2011). During the latter pupping season, white sharks are known to be drawn to the area to forage on the young seals. The EBSA also includes the Keurbooms and Knysna Estuaries, which are two of only three estuaries in which Endangered, endemic Knysna seahorses live (Lockyear et al., 2006).		
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 One of the key attributes of this EBSA is its importance for threatened species. These include (among others): Critically Endangered Seventy-four Seabream, Critically Endangered Dageraad, Endangered Knysna seahorses, Endangered humpback dolphins, Endangered White Steenbras, Endangered Cape Cormorants, Vulnerable white sharks. Near Threatened Roman Seabream and Near Threatened African Clawless Otters are also present. These species are top predators, iconic species, or commercially important species that have been overexploited outside of the MPAs in this area. Given that ecosystem types are frequently used as a surrogate for biodiversity, South Africa places key importance on its national ecosystem type map for biodiversity planning and assessment (Sink et al., 2012). Tsitsikamma-Robberg includes two Endangered and eight Vulnerable ecosystem types (Sink et al., 2019). By implication, these habitats each support biological communities that are likely threatened as well.		
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.	High
Explanation for ranking The area contains vulnerable inshore reefs that include sensitive, fragile and vulnerable habitat-forming species. Further, some of the top predator and some sparid populations are also vulnerable to population impacts because the species are slow growing and late maturing.		

Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.	Medium
Explanation for ranking Time-averaged MODIS Aqua data on chlorophyll concentration (NASA Giovanni Portal: https://giovanni.gsfc.nasa.gov) shows that productivity inside Tsitiskamma-Robberg is higher compared to that of the surrounding area, particularly close to the shore. Local productivity is also higher because of the no-take MPAs supporting high abundances of biota, especially fish (Edgar et al., 2014), and thus contributing to more productive biological communities.		
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.	High
Explanation for ranking The focus area includes representation of 19 different ecosystem types, each likely supporting their own biological communities. There is also high diversity of fish and sharks (Wood et al., 2000) in the EBSA, and it includes the Tsitsikamma-Plettenberg Bay Important Bird and Biodiversity Area, within which at least 300 species of birds have been recorded (Marnewick et al., 2015).		
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.	Medium
Explanation for ranking The EBSA is predominantly in good (37%) or fair (35%) ecological condition as per a national cumulative threat assessment of pressures on South Africa's marine environment (Sink et al., 2019). This is partly because the area includes three MPAs, the largest of which is an old (proclaimed in 1964) no-take reserve, and the adjacent hinterland (although not part of the EBSA) mostly comprises the Garden Route National Park, and more recently (2017), the Garden Route Biosphere Reserve.		

Status of submission

The description of Tsitsikamma-Robberg 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

Motivation for Submission

The Robberg-Tsitsikamma area was highlighted in a recent expert and systematic review of gaps in the EBSA network. The area also has high selection frequency in spatial assessments (Sink et al., 2011; Unpublished data linked to Majiedt et al., 2013; Holness et al., 2014) and contains threatened ecosystem types identified in the National Biodiversity Assessment 2011 (Sink et al., 2012). Initial draft EBSA boundaries were determined, and these were then evaluated against the EBSA criteria. Once it was determined that the area would meet EBSA criteria a formal boundary delineation and evaluation process was undertaken. The delineation process included an initial stakeholder review, a technical mapping process and then an expert review workshop where boundary delineation options were discussed. The boundaries were revised a final time to accommodate the latest NBA 2018 assessment results and the review workshop discussion. The delineation processe used a combination of Systematic Conservation Planning and Multi-Criteria Analysis methods. The features used in the analysis were:

- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites which relate closely to the EBSA criteria of "Uniqueness and rarity" from the offshore prioritisation process (Sink et al., 2011), the Systematic Conservation Planning process undertaken for Majiedt et al. (2013) and the additional unpublished analysis for the broader BCLME region by Holness et al. (2014).
- Delineations and threat status of consitituent ecosystem types in the area were included in the analysis and used to refine the boundary of the EBSA (Sink et al., 2019). Fine-scale coastal mapping was also included (Harris et al., 2019).
- Areas of high relative naturalness identified in the National Biodiversity Assessment 2011, 2018 (Sink et al., 2012, 2019), the West Coast (Majiedt et al., 2013) and the BCLME spatial assessments (Holness et al., 2014) were included in the analysis. Both pelagic and benthic and coastal condition were incorporated.
- Distributions of known fragile, vulnerable and sensitive habitat-forming species were included (Unpublished SANBI and SAEON data).

The multi-criteria analysis resulted a value surface. The cut-off value used to determine the extent of the EBSA was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach, whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map were validated in a national workshop.

Transboundary EBSAs

Revised EBSAs

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

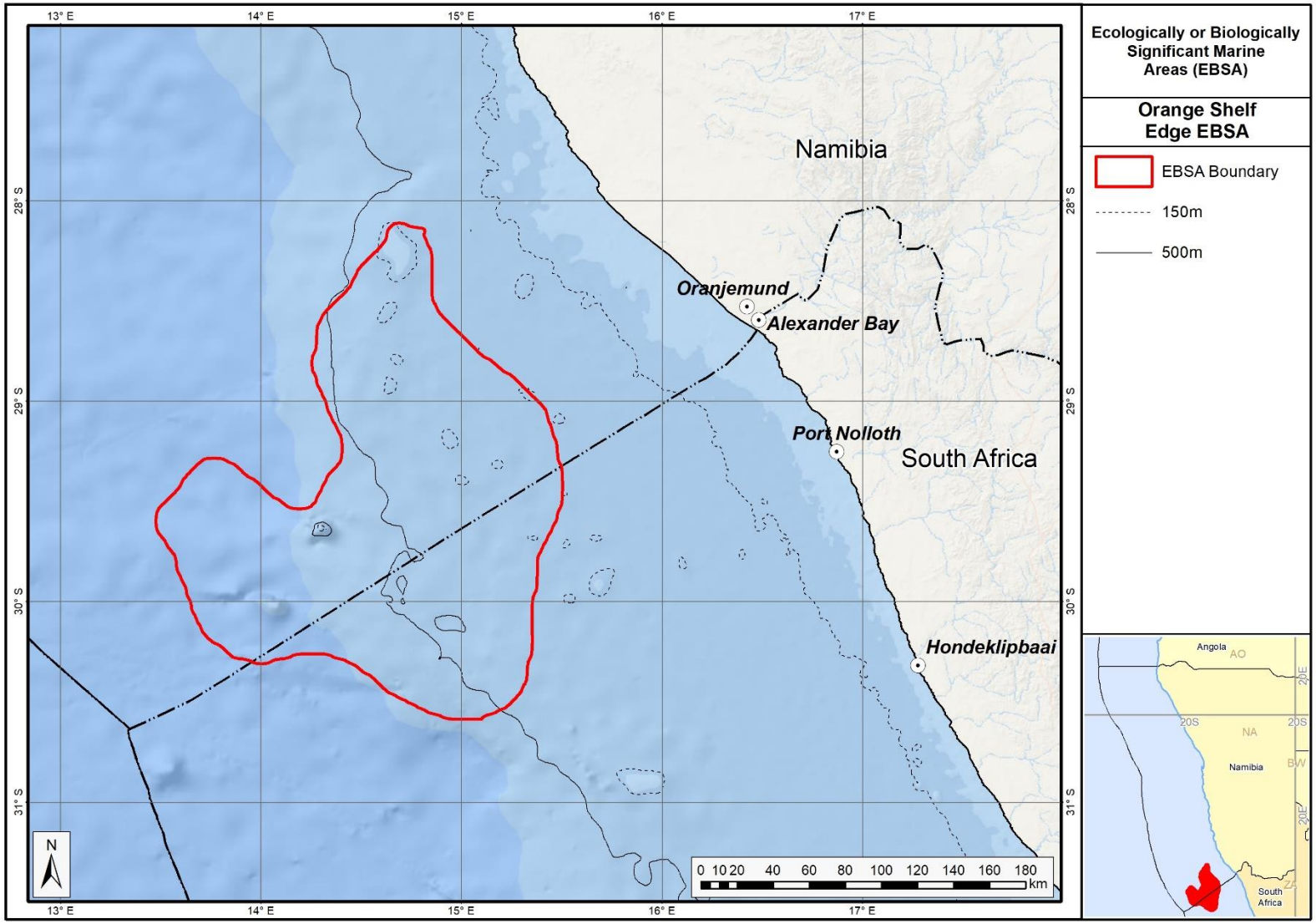
The area occurs at the outer shelf and shelf edge of the western continental margin of South Africa and Namibia, spanning the border between the two countries. It includes hard and unconsolidated (sand) shelf and shelf edge benthic habitat at depths of approximately 350-1200 m on the South African side (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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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.

Motivation for Revisions

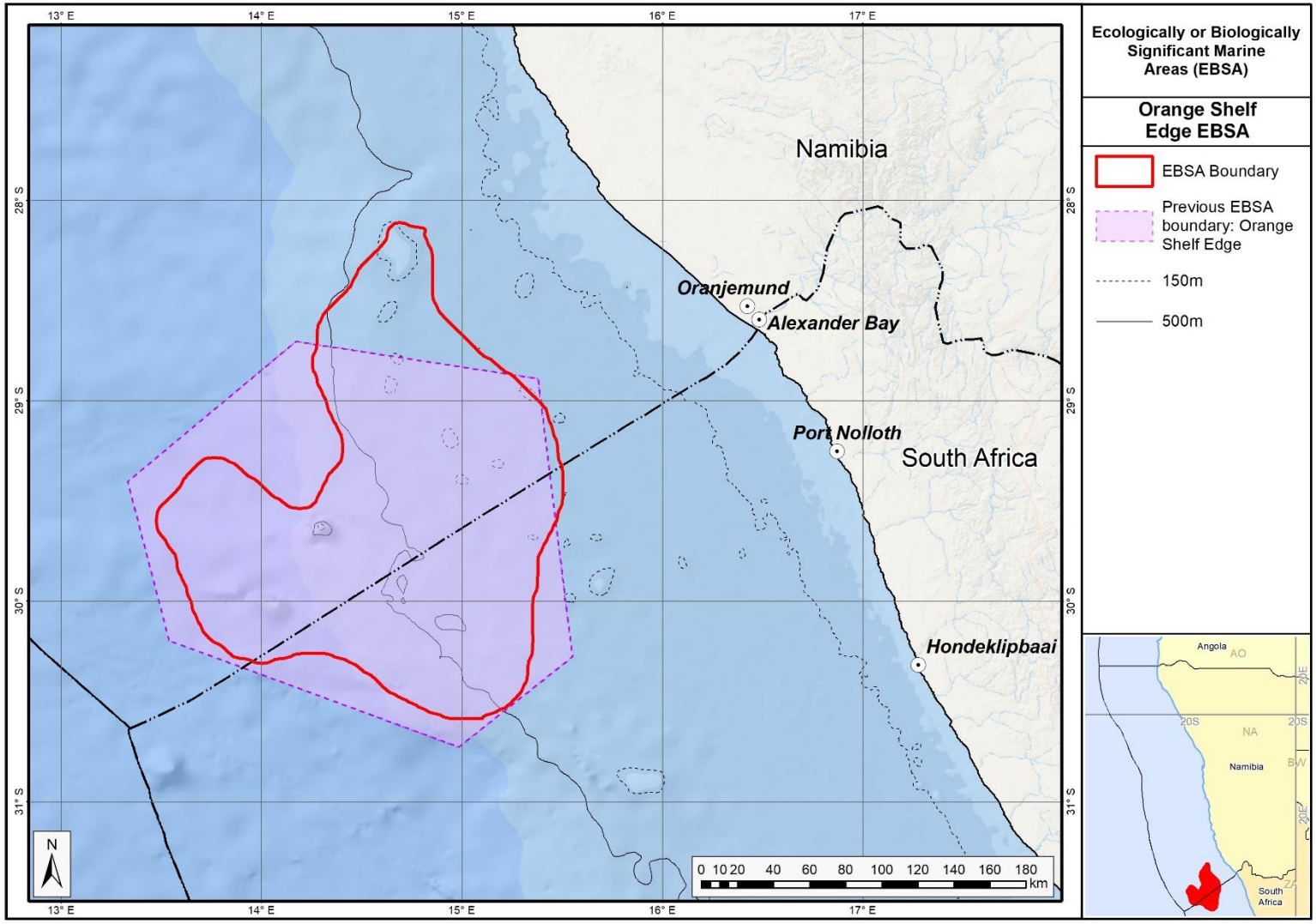
Only slight revision of the EBSA description was done since no new research has been carried on this area since its original adoption in 2014. Small additions, such as biodiversity information from OBIS and updated South African assessments were made, but none of these edits were significant enough to drive a change in the EBSA criteria rankings. A supplementary table of the ecosystem types represented in the EBSA and their associated threat status was also included.

The biggest change to the EBSA was a significant refinement of the EBSA delineation. This was done to focus more closely the EBSA on the key biodiversity features that underpin its EBSA status. The delineation process included an initial stakeholder workshop, a technical mapping process and then

an expert review workshop where boundary delineation options were finalised. The delineation process used a combination of Systematic Conservation Planning (SCP) and Multi-Criteria Analysis methods. The features used in the analysis were:

- Threatened Benthic and Coastal Ecosystems (Holness et al., 2014; Sink et al., 2012, 2019). The analysis focussed on the inclusion of the most threatened ecosystem types found in the area. These types are highlighted in the table in the Other relevant website address or attached documents section. Additional weight was given to the priority shelf edge habitats which are core to the EBSA description.
- Areas of highest fish diversity from Kirkman et al. (2013) were included.
- Areas of high relative naturalness identified in the SCP undertaken for the BCLME by Holness et al. (2014).
- Key physical features such as seamounts and canyons from the BCC spatial mapping project (Holness et al., 2014), GEBCO data (GEBCO Compilation Group 2019), and global benthic geomorphology mapping (www.bluehabitats.org, Harris et al., 2014).
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as primary and secondary focus areas identified in the SCP undertaken for the BCLME by Holness et al. (2014).

The multi-criteria analysis resulted in a value surface. The cut-off value (used to determine the extent of the EBSA) was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map below were validated in a series of national (in both South African and Namibia) and regional (BCC) meetings.



The revised Orange Shelf Edge EBSA in relation to its original boundary.

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'.

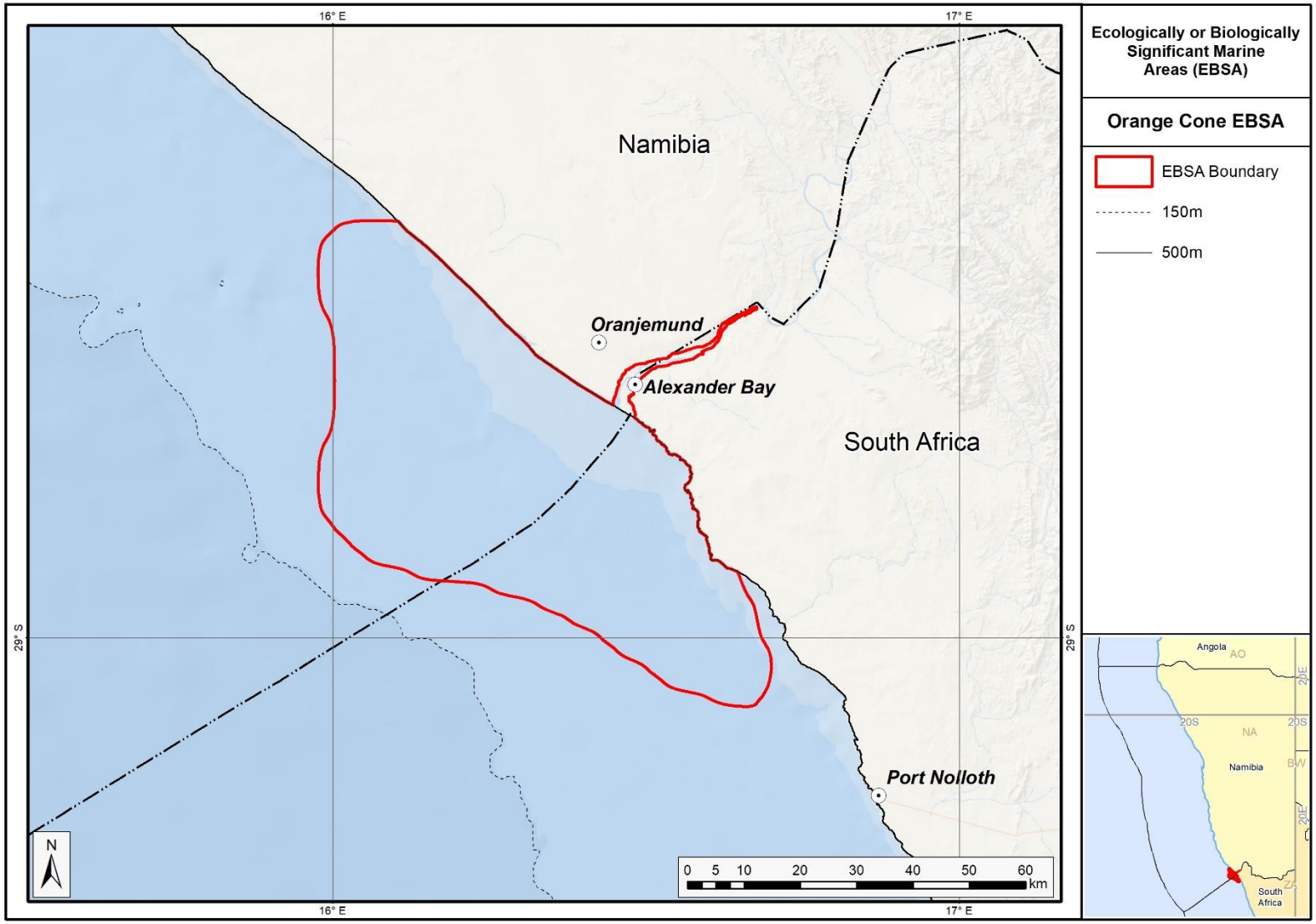
Introduction of the area

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.

Motivation for Revisions

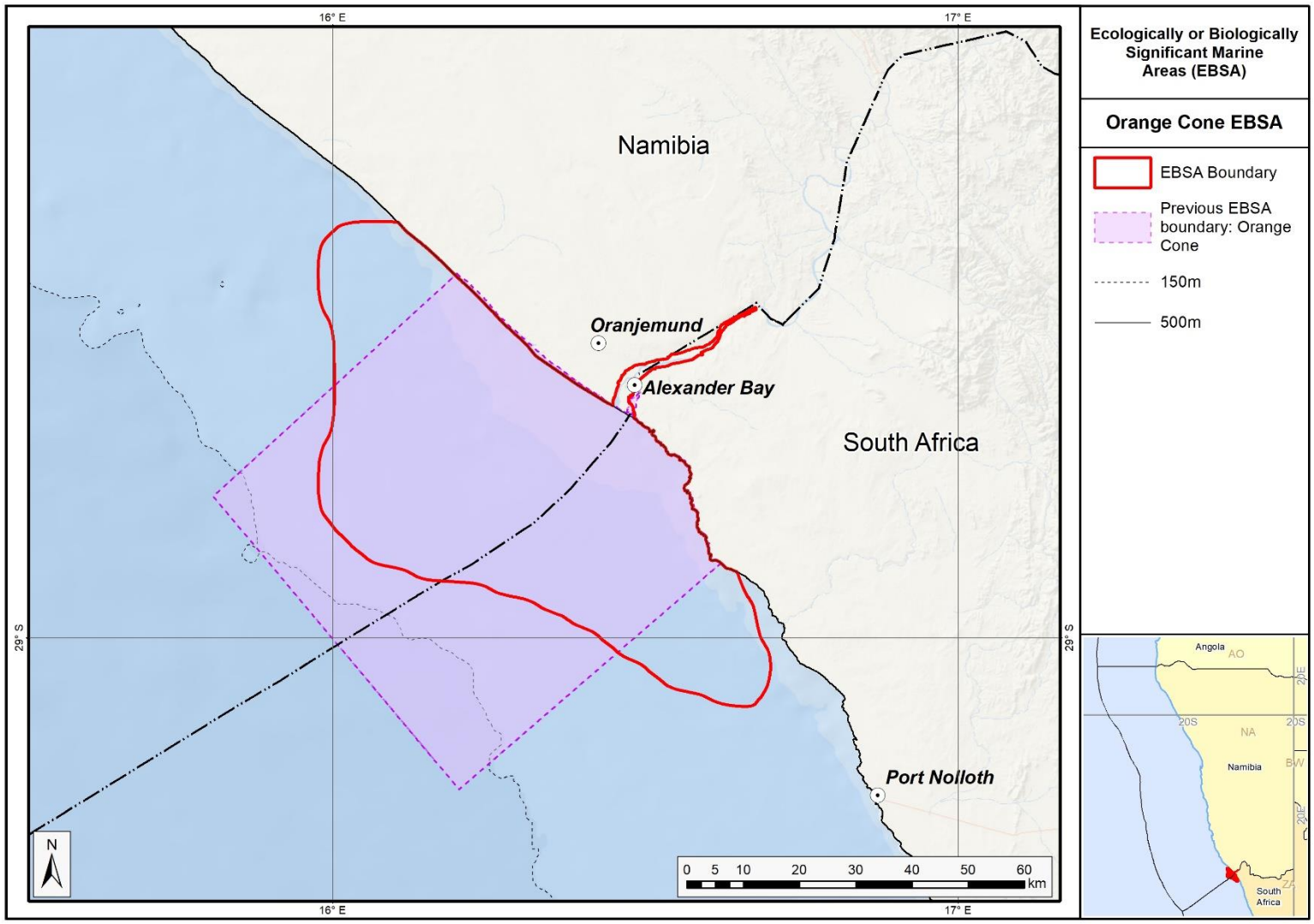
Some updates were made to the description and references. One criterion rank, Importance for threatened species and habitats, was upgraded from Medium to High based on additional data and

extension of the EBSA to include the Orange River Estuary, which is an important Ramsar site. Small additions, such as biodiversity information from OBIS were also made. A supplementary table of the habitats represented in the EBSA and their associated threat status were also included (in Other relevant website address or attached documents section).

The biggest change to the EBSA was a significant refinement of the EBSA delineation. This was done to focus the EBSA more closely on the key biodiversity features that underpin its EBSA status. The delineation process included an initial stakeholder workshop, a technical mapping process and then an expert review workshop where boundary delineation options were finalised. The delineation process used a combination of Systematic Conservation Planning (SCP) and Multi-Criteria Analysis methods. The features used in the analysis were:

- Threatened Benthic and Coastal Ecosystems (Holness et al., 2014; Sink et al., 2012, 2019). The analysis focussed on the inclusion of the most threatened ecosystem types found in the area. These types are highlighted in the table in the Other relevant website address or attached documents section.
- The key muddy ecosystem types associated with the Orange Cone were identified based on data from new studies by Karenyi (2014) and Karenyi et al. (2016).
- Irreplaceable and near irreplaceable (i.e. very high selection frequency) sites, as well as primary and secondary focus areas identified in the SCP undertaken for the BCLME by Holness et al. (2014).
- Areas of high relative naturalness identified in the SCP undertaken for the BCLME by Holness et al. (2014).
- The Orange River Mouth Ramsar site was included (https://rsis.ramsar.org/ris/526).
- The coastal boundary was refined to be more accurate based on new data (Harris et al., 2019).

The multi-criteria analysis resulted in a value surface. The cut-off value (used to determine the extent of the EBSA) was based on expert input and quantitative analysis of effective inclusion of the above features. This entailed taking an iterative parameter calibration-based approach whereby the spatial efficiency of the inclusion of the targeted features was evaluated. The approach aimed to identify a cut-off that most efficiently included prioritised features while minimizing the inclusion of impacted areas. The final boundaries shown in the map below were validated in a series of national (in both South African and Namibia) and regional (BCC) meetings.



The revised Orange Cone EBSA boundary in relation to its original delineation.

d

EBSAs Not Revised

Delagoa Shelf Edge, Canyons and Slope

Given that Delagoa Shelf Edge, Canyons and Slope is a transboundary EBSA with Mozambique, and revising it would have required an international collaboration beyond the scope of the project, this EBSA and associated description was not revised, but is included here for completeness. Note, however, that the status of the South African portion of this EBSA was still assessed and management actions were recommended. The text below is thus of the original EBSA adopted by CBD in 2014.

Original EBSA Description

General Information

Summary

This area extends south, north and offshore of the existing Maputaland and St Lucia marine protected areas in the iSimangaliso Wetland Park, a World Heritage Site, and also encompasses the Ponta do Ouro Partial Marine Reserve, to capture the full extent of offshore benthic and pelagic habitat types, providing for coastal and offshore connectivity and covering the important offshore habitats of endangered Leatherback Turtles. The area includes a key migratory route for humpback whales, a nursery area for bull sharks, spawning areas for fish (endemic sparids) and sharks and includes habitat of other threatened species including coelacanths, marine mammals and sharks. Potential vulnerable marine ecosystems include numerous submarine canyons, paleo shorelines, deep reefs and hard shelf edge with reef-building cold-water corals also recovered at depths of more than 900 m. Whale sharks feed in this area in summer.

Introduction of the area

This area extends south, north and offshore of the existing Maputaland and St Lucia marine protected areas in the iSimangaliso Wetland Park, a World Heritage Site, and also encompasses the Ponta do Ouro Partial Marine Reserve, to capture the full extent of offshore benthic and pelagic ecosystem types, providing for coastal and offshore connectivity and covering the important offshore habitats of endangered Leatherback Turtles. The area includes a key migratory route for Humpback Whales, a nursery area for Bull Sharks, spawning areas for fish (especially endemic sparids) and sharks and includes habitat of other threatened species, including coelacanths, marine mammals and sharks. Potential vulnerable marine ecosystems include numerous submarine canyons, palaeo-shorelines and deep reefs, and hard shelf edge with reef-building cold-water corals in depths of more than 900 m. Whale sharks feed in this area in summer. This area has been identified as a priority area by two different systematic biodiversity plans, a national plan to identify focus areas for offshore protection (Sink et al., 2011) and a fine-scale provincial plan for the province of KwaZulu-Natal (Harris et al., 2011).

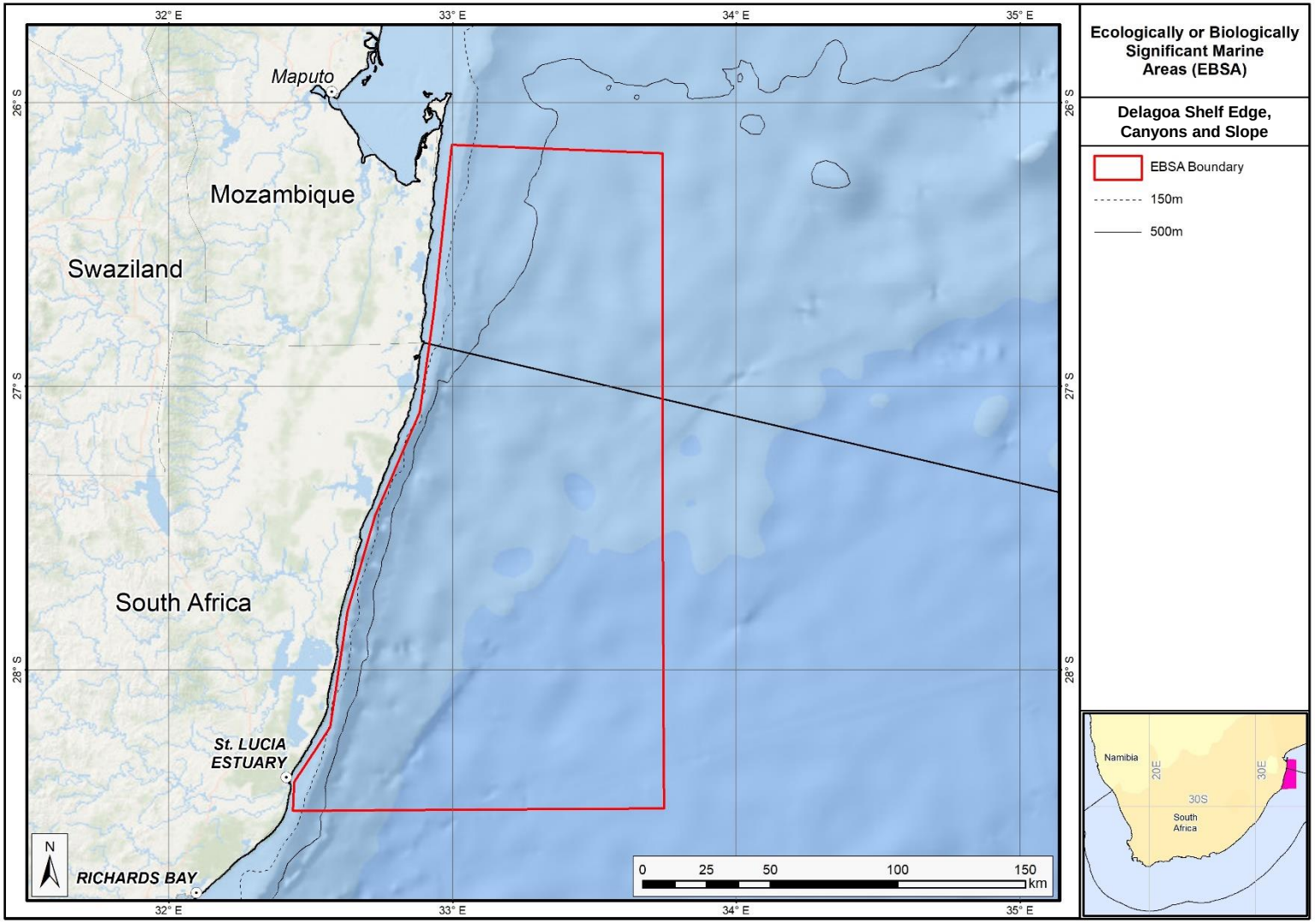
Description of the location

EBSA Region

Southern Indian Ocean

Description of location

Approximately 26°S to 29°S and 32°E and 34°. This area extends south, north and offshore of the existing Maputaland and St. Lucia marine protected areas in the iSimangaliso Wetland Park.



Original delineation of the Delagoa Shelf Edge, Canyons and Slope EBSA.

Area Details

Feature description of the area

The area meeting EBSA criteria is bounded by the highwater mark of a coastline characterized by the highest vegetated dunes in the world, with minimal terrigenous riverine input (see Sink et al., 2011 and Harris et al., 2011), making the area relatively natural and pristine. The deeper reaches are characterized by bioclastic and siliceous sediments intersected by Pleistocene sandstone reefs formed during changes in sea level. The continental shelf is intersected by canyons and is steep, falling to fine, unconsolidated sediment and is bathed by the warm Agulhas Current, the largest of the western boundary currents.

Feature conditions and future outlook of the area

South Africa's National Biodiversity Assessment 2011 (Sink et al., 2012) indicated that most of this area was in good condition, but these analyses were confined to South Africa. The area is relatively pristine but emerging pressures include new mining and petroleum applications and a port development in Mozambique. The inshore reaches are subjected to limited fishing and regulated recreational activities.

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Sink K, Holness S, Harris L, Majiedt P, Atkinson L, Robinson T, Kirkman S, Hutchings L, Leslie R, Lamberth S, Kerwath S, von der Heyden S, Lombard A, Attwood C, Branch G, Fairweather T, Taljaard S, Weerts S, Cowley P, Awad A, Halpern B, Grantham H, Wolf T. 2012. National Biodiversity Assessment 2011: Technical Report. Volume 4: Marine and Coastal Component. South African National Biodiversity Institute, Pretoria. Pp 325

Status of submission

Areas described as meeting EBSA criteria that were considered by the Conference of the Parties.

COP Decision

dec-COP-12-DEC-22

Assessment of the area against CBD EBSA criteria

C1: Uniqueness or rarity Medium

Justification

The submarine canyons support a population of coelacanths (*Latimeria chalumnae*). The spotted legskate (*Anacanthobatis marmoratus*) is a rare species found in this area (Haupt 2010).

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

Justification

Breeding and feeding areas for leatherback turtles (particularly in the south). Migratory corridor for humpback whales. Nursery area for bull shark (*Carcharhinus leucas*). Spawning area for dusky shark (*Carcharhinus obscurus*) and King Mackerel (*Scomber japonicas*). Spawning and nursery area for sand tiger shark (*Carcharias taurus*) (Sink et al., 2011, Vogt 2011, Ezemvelo KZNW Wildlife 2012).

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

Justification

IUCN listed species: CR: Ceolacanth – *Latimeria chalumnae* EN: Scalloped hammerhead – *Sphyrna lewini* (EN), great hammerhead - *S. mokarran* VU: Sperm whales – *Physeter macrocephalus* , smooth hammerhead – *Sphyrna zygaena* Overexploited linefish species (sarids, sciaenids).

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

Justification

Two species of reef-forming cold-water corals. Numerous submarine canyons. Important for vulnerable shark species with low fecundity.

C5: Biological productivity Medium

Justification

Chlorophyll a and sea temperature fronts contribute to variable and elevated productivity in this area (Ezemvelo KZN Wildlife 2012).

C6: Biological diversity High

Justification

This area includes the overlap between the Delagoa and Natal ecoregions and is considered an important transition zone (Sink et al., 2011, 2012, Ezemvelo KZN Wildlife 2012. High habitat heterogeneity and high species diversity are reported.

C7: Naturalness High

Justification
This area is relatively pristine with almost no industrial fishing (pelagic long lining not permitted within 20nm of the coast).

End of original EBSA description.