ECOLOGICALLY OR BIOLOGICALLY SIGNIFICANT MARINE AREAS

in the Benguela Current Large Marine Ecosystem

Childs Bank and Shelf Edge

REVISED DESCRIPTION

Benguela CURRENT CONVENTION

MARISMA
Enabling Sustainable Ocean Use in the Benguela Current Region

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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

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

CHILDS BANK AND SHELF EDGE

Revised Description

Front cover image credits: ACEP, Linda Harris, Steve Benjamin, Geoff Spiby, Melanie Wells

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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.

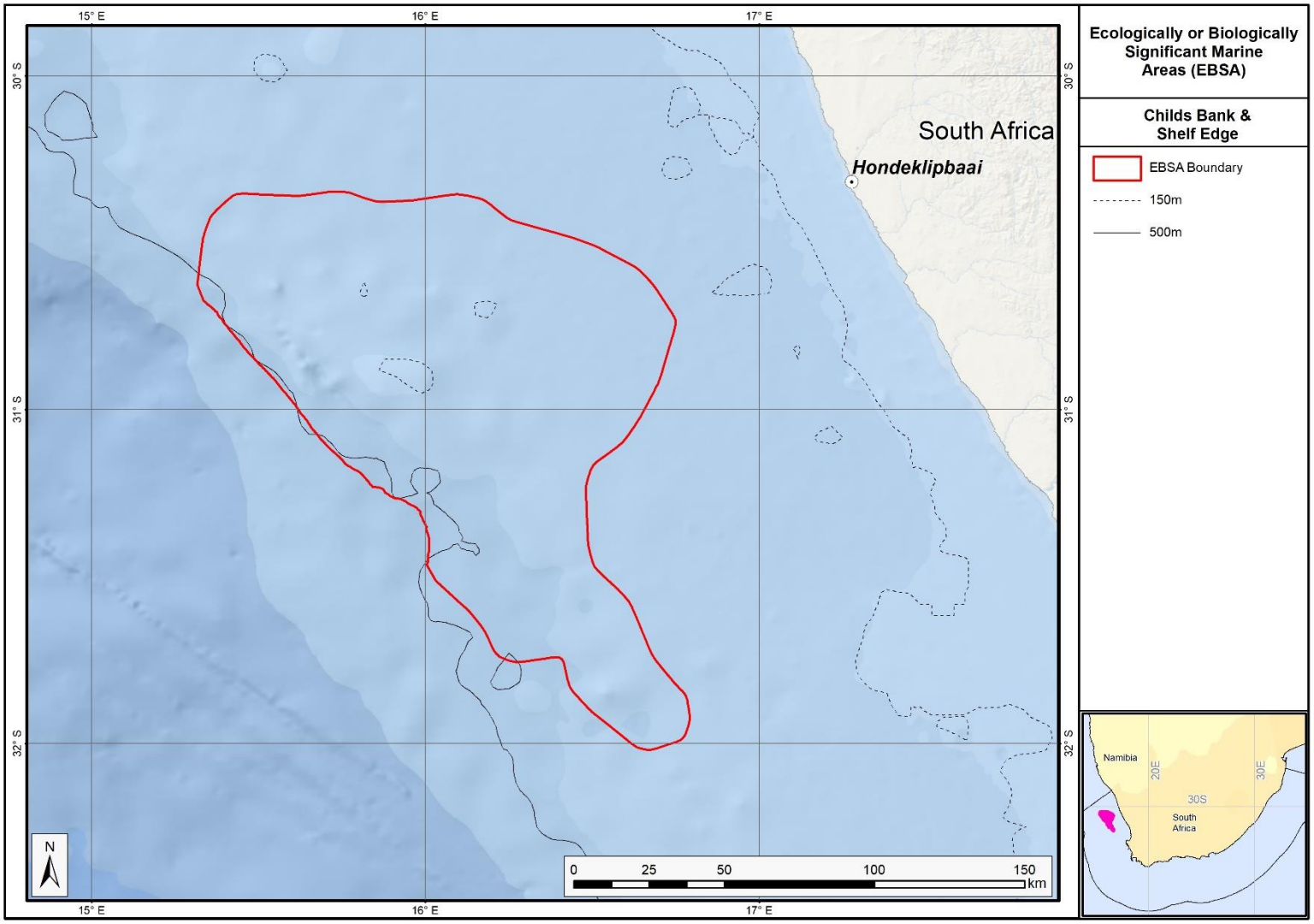
Introduction of the area

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 still need to be submitted to COP for approval.

COP Decision

dec-COP-12-DEC-22

End of proposed EBSA revised description

Motivation for Revisions

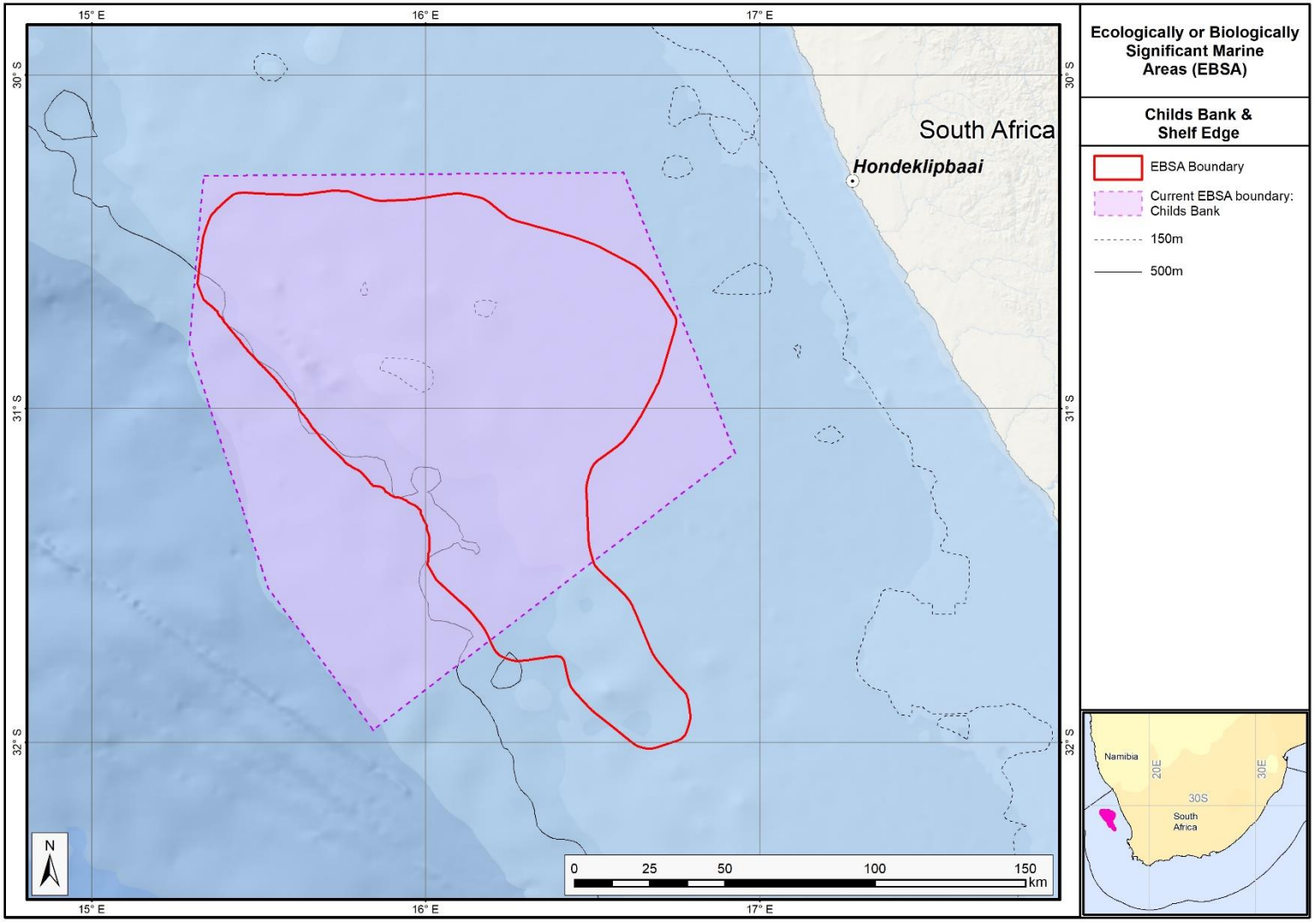
Some technical revisions and updates to the description were made, even though little additional information was available. Small additions, such as biodiversity information from OBIS were made, but none of these edits were significant enough to drive a change in the EBSA criteria ranks. A supplementary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