

ECOLOGICALLY OR BIOLOGICALLY SIGNIFICANT MARINE AREAS

in the Benguela Current Large Marine Ecosystem



Kingklip Corals
REVISED DESCRIPTION



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KINGKLIP CORALS

Revised Description



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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

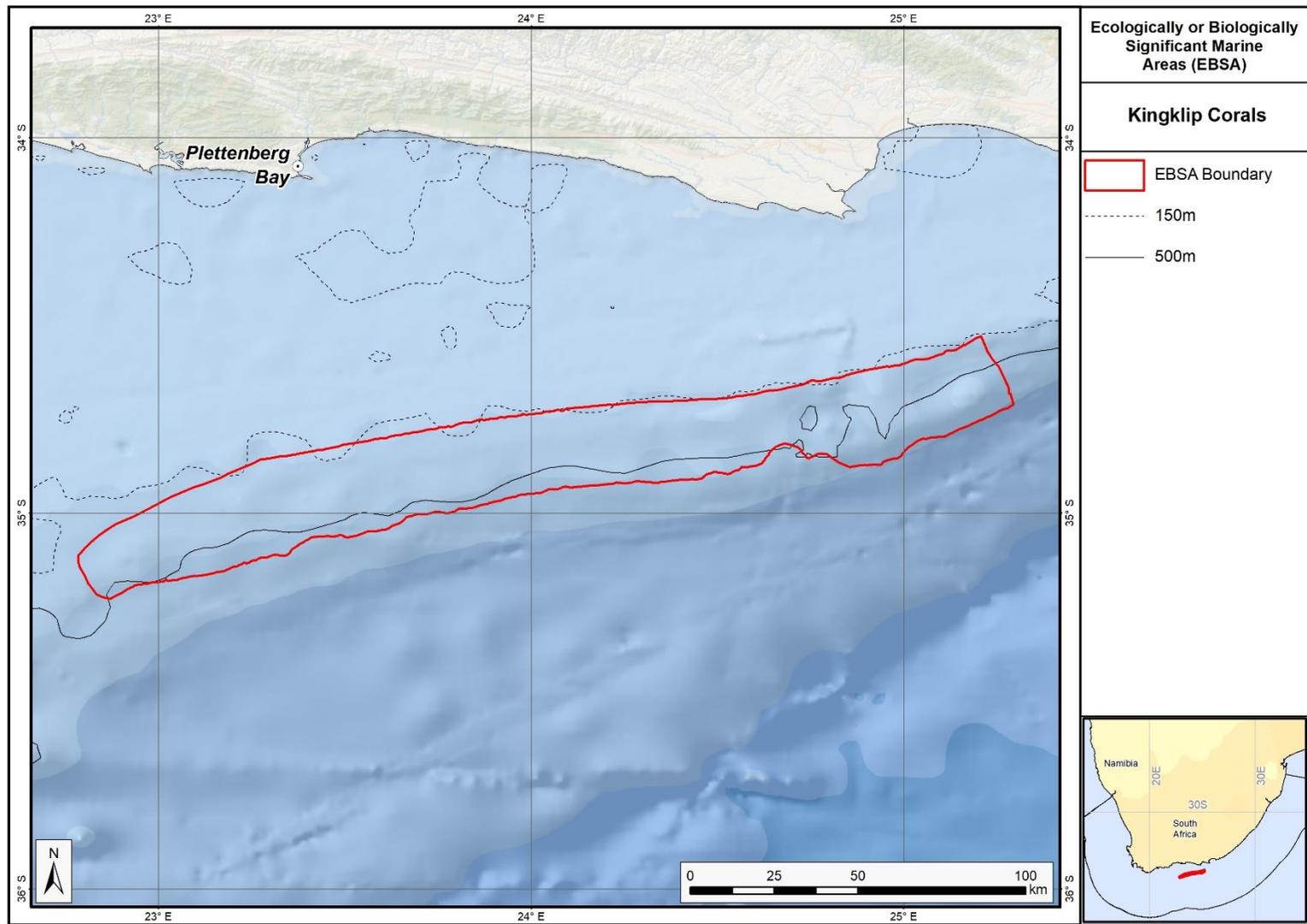
An interesting feature was recently discovered inside the Offshore of Port Elizabeth EBSA: a unique rocky ridge protruding out of the upper slope that supports corals and is covered by dense clouds of plankton and hake (Sink 2016). Adjacent to the ridge is a series of rocky koppies (Afrikaans for 'hills'). 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 byozoans. 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 scleractinian 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).

References

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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 scleractinian 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 still need to be submitted to COP for approval.

COP Decision

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End of proposed EBSA revised description

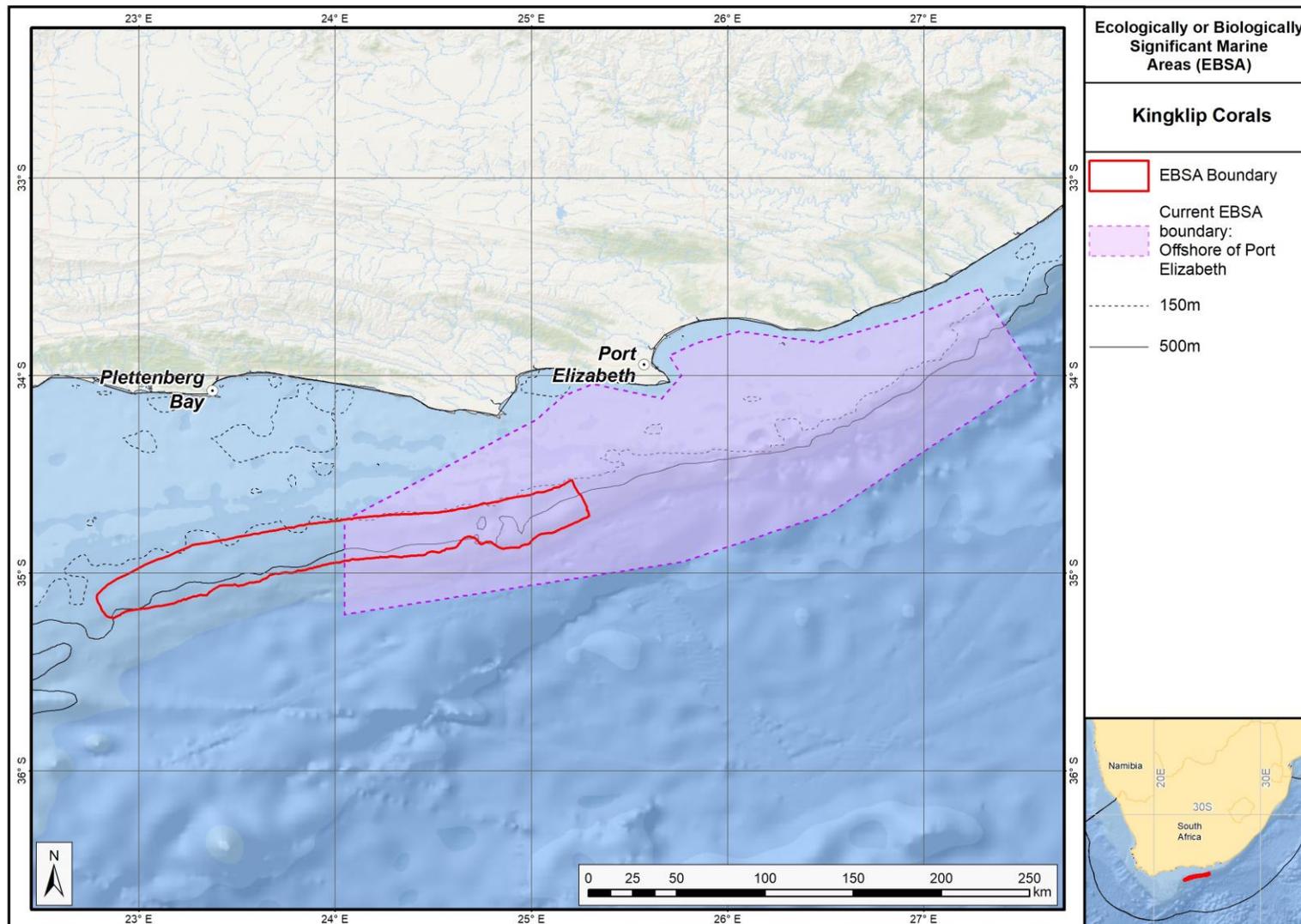
Motivation for Revisions

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 constituent 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 in relation to the boundaries of the original Offshore of Port Elizabeth EBSA.