Template for Submission of Scientific Information

to Describe Ecologically or Biologically Significant Marine Areas

Title/Name of the area:

Middle of What Seamount

Presented by (*names, affiliations, title, contact details)*

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Abstract (*in less than 150 words)*

Middle of What is a seamount with a deep summit (~900-1000m depth) lying on the South West Indian Ridge in waters forming a dynamic boundary region between sub-Antarctic and sub-tropical waters. The seamount hosts one of two cold-water coral reefs identified on the ridge to date. The reef on the main summit is largely destroyed whilst those on parasitic volcanic cones lying to the south are largely intact. The seamount also hosts, in places, coral gardens formed of octocorals (including 2m tall bamboo corals) and stylasterids. Large numbers of lantern sharks were also observed in the southern area of the seamount around the parasitic cones. Strong currents sweep over the seamount.

Introduction

Seamount with cold-water coral reef and coral garden habitat located in the boundary zone between sub-tropical and sub-Antarctic waters. Data are based on direct observation with Remotely Operated Vehicle (ROV), Kiel 6000, and also video grab, on RV James Cook cruise JC66, November and December 2011. Depth range observed is from ~900m depth to 1,200m depth. Intact cold-water coral reef at ~1,000 - 1,200m depth, largely comprising dead coral framework with high densities of associated fauna including both sessile (corals, sponges) and mobile (squat lobsters, echinoderms) elements. Distribution of these organisms is, however, patchy. The main peak of Middle of What contains degraded cold-water coral reef, probably heavily impacted by trawling. However, Parasitic Volcanic Cones on the northern flanks of the seamount comprised largely intact coral framework and the surrounding areas which were notably rugged in topography, comprised extensive coral garden habitat. There are also areas on the southwestern flank of the seamount which are also very rugged and comprise coral garden habitat. This locality can be associated with very strong currents. Large numbers of lantern sharks were observed on ROV dives around the northern Parasitic Cones

Location

(Indicate the geographic location of the area/feature. This should include a location map. It should state if the area is within or outside national jurisdiction, or straddling both. It should also state if the area is wholly or partly in an area that is subject to a submission to the Commission on the Limits of the Continental Shelf)

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Area is outside of national jurisdiction on the high seas and is not subject to a claim to the Commission on the Limits of the Continental Shelf.

37° 54'S - 38° 02'S and 50° 18'E - 50° 30'E (see map below (but note the problem with Lat/Long on this map)

Feature description of the proposed area

This is the only known example of a seamount with cold-water coral reef habitat lying in the boundary region of sub-Antarctic and sub-tropical water masses in the Southern Indian Ocean. The seamount summit lies at between 900 and 1,000m depth. The water mass overlying the seamount hosts pelagic communities typical of sub-tropical waters. The benthic fauna varies depending on depth on the seamount and also the substratum slope and composition. Cold water coral reef is located on the peak of the seamount at ~1,000m depth. The main framework building species appears to be *Solenosmilia variabilis*. The framework is largely comprised of dead coral and is highly degraded probably as a result of trawling damage. However, more intact stony coral reef is present on parasitic sub-cones located on the Southern flanks of the seamount. Very broken ground around these sub-cones also host coral garden habitat with large (2m tall) bamboo corals and stylasterids particularly notable. Lantern sharks are very abundant around Middle of What Seamount, especially around the sub-cones, but note this is from a single set of observations. Live colonies of the framework-building species are also present. The coral reef hosts high densities of a range of other coral species, particularly octocorals and sponges. Glass sponges also occur at high density.

Feature condition and future outlook of the proposed area

(Description of the current condition of the area – is this static, declining, improving, what are the particular vulnerabilities? Any planned research/programmes/investigations?)

There was evidence of fishing on the seamount in the form of highly degraded and damaged coral habitat on the summit of the main feature of the seamount to the extent that this area could be viewed as compromised as an area for conservation. However, the parasitic cones located on the southern flanks of the seamount host intact cold-water coral reef and rough ground to the south and also the northeastern part of the seamount host extensive coral garden habitat. High numbers of sharks were observed in the southern area.

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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** (please mark one column with an X)			
		Don't Know	**Low**	**Some**	**High**
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.				**X**
Explanation for ranking At present this is one of only two cold-water coral reef habitats known and verified by direct observation in the Southern Indian Ocean and the only one lying in the boundary region between sub-Antarctic and sub-tropocal waters.					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.			**X**	
Explanation for ranking The cold-water coral reef hosts a high diversity of other species.					
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.				**X**
Explanation for ranking The South West Indian Ridge has been subjected to fishing since the 1980s (USSR) and has been subjected to bottom trawling for orange roughy and other species. Significant damage to the seamounts was witnessed during James Cook Cruise JC66 and only two intact coral reefs were identified on 5 seamounts investigated.					
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				**X**

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	by natural events) or with slow recovery.				
Explanation for ranking Scleractinian coral framework is known to be highly vulnerable to deep-sea trawling. Serious damage was documented during JC66 on a variety of coral habitats on the seamounts.					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.				**X**
Explanation for ranking Evidence of trophic blockage was identified on the seamounts and probably is responsible for the productive seamount fisheries on the South West Indian Ridge for orange roughy, alfonsino and oreo.					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.				**X**
Explanation for ranking The benthic habitats documented on this seamount includes a very high diversity of species, especially corals and coral associates. This diversity is currently being analysed in various laboratories in the UK, France, Australia and the USA. Preliminary results for, for example, ophiuroids, indicate 50% of the species are new to science.					
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.			**X**	
Explanation for ranking Clearly this seamount has been damaged by fishing. However, partial protection of the seamount (protection of the southern area of parasitic cones) would protect the intact areas of cold-water coral reef and coral gardens. Declaration of this area as an EBSA would assist in this process.					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	**Description**	**Ranking of criterion relevance** (please mark one column with an X)			
		Don't Know	**Low**	**Some**	**High**
Add relevant criteria	Fits VME definition according to FAO Guidelines on Implementation of UNGA Resolution 61/105.				**X**
Explanation for ranking					

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Cold-water coral reef ecosystems fit the criteria of a Vulnerable Marine Ecosystem under the FAO Guidelines for Implementation of UNGA Resolution 61/105. Other aspects of the seamount ecosystem may also fit these criteria.

References

Boersch-Supan PH, Boehme L, Read JF, **Rogers AD**, Brierley AS (2012) Elephant seal foraging dives track prey distribution, not temperature: Comment on McIntyre et al. (2011). Marine Ecology Progress Series. doi: 10.3354/meps09890

Rogers AD, Alvheim O, Bemanaja E, Benivary D, Boersch-Supan PH, Bornman T, Cedras R, Du Plessis N, Gotheil S, Hoines A, Kemp K, Kristiansen J, Letessier T, Mangar V, Mazungula N, Mørk T, Pinet P, Read J, Sonnekus T (2009) *Cruise Report "Dr. Fritjof Nansen" Southern Indian Ocean Seamounts (IUCN/ UNDP/ ASCLME/ NERC /EAF Nansen Project 2009 Cruise 410) 12th November – 19th December, 2009*. International Union for the Conservation of Nature, Gland, Switzerland, 188pp.

Rogers AD, Taylor ML (2012) Benthic biodiversity of seamounts in the southwest Indian Ocean Cruise report – R/V *James Cook* 066 Southwest Indian Ocean Seamounts expedition – November 7th – December 21st, 2011. 235pp.

Maps and Figures

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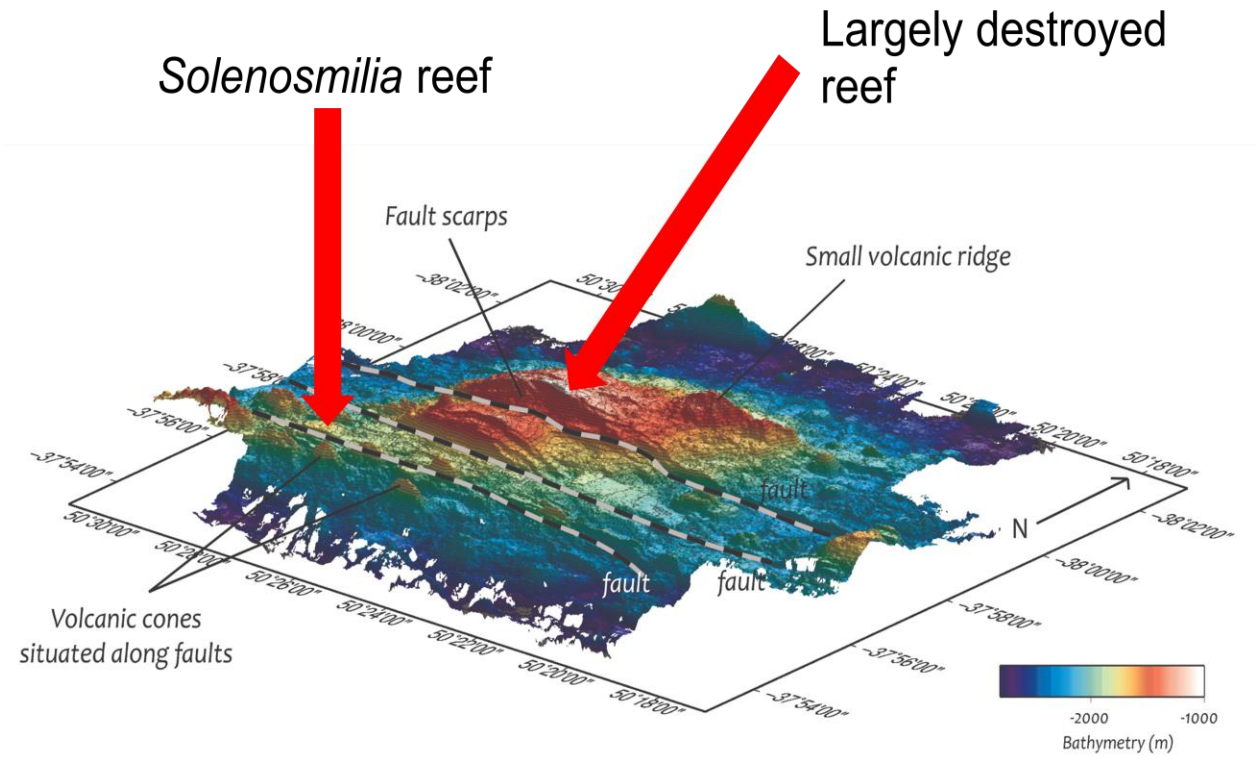

Figure 1. Map of Middle of What Seamount (Lily Muller, University of Oxford)

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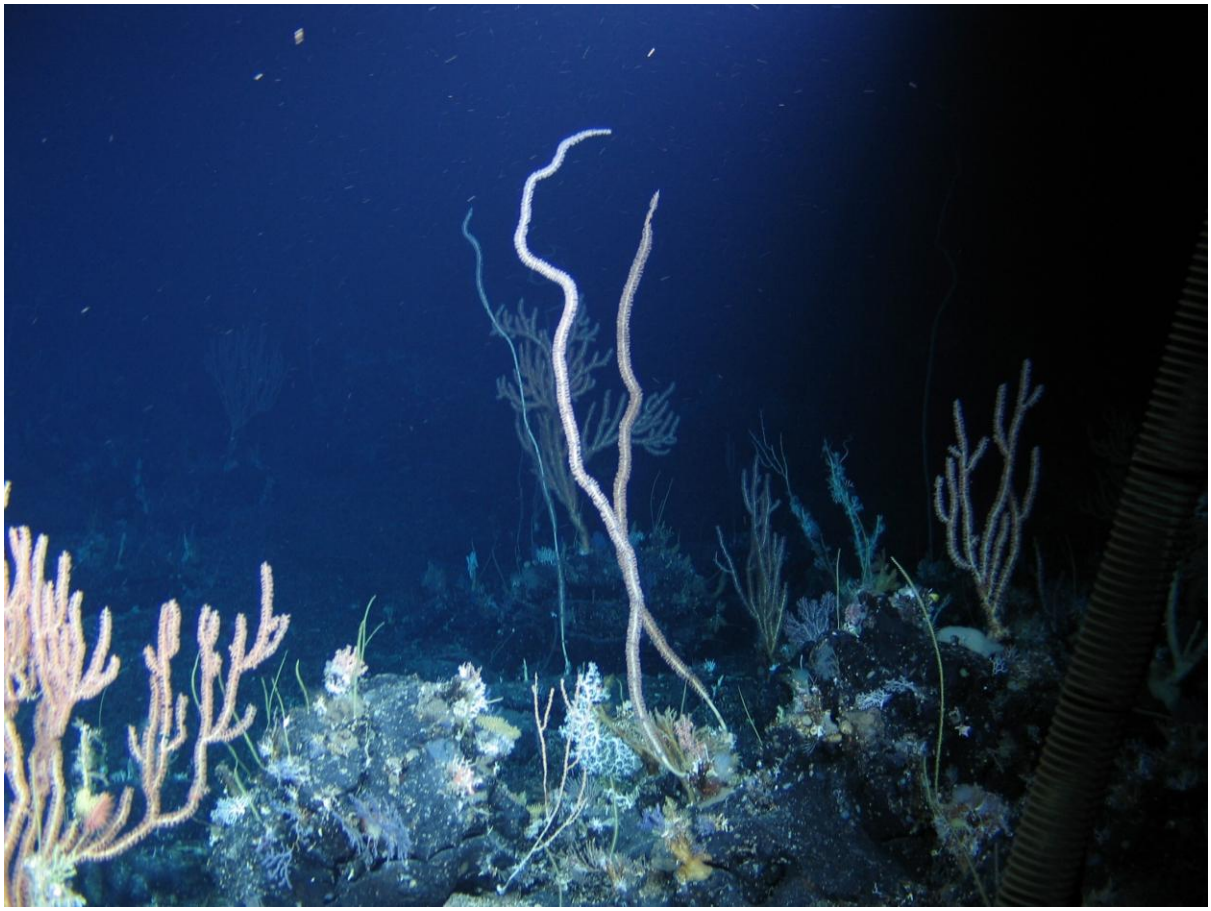

Figure 2. Coral garden Habitat ~ 1,000m depth, Middle of What Seamount.

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