Template for Submission of Scientific Information

to Describe Ecologically or Biologically Significant Marine Areas

Title/Name of the area:

Coral Seamount

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

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Abstract (*in less than 150 words)*

Coral Seamount, part of the South West Indian Ridge in the South West Indian Ocean is submitted for consideration as an EBSA. The seamount lies in sub-Antarctic waters and hosts cold-water coral reef and coral garden communities. The overlying pelagic community comprises Antarctic species and seabirds including wandering albatross, white-chinned petrels and others were observed over the seamount. To date, the seamount is one of only two known to host deep-water coral reefs in the South West Indian Ocean. This reef and coral garden habitats are associated with a high diversity of other species.

Introduction

Seamount with cold-water coral reef and coral garden habitat located in sub-Antarctic waters. Data are based on direct observation with Remotely Operated Vehicle (ROV), *Kiel 6000*, on *RV James Cook* cruise JC66, November and December 2011. Depth range observed is from ~300m depth to 1,200m depth. Intact cold-water coral reef at ~1,000m depth, largely comprising dead coral framework with high densities of associated fauna including both sessile (corals, sponges) and mobile (squat lobsters, echinoderms) elements. In shallower waters, located on the upper flanks and summit of the seamount are coral gardens comprising Scleractinia and Octocorallia. Coral framework at 1,000m largely comprises *Solenosmilia variabilis*. Identity of Scleractinia on seamount summit and upper flanks uncertain but possibly *Lophelia pertusa*. Pelagic ecosystem differs from those further north (north of the Sub-Antarctic Front) in having high concentrations of pelagic grenadiers. Seabirds are common over the seamount particularly wandering albatross and white-chinned petrels but also other species.

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)

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.

Area roughly 41^{o}20'S - 42^{o}30'S and 42^{o}50 - 43^{o}E (see map below)

Feature description of the proposed area

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This is the only known example of a seamount with cold-water coral reef habitat lying in sub-Antarctic waters in the Southern Indian Ocean. The water mass overlying the seamount is Sub-Antarctic and hosts pelagic communities completely different to those further north (north of the Sub-Antarctic and Sub-Tropical Fronts). Pelagic species include Antarctic myctophids (*Electrona* spp) and also pelagic grenadiers. 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 eastern flanks 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 but is largely intact with fissures and holes probably created through seismic activity. Live colonies of the framework-building species are also present. The coral reef hosts high densities of a range of other coral species, particularly zoanthids and octocorals. Glass sponges also occur at high density. Mobile fauna include a variety of crustaceans, particularly squat lobsters, but also crinoids, sea stars and fish. Shark or ray eggs were also visible in areas attached to coral. Below the coral reef habitat lie dense sub-fossil beds of barnacle scutes. Other coral habitat is located on the upper slopes and summit of the seamount and comprises gardens and copses of coral including both octocorals and Scleractinia (possibly *Lophelia pertusa*). The western side of the seamount is much more rugged than the eastern side and in areas comprises vertical cliffs. These are colonised by dense communities of sponges, octocorals and brachiopods with mobile fauna including benthopelagic fish, sharks and also octopus.

The seamount was declared a voluntary Benthic Protected Area (BPA) by the Southern Indian Ocean Deep-Sea Fishers Association (SIODFA) in 2006 on the basis of a high by-catch of corals from exploratory trawling.

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?)

As stated the feature has been declared a BPA by SIODFA. However, there was evidence of fishing on the seamount in the form of lost fishing gear, some of which looked relatively recent (lack of biofouling). This included large lengths of rope and also what appear to be lost gill nets. States outside of SIODFA such as Japan are also fishing in the region and we believe that there is an urgent need to increase the level of protection for this habitat to prevent further deterioration.

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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 Sub-Antarctic 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. There is also some evidence of importance to the life history of sharks or rays.					
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 the seamounts include 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, the declaration of a BPA for this site has protected the coral habitat from further degradation of its habitats and so it presents excellent examples of cold-water coral reef, coral garden and cliff habitats. The pelagic ecosystem also contrasts strongly with that further north.					

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				**X**

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	Resolution 61/105.				

Explanation for ranking

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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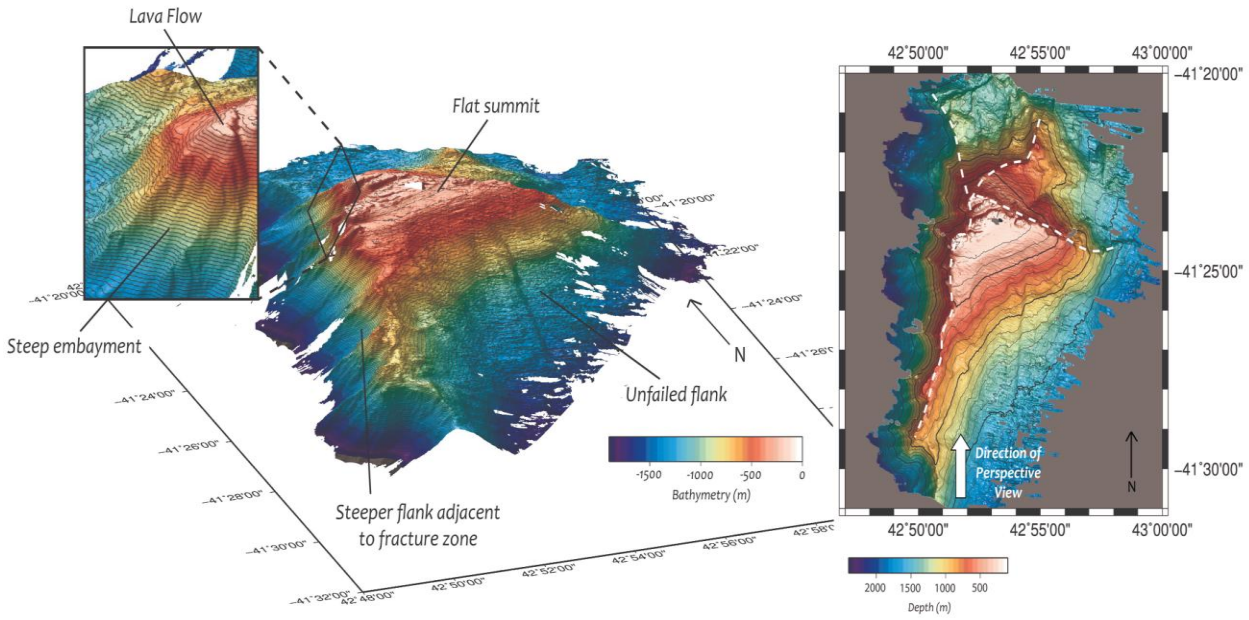

Figure 1. Map of Coral Seamount (Lily Muller, University of Oxford).

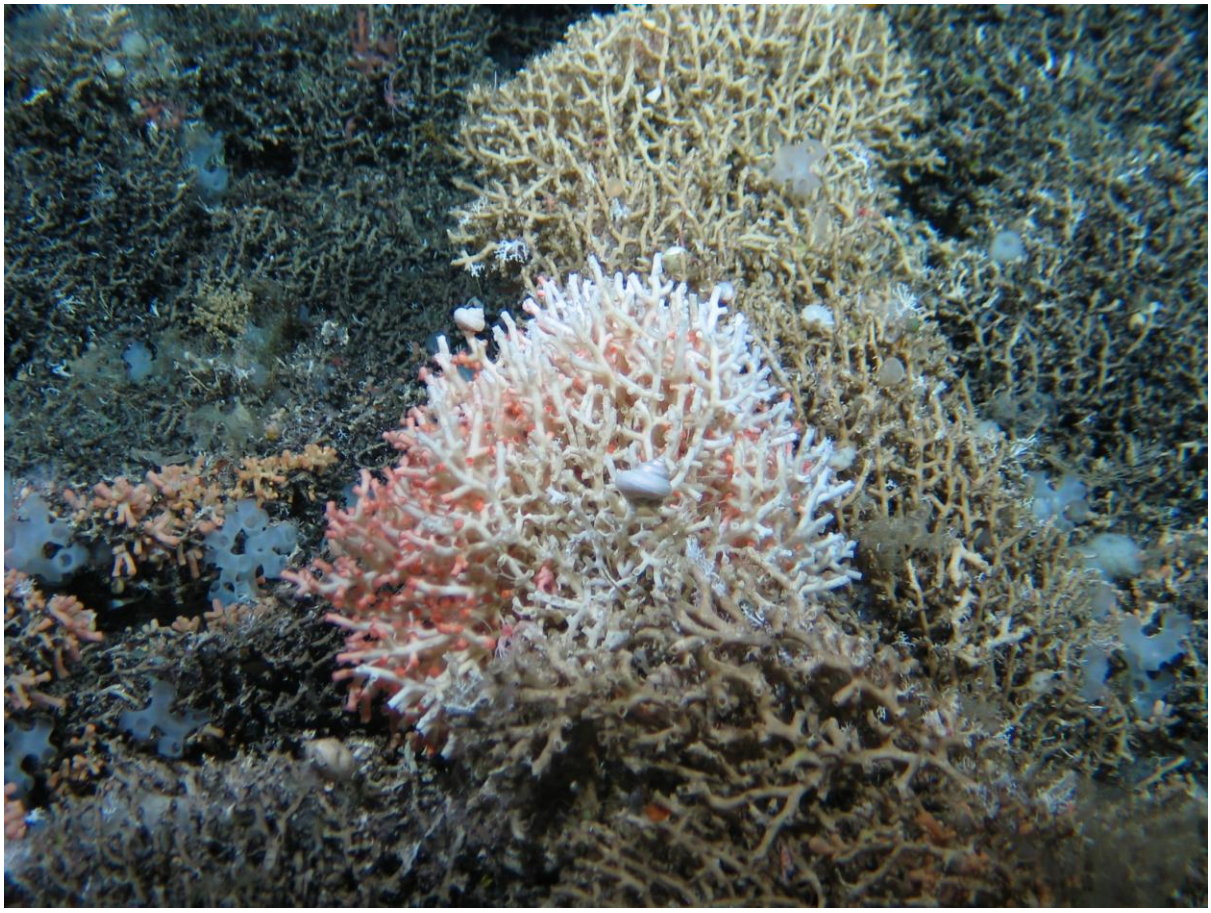

Figure 2. Cold-Water Coral Reef Habitat ~ 1,000m depth, Coral Seamount.

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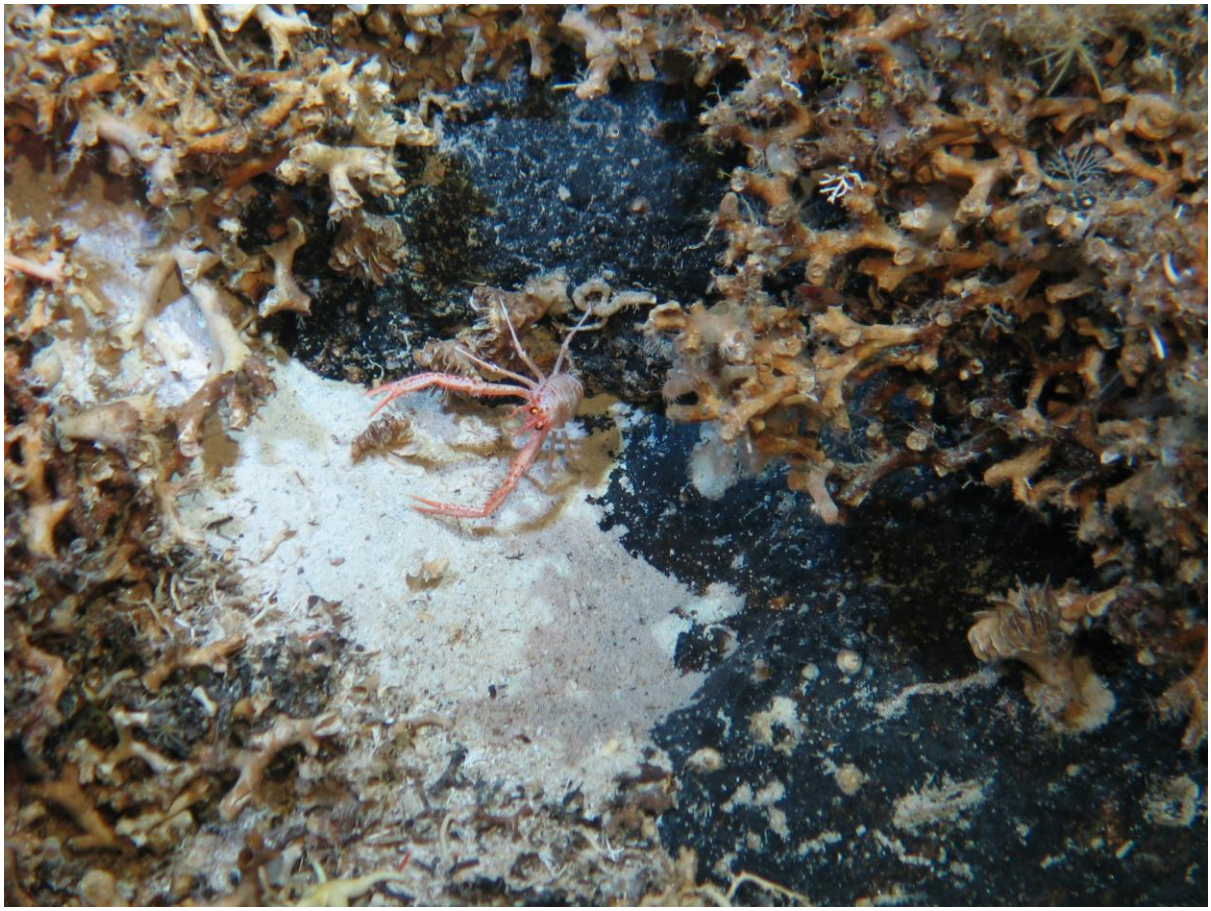

Figure 3. Squat lobster, Coral Seamount, cold-water coral reef.

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