

## PAEWG-01-10

First Meeting of the Protected Areas and Ecosystems Working Group (PAEWG1)

18-19 March 2019, Yokohama, Japan

### Proposal for a Research and Management Plan for the 'CORAL' protected area

*Relates to agenda item: 4*

Working paper ☒ Info paper ☐

## Delegation of Australia

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### Abstract

The purpose of this paper is to propose a Research and Management Plan for the Coral protected area, as designated by the SIOFA Meeting of the Parties in June 2018. The proposed research and management plan has been developed based on the Guidance for SC recommendations to the Meeting of the Parties (which is part of the [SIOFA standard protocol for protected areas designation, Annex H SC3 report](#)). It is recommended that the PAEWG1 meeting consider this proposal in the context of the draft framework to design research and management plans for SIOFA Benthic Protected Areas (PAEWG-01-04(XX) and SC-04-06(XX)) and the SIOFA spatial clustering analysis to inform protected area networks (PAEWG-01-04(XX) and SC-04-06(XX)), and potentially use these papers for refinement of this proposal.

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## Recommendations *(working papers only)*

It is recommended that the SC:

- **Note** that the Coral feature has been designated as a protected area because it meets the following criteria in the SIOFA protected areas designation protocol: 3b. Bioregional representation - Area with a comparatively higher degree of naturalness due to zero or a low level of human-induced disturbance or degradation from, for example, historical fishing activity; 5b. Biodiversity representation - The area is known to contain a high diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity; 6a. Scientific Interest - The area has scientific research interest associated with understanding ecosystem, biological, geological and biodiversity processes in the SIOFA region.
  - **Recall** the Guidance for SC Recommendations to the Meeting of the Parties outlined in the standard protocol for protected areas designation (Annex H SC3 report), which states that:
    - *If the proposal documents the necessary data and scientific information to support a protected area using protocol, different measures could be applied, such as management measures, technical measures, closures.*
    - *In case of an area becoming protected, a management and research plan shall be associated to it on the year to come. It will include:*
      - *The measures in place in the protected area;*
      - *The time of review of the protected area;*
      - *If needed, the research that should be undertaken in the area.*
  - **Consider** whether the proposed Research and Management Plan for the Coral Protected Area meets the requirements outlined in the Guidance for SC Recommendations to the Meeting of the Parties (Annex H SC3 report), and if these requirements have been met, **recommend** to the Meeting of the Parties that the proposed research and management plan be adopted for the Coral protected area.
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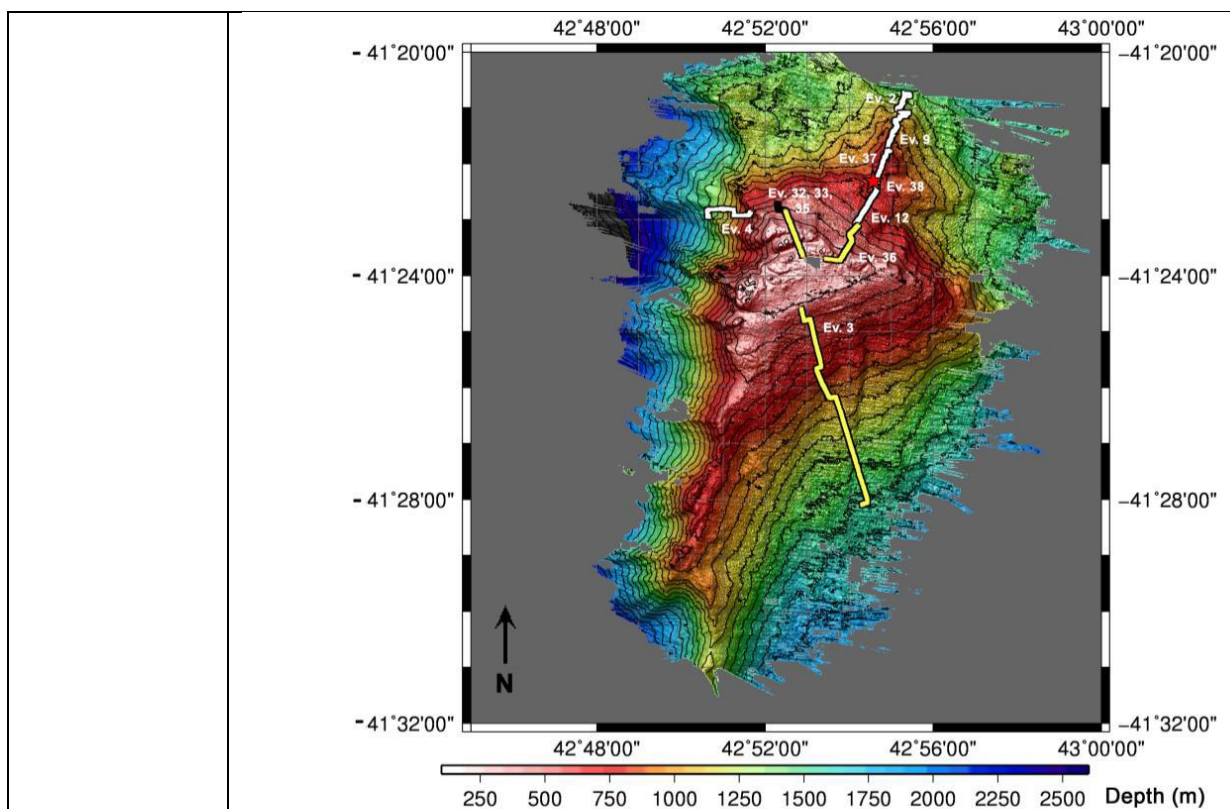
## Research and management plan for the Coral protected area

Name	Coral																				
Geographic description	<p><b>Coordinates:</b> Latitude 41° 00' S, 42° 00' E and 41° 40' S and 44° 00' E.</p> <p><b>Area:</b>12, 376 km<sup>2</sup></p> <p><b>Area by depth:</b></p> <table><tr><th colspan="6">Depth (m)</th><th rowspan="2">Total area (Km<sup>2</sup>)</th></tr><tr><th>0-100</th><th>100-300</th><th>300-700</th><th>700-1000</th><th>1000-1500</th><th>&gt; 1500</th></tr><tr><td>0</td><td>8</td><td>34</td><td>50</td><td>510</td><td>11,775</td><td>12,376</td></tr></table>	Depth (m)						Total area (Km <sup>2</sup> )	0-100	100-300	300-700	700-1000	1000-1500	> 1500	0	8	34	50	510	11,775	12,376
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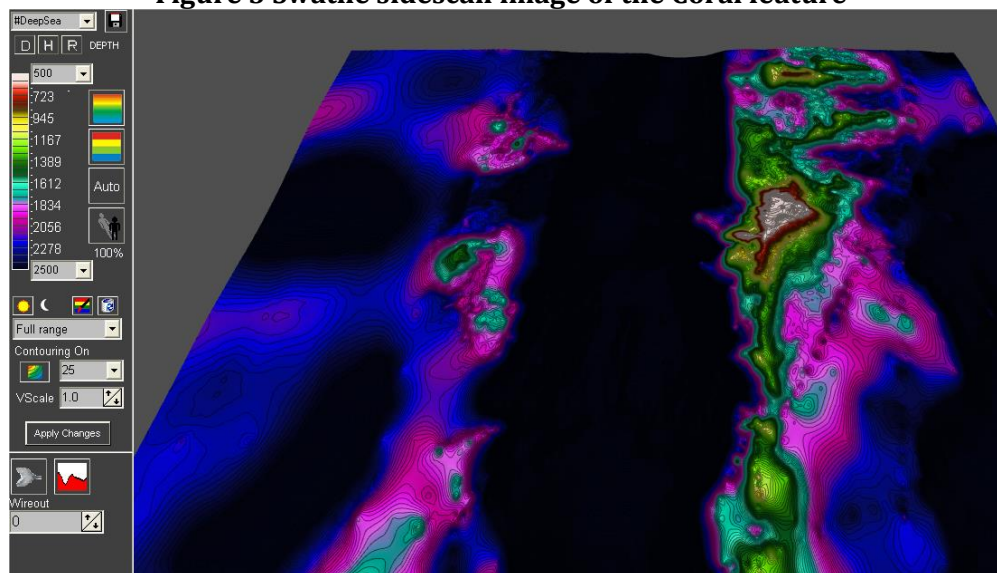
**Figure 1 General location and bathymetry of the Coral feature**

Figure 1 is a bathymetric map of the Coral feature in the South Atlantic Ocean. The map displays depth contours in shades of blue, with a red rectangle highlighting the Coral feature. The map is bounded by 41°E to 45°E longitude and 41°S to 42°S latitude. A scale bar at the bottom indicates distances from 0 to 120 miles. A legend identifies land, seamounts, oceanographic features, GEBCO depth contours, the continental shelf (200m depth), proposed BPAs, and approximate 200 nm limits. An inset map shows the location of the Coral feature in the South Atlantic Ocean. The projection is Eckert IV Equal-Area, FAO, 2006.

**Figure 2  
Bathymetry of the Coral feature**



**Figure 3 Swathe sidescan image of the Coral feature**



**Objectives for this protected area**

The objectives for this protected area are the maintenance of the value and integrity of the area's bioregional representation, biodiversity representation and scientific interest.

**Objectives for this plan**

In accordance with the Guidance for SC Recommendations to the Meeting of the Parties outlined in the standard protocol for protected areas designation (Annex H SC3 report), the objectives for this research and management plan are to describe:

- Management measures in place in the protected area
- The time of review of the protected area
- If needed, the research that should be undertaken in the area.

<b>Criteria that the protected area meets</b>	<p>This area meets the following criteria:</p> <ul style="list-style-type: none"> <li>- <u>3b. Bioregional representation</u> - Area with a comparatively higher degree of naturalness due to zero or a low level of human-induced disturbance or degradation from, for example, historical fishing activity;</li> <li>- <u>5b. Biodiversity representation</u> - The area is known to contain a high diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity;</li> <li>- <u>6a. Scientific Interest</u> - The area has scientific research interest associated with understanding ecosystem, biological, geological and biodiversity processes in the SIOFA region.</li> </ul> <p><u>Feature description</u></p> <p>The Coral seafloor feature is on the Southwest Indian Ridge between the Del Cãno Rise and the Bridle feature and is located in sub-Antarctic waters. It is a spreading centre with seamounts and ridges. Depths range from 4500 m to 200 m (Read and Pollard 2017).</p> <p><u>Bioregional and biodiversity representation</u></p> <p>The <i>R.V. James Cook</i> cruise JC66 in November and December 2011 observed intact cold-water corals at ~1000 m, largely comprising dead coral framework with high densities of associated fauna including both sessile (corals, sponges) and mobile (squat lobsters, echinoderms) elements (Rogers and Taylor 2012). In shallower waters, located on the upper flanks and summit of the seamount are coral gardens comprising Scleractinia and Octocorallia (Rogers and Taylor 2012). The coral framework at 1000m largely comprised <i>Solenosmilia variabilis</i> (Rogers and Taylor 2012). The identity of Scleractinia on seamount summit and upper flanks is uncertain but could possibly be <i>Lophelia pertusa</i> (Rogers and Taylor 2012). As part of the outputs from this cruise, Nye (2013) described a two new species of hippolytid shrimps (Crustacea: Decapoda: Caridea: Hippolytidae) from the Coral seamount.</p> <p>Rogers (2014) notes that 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 (<i>Electrona</i> 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 <i>Solenosmilia variabilis</i>. 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 (Rogers 2014).</p> <p>Vertical cliffs are seen on the western side of the seamount, colonised by dense communities of sponges, octocorals, brachiopods, and benthopelagic fish, sharks and octopus (Rogers and Taylor 2012). Seabirds are very common over the seamount, particularly wandering albatross and white-chinned</p>
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	<p>petrels. The water mass overlying the seamount is sub-Antarctic and hosts pelagic species completely different to those further north, including Antarctic myctophids, and pelagic grenadiers.</p> <p>Coral Seamount is listed as an Ecologically or Biologically Significant Area (EBSA) by the Convention on Biological Diversity and met the following criteria:</p> <ul style="list-style-type: none"> <li>• Uniqueness or rarity (High ranking).</li> <li>• Special importance for the life-history stages of species (Medium rank)</li> <li>• Importance for threatened, endangered or declining species and/or habitats (no information)</li> <li>• Vulnerability, fragility, sensitivity, or slow recovery (High ranking)</li> <li>• Biological productivity (No information)</li> <li>• Biological diversity (High ranking)</li> <li>• Naturalness (Medium ranking).</li> </ul> <p>As part of the submission for assessment, Rogers (n.d.) noted that cold-water coral reef ecosystems (such as the Coral seamount) fit the criteria of a Vulnerable Marine Ecosystem under the FAO Guidelines for Implementation of UNGA Resolution 61/105.</p> <p><u>Scientific interest</u></p> <p>The Coral seamount has been extensively studied. Observations were made of this seamount using a remotely operated vehicle (ROV), <i>Kiel 6000</i>, on the <i>R.V. James Cook</i> cruise JC66 in November and December 2011. In late 2009, the research vessel <i>Dr. Fridtjof Nansen</i> carried out a 6-week multi disciplinary survey of six seamounts in the Southwest Indian Ocean. Read and Pollard (2017) provide details of the physical oceanography of the Coral seamount. Pollard and Read (2017) provide details of the circulation and stratification on and around the Coral seamount. Other research supporting this criteria is cited herein.</p> <p><u>Fishing history</u></p> <p>Early exploratory trawling by the F.V. Will Watch indicated the presence of extensive coral formations and no subsequent fishing activities were undertaken (SIODFA 2016). Rogers (no date) notes that there was evidence of fishing on the seamount in the form of lost fishing gear, some of which looked relatively recent (lack of biofouling).</p> <p>Rogers and Taylor (2012) noted that ROV work as part of the <i>RV James Cook</i> cruise was stopped on at least 4 occasions due to the discovery of fishing line. On one of these incidents the gear was confirmed as a gill net. It looked very new with no overgrowth on the ropes. The net was filled with corals and coral framework and the area around it was cleared of live corals and sponges. The authors noted that this sighting was of great concern as the seamount had been placed under a voluntary closure to fishing by the deep-sea trawling industry. The authors noted that it would appear to confirm rumours of gill net fishing in the region, probably targeted at deep-sea sharks.</p> <p><u>Other information to support designation</u></p> <p>Industry members from Australia, the Cook Islands and Japan support the designation of Coral seafloor feature.</p>
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<b>Social, cultural and economic interests</b>	Any historical or recent fishing data may assist with understanding any social, cultural and/or economic costs associated with designating this as a protected area. It is possible that designation could have adverse social, cultural or economic impacts in terms of forgone opportunity for fishing.
<b>Management measures</b>	<p>In accordance with CMM 2018/01, the following management measures apply:</p> <p><i>35. The areas included in Annex 2 are provisionally designated as protected areas.</i></p> <p><i>36. CCPs shall provisionally apply the following measures in the areas listed on Annex 2 until the adoption of a dedicated research and management plan, referred to in paragraph 6(e), for each area at MoP6:</i></p> <p><i>(a) CCPs shall prohibit all vessels flying their flag from engaging in bottom fishing, excluding line and trap methods; and</i></p> <p><i>(b) For all other gears, CCPs shall ensure each vessel flying their flag has a scientific observer onboard at all times while fishing inside those areas.</i></p> <p><i>37. When the Meeting of the Parties adopts a revised SIOFA protocol for protected area designation after advice from the Scientific Committee arising from its review referred to in paragraph 6(d), the Meeting of the Parties shall also review Annex 2 of this CMM, taking into account advice of the Scientific Committee.</i></p> <p>All other relevant SIOFA CMMs apply within this protected area.</p>
<b>Management needs</b>	<p>SC3 recommended that the MoP consider that fishing with all gears were identified as activities that may degrade the scientific and biodiversity value of the area.</p> <p>Given that fishing is still permitted within the area, the following management needs have been identified using the draft SIOFA framework for the design of research and management plans for Benthic Protected Areas:</p> <ul style="list-style-type: none"> <li>- FOR PAEWG DISCUSSION</li> </ul>
<b>Review periods</b>	Given the compelling justification for closure to fishing using trawl gears, designation should be reviewed at least every 10 years, or more frequently if new information becomes available that enhances or degrades the justification for its designation as a protected area.
<b>Outline of monitoring and/or research needed</b>	<p>The following monitoring and/or research needs have been identified using the draft SIOFA framework for the design of research and management plans for Benthic Protected Areas:</p> <ul style="list-style-type: none"> <li>- FOR PAEWG DISCUSSION</li> <li>- Goldsworthy (2017) recommended that observations from the RV James Cook cruise in 2011 and any other evidence showing impact of fishing activity, including anecdotal reports, be reviewed expeditiously to confirm status and health of the habitat.</li> <li>- A desk-top compilation of publications from research undertaken within this area would assist with future reviews of the designation.</li> </ul>
<b>Compliance</b>	Compliance-related issues are outside of the remit of the SIOFA SC.

## References

- IUCN, 2013. Seamounts Project: An Ecosystem Approach to Management of Seamounts in the Southern Indian Ocean. Gland, Switzerland: IUCN. 60 pp, reports on two research voyages to the South West Indian Ridge, which included Atlantis Bank, Coral Seamount and Middle of What Seamount.
- Goldsworthy, L 2017, Review of SIODFA Proposed Benthic Protected Areas, Report prepared for the Australian Government Department of Agriculture and Water Resources, Lyn Goldsworthy AM, November 2017.
- Nye, V 2013. New species of hippolytid shrimps (Crustacea: Decapoda: Caridea: Hippolytidae) from a southwest Indian Ocean seamount. *Zootaxa*, 3637, (2), pp. 101-112.
- Pollard, R & Read, J 2017. Circulation, stratification and seamounts in the Southwest Indian Ocean, *Deep-Sea Research II* 136 (2017) 36–43
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- Rogers, A.D. 2012. An Ecosystem Approach to Management of Seamounts in the Southern Indian Ocean: Volume 1 – Overview of Seamount Ecosystems and Biodiversity. Gland, Switzerland, IUCN, for a history of scientific exploration in the region.
- Rogers A.D. & M.L. Taylor. 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. [http://www-odp.tamu.edu/publications/prelim/176\\_PREL/176OBJT.HTML](http://www-odp.tamu.edu/publications/prelim/176_PREL/176OBJT.HTML)
- SIODFA 2016, Southern Indian Ocean Deepwater Fisheries Association (SIODFA), Benthic Protected Areas in the Southern Indian Ocean. SIODFA Technical Report XVII 16/01. 40 pp