

SC-04-15

4<sup>th</sup> Meeting of the Southern Indian Ocean Fisheries Agreement (SIOFA) Scientific  
Committee

25–29 March 2019, Yokohama, Japan

## Proposal for a Research and Management Plan for the ‘Atlantis’ protected area

*Relates to agenda item: 6*

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 Atlantis protected area, as designated by the SIOFA Meeting of the Parties in June 2018. The proposed research and management plan has been developed in response to the request from MoP5 (paragraph 91 MoP5 report) and 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](#)).

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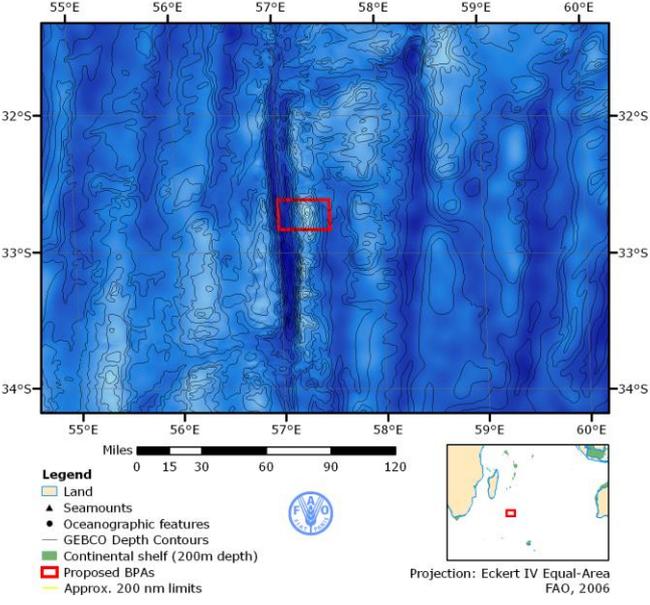
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## Recommendations *(working papers only)*

It is recommended that the SC:

- **Note** that the Atlantis feature has been designated as a protected area because it meets the following criteria in the SIOFA protected areas designation protocol: 5b. Biodiversity representation – The area is known to contain high diversity of ecosystems, habitats, communities or species, or has higher genetic diversity; and 6. Scientific interest – The area has scientific research interest associated with understanding ecosystem, biological, geological and biodiversity processes in the SIOFA region.
  - **Note** that MoP5 agreed that the SC would provide advice on research and management plans for each area listed in Annex 2 of MoP5 report by 2019.
  - **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 Atlantis 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 Atlantis protected area.
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## Research and management plan for the Atlantis protected area

<b>Name</b>	Atlantis Bank
<b>Geographic description</b>	<p>Total area: 8,694 km<sup>2</sup></p> <p>Coordinates: 32°00'S-57°00'W : 32°50'S-58°00'E</p> <p>Bathymetry: 0-300m 0 km<sup>2</sup>; 300-700m 1 km<sup>2</sup>; 700-1000m 36 km<sup>2</sup>; 1000-1500m 82 km<sup>2</sup>; &gt; 1500m 8,575 km<sup>2</sup></p> 
<b>Objectives for this protected area</b>	<p>In line with the protocol for protected areas designation, the objectives for the Atlantis protected area are the maintenance of the value and integrity of the area's biodiversity and as an area of special scientific interest.</p>
<b>Objectives for this plan</b>	<p>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:</p> <ul style="list-style-type: none"> <li>- Management measures in place in the protected area</li> <li>- The time of review of the protected area</li> <li>- If needed, the research that should be undertaken in the area.</li> </ul>
<b>Criteria that the protected area meets</b>	<p>This protected area meets the following criteria:</p> <ul style="list-style-type: none"> <li>• <u>5b. Biodiversity representation</u> – The area is known to contain high diversity of ecosystems, habitats, communities or species, or has higher genetic diversity; and</li> <li>• <u>6. 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>This tectonic guyot seamount covers an area of approximately 8694 km<sup>2</sup> and is in sub-tropical waters (Rogers et al. 2012). The guyot rises from 4000 m to a depth of 700 m below the surface. The summit</p>

measures at least 25km<sup>2</sup>. It is an ancient fossil island with 11-million-year-old fossil beaches and lagoons, a submerged headland, 'sea cliffs', limestone ripple 'beaches' lithified as rock, gabbro, fossil sea-stacks, fossilized corals, clams, snails and sea urchin spines in the limestone, oolitic limestone (Baines et al. 2003; 2007).

There have been extensive tectonic studies since 1950s, including as a drilling site within the Ocean Drilling Programme, with several marine expeditions including 1987 Woods Hole Oceanographic Institute (WHOI) survey using JOIDES *Resolution* (Dick et al. 1991), seismic studies led by Cambridge University in the 1980s-1990s, the 1997 WHOI survey using JOIDES *Resolution* and the 2009 International expedition using RSS *James Clark Ross*.

#### Biodiversity representation

The benthic habitats support a very diverse deep-sea fauna (Rogers et al. 2012). This includes diverse coral gardens and complex sea-cliff deep-sea communities characterised by large anemones, large sponges and octocorals. The large Paragorgia colonies are unique. Rock outcrops, particularly along the edges of the summit host large stylasterid colonies, including the echinoid *Dermechinus horridus*. Spines of these urchins form substratum for infauna around the outcroppings. The eastern side of the seamount comprises rocky/boulder slopes with glass sponges and octocorals. The western side has rock buttresses flanking rock-slide features hosting rich benthic communities of large, armchair-sized sponges, glass sponges, anemones and sea spider predators. Large populations of lobsters, crabs, sharks, sea fans, siphonophores, orange roughy and big-eye dory have been reported from surveys (Rogers & Taylor 2012). These scientific surveys have identified new species and endemism (e.g. Taylor and Rodgers 2017).

JAMSTEC (2000) made observations on near-bottom and/or mesopelagic communities at depths from 750 to 5365 m. Among other results, JAMSTEC reported on the vertical stratification of Crow Shark (*Etmopterus pusillus*), Gilchrist's Orange Roughy (*Hoplostethus gilchristi*) and the Big-eye Dory (*Alloctytus verrucosus*). They also found a number of deepwater chondrichthyans species (including *Etmopterus pusillus* and *Pseudotriakis microdon*) but not all were able to be identified. This bank has provided a significant mid-water trawl fishery for alfoncino and reportedly, catches of 1000 t have been taken; small catches of orange roughy have also been taken (G. Patchell, pers. comm. 2018).

Acoustic studies of zooplankton and micronekton over seamounts indicate that seamounts focus trophic resources owing to the interaction of pelagic communities with the topography and local physical oceanography. Rogers et al. (2012) found evidence of trophic focusing on the Atlantis Seamount, leading to higher biological productivity than in the surrounding pelagic waters.

#### Scientific interest

It has been extensively studied (e.g. Baines et al. 2002, 2007; JAMSTEC 2000; Rogers et al. 2012; Taylor and Rogers 2017) and is reportedly the first tectonic guyot ever studied to consider geology of ultraslow-

	<p>spreading ridges (Baines et al. 2003). It has a unique paleontological record and has been a drilling site within the Ocean Drilling Programme (ODP) (Dick et al. 1991). It has also been studied as part of the International Ocean Discovery Program's 'Expedition 360' (MacLeod et al. 2017).</p> <p>The feature is being studied as part of the IUCN (2013) Seamounts Project: An Ecosystem Approach to Management of Seamounts in the Southern Indian Ocean.</p> <p><u>Fishing history</u></p> <p>There are areas that can be fished on Atlantis using bottom trawls and about 60 tows are reported to have been made on this feature (SIODFA 2016). Videos have reportedly shown abandoned trawls on the bottom, presumably from Soviet-era fishing (R. Shotton, pers. comm. 2018). Most of the sea floor is reportedly untouched by bottom trawling (SIODFA 2016). There are many ancient sea-stacks, boulders, rock slides, and gravel beds that make the bottom rugged and difficult to bottom trawl (SIODFA 2016).</p> <p>Romanov (2003) provides a summary and review of Russian and Ukrainian scientific and commercial fishing operations on the deepwater ridges of the southern Indian Ocean.</p> <p><u>Other supporting information</u></p> <p>SIODFA has closed this location to fishing by vessels that are members of its association because of the historical and scientific interest.</p> <p>It is listed as an Ecologically and Biologically Significant Area (EBSA) by the Convention of Biological Diversity (CBD) based on the following criteria:</p> <p>C1 Uniqueness or rarity (High ranking).</p> <p>C2: Special importance for the life-history stages of species (Medium rank)</p> <p>C4: Vulnerability, fragility, sensitivity, or slow recovery (High rank)</p> <p>C5: Biological productivity (Medium rank)</p> <p>C6: Biological diversity (High rank)</p> <p>C7: Naturalness (Medium rank)</p> <p>The area is identified by UNESCO as a priority site of Outstanding Universal Value (OUV) for protection through a listing equivalent to World Heritage Listing (see Freestone et al. 2016). It is proposed to satisfy World Heritage Criteria VIII (major stages in earth's history and geological processes), IX (significant ecological and biological processes in the evolution of ecosystems, communities of plant and animals), X (significant biological diversity and threatened species of OUV).</p>
<p><b>Social, cultural and economic interests</b></p>	<p>Some historical fishing data are available (e.g. Romanov 2003), which may assist with understanding any social, cultural and/or economic costs associated with designating this as a protected area. The area is the location of a productive fishery. It is possible that designation could</p>

	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>	No additional management needs have been identified for this area.
<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>	A desk-top compilation of publications from research undertaken within this area would assist with future reviews of the designation.
<b>Compliance</b>	Compliance-related issues are outside of the remit of the SIOFA SC.

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