TERMS OF REFERENCE FOR THE PROVISION OF SCIENTIFIC SERVICES TO SIOFA PROTECTED AREAS AND ECOSYSTEMS WORK GROUP (PAEWG)

SIOFA VULNERABLE MARINE ECOSYSTEMS MAPPING

Southern Indian Ocean Fisheries Agreement (SIOFA) calls for a consultancy to implement its vulnerable marine ecosystems mapping.

1. INTRODUCTION

SIOFA Conservation and Management Measures (CMM) 2019/01 directs the Scientific Committee (SC) to provide maps of where vulnerable marine ecosystems (VMEs) are known to occur, or likely to occur, in the Agreement Area. The Meeting of the Parties shall act on the advice of the SC in regards with the VME habitat mapping and update its interim bottom fisheries measures.

The work is desktop based and will involve the collection of all relevant data and using modelling methods to provide maps of VME occurrence, or predicted occurrence. The consultants shall have regular contact with the Scientific Committee, including the PAEWG, to providing ongoing results, review of approaches and guidance.

The SIOFA VME indicator taxa (Annex 1) will be used as the definition of VMEs.

2. TERMS OF REFERENCE (TOR) FOR SIOFA VULNERABLE MARINE ECOSYSTEMS MAPPING

Specific tasks to be performed:

2.1. Compile, clean and verify occurrence and environmental data necessary for the project.

Occurrence data:
- collect taxa occurrence data from scientific sources and databases, including scientific cruises (campaigns),
- collect and compile available SIOFA VME data from the SIOFA Secretariat.

Acquire and prepare environmental data:
- climate and oceanography data,
- topography and associated variables,
- other variables: primary productivity, geology, currents, etc.

Deliverables:

2.1.1 Consolidated VME occurrence dataset, with sources referenced,

2.1.2 Environmental data variables datasets, with sources referenced,

2.1.3 Maps of VME taxa occurrence.

2.2. Evaluate the quality of occurrence data and determine an optimal spatial and taxonomic resolution for analyses, provide indicators of data quality at different resolutions and implement predictive approaches to map VME taxa occurrence

- apply different indicators of data quality, including but not limited to sampling intensity, completeness of the dataset,
- investigate the effect of spatial and taxonomic resolution on data quality,
- consider non-standard spatial resolutions such as geomorphologic units or spatially varying resolutions depending on sampling intensity
- implement predictive approaches to model and map VME taxa occurrence across the region, providing measures of uncertainty as appropriate.

Deliverables:

2.2.1 Indicators of data quality,

2.2.2 Maps of optimal resolutions of analysis,

2.2.3 Maps of predicted VME taxa occurrence.

2.3. Develop and compare multiple bioregionalisation schemes, different bioregionalisation approaches should be implemented:

- Delimit and qualify biogeographical regions based on consolidated data,
  and on taxa distribution models,
- Apply appropriate modelling techniques to generate bioregionalisation, such as generalized dissimilarity modelling.

Deliverables:

2.3.1 Maps of bioregionalisation based on occurrence data,

2.3.2 Maps of bioregionalisation based on taxa distribution models,

2.3.3 Maps of bioregionalisaation based on generalized dissimilarity models or other appropriate modelling techniques.

2.4. Reporting

Annual reports of progress, including results to date, shall be provided to the PAEWG and Scientific Committee for review and to inform discussions.

The consultant will present and discuss the results at the annual PAEWG and Scientific Committee meetings.

A final scientific report to the annual meetings of the PAEWG and Scientific Committee will include the methods, results including the uncertainties and robustness of results and maps. Reports should be sufficiently detailed to allow scientific review and replication of the approaches.

Deliverables:

2.4.1 Scientific reports to the PAEWG and Scientific Committee annual meetings, 30 days prior to the meeting commencement date, in line with SIOFA procedures.

2.4.2 Final scientific report to the PAEWG and Scientific Committee.

Notes: data and map deliverables should, as far as possible, be converted to generally used format in use under PC/Windows and Linux environments. Data deliverables shall be provided under portable database formats (e.g. Microsoft Access) or SQL. Map format to be usable under Quantum GIS (e.g. Shapefile, KML, etc.)

3. DATA CONFIDENTIALITY

The consultant must respect data confidentiality in line with SIOFA CMM (CMM 2016/03). If the consultant intends to make publication from this work, the SIOFA secretariat will have to check for potential data confidentiality issues before acknowledging any publication.

4. INDICATIVE TIMELINE

Activity	Year 1 To be delivered for SC 2021	Year 2 To be delivered for SC 2022	Year 3
2.1.1 Consolidated occurrence datasets	▨		
2.1.2 Environmental variables datasets	▨		
2.1.3 Maps of VME indicator taxa	▨		
2.2.1 Indicators of data quality	▨		
2.2.2 Maps of optimal resolutions of analysis	▨		
2.2.3 Maps of predicted occurrence of VME indicator taxa	▨		
2.3.1 Biogeographical region maps		▨	
2.3.2 Maps of bioregions based on taxa distribution models		▨	
2.3.3 Maps of bioregions based on generalised dissimilarity models		▨	
2.4.1 Scientific reports for PAEWG and SC		▨	
2.4.2 Final synthesis report including main findings, maps and perspectives			▨

5. BUDGET AND PAYMENTS

Budget
The total allowed budget for this project is EUR 99,475 (all tax included). This amount provides for travel costs to the annual SIOFA Scientific Committee meetings.

Payment procedure
- An initial payment of 30% will be made at the contract signature.
- 50% will be paid at end of first year of implementation (after deliverables submission)
- A final 20% payments will be made at the end of the project and after approval of the Scientific Committee.

6. APPLICATION

Announcement of Call for the Consultant will be placed in the SIOFA home page on December 13th, 2019 and will be circulated to all Cooperating and Contacting Partiers (CCPs).

The applicants should prepare a CV (max 3 pages), a covering letter (highlighting relevant experience, references on the subject and how the objectives of the ToR may be achieved) and a financial proposal.
Applicants must send the application by email to Mr Thierry Clot (thierry@siofa.org), cc Mr Pierre Périès (pierre@siofa.org) by January 17, 2020 (12:00 UT). Please title your email with: "*submission of application for SIOFA VME mapping*".

Candidates will be shortlisted and selected by the Secretariat, the SC and chairpersons using a scoring grid.

7. CONTACT PERSONS

SIOFA Secretariat
Thierry CLOT (thierry@siofa.org), Executive Secretary
Pierre PERIES (pierre@siofa.org), Data Manager
Project Manager
Ilona Stobutzki (ilona.stobutzki@dfat.gov.au), Scientific Committee Chair.

Annex 1

SIOFA VME indicator taxa

Chemosynthetic organisms (CXV) (no taxa specified)

Cnidaria (CNI), which can be, if possible, detailed in recording as: Gorgonacea (GGW) (Order), Anthoathecatae (AZN) (Order), Stylasteridae (AXT) (Family), Scleractinia (CSS) (Order), Antipatharia (AQZ) (Order), Zoantharia (ZOT) (Order), Actiniaria (ATX) (Order), Alcyonacea (AJZ) (Order), Pennatulacea (NTW) (Order)

Porifera (PFR), which can be, if possible, detailed in recording as: Hexactinellida (HXY) (Class), Demospongiae (DMO) (Class)

Ascidiacea (SSX) (Class)

Bryozoans (BZN) (Phylum)

Brachiopoda (BRQ) (Phylum)

Pterobranchia (HET)

Serpulidae (SZS) (Family)

Xenophyophora (XEF) (Phylum)

Bathylasmatidae (BWY) (Family)

Stalked crinoids (CWD) (Class)

Euryalida (OEQ) (Order)

Cidaroida (CVD) (Order)