

# Terms of Reference (ToR) for the provision of scientific services to SIOFA Scientific Committee

**Project title: Orange roughy (*Hoplostethus atlanticus*) acoustics**

**Project Code: ORY-2023-02**

## 1. INTRODUCTION

The SIOFA Scientific Committee (SC) is tasked to provide management advice for three important species (orange roughy, splendid alfonsino and Patagonian toothfish) to the Meeting of parties of SIOFA. CMM 2020/15 (paragraph 5) requires out that the orange roughy (*Hoplostethus atlanticus*) stocks shall be assessed every three to five years. The first stock assessments of orange roughy were conducted in 2018 (Cordue 2018a, 2018b) and the second assessments were in 2022 (Roa-Ureta 2022). The next stock assessment is scheduled for completion for SC10 in 2025.

Acoustic data are used as indices of abundance in SIOFA orange roughy stock assessments. As such, SIOFA requires the existing acoustic data that have been collected by commercial vessels fishing for orange roughy be collated, checked for quality control purposes, and then used to develop abundance estimates for the assessments.

The acoustic data between 2005 and 2023 are available (the 2023 data will be available by September 2023). The acoustic data for 2005-2021 were evaluated (Macaulay 2022a), processed (Macaulay 2022b), and used to derive acoustic biomass estimates for selected surveys between 2005 and 2021 (Macaulay 2022c), and used in the second orange roughy stock assessment (Roa-Ureta 2022).

This project requires acoustic data for years since 2021 to be described, analysed, and combined with data from 2005-2021 to provide a consistent time series of acoustic biomass estimates for the SIOFA orange roughy assessment areas. The outcomes of this work should be collated in a preliminary presentation for SC9 in 2024 and a final report for SC10 in 2025.

## 2. TERMS OF REFERENCE

### 2.1. Objectives

1. Collate the existing acoustic data from Cook Island vessels with the assistance of the SIOFA Secretariat. For all the new and historical acoustic data, provide a descriptive analysis including sampling periods, locations, attributes, and other relevant information.
2. Review, and revise as appropriate, the methods for assessing data quality and selection for the orange roughy acoustic data.
3. Provide an analysis of the data quality for the most recent data (post 2020) collated in ToR 1 using the same techniques applied in 2018 and 2021 assessing various levels of uncertainty (e.g., species identification, survey design, target strength, absorption, calibration, and other relevant factors) at Walters Shoal (Walters shoal, WSR and Seamounts) and on the southwest

Indian Rise (Meeting, South Ridge, Middle Ridge and North Ridge). Make recommendations on which acoustic data are of sufficient quality for use in the 2024 stock assessments.

4. Using the data of appropriate quality estimate the biomass of orange roughy using the same techniques applied in 2018 and 2022 and any revised techniques to provide a time series of the orange roughy biomass estimates.
5. Tabulate all the recommended acoustic biomass estimates, along with estimates of uncertainty, from all years that are suitable for use in orange roughy stock assessments.

## **2.2. Reporting requirements**

1. Provide updates and engage with the project advisory panel that will assist the consultant access and interpret reports, data, and to provide advice on relevant analyses or data interpretation for the project.
2. Present the preliminary methods and results of the project as indicated in Section 3. Take into account any comments made during this presentation in the following part of the work.
3. Provide a draft report detailing the methods, outcomes of project objective investigation as listed in the overall objectives, conclusions, and recommendations to the SIOFA project advisory panel for review by the dates indicated in Section 3.
4. Update the draft report in by considering any comments and advice from the project advisory panel and submit this final report to SIOFA Secretariat for submission to the following SIOFA Scientific Committee annual meeting. The report should include a table of the acoustic survey protocol currently in use as an appendix.
5. Provide all the information collected to the SIOFA Secretariat (including that sourced from the Secretariat) before the final payment of the contract. Such information includes electronic data files, analysis codes, biological samples, and other relevant data if applicable.

Presentations of report to the Scientific Committee may be given virtually and travel to the meetings is not obligatory.

## **2.3. Confidentiality and distribution of project outcomes**

The Consultant shall not release confidential data provided for conducting this study to any persons nor any organisations, other than SIOFA Secretariat. The consultant shall delete all the confidential data after the completion of the contract. Any arrangements for ownership, storage, or disposal of physical samples shall be agreed by SIOFA as a part of the contract.

All Intellectual Property generated as a part of this contract shall become the property of SIOFA unless otherwise excluded in the proposal and agreed by SIOFA in the contract.

All reports and presentations will be reviewed by the SIOFA Secretariat prior to any form of further distribution. The Consultant will revise the report according to comments received from the review process before the report or presentation is accepted as a submission against the requirements in these Terms of Reference.

## **2.4. Relevant SIOFA information**

1. SIOFA data (provided by the SIOFA Secretariat upon request)
2. SIOFA spatial data layers. Available on [https://github.com/SIOFASecretariat/SIOFA\\_SC\\_Spatial\\_layers](https://github.com/SIOFASecretariat/SIOFA_SC_Spatial_layers)
3. SIOFA reporting templates. Available on [https://github.com/SIOFASecretariat/SIOFA\\_Reporting\\_templates](https://github.com/SIOFASecretariat/SIOFA_Reporting_templates)
4. SIOFA reports:
  - a. SIOFA SC, SC Working Group, and National Reports. Scientific Committee Meeting | SIOFA (<https://siofa.org/>)

- b. SIOFA MoP reports. Meeting of the Parties | SIOFA (<https://siofa.org/>)
- c. SIOFA technical and scientific reports (public reports and abstracts of restricted reports are available from <https://siofa.org/>, and full restricted reports will be made available by the SIOFA Secretariat to the project consultant upon request and after the approval of concerned CCPs.

### 3. WORK TIMELINE AND PAYMENT SCHEDULE

The funds for this project, budgeted under the SIOFA scientific funding scheme, allow for a maximum total budget of 15 000 Euro (including all costs and any travel related expenses).

The consultant shall follow the timeline described in Table 1 below.

**Table 1: Timeline for payments, milestones, and report submission**

Milestone	Date	Activities
Initiation of contract	30 September 2023	First instalment payment (30% of the total contract sum)
Presentation of preliminary results	18–27 March 2024	Presentation of preliminary methods and results to the SC9 meeting (virtual)
Delivery of draft report	15 April 2024	Second instalment payment (30% of the total contract sum) upon satisfactory submission of draft report, in a format suitable for submission to SC, to the project coordinator. The report should include a table of the acoustic survey protocol currently in use as an appendix.
Delivery of final report	1 September 2024	Submission of final report in a format suitable for submission to SC10 and submission of project information to the project coordinator.  Final instalment payment (40% of the total contract sum) on acceptance of the final report by the advisory panel and the final submission of project information

#### **4. SUBMISSION OF APPLICATIONS**

1. A current CV that summarises the applicant(s) relevant educational background and professional experience
2. A brief proposal (indicatively 1-3 pages) outlining the proposed methods and analyses, including a description of how the objectives of the ToR will be achieved
3. Any proposed exclusions to the intellectual property clause
4. The proposed consultancy price (including all consultant expenses and project related costs), noting that the available budget for this work indicated in Section 3
5. Identification of any project risks and associated mitigation and management required to successfully complete the project
6. A statement that identifies any perceived, potential, or actual conflicts of interest of the applicant(s), including those described in paragraph 4 of the SIOFA recruitment procedure (see Section 6), and
7. Any additional relevant information the applicant(s) wish to submit.

The applicants must have appropriate experience and knowledge of developing biomass estimates from acoustic data and its use for stock assessment for deepwater species, preferably for orange roughy.

Applications must be submitted to the SIOFA Science Officer Marco Milardi ([marco.milardi@siofa.org](mailto:marco.milardi@siofa.org), CC [secretariat@siofa.org](mailto:secretariat@siofa.org)). Only those applications received before 12:00 PM (9:00 AM UTC) on Friday the 1<sup>st</sup> of September, Reunion Island time, will be considered.

#### **5. EVALUATION CRITERIA FOR THE SELECTION OF CANDIDATES**

An evaluation panel, the SIOFA Secretariat, and the Chair and Vice-Chair of the SIOFA Scientific Committee will select one successful applicant for this contract. The selection criteria will include the following:

1. Adequate submission of information to allow the panel to evaluate the candidate
2. Evaluation of the proposal from the candidate, including the proposed contract price
3. Ability to undertake and complete the analyses or work required in this ToR
4. The candidate's agreement with confidentiality provisions required for the project
5. Acceptable conflict of interest statement
6. Agreement with the data submission and intellectual property terms required in this ToR, and
7. Financial and resourcing considerations.

#### **6. CONFLICTS OF INTEREST. PARAGRAPH 4 OF SIOFA'S RECRUITMENT PROCEDURE**

*To ensure that situations relating to potential and actual conflict of interests are avoided, persons falling into the following categories may not normally be considered for SIOFA consultancy: (i). any person designated as a designated representative or alternate representative of a CCP to the Meeting of Parties (MOP) as per Rule 3.1 of the Rules of Procedure, and to the SC and any other subsidiary bodies of the MOP, as per Rule 21.3 of the Rules of Procedure; (ii). Any person fulfilling the function of Chair or Vice-Chair of the MOP or Chair or Vice-Chair of a SIOFA subsidiary body or working group; (iii). Any person acting as a member of a delegation involved in the SIOFA decision-making process resulting in recommendations and/or approval for the SIOFA work requiring the engagement of a consultant; and (iv). Individuals who were SIOFA Secretariat staff members at the*

*time when the recommendations and/or approval for the SIOFA works were adopted or who are members of immediate family (e.g., spouse or partner, father, mother, son, daughter, brother, or sister) of any Secretariat staff member or of the persons identified in 4 (i), (ii), and (iii).*

## **7. CONTACTS**

Project Coordinator – SIOFA Science Officer (Marco Milardi, [marco.milardi@siofa.org](mailto:marco.milardi@siofa.org))

Administration – SIOFA Executive Secretary (Thierry Clot, [thierry.clot@siofa.org](mailto:thierry.clot@siofa.org))

## **8. REFERENCES**

Cordue, P.L. (2018a). Stock assessment of orange roughy in the Walter's Shoal Region. SAWG-01-05 rev 1. Southern Indian Ocean Fisheries Agreement (SIOFA), 57 p.

Cordue, P.L. (2018b). Assessments of orange roughy stocks in SIOFA statistical areas 1, 2, 3a, and 3b. SAWG-01-06 rev 1. Southern Indian Ocean Fisheries Agreement (SIOFA), 11 p.

Macaulay, G. (2022a). Orange roughy acoustic data processing ToR1: collation of additional data. SC-07-21. Southern Indian Ocean Fisheries Agreement (SIOFA), 13 p.

Macaulay, G. (2022b). Orange roughy acoustic data processing ToR2: data quality control. SC-07-22. Southern Indian Ocean Fisheries Agreement (SIOFA), 11 p.

Macaulay, G. (2022c). Orange roughy acoustic data processing ToR3: estimation of the biomass. SC-07-23. Southern Indian Ocean Fisheries Agreement (SIOFA), 16 p.

Roa-Ureta, R., Wiff, R., Flores, A. (2022). Stock Assessment of the orange roughy (*Hoplostethus atlanticus*) under management by the Southern Indian Ocean Fisheries Agreement (SIOFA):2000 to 2020. SC-07-35. Southern Indian Ocean Fisheries Agreement (SIOFA), 63 p.