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**WS2025-PAM2-03**

# Update on the development of harvest strategies for key SIOFA fish stocks

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<b>Abstract</b>	
This report provides a short update on project PAM2024-03 on the development of harvest strategies for key SIOFA fish stocks. Species-specific modelling is discussed.	



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## 1. Introduction

This document is a brief update on progress made with regards to SIOFA project PAM-2024-03: development of harvest strategies for key SIOFA fish stocks. This project is carried out in close collaboration with projects PAM-2024-01, which will identify the appropriate policy settings and management approach, and PAM-2024-02 which will develop biological reference points for those key SIOFA species. It will also incorporate feedback from the review panel, covered under PAM-2024-04 (Figure 1).

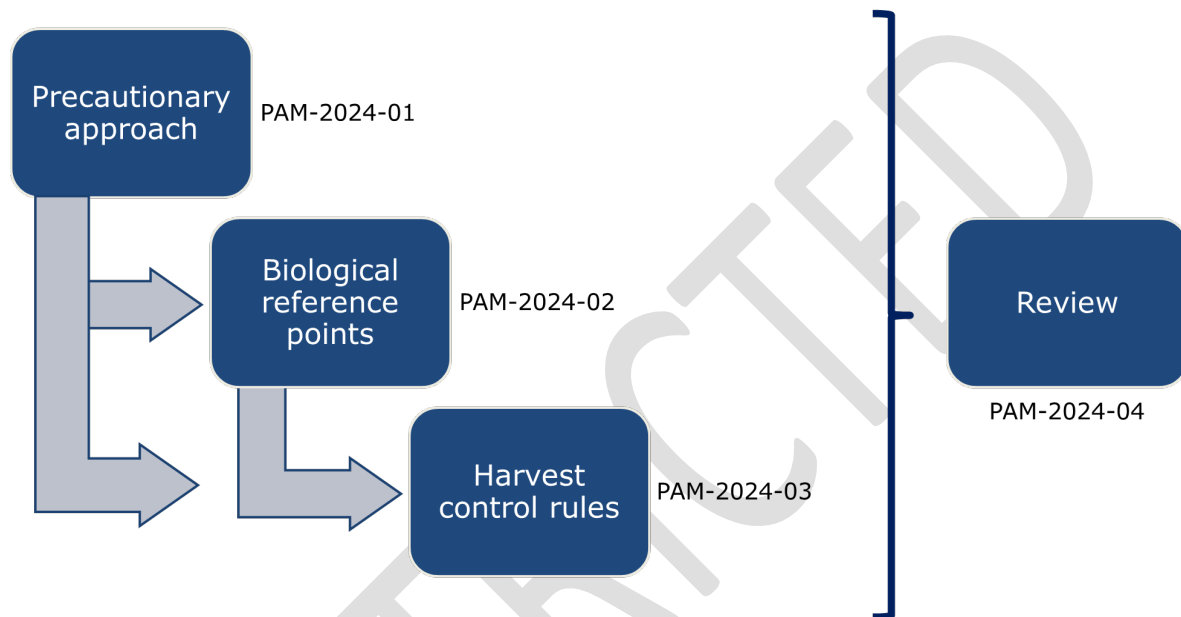


Figure 1: The 2024 SIOFA projects on Precautionary Approach and Management.

## 2. PAM-2024-03 Project Objectives

The project objectives, as per the terms of reference of the tender document are as follows.

1. To consider monitoring strategies and develop harvest control rules and undertake management strategy evaluations designed to help ensure sustainable fisheries within the SIOFA Area, including:
  - a. Harvest control rules that are suitable for a range of different levels of available data.
  - b. Management strategies that consider the trade-offs between different harvest control rules, levels of risk, and achievement of management objectives.
  - c. Breakout rules and default breakout actions.
2. Evaluation of different stock assessment options, based on the level of data available, for key SIOFA fish stocks, and specifically including orange roughy and toothfish.
3. Evaluate how additional objectives such as bycatch, fisheries impacts, benthic impacts, etc., could be included as part of harvest strategies.

### 3. PAM-2024-03 timeline

An initial workshop to progress the Precautionary Approach and Management Projects (WS2025-PAM) was carried out in February 2025, where these projects were presented and discussed (WS2025-PAM01, WS2025-PAM02, WS2025-PAM03). A project timeline was subsequently submitted to SC10 and approved (SC-10-INFO-18 Figure 1, reproduced below). Under this timeline, work on project PAM-2024-03 is due to start in July once draft reports from projects PAM-2024-02 and PAM-2024-01 have been circulated. WS2025-PAM2 is the second workshop to progress the Precautionary Approach and Management Projects.

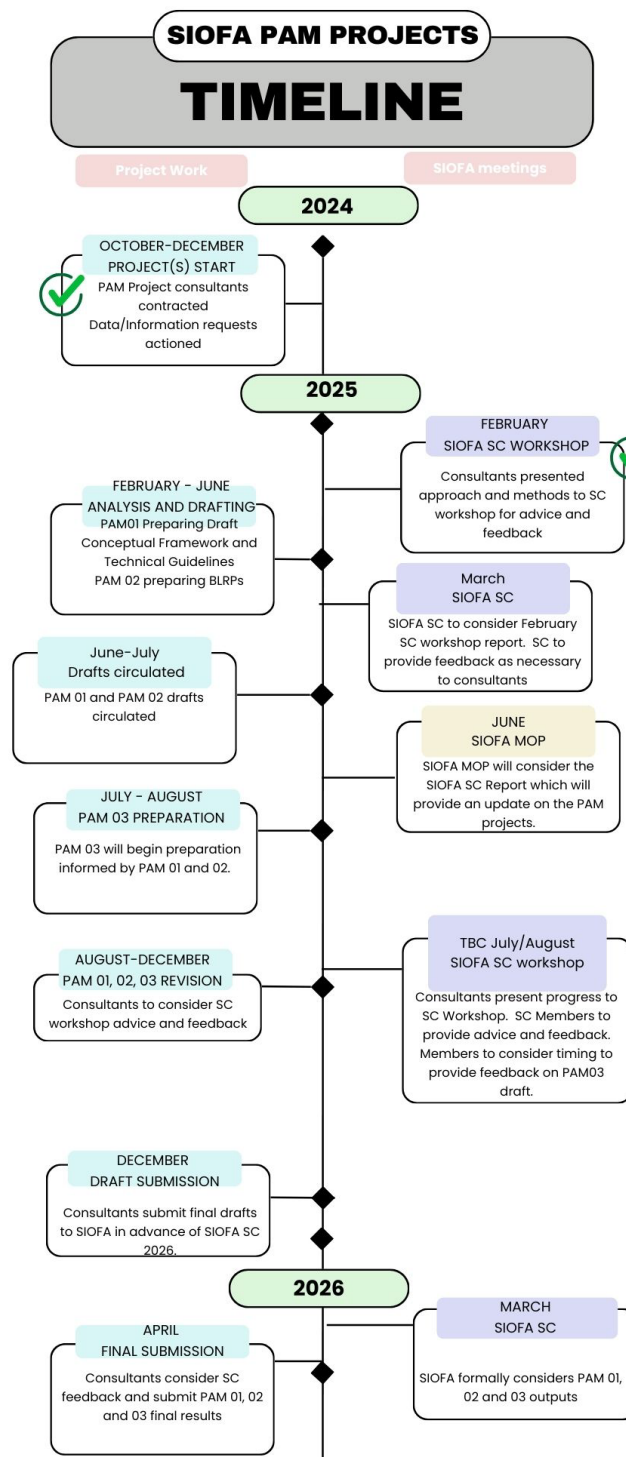


Figure 2: Flow diagram of the potential timeline for the PAM projects (PAM2024-01, PAM2024-02, PAM2024-03, and PAM2024-04). Reproduced from SC-10-INFO-18 Figure 1.

## 4. PAM-2024-03 progress update

Project PAM-2024-03 requires guidance from PAM-2024-01 on potential management processes which might inform preferred harvest control rules (HCR), and from PAM-2024-02 on biological parameters and reference points which will inform the outcomes of the harvest control rules.

In the meantime, data were collated on the species of interest for harvest control rules, and planning carried out. The proposed plan by species is as follows:

- Orange roughy has a series of fully Bayesian age-based stock assessments developed in 2025 by this research provider, which include CPUE, age compositions and length compositions. HCR testing will include F-based rules, CPUE based rules and constant catch rules using these models.
- Alfonsino has an existing stock assessment with catch, standardised CPUE and a length composition. This will be recreated in a Bayesian age-based stock assessment framework as a simulation. HCR testing will include F-based rules, CPUE based rules and constant catch rules.
- Toothfish has CPUE based biomass estimates and cumulative catch stock reduction models. A Bayesian age-based stock assessment will be developed to replicate the main processes, informed by the CPUE series. HCR testing will include F-based rules, CPUE based rules and constant catch rules. Rules will be tested with feedback from the CPUE based biomass estimates and control rules.
- Hapuka and mora have unstandardised CPUE series only. Age-based stock assessment models will be developed as conceptual simulation models with a range of potential biological parameters and stock structures. HCR testing will include CPUE based rules and constant catch rules.

The performance of the different harvest control rules will be compared using performance indicators as discussed in WS2025-PAM03. Breakout rules will also be developed.

## 5. References

Hoyle, S. and Mormede, S. (2025). Determination of Biological Reference Points (BRPs) for Key SIOFA Fish Stocks (PAM-2024-02). WS2025-PAM-01. Southern Indian Ocean Fisheries Agreement.

Mormede, S. and Hoyle, S. (2025). Development of Harvest Strategies for key SIOFA fish stocks (PAM-2024-03). WS2025-PAM-02. Southern Indian Ocean Fisheries Agreement.

Roberson, K.; Holmes, G.; Hoyle, S. and Mormede, S. (2025). SIOFA-PAM Projects: Timeline and Consultation Opportunities. SC-10-INFO-18. Southern Indian Ocean Fisheries Agreement.