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FAO Deep Sea Fisheries (DSF) Project- Update of activities 2024-2026

The Food and Agriculture Organization of the United Nations (FAO)

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Abstract

The FAO-implemented Common Oceans Deep-sea Fisheries (DSF) Project (2022-2027) aims to ensure that DSF in the ABNJ are managed under an ecosystem approach that maintains demersal fish stocks at levels capable of maximizing their sustainable yields and minimizing impacts on biodiversity, with a focus on data-limited stocks, deepwater sharks and vulnerable marine ecosystems. The DSF Project is delivered in collaboration with co-financing partners, which include the seven RFMOs responsible for the management of deep-sea fisheries stocks in areas beyond national jurisdiction (ABNJ), among them SIOFA.

The purpose of this paper is to provide an overview of DSF Project activities from 2024-2025, and highlight upcoming activities for 2025-2026, relevant to SIOFA.

[1] Restricted documents may contain confidential information. Please do not distribute restricted documents in any form without the explicit permission of the SIOFA Secretariat and the data owner(s)/provider(s).
[2] Documents available only to members invited to closed sessions.

Background

The 'Deep-sea Fisheries (DSF) under the Ecosystem Approach' Project is one of five child projects of the Global-Environmental-Facility-funded Common Oceans Program Phase II (2022-2027). The DSF project is implemented by FAO and executed by the General Fisheries Commission for the Mediterranean (GFCM), in collaboration with co-financing partners, which include the seven regional fisheries management organizations (RFMOs) responsible for the management of deep-sea fisheries stocks in areas beyond national jurisdiction (ABNJ)[3], as well as other international and national organizations[4]. The objective of the project is to ensure that deep sea fisheries in the areas beyond national jurisdiction (ABNJ) are managed under an ecosystem approach that maintains demersal fish stocks at levels capable of maximizing their sustainable yields and minimizing impacts on biodiversity, with a focus on data-limited stocks, deepwater sharks and vulnerable marine ecosystems. SIOFA is one of the seven co-financing partners RFMOs of the project.

The DSF Project was presented in detail at the SIOFA MoP10. Further background information on the project can be found in the information document MoP-10-INFO-13.

The purpose of this paper is to provide an update of DSF Project activities carried out during the period July 2024 to June 2025, as well as highlight key upcoming activities, relevant to SIOFA.

2024-2025 project activities relevant to SIOFA

Workshop on the Application of the Precautionary Approach to the Management of DSF stocks – October 2024

The DSF Project convened a virtual workshop to take stock of the application of the precautionary approach (PA) to the management of DSF stocks, and to explore the steps necessary to advance on the development of Precautionary Approach (PA) frameworks and/or long-term management plans/harvest strategies for these stocks. The workshop took place virtually on 15 October 2024, and was conducted through two identical sessions, one from 07:00-09:30 and the other from 14:00-16:30 CEST, to accommodate different time zones. There was a total of 87 participants across the two sessions. All partner RFMOs and their Secretariats, as well as the academic, non-governmental and private sector community were represented at the workshop. The report of this workshop can be viewed in Annex 1.

[3] General Fisheries Commission for the Mediterranean (GFCM), North East Atlantic Fisheries Commission (NEAFC), Northwest Atlantic Fisheries Organization (NAFO), North Pacific Fisheries Commission (NPFC), South East Atlantic Fisheries Organization (SEAFO), Southern Indian Ocean Fisheries Agreement (SIOFA) and South Pacific Regional Fisheries Management Organization (SPRFMO)

[4] International Council for the Exploration of the Sea (ICES), Southern Indian Ocean Deepsea Fishers Association (SIODFA), International Coalition of Fisheries Association (ICFA), and the National Oceanic and Atmospheric Administration (NOAA) of the United States of America

Follow-up activities include supporting RFMOs with operationalizing the precautionary approach and developing a good practice document for publication.

Capacity development – December 2024-June 2025

1. Observer training

The Deep-sea Fisheries Project held an observer training capacity building workshop for SIOFA CCPs from 3-5 December 2024 in Port Louis, Mauritius. The training was attended by five participants from Seychelles, five from Thailand, one from China, one from Cook Islands, and eight participants from Mauritius.

The full report of the training workshop can be viewed in Annex 2.

2. Decent work conditions

FAO, in collaboration with a number of partners, organized an international training course aimed at strengthening labour conditions in the fisheries sector, from 19-23 May 2025 in Isla Cristina, Spain. The course also addressed the importance of advancing decent work conditions on fishing vessels operating in the ABNJ. As part of its commitment to support this work within the context of RFMOs, the Deep-sea Fisheries Project supported six participants to contribute to, and benefit from, the course, including one participant from SIOFA.

3. Ocean governance

FAO, in collaboration with a number of partners, organized an in-person, global ocean governance workshop from 16-18 June 2025 in Rome, Italy. The workshop brought together 50 ocean governance practitioners from around the world to exchange knowledge and experience. Key thematic areas of the three-day workshop included fisheries, blue economy, environment and biodiversity, marine pollution and climate change. The DSF Project supported the participation of ten government officials from countries member to one or more RFMOs partner to the project, including three participants from SIOFA.

The DSF Project welcomes suggestions or recommendations from SIOFA CCPs for further capacity building activities to be explored during the remaining duration of the project.

EAFM Symposium – March 2025

The DSF Project, in collaboration with the Northwest Atlantic Fisheries Organization (NAFO) and the International Council for the Exploration of the Sea (ICES), organized a Symposium on the Ecosystem Approach to Fisheries Management (EAFM), held from 11 - 13 March 2025 at FAO headquarters in Rome, Italy.

The symposium focused on the implementation of the ecological components of EAFM, including retained species, non-retained (discarded) species, and ecosystem considerations. The Symposium was webcast, with interpretation provided in French and Spanish. The agenda, presentations, as well as recordings of the three Symposium sessions can be viewed at: https://eafm-symposium.nafo.int/

Industry Workshop – May 2025

The DSF Project held a second workshop (9-10 May 2025, Barcelona, Spain) with DSF industry operators from across the globe to explore proactive contributions from industry to sustainable DSF. The workshop aimed to build on the good outcomes of the first workshop, held in April 2024, by:

I. Allowing an open exchange between the DSF Project and deep-sea fishing operators on the following topics:
    a. Fostering collaboration between industry, scientists and managers for sustainable fisheries
    b. Deepwater sharks reporting and bycatch mitigation
    c. Vulnerable marine ecosystems
    d. Socioeconomic aspects of DSF
    e. Cross-sectoral interactions with DSF
II. Providing a platform for industry experts to exchange insights, address challenges, and propose proactive solutions for sustainable deep-sea fisheries management;
III. Advancing discussions on the terms of reference for a potential industry network of sustainable deep-sea fisheries.

The report of the workshop will be finalized at the end of June 2025, and shared with all project partners, including SIOFA.

Development of a "smart" Deepwater Shark Guide – 2023-2025

With financial support from the DSF Project, experts from the Virginia Institute of Marine Science and FAO have developed a streamlined, intuitive digital smart guide that operates on a PC or tablet to improve the identification of deepwater chondrichthyans by observers and crew in the Indian Ocean. The proposed key will present multiple character choices simultaneously, and selecting characters will alter the remaining choices. All character choices will be illustrated with line drawings and photographs. The key has been developed alongside observers and factory workers in the field with "fish in hand" to determine which characters are most useful to non-taxonomists when discerning species. The key is due to be published online in July 2025 and will be available for use after that date.

This project also leveraged SIOFA project DWS-2023-02 Identification and trends in Deepwater Sharks (https://siofa.org/science/sc-works/DWS-2023-02), showing a good synergy between the DSF project and SIOFA objectives. The DSF project can provide training in the use of the key upon request from SIOFA.

Upcoming activities for SIOFA 2025-2026

Workshop on deepwater sharks – 14-16 July 2025

The DSF Project has a continued focus on reducing impacts on various incidentally caught species, including deepwater sharks (including skates, rays, and chimaera; consistent with the definition of sharks in the IPOA-SHARKS).

Ongoing work in the DSF Project is focused on:

a) reviewing catch reporting requirements for shark catches by RFMOs
b) evaluating the data arising from the implementation of those catch reporting requirements
c) reviewing the potential factors that might generate differences in the use of ASFIS codes in the reported shark catches between RFMOs

Preliminary analysis of the information gathered from partner RFMOs suggests that the level of reporting on deepwater shark catches is highly variable among RFMOs, both with respect to quantity and quality. Based on these results, the DSF Project will organize a workshop on deepwater sharks, to be held from 14-16 July 2025, at FAO HQ, Rome, Italy, which will address key issues related to data collection, reporting quantity and resolution, reporting formats and ecological risk assessments.

Cross-sectoral workshop – 24-26 September 2025

The DSF Project is working on improving the integration of cross-sectoral activities to maintain biodiversity and resource sustainability. Under this work, the Project will organize a workshop to be held at FAO HQ from 24-26 September 2025 that will gather key sectors and stakeholders active in the ABNJ to consider a number of theoretical case studies and explore how these could be addressed from a cross-sectoral cooperation perspective.

The workshop will focus on understanding:

- the nature of cross-sectoral interactions from the perspective of deep-sea fisheries
- the science/methodology required to assess the potential impacts resulting from these interactions
- the institutional actors, interactions and processes involved and needed to address these impacts effectively and efficiently, and
- the types and levels of cross-sectoral cooperation mechanisms required to prevent, manage and mitigate these impacts

Assessment of data-limited stocks – commencing September 2025

The DSF Project will partner with ICES to examine data-collection requirements and assessment methods that will help determine the status of select data-limited stocks.

Activities will include collaboratively identifying appropriate assessment methodologies for selected fisheries, and reviewing data collection requirements needed to undertake these assessments.

The scope of the work will include demersal and small pelagic species of finfish that have a distribution predominantly in the ABNJ. Focus fish groups will be (a) alfonsino, pelagic armourhead and orange roughy, (b) toothfish and sablefish, and (c) various small pelagic species such as the mackerels, chub mackerels and saury.

Assessment biologists from different regions have been invited, and are strongly encourage, to engage in this work.

The work will commence in September 2025, at the meeting of the ICES WKLIFE group in the Azores. SIOFA have been invited to send a representative to attend WKLIFE and to take part in this project output.

Joint cruise with R/V Nansen in the SIOFA Area – November/December 2025

This research cruise is planned to take place in the southern Indian Ocean from 20 November to 10 December 2025, around the Walter's Shoal or the SW Indian Ridge.

The objective of the survey is to:

- Improve acoustic biomass estimates for alfonsino
- Undertake benthic surveys to study the distribution of vulnerable marine ecosystems and improve the distribution modelling.
- Extend work on deepwater shark identification and further trial the smart identification key
- Provide opportunity for the training of up to 19 scientists and observers from SIOFA members who will join the cruise as "scientific crew". A gender balance of at least 40% women is expected.

To date, expressions of interest to take part in the cruise have been received from representatives of France Overseas Territories, EU, Thailand, Seychelles, Cook Islands, China, Mauritius, and the SIOFA Secretariat.

Annex 1 - Workshop Report - Application of the precautionary approach to the management of deep-sea fisheries

Background

The Deep-sea fisheries (DSF) project is one of five child projects of the Global Environmental Facility (GEF) funded Common Oceans Program Phase II (2022-2027). The DSF project is implemented by FAO and executed by the General Fisheries Commission for the Mediterranean (GFCM), in collaboration with co-financing partners, which include the seven regional fisheries management organizations (RFMOs) responsible for the management of deep-sea fisheries stocks in areas beyond national jurisdiction (ABNJ)[5], as well as other international and national organizations[6]. The objective of the project is to ensure that DSF in the ABNJ are managed under an ecosystem approach that maintains demersal fish stocks at levels capable of maximizing their sustainable yields and minimizing impacts on biodiversity, with a focus on data-limited stocks, deepwater sharks and vulnerable marine ecosystems.

Outcome 1.1 of the DSF project aims to support wider adoption and implementation of international obligations relating to sustainable fisheries, with a target that by the end of the project, four RFMOs have adopted new measures that improve the management of DSF stocks. Contributing to Outcome 1.1, Output 1.1.1 aims to identify gaps in regional obligations to manage fish stocks and propose corrective measures.

In 2023, a desktop study was conducted under Output 1.1.1, which contrasted the conservation and management measures (CMMs) of the seven RFMOs that have a mandate to manage DSF (from here on, dsRFMOs) against obligations outlined in international instruments, in the form of a matrix. The matrix was compiled by considering the international legal framework for ocean and fisheries governance, considering both legally binding and non-binding instruments, with the instruments considered as follows:

- The 1982 Law of Sea Convention (LOSC)
- The 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement)
- The 1995 United Nations United Nations Fish Stocks Agreement (UNFSA)
- The 1995 Code of Conduct for Responsible Fisheries (CCRF)
- The 1999 International Plan of Action for Conservation and Management of Sharks (IPOA-Sharks)
- The 1999 International Plan of Action for the Management of Fishing Capacity (IPOA-Capacity)
- The 2001 International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU)

[5] General Fisheries Commission for the Mediterranean (GFCM), North East Atlantic Fisheries Commission (NEAFC), Northwest Atlantic Fisheries Organization (NAFO), North Pacific Fisheries Commission (NPFC), South East Atlantic Fisheries Organization (SEAFO), Southern Indian Ocean Fisheries Agreement (SIOFA) and South Pacific Regional Fisheries Management Organization (SPRFMO)

[6] International Council for the Exploration of the Sea (ICES), Southern Indian Ocean Deepsea Fishers Association (SIODFA), International Coalition of Fisheries Association (ICFA), and the National Oceanic and Atmospheric Administration (NOAA) of the United States of Ameria

- The 2008 International Guidelines for the Management of Deep-sea Fisheries in the High Seas (DSF Guidelines)
- The 2009 Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA)
- The 2010 International Guidelines on Bycatch Management and Reduction of Discards (Bycatch Guidelines)
- The 2014 Voluntary Guidelines on Flag State Performance (VGFSP)
- The 2017 Voluntary Guidelines for Catch Documentation Schemes (VGCDS)
- The 2019 Voluntary Guidelines on the Marking of Fishing Gear (VGMFG)
- The 2022 Voluntary Guidelines for the Regulation, Monitoring and Control of Transshipment (VG Transshipment) outlined in international instruments, in the form of a matrix.

The matrix assessed the uptake of obligations grouped into two main categories:

(i) The long-term conservation and sustainable use of fishery resources through the application of a precautionary approach and the ecosystem-approach to fisheries (EAF). Under this category, only deep-sea target fisheries were considered, as confirmed by Secretariats and/or as defined on the RFMO websites. For each target fishery of each RFMO, it was assessed whether the following conservation and management measures have been adopted, or scientific assessments carried out (from here these will be collectively referred to as “measures”):

a. Establishment of limit reference points
b. Establishment of target reference points
c. Stock assessment
d. Setting or catch or effort limits
e. Application of gear restrictions
f. Development of long-term management plan
g. Measures on discards
h. Mitigation and other measures for endangered, threatened and protected (ETP) bycatch species

(ii) Monitoring, control and surveillance (MCS) as an integral part of fisheries management to achieve the objective of long-term conservation and sustainable use of deep-sea species and, to ensure that fishing vessels comply with the CMMs adopted by RFMOs. Under this, it was considered whether each RFMO has adopted measures relating to:

a. Logbooks
b. Observers
c. VMS
d. Boarding and inspection
e. Port State measures
f. Catch documentation schemes
g. Marking of vessels and fishing gear
h. Transshipment

The results of this simplistic exercise indicated that dsRFMOs seemingly have a good uptake of monitoring, control and surveillance (MCS) requirements outlined in international instruments. With respect to measures relating to the long-term conservation and sustainable use of fishery resources, however, uptake across the dsRFMOs was found to be variable. In particular, the uptake of measures relating to the application of the precautionary approach (PA) to the management of target fisheries,

such as the establishment of conservation (or limit) reference points and management (or target) reference points (41% and 21% of the 65 DSF considered in the study, respectively), and long-term management plans/strategies (18% of the 65 DSF considered in the study), is generally weak[7].

Based on these results, the DSF project, with agreement from project partners, convened a workshop on the application of the precautionary approach to the management of deep-sea fisheries to take stock of existing practices, available initiatives and tools, discuss challenges, and importantly, identify further activities that could support strengthened implementation of the PA to the management of deep-sea fisheries by dsRFMOs.

The Workshop

The workshop took place virtually on 15 October 2024, and it was conducted through two identical sessions, one from 07:00-09:30 and the other from 14:00-16:30 CEST, to accommodate different time zones. The agenda of the workshop is provided in Appendix 1.

There was a total of 87 participants across the two sessions. It was decided not to include the list of participants in the workshop report, and not to attribute any personal opinions expressed at the workshop, so as to allow participants to express their opinions and views freely. However, it should be noted that all dsRFMOs and their Secretariats, as well as the academic, non-governmental and private sector community were represented at the workshop. The gender ratio was 46 men to 41 women.

In accordance with the workshop agenda (Annex 1):

1. Eszter Hidas, DSF Project Manager, started off the workshop by welcoming participants, explaining the arrangements for the meeting, and providing a short overview of the DSF project and the objectives of the workshop (as per the information provided in the Background section of this document).

2. Sarah Fagnani, Legal and Policy Expert, FAO, then took the floor to provide an overview of the international policy and legal framework for the application of the PA to the management of deep-sea fisheries. She recalled that the UNFSA[8], the CCRF[9] and the DSF Guidelines[10] collectively call for the application of the precautionary approach to the management of fish stocks through the establishment of stock-specific target and limit reference points and long-term management strategies and plans. She also noted that when it comes to the practical application of the PA, the only example of FAO technical guidelines published in this regard date back to 1995[11]. The guidelines deem fishery management plans necessary for all fisheries and recommend considering a long-time scale of at least 20-30 years and expressing operational targets and constraints in the form of target and limit reference points. She also highlighted that all dsRFMOs' conventions refer to the PA and as such, members to these RFMOs are expected to implement the PA and operationalize it

[7] In a review of the implementation of the International Guidelines for the Management of Deep-Sea Fisheries in the High Seas, Thompson and Reid (2024) came to similar conclusions: https://openknowledge.fao.org/handle/20.500.14283/cd0243en.
[8] Article 6 and Annex II
[9] Article 7.5
[10] Paragraphs 75-80
[11] 1995 FAO Technical Guidelines for Precautionary Approach to Capture Fisheries and Species Introductions

through the adoption and effective implementation of conservation and management measures.

3. Rishi Sharma, Senior Fishery Officer, FAO, then provided an overview of the scientific considerations of the application of the PA to the management of deep-sea fisheries. He explained that (see Figure 1):
    - Target and limit reference points are usually defined in terms of biomass (B) and/or fishing mortality (F). Target reference points are commonly set to biomass and fishing mortality levels that have a high probability of achieving the maximum sustainable yield (Bmsy and Fmsy, respectively), while limit reference points are usually set at a percentage below Bmsy and above Fmsy, so as not to impair recruitment for the population of concern (these could either be a function of the virgin stock size or the BMSY). Importantly, the levels at which the target and limit reference points are set are the prerogative of the managers of the fishery and greatly influence the overall long-term sustainability of the fishery.
    - In order to achieve Bmsy or Fmsy at a high probability, it is good practice to set the target B a little higher than Bmsy and the target F a little lower than Fmsy, to allow for a management buffer.
    - Blim and Flim represent levels of the stock that should certainly not be exceeded without jeopardizing the recruitment potential of the stock.
    - Different organizations represent biomass-based and fishing-mortality based reference points differently, but they are essentially all some proxy of Bmsy and Fmsy targets.
    - Trigger points represent points where a management decision must be taken on the management of a stock, applying either an output or input control measure.
    - There are good examples of this type of management approach in Australia, Canada, South Africa and United States of America.
    - Importantly, reference points are primarily only relevant if placed as part of a harvest strategy. Harvest strategies set out harvest control rules (HCR), which are a set of pre-agreed rules that are applied in order to ensure that a given fishery continually seeks to achieve target reference points and avoid limit reference points.
    - Harvest strategies are developed through a multi-stakeholder dialogue. The process includes defining the management objective of the fishery, setting the target and limit reference points, agreeing on acceptable levels of risk, and defining the management procedures, including for when trigger points are reached.
    - The best performing management procedure can be chosen through running models with different parameters and assessing the performance indicators.
    - A good example of a successful implementation of a harvest strategy is by the Convention for the Conservation of Southern Bluefin Tuna.

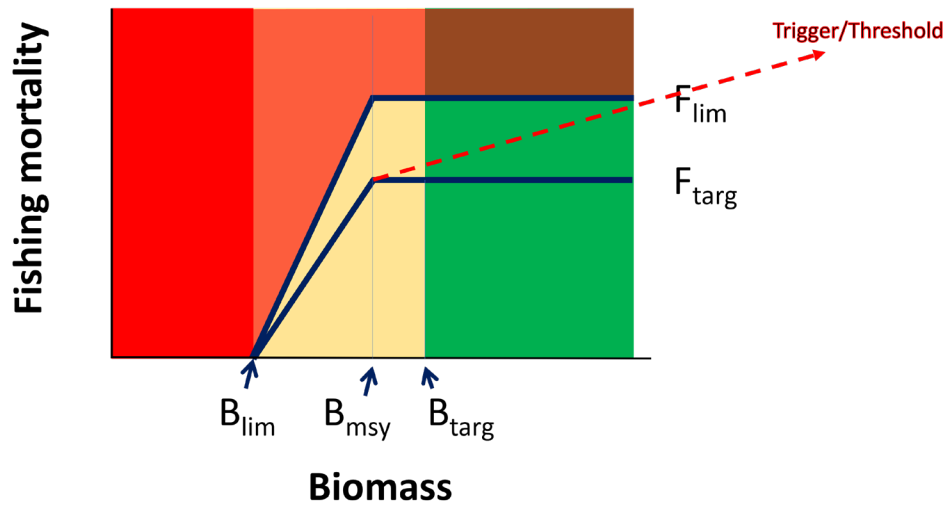
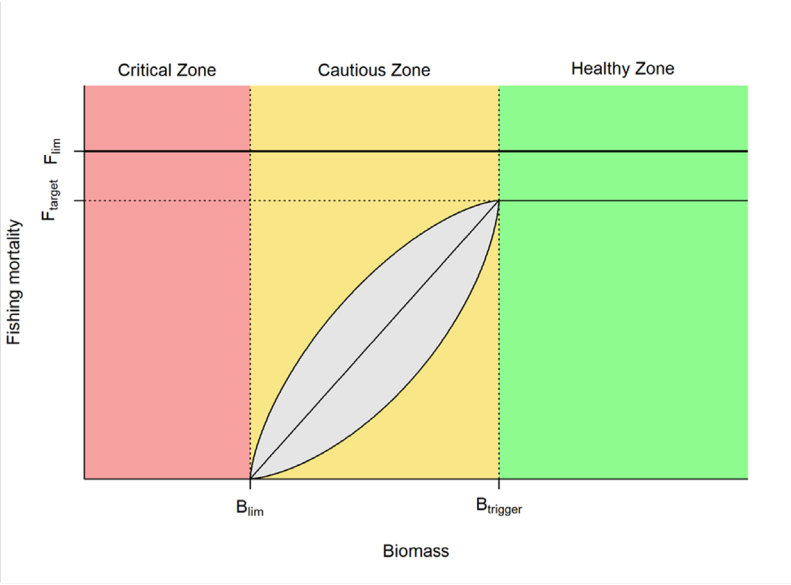


Figure 1 – Reference points, trigger points and harvest control rules

These presentations were followed by two concrete examples of the application of the PA by dsRFMOs:

4. Fernando Gonzales from the Oceanographic Institute of Vigo, co-Chair of the Joint Commission-Scientific Council Working Group on Risk-Based Management Strategies of NAFO, presented the revised NAFO PA Framework, which was approved by the NAFO Commission in 2024. He explained how this new framework came about, including highlighting key features of the original framework and the challenges and issues experienced with its implementation, and explaining the rigorous testing that was conducted through simulations before the revised framework was approved. He explained that the main features of the new PA framework include:
    - Three biomass zones – critical, cautious and healthy – delimited by two biomass reference points. The critical zone is below Blim, the cautious zone is between Blim and Btrigger, and the healthy zone is above Btrigger (see Figure 2);
    - A "leaf" HCR rather than linear approach, meaning that the framework is less prescriptive and allows managers to set exploitation levels inside the zones delineated by the leaf (see Figure 2); and
    - A table of allowable fishing mortality ranges and agreed management objectives for the different biomass zones to guide the choice of the final management measures (see Figure 3).

    He also highlighted the upcoming challenges with implementing the new framework, including:
    - Estimating the reference points for all stocks, as several are currently missing;
    - Implementing the framework for stocks for which only survey information is available; and
    - Implementing the framework for species with special biological characteristics (small pelagic and redfish).



Framework	F limit (F_{lim})	F target (F_{target})	B trigger ($B_{trigger}$)	B limit (B_{lim})
Reference Point	Fmsy	$0.85*F_{msy}$	$0.75*B_{msy}$.	$0.3*B_{msy}$

Figure 2 – The newly adoped NAFO precautionary approach (PA) framework

PA Zone	F levels	Objective
Healthy Zone ($B>B_{trigger}$)	A range of F at above and below F_{target}.	keeping the stock in the healthy zone
Cautious Zone ($B_{lim}<B<B_{trigger}$)	F should be within the leaf (potential harvest space).	avoid falling below Blim and promote stock growth.
Critical Zone ($B<B_{lim}$)	F should be as low as possible. Range of options and associated risk.	rebuild the stock out of the Critical Zone.

Figure 3 – NAFO PA framework management actions

5. Elisabetta (Betulla) Morello, Senior Fisheries Officer from the GFCM presented the background and process for the development and implementation of long-term management plans for deep-sea stocks in the Mediterranean and Black Sea. She explained that the key catalyst for developing these plans was the adoption of guidelines for the development of multiannual management plans by the 36th session of GFCM in 2012. A roadmap was then put together to assess the technical feasibility of these guidelines, and the result of this exercise saw the birth of the current GFCM tool to summarize all information required by decision/makers to start discussing management plans, i.e. the technical elements for management. The core of this document is a toolbox of potential alternative measures applicable to the fishery in question but it also includes :
    - scope of the management plan;
    - updated status of the stocks;
    - objectives;
    - indicators and reference points;
    - fisheries management measures;
    - decision rules;
    - scientific monitoring;

- research priorities;
- monitoring, control and surveillance (MCS); and
- revision of the plan.

Betulla explained that currently, GFCM management plans are mostly foreseen to be implemented in two stages:

- A transitional phase, implementing transitional precautionary measures while data and information are collected towards determining potential measures for
- A second phase, implementing long-term adaptive measures.

She highlighted that to date, there are 11 multiannual management plans in the Mediterranean and Black Sea, and four of these are for deep-sea stocks: one for European hake and deep-water rose shrimp in the Strait of Sicily, and three for deep-water red shrimp fisheries in the Strait of Sicily, Levant Sea and Ionian Sea. These plans all have a combination of effort and catch limits for a transitional phase from 2023-2025, and aim to transition towards adopted harvest control rules based on management strategy evaluations for the period 2026-2030.

Finally,

6. Shana Miller from The Ocean Foundation presented an overview of harvest strategies developed using management strategy evaluation (MSE), also known as management procedures. She talked about the key elements of harvest strategies, including management objectives, data collection program, stock status estimation method, and harvest control rule (HCR). The HCR is the operational part of a harvest strategy, using a pre-agreed rule to set fishing limits based on stock status. Ms. Miller discussed the harvest strategy development process, emphasizing its iterative nature with collaboration among fishery managers, scientists, and stakeholders. She stressed the benefits of the harvest strategy approach, including its ability to implement the precautionary approach, ecosystem approach to fisheries management, and climate-ready management for both data-rich and data-limited stocks. The speaker gave an update on harvest strategy development, implementation, and opportunities at the RFMOs, including for deep sea stocks. She ended by sharing a website developed in partnership with the Common Oceans Tuna 2 project, www.harveststrategies.org, as an online clearinghouse for multilingual educational materials on the topic.

The presentations were followed by discussion which was facilitated in the morning session by Mr Paul de Bruyn, Executive Secretary of the Indian Ocean Tuna Commission, and in the afternoon session by Mr Alejando Anganuzzi, former coordinator of the Common Oceans Program Phase I, and advisor to the Common Oceans Program Phase II.

The discussion was organized around six key questions posed to participants:

1. How can stakeholders, including governments, NGOs, and the fishing industry, collaborate to implement the PA to ensure sustainable deep-sea fisheries?
2. What can we learn from successful precautionary management of deep-sea stocks, such as those we heard today and others?
3. What could be the benefits and incentives for an effective implementation of the PA?
4. What are the key challenges or concerns for effectively applying the PA to deep-sea fish stocks? Are there any special concerns relative to deep-sea fisheries or is the situation similar to other fisheries?

5. What processes, guidance or training is needed?
6. How could the deep-sea fisheries project be involved or help to advance the application of the PA to the management of deep-sea fisheries?

The questions generated good discussions with participants.

The key messages generated from the sequence of presentations, and the key feedback received from participants, are summarized below.

Key Outcomes

Key messages derived from the presentations included that:

- There's a need to implement a PA to the management of deep-sea fisheries to ensure their long-term sustainable management, as called for by the international policy and legal framework (including UNFSA, CCRF and the DSF Guidelines) and RFMO Conventions;

- From a scientific perspective, achieving this requires the establishment of long-term, stock-specific management plans, which should include:
    - Setting clear, long-term, stock-specific management objectives through stakeholder consultation, which aim to balance biological, social and economic considerations;
    - Establishing target and limit reference points, both in terms of biomass and fishing pressure, which can trigger specific management actions when reached;
    - Using management strategy evaluations to assess the performance of different management regimes in achieving the set management objectives, and
    - Defining a harvest strategy, including harvest control rules, which describe how the fishery will be operated to guarantee the long-term sustainability of the stock;

- Different dsRFMOs have taken different approaches to implementing the precautionary approach to the management of deep-sea stocks:
    - NAFO uses the PA framework for all stocks under its management mandate that do not have a specific MSE; the framework aims to keep stocks in the healthy zone, defined as above 0.75 of Bmsy; it allows managers room for flexibility to choose from a range of fishing mortality levels at various biomass levels within the cautious zone, defined as between 0.3 and 0.75 of Bmsy;
    - GFCM, among other strategies, has adopted stock-specific management plans for a number of its deepwater shrimp stocks, taking a step-wise approach, with transitional measures in place until data are collected and management strategy evaluations are conducted, and the long-term management plan applied once harvest control rules are agreed;

- Extensive tools and materials are available to support RFMOs through the development of long-term, stock-specific harvest strategies and these can be accessed at www.harveststrategies.org.

Participants' perceived benefits of applying the PA to the management of fish stocks through long-term management plans/harvest strategies

- Management strategy evaluations and the development of harvest strategies help scientists, managers and other stakeholders come together and discuss/agree on the management

objective and the acceptable level of precaution/risk for a fishery;

- The initial time and effort spent developing a harvest strategy is later paid off by removing the need to negotiate catch limits.

Participants' perceived challenges with applying the PA to the management of deep-sea fish stocks through long-term management plans/harvest strategies

- There's poor biological and economic data availability to feed into a harvest strategy model;
- Many deep-sea fisheries are multi-species by nature, it is therefore difficult to apply a harvest strategy;
- RFMO Science Committees are overwhelmed, there a too many demands and not enough time and resources, and conducting management strategy evaluations and developing harvest strategies are very labor intensive and time consuming;
- Managers are also overwhelmed, they cannot follow the meaning of the outcomes of management strategy evaluations; in some RFMOs the science/manager interface is not facilitated as no actual forum for discussion exists, such as for example working groups.

Concrete suggestions for how the DSF Project could support a strengthened implementation of the precautionary approach to the management of DSF stocks

- Provide clear guidance on what is the PA to the management of target fisheries;
- Provide guidance on the elements of management strategy evaluations and harvest strategies, including the setting of management objectives and target and limit reference points;
- Develop a compendium of good practice examples;
- Provide training to scientists to improve their communication skills to managers on difficult, technical topics such as the outcomes of management strategy evaluations;
- Create a roster of independent scientists that RFMOs can call on to support management strategy evaluations and harvest strategy development (to address capacity shortages);
- Provide training for managers in management strategy evaluations and harvest strategy development, including providing tools and roadmaps on how managers can/should engage in the process;
- Support the development/establishment of science-manager forums in RFMOs where these don't exist;
- Promote and communicate widely on the tools available for management strategy evaluations and harvest strategy development, including for data poor situations.

Appendix 1

Time	Item	Speaker
07:00-07:10/ 14:00-14:10	Introduction and objectives	**Eszter Hidas**, DSF Project Manager
07:10-07:15/ 14:10-14:15	Overview of international requirements for the application of the PA to fisheries management	**Sarah Fagnani**, Policy and Legal Expert, FAO
07:15-07:40/ 14:15-14:40	Scientific considerations to the application of the PA to fisheries management	**Rishi Sharma**, Senior Fishery Officer, FAO
07:40-07:55/ 14:40-14:55	The NAFO PA framework – an example	**Ray Walsh** and **Fernando Gonzales-Costas**, Co-Chairs of NAFO WG-RBMS
07:55-08:10/ 14:55-15:10	GFCM long-term management plans for shrimp – an example	**Elisabetta Morello**, Fishery Officer, GFCM
08:10-08:40/ 15:10-15:40	Management strategy evaluations and harvest strategies – an overview	**Shana Miller,** The Ocean Foundation
08:40-09:20/ 15:40-16:20	Facilitated discussion	**Paul de Bruyn,** IOTC **Alejandro Anganuzzi**, Tuna Project
09:20-09:30/ 16:20-16:30	Conclusions	**Eszter Hidas**, DSF Project Manager

Annex 2 - Report of Training Proceedings and Outcomes from the Deep-sea Fisheries Project Observer Training Capacity Building Workshop

Summary

This document provides a report on the proceedings and outcomes from the Deep-sea Fisheries (DSF) Project Observer Training Capacity Building Workshop, held in Port Louis, Mauritius from 03 – 05 December, 2024.

Background

The Deep-sea Fisheries under the Ecosystem Approach (DSF) project is one of five child projects of the Global Environmental Facility funded Common Oceans Program Phase II (2022-2027). The DSF project is implemented by FAO and executed by the General Fisheries Commission for the Mediterranean (GFCM), in collaboration with co-financing partners, which include the seven regional fisheries management organizations (RFMOs) responsible for the management of deep-sea fisheries stocks in areas beyond national jurisdiction (ABNJ), as well as other international and national organisations. The objective of the project is to ensure that DSF in the ABNJ are managed under an ecosystem approach that maintains demersal fish stocks at levels capable of maximizing their sustainable yields and minimizing impacts on biodiversity, with a focus on data-limited stocks, deepwater sharks and vulnerable marine ecosystems. SIOFA is one of the seven partner RFMOs of the project, and the purpose of the workshop was to provide capacity building training for the design and implementation of observer programmes in SIOFA.

Course Trainers

The content of the workshop was delivered by Mr Isaac Forster, consultant with FAO as Observer Trainer, Dr Keith Reid, consultant with FAO as Fisheries Impacts Expert, along with assistance from Dr Marco Milardi, SIOFA Scientific Officer, and Mr Paul Clerkin, a PhD candidate with the Virginia Institute of Marine Science specialising in deep sea shark identification and taxonomy.

Participants

The training was attended by twenty participants five from Seychelles, five from Thailand, one from China, one from Cook Islands, and eight local participants from Mauritius. The list of participants in included in Appendix 1

Course Content

The workshop timetable is detailed in Appendix 2

Day 1 focussed on the aims of a national observer programme to provide independent, reliable, verified and accurate information on all aspects of the of target and non-target catch, ecosystem interactions and operational practices of fishing vessels. This included the structural and operational

implementation of a National Observer Program that includes standard operating procedures and documented workflows to meet statutory obligations and supports scientific observers to deliver verifiable, high-quality scientific data in both domestic and high-seas fisheries. Example documents were provided to participants of the following aspects of observer programmes:

- An example MOU between Member States of SIOFA, or between observer provider companies and vessels detailing terms of exchange, clarifying requirements and specifying conditions for observers deployed on vessels (Appendix 3)
- A checklist of standard at sea observer equipment required for observer deployments (Appendix 4)
- A pre departure briefing document for participants to use on the second day of the workshop during the vessel visits, containing information that observers should check prior to deployment (Appendix 5)
- A post-deployment briefing document (Appendix 6)
- An emergency action plan for serious incidents during observer deployments (Appendix 7)
- A code sheet list for communicating with observers through vessel independent communication devices (Appendix 8)

Day 2 included field visits to the FV *Perfect One* a 15m semi-industrial handline fishing under the flag of Mauritius (this is an example of the type of vessel that fish Mascarene Ridge, including on the Saye de Malha bank in SIOFA). Participants were able to go aboard and also observe officers of the Mauritius Marine Fisheries Service conducting pre-offload inspection procedures. A visit of a second vessel, the FV *Klondyke 139*, a 54.55m factory Trawler under the flag of Mauritius was also undertaken. Participants had a tour of the vessels as well as the opportunity for discussion with the ships' owner and the captain. To structure the vessel visits the workshop participants were all given the example Observer pre-embarkation checklists to complete when visiting the two vessels (Appendix 5).

The afternoon of the second day consisted of a site visit to the Albion Fisheries Research Centre (AFRC) which is a fisheries research facility under the Mauritius Ministry of Fisheries. Scientists from the AFRC provided a demonstration of biological sampling, including otolith extraction from a sky emperor (the dominant catch species in the handline fishery that was kindly donated by the FV *Perfect One*). Paul Clerkin gave a demonstration of a deep-sea shark identification App that is currently under development with the support of the DSF Project.

Day 3 included an overview from Dr Milardi of the recent SIOFA workshop on the SIOFA Observer logbooks that are currently being trialled by SIOFA CCPs. This was followed by a discussion of the potential role of electronic monitoring to support scientific observers in their at-sea work. The participants agreed that electronic monitoring is largely seen as a "compliance" tool although it has the potential to reduce some elements of observer workload that would allow more time for them to collect biological (and/or independent) data.

The final afternoon included a question-and-answer session and a discussion of key objectives and outcomes with participants for follow-up, both nationally and as part of their contribution to SIOFA.

Outcomes

Key outcomes from the discussion on the last day included requests for:

- greater guidance on the detailed requirements for observer data from specific fisheries
- details on requirements for debriefing and data checking routines for CCP Observers in SIOFA
- the DSF Project do more work on fish ID materials for key species
- a clear explanation of observer coverage and data collection processes and requirements in SIOFA
- translation of information into languages used on vessels

Post Meeting Feedback

A follow-up survey (Appendix 9) was sent to all workshop participants on 14th December 2024. Five responses to the survey were received by 20th December 2024, covering six of the workshop participants. Responses to the survey ranked all the six multiple choice items in either Good/ Very Good, or Excellent Categories indicating that participants felt that the workshop was well structured with appropriate content, and that the facilities provided for the workshop were suitable.

Comments on potential topics for inclusion in any future workshops were varied in length, in terms of suggested topics and content that could be provided, however three main themes were consistent across the surveys. These were:

1. The inclusion of additional training to build capacity on stock assessment and data analysis techniques for fisheries research
2. More practical hands-on sessions to teach techniques for fish measurements, biological sampling and standardization of data collection methods
3. Targeted workshops specialising in individual fisheries so that specific issues and operational requirements can be discussed in detail.

Appendix 1 – List of Workshop Participants

Country	*Mr./Ms.*	*Name*	*Surname*
China	Mr.	Jun	Yu
Cook islands	Mr.	Saiasi	Sarau
Mauritius	Ms.	Luvna	Caussy
Mauritius	Mr.	Rajendranath	Langur
Mauritius	Mr.	Keshwar	Lobin
Mauritius	Mr.	D	Mattarooa
Mauritius	Mr.	D S	Loday
Mauritius	Mr.	Ritesh	Soobhug
Mauritius	Mr.	Doorvanand	Kawol
Mauritius	Mr.	Avinash	Seebaluck
Seychelles	Mr.	Alex	Tirant
Seychelles	Ms.	Maria	Francourt
Seychelles	Mr.	Daniel	Bristol
Seychelles	Ms.	Lana	Gabriel
Seychelles	Ms.	Verona	Boniface
Thailand	Mr.	Weerapol	Thitipongtrakul
Thailand	Mr.	Bunyarit	Permnak
Thailand	Ms.	Tirabhorn	Yothakong
Thailand	Mr.	Nattawut	Aiemubolwan
Thailand	Ms.	Jidapa	Setthatham

FAO
Keith Reid keith.reid@fao.org
Maarten Roest Maarten.Roest@fao.org
Isaac Forster isaac.forster@ccamlr.org
Paul Clerkin pjclerkin@vims.edu

SIOFA
Marco Milardi marco.milardi@siofa.org

Appendix 2 - Observer Training Capacity Building Workshop Timetable

Day 1 – Operation of a National Observer Programme and its contribution to SIOFA

Time	Item
Morning 0900 – 1030 session 1030 – 1100 break 1100 -1230 session 1230-1400 lunch	Welcome • Introduction of training objectives and outcomes • Presentations from FAO (EH remote), SIOFA (MM) and representatives of CCP observer programmes. The Operation of a National Observer Programme contributing to SIOFA • The formation of Regional Fisheries Management Organizations (RFMOs) • Obligations to provide scientific observers and data • What is a fisheries observer • The role of scientific observers in domestic and high-seas fisheries
Afternoon 1400 – 1530 session 1530 – 1600 break 1600 – 1730 session	Standard Operating Procedures for an Observer Programme. • Creating an observer programme workflow covering the pre-embarkation period, the observation period onboard the vessel and the post-deployment period. • Observer safety and emergency action plans Information Security and Management System • Creating a structure to manage the entire life cycle of Observer data including: (i) data collection forms and instructions, (ii) quality, accuracy and validity of data. (iii) protecting data from unauthorized access, loss, corruption, or theft, (iv) availability, confidentiality and security of data Observer Data • Data is the main output of a scientific observer programme, and we will explore: (i) the use of simple data metrics for quality assurance and diagnostics. (ii) examples of using observer data in fisheries management Preparing Observers for deployment • We will undertake a (mock) pre-embarkation briefing in preparation for visiting a vessel on Day 2.

Learning outcomes:

Clarity on the aims of a national observer programme to provide independent, reliable, verified and accurate information on all aspects of the of target and non-target catch, ecosystem interactions and operational practices of fishing vessels.

Design outline of the structural and operational implementation of a National Observer Program that includes standard operating procedures and programme workflows to meet statutory obligations and supports scientific observers to deliver verifiable, high-quality scientific data in both domestic and high-seas fisheries.

Day 2 – Practical training for Observers for working in SIOFA fisheries

Time	Item
Morning	Summary of outcomes and feedback from Day 1 Practical Training: Port visit -Port Louis We will arrange a visit to fishing vessels in the port to review processes and procedures for: • Pre-embarkation checks and Observer safety • Recording vessel details • Reporting and describing gear types • Methods for sampling of the catch • Post-deployment debriefing
Afternoon	Practical Training: Visit to Albion Fisheries Research Centre In the laboratory facilities at the AFRC we review processes and procedures for: • Identifying key species in the catch • Taking accurate biological measurements • Collecting and storing biological and image samples

Learning outcomes:
Training programmes in National Observer Programs provide Observers with the skills to carry out their duties and responsibilities onboard vessels operating in either domestic or SIOFA fisheries:

Day 3 – Tools and technologies for improving Observer data.

Time	Item
Morning 0900 – 1030 session 1030 – 1100 break	Summary of outcomes and feedback from Day 2 Observer data SIOFA data forms trials

1100 -1230 session 1230-1400 lunch	• In 2024 SIOFA agreed to a trial of new observer logbook forms for use in SIOFA trawl, line and pot fisheries. The new logbooks relevant to those CCPs in attendance will be reviewed. • Completing the SIOFA Observer Logbooks • Using FAO Codes Training tools • Online/remote training resources • New skills and opportunities Electronic Monitoring [IF, KR] • Where can EM help observers in their duties • Technologies for video recording and image recognition
Afternoon 1400 – 1530 session 1530 – 1600 break 1600 – 1700 session	Key learnings and feedback Moderated question and answer session for all participants. • Key Outcomes • Conclusions • Future Plans Closing statements and end of the workshop

Appendix 3 - Example MOU for observer deployments between SIOFA Members

ARRANGEMENT BETWEEN THE GOVERNMENT OF …… AND THE GOVERNMENT OF ……. FOR THE EXCHANGE OF SCIENTIFIC OBSERVERS IN ACCORDANCE WITH THE PROVISIONS OF THE SIOFA OBSERVER SCHEME

PREAMBLE

The Government of ……. and the Government of …….. (hereinafter referred to as the "Members"), being signatories to the Southern Indian Ocean Fisheries Agreement (SIOFA); and

IN ORDER to promote the objectives and ensure observance of the provisions of the SIOFA Observer Scheme;

Have reached the following understanding:

PARAGRAPH I

The Member wishing to receive a Scientific Observer (hereinafter referred to as the "Receiving Member") under the provisions of this Arrangement will take appropriate measures within its competence to ensure that a Scientific Observer, designated by the Member providing the Scientific Observer under this Arrangement (hereinafter referred to as the "Designating Member"), will be taken on board of a vessel nominated by the Members before the beginning of each fishing season, to observe and report on the activities of said vessel in accordance with the SIOFA Observer Scheme ("the Scheme") and in accordance with any SIOFA Conservation and Management Measures (CMM) in force.

PARAGRAPH II

(1) This Arrangement will operate subject to the terms and conditions established by the SIOFA Observer Schemne.

(2) The Scientific Observer will be accommodated aboard the vessel specified under Paragraph XX and in accordance with the following arrangements:

(a) The Scientific Observer will be accorded the status of a ship's officer. Accommodation and meals for the Scientific Observer on board will be of a standard commensurate with this status.

(b) The Receiving Member will ensure that the vessel operator cooperates fully with the Scientific Observer to enable the Scientific Observer to carry out the tasks assigned by the SIOFA Scientific Committee. This will include access to data and to those operations of the vessel necessary to fulfil the duties of a Scientific Observer as required by the SIOFA Scientific Committee.

(c) The Receiving Member will take appropriate action to ensure the security and welfare of the Scientific Observer in the performance of his/her duties, to provide him/her with medical care and to safeguard his/her freedom and dignity.

(d) Arrangements will be made by the Receiving Member for messages to be sent and received on behalf of the Scientific Observer through the vessel's communication system. Reasonable costs of such communications will be borne by the Designating Member.

(e) Arrangements involving the transportation and boarding of the Scientific Observer will be organised so as to minimise interference with harvesting and/or research operations.

(f) The Scientific Observer will provide to the master of the vessel copies of such records, prepared by the Scientific Observer, as the master may request.

(g) The Designating Member will ensure that the Scientific Observer carries insurance adequate to cover accidents and/or illness while the Scientific Observer is aboard the vessel. Such insurance will be to the satisfaction of both the Receiving and Designating Member.

(h) Unless otherwise agreed transportation costs of the Scientific Observer to and from the boarding points will be borne by the Receiving Member.

(i) Unless otherwise agreed, the equipment, protective clothing, salary and any related allowances of the Scientific Observer will be borne by the Receiving Member. The vessel operator of the Receiving Member will bear the costs of the accommodation and meals of the Scientific Observer whilst he/she is on board the vessel

(3) A copy of this Arrangement will be forwarded to the SIOFA Scientific Committee by the Designating Member.

(4) The primary mission of the Scientific Observer is to collect information in accordance with the instruction of the SIOFA Scientific Committee, and CMMs adopted by the SIOFA Commission. For this purpose, the Scientific Observer will carry out tasks, in accordance with Annex XX of the Scheme, using the observation formats approved by the SIOFA Scientific Committee. All other requests to the Scientific Observer for information, data and/or specimens will receive a lesser priority and will be subject to confirmation by both Members.

(5) The Scientific Observer will be a national of the Designating Member and will conduct himself/herself in accordance with the customs and orders existing aboard the vessel of assignment.

(6) The Scientific Observer will be familiar with the activities to be observed and the provisions of SIOFA and the CMMs adopted under it. The Scientific Observer will be adequately trained to competently carry out the duties of scientific observation. The Scientific Observer will be able to communicate in the language of officers on board the vessel of the Receiving Member.

(7) The Scientific Observer will carry a document issued by the Designating Member which identifies the individual as a Scientific Observer in accordance SIOFA Scheme

(8) Within one month of the Scientific Observer's return to the Designating Member Country the Scientific Observer will submit to the SIOFA Secretariat and the Receiving Member, through the respective authorities, a report on his/her observations, information gathered, data and

scientific specimens acquired on the cruise using the formats required by the SIOFA Scientific Committee. The Designating Member will submit the report to the next annual meeting of the SIOFA Scientific Committee and Commission as an information paper.

(9) Any information collected outside of the SIOFA area, unless otherwise agreed between the Members, will remain the property of the Receiving Member and will be provided to the Receiving Member immediately upon return to port.

(10) The Scientific Observer will have due regard to the confidentiality of all data collected by him/her under this Arrangement. The Designating Member will require the Scientific Observer to maintain the confidentiality of the information and data and not release any of the information and data except to the Designating Member, the Receiving Member or to the master of the vessel.

PARAGRAPH III

The Members have entered into this Arrangement in the spirit of scientific co-operation under the SIOFA Observer Scheme in order to gather and present scientific information essential for the assignment of the status of populations and ecosystems in SIOFA waters.

PARAGRAPH IV

The liability for the costs of the Scientific Observer, the travel itinerary of the Scientific Observer, and such other details, will be determined by consultation between the Members.

PARAGRAPH V

Any disputes between the Members arising out of the interpretation or implementation of this Arrangement will be settled amicably through consultation or negotiation between them.

PARAGRAPH VI

This Arrangement will enter into effect upon signature. The date of entry into effect will be the date of signature.

(1) This Arrangement may be amended at any time by mutual consent of the Members through an exchange of Notes between the Members. Such an amendment will come into effect on the date of the last Note.

(2) This Arrangement will remain in effect until it is terminated upon six months written notice to the other Member.

Signed in duplicate copies in the English language, both having equal validity.

SIGNED at on this day of 20XX

- -	- -
FOR THE GOVERNMENT OF	FOR THE GOVERNMENT OF

Appendix 4 – Checklist of at-sea observer equipment

Trip No. _____ Observer 1) _____ (2) _____

	Number	Issued		Number	Issued
Reference Material and Paperwork			**Observer Workwear**		
SIOFA Briefing Notes	1		Deck suit	1	
SIOFA Biological Protocols	1		Freezer/insulated jacket	1	
SIOFA Scientific Observer Manual	1		Insulated boots + liners (Baffin workday)	1	
Fish the Sea not the Sky	1		Insulated gloves + liners (Winter Flex Shield)	2	
SIOFA VME Guide	1		Insulated gloves (Ninja)	1	
Deep Sea Invertebrate Guide	1		Ski goggles	1	
Seabird Guide	1		Balaclava (fleece)	2	
Fish ID guides	1		Insulated beanie	2	
Fish Maturity Staging Guide	1		Cotton gloves	3	
Skate Condition Guide	1		Waterproof orange gloves	3	
Whales & Dolphins Guide	1		Polypropylene liners	2	
Fish ID Book	1		Waterproof PVC overalls	1	
Tag photo template	3		Waterproof PVC Raincoat	1	
Paper Biological Sampling Forms			Gumboots	1	
Marine Debris forms	4		Overalls	2	
Photo authority form	1		**Personal protective equipment**		
Trip diary	2		SOLAS approved life jacket	1	
Benthic sample labels	4		Hard hat	1	
Halls dockets	3		Hi-Vis vest	1	
Mainfreight dockets	3		Hard hat	1	
Blank paper	2		Ear muffs	1	
Blank waterproof paper	3		Ear plugs	5	
Initial checklist	1		Strobe light	1	
Incident report forms	5		First aid kit	1	
Pre-departure checklist	1		EPIRB	1	
SIOFA tag return envelopes	40		Immersion suit & safety harness	Vessel	
Observer gear					
Computer + files loaded	1		Salter 200kg scales	1	
USB back up drive	1		Salter 100kg scales	1	
Stopwatch	1		Scale hooks	3	
Notebooks	4		Electronic Marel scales	1	
Stationary	Y		Albatross bags	Y	
Calculator	1		Petrel bags	Y	
Scale batteries	Y		Sample bags (various sizes)	Y	
Mouse batteries	Y		Fish bins	Y	
Stopwatch batteries	Y		Gonad bowls	Y	
Clipboard	1		Knives	Y	
Waterproof gear bag	1		Knife sharpener	1	
Tissue sampling kit	1		Measuring tape	2	
Cable ties	Y		Tally counter	3	

Plastic bags	Y		Forceps	1	
Camera	2		Otolith packets	Y	
Tape measure	2		Otolith tray	1	

Observers: _____ _____

Briefing Officer: _____

Date Briefed: _____

Appendix 5 – Example pre-departure briefing document

This checklist is designed to aid in familiarising observers with safety organisation procedures on board fishing vessels on which they may be required to serve. The induction is to be completed by the observer with either the skipper or mate of the vessel. The completed form should be sent to your organisation prior to departure and is to be included with observer data sheets when they are returned to the organisation. If the observer, or skipper / mate have any other safety concerns not included on this checklist, please include below. If you are not satisfied with any item on this check list contact your organisation prior to departure

1. [ ] Does the vessel have an authorisation to fish from the Flag State including species and gear type?
2. [ ] Is there a general vessel safety certificate/ survey from the Flag State?
3. [ ] Designated safety and medical officers

Verify the following items
3. [ ] Details on Emergency Alarms, i.e. types of alarms and sounds
4. [ ] Is your name on the Muster list, and are location of Muster Area(s) detailed?
5. [ ] Are Emergency Evacuation Procedures / Safety Signage displayed?
6. [ ] Outline of Emergency Drills (MOB, Fire, Casualty, Damage Control).
7. [ ] Lifejacket Locations and Donning Demonstrations
8. [ ] Liferaft/ lifeboat Locations and Launching Instructions
9. [ ] Lifebuoy Locations
10 [ ] Check if liferafts/ lifeboats and lifejackets/ lifebuoys are SOLAS approved and service plates are in date, including for the automatic painter release mechanism.

Safety Signage
11. [ ] Push Button Fire Alarm Locations Signed
12. [ ] Escape Routes Displayed
12. [ ] Portable Fire Extinguisher Locations
13. [ ] Fire Hose and Hydrant Location and Operation
14. [ ] Location of First Aid Kits and inventory lists of equipment
15. [ ] Lifeboat / Rescue Boat Overview and Launching (if applicable)

Safe Working Items
17. [ ] Outline High Risk Areas and Safest Deck Position for Observer to work depending on fishing gear type
18. [ ] Location of Trawl Deck Shelter Areas (if applicable) and Evacuation Routes

19. [ ] Location and Use of Communications Equipment
20. [ ] De-icing Capability (if applicable)

Mitigation Measures.
21 [ ] Are any mitigation measures required? If so do they meet all requirements (e.g. tori line, MMED)

SMOKE FREE AREAS
1. Does the vessel have smoke free communal area/s? YES / NO
List the areas _____
2. Do the work places require you to work in smoke effected areas? YES / NO
(Please provide any comments you wish to make in the observer report)

OBSERVER HEALTH INFORMATION

3. Has your health situation changed since your last trip to sea as an observer? YES / NO

4. Are you taking any prescribed medication? YES / NO

If Yes please specify _____

5. Do you have any allergies the skipper should be aware of ? YES / NO

If Yes please list:

6. Trip Details

Vessel Name:

Observer Name:

Deployment Start Date:

Deployment End Date (estimated):

Signature:

Date:

Appendix 6 – Example post observer deployment briefing document

General information

Date of debrief	Observer Voyage ID /Trip No.
Observer Name	Vessel Name
Fishery	Method
Second Observer Name	Employing organisation
Master	Owner
Voyage Start Date	Voyage End Date
Total fishing days	Total Sea days

Health and Safety

Were you satisfied with onboard WH&S and Sea safety?	Y / N	Do the work places require you to work in smoke effected areas?	Y / N
Were there any accidents or incidents?	Y / N	Was there alcohol consumed on the vessel?	Y / N
At any stage did you feel threatened or at risk?	Y / N	Were any illegal drugs present or used on the vessel?	Y / N
Are the safety protocols on board well documented and easily accessed?	Y / N	Were there any firearms onboard the vessel?	Y / N
Were any inducements (bribes) offered, illegal activity mentioned or were you asked to cover anything up/ “turn a blind eye”?	Y / N	If there were firearms, were they locked away?	Y / N

Comments:

Ship Safety Operations

Safety Induction complete	Y / N	Date:
Pre-departure Inspection Report	Y / N	Date:
Fire drill conducted within 24hrs leaving port	Y / N	Frequency during trip
Life raft drill conducted within 24hrs leaving port	Y / N	Frequency during trip
Man overboard drill conducted within 24hrs leaving port	Y / N	Frequency during trip
Vessel Safety Management System sighted	Y / N	
Drug and Alcohol Policy Sighted	Y / N	
Smoking Policy Sighted	Y / N	

Additional Information

Were the meals satisfactory? (No./day and quantity/meal)	Y / N
Were there any problems with your observer equipment?	Y / N
Did you feel that you were able to perform your observer duties freely and without interference?	Y / N
Were you offered assistance?	Y / N
Did any issue/s arise during the trip that is not contained in your report?	Y / N
Were there any negative comments made toward AFMA?	Y / N
Were the ablution facilities clean and well maintained?	Y / N
Where were you accommodated and to what standard was the accommodation?	
Did you identify any hazards on board during the trip?	
Is there anything we need to tell the next observer?	

Comments:

Appendix 7 – Example observer emergency action plan

This emergency action plan is based that implemented in the CCAMLR Scheme of International Scientific Observation, which can be found here: https://www.ccamlr.org/node/74295

1. In the event an observer dies, is missing or presumed fallen overboard, the Receiving Member shall ensure that the fishing vessel:

(i) immediately suspends all fishing operations;

(ii) immediately commences search and rescue if the observer is missing or presumed fallen overboard, and search for at least 72 hours, or until the search is called off by the Maritime Rescue Coordination Center (MRCC), unless the observer is found sooner, or unless instructed by the Receiving Member to continue searching;

(iii) immediately notifies the Receiving Member;

(iv) immediately notifies the appropriate MRCC and alert other vessels in the vicinity by using all available means of communication;

(v) cooperates fully in any search and rescue operation;

(vi) provides a report to the appropriate authorities on the incident; and

(vii) cooperates fully in any and all official investigations and with all directions, including by returning to port if appropriate, and preserves any potential evidence and the personal effects and quarters of the deceased or missing observer.

2. Immediately upon receiving the notification in paragraph 1(iii), the Receiving Member shall notify the Designating Member and shall provide periodic updates and coordinate, as appropriate, with the Designating Member.

3. Paragraphs 1(i), (iii) and (vii) apply in the event that an observer dies. In addition, the Receiving Member shall require that the fishing vessel ensure that the body is well-preserved for the purposes of an autopsy and investigation.

4. In the event that an observer suffers from a potentially serious illness or serious injury that may threaten his or her life or safety, the vessel shall seek medical advice through the relevant MRCC. If the MRCC has been advised by the pertinent medical professional that the observer suffers from a serious illness or injury that threatens his or her life or safety, the Receiving Member shall ensure that the vessel:

(i) immediately suspends fishing operations

(ii) immediately notifies the Receiving Member and the MRCC;

(iii) takes all reasonable actions to care for the observer and provide any medical treatment available and possible on board the vessel;

(iv) if recommended by the MRCC or requested by the Designating Member, facilitates the disembarkation and transport of the observer to a medical facility equipped to provide the required care, as soon as practicable; and

(v) cooperates fully in any and all official investigations into the cause of the illness or injury.

5. In the event that there are reasonable grounds to believe an observer has been assaulted, intimidated, threatened, or harassed such that their health or safety is endangered, the Receiving Member shall ensure that the fishing vessel:

(i) Immediately takes action to preserve the safety of the observer and mitigate and resolve the situation on board;

(ii) notifies the Receiving Member and the observer provider of the situation, including the status and location of the observer, as soon as possible;

(iii) facilitates the safe disembarkation of the observer, if requested, in a manner and place, as agreed by the Receiving and Designating Members, that facilitates access to any needed medical treatment; and

(iv) cooperates fully in any and all official investigations into the incident.

6. Contracting Parties shall facilitate entry into their ports of vessels carrying SIOFA observers to allow disembarkation of the observer.

7. Contracting Parties shall, to the extent possible, assist in any follow-up investigation conducted by the Receiving or Designating Member.

8. In the event that, after disembarkation from a fishing vessel of an observer, the Designating Member identifies – such as during the course of debriefing the observer – a possible violation against the observer, including a violation involving assault or harassment of the observer while on board the fishing vessel, the Designating Member shall notify the Receiving Member and the SIOFA Secretariat, and the Receiving Member shall:

(i) investigate the event based on the information provided by the observer provider and take any appropriate action in response to the results of the investigation;

(ii) cooperate fully in any investigation conducted by the Designating Member; and

(iii) notify the Designating Member and the Secretariat of the results of its investigation and any actions taken.

9. Where requested, Designating and Receiving Members shall cooperate in each other's investigations, including, as appropriate and consistent with their domestic laws, by providing their incident reports, into any incidents involving observers described in paragraphs 1, 3, 4, or 5.

Appendix 8 – Emergency Code List for Email or SPOT/ Inreach Communication Device

Nature of Emergency/Problem	Code	Origin of Problem				
		Skipper	Factory Manager	Mate	Senior Officers	Crew
1. Harrassment						
- Sexual	**HAS**	101	102	103	104	105
- Physical	**HPY**	107	108	109	110	111
- Verbal	**HVA**	113	114	115	116	117

2. Vessel	Code	Skipper	Factory Manager	Mate	Senior Officers	Crew
- Unsafe Practises	**VUP**	201	202	203	204	205
- Crew Behaviour	**VUC**	206	207	208	209	210
- Disease / Sickness	**VDS**	212	213	214	215	216
- Unsafe Vessel	**VUN**	If the **VUN** code is used, the next code should be from Section 4.				

3. Observer Operations	Code	Skipper	Factory Manager	Mate	Senior Officers	Crew
- ITQ Discarding	**DIQ**	301	302	303	304	305
- Schedule 6 Discards	**DSC**	307	308	309	310	311
- CF Test Interference	**ICF**	313	314	315	316	317
- Bio Sampling Interference	**IBS**	319	320	321	322	323
- Bird/Mammal Observations Interference	**IBM**	325	326	327	328	329
- Personal Pressure	**IPP**	331	332	333	334	335

	Outcome				
4. What You Have Done	No Action	Some Concern	Dealt With It	Resolved	Continuing
- Spoken To Person	401	402	403	404	405
- Spoken To Skipper	406	407	408	409	410
- Spoken To Mate	411	412	413	414	415
- Spoken To Senior Officers	416	417	418	419	420
- Not Able To Take Action				421	422

Once you have used this code-list, retain it in a safe place in your cabin. Do NOT leave it on the bridge/wheelhouse, or discuss it with the crew or officers.

5. Suggested Action	
- For Your Information	501
- Call Me - Time/Date (Give time	502
- Call to Vessel Manager	503
- Plan on Evacuation	504
- Remove Me ASAP	505

Example

The Problem: You want to inform the Observer Program that the Factory Manager is interfering with fish flow during CF testing. You have spoken to the Factory Manager and the Skipper about it, but the interference is continuing. You want someone to call the vessel so you can get a remedy or 'work-around' to the problem.

The Message: Please pass this data to EMS: ICF 314, 405, 410, 502, 1230, 3110. Regards (your name)

Appendix 9 – Feedback Survey Template

Capacity building training workshop for scientific observer programmes in SIOFA
Workshop Feedback Form

We hope all participants enjoyed the capacity building training workshop held at Labourdonnais Waterfront Hotel, Le Caudal, Port Louis, Mauritius., 3- 5 December 2024. It would be greatly appreciated if you could complete this feedback form to inform the workshop coordinators of how events such as these can be improved in the future and how we can ensure that we continue a process of capacity building in the implementation of scientific observer programmes.

Were the meeting facilities appropriate for the workshop (please select one)?	
Poor	
OK	
Good	
Very Good	
Excellent	
Did the workshop content cover appropriate topics (please select one)?	
Content was inappropriate	
Content was somewhat appropriate	
Content was adequate	
Content was good	
Content was excellent	
Were the materials provided by the workshop conveners useful?	
No	
Somewhat useful	
Adequate	
Good	
Excellent	
Were the workshop presenters appropriate for the course content, and helpful?	
No	
Somewhat helpful	
Adequate	
Good	
Excellent	

Were the practical sessions at the Port and the laboratory useful and did they contribute to the workshop content?	
No	
Somewhat	
Adequate	
Good	
Excellent	
The aim of the workshop was to provide capacity building for scientific observer programmes. Do you think that the workshop achieved this aim?	
No	
Somewhat	
Adequate	
Good	
Excellent	
Please provide a short description of what you consider the workshop did well	
Please provide a short description of what you consider could be improved in future workshops?	

Please provide any suggestions that you think would be good topics to address in future workshops (e.g. information on stock assessment methods, more practical training on fish measurement and biological sampling)
Are there specific fisheries where you feel that more detailed training on observer requirements, training and data collection would be helpful?
Would you like to make any other comments?
Your details (optional)
Name: Organisation: Country of Residence: Contact email: