



North Pacific Fisheries Commission

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Submitted by FAO

**FAO Deep-Sea Fisheries (DSF) Project  
Overview of activities 2022-2026**

**Abstract:** The attached paper is provided by the FAO Deep Sea Fisheries Project with which NPFC partners.

# FAO Deep-Sea Fisheries (DSF) Project

## Overview of activities 2022-2026

### Summary

The purpose of this paper is to inform NPFC members of the key achievements of the Common Oceans Deep-sea Fisheries (DSF) Project from 2022 to present. The document aims to highlight both the relevance of the work to NPFC and how NPFC has contributed to these initiatives.

We describe:

- The publications and tools that have been developed by the project, which are freely available online and may benefit NPFC members,
- Workshops/symposia that have been held by the project, on important topics such as the ecosystem approach to fisheries management, precautionary approach, deepwater sharks, cross-sectoral interactions with deep-sea fisheries, and climate change, which have all been attended by, and contributed to, by NPFC members,
- Support provided by the project to NPFC,
- Other initiatives such as supporting and improving data-limited stock assessments, and mapping of deep-sea fisheries in areas beyond national jurisdiction (ABNJ),
- Upcoming activities.

### About the Common Oceans Deep-Sea Fisheries Project

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)<sup>[1]</sup>, as well as other international and national organizations<sup>[2]</sup>. The objective

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<sup>[1]</sup> 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)

<sup>[2]</sup> 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

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.

The technical work of the DSF project is organized around three main components representing three broad areas of work:

- Component 1 concerns the uptake of international instruments
- Component 2 concerns the scientific aspects of DSF management
- Component 3 concerns cross-sectoral interactions with DSF

The DSF Project is guided by a Steering Committee, which is composed of representatives from each partner organization. NPFC is represented on the Steering Committee by the Executive Secretary. The Steering Committee meets once a year. The last Steering Committee meeting took place from 17-19 March 2026 in Tokyo, Japan, and was hosted by the NPFC Secretariat, with the financial support of the project.

## Key activities relevant for NPFC – 2022-2026

### **1. PUBLICATIONS AND ONLINE TOOLS**

#### ***Review of the implementation of the DSF Guidelines***

The DSF Project, in collaboration with a panel of experts, has reviewed the implementation of the International Guidelines for the Management of Deep-sea Fisheries in the High Seas (DSF Guidelines) 15 years after its adoption. The review found that the DSF Guidelines has been primarily directed towards the protection of VMEs, resulting in a complete change in the way bottom fisheries are managed. RFMOs have adopted closures to protect areas known or likely to have VMEs, designated bottom fishing areas where bottom fishing has occurred and can continue to take place, required strict protocols to be followed if bottom fishing is planned outside of this area, and introduced “encounter protocols” to protect any newly identified VMEs. Less progress has been made on the sustainable management of many DSF stocks, however, with a generally low uptake of the recommended actions of the DSF Guidelines to adopt measures necessary to ensure their sustainability. In particular, the recommended adoption of fishery-specific, long-term management plans have not been implemented.

The document can be downloaded at: <https://openknowledge.fao.org/handle/20.500.14283/cd0243en>

### ***E-learning Course “Strengthening deep-sea fisheries management in areas beyond national jurisdiction”***

The DSF Project has produced an introductory e-learning course on the management of DSF in the ABNJ to provide a free, easily accessible tool to support learning on this topic.

The e-learning course encompasses five comprehensive modules, including:

- An introduction to deep sea fisheries, their biological characteristics, current status of stocks, and challenges in their management in the ABNJ.
- An overview of the international policy and legal framework for the management of DSF.
- The role of RFMOs in the management of DSF, explaining the process of their creation, structure, functions, and mandates in the management of DSF in the ABNJ.
- National-level policy and legal considerations, describing key measures included in national policy and legal framework for the sustainable management of DSF and enumerating the steps necessary to establish effective policy and legal framework at a national level.
- The role of monitoring, control and surveillance (MCS) and enforcement mechanisms to achieve conservation and sustainable use of deep-sea fisheries.

The course takes approximately 2.5 hours to complete, and upon the subsequent completion of a short, knowledge-based exam, participants receive a certificate of competency.

The free, online course can be accessed at: <https://elearning.fao.org/course/view.php?id=1117>

### ***Deep-sea Fisheries Technical Forum (DGroups community)***

The DSF Project has established an online community, the Deep-sea Fisheries Technical Forum, hosted on the DGroups knowledge-sharing platform, as a mechanism to facilitate ongoing collaboration, information exchange and discussion among project partners and the wider deep-sea fisheries community. The platform provides a simple, non-commercial and privacy-respecting environment for sharing DSF-related resources and engaging in technical and governance discussions relevant to the Project.

Key functions of the platform include a shared library for documents and knowledge products, a calendar of upcoming meetings and events, and moderated, email-based exchanges to support information sharing and discussion. Once registered, participants can communicate directly with group members via email without needing to access the platform website.

The Technical Forum represents a valuable resource for NPFC Members and delegates, providing access to DSF Project outputs, announcements of relevant events and opportunities for cross-RFMO dialogue. NPFC delegates are encouraged to join the platform and contribute to ongoing knowledge-sharing activities: [Dgroups - Login](#)

## **2. WORKSHOPS AND SYMPOSIA**

### ***Workshop on the Application of the Precautionary Approach to the Management of DSF stocks***

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 PA frameworks and/or long-term management plans/harvest strategies for these stocks.

The workshop took place virtually on 15 October 2024, and it was conducted through two identical sessions 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. NAFO contributed to the workshop by presenting its new PA framework, as an example.

Based on the outcomes of this workshop, the drafting of a publication is now underway, which will compile good practices in the application of the precautionary approach to the management of deep-sea stocks, as well as to reducing ecosystem impacts, and collate some recommendations for further guidance. RFMO partners were contacted to submit their good practice examples.

More information available on the [Deep-sea Fisheries Technical Forum](#).

### ***Symposium on Applying the Ecosystem Approach to Fisheries Management in ABNJ***

The DSF Project, in collaboration with 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, and recordings of the Symposium can be viewed at: <https://eafm-symposium.nafo.int/>.

The report will be available soon and a follow-up workshop to discuss future steps is planned for June 2026 (see section 4 below for more details).

### ***Workshops with the DSF industry***

In April 2024, the DSF Project held a workshop with DSF industry operators from across the globe to explore proactive contributions from industry to sustainable DSF. This was followed up with a second workshop (9-10 May 2025, Barcelona, Spain), which aimed to:

I. Allow an open exchange between the DSF Project and deep-sea fishing operators on the following topics:

- Fostering collaboration between industry, scientists and managers for sustainable fisheries
- Deepwater sharks reporting and bycatch mitigation
- Vulnerable marine ecosystems
- Socioeconomic aspects of DSF
- Cross-sectoral interactions with DSF

II. Provide a platform for industry experts to exchange insights, address challenges, and propose proactive solutions for sustainable deep-sea fisheries management;

III. Advance discussions on the terms of reference for a potential industry network of sustainable deep-sea fisheries.

A third workshop is planned for 24-25 April 2026, which will aim to support the establishment of a global network of sustainable DSF operators.

### ***Workshop on deepwater sharks***

The DSF Project held a global workshop on deepwater sharks in July 2025 that considered the following four main themes:

Theme 1. Catch Reporting

Theme 2. Reporting formats

Theme 3. Ecological Risk Assessment for deepwater sharks

Theme 4. Fishing for data

The key outcomes of the workshop included the development of a workplan for:

- \* Reviewing FAO FishStat capture-production data on deepwater sharks
- \* Developing a global ecological risk assessment for deepwater sharks
- \* Developing guidance for the use of ASFIS codes for RFMOs
- \* Exploring of opportunities for industry engagement in data collection plan
- \* Developing identification materials for deepwater sharks

\* Preparing an FAO Technical Report on the outcomes and the actions arising from the workshop

During the workshop there was a recognition that attempting to improve fisheries catch data collection for all species of deepwater sharks simultaneously presents a seemingly insurmountable task. Therefore, a candidate species list, based on broad selection criteria and expert review, was identified that could be used to advance work on various aspects on deepwater shark catches in the ABNJ. Follow-up work in 2026 will involve the development of RFMO-specific recommendations for improved reporting on the selected 12 species of deepwater sharks, all of which have a global distribution.

More information available on our [Common Oceans website](#), and in the [Deep-sea Fisheries Technical Forum](#).

### ***Workshop on cross-sectoral interactions with deep-sea fisheries***

The DSF Project organized a workshop on cross-sectoral cooperation in the ABNJ on 24-26 September 2025 at FAO HQ, which explored the interactions between deep-sea fisheries and two other sectors in the ABNJ, the biodiversity conservation and deep-sea mining sectors. The Project supported the in-person attendance of the NPFC Scientific Committee Chair.

The workshop explored:

- 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
- 3. the types and levels of *cross-sectoral* cooperation mechanisms required to prevent, manage and mitigate these impacts

The workshop outcomes will inform a publication on effective cooperation between dsRFMOs and other key sectors active in the ABNJ to support biodiversity conservation and resource sustainability.

More information available on our [Common Oceans website](#), and in the [Deep-sea Fisheries Technical Forum](#).

### ***Online workshop on climate change***

The DSF Project has supported consultancies for NAFO, NEACF, NPFC, and SPRFMO to examine the uptake of climate change considerations by the scientific committees (SC). The reports of these consultancies have now all been completed and submitted to the relevant SC.

The Project then held an online workshop on 14 October 2025, to take stock of the results of the consultancies with the aim to present the common conclusions and recommendations, as well as to identify any next steps required.

All four consultancies agreed that there will be physical and chemical changes in the oceans, and that the consequence of this for RFMOs is that scientific committees may need to receive increased human and financial resources to be able to address these changes. Actions will include predicting the likely changes in fish distributions and the impacts of these on the wider food web and ecosystem, identifying species of high risk to climate change and ultimately, producing “climate-informed” management advice.

Meanwhile, management committees will need to demonstrate their clear commitment to climate change adaptation and response. This will mean considering the adoption of a climate-change response roadmap, which outlines tactical immediate actions and more strategic, longer-term actions.

Looking forward, workshop participants highlighted the need for capacity building for RFMO decision makers, improved communication among scientists and managers, and guidance for the development of RFMO climate change roadmaps in order to progress with the implementation of their climate change resolutions. They reiterated the incredible value of cross-RFMO dialogue to share challenges and brainstorm solutions.

More information available on our [Common Oceans website](#), and in the [Deep-sea Fisheries Technical Forum](#).

### ***NPFC/FAO Workshop on the operationalization of the precautionary approach***

The DSF Project co-organized a half-day hybrid workshop on the operationalization of the precautionary approach with the NPFC Scientific Committee on 10 December 2025. The workshop was attended by 41 participants. The workshop provided an overview of international requirements for the application of the precautionary approach, presented methods for applying the precautionary approach to the management of target and bycatch species and to reduce ecosystem impacts, and showcased examples from other RFMOs. Discussion focused on taking stock of how NPFC is already applying the precautionary approach and what additional efforts may be needed. The workshop report<sup>1</sup> was presented to, and discussed at, the 10th meeting of the NPFC SC<sup>2</sup>.

### **3. OTHER INITIATIVES**

#### ***Shark identification key***

NPFC adopted CMM 2023-14 on sharks (shark, skate, ray, or chimaera), which entered into force in July 2023, and which requires that fishing vessels record, and maintain a record of, any shark catch in the Convention Area, to the extent possible by species, in their logbook on board the fishing vessel, and that Commission Members annually report all shark catches, to the extent possible by species, from their fishing vessels to the Secretariat. Effective implementation of this CMM requires accurate identification of sharks.

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<sup>1</sup> [NPFC-2025-SC10-RP04 PA workshop summary.docx](#)

<sup>2</sup> Agenda item 3.8 [SC10 Report.pdf](#)

At the 8<sup>th</sup> meeting of the Scientific Committee, the DSF project offered to provide support to NPFC in the development of a shark identification key, which would include both pelagic and demersal species. This was to support the existing NPFC guide “The Field Guide for Identifications of Fishes of the Emperor Seamount Chain Captured by Bottom Fisheries” produced in 2024 (Hoshino et al., 2024).

The DSF Project presented an overview of preliminary identification keys for deepwater sharks and a review of deepwater shark species known or likely to occur within the NPFC Convention Area (NPFC-2024-SC09-OP05) to NPFC SC9 in December 2024<sup>3</sup> and SC10 in December 2025<sup>4</sup>. The Project will be requesting further input from NPFC on the use of existing traditional shark keys, including the demersal and pelagic shark keys developed by the DSF Project, and experts to work with for the development of a digital identification guide for demersal and pelagic sharks occurring in the NPFC Convention area is desired by NPFC members.

### ***Data-limited stock assessments***

The DSF Project has been engaging with ICES on supporting and improving data-limited stock assessments - bringing assessment scientists together to discuss their assessments with like-minded experts from other areas, and to learn and to develop or revise methods together. The work plan involves four workshops: WKLIFE XIV which took place in the Azores on 1-5 September 2025; a workshop in Tokyo (20-24 April 2026); a workshop in Europe (31 August – 4 September 2026), and the WKLIFE XV meeting in Copenhagen (7-11 September 2026). Presentations at WKLIFE XIV included alfoncino and pelagic armourhead assessments in NPFC, SEAFO and SIOFA by Takehiro Okuda, Kota Sawada and Satoi Arai; toothfish assessments in SEAFO, SIOFA, SPRFMO and CCAMLR by Takehiro Okuda and Roberto Sarraide; and red crab in SEAFO by Erich Maletzky. The project supported the costs of Kota Sawada and Satoi Arai to attend WKLIFE XIV in person. The outputs of this collective work will be collated on an online, open-access digital platform hosted by ICES, which will provide accessible, transparent, and up-to-date tools and information that describe assessment methods with a focus on data-limited stocks. Assessment methods developers working with SPRFMO data-limited stocks can contact the DSF Project for further details.

### ***Mapping of deep-sea fisheries in the ABNJ***

Although there are a range of data products that provide global overviews of fishing effort, there is no global overview in a way that provides a consistent view of the spatial extent (distribution) and intensity (effort) of the use of fishing gears that is likely to come into contact with the seafloor in the ABNJ. Individual RFMOs provide spatial data on ‘fishery footprints’ that reflect areas in which bottom fishing has taken place, however, these do not show the actual gears or levels of fishing effort taking place in those areas. Producing a contemporary and definitive reference for the extent and intensity of deep-sea fishing in the ABNJ would be a useful resource at a time when there is a great deal of interest in this topic. Within this context, the DSF Project has been approaching all its RFMO partners to request for

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<sup>3</sup> [NPFC-2024-SC09-OP05 Taxonomic list of deep-water sharks NPFC.pdf](#)

<sup>4</sup> [NPFC-2025-SC10-OP02 pelagic sharks.pdf](#)

fishing effort data by position and gear for fisheries using bottom contact gears to develop a global map of spatial bottom fishing effort. The DSF Project is grateful for the approval from relevant NPFC Members and the support of the NPFC Secretariat for providing a mechanism for the release of fishing effort data to the FAO.

#### **4. UPCOMING ACTIVITIES**

##### ***Workshop on developing guidance for RFMOs***

The DSF Project will hold a workshop for managers at FAO HQ, Rome, Italy on “Developing guidance for improved implementation of the ecosystem approach to fisheries management, the precautionary approach and climate change considerations by deep-sea RFMOs” on 15-16 June 2026.

##### ***Workshop on RFMO communication and outreach***

The DSF Project will hold a workshop at FAO HQ, Rome, Italy on “strengthening the strategic vision for fisheries communications, engagement and outreach, in relation to the sustainable use and conservation of biodiversity in the ABNJ” on 17-19 June 2026.