North Pacific Fisheries Commission

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FAO Deep-sea Fisheries Project (2022–2027)

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Background

The "*Deep-sea Fisheries under the Ecosystem Approach*" (DSF) project is one of five projects in the GEF-7 ABNJ Common Oceans Program "*Global Sustainable Fisheries Management and Biodiversity Conservation in the Areas Beyond National Jurisdiction (ABNJ)*" (GEF, 2022; FAO, 2023a). 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. The DSF Project is implemented by FAO and executed by the General Fisheries Commission for the Mediterranean (GFCM). The Programme and DSF Project are scheduled to run for five years from 2022 to 2027.

The DSF project focuses on four key areas of work:

- Component 1- Governance – strengthening and implementing regulatory frameworks
- Component 2 – Strengthening effective management of DSF
- Component 3 - Improving understanding and management of cross-sectoral interactions with DSF
- Component 4 – Knowledge management, communication and M&E

The DSF project is being delivered in collaboration with project partners, which include: the General Fisheries Commission for the Mediterranean (GFCM), the Northwest Atlantic Fisheries Organization (NAFO), the North East Atlantic Fisheries Commission (NEAFC), the North Pacific Fisheries Commission (NPFC), the South East Atlantic Fisheries Organisation (SEAFO), the Southern Indian Ocean Fisheries Agreement (SIOFA), the South Pacific Regional Fisheries Management Organisation (SPRFMO), the International Council for the Exploration of the Sea (ICES), the Southern Indian Ocean Deepsea Fishers Association (SIODFA), the International Coalition of Fisheries Associations (ICFA) and the National Oceanic and Atmospheric Administration (NOAA) of the United States of America.

This information note will focus on initiatives of relevance to the NPFC Scientific Committee.

Climate change

The NPFC Performance review in 2022 made two recommendations to support the uptake of climate change work by the Commission and Scientific Committee (Rec. 4.5.4 and 4.5.5 in NPFC, 2022). The NPFC adopted a resolution on climate change at its 7th Commission meeting (NPFC, 2023). This recognized the importance of climate change in the North Pacific and its potential impacts on resources and related ecosystems in the Convention Area. Similar resolutions have been recently adopted by NAFO for the northwest Atlantic and by SPRFMO for the South Pacific (NAFO, 2023; SPRFMO, 2023). These follow from the UN General

Assembly Sustainable Fisheries Resolution A/RES/76/71 that calls upon RFMOs to consider climate change in carrying out their work, and at the 35th meeting of FAO's Committee on Fisheries (COFI) that encourages FAO to increase the knowledge and awareness of climate change impacts in fisheries and aquaculture.

To date, the incorporation of climate change effects and ecosystem impacts into the assessment and management of fish stocks is both challenging and limited, even though there is a growing body of scientific knowledge and predictions as to likely effects in the next 10, 20 and 50 years. The reason for this is because these predictive time scales are much longer than the 2–5 year time-scales fisheries work with.

But there are other aspects that RFMOs will need to consider. Climate change predictions include an increase in extreme events in addition to the more gradual longer-term temperature increases. Further, RFMOs as custodians of the oceans' fish stocks are ideally placed to contribute to a more general understanding of the effects of climate change in the marine environment, since their work includes monitoring fisheries and fish stocks, and various physical, chemical and biological ocean variables.

The ICES/PICES Strategic Initiative on Climate Change Impacts on Marine Ecosystems may also be relevant to this work in the North Pacific (ICES/PICES, 2023).

DSF Project activities

The DSF Project would like to support 3-4 regional studies to review the existing and potential modalities for the incorporation of climate change effects into the work of RFMOs that have a mandate for the management for deep-sea fisheries. This will also contribute to the DSF Project work on climate change within the context of applying an ecosystem approach to fisheries management in the high seas (Output 2.2.1). The following programme of work is envisaged for a consultant working with FAO and NPFC in the North Pacific:

- Review literature and data available to address potential climate change impacts on managed stocks and non-target species.
- Examine the data available to determine distributional shifts across stock boundaries.
- Review the most recent IPCC ocean climate change predictions (RCP 8.5) for the following 10 years and 50 years in the northwest Atlantic, and using published findings and/or expert judgment, summarize how this may affect the ecosystem and the likely impacts on managed stocks and non-target species.
- Identify any new data requirements needed to detect and monitor climate-related changes in the key ocean variables, including fished stocks, bycatch species, and changes in catch and effort patterns and distributional shifts across stock boundaries. Comment on the existing and potential methods by which such data sets could be collected.
- With the objective of integrating environmental effects into stock assessments and management, identify how the longer-term unidirectional changes and short-term extreme variability in environmental conditions characteristic of climate change could be incorporated in to both processes.
- With the objective of creating longer-term management plans, review the existing frameworks, scientific advice, management measures and whether these would need to be modified to better accommodate the effects of climate change (This may be better achieved as a separate work item of global scope).

The above tasks should include consideration of all catch by commercial fishing vessels, including bycatch (especially deepwater shark species), and the protection of vulnerable marine ecosystems.

Assessing data-limited stocks and monitoring rapid change

The demersal fisheries in the ABNJ, with a few exceptions, are difficult to assess and monitor. A survey of the 49 high seas demersal finfish and shellfish stocks undertaken during the GEF-5 Deep-sea Project showed for 2014–2016 that 12 (25%) stocks were fished sustainably, 13 (26%) stocks were at an intermediate status, and 3 (6%) stocks were overfished or at very low levels. The status of the remaining 21 (42%) stocks was unknown (FAO, 2020).

ICES (2023) use a stock classification based on the type of information available for assessment which ranges from Category 1 (abundant catch and biological information, full analytical assessments with forecasts), through Category 4 (landings and effort data only), down to Category 6 (bycatch fisheries with negligible landings). Most DSF stocks fall into Categories 4–6.

The lack of information on reliable trends in stock biomass makes the application of adaptive management very difficult, but there is a need to develop mechanisms for precautionary management in the absence of full scientific assessments. It is particularly challenging to assess rapidly changing fisheries. There are three types of fisheries where rapid changes may occur:

- In an existing fishery (potentially as a need to change TACs or to close the fishery),
- In closed fisheries (as a requirement for re-opening the fishery), and
- In new/exploratory fisheries (that lack a catch and effort history).

<u>DSF Project activities</u>

The DSF Project would like to partner with ICES to examine data-collection requirements and assessment methods that will determine the status of the selected data-limited stocks and if their populations are “rapidly” increasing or declining.

A two-pronged approach will be taken to improve the assessment of data-limited and rapidly changing stocks, both being coordinated by ICES. The first activity will be to collaboratively identify appropriate assessment methodologies for selected fisheries, and the second will be to review data collection requirements needed to undertake these assessments. This will be compared with the type, quality and quantity of information currently collected.

Activities to be undertaken by ICES in collaboration with DSF Project partners:

- Activity 1: Review and develop assessment methodologies,
- Activity 2: Identify data collection needs to support the various assessment methodologies.

The plan is for assessment biologists from different regions to discuss and share their assessments and data-collection needs with each other to develop improved methods. This will be facilitated by an ICES consultant and in cooperation with various ICES working groups, as required. Note that this activity does not represent a partnership between any of the RFMOs and ICES, nor will ICES be providing any formal published advice. Also, please note that this

activity is not intended to be a training course; participants should already be undertaking assessments for their RFMO scientific committee. It may be possible to offer training courses later, if desired. For the North Pacific Ocean, it is proposed that pelagic armourhead (Emperor Seamounts)**,** alfonsino (Emperor Seamounts), and potentially sablefish (seamounts off Canada) be selected for study.

EAFM symposium

The DSF Project will hold a symposium in 2025 on the "*Application of the Ecosystem Approach to Fisheries Management in ABNJ – recent development in the monitoring, assessment and mitigation of ecosystem impacts of fisheries*". This will be held jointly with NAFO, and a request is currently being made to ICES for their involvement. Initial ideas for the symposium focused on ecosystem production potential and preventing ecosystem overfishing (Koen-Alonso, 2019). However, when the project approached RFMO Secretariats, it was found that many wished for a more holistic approach covering all the biological aspects of EAF and how it may be initially implemented. The symposium will address the EAF aspects of retained species, discarded species and ecosystem effects. This wider more fundamental approach also fits well with the scope of a recent FAO eLearning package (FAO, 2023b).

The current plan is to hold a three-day symposium with:

- Day 1 – The scientific side of EAFM: Retained species, Discarded species and Ecosystem effects.
- Day 2 – Moving from science advice to management measures: Current scientific advice on EAF, data-collection, and significant adverse impacts.
- Day 3 – EAFM frameworks and guidance to RFMOs: Cross-sectoral considerations, a global EAFM framework, and way forward.

Rome has been suggested as a possible venue for the symposium and it will be in a hybrid format. However, in person participation is encouraged, and will be especially important for Days 2 and 3.

The DSF Project will circulate a call for papers in January 2024 and would welcome participation from NPFC members from the scientific and/or management committees.

In order to guide discussions on Day 3 of the symposium, the DSF Project would like to support the development of a global EAF framework or roadmap for implementation relevant to RFMOs. The DSF project will approach RFMOs with a plan to develop a document for this.

DSF Guidelines implementation review

The DSF Project initiated a review of the implementation of the FAO DSF Guidelines (FAO, 2009) and held a meeting in London in December 2022 with participants present in the capacity of individual experts. The comments received at the expert workshop were very valuable in improving the draft.

A final draft has been developed and will be published in the *FAO Fisheries and Aquaculture Technical Paper* series in early 2024.

Conclusions from implementation review

In general, the review found good uptake in areas relating to VME protection and monitoring, control and enforcement (MCS), but with considerable variation among regions. The uptake with respect to managing retained and discarded catch and bycatch was found to be more challenging, especially regarding information on stock biomass (and status), establishing reference points and long-term management plans. Further details will be provided after the report is published.

DSF Project activities

Potential areas that require further work in implementation of the DSF Guidelines that could be supported or promoted by the DSF project are:

- Longer-term management plans and objectives and adoption of target references points for target species.
- Better monitoring of changes in existing fishing patterns, also important for understanding ecosystem effects as well as potentially new impacts.
- Improved discard reporting including support to observers and vessel crew for achieving this. Potential use of bycatch limits especially for vulnerable species like deepwater sharks.
- Improved and more transparent recording of encounters with VME indicators including means of verification and potentially sub-threshold reporting. This is important to identify new VMEs within existing fishing areas.
- Identifying SAI on VMEs from bottom fishing or other anthropogenic sources, and assessment of ecosystem status for VMEs.

Summary

The DSF Project thanks NPFC for their continued partnership with the DSF Project and looks forward to developing concrete joint activities to contribute to strengthened global fisheries management and protection of biodiversity in the ABNJ.

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