



Implementation of an Ecosystem Approach to Fisheries Management

Prepared by the WCPFC Secretariat

INTRODUCTION

The Western and Central Pacific Fisheries Commission (WCPFC) was established in 2004 to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the Western Central Pacific Ocean in accordance with the 1982 Convention on the Law of the Sea and the UN Fish Stocks Agreement. Currently, the WCPFC has twenty-six (26) Members, seven (7) Participating Territories and eight (8) Cooperating Non-Members (CCMs). The WCPFC Convention Area tuna catch (2,716,396 mt) for 2018 represented 81% of the total Pacific Ocean catch of 3,373,512 mt, and 55% of the provisional 2018 global tuna catch of 4,930,621 mt.

The ecosystem approach to fisheries management is a universally accepted management concept for the management of fishery resources and its principles can be traced back to several international instruments. Although different definitions and designations were known to be associated with those management approaches like ecosystem approach to fisheries (EAF), ecosystem approach to fisheries management (EAFM), and ecosystem-based fisheries management (EBFM), they all carry the common characteristic of being a holistic approach to conservation and management that takes into consideration not only impacts on the target stocks but also impacts on the broader ecosystem associated with the fishing operations as well as other related social and economic outcomes, and the conditions that support achievement of pre-determined management objectives. One of the unique features of EAFM is that it has three (3) components namely; i) ecological well-being, ii) human well-being and iii) good governance that is anchored in the context of sustainable development.

The WCPFC's responses to the requests of the General Assembly are structured in accordance with the suggested areas in the Letter from Miguel de Serpa Soares, Under-Secretary-General for Legal Affairs and United Nations Legal Counsel.

WCPFC'S CONTRIBUTION TO THE IMPLEMENTATION OF AN EAFM

- 1. Experience in the implementation of an ecosystem approach to fisheries management, including in relation to:**
 - a) assessing the impacts of fishing on the ecosystem, including on associated or dependent species;**

Currently, the WCPFC is implementing the EAFM to the western and central Pacific Ocean (WCPO) tuna fisheries through developing a holistic tuna management approach, called the WCPFC Harvest Strategy Framework, which incorporates biological, economic, social and ecosystem management objectives. In addition, the WCPFC has been covering several EAFM-related issues including research (such as the ecosystem indicators and assessments of risk

analyses of bycatch species) and applications of the individual EAFM elements (such as bycatch mitigation measures and protection of marine environment from marine pollution) since the start of the Commission.

The WCPFC Scientific Committee regularly conducts stock assessments and other analyses on target and non-target species. Based on the results of stock assessments, the Scientific Committee provides management advice and recommendations to the Commission to develop and adopt relevant conservation and management measures. Therefore, the WCPFC's activities in assessing the impacts of fishing on the ecosystem and identifying management options include:

- full stock assessments on targets and non-target species;
- investigation of FAD impacts on juvenile bigeye and yellowfin catch; FAD-driven pollution (beaching); and acoustic FAD research to identify mitigation approaches for reducing the impacts on bigeye and yellowfin juvenile;
- development and update of the Spatial Ecosystem and Population Dynamics Model (SEAPODYM);
- identification of ecosystem indicators;
- research on ecological risk assessment; and
- assessments on the mortality of seabirds, sea turtles and sharks.

So far, the WCPFC has been conducting stock assessments for key tuna species (bigeye, yellowfin, skipjack, albacore, Pacific bluefin tuna), billfish (swordfish, striped marlin, and Pacific blue marlin), and sharks (oceanic whitetip, silky, blue, mako, Pacific bigeye thresher, southern hemisphere porbeagle and whale sharks), and where necessary employed risk assessments for stocks with poor historical time series or data.

b) addressing the impacts of fishing on the ecosystem, including on associated or dependent species;

In order to address fishery impacts on the ecosystem, relevant assessments should be conducted and for this, data collection is a fundamental step that the WCPFC has been pursuing even as of today. The WCPFC is collecting various data for target and non-target species, including catch and effort data from CCMs, operational data from regional observer programme and logbook, FAD data for FAD tracking, cannery data for catch validation, biological samples, etc.

After the assessment of the fishery impacts on ecosystem, the WCPFC adopted over 50 resolutions and binding conservation and management measures (CMMs), which are listed at <https://www.wcpfc.int/conservation-and-management-measures>, and some examples related to addressing the impacts of fishing on the ecosystem are listed below:

- Conservation and Management Measure on the Application of High Seas FAD Closures and Catch Retention (CMM 2009-02)
- Conservation and Management Measure to Address the Impact of Purse Seine Activity on Cetaceans (2011-03)
- Conservation and Management Measures to develop and implement a harvest strategy approach for key fisheries and stocks in the WCPO (CMM 2014-06)
- Conservation and Management Measure on Marine Pollution (CMM 2017-04)
- Conservation and Management Measure for bigeye, yellowfin and skipjack tuna in the Western and Central Pacific Ocean (CMM 2018-01)
- Conservation and Management Measure to mitigate the impact of fishing for highly migratory fish stocks on seabirds (CMM 2018-03)

- Conservation and Management Measure for Sharks (CMM 2019-04)
- Conservation and Management Measure to establish a list of vessels presumed to have carried out Illegal, Unreported and Unregulated Fishing Activities in the WCPO (CMM 2019-07)

Based on the collected data, subsequent assessments and adoption of CMMs, monitoring, control and surveillance (MCS) activities on the fishing ground are critical in addressing the impacts of fishing on ecosystem. In this regard, WCPFC implements various MCS activities, such as regional observer programme, regional fishing vessel registry, vessel monitoring system, high seas boarding and inspection, and others. It also has a Compliance Monitoring Scheme that annually assess the level of compliance of each CCM in terms of implementing its obligations under the WCPFC Convention and CMMs.

c) incorporating economic, social and cultural aspects

There has been a significant improvement in fishery data collection including operational data since the start of the Commission. However, for the holistic approach of the WCPO tuna fisheries management, there has been a need to collect economic data to incorporate an economic and social perspective into the WCPFC Harvest Strategy Framework. The WCPFC is now processing the development of *Guidelines for the Voluntary Submission of Economic Data to the Commission* and the Scientific Committee is reviewing analyses and projections of economic conditions in WCPO tuna fisheries to consider economic and social components for WCPO tuna fisheries management. One social and cultural issue is how to address a disproportionate burden of the small island developing States (SIDS) when any management framework is established in the WCPO area where tuna fishery is the major source of SIDS' livelihood and source of income (refer to Article 30 of the WCPF Convention).

d) incorporating environmental factors affecting marine ecosystems, including adverse impacts of climate change and ocean acidification

There have been several research papers presented at, and reviewed by, the Scientific Committee and discussed at the Commission related to the impact of climate change and ocean acidification on Pacific tropical tunas and their fisheries. Their impacts were noted subject to tuna species and oceanic conditions. Climate change has been one of the highest priority issues among island countries and the Commission continues to work with CCMs to address the impacts of climate change on tuna stocks and tuna fisheries through long-term projections. In this context, the Commission recently adopted Resolution 2019-01 (*Resolution on Climate Change as it relates to the Western and Central Pacific Fisheries Commission*) and resolved several actions to be taken in the future.

The Commission is also concerned that marine pollution has become a significant global problem, with detrimental impacts on ocean and coastal environments, wildlife, economies and ecosystems. It adopted one CMM on Marine Pollution (CMM 2017-04). The measure prohibits discharging any plastics and encouraged to prohibit discharging oil products, garbage and sewage.

Finally, CMM 2018-01 (Conservation and Management Measure for bigeye, yellowfin and skipjack tuna in the Western and Central Pacific Ocean) promotes and encourages the use of natural and non-plastic and biodegradable materials in the construction of FADs, to reduce the amount of synthetic marine debris.

2. Lessons learned, best practices and challenges in the implementation of an ecosystem approach to fisheries management;

As noted earlier, the Commission is focused on implementing the CMM 2014-06 (*CMM to develop and implement a harvest strategy approach for key fisheries and stocks in the WCPO*), which is reflective of the concept of the EAFM, subject to the scope of the harvest strategy framework. However, the framework is composed of models, so requires very comprehensive and reliable data compared to other EAFM approaches which can be applied even under the conditions of insufficient data and information. As the tuna fisheries management in the WCPO is a real situation and the stakeholders involved are keen to reflect their livelihood issues, an application of a simple EAFM with insufficient data may not be accepted by the stakeholders. In this regard, developing the WCPFC Harvest Strategy Framework is highly technical as necessary to deal with the complicated multispecies and mixed fishery. Key lessons learned, best practices and challenges experienced in developing and implementing the framework, as a sophisticated form of the EAFM, is to provide sufficient time and resources for the development and capacity building of the participants to fully understand and participate in the process.

Other challenge includes budget and handicaps in confidential data collection and use. Given the nature of modeling process, availability of sufficient and reliable data is a must to minimize inherent uncertainties. However, in the world of business, sufficient collection of economic, social and ecosystem level data is another big challenge due to the confidentiality of economic data and the limited budget available to cover the scope of a large marine ecosystem. Stakeholders need to determine the most robust level of a harvest strategy framework that can incorporate the concept of the EAFM as much as they can.

3. Actions needed to further strengthen the implementation of an ecosystem approach to fisheries management, including to address particular challenges faced by developing countries through capacity-building in accordance with Part VII of the Agreement.

At the moment, the WCPFC is focusing on developing a harvest strategy framework which can be considered as a sophisticated form of the EAFM, taking into consideration biological, economic, social and ecosystem aspects. The Commission has accepted the initial list of management objectives and associated performance indicators in the four categories (biological, economic, social and ecosystem) for tropical purse seine fisheries and tropical and southern longline fisheries. For this process, the Commission secured enough biological data and continues to refine the management procedures through the management strategy evaluation process for skipjack fishery and South Pacific albacore fishery. Recognizing the need of economic data to accommodate economic and some level of the social aspects of the ecosystem, the Commission is also developing *Guidelines for the Voluntary Submission of Economic Data to the Commission*.

As the issue of multispecies and mixed fisheries modeling approach is complicated, the Commission continued to review the harvest strategy workplan and adjust the process to allow enough time for the framework development and to ensure the stakeholders' full understanding and full participation in the process. To enhance the capacity building and communication, the Commission allowed additional days of meeting time to have more discussion on harvest strategies to increase the capacity of CCMs (e.g. managers, scientists, NGOs, stakeholders) in this new fisheries management approach. The Commission also facilitates experts of the Commission's Scientific Services Provider (the Oceanic Fisheries Programme of the Pacific Community (SPC)) to conduct appropriate inter-sessional consultations with Members on the conditioning of the operating model and other relevant issues to ensure greater inclusiveness in management strategy

evaluation process. Some CCMs views that a specific Science-Management Dialogue meeting might be considered helpful in the future.

All these initiatives are important in moving towards the development of the WCPFC Harvest Strategy Framework, as the highest type of the EAFM in the long-term, but the Commission will need to give more focus, interest and resources on the work moving forward.