
IOTC CAPACITY BUILDING ACTIVITIES IN SUPPORT OF DEVELOPING COASTAL IOTC CPCs: 2019 ACTIVITIES

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Purpose

To provide the IOTC Working Party on Data Collection and Statistics with an overview of the activities that, independently or along with other partners, the IOTC Secretariat initiated during the last year in support of developing coastal states, and the main results of those activities.

Background

Since its inception the Commission has allocated funds from its regular budget to assist developing coastal CPCs in the Indian Ocean in the implementation of the IOTC data requirements. In addition to the funds allocated by the Commission, the IOTC Secretariat has also secured funding from external sources; in recent years, funds sourced from third parties have been well above those allocated by the Commission.

Since April 2002, the Overseas Fisheries Cooperation Foundation of Japan has been assisting developing coastal states in the IOTC Area of Competence with their statistical data collection, processing, and reporting systems, with a view to enhancing the capacity of institutions in those countries and improve their compliance with IOTC requirements for statistics and other scientific data used on the assessments of IOTC species. In recent years, the IOTC has also received substantial funding for capacity building activities from other sources, including the Bay of Bengal Large Marine Ecosystems Project (BOBLME), the IOC-SmartFish Project and, more recently, the GEF-Areas Beyond National Jurisdiction Project (ABNJ) and EU DG-Mare.

This document presents the activities undertaken by the IOTC and its partners during the last year (2019), including those activities that will extend to 2020 and following years, where appropriate.

Recommendation

The WPDCS is invited to review the Progress of activities undertaken by the IOTC and its partners and recommend that the IOTC Scientific Committee considers to endorse the future work plan by the IOTC Secretariat. In addition, the WPDCS is invited to consider, where necessary, recommending the implementation of other activities that to its view will lead to improved statistics for IOTC and associated species, including identification of agencies that may be prepared to fund such activities.

The report covers the following areas:

- Introduction
- Summary of countries and activities undertaken in 2019
- Activities planned for 2020 and following years (where applicable)

Introduction

Table 1 presents an overview of the data capacity building activities that the IOTC and its partners implemented during 2019 to assist developing coastal CPCs in the Indian Ocean, by country and type of activity. Further details of the activities can be found further below.

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Country	Date	Executing Agencies / Staff	Description of activities
Mauritius	Apr 2019	IOTC Data Coordinator; IOTC Data Assistant	<u>ROS Pilot Project activities (ROS e-tools):</u> Hands-on training for the adoption of the IOTC ROS electronic tools for data collection, reporting and management.
I.R. Iran	Jun 2019	IOTC Stock Assessment Expert	<u>Development of standardized gillnet CPUE:</u> Collaboration with Shilat (Iranian Fisheries Organization) to explore the feasibility and options for developing a standardized CPUE series for neritic tuna species using data collected from gillnets by port sampling program.
Tanzania	Jul 2019	IOTC Data Assistant; MRAG (Consultants)	<u>Assessment of data collection and reporting systems in place for artisanal fisheries (Country visit 1):</u> i) Discuss current arrangements in Tanzania for the monitoring, collection and reporting of artisanal fisheries to the IOTC with fisheries research institutions, the Ministry of Fisheries and DSFA. ii) Follow-up on data issues regarding the mandatory submission of IOTC data by Tanzania.
Sultanate of Oman	Sep 2019	IOTC Data Coordinator; IOTC Data Assistant; FAO Official Consultant	<u>Small-scale fisheries workshop:</u> Delivery of a technical workshop to improve reporting of IOTC statistics, and assessment of the status of small-scale fisheries data collection in the country, including current procedures to estimate total catches by species on the basis of sampling protocols at landing sites.
Sri Lanka	Sep 2019	IOTC Fisheries Statistician; Marine Instruments; Azti-Tecnalia	<u>ROS Pilot Project activities (EMS):</u> Implementation of the feasibility study trialing electronic monitoring systems on-board selected small-scale coastal gillnet/longline vessels: i) Installation of EMS onboard 4 (of 6) vessels selected for the pilot trials. ii) Conduct and EMS training workshops on Beluga/Medusa EMS processing software.
Indonesia	Sep 2019	IOTC Fisheries Statistician; MRAG (Consultants); OFCF Fisheries Expert	<u>Assessment of data collection and reporting systems in place for artisanal fisheries (Country visit 2):</u> Evaluation of the status of coastal fisheries data collection in Indonesia. Recommendations on short term and long term strategies for improving the acquisition of data and capacity building for artisanal fisheries.
Pakistan	Nov-Dec 2019	IOTC Data Coordinator; IOTC Data Assistant; FAO Fisheries Statistician	<u>Technical support of WWF-Pakistan's crew based data collection program; evaluation of Pakistan's reconstructed catch series:</u> i) Finalize technical advice and the review of WWF-Pakistan's data entry portal and database for processing and reporting the crew-based data collection scheme. ii) Conclude the assessment of the reconstructed catches submitted by Pakistan to IOTC in 2017 derived, in part, from the crew based data collection program.

Funding Agencies

The following section includes a description of the main agencies that contributed funds and other support to IOTC data capacity building during 2019:

IOTC: The Indian Ocean Tuna Commission allocates funds from its regular budget to the implementation of capacity building activities in developing coastal states that are IOTC CPCs. Staff of the Data and Statistics Section of the IOTC Secretariat were involved in one or more of the capacity building activities referred to in Table 1.

IOTC-OFCF Project²: The Memorandum of Understanding between the IOTC and the Overseas Fishery Cooperation Foundation of Japan (OFCF) was initiated in April 2002, with the purpose of enhancing the capacity of developing coastal states in the Indian Ocean region to improve their fisheries statistical systems. Phases I (April 2002 - March 2007), II (June 2007 - March 2010), III (June 2010 – March 2013), and IV (June 2014-March 2017) of the Project ran for fifteen consecutive years.

A Memorandum of Understanding (MOU) between the IOTC and the OFCF was signed in June 2017, for the commencement of a Phase V, including the provision of the OFCF Project Manager to coordinate and lead the activities of the Project, with the support of staff of the IOTC Secretariat, as required. After a consultation, the IOTC and the OFCF agreed to focus its Phase V Activities on exploration of socio-economic indicators suitable to assist the IOTC resource and fishery management.

The Project has kept the following three main principles since 2002:

- i. The activities undertaken under the Project follow the recommendations of the IOTC Commission and its relevant subsidiary bodies (Working Parties and the Scientific Committee).
- ii. There will be no direct financial implications for IOTC Member countries.
- iii. The activities of the Project should be directed towards reinforcing the statistical systems of developing countries from the region.

European Commission – DG for Maritime Affairs & Fisheries (DG MARE)

The mission of the Directorate-General for Maritime Affairs and Fisheries is:

"To develop the potential of the European maritime economy and to secure sustainable fisheries, a stable supply of seafood, healthy seas and prosperous coastal communities – for today's Europeans and for future generations."

Since 2015, DG-MARE has provided the IOTC Secretariat with capacity building grants to fund projects that foster compliance of Conservation and Management Measures (CMMs), in addition to funding activities that enable assistance for developing coastal states in the IOTC area to improve the implementation of the at-sea observer scheme, compliance with IOTC mandatory data collection and reporting standards, technical assistance support missions to CPCs, as well as support for national fisheries scientists to attend IOTC science meetings.

DG-Mare funding was utilized to support part of the activities conducted in 2019, notably the implementation of the Regional Observer Scheme Pilot Project (i.e., development of ROS e-tools and piloting of electronic monitoring systems (EMS), which are both aimed at facilitating improvements in the data collection, reporting and timeliness of observer data to the IOTC Secretariat).

ABNJ Project³: The Global sustainable fisheries management and biodiversity conservation in the Areas Beyond National Jurisdiction (ABNJ) Program promotes efficient and sustainable management of fisheries resources and biodiversity conservation in the ABNJ.

The 5-year ABNJ Program is comprised of 4 projects. In particular, the Sustainable Management of Tuna Fisheries and Biodiversity Conservation in the ABNJ pilots Rights-Based Management systems and other sustainable fishing practices; reduces illegal, unreported and unregulated (IUU) fishing; and reduces bycatch and other adverse ecosystem impacts on biodiversity.

The IOTC is among the five tuna regional fisheries management organizations that is receiving support from the ABNJ Project.

² <http://www.iotc.org/data/iotc-ofcf>

³ <http://www.thegef.org/gef/ABNJ>

Summary of countries and activities undertaken in 2019

Data related capacity building activities undertaken by the IOTC Secretariat can be broadly categorized into the following work streams:

- a) Data compliance and support missions: aimed at facilitating improvements in the validation and reporting of core IOTC datasets to the IOTC Secretariat (i.e., nominal catches, catch-and-effort, and size data); also to assess current shortcomings concerning the collection and management of fisheries data, and whether additional assistance is required to implement those actions; agree a plan of action with the CPC required to deliver improvements on the levels of reporting.
- b) Technical assistance missions: capacity building in data collection, support for the development of national fisheries databases and statistical systems, or other issues related to fisheries data management.
- c) Support for implementation of the Regional Observer Scheme and implementation of the ROS Pilot Project: capacity building activities cover a number of components, including the development of the IOTC's electronic reporting tools, and feasibility study implementing EMS on small-scale fisheries.

The following data capacity building activities were implemented by the IOTC and its partners in 2019 (up to November 2019), to support a number of priorities identified by the IOTC Working Parties and Scientific Committee:

1. ROS Pilot Project: e- tools

The IOTC Regional Observer Scheme is a high priority for reducing the level of uncertainty associated with the status of many target stocks and associated bycatch species. However current low levels of reporting of ROS data to the IOTC Secretariat are confounded by ROS data returns which are often reported in non-electronic or un-standardised format, including .doc, .pdf or scanned documents that are not easy to validate and compile in statistical databases.

The Project aims to facilitate improvements in the data capture, processing and timeliness of reporting of ROS data to the IOTC Secretariat by the development of an electronic data entry interface, a national database for storage and processing of data, and a regional ROS database hosted by the IOTC Secretariat to collate data submissions and disseminate aggregated information to the public. Electronic tools are now becoming increasingly mainstream as a method for collecting, managing and processing data for timely analysis: the Project aims to deliver a fully integrated system from the point of data entry to transmission of the processed ROS data to the IOTC Secretariat, and is targeted particularly at developing CPCs which have not yet developed observer data collection and reporting workflows, and where data management processes will be an important capacity building tool.

Project update: A SIOTI-funded update of the ROS e-tools to incorporate the new requirements identified by the ROS Expert Consultation workshop in September 2018 has been finalized during Q2 2019, and the IOTC Secretariat has been (and currently is in the process of) organizing workshops for a number of CPCs participating in the ROS Pilot Project to continue testing and evaluation of the information collected using the new electronic tools. To date, workshops have been conducted in Sri Lanka (Dec-2017; Feb-2018, Sep-2019), Indonesia (July-2018) and Mauritius (April-2019).

2. ROS Pilot Project: Development and implementation of tools for observer training to support implementation of the Regional Observer Scheme in the Indian Ocean

An EU-funded project to develop a complete training package for the IOTC ROS has been awarded to CapMarine. Based on the revised ROS standards, the training will include materials for observers as well as observer coordinators.

The newly developed tools and materials (including e-learning courses, workbooks, manuals and data collection paper forms) will be implemented in six countries (Sri Lanka, Tanzania, Kenya, Indonesia, Malaysia and Mozambique) with the IOTC Secretariat expected to provide support during the country visits planned from Q1 2020 onwards in particular for what concerns the adoption of the ROS e-tools as the preferred data collection and management platform.

3. ROS Pilot Project: Electronic Monitoring Systems on small-scale fisheries

The project is aimed at improving the quality of observer data and coverage of small-scale fisheries where there are practical difficulties deploying on-board observers (e.g., due to safety issues, lack of space, logistics, etc.) – particularly in the case of coastal fleets. Given the successes of EMS in other oceans and fisheries (i.e., mostly industrial large-scale vessels), it is important that EMS is trialed for small-scale fleets in the Indian Ocean, particularly for fleets where no observer coverage has yet been implemented.

Project update: Procurement of EMS equipment for 6 coastal longline and gillnet vessels 15-18m LOA in Sri Lanka was finalized in late-2018. Delivery and installation of the equipment for the first 4 vessels was completed in Q3 2019, and EMS trials are now underway.

4. IOTC Data Compliance and Support missions

Data compliance and support missions are conducted by staff from the IOTC Secretariat, with the assistance of staff from the government institutions concerned in each country, and are focused on the following objectives:

- i.) Assess CPC compliance with IOTC Requirements for scientific data, including IOTC species and other bycatch, and provisions for the collection of logbook data, implementation of the IOTC Regional Observer Scheme, and data requirements with regards to FAD management plans.
- ii.) Recommend the type of actions that will need to be undertaken to address any issues identified in (i).
- iii.) Agree on a Plan of Action to address any issues identified impending compliance with IOTC data related resolutions, including a time frame for the implementation of those actions and the type of indicators to be used in each case to assess progress.

During 2019, the following activities were carried out (or planned) by staff of the IOTC Data and Science Section:

- **I.R. Iran (CPUE standardization):**

During 2019 the IOTC Secretariat has provided technical support to scientists from Shilat (Iranian Fisheries Organization) to explore the feasibility and options for developing a standardised CPUE series using the data collected from the port sampling program of gillnetters over the last 10 years.

The objectives of the mission are as follows:

- i.) Preparation of datasets from the gillnet database and identifying important changes that may occur to fleets and reporting between years, ensuring the reliability and coverage of the data.
- ii.) Developing methods to standardize the abundance indices for the key neritic tuna species, including identifying a suitable measure of effort (i.e., using fishing days as a substitute for gear-specific units of effort), potential proxies for targeting effects (e.g., mesh size), and other variables in relation to fishing operations that are important to explain the changes in catch rates.
- iii.) Exploring spatial and temporal effort patterns and operational characteristics, and identifying subsets of the data that represent relatively homogeneous fleets with consistent operations.
- iv.) Estimating annual time series of relative abundance derived from appropriate GLM models, and investigating different error assumptions and alternative models to account for zero catches.

- **Sultanate of Oman (workshop on IOTC data reporting):**

In September 2019 a follow-up workshop was conducted based on the recommendations of a previous mission delivered in November 2017 by a FAO official consultant (Mr. Yann Laurent) with support from Japan through the GCP/INT/228/JPN project. The 2017 mission recommended the organization of a technical workshop in Oman with the purpose of increasing knowledge of the IOTC process and reporting requirements, providing technical support on data reporting, and improving knowledge on discards and reporting of by-catch in the artisanal fleet.

The workshop was organized with support from FAO-FI and the FAOR in Oman with the following objectives:

- i.) Update the Oman Department of Fisheries Statistics with details about current IOTC reporting requirements, including the identification of data reporting gaps and bottlenecks;
- ii.) Review the existing data reporting processes, including the tools and methodologies currently adopted by the Department of Fisheries Statistics, and, where necessary, propose possible improvements to increase the efficiency of data reporting to IOTC;
- iii.) Incorporate the information from Oman into the IOTC’s review on the current status of data collection for the major IOTC artisanal fisheries – including the current situation in terms of port sampling systems in place (e.g., coverage, potential biases, and gaps in the data collection).

The overall goal was to improve the national capacity to collect, utilize and report data from artisanal and small-scale fisheries to assist the management of tuna and tuna-like species in the Indian Ocean.

- **Pakistan (WWF crew-based data collection and reconstruction of historical catches):**

Since 2012 WWF-Pakistan, with support from the ABNJ program, has developed and implemented a crew-based data collection program for Pakistan’s gillnet fleet. The IOTC Secretariat has supported the program by providing a technical review of the crew-based data collection forms and data entry portal used to collate, process and extract the results of the crew-based data.

In addition, the IOTC Secretariat has also been collaborating with WWF-Pakistan and the Government of Pakistan to review and quality assure Pakistan’s reconstructed catch series submitted to IOTC in 2017. The reconstructed catches are derived, in part, from data collected by the crew-based data collection program. However the scale of the revisions from previous official data submitted by the Government of Pakistan has meant the data remain pending upload to the IOTC database until the results of the review have been presented and endorsed by the WPDCS in December 2019.

5. Socio-economic indicators to support IOTC management (IOTC-OFCE Collaborative Project)

The aim of the project is to identify appropriate socio-economic indicators to support the integrated management of the IOTC resources and fisheries and its long-term sustainability. The main objectives of the project are:

- i) Review the existing information available; and
- ii) Evaluate the feasibility and utility of a Fishery Satellite Account through experimental compilations.

Project update: Since 2017 the project has provided technical assistance for the Seychelles in development of its Fishery Satellite Account. The initial results were presented during WPDCS-14 meeting in 2018⁴, including estimates of the economic contribution of IOTC resources using publicly available data for Seychelles. During 2019 the Seychelles Satellite Account was finalized with stakeholders, including arrangements for the handover of the work and dissemination of the results.

6. Monitoring of artisanal fisheries in the Indian Ocean

Routine data collection of coastal fisheries is lacking for many developing coastal states in the Indian Ocean, leading to fundamental issues for the data available for the stock assessment of IOTC species and also monitoring of incidental catches of CITES species. In the case of neritic tuna species, which are caught predominantly by artisanal fleets operating in coastal waters, the proportion of catches estimated by the IOTC Secretariat is as high as 85% in some years.

In 2019 MRAG Ltd. were hired to conduct a review the current status of data available and data collection systems currently in place for monitoring artisanal fisheries across the Indian Ocean. The review included a desk-based review of the information available, based on both the published literature and the grey literature, and through contacts with data providers from the government of IOTC CPCs.

In addition, country visits were also conducted to Tanzania and Indonesia to:

⁴ <https://iotc.org/documents/WPDCS/14/29-SYC-SatAccount>

- i. Discuss the main findings of the project and agree guidance on key metrics for data collection to assist Parties in setting up effective long-term monitoring schemes for CITES species and neritic tunas (that contribute towards CITES NDFs).
- ii. Agree recommendations with national fisheries institutions to improve the capacity of national fisheries institutions for the collection of data that may contribute to NDFs for commercially exploited fish species and increased availability of information necessary.

The project report was finalized in late-2019 and is available as an Information Paper for participants of the WPDCS meeting (IOTC-2019-WPDCS15-INFO2).

Activities planned for 2020

Below is a provisional (and non-exhaustive) list of the capacity building activities planned for 2019. Several of the activities have been postponed from 2018 – either due to limited resources available at the IOTC Secretariat, or delays in securing funding for the activities detailed below:

a) IOTC Data Compliance and Support Missions:

The IOTC Secretariat is committed to delivering additional Data Compliance and Support missions in 2019, aimed at improving levels of data compliance of CPC's in the IOTC region – given the on-going and persistent issues with non-reporting of mandatory IOTC datasets. The missions also aim to provide an assessment of the status of current data collection and reporting systems. Two missions are planned for 2019, funded by the European Union (DG-Mare) and the IOTC regular budget (targeted countries to be confirmed in due course).

b) Regional Observer Scheme Pilot Project – related activities:

➤ e-tools training workshops and further ROS developments:

During 2020, support for the implementation of the IOTC ROS e-tools is expected to continue. Envisaged activities specifically include training workshops preliminary to a further roll-out of the e-tools in two / three developing coastal CPCs (possibly focusing on the countries that already participate to the ROS Pilot Project training programme). Side activities stemming from these workshops will include additional end-user testing of the e-collection interface and of the national database components (where applicable) as well as evaluation of the quality of ROS data prior to their submission to the IOTC Secretariat. For those CPCs that already have legacy observer data collection systems in place (e.g. Mauritius, Seychelles) additional data integration activities are expected to ensure that the available information is properly (and automatically) shared with the IOTC Secretariat.

➤ e-monitoring pilot Project:

Following the finalization of procurement of the EMS and installation of equipment on-board vessels during Q3 2019, activities in 2020 will focus on workshops to provide training of the land-based observers and analysis of the trip data collected, and how these could be combined with the ROS e-tools to ensure timely, accurate and comprehensive ROS data submissions to the IOTC Secretariat in the future.

c) Biological sampling of albacore tuna scoping study:

Improving the biological parameters for albacore tuna in the Indian Ocean has been identified as a priority by the IOTC Scientific Committee. Most of the current estimates of the key biological parameters used in IOTC stock assessments are adopted from albacore stocks in other oceans (e.g. current growth of albacore in the Indian ocean is assumed to be equivalent to that of the North Pacific albacore tuna stock). The appropriateness of applying these parameter estimates to the Indian Ocean stock is unknown, and is a primary source of uncertainty in the albacore stock assessment.

In 2019 a project was commissioned by the IOTC Secretariat to explore the impact of the quality of the stock assessment of albacore using the current biological parameters, and options for establishing a new biological data collection program using onboard observers from fleets important for catches of albacore (e.g., Japan, Taiwan, China and Indonesia). The scoping study has now been completed and the results will be presented to the SC meeting in 2019. Options for Phase 2 of the project will also be discussed, including proposals to develop

an observer-based sampling program across the Indian Ocean – subject to confirmation of funds and the collaboration of key CPCs important for catches of albacore tuna (e.g., Japan, Taiwan, China, Indonesia, Mauritius).

The implementation of the activities listed above are subject to final confirmation of support by the agencies concerned.