Comprehensive Report

IOTC-OFCF Project Phase II

(June 2007 ~ March 2010)

March 2010

Indian Ocean Tuna Commission (IOTC)
Overseas Fishery Cooperation Foundation of Japan (OFCF Japan)

iotc ctoi Indian Ocean Tuna Commission
Commission des Thons de l'Océan Indien

OFCF

Contents

Annex

IOTC and associated species

3α-Code	English Name	Scientific Name
YFT	Yellowfin tuna	*Thunnus albacares*
SKJ	Skipjack tuna	*Katsuwonus pelamis*
BET	Bigeye tuna	*Thunnus obesus*
ALB	Albacore	*Thunnus alalunga*
SBF	Southern bluefin tuna	*Thunnus maccoyii*
LOT	Longtail tuna	*Thunnus tonggol*
FRI	Frigate tuna	*Auxis thazard*
BLT	Bullet tuna	*Auxis rochei*
FRZ	Frigate & bullet tunas	*Auxis spp.*
KAW	Kawakawa	*Euthynnus affinis*
TUN	Tunas & bonitos *NEI	*Thunnini* and *Sardini* *NEI
COM	Narrow barred Spanish mackerel	*Scomberomorus commerson*
GUT	Indo-Pacific king mackerel	*Scomberomorus guttatus*
STS	Streaked seerfish	*Scomberomorus lineolatus*
WAH	Wahoo	*Acanthocybium solandri*
KGX	Wahoo and seerfishes *NEI	*Scomberomorini* *NEI
SWO	Swordfish	*Xiphias gladius*
BLM	Black marlin	*Makaira indica*
BUM	Blue marlin	*Makaira nigricans*
MLS	Striped marlin	*Tetrapturus audax*
SFA	Indo-Pacific sailfish	*Istiophorus platypterus*
SSP	Short-billed spearfish	*Tetrapturus angustirostris*
BILL	Billfish *NEI	*Xiphioidei* *NEI
TUX	Tuna-like fishes *NEI	*Scombroidei* *NEI
SKH	Sharks*NEI	

*NEI: Not elsewhere included

Foreword

It is our pleasure to offer this Comprehensive Report on Phase II of the IOTC-OFCF Project, which has been implemented since June 2007, to all people engaged in data collection and statistics in the field of fisheries for tuna and tuna-like species, the government authorities and the private sector in IOTC member countries, especially the developing coastal countries in the region.

Phase II of the IOTC-OFCF Project, which began after Phase I of the Project ended in March 2007, is funded by OFCF, and involves the participation of staff from the IOTC Secretariat, working in conjunction with an OFCF expert attached to the Secretariat. It is governed by a Memorandum of Understanding (MOU) between the two parties, which has been reviewed and agreed to annually.

Thanks to the work of a dedicated team of Project staff and national counterparts, we have established cooperative programmes in the region that are making a difference. However, the resources of the Project are finite, and they cannot replace the long-term national commitments needed to establish a solid system. The Project is intended to build capacity, *i.e.*, provide the training and initial resources required to launch a data collection and processing system. However, unless there is a commitment on the part of national authorities to provide sustained support for the collection of statistics, there is a risk that these initiatives will not be continued after the Project ends.

To avoid this, the authorities and the private sector need to be made aware that it is in their best interests to support a data collection system that will give them the information required to better plan for future development.

Based on this principle, we are providing this Comprehensive Report Phase II, which consists of a description of the implementation of various Project activities, an overall evaluation of Project results, and recommendations for future development. We hope that it will be useful, and that it will be a proof of the achievement of the goal of contributing to "the realization of sustainable utilization of the tuna resources, by improving the accuracy of data collection and statistical systems of the coastal countries in the Indian Ocean".

Alejandro Anganuzzi
Executive Secretary, IOTC

Executive Summary

Since April 2002, in the framework of the IOTC-OFCF Project, the Indian Ocean Tuna Commission (IOTC) and the Overseas Fishery Cooperation Foundation of Japan (OFCF) have been devoting a considerable amount of time and resources to enhancing data collection and processing systems for tuna fisheries in the developing countries of the IOTC region. For this purpose, the Project initiated a broad range of activities involving cooperation with institutions in the recipient countries, including:

- strengthening of data collection through extension of field activities;
- capacity-building activities in the areas of data collection and management, including database support;
- documentation of fisheries in the IOTC region; and
- recovery of historical data on fisheries targeting tuna or tuna-like species.

Phase I of the Project was implemented during five years, from April 2002 to March 2007. The activities initiated during Phase I contributed substantially to improving the quality of the data in the IOTC databases, in particular the quality of nominal catches and size-frequency data for the fleets involved.

Following the success of Phase I of the Project, the OFCF agreed to support the implementation of a new phase which would extend the activities of the Project for a maximum of three years, from 2007 to 2010.

The present report covers the activities of the IOTC-OFCF Project during Phase II, and also includes an overview of the activities implemented through Phase I and the current status of implementation of the recommendations issuing from those activities. The following activities were implemented by the Project during Phase II:

1. **Comoros**: The Project sent a mission to assess the status of data collection in that country.
2. **Indonesia**: The Project provided equipment and materials for enhancing effort data collection for the Indonesian fresh tuna longline vessels. A workshop on the Indonesia logbook programme was held in May 2009, with the collaboration of the Indonesian Directorate General of Capture Fisheries and other national and international organizations, including the Western and Central Pacific Fisheries Commission (WCPFC) and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), in order to assist in initiating Indonesia's own programme.
3. **Kenya**: The Project carried out verification of the data collected from the sport fisheries of Kenya that were compiled during Phase I of the Project.
4. **Mauritius**: The Project sent a mission to assess the importance of foreign fresh-tuna longline fisheries in the Southwest Indian Ocean region.
5. **Oman**: Sampling programmes were carried out in Oman for collecting size data for three species caught by the artisanal fisheries in the Arabian Sea from January 2009 to December 2009.
6. **Thailand**: The Project contributed to the establishment of a data-processing system for industrial tuna purse seiners registered in Thailand.
7. **Yemen**: The Project sent missions in order to assess the status of data collection in that country and propose further actions to improve the quality of the statistics available from Yemen. The Project agreed to provide support for the compilation

and computerization of historical data from the artisanal fisheries in Yemen; unfortunately, the Project was unable to finalize the agreement for these activities to be initiated within Phase II of the Project.

The Project contributed substantially to improving the quality of the statistics available at the IOTC, including better catch, effort and, in particular, size-frequency data.

In addition, the Project addressed recommendations concerning the fisheries under study which, if implemented by the institutions concerned, may lead to significant improvements in the area of data collection, processing and reporting.

On numerous occasions, the IOTC Scientific Committee and other IOTC technical bodies stressed the importance of the activities initiated by the Project, noting that the information collected is of key importance for the assessments of some of the main IOTC stocks.

The IOTC-OFCF Project at a glance

The activities during Phase I and Phase II are summarized in Figure 1 and Table 1.

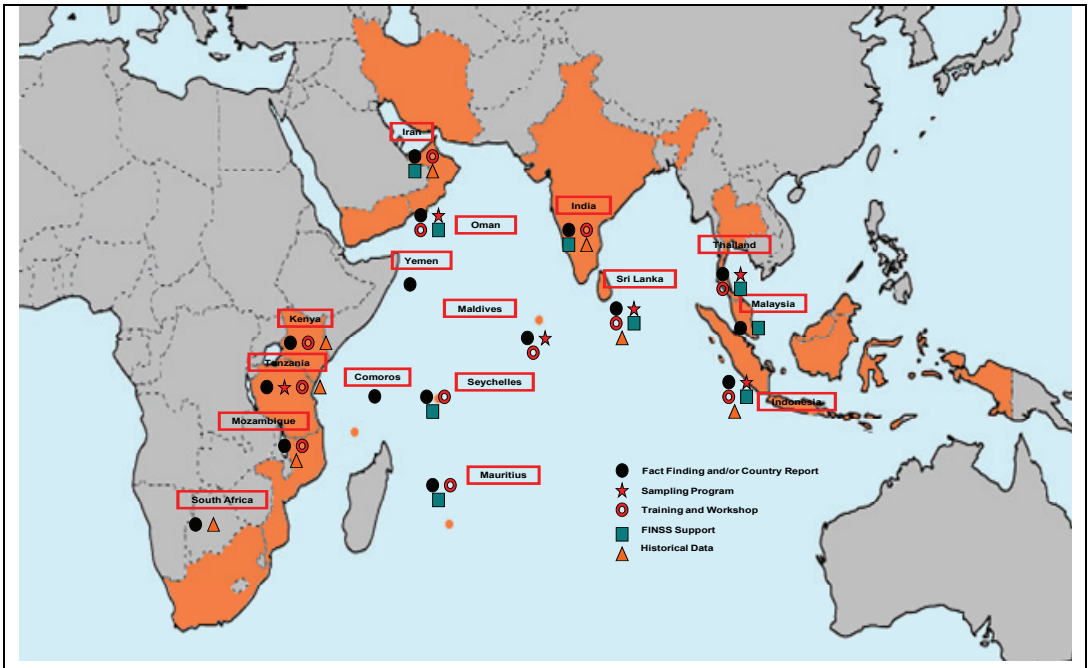

Figure 1. Project activities through Phases I and II of the IOTC-OFCF Project, by country

Table 1. Summary of the activities during Phases I and II of the IOTC-OFCF Project

Country-Fleet	Activities implemented		Fact-finding	Country report	Sampling activities	Training/ Workshop	Hardware/ Software	Historical data	Recommendations addressed
	Phase I	Phase II							
India	Yes		Yes	Yes		Yes			No
Indonesia-FLL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Indonesia-ART	Yes		Yes	Yes		Yes			Yes
Iran	Yes		Yes	Yes		Yes			No
Kenya	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Malaysia	Yes		Yes			Yes	Yes		No
Maldives	Yes		Yes	Yes	Yes	Yes			Yes
Mauritius	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Mozambique	Yes		Yes	Yes		Yes			No
Oman	Yes	Yes	Yes	Yes	Yes	Yes			No
Seychelles	Yes		Yes	Yes		Yes	Yes		Yes
South Africa	Yes			Yes					Yes
Sri Lanka-G/L	Yes	Yes	Yes	Yes	Yes	Yes	Yes		No
Sri Lanka-ART	Yes		Yes	Yes		Yes			No
Tanzania	Yes		Yes.	Yes			Yes		No
Thailand-FLL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Thailand-PSS	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Thailand-PS		Yes	Yes				Yes		Yes
Yemen		Yes	Yes,					Yes	No
Comoros		Yes	Yes						No

FLL: Fresh tuna longline; ART: Artisanal fishing vessel; G/L: Gillnet with longline; PSS: Small purse seine: PS: Industrial purse seine.

MOU signing in Seychelles (June 2007)

Discussion of effort data collection for Indonesian fresh tuna longline in Indonesia (September 2007)

Discussion on national statistics in Sri Lanka, Colombo, Sri Lanka (November 2007)

Investigation of foreign vessel activity in Mauritius (February 2007)

Discussing possibility of data collection from canning factory, Mukalla, Yemen (March 2008)

Artisanal tuna unloading in Mukalla, Yemen (March 2008)

SWIOFC meeting, Mombasa, Kenya (April 2008)

Completion of sticker printing for vessel identification in Indonesia (May 2008)

Steering Committee meeting on Indonesia Tuna Statistics, Jakarta, Indonesia (May 2008)

Data collection on Indonesia frozen tuna vessel, Jakarta, Indonesia (May 2008)

Discussion on implementation of the programme on historical data and size data collection at Ministry of Fish Wealth, Sanaa, Yemen (July 2008)

Discussion on implementation of the programme on size data collection in Muscat, Oman (September 2008)

Discussion on technical assistance on Indonesian logbook programme, DGCF, Jakarta, Indonesia (October 2008)

Signing of technical agreement on size data collection, Muscat, Oman (December 2008)

Training on size measurement and recording, Sur, Oman (December 2008)

Training on industrial purse-seine database system developed by Thailand, Phuket, Thailand (February 2009)

Signing contract for provision of equipment for fresh tuna longline effort data collection, Jakarta, Indonesia (February, 2009)

Preparation of financial report on Oman sampling programme, Muscat, Oman (March 2009)

Workshop on implementation of logbook programme, Jakarta, Indonesia (May 2009)

Workshop on implementation of logbook programme, Jakarta, Indonesia (May 2009)

Monitoring size data collection in Sur, Oman (October 2009)

Joint Committee Meeting, IOTC Secretariat, Victoria, Seychelles (December 2009)

Discussion of catch estimation, Moroni, Comoros (December 2009)

National Centre of Fisheries Resources, Moroni, Comoros (December 2009)

1. Introduction

Since April 2002, in the framework of the IOTC-OFCF Project, the Indian Ocean Tuna Commission (IOTC) and the Overseas Fishery Cooperation Foundation of Japan (officially OFCF Japan but hereafter "OFCF") have been devoting a considerable amount of time and resources to enhancing data collection and processing systems for tuna fisheries in the developing countries of the IOTC region. For this purpose, the Project initiated a broad range of activities involving cooperation with institutions in the recipient countries, including:

- strengthening of data collection through extension of field activities;
- capacity building activities in the areas of data collection and management;
- documentation of fisheries in the IOTC region; and
- recovery of historical data on fisheries targeting tuna or tuna-like species. .

Phase I of the Project was implemented during five years, from April 2002 to March 2007. The activities initiated during Phase I contributed substantially to improving the quality of the data in the IOTC databases, in particular the quality of nominal catch and size-frequency data for the fleets involved. On numerous occasions, the IOTC Scientific Committee and other IOTC technical bodies stressed the importance of the activities initiated by the Project, noting that the information collected is of key importance for the assessments of some of the main IOTC stocks. The activities of the Project during its first phase are summarized in a report, "Comprehensive Report of the IOTC-OFCF Project (April 2002-March 2007)", which is available from the IOTC or the OFCF.

Following the success of the Phase I of the Project, the OFCF agreed to support the implementation of a new phase which would extend the activities of the Project for a maximum of three years. The Memorandum of Understanding (MOU) for the implementation of Phase II of the Project was signed in Seychelles in June 2007. Phase II lasted for two years and nine months, coming to an end in March 2010.

This report presents a summary of the activities implemented through Phase II of the Project. Section 1 contains general information about the IOTC, the OFCF, and the Project since its inception in April 2002. The main activities implemented during Phase II of the Project are summarized in Section 2, as are the main results and achievements. Section 3 contains recommendations for further improvement of the statistics on IOTC species, based on the experience gained through the implementation of Project activities. Section 4 contains some final remarks and conclusions concerning the Project, in particular the need for IOTC coastal countries to devote more time and resources to the collection of fisheries data, and the need for the IOTC to maintain support for capacity-building activities in countries of the IOTC region. Additional information about the Project is presented in the Appendices at the end of the report.

1.1. What is IOTC?

The Agreement for the Establishment of the Indian Ocean Tuna Commission (IOTC), elements of which are summarized below, was adopted on 25 November 1993 by the FAO (Food and Agriculture Organization of the United Nations) Council at its 105th Session in Rome (Italy). The Agreement entered into force upon the accession of the tenth Member on 27 March 1996. The Financial Regulations were adopted at the First

Special Session of IOTC, held in Rome on 21-24 March 1997 and the Rules of Procedure were adopted at the Second Session, held in Victoria (Seychelles) on 22-25 September 1997.

IOTC is an intergovernmental organization established under Article XIV of the FAO constitution. Its mandate is to manage tuna and tuna-like species in the Indian Ocean and adjacent seas.

The objective of the Commission is to promote cooperation among its current 28 Members (Australia, Belize, China, Union of Comoros, Eritrea, European Union, France, Guinea, India, Indonesia, Islamic Republic of Iran, Japan, Kenya, Republic of Korea, Sultanate of Oman, Madagascar, Malaysia, Mauritius, Pakistan, Philippines, Seychelles, Sierra Leone, Sri Lanka, Sudan, Tanzania, Thailand, United Kingdom and Vanuatu) and three Cooperating Non-Contracting Parties (Senegal, South Africa and Uruguay), with a view to ensuring, through appropriate management, the conservation and optimum utilization of stocks covered by the IOTC Agreement and encouraging sustainable development of fisheries based on such stocks.

In order to achieve these objectives, the Commission has the following functions and responsibilities, in accordance with the principles expressed in the relevant provisions of the United Nations Convention on the Law of the Sea:

1. Keep under review the conditions and trends of the stocks, and gather, analyze and disseminate scientific information, catch and effort statistics and other data relevant to the conservation and management of the stocks and to fisheries based on the stocks covered by the IOTC Agreement;
2. Encourage, recommend, and coordinate research and development activities in respect of the stocks and fisheries covered by the IOTC Agreement, and such other activities as the Commission may deem appropriate, including activities connected with transfer of technology, training and enhancement, having due regard to the need to ensure the equitable participation of Members of the Commission in the fisheries and the special interests and needs of Members in the region that are developing countries;
3. Adopt, on the basis of scientific evidence, conservation and management measures to ensure the conservation of the stocks covered by the IOTC Agreement and to promote the objective of their optimum utilization throughout the IOTC Area;
4. Keep under review the economic and social aspects of the fisheries based on the stocks covered by the IOTC Agreement, bearing in mind, in particular, the interests of developing coastal states.

Conservation and management measures binding on Members of the Commission must be adopted by a two-thirds majority of Members present and voting. Individual members objecting to a decision are not bound by it. If objections to a measure are made by more than one-third of the Members of the Commission, the other Members are not bound by that measure, but this does not preclude any or all of them from implementing it.

Recommendations concerning conservation and management of the stocks for furthering the objectives of the Agreement need only be adopted by a simple majority of Members present and voting.

It is the responsibility of Members to ensure that action is taken under their national legislation to implement conservation and management measures.

The Members of the Commission are also expected to cooperate in the exchange of information regarding any fishing for stocks covered by the IOTC Agreement by nationals of any State or Entity which is not a Member of the Commission.

Further information is available on the IOTC website, www.iotc.org .

1.2. What is OFCF?

The Overseas Fishery Cooperation Foundation of Japan (OFCF) was established in June 1973, with the objectives of promoting the development of fisheries in coastal countries and the effective management of international marine resources by regional fisheries organizations, with both of which Japan has a close relationship in the fisheries field, in order to maintain and enhance amicable relations through technical and economic cooperation.

In order to contribute to the development and promotion of the fisheries in the coastal countries concerned, OFCF provides various types of technical cooperation, such as project-type cooperation, dispatch of fisheries technical expert(s) and invitation of overseas fisheries trainees.

1. Restoration of function of fisheries-related facilities

   OFCF dispatches advisers and engineers, with the necessary materials and equipment, to coastal countries concerned in order to transfer techniques of rehabilitation and maintenance of fisheries-related facilities and equipment that have been damaged by natural disasters or other causes.

2. Development of fishing grounds, promotion of fisheries, promotion of fish processing and distribution, and conducting surveys of living marine resources.

   OFCF conducts surveys of the development of fishing grounds within the Exclusive Economic Zones (EEZs) of the coastal countries concerned, with related advice and guidance. Studies are carried out and technical guidance is provided on the development of coastal fisheries and processing of fish products and on the improvement of their distribution.

3. Measures for the protection of the environment and conservation of international fisheries resources

Technical transfer is carried out in the fields of (1) research and development in such aspects of stock enhancement as fish-rearing and optimum feed development, to contribute to the restoration of declining fish stocks, (2) marine resource management and stock enhancement techniques within the coral reef area of Pacific island nations, to restore declining fish stocks and (3) improving statistical information systems for tuna resources.

Based on the results of an assessment and evaluation conducted upon the completion of an OFCF-led cooperation project, follow-up activities are implemented by dispatching expert(s) and providing the necessary materials and equipment to complement the project, to further improve and establish the relevant technique.

In order to promote mutual understanding with the fisheries organizations of the coastal countries concerned and international fisheries-related organizations, OFCF organizes symposiums and meetings on specific themes in fisheries, such as global resources management.

To date, OFCF has extended its cooperation programmes to more than 110 nations,

regions and international organizations worldwide. These programmes are diverse in nature, ranging from acceptance of overseas technical trainees, dispatch of experts, implementation of project-related technical cooperation, and personnel exchange.

Further information is available on the OFCF website, www.ofcf.or.jp .

1.3. Framework for Phase I

1.3.1. Background information

Systematic data collection has taken place in the industrial fisheries for tuna and tuna-like species in the Indian Ocean since the beginning of their operations in the early 1950s, and in the artisanal fisheries of some of the coastal countries. However, efforts to gather that information into a centralized database did not begin until 1982, when FAO established the Indo-Pacific Tuna Management and Development Programme (IPTP).

The activities of IPTP resulted in a number of advances in the area of data collection in the region. Sampling programmes were implemented in various coastal countries, and the data available for most of the industrial fisheries were centralized. In 1998, the IPTP's data-collection responsibilities and databases were transferred to the IOTC. The IOTC Secretariat has been working since then to improve the quality and the quantity of the data available.

However, despite the best efforts of IPTP and IOTC, there are still gaps in the information necessary for the best management of the tuna resources in the Indian Ocean. These inadequacies affect a wide range of the data requested by IOTC, including some of the most fundamental types of data. such as nominal catch statistics. These highly-aggregated data are what is most likely to be available from reporting sources, but more than 15% are considered to be of poor or uncertain quality. The situation is particularly serious regarding the availability of data on the size composition of the catches, which are fundamental for most modern stock assessment techniques and which are unavailable for several important fisheries in the Indian Ocean.

The origin of these problems could be traced, in many instances, to data collection and processing systems which are not suitable for producing the type of statistics required by IOTC.

These deficiencies in data availability have affected the quality of the stock assessments, thus compromising the management of some stocks. Achieving a significant improvement in the data situation will require concerted actions with the countries involved.

Early in 2001, the IOTC Secretariat and OFCF initiated work on a project that would address the main needs regarding data collection and statistics in the developing countries of the region. This project was largely funded by OFCF, and involved the participation of members of the IOTC Secretariat, working in conjunction with two fisheries experts seconded to the Secretariat by OFCF.

The objective of Phase I of the IOTC-OFCF Project was to implement the recommendations of the IOTC Working Parties on Data Collection and Statistics

(WPDCS)[1], Tropical Tunas (WPTT), Billfish (WPB), and Temperate Tunas (WPT), as well as the Scientific Committee (SC), which could not be implemented before because of insufficient resources at the IOTC Secretariat. It also addressed requests for training made by IOTC Members at past meetings, fulfilling the mandate of the Commission to encourage and coordinate activities connected with transfer of technology, training and enhancement, with due regard to the special interests and needs of Members in the region that are developing countries.

The Project embodied three main principles:

- The activities carried out under the Project would follow the recommendations of the Commission and its relevant subsidiary bodies, in particular the WPDCS and the Scientific Committee;
- There would not be any direct financial implications for IOTC Member countries.
- The activities of the Project were to be directed towards reinforcing the statistical systems of developing countries in the region.

The Project has been a landmark for OFCF, as it was the first OFCF project involving a regional fisheries management organization (RFMO) as a partner. In the past, OFCF has implemented its cooperation programmes on a bilateral basis. OFCF's decision to go beyond this bilateral framework and engage in a multi-lateral cooperation programme was based on the recognition by the government and the fishery-related industries of Japan that cooperating with international organizations for the sustainable utilization of marine resources is indispensable for achieving the goal of adequate conservation and management of marine resources.

OFCF chose IOTC as a partner for several reasons. Compared to other international organizations, IOTC had a short history and therefore needed to set up various measures for resources management in the future. The large proportion of developing nations among its membership also made IOTC an ideal partner for an OFCF project. Another rationale for choosing IOTC was because upgrading data collection and statistical systems was considered to be a good starting point for extending cooperation from OFCF. This offer from OFCF was very timely, since at the time IOTC needed to improve the accuracy of its statistical data. The Memorandum of Understanding (MOU) for the Project was signed by both parties in January 2002, and the Project itself was launched in April of the same year. This first phase of the IOTC-OFCF Project lasted five years, until March 2007.

1.3.2. Project title, Objective, Main activities, and Priority areas

The title of Phase I of the IOTC-OFCF Project was "Cooperation Project for Enhancing the Data Collection and Processing Systems for Tuna Resources in the Indian Ocean".

The main objective of the Project was to promote the sustainable utilization of tuna resources in the Indian Ocean, through strengthening the collection and processing of fisheries statistics from the fisheries that target IOTC species in the Indian Ocean region.

The main activities carried out under the Project covered the following areas:

[1] The WPDCS was suspended in 2003, and the responsibility for monitoring progress regarding data collection and statistics was transferred to the Scientific Committee. The WPDCS was re-instated in 2009.

1. Conduct studies to determine the current status of data collection, processing and analysis in the coastal countries of the IOTC region, including fact-finding missions by Project staff to those countries, and documentation of the fisheries and fisheries information systems in those countries (through the preparation of Country Reports);
2. Provide technical guidance and assistance to coastal countries in the IOTC region for reducing any problems discovered through the studies carried out under 1), in particular strengthening of existing data collection systems (Sampling Programmes);
3. Organize seminars or workshops aimed at mitigating any problems discovered through the studies carried out under 1);
4. Promote the use of integrated database management systems among the coastal countries of the IOTC region, including training and support in the implementation of software developed by the IOTC staff (*e.g.* FINSS: Fisheries Integrated Statistical System)
5. Endeavour to obtain any historical datasets from the fisheries in coastal countries of the IOTC region that may be of relevance for the assessments of IOTC species.
6. Implement any other activities that both IOTC and OFCF consider necessary to achieve the objectives of the Project.
7.

1.3.2.a Priority areas

The fisheries targeted by the Project were those that were of sufficient size to influence stock assessments or future management measures, or catch fish at sizes not well represented in other fisheries. However, some of the planned activities also benefited developing countries in the region that were not identified by these criteria. The IOTC Secretariat identified the following four main areas of concern relating to tuna statistics in the region.

Statistics from Indonesia: Indonesia is a major tuna-fishing nation in the region. However, the data available from Indonesia were, in general, of uncertain accuracy and incomplete until 2002. Of particular concern was the large fleet of Indonesian fresh-tuna longliners. This fleet is catching yellowfin, bigeye, albacore and southern bluefin tunas, swordfish and sharks. Catches of other tunas such as skipjack and seerfish species by gears other than longline are also important but not well known.

Improving data collection systems in developing coastal countries: The collection of high-quality fisheries statistics in developing countries is an important requirement for further development of their fisheries, and greatly assists in the assessment of the status of tuna stocks by regional bodies such as IOTC. In addition to **Indonesia**, countries participating in this category include **India, Kenya, Maldives, Oman, Sri Lanka, Tanzania, Thailand,** and **Yemen.**

Statistics from gillnet fisheries: These fisheries operate primarily from **Iran**, **Oman**, **Pakistan** and **Sri Lanka,** and are an important component of the fisheries for tropical tunas, as they catch a range of sizes that are not usually available to other gears during the same seasons and areas.

Statistics from new longline and purse-seine industrial fisheries: These fisheries currently operate from **Iran**, **Malaysia, Mauritius, South Africa**, **Seychelles**, and **Thailand,** and are of major importance in terms of the volumes of tropical tunas they

catch.

1.3.3. Administrative arrangements

Implementation of the various sampling programmes, including provision of equipment, running costs, travel costs, etc., were detailed in MOUs signed with the collaborating institutions in each country. Purchasing contracts with suppliers, consultant contracts for fact-finding missions, contracts with authors for compilation of the country reports, editing contracts for field manuals, etc., and necessary documentation such as invitations, permissions and others for holding workshops and training courses were prepared by the Project. Technical inputs for such documentation were provided by IOTC and OFCF experts who were involved in the programmes. Approval for all contracts and activities by OFCF headquarters (HQ) was required before implementation.

The Project held internal meetings between IOTC and OFCF experts every week or two weeks to discuss Project activities, and the results of the discussions were reported to OFCF HQ.

Yearly, IOTC and OFCF held executive meetings to review activities during the previous year and to agree planned activities for the following year.

The funds for running the Project were provided by OFCF HQ every two months, in accordance with the budget plan. Any activities not completed during the allotted two-month period were either carried over to the next period or cancelled.

The funds for sampling programmes were usually paid in three instalments (45%, 45% and 10% of the total amount) in accordance with the MOU. Usually, the payment was remitted by OFCF HQ in Japan to the collaborating institution. The same principles were applied to the payments for other contracts with suppliers, consultants and other contractors.

The Project submitted an accounting report on the running costs of the Project every month to OFCF HQ, with accompanying explanations of any variations to the approved budget.

When a new programme was being planned that required equipment for a collaborating institution, the justification for implementing the programme and an action plan for utilizing the equipment were provided to OFCF. .Quotations for the equipment were obtained from different suppliers for comparison. After completion of this documentation, the collaborating institution was asked to provide an official letter of request to the programme, signed by the head of the institutions. An application with that documentation was then submitted to OFCF HQ to obtain its approval for implementing the programme. Once this approval was given, the arrangement was concluded by means of a contract, named a Letter of Consignment, among the three parties (IOTC, OFCF and the collaborating institution). Then a purchase contract, also approved by OFCF HQ, was made with the supplier that made the lowest bid for supplying the equipment, materials, and accessories, *etc.*

When IOTC experts travelled as part of the Project, travel costs (economy class) were covered by the Project, while travel insurance costs were covered by the IOTC Secretariat.

1.4. Framework for Phase II

The Memorandum of Understanding (MOU; Annex 1) for Phase II of the Project was signed by both parties on 25th June 2007, when the Project itself was launched. This phase of the Project continued for three years, until March 2010.

The title of Phase II was "Cooperation Project for Enhancing the Data Collection and Processing Systems for Tuna Resources in the Indian Ocean Phase II"

The objective of Phase II was "to contribute to the realization of sustainable utilization of tuna resources, by improving the accuracy of data collection and statistical analysis of the catch and resources of tuna in the Indian Ocean".

The OFCF dispatched one long-term expert for Phase II. The following activities were carried out under Phase II:

1. Providing technical guidance and assistance to coastal countries in the IOTC Region in order to enhance the fisheries data collection and processing systems in those countries.
2. Transfer of technology, as necessary to achieve the above.
3. Implementing any other activities that both IOTC and OFCF consider necessary to achieve the objectives of the Project.

Phase II of the Project retained the main principles and framework of Phase I, described in the previous section.

Priority areas

The activities implemented during Phase II of the Project were, as far as possible, in line with the recommendations of the IOTC and its technical bodies, in particular the Scientific Committee. Overall, the priority areas identified for Phase I apply also to Phase II.

1.5. Implementation strategy

Before implementing any activities supported by Phase II in a country, the importance of that country's fisheries in the context of the IOTC and these activities was assessed.

The activities for implementing the Project described in Section 1.4 above were then initiated, in the following four elements:

- Fact finding mission/Country report
- Technology transfer
- Training/Workshops
- Technical assistance

The process by which particular activities were selected and assigned to priority work areas was similar to that used in Phase I. Figure 1-1 outlines the steps taken to determine which activities would be implemented in each country.

Establishing a knowledge base

Although the major problems pertaining to fisheries data were already well known to the IOTC Working Parties and the Secretariat's data group, the amount of information available to the IOTC-OFCF staff to determine how best to address the problems varied considerably. When sufficient information was available, the IOTC-OFCF staff was readily able to decide which actions were most appropriate for

addressing the problems that had been identified. When little information was available, there was an obvious need to include a step to collect more information. This was mainly achieved through fact-finding missions, country reports, and an initial workshop involving relevant experts:

- **Fact-finding missions**: Missions by IOTC-OFCF staff to particular countries to identify the institutions responsible for the collection and processing of fisheries data, the types of information that were being collected, and how the statistics were derived and produced. The information collected during a fact-finding mission served three purposes:

  1. To confirm the importance of the issues identified for the fisheries concerned;
  2. To assess the level of commitment from the governments in the country concerned to improving their data collection and processing systems, if required;
  3. To be able to determine or confirm which activities and approaches would be necessary to achieve the particular requirements.

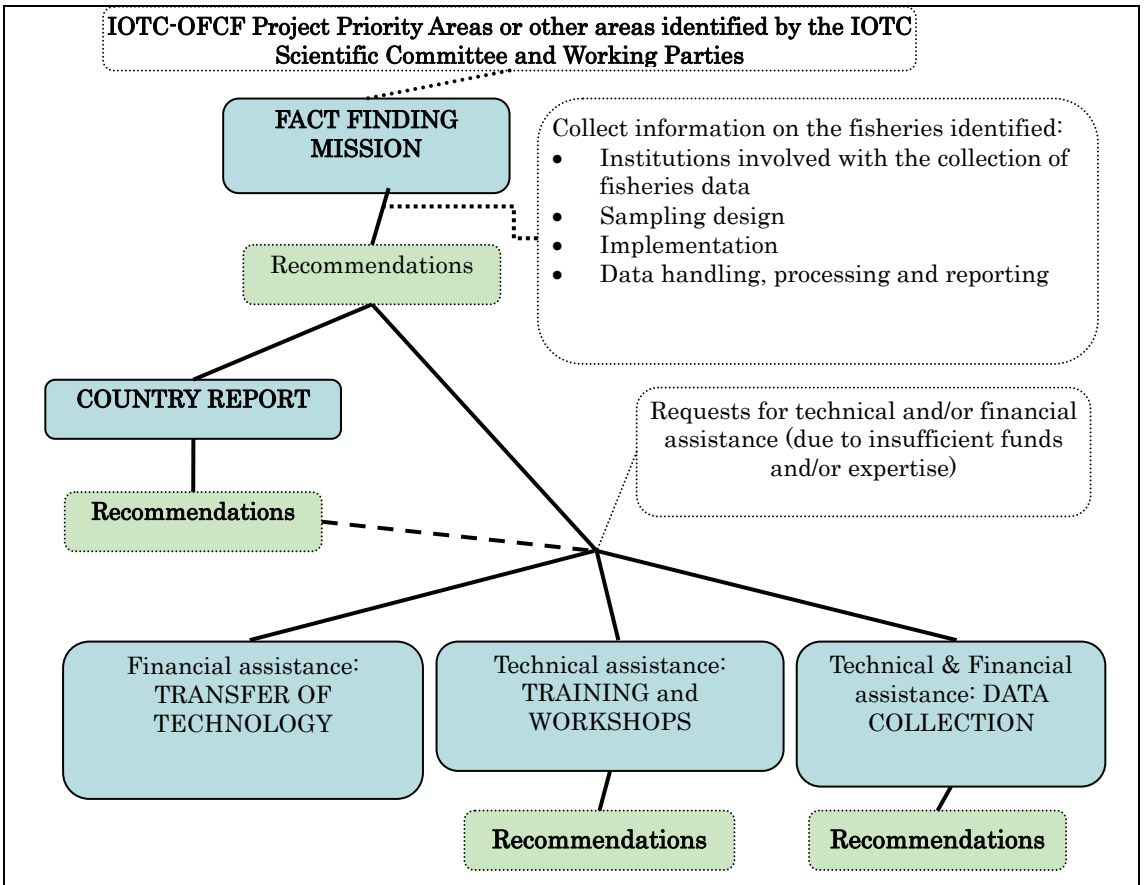

Figure 1-1. Sequence of steps taken to determine which activities are implemented in each country.

- **Country reports**: For each country visited, these reports contain an up-to-date description of current fishing activities, the institutions responsible for the collection and processing of fisheries data (including the names and contact details of relevant people), the types of data collected and their use, the major problems related to the collection and processing of statistics, and a list of recommendations to address the issues relevant to the Project. The production of a Country Report

involved staff from one or more institutions in each of the countries, who were responsible for the final edition of the report, with the help of staff from the Project or from other scientists with experience of the fisheries concerned, hired by the Project as consultants. The publication of a country report came as a follow-up action after a fact-finding mission or was decided on the basis of the background information available at the IOTC Secretariat relating to the fisheries data collection and processing systems in that country. The cooperation of the country's institutions was, in either case, a prerequisite before going ahead with the completion of a country report.

- **Major Workshop:** The mission and country reports include lists of recommendations intended to provide guidance for the country concerned to be able to address the deficiencies identified concerning its ability to produce accurate fisheries statistics. These recommendations were revised during a workshop that took place after the completion of the first round of country reports, which was attended by the scientists from the country concerned, IOTC-OFCF experts, and any other scientists or experts involved. The main objectives of the workshops were to share the experiences from the different fisheries involved and try to find common solutions to address the problems that had been identified. The recommendations arising from the above activities covered a range of areas, notably:

  Institutional issues: In most countries, the collection and processing of fisheries data involve two or more institutions, but the systems in use and the statistics produced are frequently conflicting. The main reasons for this are the lack of communication and exchange of data among the institutions involved.

  Data collection issues: These generally included one or more of the following:

  - **Deficient sampling design:** The sampling strategy in use is not appropriate for the fishery concerned. This is usually a consequence of changes in the fisheries that occurred over time, and sampling designs that were not modified to incorporate the changes that occurred.
  - **Poor implementation of data collection procedures:** The sampling protocols for data collection for all the fisheries concerned are not strictly followed, due to (a) insufficient sampling effort, when the funds allocated to data collection were not enough for the implementation of the activities as planned (for most of the fisheries concerned, this reduced the precision of the statistics produced from the data collected); and (b) insufficient supervision, which results in the enumerators not doing their jobs to the levels required, despite a good sampling design.

  Data processing and data dissemination issues: Most of the problems identified with data processing and data dissemination are due to a lack of adequate computer hardware and/or software in the countries concerned. The main consequences of this are:

  - **Poor data validation and verification routines:** In many cases, data verification was mainly carried out by hand; this is time-consuming, does not allow for the level of rigour required, and is prone to error.
  - **Late dissemination of statistics:** The lack of adequate computer hardware and/or software in some countries made it difficult to produce the statistics in time, due to a lengthy and laborious data compilation and processing.

Identifying how to best proceed in each country

The next step for the IOTC-OFCF experts was to assess if the issues identified for each country could be addressed with support from the Project, and exactly what type of actions or activities were required. This is summarised below:

- **For institutional issues: Training or Workshops** were used to increase the awareness in the recipient countries of the need for the institutions involved with data collection and processing to communicate regularly and exchange the data collected with a view to improving the quality of the statistics produced. Training sessions were held in the countries concerned or at IOTC headquarters. **Transfer of Technology** was used to increase the capability of the institutions involved in data collection to exchange and verify data. This involved training sessions in the use of the hardware and/or software provided. FINSS (Fisheries Integrated Statistical System), developed by the IOTC Secretariat, was the software of choice in most cases, as it includes modules covering the entry, validation, and reporting of fisheries data.
- **For data collection issues: Training or Workshops** were used to increase the ability of the scientists or other staff responsible for the collection of statistics in the recipient countries to maintain the relevant data collection systems. The training or workshop sessions were held in the countries concerned or at IOTC headquarters. **Technical and/or financial support** for one or more institutions in the countries concerned, in order to strengthen its capacity relating to the collection of fisheries data. The level of support provided to data collection activities varied depending on the following:

  1. **The species involved and their levels of catches:** In general, the IOTC-OFCF experts prioritized the implementation of activities for fisheries reporting high catches of yellowfin tuna and/or bigeye, albacore, and skipjack tunas, and/or swordfish, because these species are of great interest to the IOTC.
  2. **The types of fisheries involved:** The way in which the fishing units for some of the fisheries operate limited, in some cases, the type of support that the Project was able to provide.

     This is the case with most of the artisanal fisheries, in which large amounts of fishing units usually operate from a large number of landing locations that extend, in most cases, over large areas. The implementation of sampling activities for these fisheries had to be dropped due to the considerable human and financial resources that had to be devoted to the task, something that was beyond the capacity of the Project.

     In contrast, the implementation of field activities relating to semi-industrial or industrial fisheries was possible in most cases, mainly when the amount of fishing units involved and landing locations were not high.
  3. **The types of data required:** The programmes implemented focused on the following data types:

     - Vessel information (*e.g.* vessel identification, dimensions) and catch and effort data (total catches and vessel activities, including operating range and average time at sea).
     - Length-frequency data: individual lengths of the fish caught.
     - Biological data, including length, weight and other biological information

on individual specimens.

In general, the above information was collected by strengthening the existing sampling programmes in the countries concerned, or by implementing new programmes in cooperation with the local institutions responsible for carrying out these activities. In some cases, the data collection activities were extended to include the collection of historical data.

4. **The existing data collection systems** in the countries concerned before the implementation of the new activities: The type of activities implemented in each country varied, depending on the amount of data that was collected by the local institutions and its quality. The Project experts tried in all cases to maximize the use of the resources available by modifying the existing sampling schemes rather than implementing new sampling activities from scratch.
5. **The amount of resources available** for the implementation of the activities concerned: Prior to initiating a programme in a particular country, the IOTC-OFCF experts evaluated the importance of each fishery, based on the above criteria, with a view to sorting the activities according to their importance and estimating the proportion of the total funds available for operation that could be devoted to each activity.

- **For data processing and data dissemination issues:** Training sessions were held in the countries concerned to increase the ability of the scientists, database administrators, or other staff responsible for the computerization, processing and reporting of fisheries statistics in the recipient countries, to use and maintain databases and other processes related to data verification, processing and reporting.

Once the IOTC-OFCF experts and the institutions in the recipient countries agreed on the activities required, the IOTC-OFCF experts drafted Memoranda of Understanding (MOUs) or Technical Agreements (TAs), to be signed by the representatives of IOTC and OFCF and the counterpart individuals or institutions in the recipient country, which addressed the following:

- Total funds to be provided by the Project in support of the activities identified, and terms of payment;
- Name of the programme, main purpose, and details of the activities to be carried out[2];
- General conditions for the use of funds, responsibilities, intellectual property rights, staff, and other similar issues;
- Information to be reported to the Project, and reporting timelines;
- Date of entry into force, and duration;
- Commitment from the recipient organization to maintaining the activities implemented or addressing the recommendations made with respect to those activities on termination of support by the Project.

In general, the results of the activities implemented with the support of the Project were assessed by the experts involved, and in each case new recommendations were made regarding any remaining problems. The continuation or extension of the field activities implemented through the programme was sought in all cases. To this end,

[2] Technical details are set out in the appendices to the MOU or TA

the Project experts approached the institutions involved in the recipient countries with a view to seeking their commitment to the continuation of these activities. This was agreed by all countries, and a country's commitment was reflected in the last MOU or TA it signed. All countries also sent plans indicating that the activities were to be maintained under the same or similar terms and conditions after the termination of support by the Project.

2. Results of implementation of activities by the Project

This section describes and summarizes the results of the activities carried out under the Project.

2.1. Summary of implementation of activities by Project Phase I

The activities of the IOTC-OFCF Project are classified into six main areas, as listed in the MOU (see Section 1.3.2). Table 2-1 summarizes the activities that were implemented in each area. Figure 2-1 shows the Project activities in each country.

Table 2-1. Summary of implementation of Project activities

Area (1): Conduct studies to determine the current status of data collection, processing and analysis in coastal countries of the IOTC region, including fact-finding missions by Project staff to those countries and documentation of the current fisheries and fisheries information systems in those countries
Summary of activities implemented: (1) Fact-finding missions to Indonesia, Thailand, and Oman in 2002, Sri Lanka, Iran, India, Maldives, Mozambique, Mauritius, and Seychelles in 2003, Tanzania and Kenya in 2005. (2) Compilation of Country Reports for all the above countries (Indonesia's report was not prepared through the Project). The missions sent to Indonesia, Oman and Maldives in 2002, Sri Lanka in 2004, and Kenya, Tanzania, and Thailand in 2005, led to the implementation of data collection and processing activities in those countries.
Area (2): Provide technical guidance and assistance to coastal countries in the IOTC region for reducing any problems discovered through the studies carried out under (1), in particular strengthening of existing data collection systems
Summary of activities implemented: The following sampling programmes were implemented in order to strengthen data collection systems for the fisheries concerned: (1) Fresh tuna longline fishery of Indonesia: carried out from June 2002 to December 2006 in Indonesia, involving the collection of catch and size-frequency data. (2) Fresh tuna longline fisheries of China, Taiwan,China[3], and Indonesia: carried out from June 2002 to December 2006 in Thailand, involving the collection of catch and size-frequency data. (3) Artisanal gillnet and handline fisheries in the Arabian Sea: carried out from January to March 2003 in Oman, involving the collection of size-frequency data for yellowfin tuna. (4) Pole-and-line fisheries of the Maldives: carried out from June 2003 to March 2005 in Maldives, involving the collection of size-frequency data for the species caught. (5) Offshore gillnet and longline fisheries and coastal longline fishery of Sri Lanka: carried out from October 2004 to December 2006, involving the collection of catch, effort and size-frequency data. (6) Coastal purse-seine fisheries of Thailand: carried out from November 2005 to October 2006, involving the collection of catch, effort and size-frequency data, in particular for neritic tuna species.

[3] Taiwan,China refers to Taiwan Province of China

Area (3): Organize seminars or workshops aimed at mitigating any problems discovered through the studies carried out under (1)

Summary of activities implemented:

(1) Regional workshop on data collection and statistical systems in countries of the IOTC region: Held in Seychelles in March 2004; review of the Country Reports compiled by the Project during 2002-03, including Indonesia.
(2) International workshop on the collection and management of statistics from fresh-tuna longline fisheries based in Thailand and Indonesia: Held in December 2004 in Indonesia
(3) Workshop on the collection and management of statistics from offshore gillnet and longline fisheries and coastal longline fisheries based in Sri Lanka: Held in December 2005 in Sri Lanka
(4) Workshop on the collection and management of statistics from coastal purse-seine fisheries based in Thailand: Held in November 2005 in Thailand
(5) International workshop on the collection and management of statistics from industrial tuna purse-seine fleets based in the Islamic Republic of Iran and Kenya: Held in December 2005 in Seychelles

In addition to the above activities, the OFCF organized five annual Fishery Resource Management Courses (FRMC) between 2002 and 2006. Although the FRMCs were organized independently from the IOTC-OFCF Project (and therefore not covered through Project funds), they involved the participation of 16 persons from countries in the IOTC region.

Area (4): Promote the use of integrated database management systems among the coastal countries of the IOTC region, including training and support in the implementation of software developed by the IOTC staff

Summary of activities implemented:

The activities implemented under this area are closely related to those implemented through area (3) above; the workshops under area (3) included also components related to database management, and therefore apply also to this area. In addition, the following workshops referred exclusively to this area:

(1) International workshops on data processing and database management using IOTC FINSS software: Held in August 2002 in the Seychelles and December 2004 in Indonesia.
(2) International workshop on database administration: Held in February 2005 in Seychelles

Other activities implemented under this area concerned the transfer of technology to countries in the IOTC region, including the provision of IOTC FINSS software and related training activities:

(1) Training in the use of IOTC FINSS software for the fisheries operating in Mauritius, including the provision of the software and one Desktop PC in 2002.
(2) Training on the use of IOTC FINSS software for the fisheries of Indonesia in May 2003 in Seychelles
(3) Provision of the software FINSS and the user manual to countries in the IOTC Region since 2004, including provision of technical assistance to those countries.
(4) Provision of Desktop PCs and motorbikes to Tanzania in 2007 in order to strengthen monitoring of the fisheries in this country.

Area (5): Endeavour to obtain any historical datasets from the fisheries in coastal countries of the IOTC region that may be of relevance for the assessments of IOTC species.

Summary of activities implemented:

(1) Compilation of fisheries statistics through the preparation of Country Reports and missions from IOTC-OFCF staff to the relevant countries (2) Compilation and computerization of historical data from the sport fisheries of Kenya (extending from 1980 to 2006). (3) Compilation of historical data on the catches and sizes of specimens unloaded in processing plants in Indonesia: The collection of historical data was not successful due to the lack of cooperation from the industry in this area.
Area (6): Implement any other activities that both IOTC and OFCF consider necessary to achieve the objectives of the Project
Summary of activities implemented: The Project provided support for the preparation of the IOTC Field Manual, following a recommendation from the IOTC Scientific Committee. The draft manual prepared by the consultant is still under review.

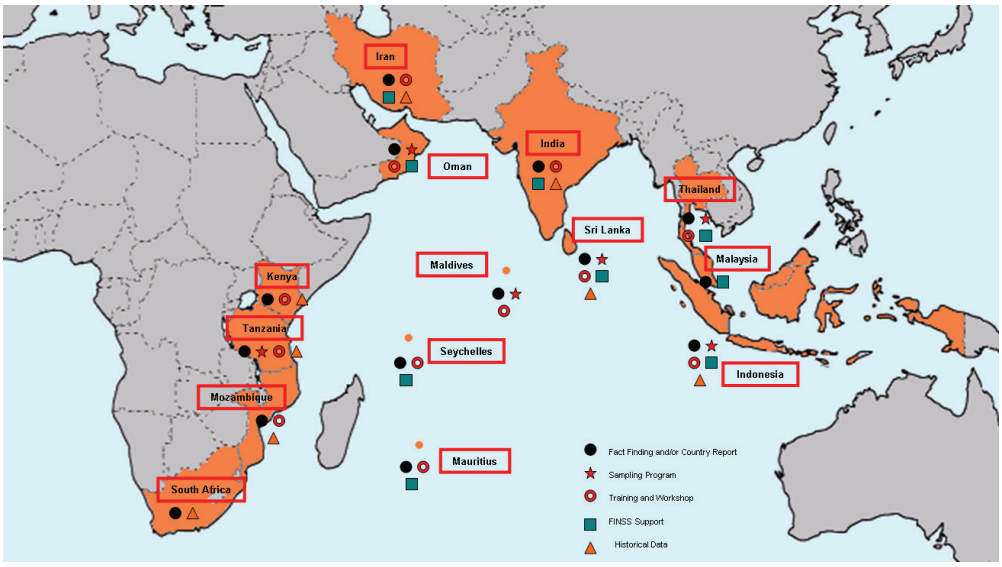

Figure 2-1. Summary of activities implemented during Phase I of the IOTC-OFCF Project, and countries involved

2.2. Results of implementation of Project Phase II

The activities during Phase II of the Project are summarised in Figure 2-2.

2.2.1. Continuation of field activities implemented during Project Phase I

During Phase I, the Project devoted a considerable amount of time and resources to the implementation of six sampling programmes in countries of the region, covering some of the fisheries operating in Indonesia, Maldives, Oman, Sri Lanka and Thailand (see section 2.1 and Table 2-2).

In Phase II, follow-up missions went to Indonesia, Sri Lanka, and Thailand, with the main objective of assessing whether the above programmes had been maintained and determining the implementation of recommendations made by the Project regarding these countries. In addition, the institutions involved in the implementation of Project activities in Maldives and Oman were contacted frequently in order to assess

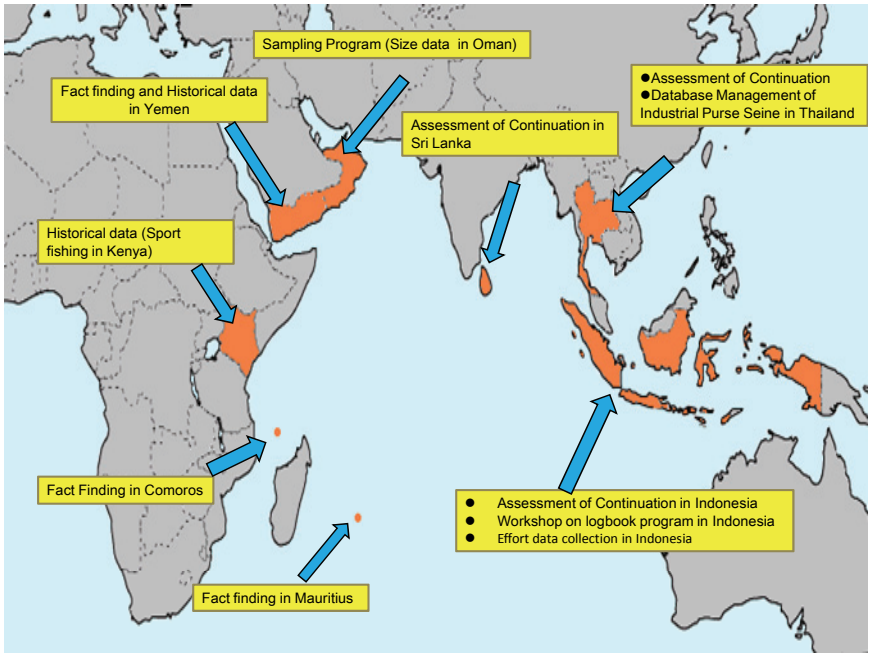

Figure 2-2. Activities during Phase II.

the status of data collection in those countries.

The main results achieved regarding the implementation of field activities in each country, and the current status of data collection in these countries, are presented in Table 2-2. The data collection activities implemented during Phase I of the Project have been continued in most cases. At present, most of the activities, which are funded by the governments, are monitored by the institutions responsible for data collection in each country.

Table 2-2. Implementation of field activities during Phase I of the Project: Main results achieved, current status of data collection, and issues remaining concerning each fishery

Fishery / Sampling location / Flag country
Fresh-tuna longline fishery / Indonesia /Indonesia
Main achievements
- Increased awareness of the importance of fisheries statistics
- Successful implementation of new catch monitoring activities
- Fair implementation of database management and data processing activities

Continuation of activities initiated by the Project
- The government of Indonesia secured the funds necessary for the continuation of the data collection activities initiated by the Project, including the extension of sampling activities to cover the landings of fresh-tuna longliners in Pelabuhan-ratu

Remaining problems
- Need to implement a system for collecting logbook data to strengthen the monitoring of fresh-tuna longliners
- Need to improve the identification of individual fishing vessels to obtain more precise estimates of effort for this fishery (vessel activities)
- More training required in the areas of database management and data processing
- Need to extend sampling activities to cover Indonesian-flag longliners that are based in other countries (*e.g.* Thailand, Sri Lanka, Maldives, Mauritius, *etc.*) or

unloading in Indonesian ports not covered by the catch monitoring scheme (*e.g.* Bungus)
- The condition of Jakarta Fishing Port, which is sinking, interferes with sampling activities
- Need to strengthen the institutional arrangements in place in order to minimize costs and maximize outcomes

Fishery / Sampling location / Flag countries
Fresh-tuna longline fishery / Thailand /China, Taiwan,China, Indonesia
Main achievements
- Increased awareness of the importance of fisheries statistics
- Successful implementation of new catch monitoring activities
- Fair implementation of database management and data processing activities

Continuation of activities initiated by the Project
- The government of Thailand did not secure additional funds to maintain the data collection activities initiated by the Project at the required level; although sampling is still carried out, levels of coverage are considered insufficient.

Remaining problems
- Need for Indonesia and Taiwan,China, to implement integrated data collection systems to cover the totality of their longline fleets
- Need for Thailand to strengthen data collection from foreign vessels unloading catches in Thai ports
- More training required in the areas of database management and data processing

Fishery / Sampling location / Flag countries
Coastal purse seine fishery / Thailand /Thailand
Main achievements
- Successful implementation of pilot programme

Continuation of activities initiated by the Project
- Thailand has not changed the sampling strategy for the collection of data from coastal purse seiners

Remaining problems
- Need for the Project experts to analyze in depth the data collected and propose a new sampling strategy, if required
- Need for Thailand to collect information from alternative sources for the Project experts to be able to carry out the above analysis.

Fishery / Sampling location / Flag countries
Coastal longline fishery / Sri Lanka / Sri Lanka
Gillnet and longline combination fishery / Sri Lanka / Sri Lanka
Main achievements
- Successful extension of catch monitoring activities

Continuation of activities initiated by the Project
- Sri Lanka has not maintained sampling effort at the levels recommended by the Project; sampling is still carried out, but coverage levels are considered insufficient

Remaining problems
- Need for Sri Lanka to increase sampling effort to acceptable levels
- Need for Sri Lanka to revise data processing and estimation procedures
- Need for the IOTC Secretariat to conduct a full review of the statistics available for Sri Lanka, using the information collected by the Project and data collected from other institutions

Fishery / Sampling location / Flag countries
Coastal gillnet fishery / Oman / Oman
Coastal hand line fishery / Oman / Oman

Main achievements
- Fair implementation of length-frequency data collection activities

Continuation of activities initiated by the Project
- Oman did not maintain the activities implemented by the Project

Remaining problems
- Need for Oman to implement length-frequency sampling as soon as possible
- Need for the Project to consider supporting Oman to resume these activities

Fishery / Sampling location / Flag countries
Pole-and-line fishery / Maldives / Maldives
Other artisanal fisheries / Maldives / Maldives

Main achievements
- Successful extension of size-frequency monitoring activities

Continuation of activities initiated by the Project
- The government of Maldives secured the funds necessary for the continuation of the data collection activities initiated by the Project

Remaining problems
- Need to improve the identification of juvenile specimens of yellowfin and bigeye tunas
- Need to implement a system for collecting logbook data for pole-and-line vessels

2.2.2. Fact-finding missions

The main objectives of the fact-finding missions were for the Project experts to identify the institutions responsible for the collection and processing of fisheries data in the countries concerned, the type of information that was collected, and the way in which the statistics were produced. The information collected served three purposes:

1. Confirm the importance of the issues identified for the fisheries concerned.
2. Assess the level of commitment from governments to improving their data collection and processing systems, if required.
3. Assess whether any follow-up actions were required through the Project.

During Phase II, the Project sent missions to Mauritius, Yemen and Comoros, following recommendations from the IOTC Scientific Committee.

2.2.2.a Mauritius

Background

In recent years there has been an increase in the activities of small foreign fresh-tuna longline vessels in the western Indian Ocean. However, at present there is little information available about the activities and catches of these vessels. Sampling in Indonesia has confirmed a decrease in the number of Indonesian fresh-tuna longline vessels based in Indonesia in recent years. The reasons for this change in fishing area are not fully clear. Repeated increases in the price of fuel in Indonesia and poor fishing are likely to be among the reasons behind these changes in fishing behaviour.

Fresh-tuna longline vessels operate mainly under three flags: Taiwan,China, Malaysia and Indonesia. The IOTC receives data from Taiwan,China on the catches of fresh-tuna longline vessels, but it is not known how complete those data are. Indonesia and Malaysia do not have systems for monitoring the catches by its vessels if they unload outside their territories.

During its meeting in 2007, the IOTC Scientific Committee stressed the need to obtain more information about the activities of these fresh- tuna longline fleets. The visit to Mauritius was carried out to address the above recommendation.

Results of the mission

The IOTC-OFCF sent a mission to Mauritius to investigate data collection for landings and transshipments by foreign fresh-tuna longlines in Port Louis.

Data collection system of the Ministry of Agro Industry and Fisheries

The Ministry of Agro Industry and Fisheries is enforcing collection of data from foreign fishing vessels unloading in Port Louis, as required by the IOTC.

- **Monitoring in port**

The sequence of activities when a vessel arrives at Port Louis is as follows:

1. The Port Authority gives a vessel permission to enter port upon request.

   The Port Authority permits any vessel to enter port if it requests permission to do so. It grants permission, however there is no check of vessel names or IOTC status (IUU, unauthorized vessels, *etc.*) at this time.

2. When a vessel enters port, it is inspected by several agencies, including Health, Immigration, and Customs, as well as Fisheries. Regarding the fishery sector, six officers go aboard the vessel to check the following:

   a. Fishing license to operate within the EEZ of Mauritius. If a vessel does not hold a valid license, it cannot unload its catch in the port.

   b. Vessel documents

   c. Crew list

   d. Logbook. All vessels are required to keep complete and detailed logbooks. The Project experts could not see an example of a logbook during their visit, so do not know the level of detail of the data recorded. It is not known whether logbooks are required for operations outside the Mauritian EEZ; this needs to be confirmed with the relevant office in Mauritius.

   e. Check of cargo declaration

   f. Inspection of cargo

Information on foreign vessels unloading catches at Port Louis is gathered on a Fish Transshipment/Unloading data sheet, filled out by a government officer. Foreign vessels are required to submit vessel activity sheets.

- **Cross-checking of information collected from the vessels**

The information collected in port is regularly cross-checked by the Albion Fisheries Research Institute (AFRI). AFRI checks positions in the logbooks against VMS data, and the catches unloaded are compared with the amounts recorded in the logbooks.

Foreign vessel activity inside and outside the EEZ

Unofficial information indicates that over 400 small fresh-tuna longline vessels from Indonesia, Malaysia, and Taiwan,China operate in waters around Mauritius, including inside its EEZ.

The information collected during the mission was not sufficient to validate this statement. However, some of the representatives of longliners based in Mauritius

indicated that the number of fresh-tuna longliners that unload catches in Mauritius represents a small fraction of the total number of longliners fishing in waters around Mauritius. It was noted that the longliners unloading in Mauritius operate as fishing vessels and carrier vessels, collecting catches from many other vessels that never enter port in Mauritius. The unusually high catch rates recorded for fresh-tuna longliners unloading in Mauritius would tend to confirm that transshipments on the high seas are common practice.

Monitoring fishing activities through VMS is limited to licensed vessels, and only for operations within the EEZ of Mauritius. It is not possible to monitor vessel activities outside the EEZ.

Indonesia and Malaysia do not monitor the activities of their flag vessels that are based outside their territories. Transshipment of catches on the high seas compromises the quality of the catch-and-effort statistics collected in Port Louis, as catches cannot be traced back to the catcher vessel. This may lead to mislabelling of catches when the catcher and collector vessels are of different flags. In addition, at-sea transshipments make it impossible to estimate the number of vessels fishing in waters around Mauritius or the catch rates for those vessels.

At present the IOTC Secretariat uses the data provided by Mauritius on catches landed in Mauritius by Indonesian- and Malaysian-flag vessels, to complete the estimates of catches by fresh-tuna longliners in the Indian Ocean provided by these two flag states. However, in view of the problems identified above, the catch levels estimated by Mauritius for those fleets are considered inaccurate.

Recommendations

1. The Ministry should strengthen the monitoring and control of fresh-tuna longline fleets operating in Mauritius, including:
    a. Improve identification of individual vessels through enforcement of internationally-agreed standards, including vessel markings and documentation.
    b. Enforce logbook and VMS reporting in waters within and outside the EEZ of Mauritius for all foreign vessels calling at Port Louis.
2. Indonesia and Malaysia should strengthen monitoring systems for their flag vessels that are not based in their ports, including implementation of VMS and logbook data systems and increased coverage of all their flag vessels by observers.

Further action

There was no further action taken through the IOTC-OFCF Project.

2.2.2.b Yemen

Background

Following recommendations from the IOTC Working Party on Tropical Tunas and the IOTC Scientific Committee in 2006 that the IOTC-OFCF Project obtain more information on how the statistics for yellowfin tuna are generated in Yemen, the IOTC Secretariat contacted the Ministry of Fish Wealth (MFW) and other institutions in Yemen. An IOTC staff member visited Yemen in April 2007, meeting representatives from several institutions involved with the collection of fisheries data in Yemen.

The main objectives of the mission were to:

1. Inform the government of Yemen about the measures implemented by the IOTC concerning the collection of fisheries statistics and vessel information, and the current status of the data sets available for Yemen at the IOTC Secretariat.
2. Assess the status of data collection and data management for the fisheries catching IOTC species in Yemen.
3. Propose actions to address any deficiencies discovered through 1 and 2 above, if required.

The Project organized a follow-up mission to Yemen in March 2008, following a request for support from the Marine Science and Biological Research Authority (MSBRA) in Aden, an agency under the MFW, to strengthen data collection on the artisanal fisheries targeting yellowfin tuna in Yemen, in accordance with the recommendation made by the IOTC mission in April 2007.

The main objectives of this mission were to see whether the Project could assess the feasibility of a pilot programme for data collection in some locations of the Yemen coast, with the cooperation of the MSBRA, in order to (a) estimate total catches-at-size of yellowfin tuna in those locations, and (b) recommend follow-up actions to improve the collection and processing of data on yellowfin tuna fisheries in Yemen, if necessary.

Results of the missions

The MFW is responsible for the collection of fisheries data from the fisheries in the country. Although some statistics are generated, there is no centralized data collection in place and there is a complete lack of documentation concerning data collection and catch estimation procedures. For this reason, the quality of the catch estimates by the MFW is considered very poor.

The little information that was obtained during the missions to Yemen came from representatives of government agencies, cooperatives, and the private sector in Aden, Mukallah, Riyan and Sheher (Figure 2-3).

Figure 2-3. Places investigated by mission, March 2008.

In the area of Hadramout, enumerators from the MFW collect information on the numbers of yellowfin tuna and other species unloaded at the designated landing places. The catches of yellowfin are estimated by multiplying the numbers recorded by the enumerators by a fixed average weight that the MFW assigns to each cooperative (18 kg being the most common for yellowfin). Taking into account

that yellowfin fisheries in Yemen are highly seasonal, with specimens changing considerably in size depending on the time and/or area fished, the use of a fixed average weight to estimate the catches of yellowfin tuna is not considered appropriate.

Recommendations

It is considered that implementing the collection of length and weight data in selected locations on the Yemen coast might be useful for estimating the average weights of yellowfin tuna by area and season. The average weights estimated from this sampling could be compared with the weights assigned by the MFW in each case and used to derive catches from the available numbers.

The following activities are recommended:

1. Continued collection of data by MFW, including the total numbers of yellowfin tuna unloaded by the artisanal fisheries and total numbers of boats and fishermen by type of gear, date, and landing location.
2. Establishment, by MSBRA with the support of the Project, of a pilot sampling programme for length and weight of yellowfin tuna in selected locations along the Yemen coast.
3. Assessment, by MFW and MSBRA, with the support of the Project, of the quality of the estimates of catches of yellowfin tuna, using the data collected under (1) and (2) above.
4. Assessment, by MFW and MSBRA with the support of the Project, whether any follow-up actions are required to improve the quality of the statistics on yellowfin tuna in Yemen.
5. MFW and MSBRA make the necessary arrangements so that the actions recommended can be implemented in the short-term.
6. MFW and MSBRA will need to work closely together for the above actions to be implemented successfully.

Further actions

The Project mission judged that the programme would be feasible with the cooperation of MSBRA. The main areas of cooperation would be:

1. Compilation of existing information about the catches (in number) and effort (number of boats operated and number of fishermen) of artisanal vessels in selected locations along the Yemen coast.
2. Implementation of length-frequency sampling of yellowfin tuna in selected locations along the Yemen coast.

The Project drafted a proposal for the implementation of data collection in these locations with MSBRA as a further action.

2.2.2.c Comoros

Background information

The IOTC Scientific Committee reiterated in 2009 the need for the Union of Comoros to implement a fisheries statistical data collection, management and reporting system as soon as possible. The Centre National des Ressources Halieutiques (National Centre for Aquatic Resources) of Comoros, aware of the need to address this

recommendation, requested assistance from the Project in 2009. Following this request, the Project sent a mission to Comoros in December 2009 in order to assess the status of the artisanal fisheries in the country and the availability of information for IOTC species.

The main objectives of the mission were to:

1. Inform the government of Comoros about the measures implemented by the IOTC concerning the collection of fisheries statistics and vessel information and the current status of the data sets available for Comoros at the IOTC Secretariat.
2. Assess the status of data collection and data management for the fisheries catching species under the IOTC mandate in Comoros.
3. Propose actions to address the deficiencies discovered through 1 and 2 above, if required.

Results of the mission

Comoros has never reported nominal catches to the IOTC; the IOTC Secretariat uses the catches published by the FAO (FAO FishStat database), but these data are considered unreliable. Comoros reported that there has been no systematic data collection since 1996; the catches are estimated using indicators, such as the number of vessels operated or catches monitored at certain times and locations. Current catch levels are estimated at around 17,000 tons, the majority (70-80%) tuna or tuna-like species. However, no detailed information was obtained about the way in which the catches are estimated, and therefore these figures are considered highly unreliable. The Union of Comoros informed that a Census of fishing units was carried out in 2008. However the results provided, amounting to 920 fishing vessels in all, are considered incomplete, and not representative of the totality of vessels operated during that period (a census in 1995 estimated around 5,000 fishing vessels, and the various sources consulted during the mission indicated that the number and type of vessels operated have not changed markedly since that period).

Recommendations

1. Comoros should establish a data collection and management system as soon as possible; such system should allow Comoros to derive catch-and-effort and length-frequency data for its artisanal fleets, following the standards agreed by the IOTC:
    a. Total catch by species and total number of fishing trips by type of vessel, gear, fishing mode (e.g. FAD fishery), month, and landing site for vessels operating in coastal waters.
    b. Total catch by species and total effort exerted (e.g. number of days fished). by type of vessel, gear, month. and 1-degree square. for vessels operating in offshore waters (e.g. outside the EEZ of Comoros)
    c. Individual lengths by species, type of vessel, gear, fishing mode, month, and landing site, from all fisheries.
2. Comoros should make the necessary arrangements for the sampling scheme to cover at least 5% of the total number of vessel unloadings and be representative of the fishery as a whole, as specified in paragraph 4 of IOTC Resolution 09/04[4]

[4] IOTC Resolution 09/04 on a Regional Observer Scheme, Paragraph 4: "The number of the artisanal fishing vessels landings shall also be monitored at port by observers. The indicative

3. The following actions should be undertaken by Comoros as a matter of priority in order to address the above issues:

    a. Conduct a census of the fisheries in the country, including a full account of landing locations and fishing vessels operated in each location, by type of vessel (including hull material, type of mechanization, vessel length and power, number of crew, etc.), type of gear(s) used, target species, average number of days at sea, main fishing grounds, average catch by gear, etc. The vessel identification number and ownership should also be recorded, where available.

    b. Establish a new sampling scheme, using the results from the above study, with a view to covering at least 5% of the fishing effort in each sampling stratum.

4. Comoros should set up a database system for computerizing and processing all data collected through the above system, including data verification, estimation of catches and reporting services, so as to facilitate the timely provision of the information requested by government institutions, stakeholders, the FAO and the IOTC.

5. Comoros should provide the IOTC with estimates of catches for the 1995-2008 period, including information on the type of data collected, data sources, and estimation procedures, as specified in IOTC Resolution 08/01.

6. Comoros should provide the IOTC with estimates of total number of fishing vessels active for the period 1995-2008, including information on the type of data collected, data sources and estimation procedures, as specified in IOTC Resolution 08/01

7. Comoros should request the support of the IOTC for the implementation of the new data collection and management system, where required[5].

Further action

The above recommendations were translated into French and submitted to the National Centre for Aquatic Resources.

Further follow-up action by the Project has not yet been determined.

2.2.3. Indonesia: Collection of effort data from fresh-tuna longline vessels

Background

The sampling programme for monitoring fresh-tuna longline vessels at Jakarta, Cilacap, and Benoa was implemented from 2002 to 2006 during Phase I of the Project. The number of active vessels is a key component in the estimation of catches for the Indonesian fleet, as it is the multiplier in the formula for estimating catches from the data collected through sampling (estimator).

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level of the coverage of the artisanal fishing vessels should progressively increase towards 5% of the total landings."

[5] IOTC Resolution 09/04 on a Regional Observer Scheme, Paragraph 7: "The observer scheme referred in paragraph 4 will be covered by the Commission's accumulated funds and voluntary contribution on a provisional basis. The Commission will consider at its 14th Annual meeting an alternative for the financing of this scheme"; Paragraph "13. The funds available from the IOTC balance of funds may be used to support the implementation of this programme in developing States, notably the training of observers."

The IOTC Secretariat compared the lists of fresh-tuna longline vessels compiled in port with the record of licensed vessels reported by the Directorate General of Capture Fisheries (DGCF) of Indonesia, and noted large discrepancies between the two lists. Further examination of those lists confirmed that the main reason for these discrepancies is the poor identification of fishing vessels in port, due to the absence of vessel markings or absence of vessel documents at the time of sampling.

In order to address this problem, the Project agreed to support the DGCF in the implementation of a vessel marking scheme for fresh-tuna longliners based in Indonesia. This will be achieved by assigning a Unique Vessel Number to each Indonesian vessel, to be recorded on three separate stickers located on the vessel hull and wheelhouse.

Actions implemented through the IOTC-OFCF Project

Discussion of MOU

The IOTC-OFCF Project sent the mission to the DGCF in October 2007 to discuss the collection of effort data, based on the following draft terms of reference in the MOU:

- **Objective of the programme**

The objective of this programme is to strengthen effort data collection and processing systems for Indonesian fresh tuna longline fisheries, to allow more accurate effort and catch estimates at the place of landing. The responsible organization is the Directorate of Fishing Vessels and Fishing Gear.

- **Planned activities**

The main activities to be carried out under the programme are the collection of detailed information on each vessel arrival, including vessel identification, dimensions, ownership, and details of the fishing trip, along with the Unique Vessel Number assigned to each vessel. The information collected will be computerized and forwarded to the relevant authorities for verification and feedback, to ensure proper monitoring of vessel activities by all parties.

Further actions taken

- **Provision of equipment**

Prior to final agreement, the DGCF needed approval by a Ministerial Decree. The process of approval was delayed, and the Project did not receive the approval by the expected deadline of March 2009. Implementation of the programme through the Project could therefore not be accomplished.

However, at the DGCF's request for preparation of the activities, the Project provided vessel identification stickers in March 2008 and data input equipment in March 2009.

- **Implementation by Indonesia**

The effort data collection programme could not be implemented through the Project, but Indonesia started implementing the programme in Benoa by itself in January 2010. Details of this activity have not yet been received from Indonesia.

2.2.4. Oman: Sampling programme

Main objective

Strengthen the current sampling in Oman to incorporate the routine collection of size

data from the artisanal fisheries, notably for yellowfin tuna, narrow-barred Spanish mackerel, and longtail tuna.

Traditional fisheries

During Phase II, the sampling programme for the collection of size data from traditional fisheries in Oman was successfully resumed.

Priority Area: Improving data collection systems in developing coastal countries.

Project title: Yellowfin tuna, narrow-barred Spanish mackerel, and longtail tuna length-frequency sampling programme.

Target Fisheries: Artisanal gillnet and handline fisheries for yellowfin tuna in Oman.

Background information

- **Traditional fisheries**

It is estimated that there were more than 37,000 fishermen operating more than 14,000 boats in the traditional fisheries sector in Oman in 2008. The vessels are typically skiffs (4-8 m fibreglass or aluminium boats), *hori* (3-10 m wooden boats powered by outboard motors), *shasha* (traditional 3-4 m boats made from palm fronds) and launches (vessels over 12 m long, powered by inboard diesel engines), as shown in Figure 2-4, and use mainly gillnets, with some handlines. Skiffs account for 94% of the catches, launches 3%, and *shasha* and *hori* the remaining 3%.

Total catches from traditional fisheries were estimated at about 133,900 t in 2008, and valued at 83 million Omani rials (RO; USD 165 million). The most important species are yellowfin tuna, longtail tuna, narrow-barred Spanish mackerel or kingfish (large pelagic fish), sardines, Indian mackerel, Indian oil sardines (small pelagic fish), emperor fish, groupers, sea bream (demersal fish), cuttlefish, sharks, lobster, shrimp, and abalone.

The catches of yellowfin tuna, longtail tuna and narrow-barred Spanish mackerel in 2008 were 5055 t (4%), 7068 t (6%), and 5278 tons (3%), respectively.

(a) Skiff made of fibreglass

(b) Launch

(c) Shasha

(d) Hori

Figure 2-4. Types of traditional fishing boats in Oman

- **Industrial fisheries**

Industrial fisheries are carried out by trawlers and longline vessels. A total of 18 domestic longliners started operating in 2000, and in 2008 there were 52 industrial longliners, which landed more than 3,000 tonnes, 82% of them in August. Yellowfin and sailfish are the major species unloaded in Oman.

Institutions responsible for the collection of fisheries data

- **Directorate General of Fisheries Research (DGFR)**

In 2007, the Ministry of Fisheries Wealth was separated from the Ministry of Agriculture and Fisheries. The DGFR is under the Ministry of Fisheries Wealth, and its Department of Fisheries Statistics and Information (DFSI) is solely responsible for designing landing surveys and for the collection and processing of data.

The Marine Fisheries and Research Centre (MFRC), under the DGFR, is the institution responsible for fisheries research along the coast.

Data collection system

- **Traditional fisheries**

Fish landing data are obtained from surveys undertaken by 34 samplers at 46 landing sites along the Oman coast. The surveys, which cover all the major landing sites in each governorate and region along the coast, were established in 1984, and there has been no major change since then.

The surveys cover all fishing methods. The number of visits to each landing site each month is determined by the DFSI. Samplers enter all the required information directly into portable computers, and once all the data are collected, they are sent immediately by internet to the DFSI in Muscat.

The information collected on each visit day includes landing time, vessel type, license number and number of crew for all fishing boats landing their catches, in the order of their arrival at the site. Usually, every third to fifth fishing boat is sampled, and its fishing hours/days, the species, number, average weight and total weight of the fish caught, the fishing gear used, and the unit price by species are recorded. More boats are sampled when the number of boats landing is low.

Effort data collected by the samplers include the number of fishing boats and fishing hours/days, and the number of crew for each boat.

Currently, fish of around 45 families and 102 species, and 12 other kinds of aquatic animals, are encountered in the landings in Oman.

Samplers estimate the number and average weight of each fish species landed by eye only. Traditional fisheries use multiple gears, but the catch data are not broken down by fishing gear.

The MFRC conducted a regular biological survey of the catches of local vessels landed at the sampling sites during 1987–1997. This survey included the collection of data on weight, number and size frequency of important species, including yellowfin tuna. At present, the MFRC is conducting a survey project on demersal fish, including the collection of size-frequency data for the important demersal species.

- **Industrial fisheries**

The captains of all trawlers and longliners, both domestic and foreign, must submit a fishing operation logsheet, prepared by the DFSI, to the Observance and Fishing

Permit Department at the end of each fishing trip. The Department then sends the logsheet, together with an inspection report, to the DFSI. Data on catch by species, by fishing ground and by fishing day, are collected on the logsheet. The logsheet for longline vessels includes only yellowfin tuna, black marlin, mahi-mahi, sailfish, sharks, and swordfish. The logsheet for trawlers includes about 40 species of demersal fish. The fishing areas are divided into 30-mile by 30-mile squares, which are further divided into nine 10-mile by 10-mile squares. The activity of industrial fishing vessels is monitored by VMS. The effort of each fishing vessel is indicated by number of fishing days per month.

These logsheets are the main source of data. Surveillance officers check for differences between catches reported by captains and actual catches. The fees paid to the Ministry of Agriculture and Fisheries Resources by each fishing vessel (RO 27/tonne) are based on the catches estimated by the inspectors.

Captains report only the number and total weight of fish by species on the logsheet. No size-frequency data are collected.

Main problems identified with data collection and processing

Experts from the Project, using available information and other information collected during a fact-finding mission in Oman in May 2002, identified the following problem with the system for collecting statistical data on the artisanal fisheries.

- Data collection

The sampling system does not include the routine collection of size-frequency data for yellowfin tuna. However, these data are available for 1987-1996, as they was collected as part of a special research project by MFRC and analysed in a M.Sc. thesis by Mr Yuma Al Mamry, published in 1996. However, these data were never entered into a database.

There is a need to improve the statistics from gillnet fisheries, especially those in the northern Arabian Sea, including the Gulf of Oman. Gillnets are important components of the fisheries for tropical tunas, as they catch a range of sizes that are usually not available to other gears during the same seasons and areas. Overall, the average annual landings in Oman of yellowfin tuna by artisanal fisheries using gillnets and other gears during 1998-2008 were 12120 tonnes, with a minimum of 5299 tonnes in 2002 and a maximum of 21276 tonnes in 1995. Most of the landings are made between January and March.

Recommendations by the IOTC Scientific Committee

The IOTC Scientific Committee and Working Parties have often expressed concern about the scarcity of catch, effort, and size-frequency data for the longline fisheries and for important artisanal fisheries, including the gillnet fisheries operating off Oman, and have strongly recommended that the Secretariat make every possible effort to improve the quality of these data. Recommendations on the need to improve the information available can be found in many reports from the Working Parties and Scientific Committee (Annex 2).

Actions implemented through Phase I of the Project

Using the information available, experts from the Project assessed the type of actions that might help Oman to improve the quantity and quality of the size data collected.

Aware of the problems noted by the IOTC regarding the quality of the statistical data on artisanal fisheries, the DGFR requested the help of the Project to be able to

overcome the issue.

The Project prepared a MOU which encompassed field and other activities during the year after its signature. The agreement was signed on January 2003.

The programme monitored yellowfin tuna caught by the artisanal fisheries in the ports of Qurayyat, Sur, and Salalah (Figure 2-2), mostly with gillnets or handlines.

The sampling strategy was designed to: (1) sample length-frequencies, by gear/fishing method; and (2) ensure that the number of samples collected was sufficient to obtain an accurate estimate of the size composition of the artisanal catch of yellowfin tuna by gear.

The sampling protocols were strictly followed during the programme, which started in the middle of January 2003 and ended at the beginning of April 2003. A total of 1,593 yellowfin tuna were sampled.

Further development of the length-frequency work is recommended, as follows.

- According to the IOTC Scientific Committee in 2006, increasing the amount of size data available to the Secretariat is important. In particular, the SC asked the member countries to collect and report size data for yellowfin tuna taken by artisanal gillnet, handline and troll fisheries.
- Sampling over a period of a year at a range of sites is needed to obtain information on the seasonal availability of yellowfin along the coast.
- A regular exchange of information about this fishery between Oman and neighbouring countries is needed.
- Feedback to the fishers about the results of the sampling programme is needed, to promote better understanding of the programme and of the management of the coastal fisheries overall.
- Length sampling needs to be included in the scheme of data collection conducted by the statistics offices in each governorate.

Actions implemented through Phase II of the Project

Scope of the programme

Using the information available and past experiences in Oman, experts from the Project assessed the type of actions necessary to improve the amount of size data collected.

The implementation of a yellowfin tuna length-frequency sampling programme for the artisanal fisheries was considered very important because of (1) the large quantities of yellowfin tuna being caught by these fisheries; (2) the seasonality of these fisheries operating in Arabian Sea and targeting fish in a range of sizes that is usually not available to other gears; and (3) the lack of size-frequency data for yellowfin tuna.

During the discussion of the programme, the DGFR proposed adding two more species narrow-barred Spanish mackerel and longtail tuna.

Sampling sites were narrowed down to two sites, Marbat and Sur.

Signature of the Technical Agreement, duration of the activities, and budget

The Project experts prepared two Technical Agreements (TAs) covering field and other activities during 2009. The first TA, for the period of January-March 2009, was signed on 16 December 2008, and the second, for the period of April-December 2009, was

signed on 1 April 2009. The second TA is attached in Annex 3 as an example

The budget provided to DGFR as well as the type of support provided by the IOTC-OFCF project are presented in Table 2-2.

The budget of RO 12,342 (USD 24,622) provided to DGFR for 2009 was used for additional compensation for one supervisor, four enumerators, and one data entry person, plus nine trips to Sur and Marbat, and computers and other equipment. In addition to this budget, five callipers were provided to DGFR.

Design of the catch monitoring scheme

The programme monitored three species caught by artisanal fisheries, mostly with gillnets or handlines, and landed in the ports of Sur and Marbat (near Salalah) (Figure 2-5). The sampling strategy was designed to:

- Sample length frequencies, classified by the gear/fishing techniques.
- Ensure that the number of samples collected is sufficient to obtain an accurate estimate of the size composition of the artisanal catch of the three species, by gear.

Main results

The sampling protocols were strictly followed, and sampling was carried out at Marbat and Sur (Figure 2-5) throughout 2009.

Figure 2-6 shows the number of fish measured in both places, by species, during 2009. However, the catches of yellowfin tuna were less than expected; very small quantities of fish were unloaded, and consequently the number of fish measured was very low.

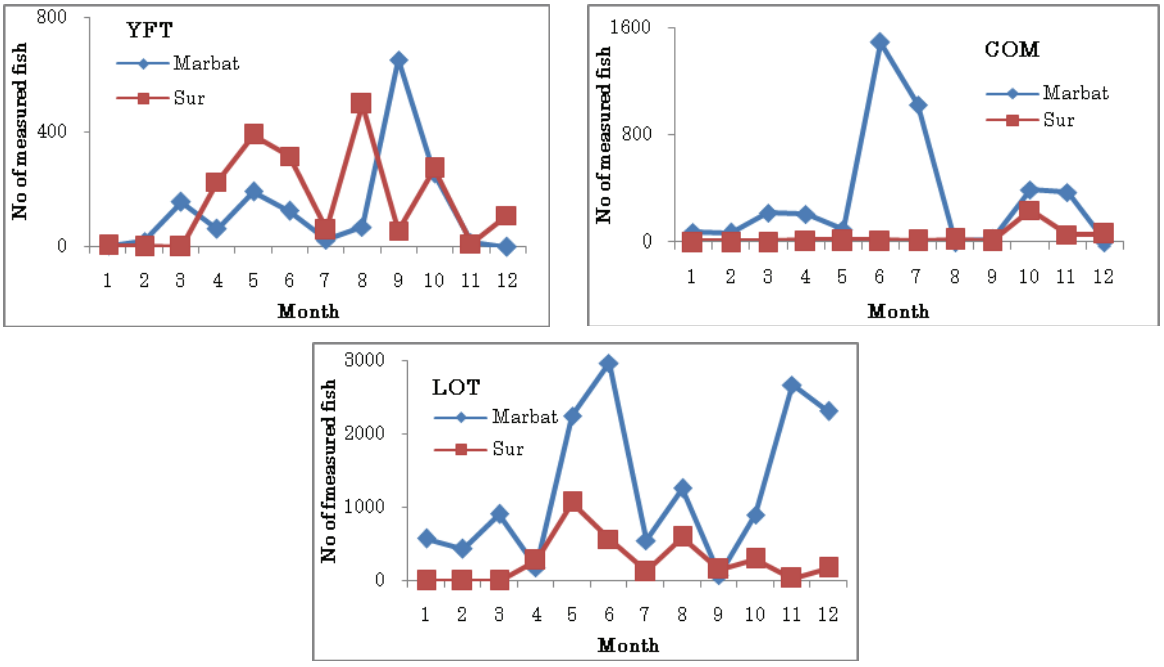

Figure 2-6. Number of samples of yellowfin tuna (YFT), longtail tuna (LOT), and narrow-barred Spanish mackerel (COM) measured in Marbat and Sur during 2009, including all boat types and all gears

Figure 2-7 shows the size distributions of yellowfin tuna, longtail tuna and narrow-barred Spanish mackerel measured.

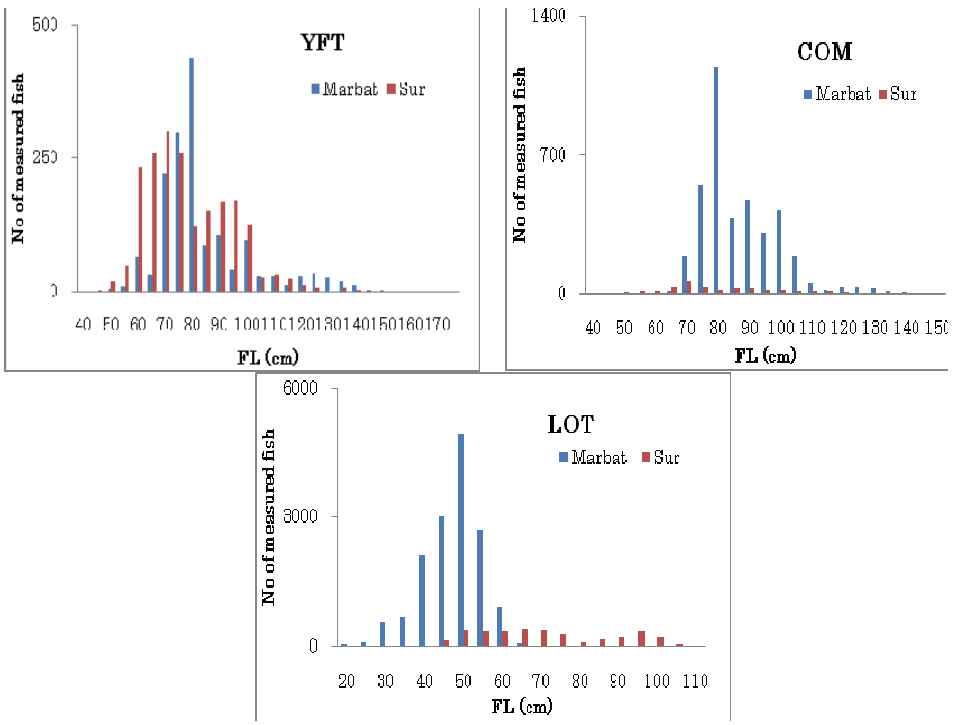

Figure 2-7. Size distributions for yellowfin tuna, longtail tuna and narrow-barred Spanish mackerel, using size data from January 2009 to December 2009

Yellowfin tuna shows two modes of size frequency at around 70-80cm fork length (FL) and 80-100cm FL. The size frequencies for both Marbat and Sur are identical. A large number of small longtail tuna (around 50cm FL) were measured at Marbat, and large-size fish were obtained at Sur. The majority of sampled narrow-barred Spanish mackerel was obtained from Marbat, but the size ranges were almost the same.

Evaluation of the results

Arrangements were successfully made with the authorities of Oman to extend their existing sampling programme to include length-frequency measurements of yellowfin tuna, narrow-barred Spanish mackerel and longtail tuna. The staff was well trained and conducted their work in a highly professional manner, and overall they gained considerable experience in conducting a length-frequency sampling programme.

The DGFR committed to continuing the sampling after the Project's participation in the programme ended in January 2010. However, no sampling could be done in 2010 because no budget had been allocated, but the DGFR would start size-data collection again in 2011. Similarly, analyses of these data were to be conducted by the IOTC and DGFR, but to date this has not been realized.

Recommendations for further development

Further development of the length-frequency work is recommended as follows.

- Sampling over a period of a year at a range of sites is needed to obtain information

on the seasonal availability of yellowfin along the coast of the Arabian Sea.

- Regular exchange of information about this fishery between Oman and its neighbouring countries is needed.
- Feedback on the results of the sampling programme to the fishers is needed to promote better understanding about the programme and the management of the coastal fisheries in general.
- Length sampling needs to be included under the scheme of data collection conducted by the statistics offices in each region.
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2.2.5. Indonesia: Workshop on logbook programme

In Phase 2, the IOTC-OFCF Project, has held one workshop, on the implementation of a fishing logbook programme for Indonesian fisheries.

Background

The workshop on the implementation of a logbook programme for Indonesian fisheries: review of issues and considerations was held in Jakarta from 18 to 20 May 2009.

Indonesia's fisheries are among the most important in the world. In recent years, the Directorate General for Capture Fisheries (DGCF) and the Research Centre for Capture Fisheries (RCCF) of Indonesia have implemented a range of measures intended to strengthen the collection and processing of fisheries statistics in Indonesia, both in the Indian Ocean and the Pacific Ocean. The implementation of some of those measures has come in response to recommendations from the CCSBT, IOTC, and WCPFC, calling for Indonesia to strengthen its data collection and processing systems for tuna fisheries and, in doing so, allow Indonesia to report fisheries statistics to each regional fisheries management organization (RFMO). Recent improvements in the fisheries statistical system in Indonesia have led to marked improvements in the estimation of total catches by species for Indonesian industrial longliners that unload their catches in Indonesian ports, and in the estimation of catches by species and gear for Indonesia's artisanal fisheries (notably those in the Indian Ocean).

These measures, however, have not enabled Indonesia to collect and provide the catch and effort data that is requested by the CCSBT, IOTC or WCPFC. Aware of this, the DGCF informed the IOTC in 2008 about its plans to implement a logbook system for the Indonesian fisheries, and requested help from IOTC in the design of the logbook form and its implementation. Late in 2008 the DGCF forwarded a template logbook form to the IOTC. The IOTC, in consultation with the DGCF, WCPFC and CCSBT agreed to organize a workshop during 2009 that would assist with the implementation of a logbook programme.

The workshop was organized as a component of Phase II of the Project. . The funds necessary for the organization of the workshop and the participation of experts from Indonesia, Japan and the IOTC were provided by the OFCF. Additional funds for the participation of other international experts were provided by the relevant institutions, CSIRO (Commonwealth Scientific and Industrial Research Organisation of Australia), SPC and WCPFC.

Experts from a wide variety of disciplines and experiences were brought together to review the management strategy devised by the DGCF for the implementation of a logbook programme for the fisheries of Indonesia.

Objective

The main objective of the new logbook programme is to improve the quality of the catch and effort data collected from the fisheries of Indonesia, with a view to improving the management of fisheries resources, both nationally and internationally.

Participants

The workshop was attended by 48 experts from IOTC, SPC, WCPFC, Australia, Japan and Indonesia.

Results and recommendations

After the opening session, background information was reviewed through presentation by invited experts on DGCF's tentative plans for the implementation of a logbook programme in Indonesia, a case study on the implementation of Japan's logbook programme, international requirements, legal aspects, economic and institutional considerations, data acquisition, processing and dissemination issues and the importance of catch and effort data for fisheries management. On the basis of these presentations, different options for the implementation of a logbook programme in Indonesia were discussed.

Participants from CCSBT, IOTC and WCPFC presented comparisons between the requirements for operational catch and effort data established by the DGCF and those of the CCSBT, IOTC and WCPFC, and pointed out missing catch and effort data that are requested by the CCSBT, IOTC or WCPFC. Recommendations for changes to the proposed DGCF logbook, if fully implemented, would substantially increase Indonesia's ability to produce catch and effort data consistent with the standards of the RFMOs.

The workshop concentrated its efforts on the design of logbook forms for the fisheries in Indonesia, but also devoted time to assessing the scope of the logbook programme and other implementation issues.

The workshop agreed that the implementation of three different logbook forms for the fisheries of Indonesia will, if successful, allow Indonesia to derive the requested catch and effort data from its fisheries, thereby enabling it to comply with the requirements currently in place at the RFMOs. In addition, the workshop agreed that the implementation of fishing logbooks is appropriate for vessels having a registered tonnage greater than 30 gross tonnes (GT).

The workshop further agreed that a phased-in approach is probably more appropriate, with a first phase devoted to implementing logbooks on vessels with a registered tonnage greater than 100 GT, and second and third phases devoted to vessels of lower registered tonnage (60-100 GT and 30-60 GT, respectively).

The workshop finally agreed that the DGCF of Indonesia will need to devote more time to designing and executing systems related to the implementation of the logbook programme in Indonesia, namely: logbook distribution, fishing industry liaison, data collection, database design and data management, and data dissemination. The workshop noted that the DGCF may require further support and assistance to implement the above activities, and encouraged the RFMOs and other agencies to participate in this process, where required.

2.2.6. Thailand: Management of data on purse-seine fisheries

Background

Up to six industrial tuna purse seiners have been operating under the Thai flag since the last quarter of 2005. Four vessels are operating at present. One vessel (ex-longliner from Japan) has been supporting the Thai purse seiners lately. The vessels spend most of the time at sea, putting into port only twice a year, except for emergencies.

Following the recommendation of the IOTC Scientific Committee in 2007, the IOTC-OFCF Project sent a mission to assess the need for technical support from the Project to be provided to the Department of Fisheries of Thailand (DOF) for monitoring Thailand's industrial tuna purse-seine vessels that operate in the Indian Ocean.

Results of the mission

The mission assessed institutional arrangement, details of the operation of tuna purse-seine fleets, existing fisheries data, data storage, and data processing and reporting implemented by the Department of Fisheries (DOF) of Thailand. The mission pointed out the following major problems:

1. **Incomplete catches:** The lack of detailed information on the amounts unloaded per fishing vessel or per freezer vessel makes it difficult to verify the completeness of the catches reported in the logbooks. The amounts recorded in the logbooks are estimated by eye, and such estimates are usually conservative. In other fisheries, the total amounts unloaded in port by purse-seine fleets are used to correct the catches reported in the logbooks.
2. **Mislabelling of species:** There is a likely misreporting of catches by species in the logbooks, especially in the case of juvenile yellowfin tuna, which are frequently recorded as bigeye tuna. Again, data collected through port sampling could be used to correct the data from the logbooks, but this is not possible in the case of Thai purse seiners.
3. **Inappropriate sampling design:** The current sampling design might be inappropriate because the data collected cannot be used to correct the catches per species or to estimate catches at size as per IOTC standards; the following problems have been identified:
    a. **Inappropriate sampling unit:** The fish unloaded from cargo freezer vessels might come from unassociated or associated schools and from time-area strata that are widely separated in time and/or space. It is likely that the samples taken represent very heterogeneous fish, and this invalidates their use for the estimation of catches per species and type of school or length frequency per type of school, 5-degree-square area and month. It is recommended that the use of other sampling units be assessed.
    b. **Inappropriate selection of samples:** Two potential sources of bias have been identified:
        i. **Non-representativeness of samples:** A unique sample is taken from each cargo vessel unloading, at the time when the enumerators visit the vessel. The samples are taken at that time, meaning that only the part of the cargo that is unloaded at the time of the visit is monitored, which represents a very small proportion of the catches on board.

At the time of our visit, we were given a plan of the vessel that detailed the amounts and types of fish that had been stored in each hold. According to the plan, part of the fish aboard had been sorted and stored in different holds, by size and/or species. This makes it essential that cargo vessel plans are available before the samples are taken, otherwise it is impossible to assess which portion of the catches onboard the vessel is represented by the sample, as is the case with all the samples taken to date. It is recommended that at least samples are taken at various times during the unloading, and from different vessel holds.

ii. **Non-randomness of samples:** At the time of the visit, the cargo vessel had one of its fish holds open and fish was being unloaded from it. The size of the fish unloaded was small. A second fish hold was opened upon our arrival, and the representative of the canning factory recommended that the samples be taken from this second hold, because the fish were larger. The samples in this case would be biased as a consequence of the enumerators' behaviour towards measuring larger fish. This invalidates the use of the samples taken so far.

c. **Inappropriate design:** The data collected through sampling cannot be used to estimate catches by species. The estimation of catches by species is considered a necessity, given that the catches recorded in the logbooks are not fully precise, and that there is no detailed information available on the amounts transshipped by purse seiners, unloaded by cargo freezers, or processed at the canning factory. The way to implement this sampling is, however, not clear under the existing arrangements (port sampling).

d. **Insufficient sample size:** around 0.1% of the catches unloaded, by weight, are measured under the current scheme. The sample size should be considerably increased for the samples to be representative of the catches onboard, more so if the catches have been sorted.

e. **Inappropriate allocation of sampling effort:** The same number of fish (300) is measured for all species in the sample. The sampling would be more effective if the sampling effort (number of fish measured for each species) be allocated depending on the type of fish sampled. Species having a wide range of lengths in the catch, as is usually the case with yellowfin and bigeye tuna, need more sampling effort than other species with a narrower length distribution, like skipjack tuna.

f. **Mislabelling of species:** the fish unloaded is dry-frozen, making species identification more difficult. The enumerators taking the sample during the visit hesitated often when identifying the species, making the wrong choice in some cases, especially in the case of juvenile yellowfin and bigeye tuna. There is probably need for further training on the identification of species from frozen specimens.

g. **Non-randomness of samples for size:** The way in which the sampling is designed involves the enumerators discarding fish from the net for species for which the 300 specimens have already been measured and select fish of other species for sampling. A potential bias was observed towards large fish, with the enumerators discarding small fish, whose identification usually takes longer, and collecting the large fish for measurement. It is recommended that all fish from the nets taken for sampling be monitored.

h. **Imprecise fish measurements:** The following potential sources for bias have been identified:

i. During the visit it was observed that the enumerators measured both unspoiled and spoiled fish alike. Fish with a bent tail or spoiled were measured the same as other fish. The measurement of such specimens should be avoided.

ii. Specimens are weighed frozen: Frozen fish tends to weigh less than live fish. The use of raising factors is recommended for the estimation of live weights.

iii. Curved length measurements are taken by using plastic tape measures: The use of plastic tape measures is not recommended because plastic usually grows and deforms as it is used; more precise measurements are obtained by measuring straight lengths, using callipers. Curved lengths are converted to straight lengths by using equations based on data from sampling of specimens whose fork length has been measured with both tape measures (curved) and callipers (straight). Therefore, the use of callipers and straight measurements is recommended.

iv. Data handling: At this stage the data collected is not stored in a secure way, and most of the data processing is done by hand; the following problems have been identified

a. **Inappropriate data storage, data validation and verification:** all data are stored in Microsoft Excel spreadsheets, and there are no routines implemented for data integrity, validation or verification. Several mistakes were identified in the logbook data in the spreadsheets. The use of a database system (preferably Microsoft SQL Server) is recommended for this purpose.

b. **Insufficient data processing and reporting routines:** all data processing is done by hand, which is a potential source for mistakes.

c. **No estimation of catches per species and catches-at-size:** At present, the data from the sampling are not used to correct the catches in the logbooks, and catches at-size are not estimated. This might be possible if the quality of the information collected from sampling was improved and/or the information from other sources was made available (*e.g.* landing data from the Thai Union canning company).

Recommendations

The following recommendations are made, considering the problems mentioned above:

1. The DOF should obtain data on catches by species and commercial category from alternative sources (Thai Union, cargo freezer). The catches by species and catches-at-size that can be estimated from the data that are currently available are not sufficiently precise. The information recorded aboard the cargo freezers (vessel plan) or by the Thai Union cannery could be used to raise samples and correct the catches recorded in the logbooks It is recommended that the DOF makes every possible effort to obtain this information from Thai Union
2. The DOF should change the sampling design. The DOF collects data through port sampling, but these data cannot be used to derive statistics as per IOTC standards. Initially, the best way to obtaining good data through sampling would be by

implementing sampling at sea, aboard the purse seiners, but this would be costly. For the in-port sampling to be effective, there is need to obtain data on the amounts unloaded from cargo freezers from the Thai Union cannery. It is recommended that the DOF and the Project work jointly towards establishing an effective sampling design. The measuring tools should be changed from tape measures to callipers. It is recommended that the Project send four callipers to the DOF as soon as possible.

3. Improve data management: The data collected for the Thai purse-seine fleet is not stored and handled appropriately. There is need to create a database to store the data in a secure way that includes data validation and verification routines and other data processing tools, including:

   a. estimation of catches,

   b. estimation of catches-at-size,

   c. routines for the reporting of data to the IOTC or other bodies

   It is recommended that the Project consider hiring an information technology (IT) expert, in Thailand or elsewhere, to conduct this job in cooperation with Project staff based in Seychelles.

Follow-up activity

Project experts carried out follow-up activities after considering the recommendations. It was decided that an IT expert should be hired in Thailand to construct a suitable database to store data collected properly by DOF.

The Andaman Sea Fisheries Development Center (AFRDEC) recruited an IT expert in Phuket, with funding by the Project.

The work started in March 2008, after a contract between AFRDEC and an IT expert was signed. The written terms of reference for constructing the database were provided by the IOTC Data Manager, who also checked the progress of this work. The database, including a user manual in Thai, was completed in February 2009. In that same month, AFRDEC organized a training course on how to operate this database. The Project also provided AFRDEC with the equipment for data entry.

2.2.7. Collection of historical data

The IOTC receives reports of statistics for tuna and tuna-like species from countries with fleets operating in the IOTC Area. However, some parties have systematically failed to submit the required data, and other parties have not submitted complete data sets. However, there are still a large number of potential sources that need to be explored, and mechanisms need to be established for recovering or finding this information.

In an effort to complete the IOTC databases, the Project initiated data collection programmes in Kenya and Yemen, whose main objective is to collect the data required to rebuild the catch-and-effort data series for the sport fisheries of Kenya and the artisanal fisheries of Yemen.

These activities are described in detail in the following sections.

2.2.7.a Kenya: Historical size data from the sport fishery

Background

Marine sport fishing targeting billfish and tunas in Kenya has a long history. The Fisheries Department (FiD) has been collecting data from sport-fishing clubs since the 1940s.

FiD district officers collect catch reports from each sport fishing club; however, the reporting rate is low and mainly summaries of catch are collected at present. Although the FiD has a long history of experience in collecting sport fisheries data, it has not yet achieved the level necessary to establish a sport-fishing database in order to be able to fully utilize these data. The Kenya Sea Angler Fishing Association summarized catch statistics from members for ten years, from the 1990-1991 through 1999-2000 seasons. Figure 2-8 shows the locations of marine sport-fishing clubs in Kenya.

Figure 2-8. Location of marine sport fishing clubs along the Kenyan coast.

During Phase I of the Project, a fact-finding mission sent to Kenya in February 2006 found historical sport fishing data at Malindi and Watamu Sport Fishing Clubs. All data were recorded in notebooks by hand, and the Project decided to implement the computerization of historical data under the scheme of cooperation among the FiD, the sport-fishing clubs, and the Project, in order to resolve a scarcity of catch, effort, and length- and weight-frequency data in this region, especially for billfish.

Computerizing data through this programme is expected to be the first step towards establishing a database for this sector. Furthermore, it might have potential for evaluating the relative abundance of the billfish resources, using catch and effort drawn from these computerized data.

The FiD and Project Phase 1 signed an MOU on 13 July, 2006, and this programme was implemented from August to December 2006 to computerize historical data from the Malindi (1987-2006) and Watamu (2000-2006) marine sport-fishing clubs operating in Kenyan waters. The programme was carried out at the office of the Assistant Director of FiD in Mombasa, where all the available data were entered into a Microsoft Excel spreadsheet.

The total number of records available from the Watamu and Malindi Clubs are 5,351 and 72,691, respectively. Due to missing original notebooks, there were no records from Malindi in 1989-1990, 1995-1996, and 2002-2003, as shown in Tables 2-5 and 2-6. This information is still being collected.

Table 2-5. Number of monthly records computerized for Malindi Sport Fishing Club, 1987-2006

Year/Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1987	548	640	512	200	21	21	141	317	168	357	457	564	3,946
1988	M	M	M	M	M	M	M	M	M	M	M	M	0
1989	M	M	M	M	M	M	M	M	M	M	M	M	0
1990	778	854	615	85	3	10	52	232	224	461	710	855	4,879
1991	962	678	550	125	14	55	90	375	282	983	1,295	1,119	6,528
1992	1,387	1,101	541	146	52	26	105	283	227	646	879	976	6,369
1993	907	1,105	698	150	0	0	43	191	273	568	982	923	5,840
1994	904	1,017	711	112	0	0	89	274	371	960	714	1,328	6,480
1995	1,044	1,186	M	M	M	M	M	M	M	M	M	M	2,230
1996	M	M	M	M	M	M	M	M	M	M	M	698	698
1997	592	643	454	71	0	0	91	346	472	501	436	319	3,925
1998	551	293	146	14	9	12	50	149	460	457	388	454	2,983
1999	619	831	285	48	26	59	94	480	558	407	604	440	4,451
2000	826	872	410	18	0	0	199	334	338	236	673	483	4,389
2001	748	895	338	44	12	44	220	187	227	374	543	391	4,023
2002	696	449	394	62	34	80	M	M	M	M	M	M	1,715
2003	M	M	M	M	M	M	M	M	M	M	M	493	493
2004	617	670	495	93	22	30	59	383	173	627	618	554	4,341
2005	626	821	580	105	6	49	89	408	438	631	731	468	4,952
2006	524	618	516	93	23	69	102	324	262	776	964	178	4,449
											Grand Total		72,691

M: Missing Original Data
0 : No Fishing ocurred

Table 2-6. Number of monthly records computerized for Watamu Sport Fishing Club, 2000-2006

	Month												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sub Total
2000	187	175	107	87	0	0	58	82	48	38	172	92	**1046**
2001	87	61	84	45	0	0	21	44	113	47	139	133	**774**
2002	101	113	116	64	1	0	13	58	49	43	101	114	**773**
2003	M	M	M	M	M	M	M	M	M	M	M	M	
2004	158	115	143	65	0	0	5	62	58	84	164	225	**1079**
2005	135	130	134	41	0	0		75	88	96	115	82	**896**
2006	104	92	115	97	0	0	29	91	129	90	36		**783**
Sub Total	**772**	**686**	**699**	**399**	**1**	**0**	**126**	**412**	**485**	**398**	**727**	**646**	
											Grand Total		**5351**

M: Misiing Data
0: No recod

Activity during Project Phase II

A person was hired temporarily during July and August 2008, to examine all the data entered in the spreadsheet. All records from Malindi were completely checked against the original data sheets photographed. At the end of August 2008, the data were transferred from the spreadsheet to a Microsoft Access database. This database was transferred to FiD. Data entry has been continued, to include new data from Watamu, Malindi, and other sport-fishing clubs.

Recommendations

1. Kenya should continue the compilation and computerization of data from sport-fishing clubs in the country;
2. Kenya should derive nominal CPUEs for species caught in significant amounts by

the sport fisheries, in particular Indo-Pacific sailfish, and present these estimates to the next meeting of the IOTC Working Party on Billfish.

2.2.7.b Yemen: Historical catches by fisheries cooperatives

Following recommendations from the IOTC Working Party on Tropical Tunas and the IOTC Scientific Committee in 2006 for the Project to obtain more information regarding the way in which the statistics of yellowfin tuna are generated in Yemen, the IOTC Secretariat contacted the Ministry of Fish Wealth and other institutions in Yemen to inform them of these recommendations. An IOTC expert visited Yemen in March 2007 and met with representatives from several institutions involved with data collection in the country.

The Project organized a follow-up mission to Yemen in March 2008 following a request for support from the Marine Science and Biological Research Authority (MSBRA) to strengthen the collection of data on the artisanal fisheries targeting yellowfin tuna in Yemen.

The Project discussed with MSBRA its recommendations to carry out the following programme:

1. Compile and computerise the existing information on the activities of artisanal vessels in Yemen, including (1) catches and effort for IOTC species, including sharks, by cooperative, month and species; and (2) length-frequency data for yellowfin tuna and longtail tuna, by canning factory and month, for as long a period as possible;
2. Completely enumerate the catches (in number) and effort for yellowfin tuna in selected locations along the Yemen coast;
3. Measure the lengths of yellowfin tuna from landings of artisanal vessels in selected locations along the Yemen coast.

The data collected will be used to estimate the total catches and size composition of the catch of yellowfin tuna by the artisanal vessels operating in those locations, in order to assess:

- The accuracy of the catches estimated by the MFW for the same locations and periods, as an indication of the quality of the estimates of catches in recent years for these, and possibly other, landing sites in Yemen;
- Changes in the length of yellowfin tuna caught by artisanal vessels in Yemen, including those relating to the type of boat/gear and/or time and area fished;
- The optimum sample size and sampling strategy to obtain precise catch, effort and size-frequency estimates from the artisanal fleets operating in these areas.

The MSBRA did not respond to further discuss the above data collection. The Project made a third approach to the Statistical Unit of the MFW in order to collect historical catch data since June 2008. The Statistical Unit tried to implement tuna historical data collection with the support of the Project. Due to the situation in Yemen, the Project could not make any further commitment to implement the programme in Yemen.

2.2.8. Others

2.2.8.a Regional cooperation

The Project sent a mission in April 2008 to attend a meeting convened by the Southwest Indian Ocean Fisheries Commission (SWIOFC) in order to assess progress concerning data collection and processing systems in Yemen, Comoros, Madagascar, and other countries in the region, in relation to the activities initiated by the SWIOFC.

The main objectives of this meeting were to revise existing data, the progress made in each country concerning the analysis of existing information, and the main deficiencies concerning recent and historical data (gap analysis).

The situation in these three countries remains of concern.

Yemen

New contacts established during the meeting allowed the Project to once again visit Yemen with the objective of resuming talks concerning cooperation with the Ministry of Fish Wealth in the collection of historical data from the government and private sectors in Yemen. Unfortunately, plans for a new visit to Yemen later in 2009 had to be cancelled, following a ban on UN staff missions to Yemen by the UN Security Agency. The Secretariat plans to send a new mission to Yemen to resume talks as soon as the UN ban is lifted.

Comoros

The Project also initiated talks with staff from the Ministry of Fisheries in Comoros, which resulted in plans from the Project to send a mission to Comoros in December 2009. The main objective of this mission was to assess the current situation in Comoros concerning data collection and processing systems for tuna fisheries and a proposal for the preparation of a Country Report on the fisheries of Comoros.

Madagascar

The Project had to cancel a mission to Madagascar during 2009 due to the political situation in that country. The IOTC Secretariat will reconsider visiting Madagascar once the situation returns to normal.

The IOTC-OFCF Project contacted representatives from Yemen, Comoros and Madagascar. This connection led to further discussions on historical data collection in Yemen in June 2008, and to a fact-finding mission to Comoros in December 2009.

2.2.8.b Provision of equipment

The Project included a scheme of provision of equipment and materials. A list of equipment provided for related activities is presented in Annex 4.

2.2.8.c Leadership Training on Fisheries Resource Management (LTCFRM)

In response to the urgent needs of the coastal countries to train qualified human resources for developing the fisheries industry, OFCF has been actively assisting in developing qualified personnel by providing various training courses to meet these needs and by accepting overseas trainees in Japan.

The Leadership Training Course on Fisheries Resource Management (LTCRFM)

(formerly called "Fishery Resources Management Course (FRMC)") is one of OFCF training courses, and can contribute to the management of international fishery resources in related coastal countries, and to foster amicable relations between the countries and Japan in the fisheries field. The LTCFRM, a one-month training course, has been in place since 2002 to build capacities of relevant personnel closely related to the IOTC-OFCF Project. The budget of the training courses was separated from the Phase II of the Project.

Outline of the LTCFRM

The LTCFRM is designed to train qualified persons in the field of fisheries statistics by providing expert training programmes, thus enabling participants to acquire deeper knowledge and skills related to fishery resources management. Specific training is therefore held at some national research institutes in Japan.

Table 2-7. Number of participants in LTCFRMs, by country, FY 2007-2008

FY	Number of participants	Country
2007	1	Malaysia
2008	1	Mozambique
2009	2	Comoros, Oman
TOTAL	**4**	**4 countries**

The objectives of the LTCFRM are to provide support for the Project in the following areas:

1. To learn and obtain basic knowledge of fisheries resource management
2. To learn how to organize fisheries statistical systems and obtain knowledge of practical examples for the operation.
3. To learn how to organize fisheries statistics required by IOTC, in accordance with IOTC standards.
4. To learn and obtain knowledge of the effectiveness and utilization of fisheries statistics for appropriate resource management collectively.

Technical training is given at the National Research Institute of Far Seas Fisheries (NRIFSF) of the Fisheries Research Agency of Japan, in the following:

- Introduction to Fisheries Resource Management

  The schedule includes learning the basics of "Theory and Model", which is usually used in studies of fisheries resource management, together with study of the methods of fisheries resources management in Japan, including case studies, in aspects of "Coastal Fisheries Resources", "Far-Seas Fisheries Resources", and "International Fisheries Resources". In the study of "Far Seas Fisheries Resources", the participants learn about the scheme of resource management conducted by IOTC, including the ecological aspects, focusing especially on the resources on tuna and tuna-like species.

- Fisheries Information and Statistical Systems

  Regarding fisheries information and statistical systems in Japan, the entire flow of statistical data from catch level through district, region and national level to be submitted to international organizations is explained in a lecture, then the participants visit relevant institutions, landing sites, and data collection sites to learn about fieldwork, and also have relevant lectures at these places.

At the end of the training course, the participants submit their own reports on what

they have learned from the course about the basic information for compiling Country Reports, as well as the countermeasures to various issues regarding fisheries resource management and fisheries statistics in each country, and based on these reports, make final presentations.

Participation

The participants in the LTCFRMs during Phase II of the Project (Japanese fiscal years (FY) 2007 to 2009) are listed in Table 2-7.

2.2.8.d Joint Committee Meeting

Representatives of the OFCF and IOTC met at the IOTC Secretariat on Monday, 7 December 2009, for the final Joint Committee Meeting of Phase 2 of the Project.

The Meeting discussed the two main topics: (1) review of the activities from June 2007 to date, and (2) future plans. The record of the discussions is attached as Annex 5.

Review of activities, June 2007 – November 2009

The OFCF expert reported on the follow-up activity to assess the status of continuation of the sampling programmes from Phase I, and went on to explain the major activities carried out in Phase II. His presentation also covered the Financial Report. The Committee noted that the Project activities have generally been implemented in conformity with the Work Plan, which was drawn up on the basis of recommendations from the IOTC Scientific Committee and revised as necessary to reflect changes in situations. The Committee recognized that the anticipated goals of the Project, which was to fill the gaps that had existed in statistical data and thereby enhance the data collection and processing systems in the region, has been duly attained, and agreed that the Project be terminated as of the end of March 2010, as originally planned.

Future plans

The IOTC emphasized that the Project activities carried out during Phase II of the Project were welcomed by both the IOTC Scientific Committee and the member countries. In view of the successful implementation of activities by the Project and the positive results, the Scientific Committee encouraged Japan to continue providing support in the area of data collection and processing to developing coastal countries in the IOTC region.

The OFCF expert explained that its budget had undergone continued cutbacks in recent years, as a result of both the unprecedented financial crisis in Japan and the uncertainty about the new budget allocation system due to the change of government in Japan in September 2009, it had no clear outlook on the availability of government funds in the future. OFCF had concluded that, under the current circumstances, it was unable to commit itself to any project from Japanese fiscal year 2010 onward. The IOTC Secretariat expressed its understanding on the situation of the OFCF.

Possible future areas of cooperation of priority for data collection would be; 1) increased catch by gillnet fisheries in Iran, Pakistan, and Sri Lanka, whose combined catches account for 30% of all tropical tunas caught in the Indian Ocean, and (2) artisanal fisheries in the Indian Ocean, whose catch is also increasing. In addition to this, future plans would include an observer programme (port sampling) for artisanal fisheries, based on IOTC Resolution 09/04.

3. Recommendations for future improvement of IOTC statistics

The implementation of activities under the Project, involving the participation of most of the coastal countries in the IOTC region, has helped the Project to identify the main areas that would need improving in order to obtain good statistics from the fisheries involved.

The following actions are recommended to address the issues identified by the Project:

3.1. Improving awareness of the importance of the statistics

Background: Accurate statistics on tuna fisheries are important for fisheries managers to make informed decisions regarding the sustainable utilization of tuna stocks in the Indian Ocean. The Project recommends that the authorities in all the countries that fish for tunas and tuna-like species in the Indian Ocean be reminded of the importance of fisheries statistics and of their obligations under the IOTC, and encouraged to, improve their fisheries statistics regimes, to the extent possible.

Target countries: Comoros, Madagascar, Mozambique, Myanmar, Yemen

Proposed actions: Organize workshops and training sessions on the importance of fisheries statistics, including information about the minimum standards required for the collection of statistics from shared stocks, as adopted by regional fisheries bodies or through other arrangements.

3.2. Improving cooperation among fisheries agencies and departments

Background: In many countries, fisheries data are collected by a range of departments and agencies. In some instances, the same data are collected by more than one of these bodies. The Project recommends that the fisheries-related agencies and departments in each country clearly understand their roles, collaborate as much as possible, reduce duplication of work and, to the extent possible, exchange data and expertise to contribute to improving the fisheries statistical system.

Target countries: India, Indonesia, Sri Lanka, Yemen

Proposed actions: Strengthen the institutional arrangements in place by promoting the implementation of integrated fisheries information systems in the countries concerned, through training and database support.

3.3. Fostering the work of field data collection staff

Background: In the pursuit of fisheries data, field officers visit landing sites to interview fishermen or sample the catches being unloaded. The Project emphasizes the importance of the role of these field officers, and the need for a responsible officer to supervise both the collection of data and the work of the enumerators.

Target countries: Indonesia, Iran, Malaysia, Sri Lanka, Thailand

Proposed actions: Implement capacity-building activities in the countries concerned in order to train heads of statistics and other staff in:

1. Training of field enumerators and related staff in data collection protocols and reporting procedures.
2. Supervisory work to ensure that statistics are collected according to the agreed

standards.

3. Identifying changes in the fisheries that may impact data collection or catch estimation procedures.
4. Changing data collection or data processing routines, when required.
5.

3.4. Introducing logbook and observer programmes

Background: The use of logbooks and observer programmes is highly recommended for collecting more accurate fishing activity data.

Target countries: **Indonesia, Iran, Malaysia, Oman, Pakistan, Sri Lanka**

Proposed actions: Organize workshops and training sessions on the implementation of logbook and observer programmes, including information about the standards currently in place. Consider short-term support to help countries in the initial phases of implementation.

3.5. Improving data processing

Background: The data collected are very valuable and should be stored in an appropriate database system. The IOTC Secretariat can recommend an appropriate system, depending on needs and uses.

Target countries: **Comoros, Indonesia, Iran, Madagascar, Malaysia, Mozambique, Myanmar, Oman, Pakistan, Sri Lanka, Yemen.**

Proposed actions: Promote the implementation of integrated fisheries information systems in the countries concerned, through training and database support.

3.6. Feedback to fishers

Background: Feedback on the results of data collection schemes to the fishers who cooperated with the Project is very important to promote understanding about the need for the collection of fisheries statistics, and promotes awareness of resource management.

Target countries: **All developing coastal countries in the IOTC region**

Proposed actions: Organize workshops and training sessions on the importance of fisheries statistics, including information about the minimum standards required for the collection of statistics for shared stocks, as adopted by regional fisheries bodies or through other arrangements. Promote increased feedback and exchange between the government and the fishing sector.

3.7. Re-estimating fisheries statistics based on new reliable information

Background: Fisheries statistics have to undergo a constant process of review; thus, catches have to be revised as new information becomes available, or following changes in the estimation procedures. In addition, sampling and catch estimation protocols should be revised routinely, so that they are tailored as much as possible to the fisheries concerned, and take account of any changes in the fisheries.

Target countries: **All developing coastal countries in the IOTC region.**

Proposed actions: Organize workshops and training sessions on the implementation of sampling systems and catch estimation procedures for tuna fisheries.

3.8. Follow-up on the implementation of recommendations from the Project

Background: The next step for the IOTC-OFCF experts or the IOTC alone would be to follow up on the activities implemented as a result of both phases of the Project, and encourage the institutions concerned to continue their work and, where necessary, implement the outstanding recommendations from the Project.

Target countries: **All countries that received support** from the Project, or other countries to which the Project has addressed recommendations.

Proposed actions: The IOTC should assess the status of implementation of recommendations made by the Project, and to consider support for countries that have failed to do so, if required.

4. Concluding remarks

IOTC tuna statistics are one of the most important elements for assessing tuna resources in order to utilize them in a sustainable manner. The basis of the statistics compiled by the IOTC Secretariat is the statistics submitted from countries which are involved in tuna fisheries. The statistics from each country have to satisfy IOTC criteria, so data have to be collected and processed appropriately.

Phases I and II of the Project dealt with priority areas for improving IOTC statistics by means of activities defined in the Project MOU. Sampling programmes were the main focus of the Project, which provided a prototype for collecting more accurate data and processing them more efficiently. The Project provided various types of technical support to maintain those systems. As inputs of resources were limited, some of the issues remain unresolved; however, the IOTC Scientific Committee and the other relevant IOTC Working Parties expressed appreciation of the fruitful results of the Project.

The countries in which Project activities were implemented have to improve their own tuna statistics by applying the technical support given through the Project. The Comprehensive Report on Phase I, published in 2008, and this report describe details of the activities and make various recommendations for improving tuna statistics. Even though countries failed to implement the programmes or receive support from the Project, they can use these reports as a good reference in order to improve their fisheries statistics, especially for tuna.

In December 2009, the IOTC Scientific Committee stressed the need for resources to be made available to continue a programme of improving data collection processes in the Indian Ocean fisheries. The IOTC Secretariat and OFCF discussed possible areas of cooperation in the future, bearing in mind that the government of Japan has not considered further support to IOTC activities as yet.

The IOTC-OFCF Project received excellent cooperation from the relevant institutions in the coastal countries, and the IOTC Secretariat and the OFCF express their gratitude to these institutions.

Annex

6. Memorandum of Understanding for IOTC-OFCF Project Phase II
7. Extracts from IOTC Scientific Committee reports regarding improving fisheries data
8. Technical Agreement with Oman
9. List of equipment provided by the Project
10. Record of discussion of final Joint Committee Meeting, December 2009

Annex 1

Memorandum of Understanding for IOTC-OFCF Project Phase Ⅱ

MEMORANDUM OF UNDERSTANDING
BETWEEN
OVERSEAS FISHERY COOPERATION FOUNDATION OF JAPAN
AND
INDIAN OCEAN TUNA COMMISSION
ON
TECHNICAL COOPERATION PROJECT PHASE Ⅱ

The Overseas Fishery Cooperation Foundation of Japan (hereinafter referred to as "the OFCF ") and the Indian Ocean Tuna Commission (hereinafter referred to as "the IOTC") recognizing the need to reinforce the fishery cooperation relationship with each other, and with a view to contributing to the realization of sustainable utilization of tuna in the Indian Ocean, have agreed as follows to implement technical cooperation project which aims at improving the systems of collecting and processing data on resources related to tuna fisheries in the Indian Ocean.

Article I Title of the Project

The title of the project shall be "Cooperation Project for Enhancing the Data Collection and Processing Systems for Tuna Resources in the Indian Ocean Phase Ⅱ" (hereinafter referred to as "the Project")

Article 2 Objective of the Project

The objective of the Project is to contribute to the realization of sustainable utilization of tuna resources, by improving the accuracy of data collection and statistical analysis of the catch and resources of tuna in the Indian Ocean.

Article 3 Region of Implementation of the Project

The Project shall be implemented in the IOTC related countries, with the IOTC Secretariat serving as a base.

Article 4 Duration of the Project

The Project shall commence from the date of signature of this Memorandum of Understanding by both parties and shall be in effect until March 31, 2008, however, the duration is subject to extension or reduction, based on mutual agreement by the OFCF and the IOTC.

Article 5 Implementation of the Project

The Project shall be implemented by the OFCF, the IOTC Secretariat, with cooperation of the divisions/bureaus responsible for fishery statistics of the IOTC

related countries, in accordance with this Memorandum of Understanding and the annexed Implementation Plan.

Article 6 Responsibilities of the OFCF

The OFCF shall be responsible for the following:

(1) Appoint the OFCF expert and dispatch him to the IOTC Secretariat;
(2) Cover the wages and allowances of the OFCF expert and his dependents, housing costs, housing security costs, movement costs, medical fees, costs for emergency evacuation, and all auxiliary expenses thereof;
(3) Bear the expenses arising from the OFCF experts' official trips to the IOTC related countries;
(4) Cover the OFCF expert's communication costs including phone, fax and e-mail charges;
(5) Provide the materials and equipment for the Project recognized by both the OFCF and the IOTC as necessary for smooth implementation of the Project;
(6) Bear the expenses for official trips to the IOTC related countries by the international staff of the IOTC Secretariat, recognized by the OFCF as necessary for smooth implementation of the Project;
(7) Bear the expenses for seminars or workshops, recognized by the OFCF as necessary for smooth implementation of the Project;
(8) Resolve any civil affairs involving the OFCF expert's life or properties that may arise out of their activities under the Project.

Article 7 Responsibilities of the IOTC

The IOTC shall be responsible for the following:

(1) Appoint counterparts from among the international staff of the IOTC Secretariat in charge of the Project;
(2) Assist in finding an accommodation in the Republic of Seychelles for the OFCF expert and his dependents;
(3) Assist in providing the OFCF expert and his dependents with medical treatment at times of illnesses and accidents;
(4) Provide an office furnished with telephone lines which the OFCF expert need for carrying out his tasks under the Project, and also bear the utility (heating, lighting, water) charges for the office;
(5) Obtain permissions for the OFCF expert entering and leaving, staying in and working in the Republic of Seychelles, as well as those for his dependents' entering, leaving, and staying in Seychelles;
(6) Obtain exemption for the OFCF expert and his dependents from duties imposed on his household goods, and from the income tax and other surcharges imposed on the living allowances for the OFCF expert remitted from overseas as well as on the expenses that are necessary for the implementation of the Project in the Republic of Seychelles;

(7) Obtain exemption for the materials and equipment for the Project from import/export permits by the Republic of Seychelles or the government authorities of the other IOTC related countries, as well as from any levies, custom fees and other surcharges thereof;
(8) Fully support the OFCF expert in case of any third party claims arising from the implementation of the Project, except where it is agreed by both parties that such claims arise from negligence or willful misconduct by the OFCF expert;
(9) Resolve any civil affairs involving the IOTC Secretariat counterparts' lives or properties that may arise out of their activities under the Project.

Article 8 Ownership and use of materials and equipment for the Project

(1) Out of the materials and equipment for the Project, those to be used by the Secretariat shall become the property of the IOTC, upon being delivered on a CIF basis at a port or an airport of disembarkation in the Republic of Seychelles, or upon being purchased in the Republic of Seychelles.
(2) Out of the materials and equipment for the Project, those to be used by the governments of the IOTC related countries shall become the property of the government of the relevant country, upon being delivered on a CIF basis at a port or an airport of disembarkation in the region where the headquarter office of the government authority of the relevant country is located, or upon being purchased in the relevant IOTC related country.
(3) All materials and equipment for the Project provided by the OFCF shall be used exclusively for the implementation of the Project.

Article 9 Executive Committee

Throughout the duration of the Project, an executive committee aimed at a smooth and efficient implementation of the Project and composed of the OFCF and the international staff of the IOTC Secretariat will be established, and convened as necessary when agreed upon by both parties.

Article 10 Reporting

At the conclusion of the Project, a comprehensive report on the Project shall be drawn up through joint efforts of the OFCF expert and the IOTC international staff.

Article 11 Other Matters

(1) Any other matter arising in connection with the Project which is not covered under this Memorandum of Understanding shall be determined in consultation between both parties.
(2) Any disagreement between the OFCF and the IOTC with respect to interpretation of any provision of this Memorandum of Understanding shall be

settled in consultation between both parties.

(3) The OFCF and the IOTC shall endeavor to resolve any disputes out of the implementation of the Project by consultation. Disputes will not be referred to any tribunal or third party for settlement.

In witness whereof, the undersigned, being duly authorized hereto, have signed this Memorandum of Understanding in duplicate in the English language, with each party retaining one original copy.

Signed in Mahe on June 25th, 2007

Michio SHIMADA
President
Overseas Fishery Cooperation Foundation of Japan

Alejandro ANGANUZZI
Executive Secretary
Indian Ocean Tuna Commission

IMPLEMENTATION PLAN

This implementation plan is prepared based upon Article 5 of the MEMORANDUM OF UNDERSTANDING BETWEEN OVERSEAS FISHERY COOPERATION FOUNDATION OF JAPAN AND INDIAN OCEAN TUNA COMMISSION ON TECHNICAL COOPERATION PROJECT Phase Ⅱ (hereinafter referred to as "the Memorandum") which was agreed between the Overseas Fishery Cooperation Foundation of Japan (hereinafter referred to as "the OFCF") and the Indian Ocean Tuna Commission (hereinafter referred to as "the IOTC").

1. Implementation Organizations of the Project

The Project shall be implemented by the OFCF, the IOTC Secretariat, with cooperation of the divisions/bureaus responsible for fishery statistics within the governments of the IOTC related countries that are targeted as regions of implementation of the Project.

2. OFCF Expert and his Counterparts

(1) The OFCF shall dispatch the following expert:

1) A resources expert will be permanently stationed at the IOTC Secretariat throughout the duration of the Project.
2) Should it become necessary to dispatch an OFCF expert with expertise in professional areas deemed necessary for smooth implementation of the Project, in addition to the OFCF expert referred to in 2.(1) 1), the relevant expert shall be dispatched to the IOTC Secretariat or to appropriate IOTC related countries for a duration judged as necessary by the OFCF.

(2) The IOTC shall appoint two counterparts from among the international staff of the IOTC Secretariat: one, responsible for overall supervision of the Project; the other, in charge of practical project activities.

3. Implementation Schedule for the Project

The Project shall be implemented in accordance with an Implementation Schedule to be jointly prepared by the OFCF expert and his counterparts.

4. Activities under the Project

The following are the activities to be carried out under the Project, the details of which are to be determined through an agreed annual work plan developed by the OFCF expert and his counterparts.

(1) Provide technical guidance and assistance designed to improve the fisheries data collection and processing systems in selected countries
(2) Provide materials and equipment deemed necessary for the above activity
(3) Any other activity that is determined as necessary by both the OFCF and IOTC to achieve project objectives

5. Materials and Equipment for the Project

In cases where, within the duration of the Project, the OFCF and the IOTC Secretariat both agree that materials and equipment are required, the OFCF shall provide such materials and equipment.

6. Other Matters

For any other matters which are not covered by this Implementation Plan, or on any occasion within the duration of the Project when the necessity to make changes occur, decisions shall be made by agreement between the OFCF and the IOTC.

Annex 2

Extracts from IOTC Scientific Committee reports regarding improving fisheries data

Extracts from IOTC Scientific Committee reports regarding improving fisheries data

The situation of the data holdings for nominal catches and catch-and-effort data has improved considerably in the past year, although the scarcity of size-frequency data from the longline and artisanal fisheries continues to be a major impediment for the application of a rigorous stock assessment (from the Working Party on Data Collection and Statistics, 2001 and in 2003). Scientific Committee report 2001, paragraph 15, p 2, and 2003, paragraph 19, p 6)

The Committee agrees with the suggestion that priority should be given to yellowfin tuna in the next assessment. It was indicated that many of the previous results from the Working Party on Methods (WPM) would be useful also for yellowfin, but concerns were raised about the availability of data, in particular catch-and-effort and size frequency from artisanal and longline fisheries. (Scientific Committee report 2001, paragraph 46, p 6)

The Committee expressed further concern regarding the extensive lack of catch and effort and size frequency statistics for important artisanal fisheries, especially those operating gillnets.(Scientific Committee report 2002, paragraph 44, p 6).

For tropical tunas, the SC noted the need to obtain size data from the gillnet fisheries operating off Oman and Yemen, baitboats in Maldives and to increase the amount of size data collected from the main longline fisheries. (Scientific Committee report, 2005, paragraph 17, p 8)

While these factors might explain the high catches of industrial fisheries in a small area off eastern Africa, there are also reports of exceptionally high catches by the commercial and artisanal fisheries from Yemen, Oman, Iran, South Africa and Maldives. (Scientific Committee report (2004, p 37, 2005, p 47, and 2006, p 68)

Annex 3

Technical Agreement with Oman

iotc ctoi Indian Ocean Tuna Commission / Commission des Thons de l'Océan Indien

وزارة الثروة السمكية
Ministry of Fisheries Wealth

OFCF

TECHNICAL AGREEMENT
ON
Cooperation from the Indian Ocean Tuna Commission and the Overseas Fishery Cooperation Foundation of Japan to the Directorate General of Fisheries Resources, Sultanate of Oman

1. Introduction

The Indian Ocean Tuna Commission (hereinafter referred to as "IOTC") and the Overseas Fishery Cooperation Foundation of Japan (hereinafter referred to as "OFCF") will provide technical assistance to the Directorate General of Fisheries Resources (hereinafter referred to as "the Recipient Organization") with the purpose of enhancing the data collection and processing systems for tuna and tuna-like fisheries in the Sultanate of Oman, as a component of the activities under the "Cooperation Project for Enhancing the Data Collection and Processing Systems for Tuna Resources in the Indian Ocean", Phase II, which was commenced on June 25th 2007 by IOTC and OFCF. The funds for the execution of this technical assistance, which is the amount of 8,732.5 Oman Rial (OR) , will be contributed by OFCF.

2. Purpose

a) The activity for which the funds provided by OFCF under this Agreement shall be used is enhancing data collection and processing systems for tuna and tuna-like fisheries in the Sultanate of Oman (hereinafter referred to as the "project").

b) The background, the terms of reference, the inputs to be provided by the Recipient Organization, IOTC and OFCF, if any, the budget of the project and the identification of the Monitoring/Certifying Officer are given in detail in the attached Annex 1 and 2, which constitutes an integral part of this Agreement.

3. General Conditions

a) Funds provided by OFCF under this Agreement are to be used by the Recipient Organization exclusively in support of the project.

b) The Recipient Organization shall be responsible for the organization and conduct of the project. Neither IOTC nor OFCF will be held responsible for any accident, illness, loss or damage which may occur during the implementation of the project.

c) The use of the official emblem and name of IOTC or OFCF on any publication, document or paper is specifically prohibited without prior written approval from IOTC and OFCF.

d) All intellectual property rights (including copyright) in the work to be performed under this Agreement shall be shared among IOTC, OFCF and the Recipient Organization (hereinafter referred to as "the Parties") . The information obtained under the activities listed in Annex shall treat as confidential and shall not without both parties' prior written consent divulge to any third party including publishing.

e) The personnel assigned by the Recipient Organization to the organization and

running of the project shall not be considered as staff members of IOTC or OFCF and shall not be entitled to any privilege, immunity, compensation or reimbursement by IOTC or OFCF. Neither the Recipient Organization nor its personnel shall be allowed to incur any commitment or expense on behalf of IOTC or OFCF.

f) The present Agreement shall be governed by general principles of law, to the exclusion of any single national system of law.

g) If, after meeting the costs of the project, there are unexpended funds under this Agreement the Recipient Organization shall return such unexpended funds to OFCF.

h) IOTC or OFCF or the Recipient Organization shall have the right to terminate this Agreement, by written notice to this effect, if it considers that the continued implementation of the Agreement is impossible or impractical:
   i) for unforeseen causes beyond the control of IOTC or OFCF or the Recipient Organization;
   ii) in the event of a default or severe delay on the part of the Recipient Organization.

i) In the event of the Recipient Organization's non-compliance or partial compliance with the terms of this Agreement, it will refund to OFCF any payment already received by the Recipient Organization in respect of activities that have not been performed to a standard considered acceptable to IOTC or OFCF.

j) In the event of termination by IOTC or OFCF for unforeseen causes beyond its control, OFCF shall complete payment which may be due up to the effective date of termination.

4. Reporting

a) The Recipient Organization shall submit to the IOTC and OFCF, a quarterly progress report no later than 15th of the month following the period of submission. The first report submitted should include not only the information gathered during the previous quarter but also all other data retrieved regarding the activities described in Annex.

b) The Recipient Organization shall submit to the IOTC and OFCF, a quarterly itemized "statement of expenditures" (certified by the Chief Accountant or similar officer of the Recipient Organization).

c) The Recipient Organization shall submit to the IOTC and OFCF, a final report within one month following the completion of the project.

d) The Recipient Organization shall submit to the IOTC and OFCF, a final statement of accounts showing the utilization of funds as determined under this Agreement by the time of the completion of the project. If the legal status of the Recipient Organization precludes the provision of audited financial statements, a statement certified as to its correctness by the officer responsible for maintaining them will be provided. IOTC and OFCF shall have the right to review anytime the relevant records on financial statement.

5. Terms of Payment

a) For the execution of the project under this Agreement the OFCF will make available to the Recipient Organization a financial contribution in the amount of 8,732.5 OR. The payments will be made as follows:
   i) 2,881 OR upon acceptance by IOTC and OFCF of the first quarterly report mentioned under paragraphs 4a) and 4b):
   (33 % of the amount funded by the OFCF)

ii) 2,881 OR upon acceptance by IOTC and OFCF of the Second quarterly report mentioned under paragraphs 4a) and 4b);
(33 % of the amount funded by the OFCF)

iii) 2,970.5 OR upon acceptance by IOTC and OFCF of the final statement of accounts and the report mentioned under paragraphs 4c) and 4d) above.
(34 % of the amount funded by the OFCF)

b) The sum stipulated in paragraph 5a) above represents the full amount to be paid by OFCF for all services and activities to be provided by the Recipient Organization under this Agreement.

c) OFCF will make the above-mentioned payments directly to the Recipient Organization.

6. Settlement of Disputes
Any dispute among the Parties arising out of the interpretation or execution of this Agreement shall be settled by mutual agreement.

7. Amendments
Any amendment to this Agreement shall be effected only on the basis of written mutual consent by the Parties.

8. Entry into Force

a) The present Agreement will enter into force upon signature by the Parties and shall be effective until December 31, 2009.

b) The Recipient Organization must sign three copies of this Agreement and return one to the Executive Secretary of the IOTC and one to the President of OFCF.

Signed on behalf of the Indian Ocean Tuna Commission:

Signature: .....
Alejandro Anganuzzi, Executive Secretary of the Indian Ocean Tuna Commission

Date: 1/4/09

Signed on behalf of the Overseas Fishery Cooperation Foundation of Japan:

Signature: .....
Shunji Fujiwara, [on behalf of the President of the Overseas Fishery Cooperation Foundation of Japan]

Date: April 1, 2009

Signed on behalf of the Directorate of Fisheries Research:

Signature: .....
Saoud bin Hamoud Al-Habsi, Director General of Fisheries Research

Date: 01-04-2009

Annex 1: Technical activities related to the project

Background

Gillnet and handline fisheries, especially those in the northern Arabian Sea, including the Gulf of Oman, are important components of the fisheries for tropical tunas and neritic tunas, as they catch a range of sizes that is usually not available to other gears during the same seasons and areas in the IOTC region. The artisanal fisheries in the Sultanate of Oman catch considerable amounts of yellowfin tuna, longtail tuna and narrow-barred Spanish mackerel using gillnet and handline gears. While there are some data available from 1986 through 1994, there is currently no routine collection of length-frequency data for yellowfin tuna, longtail tuna or narrow-barred Spanish mackerel in these fisheries.

During 2003, the IOTC-OFCF Project (Phase I) provided support to the Directorate of Fisheries Research of Oman for the collection of length-frequency samples of yellowfin tuna (*Thunnus albacares*) from Oman's gillnet and handline fisheries. The collection of size data was discontinued at the end of the Project, and was resumed from January 2009. The purpose of the continued Project is to collect length frequency sampling in Oman with a view to;

- Build the required capacity for Oman to be able to fully fulfill the IOTC requirements concerning statistics (as specified in IOTC Resolution 01/05).
- Promote public awareness on the need of size data for stock assessment.
- Promote support from the Directorate of Fisheries Research of Oman to the continuation of length frequency sampling at the end of the Project, along with the collection of other fisheries data.

The objective of this Project is to extend the current data collection procedures in the Sultanate of Oman to include the collection of length-frequency samples of yellowfin tuna (*Thunnus albacares*), longtail tuna (*Thunnus tonggol*) and narrow-barred Spanish mackerel (*Scomberomorus commerson*)

Terms of Reference

DESCRIPTION OF ACTIVITIES/SERVICES

The Directorate General of Fisheries Resources (DGFR) will arrange for length-frequency samples to be obtained during the fishing season for yellowfin tuna, longtail tuna and Narrow-barred Spanish mackerel from the artisanal craft landing in the landing places of Sur and Marbat. Length-frequency samples should be collected as explained in the samplers' reference (Annex 2) produced by the IOTC after consultation among IOTC, OFCF and DGFR staff, but the protocol should ensure that the number of samples collected is sufficient to obtain an accurate estimate of the size composition of the artisanal catch of yellowfin tuna and narrow-barred Spanish mackerel by gear.

DEFINITION OF OUTPUTS

The data issuing from the length-frequency sampling will be computerized using the database provided from the IOTC as soon as possible after being collected. An electronic copy of the length-frequency data collected during the project implementation period will be sent to IOTC Secretariat as soon as possible after they are computerized. The Supervisor will provide a short summary including the information on total landings of yellowfin tuna, longtail tuna and Narrow-barred Spanish mackerel (by gear or fishing technique) in each of the three ports for the period along with the electronic copy of the database:

DURATION AND TIMING

The project will cover activities to be conducted during the period for nine months between April, 2009 and December, 2009. The collection and reporting of data should take places throughout the duration of the Project, provided that there are significant landings of any of the three species in the artisanal catches at the landing places mentioned above.

4

MONITORING AND PROGRESS REPORTING

The Supervisor designated by DGFR will report the data obtained to the IOTC Secretariat. An electronic copy of the database will be reported for the two months to the IOTC Secretariat along with a summary of the total landings in the two landing places.

Inputs to be provided in kind by the recipient organization

The DGFR will designate a Supervisor responsible for communication with the IOTC-OFCF responsible officers. The DGFR will give proper instruction for samplers at two landing places and arrange for the computerization of the data issuing from the sampling activities.

Inputs to be provided in kind by IOTC/OFCF

1. The Project activities will require an additional effort from each of the teams of samplers currently working in each of the ports mentioned above. IOTC-OFCF will provide funds to compensate for the additional workload or overtime required to achieve the objectives of the Project.
2. The IOTC-OFCF will provide technical assistance, if requested by DGFR, for the collection of samples and/or to develop procedures required to raise sample data to the total catch of each species from the artisanal fisheries in the Sultanate of Oman.

Detailed Budget

1. Additional compensation for four enumerators for the period of nine months between 1 April, 2009 – 31 December, 2009 (OR 150 per month for four enumerators during three months) OR 150 x 4 persons x 9 months = OR 5,400 2. Additional compensation for one Data Entry Officer for the period of nine months between 1 April, 2009 – 31 December, 2009 (OR 150 per month for one staff during nine months) OR 150 x 1 person x 9 months = OR 1,350 3. Additional Compensation for the Supervisor for the same period. for the period of nine months between 1 April, 2009 – 31 December, 2009 (OR 150 per month during nine months) OR 150.00 x 1 person x 9 months= OR 1,350 4. Supervisory trip for Marbat and Sur (Two times) Total amount of OR 632.5 1)To Marbat (One night and two days): Flight fare OR 70 per trip x 4= OR 280 Allowance OR 17.5 x 2 days x 4= OR 140 Accommodation OR 40 x 1 night x 4 = OR 160 2) To Sur (One day): Allowance OR 17.5 x 1 day x 3 = OR 52.5 5. Others (Consumables will be purchased on request)	Total OR 8,732.5

Monitoring/Certifying Officer

Mr. Shunji Fujiwara, from OFCF, and Mr Alejandro Anganuzzi, Executive Secretary of IOTC, will monitor the proper implementation of the Project and certify to the OFCF headquarters that the terms of the Project have been satisfactorily met and that appropriate payments can be made.

5

Annex 2

Collection of size data in Sur and Marbat: Samplers' Reference

IOTC-OFCF Project

Background and main purpose

IOTC Members and Cooperating Parties adopted in 1998 IOTC Resolution 98/01 (Mandatory Statistical Requirements for IOTC Members). This resolution was amended in 2001 (Resolution 01/05) and 2008 (Resolution 08/01) to include some changes in the type of data that had to be reported to the IOTC. The new Resolutions adopted superseded those existing at the time and therefore the one applying now is IOTC Resolution 08/01.

The standards for the reporting of size data have not changed substantially since 1998. These are defined in Paragraph 4 of IOTC Resolution 08/01:

"4. Size data:

Size data shall be provided for all gears and for all species covered by the IOTC mandate according to the guidelines set out by the IOTC Scientific Committee. Size sampling shall be run under strict and well described random sampling schemes which are necessary to provide unbiased figures of the sizes taken. Length data by species, including the total number of fish measured, shall be submitted by a 5° grid area by month, by gear and fishing mode (e.g. free swimming schools or schools in association with floating objects for the purse seiners)."

In spite of the above standards, the amount of size data available to the IOTC from some areas and/or fisheries is still very low. In particular, the paucity of the size data available from fisheries operating in the Arabian Sea is of concern. The IOTC Scientific Committee has recommended in several occasions the collection of data in this area, notable data for the yellowfin tuna.

The IOTC-OFCF Project signed in December 2008 a Technical Agreement with the Ministry of Fish Wealth of Oman. The main purpose of such cooperation is to provide short-term support to the Ministry of Fish Wealth of Oman for the collection of length frequency data in some locations of the Oman coast. The data compiled will be used:

- To estimate the levels of sampling that will be adequate to obtain precise estimates of length by species and gear in the locations covered through the programme.
- To prepare a list of Recommendations to be addressed to the MFW in the areas of data collection, processing and dissemination.
- In the preparation of a Training Session that will take place at the end of the programme covering the preparation and use of the length frequency data collected through it.

The expected outcome is that the MFW maintain size data collection at the end of the Project so as the size data collected can be combined with other statistical data routinely collected making it possible for Oman to comply fully with the Mandatory Statistical requirements of the IOTC.

Main fisheries, landing locations and species involved

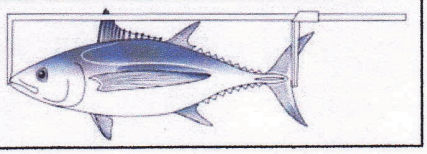
Gillnets and **hand lines** are the main gears used in Oman to catch IOTC species with important catches of **yellowfin tuna, longtail tuna** and **narrow-barred Spanish mackerel** (kingfish) recorded each year.

Initially, size data will be collected in **Sur** and **Marbat** for the above gears and species. However, if time allows, data may be collected for other gears (e.g. trawl, troll lines, etc.).

Measuring the length of fish

The catches of artisanal crafts are rarely processed. Fish are usually stored round (unprocessed/whole specimens) on the vessel deck, unpreserved or preserved in ice.

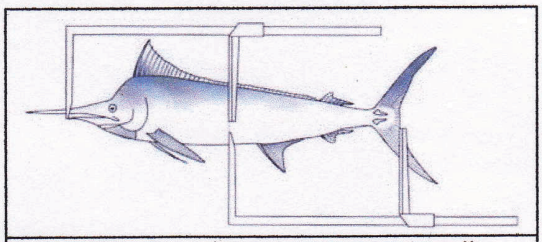
The following table shows the type of measurements and measuring tools that are recommended to measuring the length of the three species covered by the Project:

Species	Measuring Tool	Recommended Measurement	Example
Yellowfin tuna Longtail tuna Kingfish	Caliper	Fork length: Straight distance from the tip of the upper jaw to the fork of the tail	

Note that **all fork lengths shall be taken to the lowest centimeter**, e.g. in the case of a tuna measuring 15.7 cm 15 shall be recorded in the form.

In the case of fish whose length exceeds that of the caliper use the caliper twice, as follows:

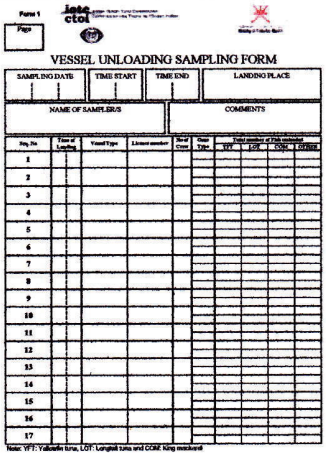
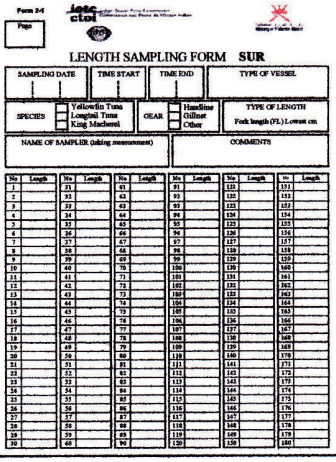
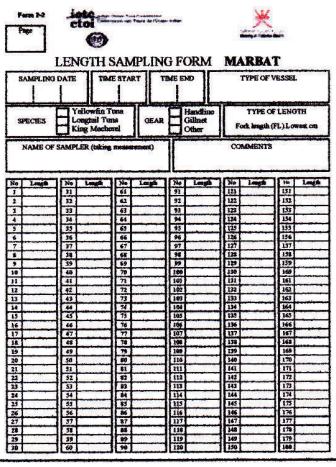
- Place the caliper on the tip of the jaw or snout, depending on the species, and extend it as much as you can
- Place a small piece of thread (or similar) over the fish at the point reached by the end of the caliper
- Measure from that point on to the tail (fork) of the fish
- Sum up the two values obtained and record the length in the form



Measuring large fish by using twice the caliper

Note that the measurements taken by using tape measures are usually very imprecise. Therefore, Tape Measures should not be used to measure fish.

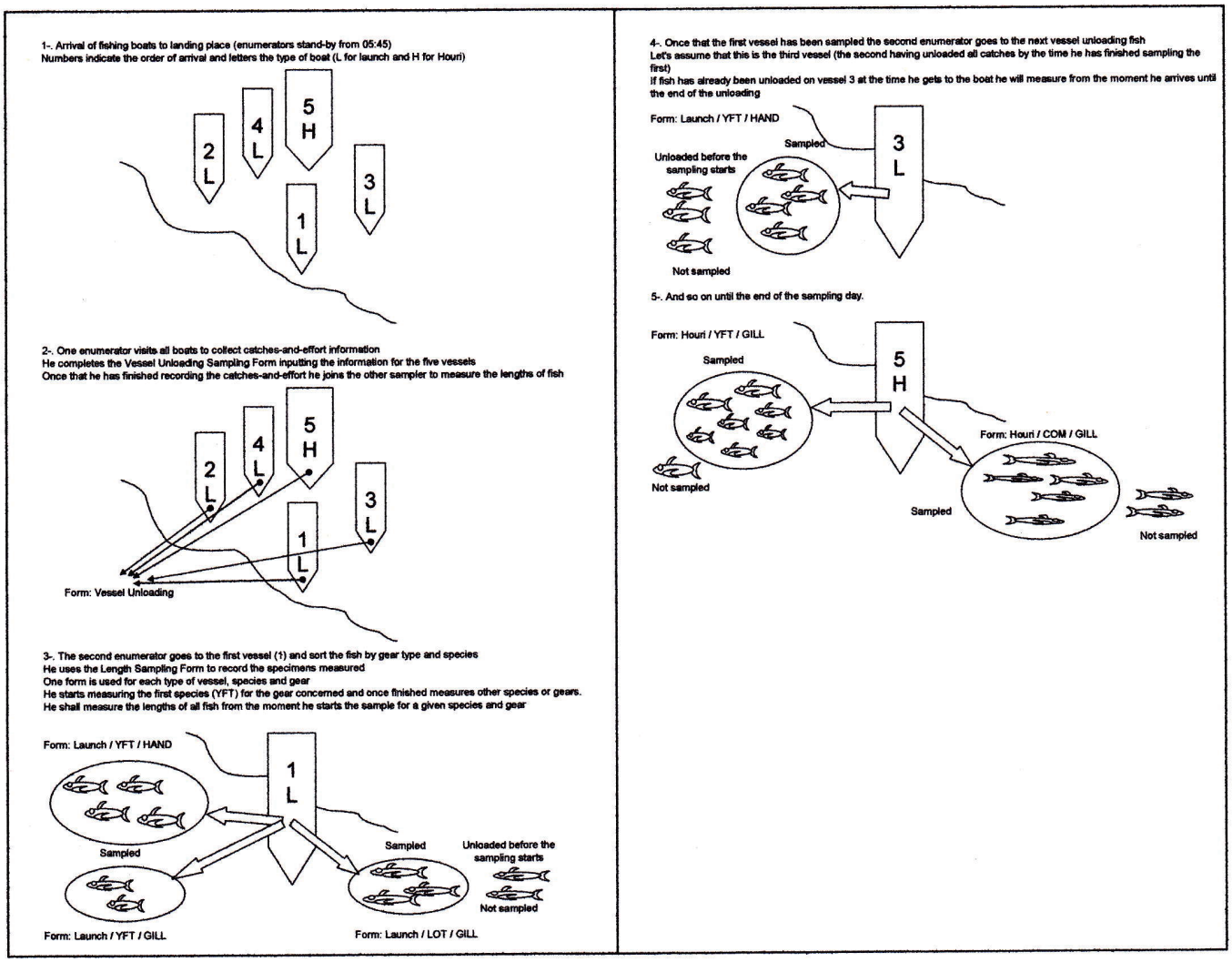
Data collection Forms

Form	Type of data
 VESSEL UNLOADING SAMPLING FORM SAMPLING DATE | TIME START | TIME END | LANDING PLACE NAME OF SAMPLER/S | COMMENTS Seq. No | Time of Landing | Vessel Type | Licence number | No of Crew | Gear Type | Total number of fish retained: YFT | LOT | COM | OTHER 1 … 17 Note: YFT: Yellowfin tuna, LOT: Longtail tuna and COM: King mackerel	**Catches-and-effort data** *Main purpose*: this form is used to record data on the activities (effort) of fishing crafts unloading in Sur and Marbat and the catches unloaded. *Type of data*: The numbers of all fish unloaded by boat, gear and species will be recorded for each boat unloading in the corresponding landing place, during the time the sampling is taking place (morning or afternoon). *Frequency of sampling*: Catches-and effort sampling will take place every other day in Sur and every day in Marbat. Morning and afternoon samples shall be conducted alternatively (e.g. if samples are taken in the morning of the first sampling day they should be taken in the afternoon of the second day and so forth) All boat unloadings shall be covered.
 LENGTH SAMPLING FORM SUR SAMPLING DATE | TIME START | TIME END | TYPE OF VESSEL SPECIES: Yellowfin Tuna, Longtail Tuna, King Mackerel | GEAR: Handline, Gillnet, Other | TYPE OF LENGTH: Fork length (FL), Lowest cm NAME OF SAMPLER (taking measurement) | COMMENTS No | Length …	**Length frequency data Sur** *Main purpose*: this form is used to record the lengths of yellowfin tuna, longtail tuna and narrow-barred Spanish mackerel taken in Sur. *Type of data*: The lengths of as many fish unloaded as possible for the above species will be recorded for each type of boat, gear and sampling day. *Frequency of sampling*: Length-frequency sampling will take place every other day in Sur and every day in Marbat. Morning and afternoon samples shall be conducted alternatively (e.g. if samples are taken in the morning of the first sampling day they should be taken in the afternoon of the second day and so forth).
 LENGTH SAMPLING FORM MARBAT SAMPLING DATE | TIME START | TIME END | TYPE OF VESSEL SPECIES: Yellowfin Tuna, Longtail Tuna, King Mackerel | GEAR: Handline, Gillnet, Other | TYPE OF LENGTH: Fork length (FL), Lowest cm NAME OF SAMPLER (taking measurement) | COMMENTS No | Length …	**Length frequency data Marbat** *Main purpose*: this form is used to record the lengths of yellowfin tuna, longtail tuna and narrow-barred Spanish mackerel taken in Marbat. *Type of data*: The lengths of as many fish unloaded as possible for the above species will be recorded for each type of boat, gear and sampling day. *Frequency of sampling*: Length-frequency sampling will take place every day in Marbat. Morning and afternoon samples shall be conducted alternatively (e.g. if samples are taken in the morning of the first sampling day they should be taken in the afternoon of the second day and so forth).

Sampling protocol

Enumerators in Sur will sample fish for size frequency every other day while those in Marbat will sample every day. Samples will be taken alternatively during the morning and the afternoon.

The sampling strategy for size frequency data is explained through the example below:



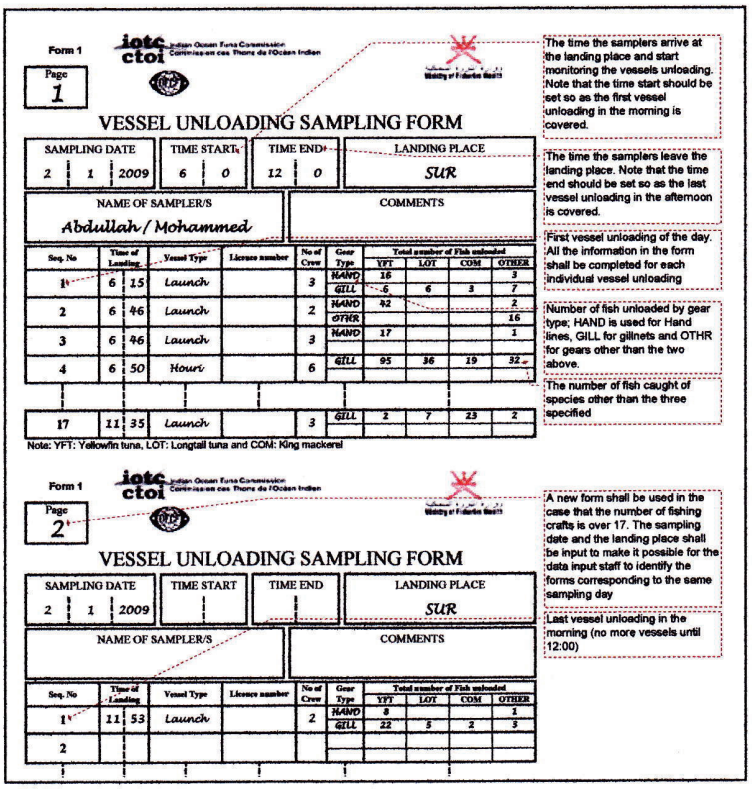
SUR

Samples will be collected by two enumerators who would alternate regular MFW samples with IOTC-OFCF samples.

- First day of the Month (or first sampling day): In the **morning,** the samplers will conduct a routine sampling for catches and effort data, as defined in the guidelines from the MFW. All vessels unloading during morning hours (from 06:00 to 12:00 should be monitored).
- Second day of the Month: In the **morning** the enumerators will conduct a sample for catches-and-effort and length frequency data as defined below. All vessels unloading during morning hours (from 06:00 to 12:00 shall be monitored).
  - Catch and effort data: The enumerators will use the *Vessel Unloading Sampling Form* to record the catches and effort of **all fishing crafts** (total enumeration) unloading catches during the morning. Note that all fishing crafts unloading catches

shall be recorded in the form; in the case that the numbers of specimens on board cannot be classified by gear or by species use the gear code UNKN (for unknown) and record the total number of specimens under the category OTHR in the form.

Below is an example of this form completed for the first sampling day:



Form 1 — Page 1

VESSEL UNLOADING SAMPLING FORM

SAMPLING DATE	TIME START	TIME END	LANDING PLACE
2 1 2009	6 0	12 0	SUR

NAME OF SAMPLER/S: Abdullah / Mohammed

COMMENTS:

Seq. No	Time of Landing	Vessel Type	Licence number	No of Crew	Gear Type	Total number of Fish unloaded YFT	LOT	COM	OTHER
1	6 15	Launch		3	HAND	16			3
					GILL	6	6	3	7
2	6 46	Launch		2	HAND	42			2
					OTHR				16
3	6 46	Launch		3	HAND	17			1
4	6 50	Houri		6	GILL	95	36	19	32
17	11 35	Launch		3	GILL	2	7	23	2

Note: YFT: Yellowfin tuna, LOT: Longtail tuna and COM: King mackerel

The time the samplers arrive at the landing place and start monitoring the vessels unloading. Note that the time start should be set so as the first vessel unloading in the morning is covered.

The time the samplers leave the landing place. Note that the time end should be set so as the last vessel unloading in the afternoon is covered.

First vessel unloading of the day. All the information in the form shall be completed for each individual vessel unloading

Number of fish unloaded by gear type; HAND is used for Hand lines, GILL for gillnets and OTHR for gears other than the two above.

The number of fish caught of species other than the three specified

Form 1 — Page 2

VESSEL UNLOADING SAMPLING FORM

SAMPLING DATE	TIME START	TIME END	LANDING PLACE
2 1 2009			SUR

NAME OF SAMPLER/S:

COMMENTS:

Seq. No	Time of Landing	Vessel Type	Licence number	No of Crew	Gear Type	Total number of Fish unloaded YFT	LOT	COM	OTHER
1	11 53	Launch		2	HAND	8			1
					GILL	22	5	2	5
2									

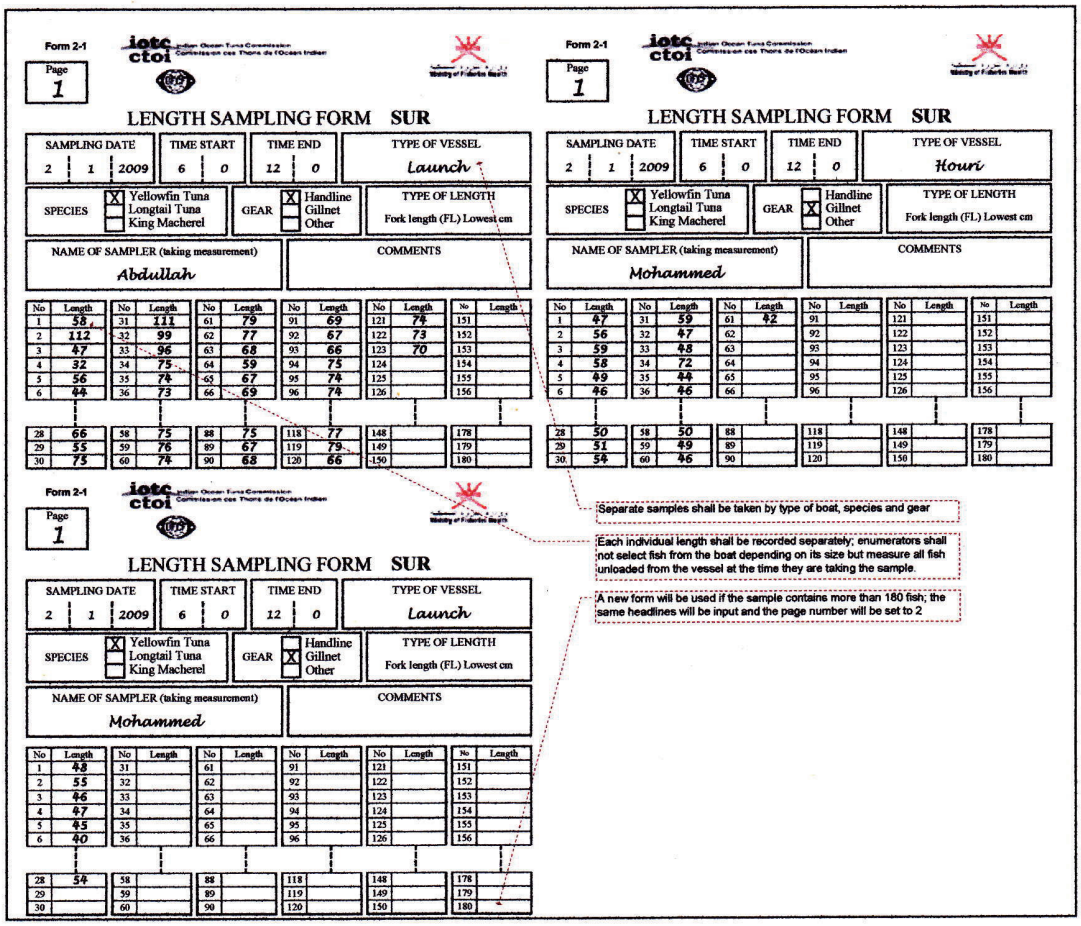
A new form shall be used in the case that the number of fishing crafts is over 17. The sampling date and the landing place shall be input to make it possible for the data input staff to identify the forms corresponding to the same sampling day

Last vessel unloading in the morning (no more vessels until 12:00)

- Length frequency data: The enumerators will use the *Length Sampling Form Sur* to record the specimens measured for the sampling day. Once that the *Vessel Unloading Sampling Form* has been completed for a vessel, the enumerator will try to measure as much fish as possible from that vessel. The specimens on board will be sorted by species and different samples will be taken for each species, depending on the gear that was used to catch such specimens. It is important to note that:
  - The enumerators shall not select specific boats from which to take the samples. They shall sample the first boat available, move to the next vessel available once that the fish from that boat have been sampled and so on until the end of the sampling day.
  - The samplers shall identify the gear that was used to catch the fish that is to be measured. If the species or the gear cannot be identified it is recommended not to measure fish on that boat (note that this is not the case with the catches-and-effort that shall be recorded in all cases, as explained above).
  - The samplers shall not select specific fish to be sampled; they shall measure as much fish as possible for the gear and species that is being measured on that boat.

The example below shows three different samples that were taken for the yellowfin tuna, two coming from Launchs (hand line from boats 1 and 3 and gillnet from boat 1 in the example on page 4) and one from Houris (gillnet from boat 5). Note that, although no samples are shown for longtail tuna and kingfish, the enumerators are

supposed to take also samples for those species, broken by type of boat and gear (as indicated in the example on page 4).



- Third day of the Month: In the **afternoon**, the samplers will conduct a routine sampling for catches and effort data, as defined in the guidelines from the MFW. All vessels unloading during afternoon hours (from 12:00 to 18:00 should be monitored).
- Fourth day of the Month: In the afternoon the enumerators will conduct a sample for catches-and-effort and length frequency data. All vessels unloading during afternoon hours (from 12:00 to 18:00 should be monitored). The same protocol as such defined for the second day of the month applies in this case.

And so on for the fifth, sixth and following days. An example of the activity for a period of time is shown in the following timeline:

SUR	Jan-09																													Feb-09		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3
Morning			R	L			R			L			R	L					R	L					R	L					R	L		
Afternoon					R	L					R	L					R	L			R			L			R	L				R	L

R: Regular sampling (MFW)
L: IOTC-OFCF Sampling (for catches-and-effort and lengths)

MARBAT

Samples will be collected by four enumerators.

The protocol to be followed in Marbat is initially the same than that for Sur, the only difference being the frequency of samples. This is summarized in the following example:

MARBAT	Jan-09																												Feb-09		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3
Morning			R	L	R	L	R			L	R	L	R	L			R	L	R	L	R			L	R	L	R	L			R	L	R	L
Afternoon			L	R	L	R	L			R	L	R	L	R			L	R	L	R	L			R	L	R	L	R			L	R	L	R

R: Regular sampling (MFW)
L: IOTC-OFCF Sampling (for catches-and-effort and lengths)

Therefore, two of the samplers in Marbat will collect regular samples every day, alternating morning and afternoon samples and the two other samplers will collect IOTC-OFCF samples with the same frequency, taking samples in the afternoon when regular samples are taking in the morning and *vice versa*.

Annex 4

List of equipment provided by the Project

Materials and Equipment List of IOTC-OFCF Project Phase II

(1) List for Sampling Program (MOU)

Ser. No	Equipment	Specification	Q'ty	Date of purchase	Country Purchased	Organization
1	Desktop PC	HP Pavilion A6260DA 2AA+HP W17e	1	13-Feb-09	Indonesia	DFRM-DGCF
2	Printer	HP Laser CP1215	1	13-Feb-09	Indonesia	DFRM-DGCF
3	UPS	APC 1100	1	13-Feb-09	Indonesia	DFRM-DGCF
4	Laptop PC	HP Pavilion DV3119TX	1	13-Feb-09	Indonesia	DFRM-DGCF
5	USB Hard drive	Transcend 32GB	2	13-Feb-09	Indonesia	DFRM-DGCF
6	Storage media	Transcend Store 2.5	3	13-Feb-09	Indonesia	DFRM-DGCF
7	Software	Anti-virus (Kaspersky Internet Security 7.0)	3	13-Feb-09	Indonesia	DFRM-DGCF
8	Software	Office application	3	13-Feb-09	Indonesia	DFRM-DGCF
9	Printer	Samsung Laser Jet Color CLP 300N	1	13-Feb-09	Indonesia	DFRM-DGCF
10	Mouse	Optica USB Mouse	8	13-Feb-09	Indonesia	DFRM-DGCF
11	Stickers	specific number printed for vessel ID	4500	18-Mar-08	Indonesia	DFRM-DGCF
12	Calipers	2m, wooden body	5	06-Nov-08	Oman	MFW
13	PC	HP Pavilion DV5 1126EE	1	08-Mar-09	Oman	MFW
14	Printer	HP Laser P3005N	1	08-Mar-09	Oman	MFW
15	Desktop PC	Intel Core2, Memory IGB, Harddisk 160GB	2	10-Mar-08	Thailand	AFRDEC
16	Laptop PC	ASUS, Intel Core2 A8SC, SATA HDD 1GB	2	10-Mar-08	Thailand	AFRDEC
17	Printer	HP Laser Duple P2015dx	1	10-Mar-08	Thailand	AFRDEC
18	Printer	Epson Inkjet C90	1	10-Mar-08	Thailand	AFRDEC
19	Software	OS Windows XP Profesional	1	10-Mar-08	Thailand	AFRDEC

(2) List for IOTC Office

Ser. No	Equipment	Specification	Q'ty	Date of purchase	Country Purchased	Organization
20	Laptop PC	Toshiba Dynabook Satellite 200	1	10-Dec-07	Japan	IOTC
21	Software	Office standard	1	10-Dec-07	Japan	IOTC
22	UPS	Toshiba Satellite L300	2	17-Feb-09	Japan	IOTC
23	HDD	500GB	2	17-Feb-09	Japan	IOTC
24	Memory stick	8GB	2	17-Feb-09	Japan	IOTC
25	Printer	Canon MP630	1	17-Feb-09	Japan	IOTC
26	Printer	Canon Pixus100	1	22-Dec-08	Japan	IOTC

Annex 5

Record of discussion of final Joint Committee Meeting, December 2009

Record of Discussions of the Final Joint Committee Meeting of the IOTC-OFCF Project

Representatives of the Overseas Fishery Cooperation Foundations of Japan (hereinafter referred to as "OFCF Japan") and the Indian Ocean Tuna Commission (hereinafter referred to as "IOTC") convened in the Meeting Room of the IOTC Secretariat in the Republic of Seychelles on Monday, 7 December 2009 for the Final Joint Committee Meeting of the Cooperation Project for Enhancing the Data Collection and Processing Systems for Tuna Resources in the Indian Ocean (hereinafter referred to as the "IOTC-OFCF Project" or "Project.") The outcome of the discussion is as summarized below.

1. Opening Remarks

Mr. Shimba Fukuda, Project Operation Division, Technical Cooperation Department of OFCF Japan, delivered his opening remarks, which is attached as Annex 1. He underlined the crucially important role the Project has played in providing regional scientists with accurate scientific data, which is indispensable to sound management of fishery resources as well as efficient and sustainable utilization of such resources. He expressed his hope that, after the termination of the Project, the activities carried out under the Project will continue to be implemented under the initiative of IOTC.

Dr. Alejandro Anganuzzi, Executive Secretary of IOTC, welcomed the OFCF mission. He thanked OFCF Japan for its consistent support to the Project, and made the following remarks. The IOTC-OFCF Project has been highly commended, not only by the IOTC Scientific Committee (SC) but also from the member countries of IOTC. He highlighted that the data collection and processing system has been greatly enhanced in the course of the Phase I and Phase II of the Project which spanned a total of eight years. He also pointed out that the Project has served to establish friendly relationship: between IOTC member countries and Japan; between Japan and IOTC; and between IOTC and its member countries. Dr. Anganuzzi expressed appreciation to the dedicated efforts of OFCF experts Mr. Koichi Sakonju and Mr. Shunji Fujiwara. He also thanked Dr. Tsutomu Nishida, OFCF Technical Adviser, for his invaluable contribution to the Project.

2. Adoption of Agenda

The agenda for the meeting was adopted and attached as Annex 2.

Both parties introduced their members.

3. Review of Activities in June 2007 – November 2009

Under Agenda item 1, Mr. Fujiwara, Fishery Expert of OFCF Japan, made a Power-point presentation (attached as Annex 3) on the Project activities. His report first reviewed the follow-up activity to assess the status of continuation of the sampling programs in Phase 1, and went on to explain the major activities carried out in Phase II. His presentation also covered the Financial Report. The two parties noted that the Project activities in general has been implemented in conformity with the Work Plan, which was drawn up on the basis of recommendations from the IOTC SC and revised as necessary to reflect changes in situations. Both parties recognized that the anticipated goals of the project, which was to fill the gaps that had existed in statistical data and thereby enhance the data collection and processing systems in the region, has been duly attained, and agreed that the Project be terminated as of the end of March 2010, as originally planned. It was also confirmed that a Comprehensive Report of Phase II of the Project, the Table of Contents of which is attached as Annex 4, will be completed by the time the Project comes to its end.

4. Future Plan

Under agenda item 2, IOTC emphasized that the Project activities carried out in Phase II was highly appraised by both the IOTC SC and member countries. IOTC strongly requested OFCF Japan for continuation of the Project.

OFCF Japan explained that its budget had undergone continued cutbacks in recent years under the unprecedented financial crisis of Japan and that, coupled with the uncertainties about the new budget allocation system due to the change of ruling party which took place in Japan in September 2009, it had no clear outlook on the availability of government subsidies in the future. OFCF Japan concluded that, under the current circumstances, it was unable to commit itself to any project from JFY 2010 onward. The IOTC Secretariat expressed its understanding on the situation of OFCF Japan.

OFCF Japan asked IOTC how it intended to carry on the activities following the termination of the Project. IOTC responded that their areas of priority for data collection would be; 1) increased catch from gillnet fisheries in Iran, Pakistan, and Sri Lanka (whose combined catch accounts for 30% of all tropical tuna caught in the Indian Ocean), and (2) artisanal fisheries in the Indian Ocean, whose catch is also increasing.

Dr. Nishida suggested that the Future Plan include observer program (port sampling) for artisanal fisheries based on the IOTC resolution in 2009.

5. Other Items

Under agenda item 3, OFCF Japan explained to IOTC that, with the termination of the Project, Fishery Expert Mr. Fujiwara will be called back to Japan, sometime in early or mid March 2010. An official letter from OFCF will be sent to IOTC once the date of Mr. Fujiwara's departure from the Seychelles is finalized.

OFCF also requested IOTC to see to it that, following the termination of the Project, the materials and equipment provided under the Project will continued to be utilized in line with the objectives of the Project. IOTC agreed to do so.

6. Closing

The meeting was concluded with the two parties confirming the items stated above.

In witness whereof, the two parties have drawn up, in duplicate, the certified original copies of the Record of Discussions.

7 December 2009, in Victoria, the Republic of Seychelles

Dr. Alejandro Anganuzzi
Executive Secretary
Secretariat
The Indian Ocean Tuna Commission

Mr. Shimba Fukuda
Director, Project Operation Division
Technical Cooperation Department
The Overseas Fishery Cooperation
Foundation of Japan