# PROGRESS ON THE DEVELOPMENT OF DOCUMENTATION FOR A REGIONAL OBSERVER SCHEME

Resolution 09/04 on a Regional Observer Scheme makes provisions for all the CPCs of IOTC to implement a Regional Observer Scheme in order to collect verified catch data and other scientific data related to the fisheries for tuna and tuna-like species in the IOTC area. This Resolution shall enter into force on the 1 July 2010 and therefore it was requested to the Scientific Committee to prepare an observer working manual, a template to be use for reporting and a training program at its 2009 Session.

The Secretariat contracted a consultant to prepare a framework for the development of observer manuals, reporting templates and training programmes for the IOTC. This document was presented to the Scientific Committee during its 12th Session held in Victoria, Seychelles, from 30 November to 4 December 2009.

The Scientific Committee recognised the high standard of the document prepared and noted that the work presented was very ambitious. The Scientific Committee commented that the framework developed was not taking enough account of existing schemes developed on ongoing observers programmes and that this would need some adjustment. The Scientific Committee also highlighted that cooperation should be developed with other RFMOs that have already gone through this identification process for a regional observer scheme.

In this perspective, the SC recommended that CPCs provide comments on the proposed framework to the Secretariat by the 15th January 2010. The comments will be compiled and organised The Secretariat will then compile and organise those information in a document to be circulated at the latest by the 15th February.

The SC also recommended that a technical meeting be held after the Commission meeting if it endorses the proposed process so that practical issues for implementation and training of observers be addressed without delay.

# Framework for the Development Observer Manuals, Reporting Templates and Training Programmes for the Indian Ocean Tuna Commission

*CAPRICORN FISHERIES MONITORING cc*
**Cape Town, South Africa**

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## Introduction

Worldwide scientific observer programmes are used in fisheries management to provide "independent" baseline information on fisheries. This is particularly important in the case of Regional Fisheries Management Organisations (RFMOs) where member states (contracting parties) might include distant water fleets, domestic fleets (fishing within EEZs) and artisanal fisheries (exploiting territorial waters). Regional Observer Programmes (ROPs) such as the one developed by IOTC for the monitoring on Large-Scale Transhipment Vessels (LSTVs) perform a valuable role in collating catch and effort data and monitoring within the region. Similarly scientific observers can also be deployed across all fishery sectors to collect information primarily for management, stock assessment, conservation and other "neutral" activities. Although not explicit in the Observer description, Observers do have a passive "compliance" function as well.

IOTC have recognised the need for Observers in Resolution 09/04 for a Regional Observer Scheme Scientific Observer Programme. This "Framework for the Development of Observer Materials" is the first step in this process. A fundamental requirement of any Observer Programme, particularly in regions where there are many participating countries and also many different gear and vessel types, is the standardisation within the organisation of the basic Observer Manuals. This would include for example a Standard Operating Procedure (SOP) for all fleets and fisheries, standard Observer protocols to facilitate Observer deployments, as well as standardised training procedures such that all Observers deployed are skilled to a minimum standard.

JPN: There has been no agreement to establish the standard procedure of the IOTC ROP in the COM meeting. Thus the member countries need to discuss this issue as a first step. At this stage it is more meaningful for member countries to make a comprehensive road map showing what we should do within the limited time before July. Without prejudice to this position, we put our comments below.

In the case of the IOTC, as with many other tuna RFMOs, there is a matrix of coastal and island states, distant water fleets, languages, target species and fishery types (purse seine, longline, FADs, pole and line and a broad spectrum of artisanal gears). This represents an enormous challenge, particularly for implementation.

## Development of a Regional Observer Programme for IOTC

We recommend that the IOTC-ROP be clearly separated between "High-seas" and "Artisanal" programmes. Both sectors have their own specific requirements and particular set of protocols and logistics. The Artisanal component is the most challenging and we recommend that it be implemented only once the high seas component has been effectively implemented.

JPN: Paragraph 4 of the Resolution 09/04 states: *"4. The number of the artisanal fishing vessels landings shall also be monitored at port by observers. The indicative level of the coverage of the artisanal fishing vessels should progressively increase towards 5% of the total landings."* Thus we should start the IOTC ROP also for the artisanal fisheries with a modest coverage to achieve towards 5% coverage.

## High Seas and Offshore Domestic Operations

JPN: Following the Resolution 09/04 we need to agree to the template of the observer report to be used in each trip as a first step. Hence it is not desirable to define "SOP" and "core observer" at this stage and to set procedures based on these definitions before member countries discuss.

We foresee the following major steps (in sequence) towards the development of a "high seas" ROP for IOTC :

- ✓ Agreement by all CPCs[1] on the essential materials needed for Observer deployments, reporting and data collation. This is the framework proposed herewith;
- ✓ Detailed preparation and development of the Observer materials agreed to by the CPCs;
- ✓ Review and acceptance (with changes as needed) of the primary versions of the Observer material;
- ✓ Translation into the designated official language(s) of IOTC CPCs;
- ✓ Development of an Implementation Strategy (SOP) for Observer deployments across all fleets – implementation is normally staggered focusing on priority areas, fisheries and species. **This should include synchronisation with existing Observer programmes in the region to optimise the use of Observers.** This will require linkages and MOU's to be developed between CPCs;
- ✓ Agreement by IOTC CPCs on SOPs. This could be modelled on existing programmes such as CCAMLR where Observers from one members licensed vessels are deployed on others. Reporting protocols then take on a higher level of importance and require "Confidentiality" conditions;
- ✓ Training of a core Observer capacity pool for high seas deployment in the IOTC region;
- ✓ Implementation of the deployment of the core Observer group to test functionality of the programme (protocols, reporting mechanisms, logistics etc);
- ✓ Introduction of Country-specific training for high seas deployments;
- ✓ Implementation of Country specific programmes for high seas deployments[2].
- ✓ JPN: Development of the method to accurately monitor Bigeye tuna landing by purse-seine at port.

[1] We refer only to IOTC contracting parties or members of IOTC – we assume participation in the scheme is obligatory for CPCs and that non-contracting parties and those with Observer status will have the option to participate.

[2] We note also that there are numerous regional project initiatives such as SWIOFP, ASCLME, MACEMP, KCDP, WIOMSA that may need to be integrated into the scheme, or could contribute to the development of the IOTC-ROP.

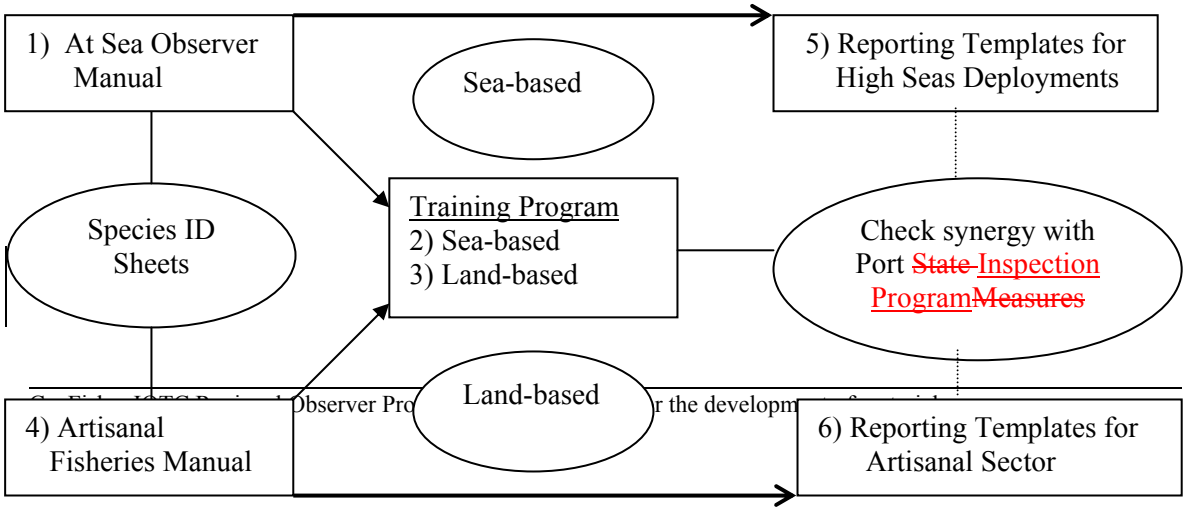
## Artisanal Fisheries

We foresee the following major steps (in sequence) towards the development of an "Artisanal Fisheries" ROP for IOTC :

- ✓ Agreement by all CPCs on the essential materials needed for Observer deployments, reporting and data collation. A "provisional" framework is provided herewith – noting that the Artisanal programme will require a higher level of Country-Specific involvement than for the high seas component;
- ✓ Detailed preparation and development of the Artisanal Observer materials agreed to by the CPCs;
- ✓ Review and acceptance (with changes as needed) of the primary versions of the Artisanal Observer material;
- ✓ Translation into the designated official language(s) of IOTC CPCs;
- ✓ Development of an Implementation Strategy (SOP) for Observer deployments in each country with gear-specific procedures for Artisanal fisheries. Implementation staggered focusing on priority areas, fisheries and species. **Synchronisation with existing Observer programmes in the region to optimise the use of Observers.** This will require linkages and MOU's to be developed between CPCs and a mechanism for members to monitor artisanal fisheries in the country of another member.
- ✓ Training of a core Observer capacity pool in EACH country for Artisanal Fisheries deployments in the IOTC region;
- ✓ Implementation of the deployment of the core Observer group to test functionality of the programme (protocols, reporting mechanisms, logistics etc);
- ✓ Implementation of Country specific programmes for Artisanal deployments

### Development of Materials for the IOTC-ROP

There are six main outputs regarding the materials developed. These are demonstrated in the schematic below :



# Proposed Framework for IOTC Sea-Based Observer Tuna Manual

JPN: Considering the feasibility of the IOTC ROP in the developing countries, elements in the manual should be minimal for the practical implementation.

Manual will be split into three main parts

JPN: This manual will be used as the guideline for the IOTC ROP in each member country.

## PART A : IOTC, REGIONAL DYNAMICS, COUNTRIES, FISHERIES & SPECIES

### 1.0 Background to IOTC, structure, members and dynamics

1.1 Indian Ocean Tuna Commission

1.2 Mission and Objectives of the IOTC

1.3 Structure of the Commission

1.4 Membership to the IOTC

1.5 Functions and Responsibilities

1.6 Subsidiary Bodies set up by the Commission: Scientific Committee Sub-commissions Working Parties

1.7 Main Species under IOTC Management

1.8 Data Collection and Submission of Data to the IOTC

### 2.0 Geography and Political Dimension of the Indian Ocean Region

**BLI:** The definition of bycatch needs to be considered early on in this section, i.e. is bycatch to be defined under 'Catch' or as a separate category, i.e. 'Bycatch'. We would suggest it is included within a sub-category of 'Catch' and thus is reported as such, i.e. 'non-target'

2.1 Countries and principal ports and handling facilities, fisheries management authorities

2.2 Meteorology and oceanography – seasonality and prevailing conditions

~~2.3 Ecology, eco labels and adoption of EAF~~ (JPN: should be deleted as we need only fundamental duties of the observers in the list)

~~2.4~~2.3 Main IOTC fisheries in the region and each country

~~2.5~~2.4 Summary of catches in the region (BLI: target and non-target species, fisheries, trends )

~~2.6~~2.5 BLI: ~~Essential~~ Mandatory conservation measures and country specific ~~fisheries~~ management measures and legal instruments

### 3.0 Fisheries and Operational Characteristics (for each vessel descriptions, setting, hauling, storage, transhipments and discharges)

3.1 Purse Seine

3.2 Longline

3.3 Pole

3.4 Line

3.5 FAD Fisheries

3.6 Gill / trammel nets

3.7 Artisanal

3.8 Recreational

**4.0 Commercial Target Species**

4.1 Bigeye Tuna (Thunnus obesus)

4.1.1 Biology, essential population dynamics

4.2 Yellowfin Tuna (Thunnus albacares)

4.2.1 Biology, essential population dynamics

4.3 Skipjack tuna and bonitas

4.3.1 Biology, essential population dynamics

4.4 Albacore (Thunnus alalunga)

4.4.1 Biology, essential population dynamics

4.5 Swordfish (Xiphias gladius)

4.5.1 Biology, essential population dynamics

4.6 Shark (var spp.)

4.6.1 Biology, essential population dynamics

**5.0 Bycatch**

5.1 Retained bycatch

5.2 Discard

~~5.3 Incidental bycatch of Protected, Endangered and Threatened (PET) species~~. JPN: should be deteled as its content is covered in 5.1 and 5.2 and should not be specified at the stage of the framework

5.3 BLI: Incidental bycatch of Protected, Endangered and Threatened (PET) species, including marine mammals, turtles and seabirds

5.4 BLI: Add section on seabird, marine mammal and turtle identification and biology. The latter to include reference to temporal and spatial variability in the incidence of bycatch events (e.g. governed by location, moon phase, season, day or night, etc.).

~~5.4~~5.5 Mitigation methods~~ – TEDs, BRDs, Tori lines and other~~ JPN: should be deleted as they should not be specified at the stage of the framework. BLI: Add section on why they are necessary, i.e. population level impacts, and details of operational characteristics of all available mitigation methods.

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## PART B : OBSERVER BASICS, PROTOCOLS, LOGISTICS, SAMPLING,

**6.0 The Origin and Value of Observer Programmes**

6.1 Rationale for the IOTC-ROP

6.2 Other Observer Programmes in the region

**7.0 Defining "the Observer"**

7.1 Scientific Observers

7.1.1 Qualifications and prerequisites

7.1.2 ~~Fisheries~~ BLI: Scientific Observers

~~7.1.3 Marine Mammal Observers and Interactions~~

~~7.1.4 Tagging and Experimental activities~~ JPN: 7.1.2. implies this to items thus no need to specified.

~~7.2 Compliance "Observers~~ JPN: Paragraph 1 of Resolution 09/04 clearly states that the IOTC ROP is conducted for scientific purposes.

**8.0 Observer role and responsibilities**

8.1 Observer Code of Conduct and Protocols

8.2 MOU's and country-specific guidelines

8.3 Health and safety

8.4 Work schedules

**9.0 Pre-Deployment**

9.1 Checklists and briefing

9.2 "Standby" and transit arrangements

9.3 Logistics

~~9.4 Vessel Inspection – safety, accommodation, communications, protocols~~ JPN: 9.1 is sufficient if 9.4 imply to make the check list of the safety of the fishing vessels and for observer to confirm the list before getting onboard.

**10.0 Deployment**

10.1 Work Schedule. BLI:this needs more detail in the framework document. It would be useful to address (at least broadly) the likely proportions of observer time spent on various tasks while at sea. For seabirds, dedicated observer time spent watching hauls and settings of longlines are key to quantifying incidental mortality adequately, actual deployment of mitigation measures such as tori lines, etc, and this may differ with target species, where much time may be required below decks. These different requirements on observer work time must be highlighted at an early stage in the framework process.

10.2 Sampling procedures
- 10.2.1 Routine fisheries
- 10.2.2 Incidental mortality
- 10.2.3 Special requirements ~~(eg. Tagging and genetics)~~
- ~~10.2.4 Marine mammals~~
- ~~10.2.5 Seabirds and mitigation~~
- ~~10.2.6 Other PET species~~ JPN: we need only the general sampling procedures and don't need to specify such items.

10.3 Sampling Strategies
- 10.3.1 Sampling Locations and Sample Selection
- 10.3.2 Selecting Fish
- 10.3.3 Stratified Sampling
- 10.3.4 Proportional Sampling
- 10.3.5 Sampling for size and species mixes
- 10.3.6 Pre-sorted catch sampling

10.4 Disembarking and Debriefing BLI: it is important that it is clear in the framework that debriefing is a Mandatory part of the ROP in both artisanal and industrial settings

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# PART C : TECHNICAL ASPECTS, DATA COLLECTION AND DATA MANAGEMENT

## 11.0 Data collection

11.1 Observer Logbooks & Instructions

11.2 Observer / Vessel and trip by trip records

11.3 Deployment Forms

11.4 Biological data forms

11.5 Catch and effort sampling. BLI: •There is a critical need for proper definitions here. Does this point include "bycatch", which is non-target catch. BirdLife would prefer that this is reworded to Target and Non-target Catch and effort sampling. There is no need to specify haul sampling effort for target and non-target catch, if everything is considered catch, because target and non-target catch being recorded during the same observation periods

11.6 Marine mammals, sea birds and PET sampling (JNCC and other)

• BLI: Will this be recording of catch, observations (e.g. counts) around the vessel during setting/hauling, recording interactions with vessel or gear? BirdLife International would be keen to be involved early on in the design of this sampling.

11.7 Daily Meteorological and Oceanographic Observations

11.8 Specialised data collection (genetics and other)

~~11.9 Adherence to MarPol regulations~~

~~11.10 General Compliance and Comments~~ JPN: delete as Paragraph 1 of Resolution 09/04 clearly states that the IOTC ROP will be implemented to scientific purposes.

## 12.0 Reports

12.1 Observer Deployment Report

12.2 Safety equipment and H&R reporting

12.3 Observer Report (5-Days or other)

12.4 Supplier Report (5-Day or other)

12.5 End of Trip Report and basic report formats and processing

## 13.0 Data Management

13.1 Hard copy and deck sampling methods

13.2 Transfer of hard data to electronic formats / standardisation

13.3 Basic database design and management – Access / excel / formatting

13.4 Backing up data and cross checking / verification methods

13.5 Basic statistical reporting methods

13.6 Data Fields (samples only) :

- 13.6.1 By Country (Year, Data, catch/landing, weights)
- 13.6.2 By Region (Gear type, Catch by species)
- 13.6.3 Catch and Effort (date/month/time/area/lat/long), catch, effort unit, gear (ps/ll/pole/etc).
- 13.6.4 Biological Data Sampling (Weight Unit, Sampling Weights)
- 13.6.5 Environmental data (wind, temp, sea state, sst, cloud cover etc)

JPN; considering the feasibility of the IOTC ROP in the developing countries, elements in the manual should be minimal for the practical implementation.

BLI: Linked to the definition (catch versus bycatch) being of crucial importance in this process, is the need for adequate data fields. There is no specific mention of the need for 'Bycatch' in the data fields, so it is imperative that this be changed, or preferably the definition of 'Catch' be specific and include both 'Target' and 'Non-target' catch, including seabirds.There is a need for a section on reporting timeframe of data from CPC's National Observer Programmes to the IOTC Commission. This needs to be a mandatory timeframe.
Consideration needs to be taken of the species codes available for seabirds, marine mammals, turtles, and other bycatch species under FAO. Not all seabirds caught in IOTC fisheries currently have allocated FAO codes.
Obviously there is considerable work required on the necessary data fields and for assistance with this we refer to the document submitted to the Scientific Committee (2009) by BirdLife International on Best Practice Data Collection Protocols for Regional Observer Programmes.
Details of where the data being collected is used, how, and why, should be made explicit in the manual and training course. A lack of understanding/information about these matters consistently leads to lack of motivation to collect the data. This can have very negative consequences for data integrity and coverage rates. Simply providing context to the observers about why the data are being collected and how they are used is often sufficient to motivate them to collect good quality data, often in excess of the minimum requirements.

## PROPOSED FRAMEWORK FOR IOTC SEA & LAND-BASED OBSERVER TRAINING PROGRAMME

**Training Schedule (Note this is based on facilities in RSA – courses can be relocated depending on availability of facilities)**

**JPN: This training program will be used as the guideline for the IOTC ROP in each member country.**

~~Length of Training course : 2-4 weeks~~ **JPN: length of training course and the venue should be deleted and only training items should be listed here**

1) **Pre-Training Checks :**

- ✓ Prior to going on course a marine medical must be completed by all trainees
- ✓ Academic qualifications – Basic writing and mathematical skills are essential
- ✓ Potential Observers must have no criminal record
- ✓ Sea-going experience is preferable – susceptibility to sea sickness disclosed
- ✓ References that show proof of character, integrity and ability to maintain confidentiality recommended
- ✓ Language and communication skills – preferably in language(s) of the region.

2) ~~Week 1 (Training Facility)~~**Training issues**

~~Days 1 – 2 :~~ Personal Safety and Survival
Vessel Familiarisation
Observer Protocols
On-board health

~~Days 3 – 6 :~~ **Overview of fisheries**
Vessel types
Basic fishing gear and operations
Fishery Regulations and compliance issues
~~Country~~ CPCs and ~~RFMO~~IOTC-specific requirements
Species identification ~~(emphasis on tuna)~~
Practical and test on weeks activities

~~Day 7 : Rest day~~

3) ~~Week 2 (Outsourced Training)~~

~~Day 8 :~~ Sea Survival Training (outsourced)

~~Days 9 – 11~~ First Aid and CPR (outsourced)

~~Days 12 – 14~~ Marine fire fighting

4) ~~Week 3 (Training Facility)~~

~~Days 15 – 17~~ Catch Sampling and methods
Biological Sampling and methods

~~PET Species / Invertebrate Identification~~ JPN: already covered in “Species identification”

~~Ecosystem basics and EAF~~ JPN: training material should focus and list fundamental observer duties in the IOTC ROP.

~~Days 18 – 20~~ Position Recording, Navigation
Meteorology, Oceanography Basics
Data capture and data fields / forms
Reporting at sea and Trip reports
Codes & Units of Measurement to be used in the Logbooks
Language Templates
Practical and test on weeks activities
BLI: There is no mention about what bycatch mitigation measures are, how they should be constructed, deployed or monitored. Suggest one half-day should be devoted to training on these issues
BLI: In this section it should be made clear that a minimum of 1-2 days is required separately to cover bycatch species identification, ecology, mandatory conservation measures, operational characteristics of mitigation measures, etc. This should be listed separately from Catch Sampling and methods and Biological Sampling and methods, which also need 1-2 days dedicated training

~~Day 21 : Rest day~~

~~Week 4: Advanced course work – this is an o~~**Optional** ~~week~~**course**

~~Days 22-23~~ Seismic surveys, mammals and PET species (specialisation)

BLI: Bycatch species identification and all those skills mentioned in the paragraph above should be clearly listed as essential requirements of the course, and not as part of the optional week

~~Day 24~~ **:** HUET training (outsourced)

~~Days 25-29~~ **:** Computer introduction to Word / Excel / Access 5days

~~Days 30~~ **:`** **Course wrap up**

~~Optional course (extension as needed) :~~

GMDSS (International Observers)

Responsible fisheries (2-3 days course)

~~Certificates issued at end of course~~

## Proposed Framework for IOTC Reporting Templates

We propose that the following reporting templates should be developed. Some of these are similar to existing templates used in the IOTC transhipment programme, some have similarities to CCAMLR and ICCAT. The intention is to develop a unique set of reporting templates that cater explicitly for IOTC requirements.

JPN: The reporting items need to be decided urgently according to Paragraph 11 of Reoslution 09/04. It will be sufficient if these items include scientific and operational information. Thus other items listed in the templates below should be deleted.

**Reporting Templates**

~~1. Pre-Sea Inspection Checklist~~

~~2.~~1. General Vessel Details

~~3. Observer Deployment Report (within 24 hrs)~~

~~4. Onboard Gear Detail Observer 5 Day Report~~

~~5.~~2. Trip details

~~6.~~3. Catch and Effort Details

~~7.~~4. Daily Meteorological and Oceanographic Observations

5. Biological Sampling

~~8.~~ JPN: Monitoring by-catch

~~9.~~6. ~~Interactions between Fishing Operations and Marine Mammals and Sea Birds~~ BLI: addition of turtles and others

~~10.~~7. End of Trip Observer Report and Cruise Summary

~~11. Adherence to MarPol regulations~~

~~12. General Compliance and Comments~~

Most of these forms are standard Observer material – they will be prepared and submitted for review to IOTC. Actual data fields to be defined once there is agreement on the basic templates needed.

**JPN: Considering the feasibility of the IOTC ROP in the developing countries, elements in the manual should be minimal for the practical implementation.**

## Proposed Framework for IOTC Land-Based Observer Tuna Manual (Artisanal Fisheries)

JPN: This training manual will be used as the guideline for the IOTC ROP in each member country.

Manual will be split into three main parts – Manual for Artisanal fisheries is similar to Sea-Based but incorporates specific Artisanal components.

**Note "Artisanal" manual will be Tuna-Specific and will not attempt to incorporate all other species and fisheries.**

## PART A : IOTC, REGIONAL DYNAMICS, COUNTRIES, FISHERIES & SPECIES

### 1.0 Background to IOTC, structure, members and dynamics

1.1 Indian Ocean Tuna Commission

1.2 Mission and Objectives of the IOTC

1.3 Structure of the Commission

1.4 Membership to the IOTC

1.5 Functions and Responsibilities

1.6 Subsidiary Bodies set up by the Commission: Scientific Committee Sub-commissions Working Parties

1.7 Main Species under IOTC Management

1.8 Data Collection and Submission of Data to the IOTC

### 2.0 Geography and Political Dimension of the Indian Ocean Region

2.1 Countries and principal ports, districts and handling facilities, fisheries management authorities

2.2 Meteorology and oceanography – seasonality and prevailing conditions

~~2.3 Ecology, eco labels and adoption of EAF~~ JPN: training materials should limit to fundamental observer duties in the IOTC ROP.

~~2.4~~2.3 Main IOTC fisheries in the region by each country

~~2.5~~2.4 Summary of Artisanal catches in the region (species, fisheries, trends) and relative importance compared to offshore fisheries (BLI: Again here, need to make clear that summary of Artisanal catches, includes both Target and Non-target catch, when discussing species, fisheries, and trends. Hence, when discussing trends, this applies to known information on bycatch species trends as well as trends in target catch)

~~2.6~~2.5 Summary of country-specific species (BLI: target and non-target), fisheries and trends (Artisanal)

~~2.7~~2.6 ~~Essential~~ (BLI) Mandatory conservation measures and country specific fisheries management measures and legal instruments applicable to Artisanal Fisheries.

### 3.0 Artisanal Fisheries and Operational Characteristics (Country-Specific)

3.1 Extent of Artisanal fishery in IOTC Member countries
- 3.1.1 Frame surveys and other assessment methods
- 3.1.2 Location of principal landing points and beach management units (BMUs)
- 3.1.3 District Authorities and local reporting requirements
- 3.1.4 MCS structures
- 3.1.5 Vessel types

3.2 Gear-specific landings
- 3.2.1 Gill nets
- 3.2.2 Handline
- 3.2.3 Line and pole
- 3.2.4 Trolling
- 3.2.5 Beach seine and “ring nets” (purse)
- 3.2.6 FADs and Traps
- 3.2.7 Longlines if applicable
- 3.2.8 Recreational and other

**4.0 Commercial Target Species (Artisanal)**

4.1 Albacore (Thunnus alalunga)

- 4.1.1 Biology, essential population dynamics

4.2 Yellowfin Tuna (Thunnus albacares)

- 4.2.1 Biology, essential population dynamics

4.3 Skipjack and Other tuna sp.

- 4.3.1 Biology, essential population dynamics

4.4 Shark (var spp.)

- 4.4.1 Biology, essential population dynamics

**5.0 Bycatch**

5.1 Retained bycatch (Artisanal)

5.2 Discard

~~5.3 Incidental bycatch of Protected, Endangered and Threatened (PET) species~~ JPN: should be deleted as it is covered in 5.1 and 5.2 ad should not be specified at the stage of the framework

~~5.4~~5.3 Mitigation methods~~ TEDs, BRDs and other~~. JPN: Should be deleted as they should not be specified at the stage of the framework

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## PART B : ARTISANAL OBSERVER BASICS, PROTOCOLS, LOGISTICS, SAMPLING,

**6.0 Land-Based Observer Programmes**

6.1 Rationale for the IOTC-ROP

6.2 Other Observer Programmes in the region

**7.0 Defining “the Observer”**

BLI: Again, this section needs to be more explicit as to whether there are to be separate Marine Mammal Observers (MMOs), Seabird Observers (SBOs) and Turtle (Tos) or whether these roles all fall within the remit of a ‘Scientific Observer’ that reports on both Target and Non-target catches.

7.1 Scientific Observers and Land-based Monitors
- 7.1.1 Qualifications and prerequisites for Monitors of Artisanal Fishers
- 7.1.2 Observers / Monitors for Artisanal fisheries
- ~~7.1.3 Marine Mammals~~
- ~~7.1.4 Tagging, Research and Experimental activities~~ JPN: should be deleved as it is covered in 7.1.2. thus should not be specified.

**8.0 Observer role and responsibilities**

8.1 Observer / Monitor Code of Conduct and Protocols

8.2 MOU's and country-specific guidelines

8.3 Health and safety

8.4 Work schedules

**9.0 Pre-Deployment**

9.1 Checklists and briefing

9.2 Logistics and deployment in the field

9.3 Landing sites and vessel selection

9.4 Communications and protocols with local fishers (customs etc)

**10.0 Deployment in the Field**

10.1 Work Schedule and synchronisation with Artisanal activities

10.2 Intertidal conditions, monsoons and seasonal availability of Tuna's

10.3 Sampling procedures

- 10.3.1 Routine fisheries sampling – selecting sample sizes
- 10.3.2 Fish handling and quality control
- 10.3.3 Special requirements (eg. Tagging and genetics)

10.4 Sampling Strategies

- 10.4.1 Sampling Locations and Sample Selection
- 10.4.2 Selecting Fish
- 10.4.3 Stratified Sampling
- 10.4.4 Proportional Sampling
- 10.4.5 Sampling for size and species mixes
- 10.4.6 Pre-sorted catch sampling

10.5 Relocating and Debriefing

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## PART C : ARTISANAL : TECHNICAL ASPECTS, DATA COLLECTION AND DATA MANAGEMENT

**11.0 Data collection**

11.1 Observer Logbooks & Instructions

11.2 Observer field trip records

11.3 Deployment Forms

11.4 Biological data forms

11.5 Catch (BLI) target and non-target and effort sampling

11.6 Daily Meteorological and Oceanographic Observations

11.7 Specialised data collection (genetics and other)

~~11.8 General Compliance and Comments~~ JPN: paragraph 1 of Resolution 09/04 clearly states that the IOTC ROP is implemented for scientific purposes.

**12.0 Reports**

12.1 Observer Deployment Report

12.2 Weekly H&R reporting

~~12.3 Observer Weekly Reports (5-Days or other)~~ JPN: should not be specified at this stage of the framework

~~12.4~~12.3 Synchronisation with local reporting structures

**13.0 Data Management**

13.1 Hard copy management and recording techniques in the field

13.2 Transfer of hard data to electronic formats / standardisation

13.3 Basic database design and management – Access / excel / formatting

13.4 Backing up data and cross checking / verification methods

13.5 Basic statistical reporting methods

13.6 Data Fields (samples only) :

- 13.6.1 By Country (Year, Data, catch/landing, weights)
- 13.6.2 By Region / district / landing site (Gear type, Catch by species)
- 13.6.3 Catch and Effort (date/month/time/area/lat/long), catch, effort unit, gear (ps/ll/pole/etc).
- 13.6.4 Biological Data Sampling (Weight Unit, Sampling Weights)
- 13.6.5 Environmental data (wind, temp, sea state, sst, cloud cover etc)

Annex 1 (BLI)
Best practices recommended minimum variables to be collected in all longline fisheries. Variables in **bold** are essential to adequately characterise seabird bycatch levels

| Category | Variables |
|---|---|
| Temporal | **Date gear was deployed**<br>**Start time of gear deployment**<br>**End time of gear deployment**<br>Date gear was retrieved<br>Start time of gear retrieval<br>End time of gear retrieval |
| Spatial | **Latitude at beginning of gear deployment**<br>**Longitude at beginning of gear deployment**<br>**Latitude at end of gear deployment**<br>**Longitude at end of gear deployment**<br>Latitude at beginning of gear retrieval<br>Longitude at beginning of gear retrieval<br>Latitude at end of gear retrieval<br>Longitude at end of gear retrieval |
| Physical and Environmental | Sea state (Beaufort scale)<br>Moon phase (important for seabird density distribution)<br>Wind strength and direction (as previous)<br>Depth fished (average/target depth)<br>Cloud cover (important for night setting) |
| Fishing Gear | Unique vessel identifier<br>Unique observer identifier<br>Vessel length<br>Setting speed (knots)<br>**Total number of hooks deployed**<br>**Total number of hauled hooks observed** (crucial for calculating seabird bycatch levels)<br>Target species[a]<br>Bait species<br>Composition of bait used (%)<br>Bait condition (live/fresh/frozen/thawed, whole/cut)<br>**Weight of added weight (if used)** |
| Gear | Groundline/mainline length[b]<br>**Branchline/gangion length**<br>**Distance between weight and hook on gangion** (when used)<br>Distance between branchlines<br>Line setter used (Y/N)<br>Line setter speed (knots)<br>Hook size<br>Hook type |
| Catch | Total catch, actual or estimated (number and/or weight)<br>Catch by species (number and/or weight)<br>**Observed fishing effort** (total number of hooks observed during retrieval) |

| | |
|---|---|
| Mitigation Measure/ Deterrent Device | **Tori line used** (yes/no)<br>Side of tori line deployment (port and/or starboard)<br>**Number of tori lines used**<br>Length of tori line (m)<br>**Aerial coverage achieved** (m)<br>Attachment height (m above water line)<br>Number of streamers<br>Distance between streamers<br>**Dumping of bait/offal** (yes/no)<br>Deck lighting astern of the vessel (yes/no)<br>Bait-caster used (yes/no)<br>**Other mitigation measures used** (provide details) |
| Bycatch | **Species identification**<br>**Number of each species captured**<br>Type of interaction (hooking/entanglement)<br>**Disposition** (dead/alive)<br>**Description of condition/viability of the animal upon release** (if released alive) |

Annex 2 (JPN)

**LIST OF THE MINIMUM DATA TO BE COLLECTED IN THE IOTC OBSERVER PROGRAM [LONGLINE]**

| Type of information | | Information |
|---|---|---|
| Vessel | | Vessel name |
| | | Flag (country name) |
| | | IOTC registration number |
| | | Call sign |
| | | Name of captain |
| | | Number of crews |
| | | International tonnage |
| | | Capacity of fish tank |
| Mode of the vessel activities | | Operation , moving, drifting etc. |
| Oceanographic conditions | | SST, atmospheric pressure, wind (direction and force) and others |
| Observer | | Name and nationality |
| | | On-board date and name of the port, country |
| | | Off board date and name of the port, country |
| Fishing peration | General | Date of the fishing operation |
| | | Start and end time of the setting and corresponding locations |
| | | Start and end time of the hauling and corresponding locations |
| | Gear configuration | Total no. of hooks, no. of hooks per floats, length of the float line, length of the branch, distance between two floats, vessel speed at the setting and name of baits |
| | Catch | Species name including bycatch |
| | | Weight and mode (such as whole weight, gut & gilled etc) |
| | | Size and measurements device (such as caliper, tape, etc) |
| Device of bycatch mitigation | Sea birds | Tori pole, tori line, line shooter, bird curtain, night setting, weighted branch lines, blue dyed baits, under water shooter |
| | Sea turtles | Circle hook |
| | Sharks | |

## Annex 3 (JPN)

### LIST OF THE MINIMUM DATA TO BE COLLECTED IN THE IOTC OBSERVER PROGRAM [PURSE SEINE]

| Type of information | | Information |
|---|---|---|
| Vessel | | Vessel name |
| | | Flag (country name) |
| | | IOTC registration no. |
| | | Call sign |
| | | Name of captain |
| | | Number of crews |
| | | International tonnage |
| | | Capacity of fish tank |
| Electronic devices | | Bird radar, sonar, fish finder and others |
| Mode of the vessel activities | | Operation , moving, drifting etc. |
| Oceanographic conditions | | SST, atmospheric pressure, wind (direction and force) and others |
| Observer | | Name and nationality |
| | | On-board date and name of the port, country |
| | | Off board date and name of the port, country |
| Fishing operation | General | Date of the fishing operation |
| | | Start and end time of the setting and corresponding locations |
| | | Start and end time of the hauling and corresponding locations |
| | FADS | Type and number |
| | Catch | Species name including bycatch |
| | | Weight and mode (such as whole weight, gut & gilled etc) |
| | | Size and measurements device (such as caliper, tape etc) |
| School type | | Free school or school with objectives (such as logs, whales, sharks etc) |
| Device of bycatch mitigation | Sea birds | |
| | Sea turtles | |
| | Sharks | |