



Food and Agriculture  
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Indian Ocean Tuna Commission  
Commission des Thons de l'Océan Indien

iotc ctoi

IOTC Regional Observer Scheme

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## Observer Program Development & Logistic Coordination Workshop

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### Training Observer Debriefers

## Observer data:

- Uses
- Importance
- Common errors and their impact

[IOTC ROS OLC TR 9.03]



CapMarine  
Capricorn Marine Environmental

## **Observer data uses, importance, common errors and their impact**

Fisheries management is often referred to as a system of management rules, defined objectives and a mix of management means to implement these rules. Fisheries management involves regulation of catch and effort to achieve sustainability goals.

Most countries use POLICIES and ACTS as well as REGULATIONS and PERMIT CONDITIONS as tools for managing their fisheries. International agreements are also required to regulate fisheries taking place in areas outside national control known as high seas areas. These are undertaken by Regional Fisheries Management Organisations (RFMOs) such as the Indian Ocean Tuna Commission (IOTC) that use commonly approved RESOLUTIONS (RES.) and CONSERVATION MANAGEMENT MEASURES (CMM) as tools to manage common resources. RES. and CMMs adopted by the RFMO are translated into the domestic legislation of its Cooperating Contracting Parties (CCPs) to ensure effective implementation and compliance both at national and international level.

Today, fisheries management is science-based and requires accurate and fisheries representative information, as the data will be analysed by scientists using statistical methods and models that require precise information.

This information is generally collected from commercial fishing logbooks, through the use of research ships and of onboard fisheries Observer programmes. However, information collected from fishing logbooks can't be considered as independent, and data collected during research cruises isn't representative of many aspects of commercial fishing activities.

Scientific fisheries observers working on fishing vessels during normal operations, are in a position to verify and accurately record independent and fisheries representative information that can be used by scientists for better fisheries management as well as monitoring, compliance and surveillance purposes.

*Poor or falsified data can have an extremely serious impact on the management of a certain fishery/population and may lead to erroneous decisions in the drafting and implementation of the rules of "Fishery Management".*

Observer programs managers and debriefers should have a clear understanding of the uses, value and impact, of data collected by at-sea observers to science-based fisheries management. So, they are aware of the importance of the debriefing process in ensuring data accuracy and reliability and in improving observer data quality on the long term.

### ***Observer data required and generalities on data checking***

#### **RFMOs (IOTC)**

The Indian Ocean Tuna Commission Resolution 11-04 on a Regional Observer Scheme (IOTC Res. 11/04) outlines the basic categories of information that observers must collect while onboard, which includes:

- record and report fishing activities, verify positions of the vessel;
- observe and estimate catches as far as possible with a view to identifying catch composition and monitoring discards, by-catches and size frequency;
- record the gear type, mesh size and attachments employed by the master;

- collect information to enable the cross-checking of entries made to the logbooks (species composition and quantities, live and processed weight and location, where available); and
- carry out such scientific work (for example, collecting samples), as requested by the IOTC Scientific Committee.

Within each of these categories, there are a range of related IOTC CMM's requirements that must be cross checked and verified with the information provided by the observer. To do this, persons responsible for debriefing observers must have a clear understanding of the information that observers are required to collect as well as the applicable IOTC CMM's related to the data collected by the observes.

### **Cooperating Contracting Parties (CPC)**

CPC national legislation should outline the basic categories of information that observers must collect while onboard, which may include:

- categories of information requested by RFMOs;
- categories of information requested by national research institutes; and
- categories of information requested by national organisations responsible for surveillance, monitoring and compliance.

Requirements for each of these categories must be cross checked and verified with the information provided by the observer. To do this the persons responsible for debriefing observers must have a clear understanding of the information that observers are required to collect as well as the applicable national legislation related to the data collected by the observes.

### ***Commonalities on data checking***

Debriefers should assess the information provided by the observer with three basic premises in mind:

1. accuracy;
2. applicability; and
3. need to follow-up (where applicable).

The observer data can be analysed under three focal categories:

1. data for scientific purposes;
2. data for monitoring and compliance purposes; and
3. data for surveillance purposes;

The overriding requirement of the debriefing process is to check for accuracy, especially where there may be specific incidents or infringements. A key part of the debriefing process is also an on-going training of the observer. By highlighting the observer's mistakes during the debriefing, it will raise their awareness of both the need for accuracy and importance of undertaking their own data checks during the deployment. In general, the raw data or hard copies, which are filled in by observers at the time of sampling or recording data on fishing events, is taken as the base line for data that must be captured in the electronic data base. One of the primary tasks of the debriefer is to cross-check the data on a field by field basis with the observer at the time of the debriefing.

### **Data for scientific purposes**

The overall objectives of fisheries managers and fisheries scientists working with tuna in the Indian Ocean is to determine the stock status of tuna and tuna like species. As a tool available to the IOTC Scientific Committee and is working groups, one of the prime objectives of observers is to collect independent information that can be used for fisheries management purposes both for national and high seas fisheries. To fulfil this function the observers must collect accurate data on:

Catch composition by species and associated biometric information, that can include:

- length data for main target and by-catch species;
- sex and maturity;
- age and growth material; and
- possibly genetic samples to verify species and different stock parameters.

Scientists can use length-based methods of assessing fish populations that can correspond closely to age-based methods, making similar assumptions about how fish populations behave. To be of use this information must include the associated information:

- species
- date
- location of capture
- gear used
- length type (e.g. total length)
- precision (cm)

However other associated information collected with length data such as weight, sex and maturity and diet can all add value to understanding the growth rate, length weight relationship and ecology of the species.

At all times the debriefers must be aware of value and need for accuracy when checking the observer data. Keeping in mind that each data set forms part of a much bigger picture that is eventually drawn up by scientists in their stock assessment analysis.

#### **KEY ASPECT TO CHECK WHEN DEBRIEFING OBSERVER DATA**

- the length type recorded (fork length; total length or any other associated length);
- accuracy of the measurements (nearest 1 cm below), check and question abnormal lengths (e.g.: YFT over 200 cm);
- usage of correct length (mm, cm, m and km/ ft, ftm, miles and knots) and weight units and symbols (g, kg and tons) are applied as per instructions, and consistency;
- when lengths and associated weights are available check lengths\weight regression to find outlying points.

### **Data for monitoring and compliance purposes**

There are a large number of IOTC CMMs and related IOTC Resolutions that both the observer and the de-briefer should be aware of (Appendix 1). These fall into two main categories:

1. Resolutions on by-catch; and
2. Resolutions covering fisheries management.

## Data on by-catch

There are multiple IOTC Resolutions covering by-catch species classified by the IOTC as Species of Special Interest<sup>1</sup> (SSIs). They cover five groups:

- all marine turtles
- all marine mammals
- all seabirds
- shark species with a retention ban, and
- certain billfish species (striped, black and blue marlin and Indo-Pacific sailfish)

It is one of the observer's primary tasks to record both the catch, handling, fate and condition (at capture and at release) of species in each of these groups. In addition, the observers must monitor and record the prescribed mitigation measures required by the resolutions. Observers will be required to capture this data accurately, in the data forms allocated and should also provide additional information in their reports.

### KEY ASPECT TO CHECK WHEN DEBRIEFING OBSERVER DATA

Question the observer on the captured data and check the additional information in the report.

As the deployment of mitigation measures is specified by specific Resolutions, non-conformity may be noted by the IOTC as an infringement. It is, therefore, important that the observer understand the importance of recording this information accurately and of providing, where possible, additional supporting information in their reports, that will assist in both the verification and evidence that may be used in follow-up actions, in the event of possible non-conformance.

It is also important to check that observers can reliably identify the species they report on. This can be done using a "self-learning" test" or "flash cards".

Most IOTC CPCs have banned the retaining of the SSIs and the vessels usually discard these species without providing an observer a chance to identify the species and that data seldomly end up on the vessel logbooks.

Where it is evident that observers cannot reliably identify certain species, then the data and report should be amended to a higher taxonomical level and de-briefers should in their report note the reasons for this.

## Data on fisheries management

A large portion of the observers recorded data covers the IOTC management of the fisheries and different vessel types and includes the IOTC Regional Observer Scheme (ROS). Resolutions covering fisheries management includes information on:

- gear specification and capacity limits;
- fishing events;
- fishing practices;
- management of specific target species; and

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<sup>1</sup> Species of Special Interest include all marine turtles, all marine mammals, all seabirds, shark species with a retention ban: whale sharks (Res 13/05), oceanic white tip sharks (Res 13/06) and thresher sharks (Res 12/09.); and billfish species included in Res 18/05: striped, black and blue marlin and Indo-Pacific sailfish (IOTC-2018-SC21-R[E]).

- market related measures.

Although much of this data is inherently captured in the data forms, a significant amount of information can also be reported by the observer in their reports.

#### **EXAMPLE**

Observer can report a normal fishing even on a FAD, however, if the FAD is actually equipped with artificial lights and the vessel fishes on it, there's a clear infringement to IOTC Res. 16/07. The observers should be aware of the resolution and report accurately on the event and where possible take photographic evidence that records date and time.

The debriefer would need to question the observer on all details of the event with view that it is an infringement and further action against the vessel may be taken.

### **Data for surveillance purposes**

The placement of an observer on a vessel, essentially allows them to report on any other vessels they may observe while at sea. This may not necessary be direct observations but can also be radar contacts of other vessels. The observer should report all such sightings without necessary making a judgement of the status of the vessel, i.e. IUU or not. The information must be recorded accurately in their reports, noting position and time. In these events photographs are essential both of an actual vessel sighted or of the radar screen.

Keeping in mind that the observer may not be in a position to make a judgement on the sighting it will be the observers coordinator or debriefer to report the incidence to their relevant authority if the incidence take place within their national waters and also to the IOTC if the observation is made on the high seas.

Reporting on IUU activity is not exclusively for vessel sightings but also involves sighting of fishing gear, including FAD's. IOTC Resolutions requires all fishing gear and FAD's to be marked (Resolution 19/02). Any gear observed by the observer should be photographed and a description of the gear, date, time and location be recorded and reported. When a coordinator or de-briefer get the observers report on un-marked gear, they need to report the details to their national authority, and if the gear was observed on the high seas, also to IOTC.

### ***Common errors made by observers collecting data and impact***

#### **Data for scientific purposes**

Debriefers need to pay attention to the common errors made by the observers, these errors may seem so minor, but their impact can be severe. By paying attention on these errors the debriefer might be able to find out if the observer recorded the information directly from the vessel logbook without verification or just negligence from the observer. Some serious errors frequently made by Observers when collecting scientific data include:

- recording incorrectly against specified units,  
(for example, recording 1.34 miles where the specified unit in the form requires "Km");
- applying the incorrect decimal.  
(for example, recording 1.34 cm in place of 134 cm);
- recording measurements without units.

(for example, the weight was attached “2.8” from the hook, *this does not record if it was centimetres (cm) or meters (m)*, and if the minimum requirement is for weights to be placed not more than 2 m from the hook, this could be an infringement if the recording was actually centimetres and not metres.)

In most cases the data forms specify the units to be recorded, i.e. “m” or “cm”, but it is important for the de-briefer to verify that the observer has understood this correctly.

- switching numbers;

(for example, recording “78” in place of the correct number “87”)

- recording length measurement without noting the length type;

(for example, recording *total length* (TL) when the sampling requirement is *fork length* (FL))

Incorrect lengths captured in the data base either due to numbers being incorrectly recorded or the incorrect length measurement recorded (i.e. FL or TL) can have a significant effect on the stock assessment models resulting in either under or over estimation the stock abundance.

### **Data for monitoring and compliance purposes**

Where observers have reported information on incidences or possible infringements, they must understand the importance of reporting both accurately and provide supporting information that will assist in both the verification and possibly provide evidence for further verification of evidence that may be used in follow-up actions.

It is a common occurrence for observers to record information on incidents or possible infringements that may not be verifiable or in a worst-case scenario, is incorrectly recorded. Some examples are provided below.

#### **EXAMPLE**

One of the specified observer tasks is to report on the vessels gear and how its deployed. In the event that an observer is on a longline vessel and the observer finds that the vessel has steel-wire traces attached to the hook and is using stainless steel hooks. They would routinely record this information in their IOTC data forms (Form 2-LL). However, if the vessel’s national fishing licence specifically prohibits the use of steel-wire trace and stainless-steel hooks, this would be recorded as an infringement. If followed up by the national authorities acting on the observers’ information recoded in the forms, it is most likely the information will be disputed by the vessel.

*The question commonly being: how did the observer identify and verify the use of steel-wire trace and how did they verify the hook was stainless steel?*

On all occasions, the observer must request from the vessel Captain that one of the vessels crew accompany them when inspecting the gear and record the person’s name in their notebook and in their report. In addition, in the presence of the crew member take photographs of all the gear monitored in their presence. If the observer is aware of the licence conditions, they could also possibly take a sample of the steel-wire and check the hook material using a magnet. All these processes should be clearly recorded in their reports.

### **Data for surveillance purposes**

Observers are aware that when reporting information on IUU activity (vessel sightings, sighting of fishing gear, including FAD's, etc.), they should do it accurately and should, were possible, provide supporting information and evidence (photos, data, time and location), to be used in follow-up actions. Yet, it is common for observers to record information incorrectly and to forget to collect supporting information and evidence.