



FINALIZED ROS DATA REPORTING FORMS FOR PURSE SEINE AND LONGLINE FISHERIES

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Purpose

To inform participants at the 18th Working Party on Data Collection and Statistics (WPDCS18) of the progress in the development of standard electronic templates for the reporting of purse seine and longline ROS scientific observer data to the IOTC Secretariat.

Background

Regional Observer Scheme

[Resolution 22/04](#) *On a Regional Observer Scheme* (ROS) makes provisions for the development and implementation of national observer schemes among the IOTC CPCs with the overarching objective of collecting “(...) *verified catch data and other scientific data related to the fisheries for tuna and tuna-like species in the IOTC area of competence*”. The ROS calls the CPC to comply in reaching “(...) *the minimum observer coverage of 5% as defined by the number of operations/sets*” for “*all fishing vessels of 24 meters length overall and above and under 24 meters, if they operate outside the exclusive economic zone (EEZ) of the flag CPC and in the IOTC area of competence*”.

Observer data collected as part of the ROS include:

- (i) fishing activities and vessel positions,
- (ii) catch estimates with a view to identifying catch composition and monitoring discards, bycatch and size frequency,
- (iii) gear type, mesh size and attachments employed by the master, and
- (iv) information to enable the cross-checking of entries made to the logbooks (i.e., species composition and quantities, live and processed weight and location).

In the past, observer data have been submitted to the Secretariat in a range of different templates and formats that included Excel, Word, CSV, and PDF files, which were often not suitable for data extraction and made use of non-standard reference coding systems.

The IOTC Scientific Committee at its 20th Session in 2017, recommended that all observer data be submitted in electronic format, and more specifically that:

(Para. 115) “*Resolution 11/04 On a Regional Observer Scheme requests the submission of a report after each trip but the SC **RECOMMENDED** that on the next revision of the Resolution, this should be amended to request the submission of data in an electronic format suitable for automated data extraction (including historic data) with a given deadline so that information from multiple trips can be provided*”.

With the entry in force of Res. 22/04 (September 2022) it was finally agreed that:

(Para. 17) “*Each CPC shall provide, to the IOTC Secretariat within 150 days the latest, each report and observer data, following IOTC observer reporting templates and standards for data processing*”.

The possible IOTC data reporting formats include, in decreasing order of preference

1. ROS e-tools trip data (.ros files)
2. ROS data reporting forms (.xlsx files)
3. Proprietary, structured electronic formats (e.g., ST09 and similar) to temporarily support CPCs in transitioning towards official IOTC forms

The minimum set of information fields for ROS data collection and reporting purposes was described in documents [IOTC-2021-WPDCS17-INF10](#) and [IOTC-2021-WPDCS17-INF11](#), with the latter providing a more detailed overview of the structure, data type and constraint that apply to each data field.

Discussion

The proposed ROS data reporting forms for purse seine and longline fisheries fully replace their preliminary versions presented at the 17th session of the Working Party on Data Collection and Statistics.

The new forms are designed with the intent of:

- Facilitate the process of collating multiple trip data from CPCs' national databases
- Guarantee the proper management of all ROS data fields
- Standardize the provision of ROS data to the IOTC Secretariat
- Improve the timeliness of incorporation of new data in the ROS regional database

The new ROS data reporting forms can accommodate data originating from one or multiple trips: for this reason, and in consideration of the wealth of information that might be included under each section, they are designed with minimal support for human *data entry*.

All data validations and constraint checks have been therefore removed, on the assumption that CPCs will develop¹ the necessary capacity to implement automated data extraction and collation procedures to fill the ROS data reporting templates with the original information available in their national databases.

In agreement with the proposal of new data reporting forms for the submission of mandatory fishery statistics described in [IOTC-2022-WPDCS18-14](#), the Secretariat is developing a reference catalogue of ROS reference codelists that will be publicly disseminated through the IOTC web pages and be linked to the column / fields in the IOTC ROS data reporting forms.

The Secretariat is also considering the development of an interactive data validation tool that CPCs would use to verify both the syntax (e.g., proper use of standard reference codes, provision of all mandatory fields, etc.) and semantic (e.g., coherent information cross-referenced among different sections) of their ROS data reporting forms prior to the submission to the Secretariat.

At present, the new ROS data reporting forms only support the submission of trip data from vessels involved either in purse seine or longline fisheries, which correspond to the two categories of vessels on which most scientific observers are currently deployed in the Indian Ocean.

The finalization of data reporting forms for pole-and-line and gillnet fisheries is underway, and the outcome of this activity will be shared with the IOTC Scientific Community and published on the IOTC website in due course.

Design principles

The ROS data field specifications have an inherently complex, tree-like structure that negatively impacts on the possibility of modelling this information as a simple *flat table*.

While the ROS e-tools trip data format has been designed since the beginning as an XML document that perfectly matches the structure of the ROS data field specifications, the data reporting forms take a different approach that *mimics* the way in which that same information would be stored into a [relational database](#).

¹ Autonomously, or with the support of capacity building activities delivered by the Secretariat

In fact, the ROS data reporting forms are constituted of a set of multiple tables *linked* together through unique identifiers such as those associated to each trip (**OBSERVED_TRIP_NUMBER**), set (**SET_NUMBER**), catch (**CATCH_NUMBER**), and specimen (**SPECIMEN_NUMBER**).

They came as Excel workbooks comprising multiple worksheets, each of which represents a specific, logically self-contained subset of the original data requirements.

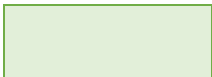
The ICCAT ST09 format follows a similar approach, as it expects distinct content sections to be used to report vessel, trip, set, catch, and sampled individual data. Indeed, it would be possible to extract ROS data from an ST09 form although with relevant loss of information with respect to the ROS minimum data reporting specifications.

Each ROS data reporting form has the following structure:

- A section with information on the observer and observed trip (**O-INFO**)
- A section with information on the vessel and its characteristic (**V-INFO**, **V-TRIP**, and **V-ATTRIBUTES**)
- A fishery-specific section with general (**G-GENERAL**) and specific (prefixed with **G-CONFIG**) information on the gear configuration(s) used during the trip
- A fishery-specific section with information on all observed fishing events, including details on the setting (prefixed with **E-SET**), associated catches (prefixed with **E-CATCHES**) and data on sampled individuals (**E-CATCHES-SPECIMEN** and **E-CATCHES-SSI**)
- A section with information about observed transshipments (**T-EVENTS** and **T-PRODUCTS**)
- A section with information about activities recorded during the trip (**A-SURFACE**) that applies to surface fisheries only.

Fields and sections / sub-sections are colour-coded to represent the following data collection and reporting constraints:

 Data is *mandatory for collection and reporting*: data should **always** be collected and submitted to the IOTC

 Data is *mandatory for collection and reporting when feasible*. Data should **always** be collected and submitted to the IOTC **unless** it is impossible / impractical to do so.

 Data is *optional for collection and reporting*. Data **may not be collected**, and even when collected **may not be submitted** to the IOTC

Structure of the *longline* data reporting form

Observer data

- **O-INFO**

Vessel data

- **V-INFO**
- **V-TRIP**
- **V-ATTRIBUTES**

Gear data

- **G-GENERAL**
- **G-CONFIG-BRANCHLINES**

Fishing event data

- **E-SET**
 - **E-SET-LIGHTS**



- E-SET-BRANCHLINES
- E-HOOKS
- E-BAITS
- E-MITIGATION-MEASURES
- E-HAULING
 - E-HAULING-BITEOFFS
- E-CATCHES
 - E-CATCHES-SPECIMEN
 - E-CATCHES-SSI

Transshipment data

- T-EVENTS
- T-PRODUCTS

Structure of the *purse seine* data reporting form

Observer data

- O-INFO

Vessel data

- V-INFO
- V-TRIP
- V-ATTRIBUTES

Gear data

- G-GENERAL

Fishing event data

- E-SET
 - E-SET-CETACEANS
- E-CATCHES
 - E-CATCHES-SPECIMEN
 - E-CATCHES-SSI

Transshipment data

- T-EVENTS
- T-PRODUCTS

Daily activities

- A-SURFACE

Recommendations

- 1) That the WPDCS NOTE paper IOTC–2022–WPDCS18–17 which describes the final version of the IOTC Regional Observer Scheme data reporting forms for industrial longline and purse-seine fisheries
- 2) That CPCs with industrial longline and purse seine fisheries currently active in the Indian Ocean familiarize with the structure of the new IOTC ROS data reporting forms for longline and purse seine fisheries and **ADOPT** these as the official formats for all new submission of ROS data from these fisheries to the IOTC
- 3) That CPCs that already have submitted ROS data to the IOTC through non-standard formats and templates revise their historical data submissions to take advantage of the new IOTC ROS data reporting forms
- 4) That the IOTC Secretariat supports CPCs in transitioning towards the adoption of standard data submission formats (ROS e-tools trip data or ROS data reporting forms) through dedicated workshops and technical assistance.



References

- IOTC ROS data reporting form for industrial longline fisheries ([IOTC-2022-WPDCS18-DATA03-ROS-LL](#))
- IOTC ROS data reporting form for purse seine fisheries ([IOTC-2022-WPDCS18-DATA04-ROS-PS](#))