

Revision of IOTC ROS purse seine fields collected for scientific needs, reporting requirements, and current collection capabilities by electronic and onboard observers

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Abstract

This document summarizes the work of the purse seine subgroup on IOTC ROS purse data fields appointed by the WGEMS under the umbrella of the WPDCS. The scientific need, reporting requirements, and capabilities to be collected by onboard observers, electronic monitoring (EM), and alternative means (e.g., logbooks, ERS or national vessel registries) of current ROS data fields have been reviewed for large purse seiners operating in the Indian Ocean. We present here the key elements identified by the purse seine subgroup, including (1) data fields for which we suggest modifying the reporting requirement, (2) obsolete or superfluous data fields suggested to be removed, and (4) data fields that cannot be collected using current EM systems, along with the proposed alternative mean to collect them.

Keywords

Regional Observer Scheme | Electronic Monitoring | Purse Seine

Introduction

In compliance with IOTC Resolutions [22/04](#) on a Regional Observer Scheme and [23/08](#) on Electronic Monitoring standards for IOTC fisheries, both onboard and electronic observers should collect data using [IOTC ROS Data Collection Fields](#). In 2023, the WGEMS and the WPDCS identified a need to examine existing ROS data fields to facilitate the development of EM programs and reporting of data collected in the frame of such programs. A need to update ROS data fields, both for onboard and electronic observation programs was also identified.

Here, we summarize the intersessional work of the task group (composed of the authors of this paper) on ROS data fields conducted between February and May 2024, focusing on the specific case of large purse seiners. We based our analysis of ROS data fields for purse seine on existing onboard and EM observation programs implemented on board EU and associated flags purse seiners (EU Data Collection Framework, Spanish Good Practices Program and OCUP). The full analysis is available in the [Appendix Table](#). In this paper, we only detail the key elements identified by the purse seine subgroup including (1) data fields for which we suggest modifying the reporting requirement, (2) obsolete or superfluous data fields to be removed, and (3) data fields that cannot be collected using current EM systems and the proposed alternative mean to collect such information.

1. Reporting requirements to be modified for purse seine

1.1. Mandatory fields proposed to be Optional

Gear specifications and general gear attributes:

- **Power block** and **Purse winch** provide useful information on fishing efficiency but are present on board all modern large purse seiners. A systematic check is therefore not relevant in 2024. We then propose to make them Optional.
- Most data fields in the *PS general gear attributes* provide useful information on fishing efficiency but the design and characteristics of purse seines has been stable for a long time. These data fields are also not used in routine for science purposes anymore. **Maximum length of the net**, **Maximum depth of the net**, **Bag stretched mesh size**, **Mid-net stretched mesh size**, and **Maximum brail capacity** are therefore recommended to be Optional.

Fishing operations:

- **School sighting cues and school types** should be disaggregated into 2 separate fields. **School sighting cues** should become Optional, whereas **School type** can remain Mandatory.
- To calculate the total set duration, **Time skiff onboard** should be preferred to **Time net pursed**. Therefore, **Time net pursed** would become Optional while **Time skiff onboard** would become Mandatory.

Tag details:

- All data fields (**Tag release**, **Tag recovery**, **Tag type**, **Tag number**, **Tag finder**, and **Well**) are proposed to become Optional. This should be aligned with other gears.

1.2. Optional fields proposed to be Mandatory

Fishing operations:

- To calculate the total set duration, **Time skiff onboard** should be preferred to **Time net pursued**. Therefore, **Time net pursued** would become Optional while **Time skiff onboard** would become Mandatory.

Cetaceans and whale sharks' sightings:

- All data fields (**Sighting occurred before setting**, **Species**, **Number sighted**, and **Caught inside the net**) should become Mandatory because they are necessary for science to assess interactions with these sensitive species.

2. Fields to be removed

- **Skiff power** in the *PS gear attributes* section has never been used in any analyses, thus, we propose that it is removed.
- **Beaufort** in the *PS fishing operations* section is obsolete in the sense that weather or sea conditions can now be easily obtained using satellite or modeling data products. It should therefore be removed.
- *PS support vessel details* fields (**Support vessel presence**, **Support vessel name**, and **Support vessel participation**) are obsolete since the practice of using the support vessel to aggregate fish is not standard anymore for large purse seiners. These data fields should therefore be removed.
- *PS details on current* fields (**Current direction**, **Current speed**, and **Current depth**) should not be collected through the ROS and should therefore be removed.

3. ROS fields requiring an alternative mean of collection to EMS

- Most fields in the *PS general gear attributes* (**Maximum length of the net**, **Maximum depth of the net**, **Bag stretched mesh size**, **Mid-net stretched mesh size**, and **Maximum brail capacity**) are not collectable with EMS and would require information from the crew, the fishing company or consultation of other reporting means (e.g., Electronic Reporting Systems).
- In *PS fishing operations*, **School sighting cues**, **School size**, **First Detection method**, **Maximum closing net depth** cannot be collected by EM observers and would therefore require to be alternatively collected by the fishing crew. None of these data fields are however recommended to be Mandatory. Should they be needed for specific projects, specific data collection tools could be put in place.
- In *PS object details*, it is not possible to retrieve the information on the instrumented buoy (**Buoy ID** and **Buoy equipped with artificial lights**) using current EM systems and it would be difficult to assess the structure of Floating Objects (**Artificial FAD design**) depending on the type of interaction (deployment or visit). This is not limited to EM as onboard observers encounter similar issues to collect information on FOB structure and other sources of information, such as the FOB logbook or data collection in FAD building facilities, in case FADs are built on land.

- In the *PS cetaceans and whale sharks' sightings* section, fields such as **Sighting occurred before setting**, **Species**, **Number sighted**, and **Caught inside the net**, cannot be collected using current EM systems except under specific circumstances, for instance when a whale shark can be sighted from the surface while in the net or when maneuvers of the net to release the individuals can be observed. The detection of whales is also very challenging as only the dorsal fin and back, and eventually blow, can be seen if they come to the surface. Such information could be retrieved from logbooks.
- **Weight** in the *PS catch details* section is Mandatory but cannot be estimated measured using current EM systems. In the case of target species, the total weight by species is normally provided by the crew (logbook) or port sampling. For bycatch species (retained or discarded), weight by species is based on length-to-weight conversion where length is visually estimated (EM length measurements would not be precise if not done in calibrated areas).
- For *PS Additional details on non-target species*, the **Condition at capture/release** is difficult to assess using EM systems because of the relatively low rate of frames per second and the fact that individuals can only be observed for a few seconds.
- In the *PS biometric information* section **Sampling methods for the collection of biological information** and **Length 1** are Mandatory but may require further improvement for EM with appropriate calibrated methodology to obtain more robust estimations. Depending on the program, length measurements are obtained using visual estimates (the least precise) or digital measurement tools (which precision depends on the proper calibration). **Maturity stage** and **Biological data sample** are impossible to collect with EMS.
- Fields in *PS tag details* (**Tag release**, **Tag recovery**, **Tag type**, **Tag number**, **Tag finder**, and **Well**) cannot be collected with EM and would require assistance from the fishing crew (data collection, retrieved tags brought back to port, etc.).
- In *PS Daily activity information* (**Date**, **Time**, **Position**, **Activity**, and **Comments**), only fishing sets and operations on objects can be readily monitored using EM systems. Events such as transit or searching can be difficult to monitor using EM systems, especially if no clear pattern can be detected on the trajectory of the vessel. Such information can be alternatively collected on board, either by the onboard observer or by the fishing crew.