

UPDATE ON THE IMPLEMENTATION OF THE IOTC REGIONAL OBSERVER SCHEME

PREPARED BY: IOTC SECRETARIAT¹, 11 NOVEMBER 2019

PURPOSE

To inform the Scientific Committee (SC) of the status of implementation and reporting to the IOTC of the Regional Observer Scheme (ROS) set out in Resolution 11/04 on a Regional Observer Scheme.

BACKGROUND

Fisheries observer data is important for fisheries management, providing detailed, high quality information on fishing activities and catches that is independent of vessel logbooks. In 2009, the Commission adopted Resolution 09/04 on a Regional Observer Scheme, which was superseded in 2010 by Resolution 10/04, and again in 2011 by Resolution 11/04. The main objective of the IOTC Regional Observer Scheme as defined in this Resolution is to ‘collect verified catch data and other scientific data related to the fisheries for tuna and tuna-like species in the IOTC area of competence’.

Resolution 11/04 makes provision for the development and implementation of national observer schemes among the IOTC CPCs starting in July 2010 and covering “at least 5 % of the number of operations/sets for each gear type by the fleet of each CPC while fishing in the IOTC Area of competence of 24 meters overall length and over, and under 24 meters if they fish outside their EEZs shall be covered by this observer scheme. For vessels under 24 meters if they fish outside their EEZ, the above mentioned coverage should be achieved progressively by January 2013”.

The Resolution also states that “the number of the artisanal fishing vessels landings shall also be monitored at the landing place by field samplers” and that “the indicative level of the coverage of the artisanal fishing vessels should progressively increase towards 5% of the total levels of vessel activity (i.e. total number of vessel trips or total number of vessels active)”. There are currently no established guidelines for the collection of data from artisanal vessels fishing within their national EEZ.

A number of national observer programmes have now been established for industrial fleets across the Indian Ocean and these are used to collect scientific fisheries data by onboard observers, according to specific research requirements specified by each of the coordinating organisations. Data are collected and reported at the regional level to the IOTC Secretariat as part of the mandate of the ROS and are summarised in this paper.

UPDATE ON THE CURRENT STATUS OF IMPLEMENTATION AND REPORTING

IMPLEMENTATION OF THE OBSERVER SCHEME

As of 15th November 2019, sixteen CPCs (Australia, China (including Taiwan,China), Comoros, EU (France², Portugal, Spain and the UK), Indonesia, Japan, Kenya, Rep. of Korea, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, South Africa, Sri Lanka and Thailand) have submitted a list of observers and have been allocated an IOTC observer registration number. A total of **403 observers** are currently registered as active.

At the same date, a total of **1431 trips** have been reported to the IOTC Secretariat by Australia, China (including Taiwan,China), EU(France, Italy, Portugal, Spain and the UK), France OT, Indonesia, Japan, Kenya, Rep. of Korea, Madagascar, the Maldives, Mauritius, Mozambique, Seychelles, South Africa, Sri Lanka and Tanzania.

¹ IOTC-Secretariat@fao.org

² Including Mayotte due to its status as a French outermost region since January 2014

Appendix A provides a summary of the status of implementation of the ROS by all IOTC CPCs. Appendix B and Appendix C provide an estimation of the level of effort covered by observers between 2010 and 2018 for industrial longline and purse seine vessels (data updated as of 15th November 2019). Reported scientific observer coverage for the artisanal fleets is currently zero.

REPORTING IN ELECTRONIC FORMAT

At the SC20 in 2017, there was a recommendation for all observer data to be submitted in electronic format:

*(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".*

An increasing number of CPCs are now submitting data electronically, including Australia, EU, France, EU, Spain, EU, UK, China (partial), Indonesia, Japan, Kenya, Maldives, Mozambique, Mauritius (partial) and Sri Lanka (Appendix A).

OUTCOMES OF SC21 RELEVANT TO THE ROS

The SC NOTED paper IOTC-2018-SC21-07 which provided an update on the status of implementation and reporting to the IOTC Secretariat set out by Resolution 11/04 On a Regional Observer Scheme (ROS).

The SC THANKED the IOTC Secretariat and all contributors to the ROS project for the excellent progress made so far, and noted that it was looking forward to seeing the results of the initial stages of implementation.

The SC RECALLED the issue with potential double accounting of catches taken under joint venture agreements by Japan in South African fisheries. Although Japan and South Africa consider no double counting is occurring, they agreed to work with the IOTC Secretariat to resolve this issue.

The SC RECALLED that Australia has a purse seine fishery for Southern Bluefin Tuna and that catches for this fishery are reported to IOTC. However, observer data are submitted to CCSBT and not IOTC. Australia noted that its observer coverage meets the requirement of 20% for this fishery.

The SC NOTED that as of 16th November 2018, fifteen CPCs (Australia, China (including Taiwan, China), Comoros, EU (France³, Portugal, Spain and the UK), Indonesia, Japan, Kenya, Rep. of Korea, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, South Africa and Thailand) have submitted a list of observers and have been allocated an IOTC observer registration number. A total of 375 observers are currently registered as active.

The SC NOTED that as of 16th November 2018, a total of 1374 trips have been reported to the IOTC Secretariat by Australia, China (including Taiwan, China), EU (France, Italy, Portugal, Spain and the UK), France OT, Indonesia, Japan, Kenya, Rep. of Korea, Madagascar, the Maldives, Mauritius, Mozambique, Seychelles, South Africa, Sri Lanka and Tanzania.

The SC NOTED that it was particularly interested in the results of the EMS trials for coastal gillnet fisheries (to be trialled for 2-3 Sri Lankan vessels) which is expected to begin in January 2019.

The SC RECOMMENDED that the ROS Minimum Standard Data Fields in [Appendix 6a](#) are adopted by the Commission.

The SC noted that there is a lack of data for small-scale fisheries that are currently unable to deploy human observers and other means of data collection are required. The SC REQUESTED the WPDCS to continue to evaluate the validity of alternative data collection tools to onboard human observers (such as the use of crew as observers (i.e. self-sampling), electronic monitoring (e.g. cameras) and port sampling), and combinations of these, as potential alternatives to onboard human observer coverage for the collection of the minimum standard data fields for small-scale fisheries.

The SC ACKNOWLEDGED that the results of the ROS should inform this evaluation.

³ Including Mayotte due to its status as a French outermost region since January 2014

OUTCOMES OF S23 RELEVANT TO THE ROS

The Commission NOTED document IOTC-2019-S23-10_Rev1 containing draft standards for an IOTC Regional Observer Scheme.

The Commission NOTED that several CPCs had provided the Secretariat with comments which were used to develop a revised document, although some CPCs expressed their concern that not all their comments had been taken into consideration.

The Commission RECOGNISED the need to have standards for the IOTC observer scheme, but that the standards for similar schemes being implemented by other tuna RFMOs should also be acceptable to IOTC. The Commission AGREED that the standards required for vessels operating under the Western Central Pacific Fisheries Commission (WCPFC) Regional Observer Programme meet IOTC standards, and therefore those CPCs whose observer programs have been already accredited by WCPFC are exempted from the application of the IOTC standards.

The Commission ENDORSED the IOTC Regional Observer Scheme (ROS) standards in principle in order for the Secretariat to implement the ROS, on the understanding that further comments can be made, and that the standards will be reviewed based on these comments and other feedback made during the implementation phase.

The Commission acknowledged that there was no consensus regarding key elements of proposal IOTC-2019-S23-PropK *On a Regional Observer Scheme*, such as the level of observer coverage. However, there was support for other aspects of the proposal, particularly electronic monitoring, and the proponents were encouraged to continue discussing and revising the text for future presentation to the Commission.

A PILOT PROJECT FOR THE ROS

BACKGROUND

Since its origination in 2009, national implementation of the IOTC Regional Observer Scheme remains low among IOTC CPCs. Where observer programmes have been established, these are wide ranging and highly variable in the type and quality of information collected and the reporting of data to IOTC standards remains poor. In recognition of these issues and in a positive step towards addressing the problems and seeking solutions, the IOTC adopted Resolution 16/04 *On the implementation of a pilot project in view of promoting the Regional Observer Scheme of IOTC*⁴ and following this a pilot project has been developed⁵.

The key issues identified, and the workstreams that have been developed to address these, are provided below in Figure 1.

⁴ <http://www.iotc.org/cmm/resolution-1604-implementation-pilot-project-view-promoting-regional-observer-scheme-iotc>

⁵ IOTC-2017-S21-10: <http://www.iotc.org/documents/pilot-project-iotc-regional-observer-scheme-1>

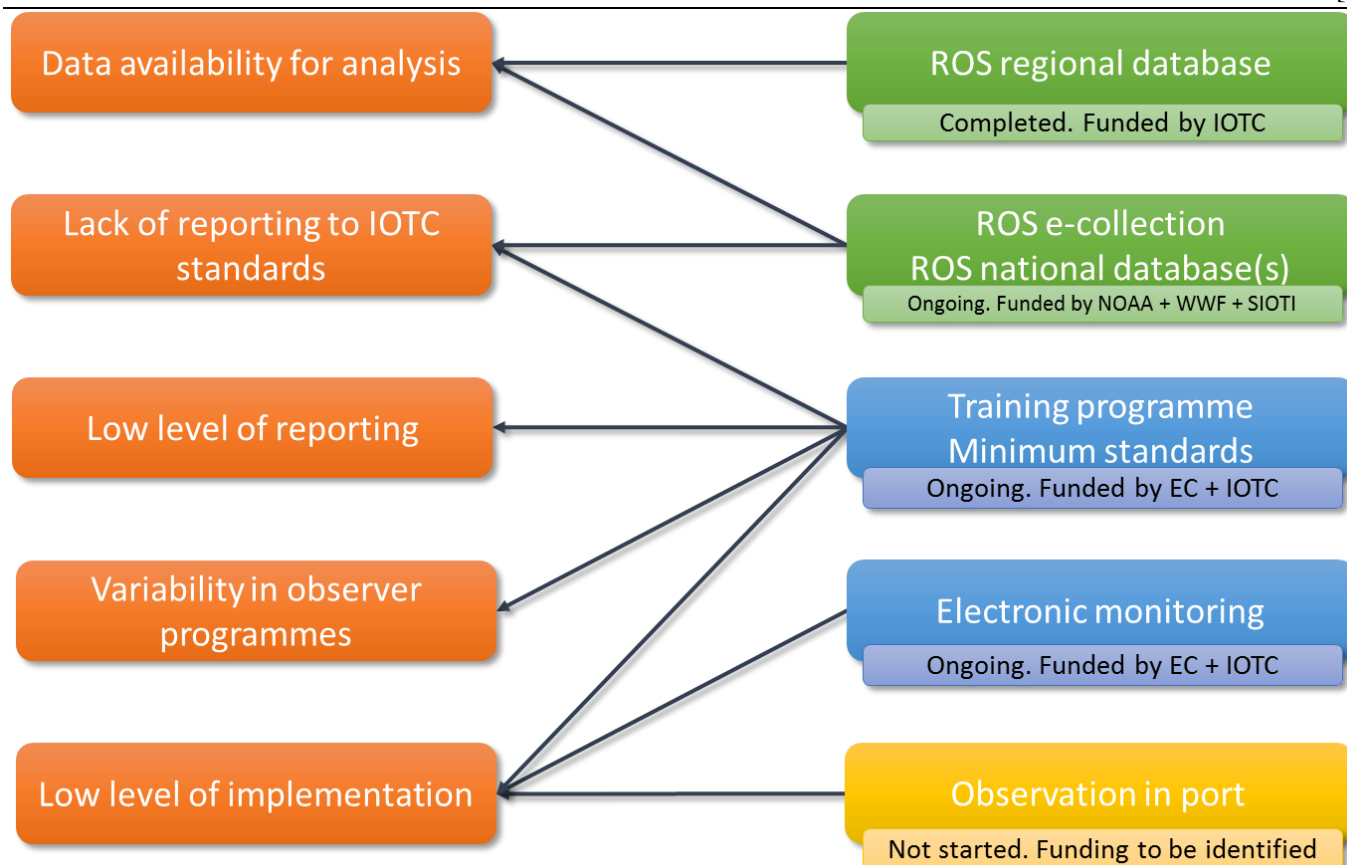


Figure 1. Key issues and workstreams developed to address these under the Pilot Project

REGIONAL OBSERVER DATABASE

Background and current status

The ROS electronic tool for data collection and management (*ROS e-collection tool*, see above) mainly serves as an instrument to support data collection in the field: all captured information has to be submitted to a national focal point that will incorporate observer data within the *ROS national database* (also supplied as a standalone and multi-platform application). The main goal of the ROS national database – besides establishing a central repository for national observer data – is also to submit information to the *ROS regional database*, hosted by the IOTC Secretariat, which is expected to contain only data currently identified as mandatory for reporting and disseminate such information to the public in agreement with the confidentiality requirements set forth by Resolution 12/02.

Following the revision and rationalization of the minimum data collection and reporting fields endorsed by the WPDCS14 and SC21 in 2018, all three components (ROS e-collection, ROS national database and ROS regional database) have been updated to include the revised requirements, with the first two now undergoing a final testing phase before being publicly released.

The Regional Database is now integrated with the IOTC statistical systems and includes a collation of all ROS data that have been submitted so far in a convenient (from a data extraction perspective) electronic format, including – but not limited to – the information entered through the various version of the ROS e-collection interface.

Currently, it holds observer data reported by a number of fleets during different time periods, for a total of 16373 sets recorded during 1053 trips completed between 2005 and 2018. The processed information consists of trip reports provided in the ICCAT ST09 format (for both European longliners / purse seiners and Seychellois purse seiners), Japanese trip reports in a custom electronic format, ROS trip reports entered through the ROS e-tools and various purse seiners trip reports (for Rep. of Korea, Mauritius and Seychelles) originally provided as Word / PDF documents

and digitized with the support of a consultant funded by SIOTI⁶. A breakdown of observer data that has been entered into the ROS regional database so far is provided in Table 1 (data as of 15th November 2019).

Table 1. Status of IOTC ROS data submissions and content of the ROS regional database as of 15th November 2019

Flag		Gear	Total trips		Total sets in the Regional database	Format of remaining submissions
			Reported	Regional DB		
AUS		LL	51			IOTC ad interim format (.pdf & .doc) and non-standard format (.xls, including EMS data)
CHN		LL	19			IOTC ad interim format (.doc) & non-standard format (.xls)
TWN,CHN		LL	123			IOTC ad interim format (.pdf)
EU	PRT	LL	8			IOTC ad interim format (.pdf, .xls)
	ESP	PS	56	16	545	IOTC ad interim format (.pdf, handwritten)
		LL	6			IOTC ad interim and non-standard report format (.doc)
	ITA	PS	20			Non-standard report format (.pdf)
	FRA	LL	570	537	3106	Non-standard report format (.pdf)
		PS	387	309	6649	IOTC ad interim format (.pdf)
	GBR	LL	2			IOTC ad interim format (.xls)
FRAT		PS	23	9	203	IOTC ad interim format (.pdf)
IDN		LL	11			IOTC ad interim format (.xls)
		PS	1			IOTC ad interim format (.xls)
JPN		LL	70	51	2804	Non-standard format (.xls)
KEN		LL	1			Non-standard format (.xls)
KOR		LL	13			IOTC ad interim format (.doc)
		PS	16	6	169	IOTC ad interim format (.doc)
MDG		LL	17			SWIOFP (handwritten) and IOTC ad interim format (.doc)
		PS	5			Letters (.pdf)
MDV		PL	3			IOTC ad interim format (.xls)
MUS		LL	4			IOTC ad interim format (.doc)
		PS	18	17	184	IOTC preliminary format (.doc) & non-standard format (.xls)
MOZ		LL	13			Non-standard format (.xls)
SYC		PS	182	106	2658	IOTC ad interim format (.pdf)
ZAF		LL	74			IOTC ad interim format (.doc & .pdf)
LKA		LL	7	2	55	IOTC ad interim format (handwritten, .pdf)
		PS	1			IOTC ad interim format (handwritten, .pdf)
TZA		LL	1			IOTC ad interim format (.doc)
TOT.			1702	1053	16373	

While 62% of trips submitted have now been included in the ROS regional database, the remaining information has been provided in formats for which data extraction is more difficult (e.g., custom text reports not in an official IOTC language, handwritten or letter formats) or contains less information than required, so incorporating these data in the

⁶ The Sustainable Indian Ocean Tuna Initiative (SIOTI) has been jointly established by key governments in the region, major tuna processors, producer organisations and their fishing vessels, with the support of WWF. This Fisheries Improvement Project is a multi-stakeholder effort, and its goal is to support improvement in the management of tuna fisheries in the Indian Ocean so that in the future, consumers can be assured that the purse-seine tuna they purchase has been harvested sustainably.

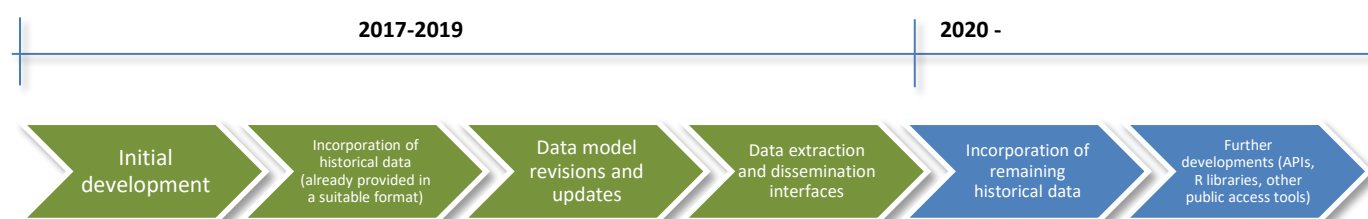
Regional Database will take increasingly more resources while yielding a lower return in terms of the quantity and quality of information obtained.

Plans and schedule

As the number of CPCs adopting the ROS electronic tools increases, the ROS regional database will be updated with closer to real time frequency.

In fact, the information collected through the ROS e-collection tool is managed at national level through a dedicated instance of the ROS national database: this, in turn, supports automated transfer of all data fields⁷ to the ROS regional database thus increasing both the level of compliance and the technical capacity of involved CPCs.

Furthermore, with the goal of incorporating as much historical information as possible and account for comprehensive and seamless data exchange between CPCs and the ROS regional database, the ROS e-tools have been updated to the latest version of the data field specifications and are in the process of being extended with the addition of facilities to allow the import of observer data collected through well-established data collection platforms such as *ObServe* and the *SWIOFP* database: these tasks were initially implemented with the support of an external consultant whose work completed in May 2019 and is expected to resume pending the identification of additional funding sources.



ELECTRONIC DATA COLLECTION AND MANAGEMENT TOOLS

Background and current status

To facilitate reporting of ROS data to IOTC, as well as their management at national level, two new electronic tools have been designed and implemented to complement the ROS regional database: the full suite of ROS tools has been developed through funding from NOAA, WWF-USA, SIOTI and IOTC, and was initially described in document IOTC-2017-WPDCS13-25 Rev_1⁸.

The *ROS electronic data collection interface* is a multi-platform, offline tool providing a user-friendly graphical interface to support observers in recording the full list of gear-dependent data fields (both for collection and reporting purposes) as dictated by the ROS data fields specification. Once finalised, all scientific data collected for a trip can be exported and shared with the national focal point(s) based within the national fisheries institution(s) for each vessel flag country.

The *ROS national database* has been specifically developed for CPCs to collate and manage scientific observer data on a per-trip basis, as these are made available through the ROS data collection interface.

Eventually, all information collated at national level (and marked as “*for reporting purposes*”) can be immediately submitted from the ROS national database to the ROS regional database hosted in IOTC.

The tools have been initially developed on the basis of the requirements detailed in the IOTC Regional Observer Scheme manual⁹, and eventually updated to incorporate the changes in data field specifications recommended by the ROS Expert Consultation Workshop held in September 2018 (and endorsed by the WPDCS and SC in 2018).

⁷ i.e. the data fields marked as *mandatory or optional for reporting* (see the final ROS data fields specification)

⁸ <http://www.iotc.org/documents/data-collection-and-management-tools-support-regional-observer-scheme-pilot-project>

⁹ www.iotc.org/sites/default/files/documents/science/IOTC-2015-ROS_11_04_Observer_Manual_v1.2.pdf.

In terms of both data collection and reporting requirements, they cover the needs of all four main fisheries (Longline, Gillnet, Pole-and-Line and Purse Seine) and specifically support the work of observers onboard fishing vessels of 24m LOA and over, or fishing in the high seas.

Both tools have been finalized and are undergoing end-user testing and validation, in particular for what concerns the implementation of all business requirements emerging from the new data field definitions.

Furthermore, the ROS electronic tools include direct communication mechanisms to retrieve vessel information from the IOTC RAV (*“Record of Authorised Vessels”*) as well with the main IOTC database, to guarantee proper synchronisation of all required reference data when network connectivity is available.

To properly access the ROS e-collection interface, national observers have to be accredited to the IOTC and should have received their own set of username / password credentials. Similarly, national focal points that need to access the ROS national database should also request their own credentials to the IOTC Secretariat.

These requirements are highlighting once more the need for CPCs to ensure that their list of national ROS observers and focal points is maintained as up-to-date as possible, and that any change is promptly communicated to the IOTC Secretariat, which is currently in the process of developing a new protocol for observers and national focal points accreditation.

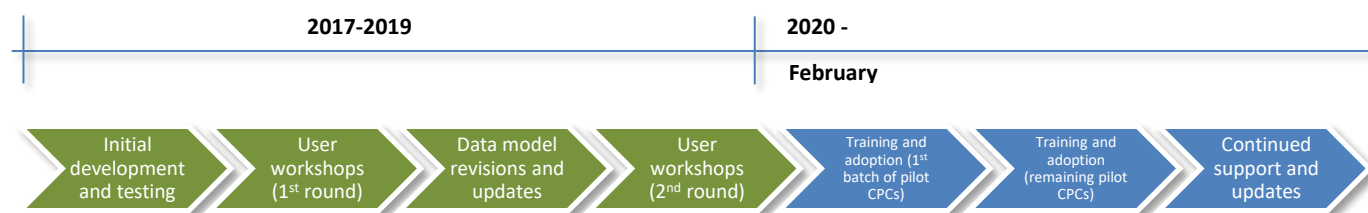
Several training workshops have been delivered since 2017 to Sri Lanka, Indonesia and Mauritius, who have all agreed to begin piloting the software and share future ROS data submission with the IOTC Secretariat using the new electronic tools.

Plans and schedule

Following the outcomes of the 2018 Scientific Committee in terms of finalisation of new data fields specifications under the ROS pilot project *“Standards”* component (see below) the ROS electronic tools have been updated accordingly to reflect the final, agreed data collection and reporting requirements.

Additional training sessions were planned and delivered in 2019 for Sri Lanka and Mauritius, and the user feedback gathered during these sessions was effectively adopted to improve the ROS electronic tools and increase their usability.

With the ongoing implementation of the ROS training programme (Q4 2019 and following, see below in this same document) the ROS electronic tools will be used as the platform of choice for data collection and reporting by the six pilot countries, as well as by any other country that considered their adoption as a possible replacement for the existing scientific observer data workflows currently in place.



STANDARDS

Background and current status

A vast array of observer initiatives, with different training curricula, data collection methods and procedures have been developed across the Indian Ocean by a range of organisations implementing CPC national programmes, both prior to and since the implementation of Resolution 11/04 *On a regional observer scheme*. As a result, an assortment of data of varying quality is being collected and reported to the IOTC Secretariat, with many inconsistencies and gaps, and an overall lack of standardisation in the procedures employed by national observer schemes and of conformity with IOTC mandatory data requirements.

The issues associated with this variety of standards, programmes and lack of coordination have already been identified in some areas such as the southwest Indian Ocean region and resulted in increasing number of requests being addressed to the IOTC Secretariat for clarification of standards and for formal accreditation or recognition that

national or sub-regional programmes are adhering to IOTC standards. However, no formal mechanism was in place through which to do this or a concrete and auditable set of standards against which programmes could be assessed.

Preliminary standards were adopted for the ROS on its establishment in 2011 where “*minimum data requirements were adopted as well as an observer report template...*” on the premise that these would be “*...reviewed and revised as necessary*”¹⁰. The data fields were reviewed and revised in 2015 by the WPEB, WPDCS and approved by the SC as interim reporting standards¹¹. These *ad-interim* data collection and reporting requirements have now been in place for trial and review for a number of years and so, as part of the Regional Observer Scheme Pilot Project, the Commission has agreed to a workstream to finalise the standards.

Funds were obtained from EC grant GCP/INT/305/EC¹² and a project contract developed for a consultant to comprehensively review the *ad-interim* data collection and reporting requirements.

An expert workshop to review the standards was organised and held in Seychelles from 24-28 September 2018: a range of expertise were sought to support the workshop, ranging from observer programme practitioners with experience in the logistical aspects of running observer programmes, observers with substantial onboard experience, data managers familiar with handling fine scale observer data and IOTC scientists.

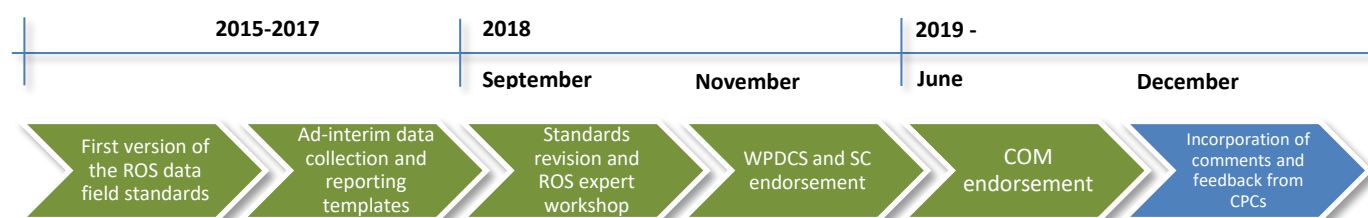
The workshop functioned predominantly as four separate break-out groups for each major gear type (gillnet, pole and line, longline and purse seine), with a fifth group also established to review standards for the overall observer scheme by which national programmes could attain an IOTC accreditation or recognition.

The outcomes of the workshop were provided in detail as papers IOTC-2018-WPDCS14-35 (proposed overall standards for the ROS and suggested revisions to reporting requirements) and IOTC-2018-WPDCS14-INF03 (proposed revisions to data collection fields), with all proposed amendments documented with accompanying justification and rationale as reference.

The final report from the expert review workshop was presented for review to the WPDCS in November 2018, and recommendations from the working party were put forward for consideration by the SC21, that in turn recommended that the ROS Minimum Standard Data Fields be adopted by the Commission.

Plans and schedule

The Commission, at its 23rd Session in June 2019, endorsed the IOTC Regional Observer Scheme standards in principle, in order for the Secretariat to implement the ROS and “*on the understanding that further comments can be made, and that the standards will be reviewed based on these comments and other feedback made during the implementation phase*”.



¹⁰ IOTC-2011-S15-R

¹¹ “**NOTING** that improving the quality of data submissions is a process that evolves and develops over time, the SC **ADOPTED** the revised observer templates as interim reporting templates for immediate use by CPCs where ready and for preliminary use by CPCs where further time is required for review. The SC **AGREED** that the IOTC Secretariat will make these templates available in 2015 and update the guidance in the manual accordingly. Following implementation in interim format, the SC **AGREED** that these will be reviewed and modified further as appropriate in 2015” IOTC-2014-SC17-R

¹² This grant from the EC is also funding a number of other activities to support the work of the IOTC Scientific Committee

TRAINING PROGRAMME

Background and current status

This project component aims to develop and implement a comprehensive and effective training programme to support the implementation of the IOTC Regional Observer Scheme. This will be achieved by addressing the major issues associated with the variability of observer programmes by providing the information, sets of tools and materials required to support CPCs establishing their national schemes.

The specific objective is to improve the capacity (knowledge, understanding, tools, skills, systems and good practices) of individual observers and national bodies to implement the Regional Observer Scheme and collect information as required by the IOTC. These national bodies may comprise fisheries ministries, research institutes or any other entity designated to run the national scientific observer programme, noting that the objectives are not to monitor compliance. This will be achieved by the development of an observer training programme and the implementation of this training and support in six selected IOTC CPCs. These have been provisionally identified as (Sri Lanka, Tanzania, I.R. Iran, Indonesia, Mauritius and Pakistan). These countries were identified based on the following criteria, including:

- Contribution to the total catches of the IOTC species and bycatch (e.g. sharks). Collectively the six countries account for over 40% of the total catches of the 16 main IOTC species.
- Importance of gillnet fisheries in each of the target countries.
- The current status of the implementation of the IOTC Regional Observer Scheme (i.e. whether the country has been assessed as either non-compliant or partially compliant in terms IOTC Resolution 11/04 On a Regional Observer Scheme).
- The level of engagement with the IOTC and Secretariat. CPCs that are in the preliminary stages of implementing observer schemes or that have requested support from the IOTC Secretariat and have shown willingness to support the project with in-kind contributions have been prioritised in order to maximise project impacts.

The project will provide intensive and sustained support to these countries to establish their national scientific observer programmes by training observer managers and trainers; establishing a dedicated observer database; strengthening data management, quality control and reporting procedures; and directly supporting observer training. Follow-up support will also be provided to trouble-shoot issues and overcome any problems identified. The project will endeavour to ensure that the programmes will continue beyond the project lifetime and the IOTC Executive Secretary is in the process of securing high level commitment for the support of this project in each country.

A grant from the EC was secured (GCP/INT/322/EC) and a tender document drafted and reviewed by the Steering Committee and FAO: a call for tenders was advertised in early 2019 and eventually awarded to CapMarine Ltd. This is based on the finalised standards and includes training materials for observers as well as observer coordinators.

Plans and schedule

The training programme, based on newly developed tools and materials, will be implemented in six countries: Tanzania, Kenya, Indonesia, Sri Lanka, Malaysia and Mozambique, with two rounds of site visits (starting from August 2019) expected for each pilot country.



ELECTRONIC MONITORING

Background and current status

This activity aims to improve the quality of data collection and coverage of fisheries where there are practical difficulties placing observers on-board vessels (e.g., due to safety issues, lack of space, logistics, etc.), particularly in the case of the smaller-scale fisheries under 24m LOA which operate on the high seas and are therefore required to have observer coverage under Resolution 11/04.

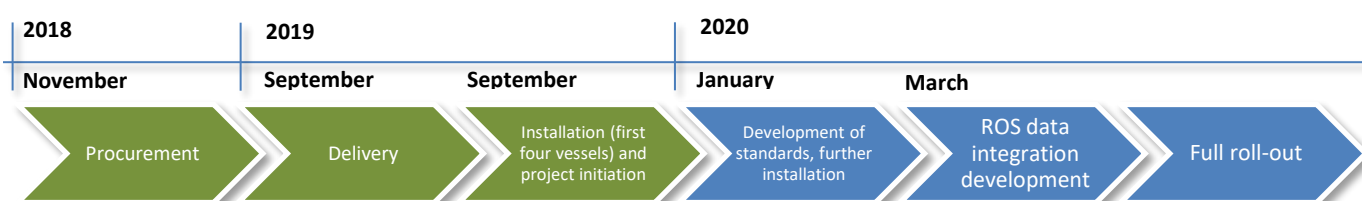
During 2017 the IOTC Secretariat conducted field visits to Pakistan, Sri Lanka, and I.R. Iran to assess the logistical practicalities of implementing electronic monitoring systems (EMS) on-board small-scale longline and gillnet vessels. Sri Lanka was eventually selected for the feasibility study and a proposal was developed, in collaboration with the Sri Lanka Department of Fisheries and Aquatic Resources (DFAR) to trial EMS on-board 6 coastal longline and gillnet vessels (between 15m – 24 m LOA). Funds have been confirmed, and the IOTC Secretariat has now finalised procurement of the EMS equipment through an EC grant (GCP/INT/305/EC). Formal commencement of the feasibility study was scheduled to start in early-2019 but had to be postponed to Q3 2019 due to the unstable socio-political situation in the country. The study eventually re-started in September 2019, with the results of the data captured by EMS to be analysed by Sri Lanka with the support of the IOTC Secretariat. In addition, an independent evaluation (i.e., by the EMS provider selected for the study) will also be conducted for quality assurance purposes.

Other counties targeted by the ROS pilot project are also being indirectly supported by the IOTC Secretariat in terms of electronic monitoring – notably Pakistan which is collaborating with the FAO ABNJ¹³ Project in developing a similar EMS project for gillnetters, with advice and guidance from the IOTC. In the case of I.R. Iran, constraints regarding the feasibility of importing equipment and the preference of the IFO means that improvements in ROS coverage need to be investigated through alternative means (i.e. human on-board coverage and port sampling).

Plans and schedule

Delivery and installation of the EMS equipment (originally planned for the last quarter of 2018) was finalized in September 2019 for four out of six vessels. Next steps of the work stream involve:

- Formal piloting of the EMS from Q3-2019 onwards, including monitoring and processing the results of the EMS data capture;
- Development of common standards for installation of EMS equipment on-board small-scale vessels (e.g., minimum number of cameras, camera positioning, on-board sensors, wheel-house equipment set-up, etc.);
- Development of minimum data fields to be collected by EMS (as initially reviewed for longline fleets in paper IOTC-2018-WPDCS14-20);
- Development of an integration mechanism to produce ROS-compliant EMS-based observer reports for submission to the IOTC Secretariat.



¹³ Areas Beyond National Jurisdiction (<http://www.fao.org/in-action/commonoceans/en/>).

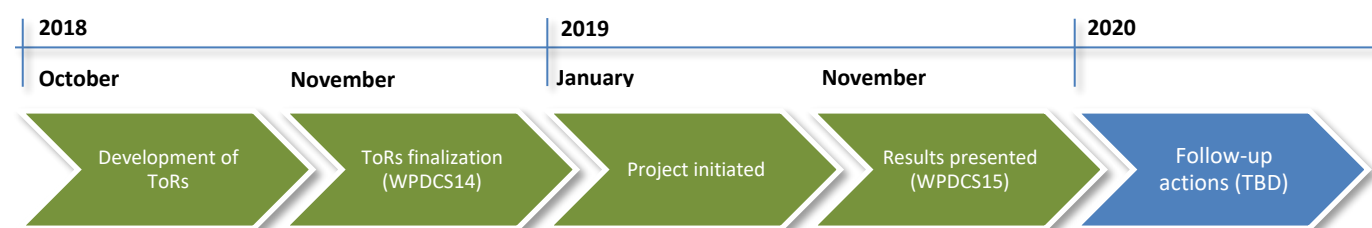
PORT SAMPLING

Background and current status

While provision has been made for artisanal fisheries in Resolution 11/04 (“*The number of the artisanal fishing vessels landings shall also be monitored at the landing place by field samplers. The indicative level of the coverage of the artisanal fishing vessels should progressively increase towards 5% of the total levels of vessel activity (i.e. total number of vessel trips or total number of vessels active).*”) there has currently been no guidance on this aspect of the ROS to-date. Support for data collection from artisanal fisheries was ranked as a high priority activity in the Programme of Work developed by the WPDCS in 2017 and 2018, specifically for assistance in the implementation of sampling activities with priority countries identified.

Funds have been identified from FAO for a scoping study to take place to review the current situation of port sampling of the coastal artisanal fisheries of the Indian Ocean, with terms of reference for the study drafted for discussion and further development by WPDCS14 (2018). The study was undertaken by an external service provider (MRAG Ltd.) with results presented at the WPDCS15 (IOTC-2019-WPDCS15-INF02).

Plans and schedule



ROS STEERING COMMITTEE

Following calls by the Scientific Committee and Commission for nominations for the ROS Pilot Project Steering Committee, a group of global experts and IOTC representatives has been established¹⁴. This Committee provides higher level oversight and direction to enable efficient progress and continuation of project activities during the intersessional periods. It is involved in the development of core project activities, particularly at the initiation stage, by providing guidance on project workstreams as they are developed (e.g. new consultancies, workshop agendas and major areas of work). It reviews progress reports prepared by the Secretariat and provides guidance on all areas of activity, including any modifications/additions that may be required to progress an area of work further to improve the overall project success. To save resources and maximise efficiency, the Committee is currently taking the format of a predominantly remote-based board who meet electronically with the occasional ad hoc meeting in the margins of the major IOTC meetings.

APPENDICES

Appendix A: [Update on the implementation of the IOTC regional observer scheme](#)

Appendix B: [Estimated observer coverage for longline vessels](#)

Appendix C: [Estimated observer coverage for purse seine vessels](#)

¹⁴ Hilario Murua, Scientific Committee Chairperson; Kotaro Yokawa, National Research Institute of Far Seas Fisheries, Japan; Reza Shahifar, Iranian Fisheries Organisation; Franco Biagi, European Commission, Directorate General for Maritime Affairs and Fisheries (DG-MARE); Mauree Daroomalingum, SWIOFC/IO; Claire Van Der Geest, Common Oceans ABNJ Project; Paul DeBruyn, IOTC Science Manager

Appendix A

Update on the implementation of the IOTC Regional Observer Scheme

CPCs		Vessels on active list (2018)					Accredited observers		Number of observer reports provided																			
		LL	PS	GN	BB	Tot	Number	Last update	2010		2011		2012		2013		2014		2015		2016		2017		2018		Totals	
									O	E	O	E	O	E	O	E	O	E	O	E	O	E	O	E	O	E		
MEMBERS																												
Australia		3	8			11	21		2		1		3				2	4		11		28						51
China	CHN	85				85	5	2019-07	1				1		1		2		1		4		4		5			19
	TWN, CHN	286				286	54						1		19		18		26		18		20		21			123
Comoros						0	7		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A			N/A
Eritrea		No information received																										0
European Union	FRA	18	12			30	64		6		10	45	16	92	10	92	23	116	24	135		111		121		110	911	
	ITA					0			N/A		N/A		N/A		N/A		N/A	6		4				10			20	
	PRT	5				5	5				1		1		1		1		1		1		1		1		8	
	ESP	14	14			28	9							1		2			24		15	17		3			62	
	GBR	2				2	3	2019-09															2				2	
France (OT)						0	N/A	N/A			9		7		7		N/A		N/A		N/A		N/A		N/A			23
Guinea						0	N/A	N/A	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A			N/A
India		4				4																					0	
Indonesia		257	64			321	9										5				7						12	
Iran, Isl. Rep. of			5	1215		1220																					0	
Japan		46	2			48	19			8		11		10		6		14		12		9						70
Kenya		3				3	5				N/A		N/A		N/A		N/A		N/A		1							1
Korea, Rep. of		12	2			14	40		2				2		3		3		4		11		4					29
Madagascar		5				5	7						5		7		7		5									24
Malaysia		19				19																						0

Appendix A (continued)

CPCs	Vessels on active list (2018)					Accredited observers		Number of observer reports provided																		Totals
	LL	PS	GN	BB	Tot	Number	Last update	2010		2011		2012		2013		2014		2015		2016		2017		2018		
								O	E	O	E	O	E	O	E	O	E	O	E	O	E	O	E	O	E	
MEMBERS																										
Maldives	33			358	391	4																1		2		3
Mauritius	8	2			10	6	2019-04										5		8		4		9			26
Mozambique	2				2	0					1		N/A					7		3		2				13
Oman					0																			N/A		0
Pakistan					0																					0
Philippines					0													N/A		N/A		N/A		N/A		0
Seychelles	71	13			84	78									6		47		23	39	3	64				182
Sierra Leone	No information received																									0
Somalia	No information received																									0
South Africa	20			4	24	33	2019-08			12		10		13		10		16		5		8				74
Sri Lanka	30		1306		1336	23									2		2		2					2		8
Sudan	No information received																									0
Tanzania, United Rep.of					0														1		N/A		N/A		1	
Thailand					0	12	2019-11																	N/A		0
United Kingdom (OT)					0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Yemen	No information received																									0
COOPERATING NON-CONTRACTING PARTIES																										
Bangladesh					0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Liberia					0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Senegal					0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
																										1662

Year = year in which the observed trip began

Type of observer report = E: Electronic, O: Other

Reports from Madagascar include observers onboard foreign vessels

Reports received from EU,ITA but no active vessel was officially reported for 2018

Appendix B

Estimated observer coverage for longline vessels

MEMBERS	Total effort (no.hooks)							Observed effort (no. hooks)							Coverage rate							Average (last 5 years)	
	2012	2013	2014	2015	2016	2017	2018	2012	2013	2014	2015	2016	2017	2018	2012	2013	2014	2015	2016	2017	2018	Effort	Coverage
Australia****	672,398	609,995	449,387	430,015	429,288	532,396	411,101	89,490		41,581	28,729	49,875	62,126		13.31%	0.00%	9.25%	6.68%	11.62%	11.67%	0.00%	450,437	7.84%
China	11,295,050	23,439,470	19,212,540	26,616,190	24,107,147	33,070,839	32,987,773	185,742	216,640	178,413	105,201	1,184,578	1,584,934	1,681,983	1.64%	0.92%	0.93%	0.40%	4.91%	4.79%	5.10%	27,198,898	3.23%
–Taiwan,China	170,633,711	195,560,569	185,485,353	167,958,929	205,030,919	206,346,121	190,779,972	121,675	4,344,678	4,004,870	3,650,886	3,461,035	6,412,309	4,240,736	0.07%	2.22%	2.16%	2.17%	1.69%	3.11%	2.22%	191,120,259	2.27%
Comoros																						---	---
Eritrea																						---	---
EU - France	3,367,941	4,042,077	3,573,448	3,533,544	3,710,089	3,067,200	3,321,759	630,313	619,619	516,645	519,661	566,024	534,686	369,011	18.72%	15.33%	14.46%	14.71%	15.26%	17.43%	11.11%	3,441,208	14.59%
EU - Portugal***	685,206	1,558,000	1,496,715	1,398,400	1,673,150	1,624,100	895,800	73,685	127,580	90,894	156,536	152,385	128,201	138,245	10.75%	8.19%	6.07%	11.19%	9.11%	7.89%	15.43%	1,417,633	9.94%
EU - Spain	4,673,785	6,262,822	6,107,814	4,508,559	4,427,429	3,579,479	2,821,579			224,900			401,116	137,877	0.00%	0.00%	3.68%	0.00%	0.00%	11.21%	4.89%	4,288,972	3.95%
EU - UK	71,400	55,000	84,700	388,300	271,700	500,300	512,000						38,688		0.00%	0.00%	0.00%	0.00%	0.00%	7.73%	0.00%	351,400	1.55%
France(OT)	120,000	120,000													0.00%	0.00%						---	---
Guinea																						---	---
India	63,791,723	66,716,403	60,553,908	17,558,762	24,363,545	25,744,139	42,168,908								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	34,077,852	0.00%
Indonesia	186,264,730	150,798,219	95,497,053	100,472,150	50,792,198	47,765,407	45,866,549			195,780		808,600	228,970		0.00%	0.00%	0.21%	0.00%	1.59%	0.48%	0.00%	68,078,671	0.46%
Iran, Isl. Rep. of																						---	---
Japan*	31,460,928	29,125,098	31,780,765	28,954,672	27,038,829	23,344,427	22,158,326	1,487,299	1,387,765	2,773,266	1,528,028	1,548,100			Pending							26,655,404	---
Kenya												67,240										---	---
Korea, Rep. of	4,289,655	5,428,935	5,998,722	7,364,599	5,862,099	6,462,887	6,052,850	282,656	546,927	213,225	313,662	377,864	251,355		6.59%	10.07%	3.55%	4.26%	6.45%	3.89%	0.00%	6,348,231	3.63%
Madagascar**	348,653	326,494	355,138	357,897	330,541	178,890	141,917	21,582	62,400		0				6.19%	19.11%	0.00%	0.00%	0.00%	0.00%	0.00%	272,877	0.00%
Malaysia	4,008,683	4,220,794	3,588,653	5,017,243	6,232,414	8,852,314	10,147,579								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6,767,641	0.00%
Maldives		3,054,590	3,040,716	678,824	2,254,552	1,106,976	609,598									0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1,538,133	0.00%
Mauritius	182,300	150,560	105,120	195,850	763,618	1,653,981	1,445,477								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	832,809	0.00%
Mozambique	383,323		7,177	267,387	230,296	265,808	202,281	1,100			42,715	0	24,354		0.29%		0.00%	15.97%	0.00%	9.16%	0.00%	194,590	5.03%
Oman, Sultanate of	6,366,785	2,608,008	1,465,331	552,649	393,258	341,402									0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		688,160	0.00%
Pakistan																						---	---
Philippines	7,317,740	3,759,626	2,016,101												0.00%	0.00%	0.00%					2,016,101	0.00%
Seychelles	3,400,912	3,876,173	21,366,998	22,778,433	35,608,822	38,476,480	39,867,357								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	31,619,618	0.00%
Sierra Leone																						---	---
Somalia																						---	---
Sri Lanka	140,125,605	145,102,396	50,364,051	35,201,444	23,242,869	40,213,911	50,759,577			550	46,430		36,294	84,146	0.00%	0.00%	0.00%	0.13%	0.00%	0.09%	0.17%	39,956,370	0.08%
South Africa*	1,176,125	959,285	565,705	661,378	616,518	1,284,160	1,325,446			17,895	70,258	5,340	27,554		Pending							890,641	---
Sudan																						---	---
Tanzania, United Rep. of	4,313,604	3,468,197	3,681,606	1,648,649	2,112,744							757			0.00%	0.00%	0.00%	0.00%	0.04%			2,481,000	0.01%
Thailand	1,061,363	784,881	1,821,217	1,121,073											0.00%	0.00%	0.00%	0.00%				1,471,145	0.00%
United Kingdom																						---	---
Yemen																						---	---
COOPERATING NON CONTRACTING PARTIES																							
Bangladesh																						---	---
Liberia																						---	---
Senegal																						---	---
Other	10,832,417	5,005,660	9,093,754	9,822,626	7,034,619																	8,650,333	---
Total	656,844,037	657,033,250	507,711,970	437,487,573	426,526,644	444,411,217	452,475,849	2,893,542	7,305,609	8,809,472	7,013,559	8,773,251	10,282,040	7,203,451	0.44%	1.11%	1.74%	1.60%	2.06%	2.31%	1.59%	453,722,651	1.86%

* Coverage for Japan and South Africa will be calculated once historic data submissions for vessels under Joint Venture Agreement are properly apportioned to the two CPCs according to Resolution 19/07 (para. 3.6).

**Observed effort for Madagascar has been estimated from the number of fishing days. Coverage for EU,Spain (2014) was submitted by Madagascar

2012 and 2013 total effort are estimates provided by Portugal which are to be updated; *Coverage for Australia for 2015 & 2016 includes EMS data

Key: TOTAL EFFORT (#HOOKS): Total number of hooks set by longliners, by fishing fleet and year, including:

- Total effort available (green font)
- Total effort not available: total effort estimated using the nominal catches available and sampled effort or catch rates from other fleets or year periods (red font)

Appendix C

Estimated observer coverage for purse seine vessels

MEMBERS	Total effort (no. fishing days)							Observed effort (no. fishing days)							Coverage rate							Average (last 5 years)	
	2012	2013	2014	2015	2016	2017	2018	2012	2013	2014	2015	2016	2017	2018	2012	2013	2014	2015	2016	2017	2018	Effort	Coverage
Australia***	148	133	113	148	84	69	115								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	106	0.00%
China																						---	---
–Taiwan,China																						---	---
Comoros																						---	---
Eritrea																						---	---
EU - France	1795	2115	3467	3168	3152	2943	3233	112	145	584	704	772	806	808	6.24%	6.86%	16.84%	22.23%	24.49%	27.39%	24.99%	3,193	23.19%
EU - Italy *****				284	252	395	395				210	147	42	339				73.94%	58.33%	10.63%	85.82%	332	57.18%
EU - Portugal																						---	---
EU - Spain*	3684	3899	4238	3838	3933	3242	3433		48	86	338	344			0.00%	1.23%	2.03%	8.81%	8.75%	0.00%	0.00%	3,737	3.92%
EU - UK																						---	---
France(OT)	1257	1276						188	171						14.95%	13.40%						---	---
Guinea																						---	---
India																						---	---
Indonesia																						---	---
Iran, Isl. Rep. of	168	172	179	164	137	74	97								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	130	0.00%
Japan	72	36	35	86	86	47	50								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	61	0.00%
Kenya																						---	---
Korea, Rep. of	98	369	539	460	760	565	433		33	45	35	232	121		0.00%	8.93%	8.34%	7.61%	30.51%	21.42%	0.00%	552	13.58%
Madagascar**									(14)	(118)												---	---
Malaysia																						---	---
Maldives																						---	---
Mauritius	0	27	264	304	332	213	412				111	148	44	67	0.00%	0.00%	36.53%	44.55%	20.63%	16.27%		305	23.59%
Mozambique																						---	---
Oman, Sultanate of																						---	---
Pakistan																						---	---
Philippines						3														0.00%		3	0.00%
Seychelles	1969	1670	1947	3012	4087	3269	2787			235	1639	2190	1030		0.00%	0.00%	12.07%	54.42%	53.58%	31.51%	0.00%	3,020	30.31%
Sierra Leone																						---	---
Somalia																						---	---
South Africa																						---	---
Sri Lanka		64								12					0.00%							---	---
Sudan																						---	---
Tanzania, United Rep. of					6	11																---	---
Thailand																			0.00%	0.00%		9	0.00%
United Kingdom																						---	---
Yemen																						---	---
COOPERATING NON CONTRACTING PARTIES																							
Bangladesh																						---	---
Liberia																						---	---
Senegal																						---	---
Other																						---	---
Total	9,192	9,761	10,782	11,463	12,830	10,832	10,955	300	397	962	3,037	3,833	2,043	1,214	3.26%	4.07%	8.92%	26.49%	29.88%	18.86%	11.08%	11,372	19.05%

*Number of fishing days *observed* is not available for EU,Spain (2015 & 2017), so observed and total effort are reported in sets for 2015 (as per IOTC-2016-WPDCS12-INF04)

**Brackets indicate observers on foreign vessels (observer data provided by MDG for EU,ESP, EU,FRA and SYC)

***The Australian purse seine fleet targets southern bluefin tuna and submits observer data to CCSBT

**** No C-E data officially provided by EU,ITA for 2018, although observer data was received. Efforts from 2017 were temporarily used for 2018.

Key: TOTAL EFFORT (#FDAYS): Total number of days fished by tuna purse seiners, by fishing fleet and year, including:

- Total effort available (green font)
- Total effort not available: total effort estimated using the nominal catches available and sampled effort or catch rates from other fleets or year periods (red font)