

UPDATE ON THE IMPLEMENTATION OF THE IOTC REGIONAL OBSERVER SCHEME

PREPARED BY: IOTC SECRETARIAT¹, 10 NOVEMBER 2020

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 In 2009, the Commission adopted Resolution 09/04 on a Regional Observer Scheme, which was superseded in 2010 by Resolution 10/04, and again in 2011 by Resolution 11/04.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 a 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 10th November 2020, 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 **472 observers** are currently registered as active.

At the same date, a total of **2,176 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.

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 2019 for industrial longline and purse seine vessels (data updated as of 10th November 2020). Reported scientific observer coverage for the artisanal fleets is currently zero.

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

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) although not all the formats adopted for data submission are suitable for automated and accurate extraction of the information to be stored in the ROS regional database.

Furthermore, several important data fields marked as “for reporting purposes” are regularly missing from these submissions (e.g., estimated catch by species at set level for some of the PS fleets) although these are known to be available to the data providers. In addition, there is thought to be a potential misunderstanding of the meaning of “optional / mandatory for reporting” (see the ROS data fields specification) by some CPCs thus preventing the submission of important data fields (e.g. weight measurements of caught / retained individuals) that were instead available in earlier reports.

OUTCOMES OF SC22 RELEVANT TO THE ROS

The SC **NOTED** that Kenya submitted observer data for 2018 and **ACKNOWLEDGED** that the level of observer coverage for the Kenyan longline fleet is expected to increase further as a result of Kenya's participation in the ROS Pilot Project training programme.

The SC was informed that, due to a lack of national staff, Malaysia is not currently able to fully implement the ROS requirements and therefore cannot participate in the ROS Pilot Project. The SC **ACKNOWLEDGED** that results on the improvements in data collection introduced by installing EMS equipment onboard (CCTV cameras) will be presented at the next SC meeting. The SC **NOTED** that e-logbooks and EMS implemented in Malaysia since 2017 should be useful tools to properly record these interactions, and these initiatives should result in improved species breakdown of catches for sharks and rays in the future.

The SC also **ACKNOWLEDGED** that Mozambique will be one of the six pilot countries to actively participate to the ROS Pilot Project training programme.

The SC **NOTED** that information on bycatch from FAD fisheries is only partially available for the major industrial fleets but that it can be extracted from regular ROS data submissions.

The SC **NOTED** that the tables presented in Appendix VII of the WPEB report which provide information on the status of the ROS may no longer be fully up-to-date. The SC **ENCOURAGED** all CPCs that have submitted ROS data to the IOTC Secretariat to verify that the information contained within corresponds to what available at national level.

The SC **NOTED** paper IOTC-2019-SC22-07 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) including the coverage estimated for both the longline and purse seine large scale fisheries from concerned CPCs, and how these compare to the expected minimum coverage level.

The SC **ENCOURAGED** CPCs to validate the information provided in appendices A, B and C of paper IOTC-2019-SC22-07, and confirm that it correctly reflects the status of implementation of the ROS at the national level, and to liaise with the IOTC Secretariat should any discrepancy be identified.

The SC **ACKNOWLEDGED** that estimation of ROS coverage for the purse seine fleets is adversely impacted by the lack of uniformity in reporting effort data to the IOTC Secretariat, and **AGREED** that this information, which is particularly useful to assess the performance of Resolution 11/04, should be further standardized. As such, the SC **RECOMMENDED** that all purse seine fleets reporting effort as fishing hours or fishing days begin to submit this information as ‘number of sets’ instead, in particular when fulfilling the reporting requirements of Resolution 15/02.

The SC **SUPPORTED** the utilization of the ROS electronic tools for data collection and reporting, **NOTING** the effort made by the Secretariat in support of their adoption also by countries not directly participating to the implementation of the ROS training programme.

The SC **NOTED** that the ROS pilot project is planned to be initiated in six member countries, but that only four members had confirmed their participation prior to the SC22. The SC **WELCOMED** the confirmation by Mozambique and the offer by Maldives and Pakistan to join the project.

OUTCOMES OF S23 RELEVANT TO THE ROS³

IOTC-2019-S23-PropJ On a regional observer scheme. There was no consensus regarding key elements of this proposal 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.

Consideration of the IOTC Regional Observer Scheme Draft Standards

(Para 118) The Commission **NOTED** document IOTC-2019-S23-10_Rev1 containing draft standards for an IOTC Regional Observer Scheme.

(Para 119) 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.

(Para 120) 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.

(Para 121) 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.

OUTCOMES OF S24 RELEVANT TO THE ROS

The S24 briefly discussed the ROS, supporting the continuation of this scheme.

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.

³ Due to the insurgence of the CoViD-19 pandemic, the S24 - that was scheduled to be held in May 2020 – was postponed to November 2020, which means that the outcomes of its previous session (S23) still apply at the time this document has been finalized

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>

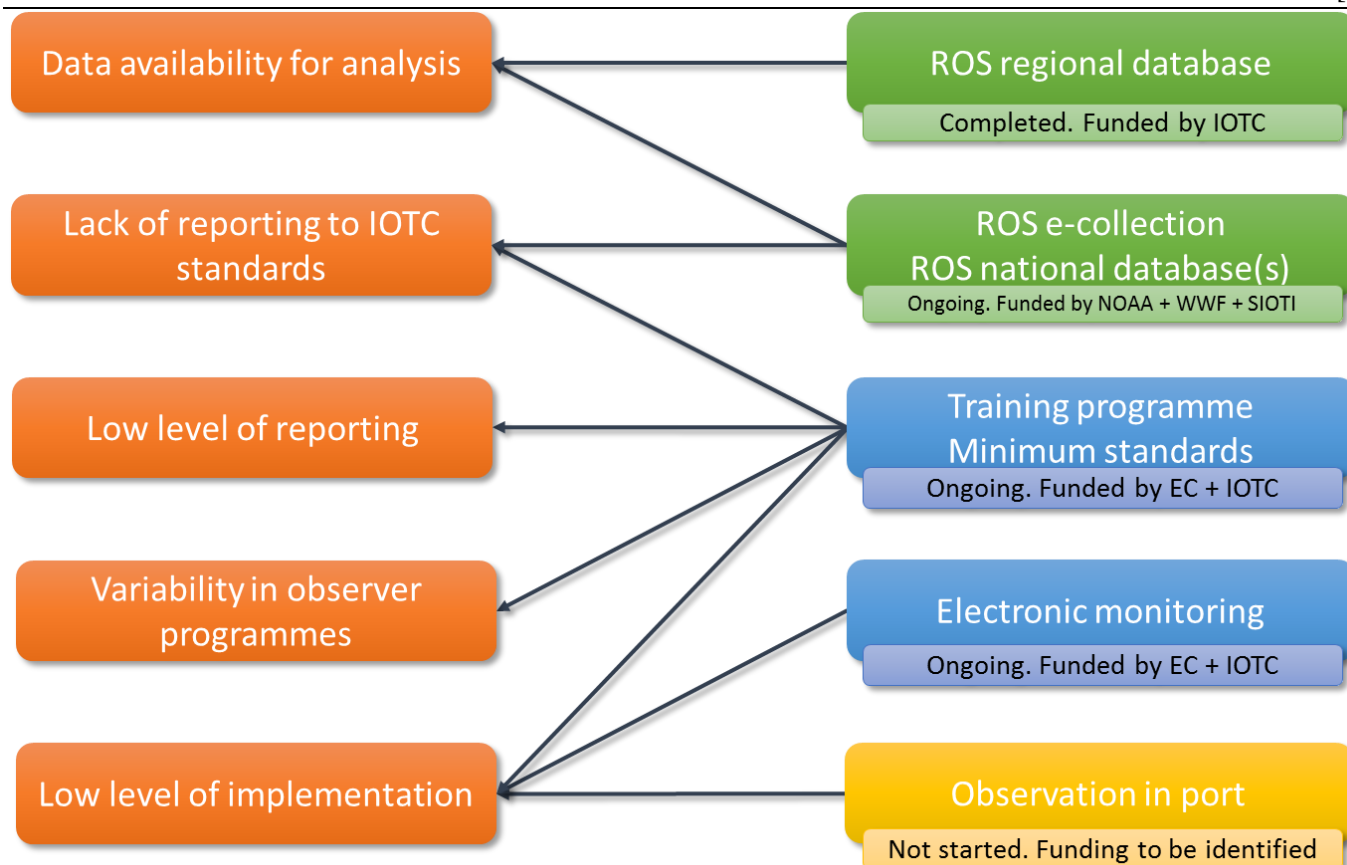


Figure 1. Key issues and workstreams developed to address these under the Pilot Project

REGIONAL OBSERVER DATABASE

Background and current status

The ROS electronic tool for data collection and management (*ROS e-collection tool*) 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 to submit information to the *ROS regional database*, hosted by the IOTC Secretariat and specifically designed to accommodate all data marked as “*mandatory / optional for reporting*” (according to the revised definitions following the ROS expert consultation workshop).

The ROS national database and the ROS regional database have now both been finalised: the Regional Database is integrated with the IOTC statistical systems and includes a collation of all ROS data that have been submitted so far in a convenient electronic format (i.e. suitable for automated data extraction and processing), including – but not limited to – the information entered through the various versions of the ROS e-collection interface.

Currently, it holds observer data reported by several fleets during different time periods, for a total of 26,188 sets recorded during 1,492 trips completed between 2005 and 2019. 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-collection tool 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 10th November 2020).

Table 1. Status of IOTC ROS data submissions and content of the ROS regional database as of 10th November 2020

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	23			IOTC ad interim format (.doc) & non-standard format (.xls)
TWN,CHN		LL	147			IOTC ad interim format (.pdf)
EU	PRT	LL	9			IOTC ad interim format (.pdf, .xls)
	ESP	PS	118	94	2694	IOTC ad interim format (.pdf, handwritten)
		LL	8			IOTC ad interim and non-standard report format (.doc)
	ITA	PS	20			Non-standard report format (.pdf)
	FRA	LL	589	589	3470	Non-standard report format (.pdf)
		PS	387	365	7781	IOTC ad interim format (.pdf)
	GBR	LL	4			IOTC ad interim format (.xls)
FRAT		PS	23	9	203	IOTC ad interim format (.pdf)
IDN		LL	21			IOTC ad interim format (.xls)
		PS	1			IOTC ad interim format (.xls)
JPN		LL	90	51	2804	Non-standard format (.xls)
KEN		LL	11			Non-standard format (.xls)
KOR		LL	17			IOTC ad interim format (.doc)
		PS	16	6	169	IOTC ad interim format (.doc)
MDG		LL	30			SWIOFP (handwritten) and IOTC ad interim format (.doc)
		PS	0			No data reported for MDG vessels
MDV		PL	56			IOTC ad interim format (.xls)
MUS		LL	4			IOTC ad interim format (.doc)
		PS	31	17	184	IOTC preliminary format (.doc) & non-standard format (.xls)
MOZ		LL	13			Non-standard format (.xls)
SYC		PS	354	354	8642	IOTC ad interim format (.pdf)
ZAF		LL	92			IOTC ad interim format (.doc & .pdf)
LKA		LL	11	7	241	IOTC ad interim format (handwritten, .pdf)
		PS	1			IOTC ad interim format (handwritten, .pdf)
TZA		LL	1			IOTC ad interim format (.doc)
TOT.			2,176	1,492	26,188	

While 68.6% of trips submitted have now been included in the ROS regional database (coverage increased from the 62% calculated at the last SC), 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 Regional Database will take increasingly more resources while yielding a lower return in terms of the quantity and quality of information obtained.

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.

Plans and schedule

Once in full operation, the ROS regional database will be regularly and automatically populated with *live* observer data mostly collected through the ROS e-collection tool and managed through dedicated ROS national database instances deployed at country level, increasing the level of compliance and the technical capacity of all participating developing flag states.

Furthermore, to incorporate as much historical information as possible and account for comprehensive and seamless data exchange between CPCs and the ROS database, the ROS data exchange protocols are in the process of being extended with the addition of facilities to allow the import of observer data collected through well-established third-party data collection platforms such as *ObServe* (EU and Seychelles PS and LL fleets) and the *SWIOFP* database (IOC countries).

This task is currently ongoing, with increased support from the IOTC Secretariat, and is expected to be completed by Q2 2021.

Since the SC22 (2019) the IOTC Secretariat has begun to regularly disseminate aggregated ROS data as these become available to the ROS regional database. Additionally, a set of preliminary online query interfaces is available at the following URLs:

- <http://ros-browser.iotc.org/v2/efforts/>
- <http://ros-browser.iotc.org/v2/catches/>
- <http://ros-browser.iotc.org/v2/coverage/>

Data extracted from the ROS regional database is still considered to be preliminary and subject to changes in structure and content without prior notice: the scientific community should ask explicit consent from the IOTC Secretariat before publicly disseminating any study or analysis based on this information.



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_1⁷.

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.

⁷ <http://www.iotc.org/documents/data-collection-and-management-tools-support-regional-observer-scheme-pilot-project>

The tools were initially developed to reflect the requirements detailed in the IOTC Regional Observer Scheme manual⁸, 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).

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 those fishing in the high seas.

Both tools have been finalized and are undergoing end-user testing and validation, in particular regarding 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 need 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 from the IOTC Secretariat.

These requirements once more highlight 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, Mauritius and Kenya, 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 and the ROS expert consultation workshop in terms of finalisation of new data field specification under the ROS pilot project “*Standards*” component (see below) the ROS electronic tools were updated in 2019 and 2020 accordingly to reflect the final, agreed data collection and reporting requirements.

The revised interface is currently undergoing testing in the field: it is still provided as a standalone, multi-platform application that does not require Internet connectivity to work, although it supports direct communication mechanisms to retrieve vessel information from the IOTC RAV (“*Record of Authorised Vessels*”) and is linked to the main IOTC Statistics database to constantly and seamlessly synchronize all reference data.

The ROS e-collection and national database require end-users to authenticate against a list of currently accredited IOTC observers and ROS focal points, respectively and for this reason, a formal workflow should be established so that CPCs can provide updates to their list of active observers and focal points and see this reflected in real time within the set of ROS credentials available to the IOTC Secretariat.

Training workshops specifically targeting the previous data collection and reporting requirements, including the usage of the ROS e-tools, were successfully delivered to Sri Lanka and Indonesia during late 2017 and 2018. Both countries have started trialling the software and agreed to submitting ROS data using the e-tools in the future.

Additional training, this time specifically focused on the adoption of the revised data collection and reporting requirements, was also delivered to Sri Lanka and Mauritius in early 2019 and this resulted in the commitment from both countries to use the ROS e-tools for future data submissions. The user feedback gathered during these sessions was effectively adopted to improve the ROS electronic tools and increase their usability.

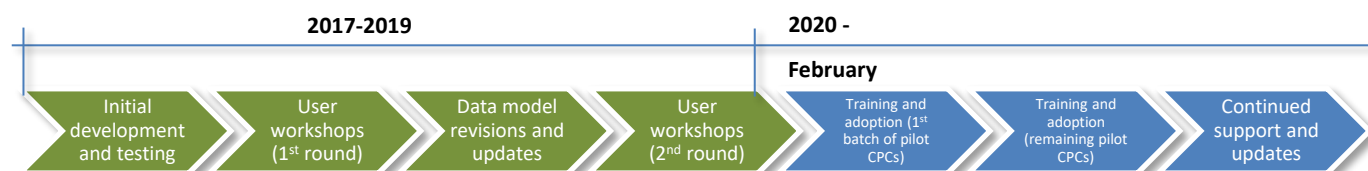
As of now, Sri Lanka has successfully managed to provide a number of LL trip reports compiled through the old version of the ROS e-collection tool and more reports are expected to be submitted by the end of 2020 and the beginning of 2021, while Indonesia is still submitting ROS information using the *ad-interim* ROS data collection templates that are still designed on the basis of the previous reporting requirements (pre-workshop) and therefore cannot be properly incorporated in the ROS database.

⁸ www.iotc.org/sites/default/files/documents/science/IOTC-2015-ROS_11_04_Observer_Manual_v1.2.pdf.

As part of the original schedule for the delivery of the ROS training package to the six selected CPCs, specific training on the usage of the ROS e-tools was provided to Kenya (Q1 2020); however the resurgence of the CoViD-19 pandemic has prevented similar training to be delivered to other target countries as it was originally scheduled.

The delivery of the ROS training packages is expected to resume as soon as travel restrictions to the target countries are lifted, as will the specific training on the ROS e-tools.

With the ongoing implementation of the ROS training programme (Q1 2020, see below) 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 an 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 and a concrete and auditable set of standards against which programmes could be assessed did not exist.

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*”⁹. The data fields were reviewed and revised in 2015 by the WPEB, WPDCS and approved by the SC as interim reporting standards¹⁰. These *ad-interim* data collection and reporting requirements have now been in place for trial and review for several 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/EC¹¹ and a project contract developed for a consultant to comprehensively review the *ad-interim* data collection and reporting requirements and set out the minimum standard for the scheme in a clear and concise format.

An expert workshop to review the standards was organised and held in Seychelles from 24-28th September 2018 during which a range of expertise were sought to support the workshop, ranging from observer programme

⁹ IOTC-2011-S15-R

¹⁰ “**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

¹¹ This grant from the EC is also funding a number of other activities to support the work of the IOTC Scientific Committee

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 specific objectives focused on the revision of proposed ROS standards, data collection fields and reporting requirements, with participants that were invited to review the relevance and practical applicability of existing and proposed standards, data collection fields and reporting requirements. 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 including the final set of recommendations 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. The final set of recommendations eventually triggered a number of significant updates on the already developed ROS e-tools, that are in the process of being finalized.

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*”.



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 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.

In 2019, CapMarine was awarded the contract to develop a complete training package for the IOTC ROS. This is based on the finalised standards and includes training materials for observer coordinators as well as observers, both on-line (e-learning tools) and on paper.

The newly developed tools and materials will be implemented in six counties (Sri Lanka, Tanzania, Kenya, Indonesia, Maldives and Mozambique¹²) and the IOTC Executive Secretary has secured high level commitment for the support of this project in each country. 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.

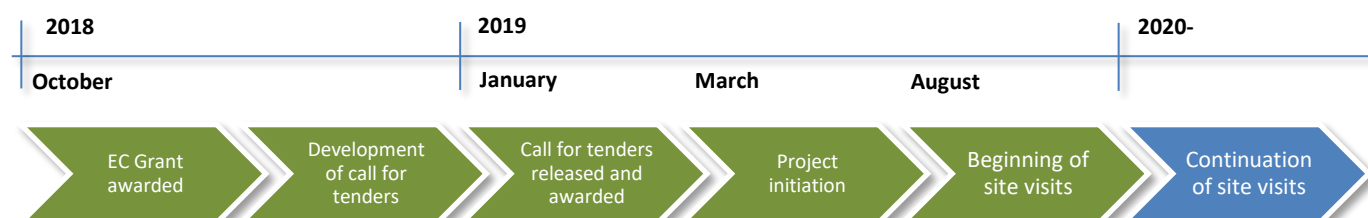
The project will provide intensive and sustained support to these countries to establish their national scientific observer programmes by training observer managers and trainers; establishing a dedicated observer database; strengthening data management, quality control and reporting procedures; and directly 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.

Plans and schedule

The training programme, based on newly developed tools and materials, includes two planned rounds of site visits which started in August 2019).

As of now, a first round of country visits has been performed by the Service Provider in Sri Lanka, Tanzania and Kenya and a second site visit to Kenya including comprehensive training on all aspects of the ROS programme and written tests to assess the competence of the trainees, was also delivered in February 2020. The IOTC Secretariat is awaiting confirmation from the Kenyan Observer Programme Coordination Team (OPCT) regarding the details of the trainees that successfully passed the tests and have been officially designated as Scientific Observers ready for deployment onboard.

Due to the insurgence of the CoViD-19 pandemic and the consequent health risks and travel restrictions implemented at national levels, the project was temporarily suspended for reasons of *force majeure*, as was the deployment of ROS scientific observers in the IOTC area of competence.



¹² Maldives and Mozambique are replacing two of the countries originally interested in being part of the training programme (I.R. Iran and Malaysia). As of today, though, formal arrangements for the continuation of the project at national level have yet to be confirmed by both Maldives and Mozambique.

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 in 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 their 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 15 – 24 m LOA). Funds have been confirmed, the IOTC Secretariat has finalised procurement of the EMS equipment through an EC grant (GCP/INT/305/EC) and the equipment has been installed on four of the six vessels originally identified by the Sri Lankan authorities.

A first round of test trips was performed with the equipment fully deployed onboard which helped stakeholders to identify some important technical issues (e.g., interference with radio communication equipment, high current drain from the main vessel batteries etc.) which have been resolved by the technology provider. Equipment to support the work of “dry observers” (desktop computers, their training material etc.) was also purchased and deployed on site.

The resurgence of the CoViD-19 pandemic has introduced unexpected delays in the finalization of the procurement and deployment processes for this task, which was put on temporary halt for reasons of *force majeure*: furthermore, a field mission to Sri Lanka – originally expected to be undertaken in Q2 2020 by the IOTC Secretariat in collaboration with the consortium responsible for the actual installation of the EMS hardware and the training of designated observers – had to be postponed until further notice.

This mission is crucial to the completion of this workstream, as it was meant to ensure, among other things, that the information collected onboard could be satisfactorily submitted to the IOTC Secretariat in full accordance with the requirements of the ROS data exchange protocols.

Finally, in April 2020 a *Letter of Agreement* was signed between FAO of the UN and the International Seafood Sustainability Foundation (ISSF) for the provision of services related to “*improvements of data-limited methods for assessing Indian Ocean neritic tuna species*”. An integral part of this LoA and the expected services to be provisioned is the development of Electronic Monitoring Systems (EMS) minimum standards, including specifications and procedures for the implementation of EMS for IOTC fisheries, as well as an evaluation of EMS capabilities to collect IOTC ROS minimum standards data fields.

The project focuses on EMS standards for purse seiners and longliners (and small-scale fisheries, if possible) that would help standardize EMS implementation (e.g. number and position of cameras, installation, software requirements etc.) as well as data collection, usage, revision and ownership.

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).

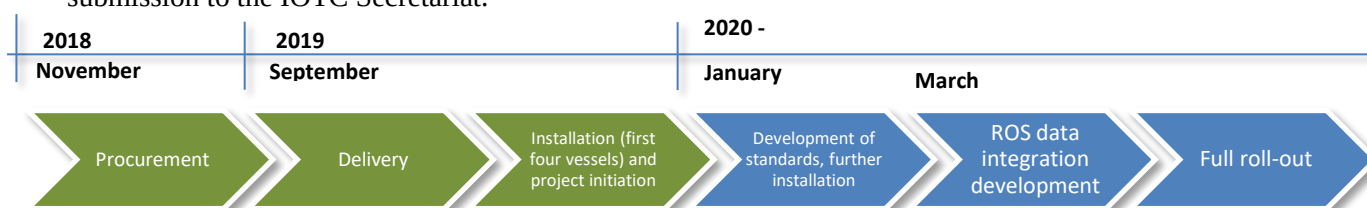
A final report describing the minimum standards will be presented to the IOTC Working Party on Data Collection and Statistics (WPDCS) and SC in 2020, based on the comments of the WPTT and IOTC Secretariat, for consideration of adoption and recommendation to the Commission.

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

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 and the first round of test trips were conducted. Next steps of the work stream involve:

- Continuation of the formal piloting of the EMS when travel restrictions are lifted, 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.



PORT SAMPLING

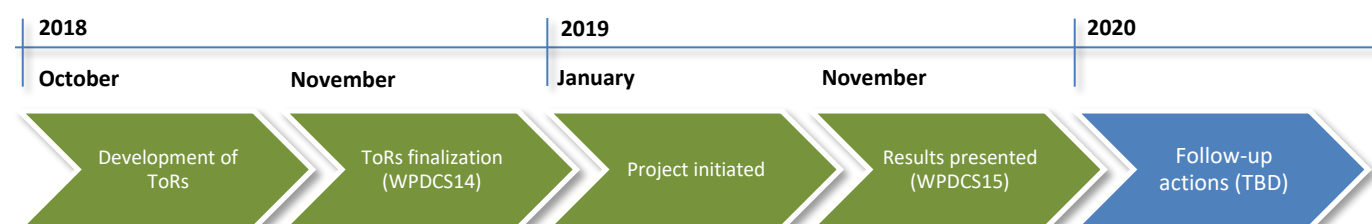
Background and current status

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 providing assistance with the implementation of sampling activities with priority countries identified.

Funds were identified from FAO for a scoping study which reviewed 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).

There is currently no further funding available for this project component and as such it has not yet been fully developed.

Plans and schedule



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

Appendix A

Update on the implementation of the IOTC Regional Observer Scheme

[illegible]

Appendix A (continued)

CPCs	Vessels on active list (2019)					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		2019						
								O	E	O	E	O	E	O	E	O	E	O	E	O	E	O	E	O	E	O	E		O	E	O	E
MEMBERS																																
Maldives	28			365	393	4																		1		2		53	56			
Mauritius	12	3			15	5	2019-04											5		8		4		9		9			35			
Mozambique	4				4	11					1			N/A					7		3		2						13			
Oman					0																					N/A		N/A	0			
Pakistan					0																								0			
Philippines					0														N/A		N/A		N/A		N/A		N/A		0			
Seychelles	79	15			94	78										7		66		63		91		83		44		354				
Sierra Leone	No information received																															0
Somalia	No information received																															0
South Africa	16			1	17	33	2019-08			12		10		13		10		16		5		8				18		92				
Sri Lanka	633		549		1182	23										2		2		2				4		3		13				
Sudan	No information received																															0
Tanzania, United Rep.of	1				1														1		N/A		N/A		N/A		1					
Thailand					0	12	2019-10																			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	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	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	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	N/A	N/A				

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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

Total effort (no.hooks)								Observed effort (no. hooks)							Coverage rate							Average (last 5 years)	
MEMBERS	2013	2014	2015	2016	2017	2018	2019	2013	2014	2015	2016	2017	2018	2019	2013	2014	2015	2016	2017	2018	2019	Effort	Coverage
Australia****	609,995	449,387	430,015	429,288	532,396	411,101	373,810		41,581	28,729	49,875	62,126	54,010		0.00%	9.25%	6.68%	11.62%	11.67%	13.14%	0.00%	435,322	8.62%
China	23,439,470	19,212,540	26,616,190	24,107,147	33,070,839	32,987,773	26,380,951	216,640	178,413	105,201	1,206,739	1,584,934	1,681,983	1,814,426	0.92%	0.93%	0.40%	5.01%	4.79%	5.10%	6.88%	28,632,580	4.43%
–Taiwan,China	195,560,569	185,485,353	167,958,356	205,030,919	206,353,760	191,283,729	196,268,155	4,344,678	4,004,870	3,650,886	3,461,035	6,412,309	7,959,058	3,924,121	2.22%	2.16%	2.17%	1.69%	3.11%	4.16%	2.00%	193,378,984	2.63%
Comoros																						---	---
Eritrea																						---	---
EU - France	4,042,077	3,573,448	3,533,544	3,710,089	3,067,200	3,321,759	4,046,121	619,619	516,645	519,661	566,024	534,686	369,011	497,672	15.33%	14.46%	14.71%	15.26%	17.43%	11.11%	12.30%	3,535,742	14.16%
EU - Portugal***	1,558,000	1,496,715	1,398,400	1,673,150	1,624,100	895,800	810,000	127,580	90,894	156,536	152,385	128,201	138,245	139,600	8.19%	6.07%	11.19%	9.11%	7.89%	15.43%	17.23%	1,280,290	12.17%
EU - Spain	6,262,822	6,107,814	4,508,559	4,427,429	3,579,479	2,821,579	2,992,243		224,900			401,116	137,877		0.00%	3.68%	0.00%	0.00%	11.21%	4.89%	0.00%	3,665,858	3.22%
EU - UK	55,000	84,700	388,300	271,700	500,300	498,100	621,600					38,688	45,437						7.73%	9.12%		456,000	8.43%
France(OT)	120,000														0.00%							---	---
Guinea																						---	---
India	66,716,403	60,553,908	17,558,762	24,363,545	25,744,139	42,168,908	35,077,541								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	28,982,579	0.00%
Indonesia	150,798,219	95,497,053	100,472,150	50,792,198	47,765,407	45,953,210	51,208,307		195,780		808,600	228,970	251,891		0.00%	0.21%	0.00%	1.59%	0.48%	0.55%	0.00%	59,238,254	0.52%
Iran, Isl. Rep. of																						---	---
Japan*	29,125,098	31,780,765	28,954,672	27,038,829	23,344,427	22,201,649	20,075,617	1,387,765	2,773,266	1,092,583	1,659,250	1,438,042	1,781,695		4.76%	8.73%	3.77%	6.14%	6.16%	8.03%	0.00%	24,323,039	4.82%
Kenya					578,587						67,240		68,807	2,400								578,587	---
Korea, Rep. of	5,428,935	5,998,722	7,364,599	5,862,099	6,462,887	6,052,850	5,899,410	546,927	213,225	313,662	377,864	251,355	214,244		10.07%	3.55%	4.26%	6.45%	3.89%	3.54%	0.00%	6,328,369	3.63%
Madagascar**	326,494	355,138	357,897	330,541	178,890	141,917	154,281	62,400		5,300					19.11%	0.00%	1.48%	0.00%	0.00%	0.00%	0.00%	232,705	0.30%
Malaysia	4,220,794	3,588,653	5,017,243	6,232,414	8,852,314	10,147,579	9,587,211								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7,967,352	0.00%
Maldives	3,054,590	3,040,716	678,824	2,254,552	1,106,976	609,598	119,962								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	953,982	0.00%
Mauritius	150,560	105,120	195,850	763,618	1,653,981	1,445,477	1,553,466						39,200		0.00%	0.00%	0.00%	0.00%	0.00%	2.71%	0.00%	1,122,478	0.54%
Mozambique		7,177	267,387	230,296	265,808	202,281	202,281			42,715	29,600	24,354				0.00%	15.97%	12.85%	9.16%	0.00%	0.00%	233,611	7.60%
Oman, Sultanate of	2,608,008	1,465,331	552,649	393,258	678,821										0.00%	0.00%	0.00%	0.00%	0.00%			541,576	0.00%
Pakistan																						---	---
Philippines	3,759,626	2,016,101													0.00%	0.00%						---	---
Seychelles	3,876,173	21,366,998	22,778,433	35,608,822	38,476,480	39,867,357	38,059,267								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	34,958,072	0.00%
Sierra Leone																						---	---
Somalia																						---	---
Sri Lanka	145,102,396	50,364,051	35,201,444	23,242,869	40,213,911	50,759,577	67,787,598		550	46,430		36,294	200,282	148,740	0.00%	0.00%	0.13%	0.00%	0.09%	0.39%	0.22%	43,441,080	0.17%
South Africa*	959,285	565,705	661,378	616,518	1,284,160	1,325,446	1,355,677		17,895	70,258	5,340	27,554	24,785	81,112	0.00%	3.16%	10.62%	0.87%	2.15%	1.87%	5.98%	1,048,636	4.30%
Sudan																						---	---
Tanzania, United Rep.of	3,468,197	3,681,606	1,648,649	2,112,744							757				0.00%	0.00%	0.00%	0.04%				1,880,696	0.02%
Thailand	784,881	1,821,217	1,121,073												0.00%	0.00%	0.00%					1,121,073	0.00%
United Kingdom																						---	---
Yemen																						---	---
COOPERATING NON CONTRACTING PARTIES																							
Bangladesh																						---	---
Liberia																						---	---
Senegal																						---	---
Other	5,005,660	9,093,754	9,822,626	7,034,619											0.00%	0.00%	0.00%	0.00%				8,650,333	0.00%
Total	657,033,250	507,711,970	437,487,001	426,526,644	445,334,863	453,095,691	462,573,496	7,305,609	8,809,472	6,583,414	8,936,162	11,720,082	13,517,978	7,159,524	1.11%	1.74%	1.50%	2.10%	2.63%	2.98%	1.55%	445,003,539	2.15%

* 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)	
	2013	2014	2015	2016	2017	2018	2019	2013	2014	2015	2016	2017	2018	2019	2013	2014	2015	2016	2017	2018	2019	Effort	Coverage
Australia***	133	90	119	84	69	115	125								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	102	0.00%
China																						---	---
–Taiwan,China																						---	---
Comoros																						---	---
Eritrea																						---	---
EU - France*	2115	3467	3168	3152	2943	3233	2692	145	584	664	744	792	810	705	6.86%	16.84%	20.96%	23.60%	26.91%	25.05%	26.19%	3,038	24.54%
EU - Italy *****			284	252	395	542				210	147	42	339				74.02%	58.39%	10.64%	62.58%		368	51.41%
EU - Portugal																						---	---
EU - Spain	3899	4238	3838	3933	3242	3433	3397	48	86	7	344		591	694	1.23%	2.03%	0.18%	8.75%	0.00%	17.21%	20.43%	3,569	9.31%
EU - UK																						---	---
France(OT)	1276	0	0	0	0	0	0	171							13.40%							0	---
Guinea																						---	---
India																						---	---
Indonesia																						---	---
Iran, Isl. Rep. of	172	143	131	110	114	81	67								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	101	0.00%
Japan	36	28	69	69	79	43	4								0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	53	0.00%
Kenya																						---	---
Korea, Rep. of	369	539	460	608	452	433	381	33	45	35	232	121			8.93%	8.34%	7.61%	38.14%	26.77%	0.00%	0.00%	467	14.50%
Madagascar**								(14)	(118)													---	---
Malaysia																						---	---
Maldives																						---	---
Mauritius	27	211	243	266	326	347	246			111	148	44	67	95	0.00%	0.00%	45.66%	55.68%	13.49%	19.32%	38.68%	285	34.57%
Mozambique																						---	---
Oman, Sultanate of																						---	---
Pakistan																						---	---
Philippines					4														0.00%			4	0.00%
Seychelles	1670	1947	3012	4087	3269	2787	2923	0	110	997	1102	1431	1218	682	0.00%	5.65%	33.10%	26.96%	43.77%	43.71%	23.34%	3,216	34.18%
Sierra Leone																						---	---
Somalia																						---	---
South Africa																						---	---
Sri Lanka	64								12						0.00%							---	---
Sudan																						---	---
Tanzania, United Rep. of																						---	---
Thailand				6	11													0.00%	0.00%			9	0.00%
United Kingdom																						---	---
Yemen																						---	---
COOPERATING NON CONTRACTING PARTIES																							
Bangladesh																						---	---
Liberia																						---	---
Senegal																						---	---
Other																						---	---
Total	9,761	10,664	11,323	12,567	10,904	11,014	9,835	397	837	2,024	2,717	2,430	3,025	2,176	4.07%	7.85%	17.88%	21.62%	22.29%	27.46%	22.13%	11,294	19.42%

*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)