



UPDATE ON THE IMPLEMENTATION OF THE IOTC REGIONAL OBSERVER SCHEME

PREPARED BY: IOTC SECRETARIAT, 8 & 24 NOVEMBER 2015

PURPOSE

To inform the Scientific Committee (SC) of the status of implementation and reporting to the IOTC Secretariat of the Regional Observer Scheme (ROS) set out by Resolution 11/04 *on a Regional Observer Scheme* at the 15th Session of the Commission (S15) in 2011.

BACKGROUND

At the 13th Session of the Commission (S13), the Commission adopted Resolution 09/04 *on a Regional Observer Scheme*, which was superseded in 2010 by Resolution 10/04, and again in 2011 by Resolution 11/04. In 2010, the Commission addressed concerns raised by some CPCs with artisanal fleets, on which it is difficult to deploy on-board observers due to the small-size of the artisanal vessels and/or to their large numbers which would require high deployment levels and in 2011, the Commission extended the period for submitting the Observer Trip Report from 90 days to 150 days.

Resolution 11/04 *on a Regional Observer Scheme* makes provision for the development and implementation of national observer programmes-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*”.

Moreover, the Resolution 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)*”.

The Resolution goes on to state “*CPCs shall provide to the Executive Secretary and the Scientific Committee annually a report of the number of vessels monitored and the coverage achieved by gear type in accordance with the provisions of this Resolution*”.

At its 13th Session the IOTC Scientific Committee (SC13) reviewed the report of the technical workshop organised in May 2010, and endorsed the documents produced by the Secretariat; an Observer Manual¹ and an Observer Trip Report template² containing the minimum reporting requirements. These were formally adopted at the 15th session of the Commission where it was noted³ “*Minimum data requirements were adopted as well as an observer report template that will be reviewed and revised as necessary.*”

DISCUSSION

Implementation of the observer scheme

As of 205th November 2015, fourteen CPCs (Australia, China (including Taiwan,China), Comoros, EU (France⁴, Spain and Portugal), Indonesia, Japan, Kenya, Rep. of Korea, Madagascar, Maldives, Mauritius, Mozambique, Seychelles and South Africa) have submitted a list of observers and have been allocated an IOTC observer registration number. This makes a total of 2668 IOTC registered observers.

As of 205th November 2015, two hundred and fourteen (214)281 observer trip reports have been submitted to the IOTC Secretariat by Australia, China, EU(France and Portugal), Japan, Rep. of Korea, Madagascar, Mozambique, Sri Lanka and South Africa.

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 betweenin 2010 and, 2011, 2012, 2013 and 2014 for industrial longline and purse seine vessels (data updated as of 205th November 2015). Reported scientific observer coverage for the artisanal fleets is currently zero, but in future a summary will also be provided to give an overview of the level of coverage achieved by these fleets. While CPCs are required to report on the level of coverage by gear type, the methods used to estimate

¹ IOTC-2010-SC11

² IOTC-2010-SC12

³ IOTC-2011-S15-R[E]

⁴ Including Mayotte due to its status as a French outermost region since January 2014



~~the level of coverage achieved are often not provided. Given there are some discrepancies between coverage rates estimated by the IOTC Secretariat and the coverage rates reported by CPCs, clarity on the methods used are needed.~~

Interim reporting templates

Reporting templates

At its 13th Session in 2010, the IOTC Scientific Committee reviewed the report of the technical workshop organised in May 2010, and endorsed the documents produced by the Secretariat; an Observer Manual⁵ and an Observer Trip Report template⁶ containing the minimum reporting requirements. These were subsequently formally adopted at the 15th session of the Commission in 2011 where it was noted⁷ “*Minimum data requirements were adopted as well as an observer report template that will be reviewed and revised as necessary*”. Resolution 11/04 was also adopted which states “*the IOTC Scientific Committee will elaborate an observer working manual, a template to be used for reporting (including minimum data fields) and a training program*”.

During the 10th WPEB a number of issues with the quality of data reported and the current format in which the data are submitted were discussed. Bearing in mind the comments at the 15th Session of the Commission where it was noted that the observer report template ‘*will be reviewed and revised as necessary*’, a number of potential areas for revision were identified as outlined in paper IOTC-2014-WPEB10-08 Rev_1.

During the WPEB10 a number of fishery-specific breakout working groups were held in order to review the current format of the observer reporting templates. A key issue raised was the need for data submission in electronic format, noting that to date only one CPC has provided all data electronically and that this would improve the efficiency of data collation and management for analysis. The WPEB agreed to prioritise the data collection requirements based on the objectives of the Scientific Committee, ensuring that all necessary data are collected in the required format while ensuring that there is a clear purpose for every data field to prevent the collection of redundant information. Based on this, a number of suggestions for improvements to the data collection process were raised by these groups. This led to the request by the Working Party, as noted in paragraph 55 of the report⁸:

“The WPEB REQUESTED that the IOTC Secretariat finalise the revision of the observer reporting templates inter-sessionally based on the gear-specific recommendations made by the breakout group meetings held during the current working party meeting, and for these revisions to be provided to the WPDCS for its consideration and then the Scientific Committee for adoption”.

The revised templates were presented to the Working Party on Data Collection and Statistics (IOTC-2014-WPDCS10) where they were reviewed and put forward for consideration and adoption by the Scientific Committee. The main adjustments to the reporting requirements included the resolution of information provided (catch information not linked to effort information), redundancy of certain data fields, lack of clarity resulting in different types of information provided for one data field, lack of information on sampling strategies, lack of standardisation in data submitted in terms of codes or different types of information provided for a single data field, inappropriate level of detail required (not detailed enough to be able to address some requests of the Commission, e.g. effectiveness of mitigation measures, and information that was considered to be too detailed by some observer programme managers, such as the make and model of all electronic equipment).

At the 17th session of the Scientific Committee, “*the SC NOTED the revisions to the observer reporting templates proposed by the WPEB10 and the WPDCS10 to improve the quality of the data submissions for scientific purposes such as stock assessments and other such scientific work as requested by the IOTC Scientific Committee*”. Further “*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*”.

The interim reporting templates, updated version of the manual and data collection forms ~~will be have been~~ made available on the IOTC website: www.iotc.org/science/regional-observer-scheme-science

All CPCs are reminded that the data can be submitted in any electronic~~ally readable~~ format as long as the agreed data required for reporting are provided~~esent~~.

⁵ IOTC-2010-SC11

⁶ IOTC-2010-SC12

⁷ IOTC-2011-S15-R[E]

⁸ IOTC-2014-WPEB10-R[E]



Electronic reporting

The majority of observer data are currently submitted as word, pdf or scanned documents to the IOTC Secretariat. This is a highly inefficient arrangement, requiring a substantial amount time to be dedicated to data entry, cleaning and processing and is not conducive to data management or analysis. To improve the situation, a project has been developed which will allow the electronic reporting of observer data to improve the consistency, efficiency, quality, timeliness and accuracy of data reporting and management for analysis. This project is targeted particularly at developing country CPCs which have not yet developed observer data collection and management processes and will be an important capacity building tool for these countries, providing a template database structure for data storage as well as exporting functions for regional data reporting. The interface will be designed to be highly user-friendly and will be trialed in two CPCs and reviewed by experts at NOAA, IATTC, WCPFC, ICCAT, OSPESCA and SPC so that existing processes and proven successes can be built into the system. The data management system will be integrated into the new IOTC database structure currently under development to streamline data management processes and facilitate the provision of data by the IOTC Secretariat. This project will be jointly funded by the European Union (EU) and the National Oceanic and Atmospheric Administration (NOAA) and is due to commence at the end of 2015, running until the end of 2016.

Electronic monitoring

At the 17th Session of the Scientific Committee in 2014, a recommendation was made for the development of electronic monitoring to support the implementation of the ROS, noting that electronic monitoring systems are meant to complement rather than replace the work conducted by onboard scientific observers:

Para. 166. “**NOTING** that electronic monitoring (including video) has been trialled and successfully implemented in many fisheries worldwide (e.g. Australia, European Union, USA, New Zealand), with the aim of supplementing scientific observers on board vessels; and given the current difficulties cited as reasons for not deploying scientific observers under the IOTC Regional Observer Scheme (ROS) on board large-scale gillnet vessels operating in the Indian Ocean; the SC **RECOMMENDED** that the Commission considers assigning the IOTC Secretariat, in consultation with interested IOTC scientists, to develop a project on electronic monitoring in the IOTC area of competence. This would allow an evaluation of the efficacy of electronic monitoring in the collection of information on catch, discards and fishing effort as a means to supplement scientific observer coverage for large-scale gillnet vessels. The trial will include an evaluation of the main challenges of using electronic monitoring data such as the accurate identification of IOTC and bycatch species, weight and size of catches and the time taken to process the footage and extract the required data. The concept note/proposal shall also include a clear indication that the IOTC data confidentiality policy (Resolution 12/02) will need to be modified to ensure any data/information collected is for the sole purpose of scientific analysis and not for compliance purposes. The concept note should include a detailed budget and be communicated to a range of potential funding organisations”.

A draft proposal for the development and trial of an e-monitoring system for Indian Ocean gillnet fisheries is currently being worked up drafted by the IOTC Secretariat. This is being worked on in collaboration with WWF-Pakistan as part of their ABNJ project, and technical review and guidance is being sought from a variety of sources, including NOAA and the Australian Fisheries Management Authority (AFMA) and from Digital Observer Services. Once finalised, this will be sent to a range of potential funding organisations.

Capacity building

The sixteenth session of the Indian Ocean Tuna Commission (IOTC) Scientific Committee, held in 2013, made a number of recommendations related to training and capacity building to support data collection and bycatch mitigation for gillnet fleets: Paragraph 39: “The SC RECOMMENDED that the Commission allocate funds in its 2014 and 2015 budgets for the IOTC Secretariat to facilitate training for CPCs having gillnet fleets on bycatch mitigation methods, species identification, and data collection methods....[specifically mentioned were:] “two training workshops: I.R. Iran/Oman and Sri Lanka”.

The lack of progress in the implementation of the Regional Observer Scheme (ROS) by gillnet fleets was further noted at the 17th session of the Scientific Committee in 2014:

Paragraph 157. “The SC EXPRESSED its strong concern regarding the low level of reporting to the IOTC Secretariat of both the observer trip reports and the list of accredited observers since the start of the ROS in July 2010. Such a low level of implementation and reporting is detrimental to the work of the SC, in particular regarding the estimation of incidental catches of non-targeted species, as requested by the Commission. Capacity building activities are planned for 2015 in I.R. Iran, Pakistan and Sri Lanka in support of the Regional Observer Scheme to assist CPCs with implementation and development of their national programmes”.



Paragraph 84. “*The SC NOTED that, while I.R. Iran has implemented a logbook program for its drifting gillnet fisheries, to date no catch and effort data have been reported to the IOTC. I.R. Iran is yet to implement provisions of the Regional Observer Scheme, in particular boarding of observers on its industrial purse seine and drifting gillnet fleets, and provision of observer trip reports to the IOTC. In this regard the SC REQUESTED that I.R. Iran make the necessary arrangements to report catch-and-effort data to the IOTC, and size frequency data by IOTC grid, and implement provisions of the Regional Observer Scheme, and to seek assistance from the IOTC Secretariat with these tasks, where required*”.

Therefore, capacity building workshops were arranged in 2015 to support these CPCs in the establishment of their observer schemes.

Support to the implementation of the IOTC Regional Observer Scheme in Sri Lanka

Sri Lanka has important gillnet-longline fisheries for tropical tunas, ranking third in terms of total fleet catches from 2010–12, and has also reported important amounts of shark catches. However, Sri Lanka has not reported catch and effort data consistent with IOTC standards, including separate catch and effort data for gillnet and longline gears and for vessels operating outside the EEZ. In 2014, the Sri Lankan Department of Fisheries and Aquatic Resources made a formal request to the IOTC Secretariat for assistance to support the implementation of a national regional observer scheme.

An evaluation, training and planning workshop was held in February 2015 to review the experience and data collected by observers in 2014 and to use the findings to identify key data gaps and quality issues in order to improve the process and develop a working protocol, specific to the Sri Lankan fisheries. There were 17 participants at the workshop, comprising the observer scheme manager, future and current observers as well as the trainers. Training was provided in species identification for all species groups, sampling approaches and observer debriefing processes. Results from pilot observer trips were reviewed and discussed in detail and set of recommendations were laid out for next steps in implementation of the scheme in Sri Lanka.

Support to the implementation of the IOTC Regional Observer Scheme in Oman, I.R. Iran and Pakistan

While 26 countries have gillnet fleets in the Indian Ocean, 46% of gillnet catches come solely from the fleets of I.R. Iran, Pakistan and Oman, highlighting the importance of these fleets in the Indian Ocean. To date, Oman, I.R. Iran and Pakistan have yet to establish their national onboard observer schemes in order to fulfil the requirements of Resolution 11/04 and improve the quality of data collected and reported. As limited nominal catch, catch and effort and size frequency data are submitted to the IOTC by these CPCs, observer data is particularly important.

A regional training workshop was held in Oman from 18–22 October 2015 for observer scheme managers, trainers and observers from I.R. Iran, Pakistan and Oman. The IOTC Secretariat organising this workshop in collaboration with IOSEA, CMS and WWF-Pakistan as part of the ABNJ initiative. Experts from NOAA, the Five Oceans Environmental Services, WWF-Pakistan, the Oman Marine Science and Fisheries Centre, the Gulf Elasmo Project and the IUCN Cetacean Specialist Group have been invited to assist facilitate the training sessions. This workshop aimed to fulfil the requests of the Scientific Committee to improve data reporting by supporting the implementation of the Regional Observer Scheme. It comprised an interactive workshop for fisheries staff working on the gillnet fleets of Oman, I.R. Iran and Pakistan. The workshop participants were senior fisheries staff who are to be involved in designing and managing observer programmes and leading training, so the workshop was tailored towards leading to the next stages of development of national observer schemes as well as the presentation of materials to be used as training resources. The workshop also provided an opportunity for observer scheme managers to learn from each other and share ideas and experiences about the implementation of an observer scheme in CPCs with gillnet fisheries. Further details can be found in the workshop summary report available on the IOTC website, reference number: *IOTC-2015-ROSWS02-R[E]*: 35pp. www.iotc.org/data/capacity-building-data

Support to the implementation of the IOTC Regional Observer Scheme through the introduction of an e-reporting system

As part of the e-reporting project, funding has been obtained for the trial and roll out of the e-reporting system. The tool will be trialled in two developing country CPCs as part of the review stage of the project. A number of roll-out capacity building workshops will then be undertaken in 2016 to implement the system in CPCs requiring assistance with their data collection, management and reporting processes.



IOTC Species ID guides

Table 1. Summary of priority languages and species groups for translation and printing as identified by the SC16 and SC17.

	1. Tuna & like	2. Billfish	3. Turtles	4. Sharks and rays	5. Seabirds
Farsi	2	1	1	1	1
Arabic	2	2	2	2	2
Urdu	4				
Bahasa Indonesian	1	3	5	5	5
Swahili		4			
Spanish		5	3	3	3
Portuguese		6	4	4	4
Thai		7			
Sinhala	3	8			
Tamil		8			
Bahasa Malaysia	1				
Hindi	3				

Progress to date:

- Translation of IOTC species ID guides into Farsi has already been completed for sharks and turtles. Other species are underway and all are due to be printed shortly (IOTC, IFO and WWF-Pakistan)
- Translation of IOTC species ID guides into Arabic has been completed for tuna and tuna-like species and translation of the others is currently underway. These are all due to be printed shortly (IOTC and WWF-Pakistan)
- Translation and printing of tuna, billfish, turtles and shark ID guides into Urdu is complete (WWF-Pakistan)
- Translation and printing of tuna and billfish ID guides into Bahasa Indonesian is complete (OFCF)
- Translation of turtle ID guides into Bahasa Indonesian and Spanish is complete, however, funding for printing is still to be identified (IOSEA)
- Translation of tuna and tuna-like species ID guides into Hindi is complete and printing is due to take place shortly (CMFRI and IOTC)
- Translation and printing of all IOTC species ID guides into Portuguese is underway (WWF-Mozambique, OFCF)
- Translation and printing of all IOTC species ID guides into Maldivian is underway (Ministry of Fisheries and Agriculture, Maldives)

RECOMMENDATIONS

That the Scientific Committee **RECOMMEND** that:

- 1) all observer data are submitted to the IOTC Secretariat in an electronically readable format.
- 2) capacity building activities continue to be supported via the Commission's annual budget, to improve the lack of compliance with the implementation of observer programmes by CPCs for their fleets and lack of reporting to the IOTC Secretariat as per the provisions contained within Resolution 11/04 *on a Regional Observer Scheme*.
- 3) the implementation of the Regional Observer Scheme—be for fleets with small-scale vessels—is supported through exploring a variety of methods, including the development and trial of electronic monitoring systems.

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

CPCs	Active Vessels LOA≥24m or High Seas vessels ⁹				Progress	List of accredited observers submitted	Number of observer reports provided ¹⁰					
	LL	PS	GN	BB			2010	2011	2012	2013	2014	2015
MEMBERS												
Australia	3	5			Australia has implemented an observer programme for the longline fleet	YES: 21	2(O)	1(O)	3(O)	No	2(O) + 3(E)	No
Belize	4				No information received by the Secretariat.	No	No	No	No	No	No	No
China —Taiwan,China	47 241				China has implemented an observer programme	YES: 3 YES: 54	1(O) No	No No	1(O) No	1(O) No	No No	No No
Comoros					Comoros does not have vessels ≥ 24m. Two observers were trained under the IOC Regional Monitoring Project, and 5 by SWIOFP.	YES: 7	N/A	N/A	N/A	N/A	N/A	N/A
Eritrea	No information received				No information received by the Secretariat.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
European Union	15 6 22 2	13 0 15 0			EU has an observer programme on-board its purse seine and longline fleets. To date, no information has been received from EU, Spain and EU, UK.	Partial: EU,France: 52 EU,Portugal: 4 EU,Spain : 9 EU,UK : No	EU, France: 6(O) No No	EU, France: 13+9(O) EU, Portugal: 1(O) No No	EU, France: 173+7(O) EU, Portugal: 1(O) No No	EU, France: 15+7(O) EU, Portugal: 1(O) No No	EU, France: 4832(O) EU, Portugal: 1(O) No No	EU, France: 26(O) EU, Portugal: 1(O) No No
Guinea					Guinea has had no vessels operating in the Indian Ocean since 2006	N/A	N/A	N/A	N/A	N/A	N/A	N/A
India					India has not yet developed an observer programme.	No	No	No	No	No	No	No
Indonesia	458				Indonesia has 13 registered IOTC observers and a number of initiatives, however, no data have been submitted to the IOTC Secretariat	YES:13	No	No	No	No	No	No
Iran, Isl. Rep. of		5	1223		30 observers have been selected and are due to be deployed in 2016. IOTC observer training will be taking place in 2015.	No	No	No	No	No	No	No
Japan	53				Japan started its observer programme on the 1 st of July 2010, and currently deploys 19 observers in the Indian Ocean.	YES: 19	68(E)	8(E)	107(E)	7(E) No	No	No

⁹ The number of active vessels is given for 2014

¹⁰ Year in which the observed trip has started (E: Electronic; O: Other)

CPCs	Active Vessels LOA≥24m or High Seas vessels ⁹				Progress	List of accredited observers submitted	Number of observer reports provided ¹⁰					
	LL	PS	GN	BB			2010	2011	2012	2013	2014	2015
Kenya					Kenya is developing an observer programme and 5 observers have been trained by SWIOFP. Kenya has had no vessels listed in the active vessel registry since 2010.	YES: 5	No	N/A	N/A	N/A	N/A	N/A
Korea, Rep. of	10	4			Korea has had an observer programme since 2002 and has 28 observers registered in the Indian Ocean.	YES: 28	2(O)	No	2(O)	3(O)	3(O)	No
Madagascar	7				Madagascar has developed an observer programme. Five and three observers have been trained through SWIOFP and IOC respectively.	YES: 7	No	No	5(O) ¹¹	8(O)	7(O)	No
Malaysia	11				Malaysia is developing plans for the implementation of an observer programme.	No	No	No	No	No	No	No
Maldives	27			317	Maldivian vessel landings are monitored by field samplers at landing sites. Maldives is currently developing an at-sea observer programme.	YES: 4	No	No	No	No	No	No
Mauritius		7			Mauritius is developing an observer programme. Five observers have been trained through SWIOFP and three through the IOC.	YES: 8	No	No	No	No	No	No
Mozambique	2				Mozambique has an observer programme and has submitted one trip report, but did not have any active vessels ≥24m in 2013.	YES: 11	No	No	1(O)	N/A	No	No
Oman	3				No onboard observers have yet been deployed, however IOTC training will take place in 2015.	No	No	No	No	No	No	No
Pakistan					Onboard observers have been deployed through WWF-Pakistan, however no data has been submitted to the IOTC Secretariat. Training will be taking place in 2015.	No	No	No	No	No	No	No
Philippines	4				No information received by the Secretariat.	No	No	No	No	No	No	No
Seychelles	31	8			Seychelles is developing an observer programme. Four observers have been trained through SWIOFP and three through the IOC.	YES: 7	No	No	No	No	No	No
Sierra Leone	No information received				No information received by the Secretariat.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Somalia	No information received				No information received by the Secretariat.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sri Lanka	13	7	1589		Sri Lanka has begun an pilot observer initiative and submitted observer data from pilot trips in 2014 and 2015 for review.	No	No	No	No	No	2(O)No	1(O)No
Sudan	No information received				No information received by the Secretariat.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tanzania, United Rep.of	3				Tanzania does not currently have an observer programme in place.	No	No	No	No	No	No	No

¹¹ Reports from Madagascar include observers onboard foreign vessels

CPCs	Active Vessels LOA≥24m or High Seas vessels ⁹				Progress	List of accredited observers submitted	Number of observer reports provided ¹⁰					
	LL	PS	GN	BB			2010	2011	2012	2013	2014	2015
Thailand	6				No information received by the Secretariat.	No	No	No	No	No	No	No
United Kingdom (OT)					The UK(OT) does not have any active vessels in the Indian Ocean.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanuatu					Vanuatu does not currently have an observer programme in place.	No	No	N/A	No	No	No	No
Yemen	No information received			No information received by the Secretariat.	No	No	No	No	No	No	No	No
COOPERATING NON-CONTRACTING PARTIES												
Bangladesh					No information received by the Secretariat.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Djibouti					No information received by the Secretariat.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Liberia					No information received by the Secretariat.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Senegal					Senegal has not had any active vessels in the Indian Ocean since 2007.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
South Africa	6				South Africa currently only operates an observer programme for foreign vessels operating within the EEZ as well as national vessels .	YES: 16	No	13(O) ¹²	10(O)	13(O)	98+2(O) ¹³	7+10(O)No

¹² Reports from South African observers onboard foreign vessels operating in the EEZ of South Africa, except for one report in 2014 on a S. Africa flagged vessel.¹³ Reports submitted for foreign vessels operating in the EEZ of South Africa between 2011 and 2013, and foreign + national flagged vessels for 2014 and 2015.

APPENDIX B
ESTIMATED OBSERVER COVERAGE FOR LONGLINE VESSELS

MEMBERS	Total effort (no.hooks)					Observed effort (no. hooks)					Coverage				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Australia	622,461	359,832	672,398	609,995	449,387	15330	6232	89490		41066	2.46%	1.73%	13.31%	0.00%	9.14%
Belize	653,332	693,449	1,626,217	315,470	1,639,340						0.00%	0.00%	0.00%	0.00%	0.00%
China –Taiwan,China	16,993,970	4,136,710	11,295,050	23,439,470	19,212,540	95205		185742	216640		0.56%	0.00%	1.64%	0.92%	0.00%
Comoros	219,630,038	182,770,834	170,510,584	199,408,593	204,860,159						0.00%	0.00%	0.00%	0.00%	0.00%
Eritrea															
EU - France	3,855,936	3,862,073	3,486,795	4,160,931	3,692,302	75360	113268	120478	107065	138718	1.95%	2.93%	3.46%	2.57%	3.76%
EU - Portugal	949,134	903,600	685,206	1,558,000	1,460,464		140317	73685	127580	90894	0.00%	15.53%	10.75%	8.19%	6.22%
EU - Spain	3,174,705	3,758,516	4,673,785	6,262,822	6,262,823						0.00%	0.00%	0.00%	0.00%	0.00%
EU - UK	61,400	92,300	71,400	55,000	84,700						0.00%	0.00%	0.00%	0.00%	0.00%
Guinea	575,706										0.00%				
India	67,647,814	86,414,352	65,307,478	68,888,882	68,568,466						0.00%	0.00%	0.00%	0.00%	0.00%
Indonesia	124,235,772	147,671,304	212,043,061	201,002,634	200,923,010						0.00%	0.00%	0.00%	0.00%	0.00%
Iran, Isl. Rep. of															
Japan	37,032,932	28,854,054	31,460,928	29,125,098	31,851,882	1150505	603157	953098	596055		3.11%	2.09%	3.96%	4.92%	1.71%
Kenya	188,663										0.00%				
Korea, Rep. of	6,013,391	5,862,681	4,350,708	5,337,464	6,740,247	389042		282656	546927	213225	6.47%	0.00%	6.50%	10.25%	3.16%
Madagascar	461,202	378,092	352,179	329,795	329,795		6140	16578	17192		0.00%	0.00%	1.74%	5.03%	5.21%
Malaysia	17,662,451	13,573,214	4,152,912	5,670,899	5,016,015						0.00%	0.00%	0.00%	0.00%	0.00%
Maldives				3,054,590	3,040,716						0.00%	0.00%	0.00%	0.00%	0.00%
Mauritius	267,063	252,480	182,300	150,560							0.00%	0.00%	0.00%	0.00%	0.00%
Mozambique	387,200	387,200	387,200		7,249		1100				0.00%	0.00%	0.28%		0.00%
Oman, Sultanate of	17,564,313	16,337,868	6,379,166	2,620,599	1,465,331						0.00%	0.00%	0.00%	0.00%	0.00%
Pakistan															
Philippines	2,784,696	560,653	7,317,740	3,759,626	2,016,101						0.00%	0.00%	0.00%	0.00%	0.00%
Seychelles	4,375,885	3,080,822	3,400,912	3,876,173	21,366,998						0.00%	0.00%	0.00%	0.00%	0.00%
Sierra Leone															
Somalia															
Sri Lanka	121,441,429	116,173,257	145,167,205	150,323,057	176,697,025						550	0.00%	0.00%	0.00%	0.00%
Sudan															
Tanzania, United															
Rep.of	774,399	2,388,937	2,444,933	2,607,116	2,607,116						0.00%	0.00%	0.00%	0.00%	0.00%
Thailand	1,489,193	1,041,600	1,061,363	784,881	765,787						0.00%	0.00%	0.00%	0.00%	0.00%
United Kingdom															
Vanuatu	916,919		1,269,690								0.00%		0.00%		
Yemen															
COOPERATING NON CONTRACTING PARTIES															
Bangladesh															
Djibouti															
Liberia															
Senegal															
South Africa	1,751,043	1,219,015	1,176,125	959,285	565,705		293685	836759	543543(17895)*		0.00%	0.00%	0.00%	0.00%	3.16%
Other	7,393,335	7,854,251	9,807,823	9,770,241	9,725,867						0.00%	0.00%	0.00%	0.00%	0.00%
Total	658,904,383	628,627,093	689,283,159	724,071,182	769,349,025	1,725,442	862,974	2,006,074	2,447,604	1,053,098	0.26%	0.14%	0.29%	0.34%	0.14%

NB: the ROS came into force mid-way through in July 2010 so annual coverage rates are expected to be relatively lower for 2010.

Portugal and Madagascar: the number of hooks are estimated based on the number of reported fishing days and previous hooks - fishing day ratios.

Japan: ~~the data received by the Secretariat on the number of observed hooks for 2011-2012 are provisional, and will be revised by Japan in 2015~~ this includes observer coverage reported by S.Africa for Japanese flagged vessels operating within the EEZ.

*South Africa: ~~foreign flagged vessels operating in the S.Africa EEZ, except numbers in brackets which indicate S.Africa flagged vessel observed hooks are based on foreign fleets, other than the bracketed number in 2014 which was for a S. Africa flagged vessel.~~

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				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Australia	175	130	148	133	115						0.00%	0.00%	0.00%	0.00%	0.00%
Belize															
China															
-Taiwan,China															
Comoros															
Eritrea															
EU - France	2801	3114	3052	3390	2662						0.00%	11.56%	13.92%	10.74%	21.04%
EU - Portugal															
EU - Spain	3531	3555	3684	3899	4224						0.00%	0.00%	0.00%	0.00%	0.00%
EU - UK															
Guinea															
India															
Indonesia															
Iran, Isl. Rep. of	128	139	168	172	183						0.00%	0.00%	0.00%	0.00%	0.00%
Japan	96	95	72	36	35						0.00%	0.00%	0.00%	0.00%	0.00%
Kenya															
Korea, Rep. of															
Madagascar															
Malaysia	12										0.00%				
Maldives															
Mauritius															
Mozambique															
Oman,															
Sultanate of															
Pakistan															
Philippines															
Seychelles	2144	2166	1969	1670	1904						0.00%	0.00%	0.00%	0.00%	0.00%
Sierra Leone															
Somalia															
Sri Lanka															
Sudan															
Tanzania,															
United Rep.of															
Thailand	137										0.00%				
United Kingdom															
Vanuatu															
Yemen															
COOPERATING NON CONTRACTING PARTIES															
Bangladesh															
Djibouti															
Liberia															
Senegal															
South Africa															
Other															
Total	9,025	9,199	9,188	9,777	9,919	0	360	425	397	571	0.00%	3.91%	4.63%	4.06%	5.76%

NB: the ROS came into force mid-way through in July 2010 so annual coverage rates are expected to be relatively lower for 2010

*Madagascar: observers onboard foreign vessels

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)