

A Crew-based Observer protocol alternate for on-board data collection in compliance with Resolution 24/04 On A regional observer scheme effectively deployed on artisanal and semi-industrial multiday fisheries boats in the Indian Ocean by Sri Lanka

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Introduction

More than 99% of Sri Lanka's artisanal and semi-industrial multi-day boat vessels currently measure less than 24 m length overall. Sri Lanka's fleet of small-scale vessels represented 44% of total number of IOTC registered vessels (4,490) in 2023¹. The average length of Sri Lanka's IOTC registered vessels is 17.81m (58.43ft.). Thirteen years on from Resolution 11/04 *On a regional observer scheme* (ROS), Sri Lanka's artisanal and semi-industrial multi-day boat vessels are still too small to comply with Resolution 22/04 and insufficiently equipped to comply with Resolution 23/08.

An alternative protocol is therefore essential if the largest fishing fleet in the Indian Ocean is to comply with ITOC resolutions on a ROS and the collection of on-board catch data and other scientific data related to the fisheries for tuna and tuna-like species now and hereafter (Resolution 15/01). Section 7 of Resolution 24/04 acknowledges this urgent need, by encouraging Contracting and Cooperating Non-Contracting Parties to formulate and report alternative data collection methods to the ROS to IOTC to increase ROS coverage.

A Crew-based Observer Protocol

In 2018 the new Sri Lanka Longline fisheries improvement project (SLL FIP) initiated a sub project to investigate whether skippers and crew operating less than 24 m longline fishing vessels could be trained as Crew-based Observed (CbO) to collect independently verifiable fisheries information and scientific data in compliance with IOTC's Resolution 15/01 *On the recording of catch and effort data by fishing vessels in the IOTC area of competence* and 16/04. The success of the pilot project strongly suggested that Sri Lankan skippers and crew could be trained to collect fisheries information and scientific data. Serial improvements were made to the CbO protocol during each of the subsequent iterations of the CbO

43 CbO have been deployed 94 times on-board semi-industrial fishing vessels operating longline (three sets per trip) and gillnets (Protected Species Only) between 2018 and 2023.

Trip, gear, set and catch data has been record from 174 trips. 1,658 trip, 1,620 gear, 1,065 set and 54,938 catch data have been recorded by CbO using the CbO protocol (Table 1).

¹ www.iotc.org/vessels/current

Each CbO deployment was implemented in collaboration with officers in the respective District Fisheries and Harbour offices at the local level. CbO deployment and the analysis of data was coordinated and completed in association with senior officers of the DFAR's Operations and Information Technology division in Colombo. Technical assistance in the design, development, deployment, data analysis, reporting and programme management and administration of the CbO programme over the past six years was provided by pelagikos.

Table 1 Deployment of Crew-based Observers between 2018 and 2023

Year	CbO Deployed	No. Trips	Gear Type	Harbours	Trip Data	Gear Data	Set Data	Catch Data
2018/2019	17	17	LL	2	193	136	258	9,682
2019	13	17	LL	3	149	88	59	4,139
2019/2020	22	44	LL	4	311	183	98	7,732
2020/2021	11	15	LL & GN	3	204	292	144	12,247
2021/2022	11	20	LL & GN	4	270	310	166	5,666
2022/2023	11	36	LL & GN	4	324	342	182	7,149
2023	9	25	LL & GN	4	207	269	158	8,323
	94	174	LL & GN	4	1,658	1,620	1,065	54,938

The CbO protocol

Sri Lanka's CbO protocol comprises two data collection stages. During the pre-departure briefing vessel information, cruise information and other required information are collected from the Harbour Office, vessel log-book, IOTC web site and an Interview Sheet by a Harbour Officer and validated by the Officer in Charge or the Assistant Director, District Fisheries Office. CbO are then provided with a waterproof digital camera with an in-built geographic positioning system (GPS) and scale on which to record the weight of each fish or other capture species caught. During the post-arrival de-briefing report information, cruise information, other required information, operation, catch, species and remarks are collected from the catch certificate, logbook, interview sheet, digital camera by the Harbour Officer and validated by the Officer in Charge or Assistant Director or Data analyst.

Compliance with Resolution 15/01

IOTC Resolution 15/01 sets out the reporting requirements for vessels per trip (Annex A) and per set/shot/operation (Annex B). Vessels operating longline gear configurations are required to provide 14 variables under four reporting requirements once per trip, with a maximum of 41 variables (8 optional) once per shot (Table 2). Vessels operating gillnets are required to provide 13 variables under four reporting requirements once per trip, with a maximum of 41 variables (5 optional) once per set (Table 2).

Table 2 Reporting requirements and variables under Annex A and Annex B

Reporting Requirements <i>once per trip</i>	Variables	CbO Protocol	
1.1 Report Information	2	2	100%
1.2 Vessel Information	5	5	100%
1.3 Cruise Information	2	2	100%
1.4 Other required information			
Longline (Gear configuration)	5	5	100%
Gillnet (Gear configuration)	4	4	100%

Reporting Requirements <i>once per set/shot</i>	Variables	CbO Protocol	
2.1 Operation			
For longline	08	08	100%
For gillnet	05	05	100%
2.2 Catch	01	01	100%
2.3 Species			
For Longline			
<i>Primary Species</i>	10	10	100%
<i>Other Species</i>	13	13	100%
<i>Optional</i>	06	06	100%
For Gillnet			
<i>Primary Species</i>	14	14	100%
<i>Other Species</i>	13	13	100%
<i>Optional</i>	05	05	100%
2.4 Remarks	03	03	100%

The CbO protocol developed by the DFAR for less than 24m artisanal and semi-industrial multiday fishing vessels is capable of collecting 100% of the IOTC's reporting requirements for vessels operating longline and or gillnets set out in Annex A using hard copy and or electronic data, once per trip (Table 2). 100% of the IOTC's reporting requirements for vessels operating longline and or gillnets set out in Annex 2 can be also be collected using the CbO, for a sub sample of longline shots and gillnet sets per trip (Table 2). The CbO protocol cannot be applied to every shot or set made by a vessel during a fishing trip due to the time constraints imposed on CbO to take images of each and very fish caught per set or shot. The sex of a fish caught also cannot be recorded.

Conclusion

Despite the best efforts of the government and the seafood export industry to deploy observers and install EMS on Sri Lankan multiday fishing vessels the small size, basic design and unsafe working conditions have proven to be an insurmountable obstacles in the way of deploying of Scientific Observers and or the installation of electronic monitoring systems on artisanal and semi-industrial fishing vessels since the introduction of IOTC Resolution 11/04 and 22/04. Section 7 of Resolution 24/04 highlights the importance of developing alternate methods for on-board data collection in compliance with Resolution 15/01 for the very large number of artisanal and semi-industrial fishing vessels operating within the IOTC's area of jurisdiction. The CbO protocol currently in operation in Sri Lanka is simple to explain and use and requires. The protocol requires only a digital camera with GPS functionality and a plastic measuring board, cost less than 25% of deploying an on-board Observer. The CbO is capable of collecting 100% of the IOTC's fisheries information requirements per trip and 100% of the catch and effort data requirements on a sub-sampling basis.