

INTERPRETING IOTC'S DATA REPORTING REQUIREMENTS FOR ACTIVITIES ON FLOATING
OBJECTS: AN OUTLOOK FROM EU SCIENTISTS AND FISHING OPERATORS

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ABSTRACT

This document presents the interpretation of EU scientists and fishing operators with regards to the IOTC's data reporting requirements for activities on Floating Objects (herein referred to as FOBs, including Fish Aggregating Devices (FADs) and logs) from the tropical tuna purse seine fishery. The controversial points on actual form 3FA have been identified and a proposal for collecting suitable data is presented here.

KEYWORDS: logbook, floating object, FOB, fish aggregating device, FAD, log, tropical tuna, purse-seine, Form 3FA, data reporting.

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1. Introduction

Tropical tuna purse seiners operating globally have continuously increased their use of Floating Objects (FOBs), including Fish Aggregating Devices (FADs, i.e. man made) and logs (i.e. natural), since the late 1980s. For example, the European tropical tuna purse seine fishery operating in the Indian Ocean has increased the percentage of FAD sets from 40% in 1990-1994 to 73% in 2010-2014 (Chassot et al., 2015, Ramos et al., 2017).

Since 2008, the IOTC's Resolution 13/08¹ includes standards for the collection and reporting of data on fishing activities around FOBs, both drifting and anchored, undertaken by purse seine and pole-and-line fisheries. This resolution has been reviewed in two different resolutions: 15/08 and, most recently, 17/08. The Resolution 17/08 procedures on a FADs management plan include more strict limitations on numbers of active tracking buoys, more detailed specifications of materials characteristics and catch reporting from FOB sets, and FADs designs to reduce incidence of entanglement of non-target species and environmental impact.

Currently, CPCs must provide catch-and-effort data in relation to: (i) total number (by type) of FOBs deployed by purse seiners and support vessels by quarter and fleet, (ii) effort data expressed as the total number of FOB visits per type of FOB, type of visit, 1° grid area and month; and (iii) total catches of target IOTC species and bycatch species taken on FOBs, at the same level of resolution (according to "Form 3FA").

However, some of the information requested is unclear (e.g., spatial stratification, or interpretation of the types of visits). The ambiguity in the interpretation of FOB data requirements may result in the development of FAD logbooks not adjusted to the real goals pursued in the forms established for the submission of the information. An early clarification of ambiguous requirements can avoid potential data use issues in the future.

The aim of the present paper is to describe the difficulties, raise questions and provide interpretations on the FOB collection requirements under Form 3FA to allow standardization among the reporting fleets, and if possible, among tuna Regional Fisheries Management Organizations (t-RFMOs). Finally, this paper proposes a reorganization of Form 3FA, using CECOFAAD conclusions for FOB types and activities (IOTC 2017 - Doc. No. j-FAD_35/2017).

2. Controversial points in Form 3FA

Table 1 presents the information required under IOTC according to the guidelines for the reporting of fishery statistics to the IOTC (IOTC Secretariat, 2014), and our corresponding interpretation, available data in each case and potential recommendations.

¹ "Procedures on a fish aggregating devices (FADs) management plan, including more detailed specifications of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of entanglement of non-target species"

Our interpretation has been made on the assumption that the data collection from FOBs should be provided reporting requirements to achieve, mainly according to the following three objectives:

- (i) to provide details on various activities associated to FOBs fishing and assess their relative importance in the purse seine fishery
- (ii) to contribute to the estimation of indices of abundance obtained from purse seine fisheries through the incorporation of data on FOB densities and better descriptions of effort of support and fishing vessels into these analyses;
- (iii) to assist in the evaluation of the potential ecosystem impacts of FOBs.

3. Conclusions and general recommendations on form 3FA

- (i) Modify the title from “Catch and Effort” to “Catch and Effort on FOBs”, to specify that the form concerns operations on FOBs.
- (ii) Delete the field “Target species” in the metadata since it is unnecessary.
- (iii) Rename column “Type of FAD” as “Type of FOB” and consider FOB types based on CECOFAD definitions (Table 2).
- (iv) Rename column “Type of Visit” as “Type of activity” and consider activity types on FOBs using CECOFAD definitions (Table 3).
- (v) Add a column defining FOB ownership according to Table 4.
- (vi) Rename column “Effort” as “No. of activities” for more clarity.
- (vii) Add a column specifying the type of vessel according to Table 5.
- (viii) Add a column on the total number of days at sea spent in each grid cell.
- (ix) Add a column on the total number of vessels considered in each grid cell.
- (x) Delete column “NO. SET ON FAD” as sets are already included in the activity types of Table 3.
- (xi) Harmonize required information and codes between different t-RFMOs.

Table 1 resumes definition of terms and recommendations of each field of 3FA form.

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Table 1. IOTC Form 3FA reporting requirements and their corresponding interpretation for EU tropical tuna purse seine fleet

Reporting Requirement	Questions / Remarks	Recommendations
1) GENERAL INFORMATION: General information about the dataset reported;		
a. REPORTING COUNTRY: The country reporting the number of FAD visits;	No comments	Change to FOB activities, instead of FAD visits
b. FLAG COUNTRY: The fishing country for which the number of FAD visits is reported;	No comments	Change to FOB activities, instead of FAD visits
c. YEAR: The calendar year the number of FAD visits refers to;	No comments	Change to FOB activities, instead of FAD visits
d. TYPE OF DATA: Type of statistics reported; Preliminary statistics: The statistics were estimated by using some information from the fishery, the statistics reported are likely to change in the future as more information become available; Final statistics: The statistics were estimated by using the complete set of data for the fishery and year concerned; the statistics reported are unlikely to change in the future;	No comments	No comments
e. DATA PROCESSING: The type of estimation procedure; Raised: The number of FAD visits data has been raised to the represent the total number of FOB visits in the year concerned (RS), has been raised but does not represent the total number of FOB visits in the year concerned (PR) or has not been raised at all (SA);	Please clarify the term "raised", as it ambiguous; to what does it refer? Data gathering? Lifting/hauling a FAD?	No comments
f. COVERAGE: The proportion of the total number of trips that was monitored for FOB visits for the fishery concerned, refer to Table 15 for types of coverage;	No comments	No comment
g. DATA SOURCES: The type of information that were used for the estimation of the number of FAD visits for the fishery concerned;	No comments	No comments
e. TARGET SPECIES: Main species targeted;	Unnecessary information	Remove this field
h. FISHERY: The type of fishery for which the number of FOB visits are	No comments	No comments

reported (see available fisheries on Table 11). Note that FOB data shall be reported for purse seine and pole-and-line fisheries operated on drifting and/or anchored FADs. Reporting of this information for other fisheries is encouraged (in particular fisheries using liftnets and handlines around anchored FADs);		
i. EFFORT UNITS: shall be expressed as number of activities on FOBs;	Shall be expressed as number of FOB activities	No comments
2) MONTH: The month where activities on FOBs were carried out;	No comments	No comments
3) GRID: Grid size, quadrant, latitude and longitude shall be defined as described in IOTC guidelines (IOTC Secretariat, 2014);	No comments	No comments
4) AREA: Grid identifiers shall be defined as described in IOTC guidelines (IOTC Secretariat, 2014);	No comments	No comments
5) ESTIMATION: The status of the effort data recorded for the stratum; SS: No or insufficient FAD data available in the stratum concerned, the FAD data for the stratum was estimated by using data from neighboring time-area strata (substitution scheme). Applies only to raised FAD data; AV: FAD data available for the stratum, the FAD data for the stratum was estimated by using the data available in the referred stratum. Applies to both raised and non-raised FAD data (all non-raised FAD data fall under this category);	Please clarify the term “raised”, as it ambiguous; to what does it refer? Data gathering? Lifting/hauling a FAD?	No comments
6) TYPE OF FOB: The type of FOB visited, refer to Table 22 for types of FOB from guidelines IOTC (IOTC Secretariat, to be updated);	Major explanations in Table 2	Replace Table 22 in IOTC guidelines (IOTC Secretariat, 2014) with definitions in Table 2
7) TYPE OF ACTIVITY: The type of activity undertaken when visiting the FOB; refer to Table 23 from guidelines IOTC (IOTC Secretariat, to be updated);	Major explanations in Table 3	Replace Table 23 in IOTC guidelines (IOTC Secretariat, 2014) with definitions in Table 3
8) FOB OWNERSHIP: (for drifting FOBs implies that the FOB is equipped with a owned buoy and its position is remotely transmitted to the vessel)	New column; major explanations in Table 4	Add table in IOTC guidelines (IOTC Secretariat, 2014) with definitions in Table 4
7) FAD sets: Indicate the number of FAD visits that ended up in a set. FAD sets can be performed following the retrieval of a FAD, drifting (DH, DR, and DI in Table 23), or anchored	Unnecessary	Remove this field. Not needed any more since “Fishing activity” is one of activities on FOBs in table 3

{AH and AR in Table 23};		
9) EFFORT/NO. OF ACTIVITIES: Total number of activities of FOBs aggregated by grid cell, type of FOB, type of FOB activity, type of FOB ownership, and type of vessel	Some NEI (Not elsewhere included) purse seiners transfer the property of a buoy for associated purse seiners	NEI (Not elsewhere included) activities should be included in definitions taking into account the purse seiner which owns these FADs (include in definition) NO. OF ACTIVITIES replaces EFFORT for more clarity
10) DAYS AT SEA: The cumulated number of days at sea for the given month-grid stratum;	New column	No comments
11) NO. OF VESSELS: The number of vessels present in the given month-grid stratum;	New column	No comments
12) TYPE OF VESSEL: The type of vessel such as PS (European purse seiner), SUPP (support vessel), BB (baitboat), etc. Refers to Table 16 in IOTC guidelines (IOTC Secretariat, 2014);	New column; major explanations in Table 5	No comments
13) CATCH; Retained catches: catches for each species retained on board in live weight and/or number; Discard levels: discard levels for each species in live weight or number;	No comments	This should include faux-poisson
a. SPECIES	No comments	No comments
b. CATCH UNITS: Catches shall be reported in live weight (metric tons);	No comments	No comments

Table 2. EU Scientists and fishing operators proposal for types of FOBs based on CECOFAD definitions (Table 7 in Gaertner et al. 2016).

	Code	English description
		Anchored FAD (usually consist of a very large buoy, anchored to the bottom with a chain)
1.	AFAD	Anchored FAD
		Log: natural (branches, carcasses, etc.) or artificial (wreckage, nets, washing machines, etc.).
2.	ALOG	Natural log of animal origin
3.	VLOG	Natural log of plant origin
4.	FLOG	Artificial log resulting from human fishing activity (nets, wreck, ropes, vessels that act as FADs, etc.)
5.	HLOG	Artificial log resulting from human non-fishing activity (e.g. a washing machine, oil tank, etc.)
		Drifting FAD has a floating structure (such as a bamboo or metal raft with buoyancy provided by corks, etc.) and a submerged structure (made of old netting, canvass, ropes, etc.) specifically designed by fishers to aggregate fish.
6.	BIDFAD	Biodegradable ¹ (100%) non-entangling FAD
7.	NEDFAD	Non-biodegradable or partially biodegradable and non-entangling FAD
8.	ENDFAD	Non-biodegradable or partially biodegradable FAD with entangling parts

¹ The biodegradability rate concerns both the submerged and non-submerged structure excluding floats and buoy.

Table 3. EU Scientists and fishing operators proposal types of activities related to FOBs (drifting or anchored), based on Table 8 in Gaertner et al. 2016.

	Code	English description
1.	DD	Deployment of FOB
2.	VV	Visit of FOB (without fishing, reinforcement or retrieval)
3.	VR	Visit with reinforcement of FOB (without fishing). The change of beacon should be considered.
4	VT	Visit with retrieval (without fishing)
5	FF	Fishing on FOB (without reinforcement or retrieval)
6	FR	Fishing with reinforcement of FOB (only raft and underwater material). The change of beacon should be considered.
7	FT	Fishing with retrieval of FOB
8	LL	Loss of the FOB (includes end of transmission or remotely turning off the buoy attached to drifting FOBs and detachment of anchored FOB)

¹ FOBs (Floating object) encompass all Log and Drifting FADs categories in Table 2

Table 4. Additional field describing FOB ownership proposed by EU scientists and fishing operators.

Code	English description
Owned	Owned FOB (for drifting FOBs implies that the FOB is equipped with an owned buoy and its position is remotely transmitted to the vessel)
Not owned	Not Owned FOB (for drifting FOBs this implies that the FOB is not equipped with a buoy, or equipped with a buoy which is not owned by the vessel)

Table 5. Additional field describing vessel type proposed by EU scientists and fishing operators. The reference table is Table 16 in IOTC Guidelines.

Code	English description
PSEU	Industrial purse seiner
SUPP	Support vessel of industrial purse seiners (not fishing)
OTH	Other vessel