EVALUATION OF IOTC FORM 3DA IMPLEMENTATION AND PROPOSED IMPROVEMENTS

Author: IOTC Secretariat

Purpose, expectation and action intended (select one or more and include corresponding text)

Discussions (for information and open discussion):

The paper informs meeting members of the proposed revisions to Form 3DA and the Secretariat's use of an internal validator to review submissions for the 2025 statistical year, as set out in the 'Changes to the form' and 'Validator for Form 3DA' sections.

Feedback (to collect input and suggestions)

Meeting members are invited to comment on the proposed revisions to Form 3DA, particularly whether the revised activity codes reflect operations recorded in fleet logbooks, and to suggest checks that would be useful before submission. The proposals are set out in the 'Changes to the form' and 'Validator for Form 3DA' sections.

Decisions (to request formal approval of actions)

Requests the approval of the changes to the form 3DA

Abstract

This paper reviews the implementation of IOTC Form 3DA for the 2023–2025 statistical years and proposes revisions to simplify annual reporting of vessel activities involving drifting floating objects, including drifting fish aggregating devices (dFADs). Nine fleets submitted the form at least once during this period. The proposed revisions add a vessel type field, standardise date and time reporting in UTC, simplify mesh reporting and update the codes used for buoy and dFAD activities. The Secretariat applied an internal validator to all 2025 submissions and provided feedback to reporting parties. A public version is under development to allow reporting parties to identify and correct errors before submission.

Introduction

The Indian Ocean Tuna Commission (IOTC) has progressively expanded the management of drifting fish aggregating devices (dFADs) and the collection of data on their use. Early statistical requirements focused on the number and types of fish aggregating devices deployed by fleets. Resolution 12/08 introduced management plans for fleets fishing on dFADs, and Resolution 13/08 specified in greater detail the activities and catches to be recorded. These requirements gave the Commission information on how fleets used dFADs alongside the catch and effort statistics already collected for the purse seine fishery.

Resolution 15/08 introduced limits on the number of operational buoys. Successive revisions adjusted those limits and refined design requirements intended to reduce the risk of entanglement of non-target species. From January 2020, Resolution 19/02 also required daily reporting of active buoy positions. These records included the date, buoy identifier, assigned vessel and position. They provided a record of where active buoys were tracked, while vessel activity records described operations such as deployments, visits and fishing sets. A position record and a vessel activity record therefore describe different aspects of dFAD use, even when both refer to the same buoy.

Resolution 24/02 entered into force in March 2025. It revised the requirements for buoy limits, design, marking, retrieval and reporting, and established the electronic dFAD Register, effective from January 2026. The resolution distinguishes between the number of instrumented buoys a vessel may follow at any one time and the number it may acquire over a year. It also sets out non-entangling design requirements and a phased transition towards biodegradable materials. For lost dFADs, flag vessels are required to attempt to locate and retrieve the device before reporting its loss. Resolution 19/02 remains binding on Oman following its objection to Resolution 24/02

The dFAD Register records instrumented buoy deployments and changes in operational status. Resolution 24/02 provides for separate identifiers for the buoy and the dFAD itself. This distinction is relevant when a buoy is retrieved or replaced while the device remains at sea. The resolution also distinguishes a change in the operational status of the buoy from the declared end of use of a marked dFAD, which may be retrieved, lost or abandoned. Deactivation of a buoy therefore needs to be interpreted in light of the operation reported, particularly when assessing whether the device itself has been recovered.

The register operates alongside two statistical reporting streams. Form 3DA covers vessel activities involving drifting floating objects, including dFADs, while Form 3BU covers daily buoy positions. Consistent identifiers allow records from these sources to be linked. In 2026, the Working Group on FADs (WGFAD) noted that differences in buoy identifier formats had made it difficult to identify the same buoy across records. Transfers illustrate the practical consequence. Where the unique dFAD identifier is unavailable, the buoy identifier used to report a transfer must match the one already recorded in the register.

Form 3DA replaced Form 3FA from the 2023 statistical year. The revised form records individual operations in greater detail and collects information on dFAD design and materials. The WGFAD recognised the additional detail in 2024 and noted in 2025 that both the extent and quality of reporting had improved, although the information supplied still varied among fleets. It supported the development of automated checks and feedback to reporting parties. A preliminary evaluation in 2026 examined reporting coverage, completeness and internal consistency. Following that review, the WGFAD requested more consistent guidance on date and time formats, vessel types, biodegradability categories, mesh size and the classification of buoy and dFAD activities. It also noted that checks before submission could identify formatting errors earlier and reduce the processing required after receipt. The Group suggested making changes to the form more visible to reporting parties and reiterated the importance of Secretariat support throughout the submission process. This could include working directly with reporting parties to resolve specific issues and requesting revised submissions where necessary.

Terminology, Definitions, and Data Requirements

Fleets with reporting duties of form 3DA

Form 3DA applies to purse seine vessels and their associated supply vessels that use drifting fish aggregating devices (dFADs) in the IOTC area of competence. These vessels are required to record activities involving drifting floating objects, including dFADs and logs, or their instrumented buoys, whether or not the activity results in a fishing set. The flag Contracting Party or Cooperating Non-Contracting Party (CPC) submits the data to the IOTC Secretariat annually by 30 June. For Oman, the corresponding reporting requirements remain those of Resolution 19/02.

Since the inception of the form 3DA, a total of nine fleets have at least once submitted the form 3DA.

Table 1. Form 3DA submission by fleet and statistical year, 2023–2025. Submissions using form 3FA in 2023 are marked by *FA*. TZA submitted a non-conform excel sheet in 2024 (*)

Fleet	2023	2024	2025
EUR.ESP	x	x	x
EUR.FRA	x	x	x
EUR.ITA	x	x	x
KEN		x	x
KOR	FA	x	x
MUS	x	x	x
OMN		x	x
SYC	FA	x	x
TZA		*	x

Changes to the form

Due to continuous feedback from the CPCs, the form has undergone some major and minor changes since its inception as form 3FA. The biggest change came as it transitioned from 3FA to 3DA. This year, we have made the form more operational based on the recommendations during WGFAD08 and feedback received throughout the year. The proposed changes are modest in scope and intended to make the form easier to use, whilst ensuring that it meets the reporting requirements of Resolution XX/XX in full. The changes will reflect that the CPCs are expected to submit only one excel file for the entire year, rather than a file per month. Thus they can be summed up into two categories: changes in columns (deletion/addition) and changes to reserved vocabulary (ie updates to codelists).

Some changes to the columns were necessary as the already mentioned move to a yearly form, rather than a monthly, requires more information in the data section. Change 2 in Table xx addresses this by explicitly requiring the date and time in one column. This also allows to cicumvent the issues arising when passing dates and times between different versions of Excel (and different encodings). By using the new format of date_time (the implementation of ISO 8601 and time to the minute in UTC), there is no ambiguity left. The reason to leave day of the month, is to have an easy consistency check. However, it can easily be removed as well. Change 1, requiring the vessel type (PS or SP) is to facilitate data processing as it avoids the necessity to extract the vessel type from the RAV.

Changes to the way mesh size is recorded came out of the necessity to make the form more congruent (there were issues with no mesh present but still requiring to enter a mesh size) and due to the operational realities of data collectors: it is unlikely that anybody will be able to measure the mesh (should there be any), especially in the lower parts of the FOB. The new codelist for the field mesh allows to indicate that no mesh was there, that mesh was present

with a small mesh size (<7cm), or that mesh with big mesh size (>7cm) was found. By contracting the information into one field, the form was made more congruent and more user friendly.

As already aluded by changing some of the codelists of the columns we were able to reduce the number of columns in the form without losing information. Furthermore, codelists for the activity on FADs and Buoys were updated to map better to the operational procedures recorded in the FAD-logbooks. However, a complete mapping was not achieved as many CPCs did not respond to a request of information. As the form is maturing, this remains one of the more pressing matters to address.

Further foreseen changes to the codelists will include a better size range that will be accepted for the length, width and height columns of the raft and tail of the FAD; for this, it would be also helpful to have some support from the CPCs/fishing companies to ensure operational feasibility. In the future as FADs need to conform to higher levels of biodegradability, the presence/absence observations for the metal/plastic might become superfluous, however like the coloumn mesh, they might be very important for rogue FADs encountered by the fishing fleet within the IOTC area.

It was decided to omit biodegradability from the reporting form, as observers or crew, would have to be specially trained to recognise those materials. It is also highly unlikely that the entirety of the FAD will be visible as to make a correct assessment. It was also deemed that the difference between the FAD registry and the form 3DA is that the form is scientific data.

Table 2. Changes to the visible data fields in the revised Form 3DA.

Change no.	Field	Earlier version	Revised version
1	Vessel type	No separate vessel type field	Adds Vessel type after Vessel name
2	Date and time	Separate Year, Month, Day of month and UTC time fields	Adds Date_Time and removes Year, Month and UTC time. Retains Day of month.
3	Surface (raft) mesh	Separate Mesh and Mesh size fields	Retains Mesh and removes the separate Mesh size field

Table 3 (next page): All the data fields explained with examples and codelists that should be used to fill the fields.

Group	Field	Description	Format/Codelist	Example
Main elements	Vessel name	Name of the purse seine vessel as available from the IOTC Record of Authorised Vessel ([RAV](https://rav.iotc.org/))	RAV https://rav.iotc.org/	DRENNEC`
	Vessel IOTC number	IOTC registered number of the purse seine vessel as available from the IOTC Record of Authorised Vessel	RAV https://rav.iotc.org/	IOTC018542`
	Vessel type	The type of vessel used in the recorded activity	vesselTypes	PS'
	Day of the month	Day of the month of the fishing activities reported through the dataset	Integer {1,2,3, ..., 31}	23
	Date_Time	The date and time (to the minute) at which the drifting floating object was visited in Coordinated Universal Time ([UTC](https://en.wikipedia.org/wiki/Coordinated_Universal_Time))	ISO 8601 [YYYY-MM-DDThh:mmZ]	2025-09-15T12:00Z`
	Latitude	The latitude of the drifting floating object location, expressed in decimal degrees according to the WGS 84 reference system (EPSG:4326). Recommended precision: four decimal places (~10 m)	ISO 6709 [+/-DD.DDDD]	-20.8854`
	Longitude	The longitude of the drifting floating object location, expressed in decimal degrees according to the WGS 84 reference system (EPSG:4326). Recommended precision: four decimal places (~10 m)	ISO 6709 [+/-DD.DDDD]	55.5312`
Buoy	Present	Indicates whether a buoy is attached to the drifting floating object	Y or N	N`
	Identifier	Unique identifier of buoy monitored generally composed of the concatenation of the buoy model with with 5-9 digits	String	SLX328501`
	Position	Indicates whether the vessel have access/knowledge of the buoy position	Y or N	Y`
	Activity	Type of activities undertaken when visiting or deploying the drifting floating object	DFOBbuoyActivityTypes	DE`
DFOB	Identifier	Unique identifier of the drifting floating object	String	IOTC-ABC-123
	Type	Type of drifting floating object	DFOB_TYPES	DFAD`
	Activity	Type of activity undertaken when visiting or deploying the drifting floating object	DFOB_ACTIVITY_TYPES	DE`
Surface (raft)	Plastic	Indicates whether the surface or near-surface structure of the drifting floating object contains some plastic materials	Y or N	Y
	Metal	Indicates whether the surface or near-surface structure of the drifting floating object contains some metal materials	Y or N	Y
	Length	Length of the surface or near-surface structure of the drifting floating object in centimetres (cm)	Numeric	150
	Width	Width of the surface or near-surface structure of the drifting floating object in centimetres (cm)	Numeric	120
	Height	Height of the surface or near-surface structure of the drifting floating object in centimetres (cm)	Numeric	50
	Mesh	Indicates whether the surface or near-surface structure of the drifting floating object contains small sized-mesh, large sized-mesh, or no mesh.	codelist: "< 7cm", "> 7 cm", "NAP"	<7cm
Subsurface (tail)	Plastic	Indicates whether the tail of the drifting floating object contains some plastic materials	Y or N	N
	Metal	Indicates whether the tail of the drifting floating object contains some metal materials	Y or N	N
	Length	Length of the subsurface structure of the drifting floating object in centimetres (cm)	Numeric	100
	Width	Width of the subsurface structure of the drifting floating object in centimetres (cm)	Numeric	100
	Height	Height of the subsurface structure of the drifting floating object in centimetres (cm)	Numeric	90
	x	Indicates whether the subsurface structure of the drifting floating object contains small sized-mesh, large sized-mesh, or no mesh.	codelist: "< 7cm", "> 7 cm", "NAP"	<7cm`

Validator for Form 3DA

In 2026, the Secretariat used an internal validator to assess all Form 3DA submissions for the 2025 statistical year. The validator was developed for the previous version of the form, and the Secretariat used the results to provide feedback to reporting parties. A public version, including a Shiny interface, is still under development. It would allow reporting parties to run the checks on their own files and address issues before submission.

The validator uses the R package vrule to apply rules to individual cells. These rules are defined in a schema written in JSON or YAML, separately from the code that runs the checks. A rule can specify, for example, whether a field must be completed, which date and time format it accepts, or which values are permitted under the relevant codelist. This allows the Secretariat to update the rules as the form and its codelists change.

The checks used for the 2025 submissions focused on whether individual values conformed to the form specifications. Assessing whether values are consistent with one another requires checks across fields. For example, a vessel type and an activity code may each be valid individually, whilst their combination warrants review. Assessing reporting coverage requires a separate comparison with information on the vessels and operations expected to be reported.

Development of the public validator will need to account for the revised form and its codelists. For pre-submission checks to be useful, the results should identify the affected row and field, the value supplied and the rule that was triggered. This would give reporting parties the information they need to locate and address the issue in the source file

Challenges reported from CPCs

There have been data processors that have spoken in private with the secretariat about the issue of identifying buoys and FADs. The identity number is often not visible by the data collector and that can lead to non reporting of ID numbers, which as of today would lead to a partial compliance. Further complications can arise with the requirement to mark the buoy with the IOTC number. The issues around FAD and buoy identifier will be raised at the WGFAD and the secretariat will provide support in order to resolve these issues.