

# Developing a data standard for the retrieval of abandoned and lost FADs in the Indian Ocean

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**Abstract:** The Indian Ocean has seen a significant increase in the number of dFADs used in purse seine fisheries, which has resulted in an exponential rise in tropical tuna catches. However, the negative impacts such as catches of juvenile tunas, increase in several non-targeted species, ghost fishing and abandoned and lost fishing gear remain a significant concern of developing coastal States. As fisheries managers debate the trade-offs between mitigating adverse environmental impacts and economics around the value of tuna landings, there is very little data regarding lost and abandoned FADs in the Indian Ocean, and the ecological implications of these. When there are data, there is little cohesion between different data collection systems. This paper aims to review the data protocols used by member countries, RFMOs, and independent entities for collecting data on abandoned and lost dFADs, and to propose a tool to collect data on retrieval of abandoned and lost FADs. The proposed data collection tool is based on four different elements: dFAD retrieval information, dFAD material information, the fate of dFAD/the buoy, and the impacts on the marine environment.

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## 1. Introduction

The increased use of drifting fish aggregating devices (dFADs) in purse seine fisheries to improve their efficiency has brought not only higher tuna catches from the Indian Ocean, but also brought on concerns around the operation's environmental impacts (Bromhead, 2003; Amandé et al., 2008; Gilman, 2011; Leroy et al., 2012; Filmalter et al., 2013; Davies et al., 2014; Zudaire et al., 2018; Banks & Zaharia, 2020). These include concerns around the fact that dFAD-related catches harvest a staggering amount (over 95%) of juvenile tunas (Rattle, 2020), increased capture of at-risk non-target species in comparison to methods that target naturally occurring, free swimming tuna schools (Gilman, 2011; Leroy et al., 2012; Davies et al., 2014), ghost fishing (Filmalter et al., 2013), and the proliferation of plastic pollution in the oceans (Davies et al., 2014; Gomez et al., 2020). The issue is further exacerbated by the sheer quantity of abandoned and lost dFADs, which continue to drift in the ocean on an immense scale and have negative social and economic impacts for marine wildlife and other ocean users (Zudaire et al., 2019).

Even after dFADs have been rendered non-functional or disassociated from the vessels that deployed them, they persist in the ocean as abandoned and lost dFADs, where they constitute a potential hazard for marine organisms (Hallier et al., 2008; Macfadyen et al., 2009; Filmalter et al., 2013; Zudaire et al., 2019) and burden the waters of coastal States. These abandoned, discarded or lost dFADs retain their ability to aggregate fish, thus posing a significant and particular risk to both targeted tuna and non-target predatory species alike. To illustrate, one study revealed that as many as 960,000 silky sharks are ensnared and ultimately perish in dFADs within the Indian Ocean every year (Filmalter et al., 2013). In addition, since current dFAD components, including the satellite buoys, are made from synthetic materials, they ultimately contribute to plastic pollution. Furthermore, the cost of removing this plastic waste is significant for coastal developing countries (Burt, et al., 2020; Purves, et., 2021; WCPFC, 2023) and therefore, represents a significant economic burden born by countries who in many cases have had little to do with creating the problem in the first place.

In 2021, Indian Ocean catches from large-scale purse seiners on drifting floating objects amounted to 410,000t, representing 86.6.% of the total industrial purse seine catch, 76.4% of the total purse seine catch, and 35.1% of the total catch of the Indian Ocean tropical tunas (IOTC, 2023). The cumulative number of dFAD buoys released and activated has increased from 25,690 a year in 2020 to 72,068 in 2022 (IOTC, 2023). On any average day, the number of distinct satellite-tracked buoys, monitored by the large-scale purse seine fishery remained between 8,408 and to 11,536 (IOTC, 2023). Buoys are constantly deactivated for different reasons: a lack of need following a fishing operation, drifting outside purse seine fishing grounds, beaching or sinking, and transmission problems due to technical reasons (IOTC, 2023). Once deactivated, buoys and dFADs are rarely recovered by their associated vessels, instead, they are left to drift as ghost gear or beach in critical habitats. For example, in analysing the Parties to the Nauru Agreement FAD tracking data from 2016 to 2020, it was determined that only 9.4% were retrieved. 42.1% of the dFADs were lost, 7.4% were beached, 20% were sunk, stolen or had a malfunctioning buoy, and 21.1% were deactivated by the fishing company and left drifting, unmonitored at sea (Escalle et al., 2020). As many countries have stakes in the purse seine dFAD fishery, it is crucial to understand the trade-offs in the decision-making process by the RFMO membership, in particular with abandoned and lost dFADs.

The IOTC has taken steps to improve its transparency around dFAD data, such as making dFAD positional data available for scientific research in 2023. However, there is still much progress to be made, particularly because Resolution 23/02 – *“On the management of dFADs in the Indian Ocean”* became non-binding due to 12 objections earlier this year by member countries (Comoros, Oman, Kenya, Seychelles, Philippines, European Unions, France (OT), Tanzania, Mauritius, Thailand, Republic of Korea). Therefore, dFADs in the Indian Ocean remain managed under Resolution 19/02, *“Procedures on a fish aggregating devices (FADs) management plan”*. Resolution 19/02 states that the Commission will develop a dFAD tracking and recovery policy in 2021 to; define dFAD tracking, organize the reporting of lost dFADs, make arrangements to alert

coastal States of derelict/lost dFADs at risk of beaching in near real-time, determine how and who recovers the dFAD, and outline how the recovery costs are collected and shared. A significant limitation is that Resolution 19/02 is only directed at dFADs under active use, excluding numerous dFADs that have been deactivated, abandoned, misplaced, or discarded. To date, therefore, there is no mechanism for IOTC Member States to hold entities accountable for FAD ownership (Pons et al., 2023). This consequently exacerbated the challenge of assessing the subsequent ecological repercussions of dFADs deployment. Such implications considerably impede the capacity of the IOTC to fulfill its conservation objectives and effectively implement effective FAD management strategies. On the other hand, steps were taken under Resolution 23/01 to maintain an anchored FAD (aFAD) register with deployed, lost, abandoned, and discarded aFADs and a reporting mechanism starting from 2024. It seems logical that, given the passive nature of dFADs which has ocean-wide social, economic, and environmental impacts, a similar process should be in place for this gear, too.

The absence of a standardized protocol for the collection of data related to retrievals of abandoned and lost dFADs within the jurisdiction of the IOTC poses several multifaceted challenges. This regulatory vacuum has led to significant data gaps by hindering the accumulation of comprehensive information on the deployment, movement, and final fate of dFADs—information crucial for informed decision-making and regulation implementation in the IOTC. The varied measures adopted by different member States in the absence of a uniform protocol further complicate the situation by creating inconsistencies that can obstruct monitoring and compliance efforts. Thus, the absence of standardized retrieval protocols for dFADs within the IOTC's area of jurisdiction underscores the urgent need for coordinated action to ensure both the responsible management of marine resources and the preservation of marine ecology in the Indian Ocean.

This paper's primary objective is to provide a synthesis of data collection protocols for abandoned and lost FAD retrieval across different countries and jurisdictions. Specifically, we aim to explore the protocols currently in use by Somalia, Maldives, and Seychelles, as well as those developed by other RFMOs and independent entities. The study can help the IOTC to establish a comprehensive FAD retrieval program, with a standardized data collection throughout its membership.

## **2. Current FAD Retrieval Practices**

**Somalia:** Somalia has an ongoing project in collaboration with the Somalia Natural Resources Research Center (SONRREC) to understand the impacts of dFADs on the Somali coast. This project collects information on abandoned dFADs deployed by purse seiners inside and outside Somali waters. The study has thus far concentrated on four specific locations within Somalia's coastal zones: *Jazeera*, *Liido*, *Warsbeik*, and *Adale*. The rationale behind selecting these sites is their ecological significance: three of these locations are prominent nesting grounds for turtles and contain vast mangrove habitats. The entire project spans 230

km from Jazeera beach to Adale, covering 23 square kilometers of an Inshore Fishing Area (IFA) territory. The project began in August 2022 after a preliminary phase to gauge the financial and practical feasibility. The project's data collection protocol includes parameters such as recovery location, dFAD structure, design, and observed entanglement incidents.

It also includes photographs and other data including retrieval conditions and any noted environmental impacts of the retrieved dFAD. The data collection forms were translated to ensure the participating fishers and cooperatives fully understood the documentation process. Local communities, fishermen and cooperatives reported and recovered any abandoned and discarded FADs located within the defined Somali waters or the coastal zones of the four identified beaches. During the project period, a total of 102 dFADs were retrieved in two distinct periods: August to December of 2022 and from January to May of 2023. According to the status of the project, all data pertaining to the retrieval dFADs were collected opportunistically, and the collected abandoned and discarded dFAD were stored for future studies (Figures 1, 2, 3, and 4). It is important to note that the phenomenon of dFADs beaching could potentially have transpired within the temporal boundaries of the study duration. (Annex 1).



Figure. 1: A local fisherman retrieving beached dFAD at Liido Beach in Mogadishu



Figure.2: Stored of Retrieved dFAD Buoys



Figure3: Stored of Retrieved dFAD Buoys



Figure 4: Stored retrieved Raf of the dFAD

**Seychelles:** The Island Conservation Society conducted a study in 2015 around St. Francois Atoll, to quantify beaching events, understand environmental impacts, and identify vessels responsible for dFADs found along the Seychelles coast. The results were concerning: 39% of FADs found impacted coral reefs and 70% of the encountered dFADs were made of synthetic materials. These results promoted the tuna purse seine operators, Island Conservation Society (ICS), Islands Development Company (IDC) and Seychelles Fishing Authority (SFA) to develop a FAD-watch Program in 2016. The program was aimed to prevent and mitigate FAD beaching across 6 islands in Seychelles. It created buffer areas and alerted ICS when dFADs cross the buffer areas within 5 and 3 nautical miles. For each intercepted FAD, ICS collected information about the location, habitat type, purse seiner vessel, FAD design, entangled fauna and fate of the dFAD (Zudaire et al., 2018). The form used by the ICS is in Annex 2. The work has continued since then in partnership with various organizations. In 2023, the Seychelles government announced a new partnership with tuna operators and the Sustainable Indian Ocean Tuna Initiative (SIOTI) to retrieve abandoned and lost FADs (Bates, 2023).

**Maldives:** Maldives Marine Research Institute (MMRI) in association with International Pole and Line Foundation (IPNLF) has an ongoing project to record basic information on abandoned and lost AFADs by fishing vessels and local communities. Information collected includes location, dFAD number, dFAD composition, estimated abundance, and observer details. There is ongoing work to improve the efficiency of the reporting mechanisms and awareness building among the communities to report on encounters. The basic information collected through the project is in Annex 3.

**Other RFMOs:** ICCAT's abandoned dFAD reporting is based on three tiers: reporting loss and retrieval of dFADs through logbooks (Recommendation 16-01, On a multi-annual conservation and management program for tropical tunas), mandatory reporting of retrieval of fishing gears within 24 hours of retrieval to flag CPCs (Resolution 19-01 on abandoned, loss or otherwise discarded fishing gears), and circulating this information in the secure part of the website to all the CPCs (Resolution 19-01 on abandoned, loss or otherwise discarded fishing gears). In August 2023, IATTC agreed for member countries to develop dFAD recovery programs voluntarily, so that the Commission can analyze the feasibility of expanding it as a mandatory program for all vessels in the future.

**SPC:** The Pacific Community (SPC) in collaboration with several Pacific Island Countries and territories, and with support from non-governmental organizations, implemented a system in 2006 to collect stranded and lost dFADs. This program has been implemented in Australia, the Cook Islands, Federated States of Micronesia, Hawaii, the Republic of the Marshall Islands, French Polynesia, New Caledonia, Palmyra, Tuvalu, and Wallis and Futuna. A report of the analysis of this database was presented in the recent IATTC and WCPFC Scientific meetings (Escalle, L. et al., 2022). A total of 2,199 stranding events were identified

during the period (2006 - 2023), of which 40% were recovered from the beach, 29% from local communities, 8% drifting in the ocean, and 9% stranded on coral reefs (Escalle, L. et al., 2022). The data collection form is presented in Annex 4.

**Citizen Science:** A citizen science dFAD recovery research project led by the University of Exeter is being undertaken in the Indian Ocean to understand the use of dFADs and their impacts on marine life and communities in the region. Data is collected through several NGO, fisher and local community partners to collect data. The project developed a standardized data collection protocol using photographs to support written data, in line with other research projects undertaken in the Atlantic Ocean, to facilitate future comparison and collaboration. DFAD recovery protocols and data entry forms are available through numerous channels and have been translated into different languages (English, Swahili, Portuguese, and French) (Annex 5) to facilitate local engagement. Data parameters include dFAD location, dFAD structure and materials, and observed environmental impacts. The data collection form is presented in Annex 5.

### **3. Proposed Standards for DFAD Retrieval Data Form**

Despite these laudable efforts, there's a discernible lack of consistency across RFMOs, and even within the coastal States of the Indian Ocean, with regards to data collection of abandoned and lost dFADs. While the Pacific Community (SPC) has a well-established data collection protocol in place, and has had this for over 15 years, this is not the case for other RFMOs and regions. It is noted that even when dFADs are retrieved or stranded, the information is often not collected by member States in the Indian Ocean or, when collected, it is not in a standardized format and there are no clear sharing mechanisms. It is important that, to address these inconsistencies, a standardized, systematic data collection process is developed by the IOTC. Countries with smaller administrations and limited budgets will need help in implementing the program. The Commission may also therefore wish to consider this when designing the system to ensure all Member States can engage fully. . With this in mind, based on the current practices in IOTC member countries and in other regions, we propose the following form, outlined in Annex 6.

The proposed data collection form encompasses four aspects ranging from dFAD retrieval information, dFAD material information (different components per retrieval), fate of dFAD/the buoy, and any observed impacts on the marine or coastal ecosystem. These four elements are elaborated upon below.

Firstly, the form aims to capture basic information on dFAD retrieval, including dFAD number and dFAD flag States, coordinates or location of recovery, and the environment which it was located. These data could be linked to the dFAD register as suggested in Resolution 23/02 (non-binding). General FAD information would include FAD and buoy markings, the serial number of the buoy, the buoy size, and the condition of the dFAD (complete, beginning to break or mostly fallen apart). Secondly, data collection will include details

about the main components of the dFAD: the materials used in both the raft frame and the cover, and the tail materials including the weight. The IOTC Resolution 19/02, further advocates for the use of biodegradable materials and non-entangling designs in the construction of dFADs, as a strategy to mitigate their adverse environmental impacts (Zudaire et al., 2021). This information would provide insight into the lifespan of dFADs and the environmental repercussions. It will also help in improving our understanding as we transition into biodegradable FAD designs to mitigate marine pollution in the process.

The third section revolves around tracing the fate of dFADs and buoys. The proposed form in Annex 6 aims to systematically record dFAD disposal and recycling methods, a step towards curbing irresponsible abandoned and discarding FADs and fostering economic and environmental sustainability. Finally, the proposed form envisions a detailed account of the interaction between marine life and FADs. It seeks to improve our understanding of the connection between FAD usage and the undulate effects on marine ecology. A detailed explanation of the importance of different data elements of the proposed form is included in Table 1.

**Table:1 FAD Retrieval: Key Data and Implications**

dFAD retrieval data	Importance/Details
Basic dFAD information	<ul style="list-style-type: none"> <li>• <u>Date, Coordinates, Location</u>: Helps in tracking FAD movements and identifying high-impact zones. It aids the development of strategies to reduce negative environmental impacts.</li> <li>• <u>FAD Number and Flag State</u>: Facilitates traceability and encourages adherence to fishing guidelines.</li> <li>• <u>Type of FAD and Components</u>: Promotes understanding of the FAD's functioning and its environmental impact, guiding the usage of biodegradable materials in FAD components.</li> <li>• <u>Environment</u>: Essential in understanding the ecological implications of FAD deployments as a passive gear and contributes to strategizing to mitigate adverse effects on sensitive habitats.</li> </ul>
dFAD material and composition information	<ul style="list-style-type: none"> <li>• <u>dFAD and Buoy Markings</u>: Assists in tracing the origins of FADs, fostering responsible fishing through regulatory compliance.</li> <li>• <u>dFAD Condition</u>: Helps in evaluating the lifespan and potential environmental hazards of FADs.</li> <li>• <u>Materials Used in Construction</u>: Guides future designs to be more sustainable and less harmful to the marine ecosystem.</li> <li>• <u>Dimensions and Physical Properties</u>: Provides data for research to reduce negative impacts of dFADs by optimizing their design.</li> </ul>

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Fate of dFADs	<ul style="list-style-type: none"> <li>• <i>Buoy dFAD and Buoy Removal</i>: Understanding whether the buoy dFAD and the buoy were removed, how this was conducted, and where the elements ended up can offer insights into disposal practices, encouraging recycling and reuse.</li> </ul>
Implications for marine life	<ul style="list-style-type: none"> <li>• <i>Implications for Marine Life and Habitats</i>: Highlighting the need for detailed information on marine life entanglements and the consequences of dFAD beaching on habitats helps in strategizing better FAD deployments.</li> <li>• <i>Entanglements</i>: Recording details of entanglements is vital in understanding the ecological disturbance caused by dFADs, guiding future deployments to minimize harm.</li> <li>• <i>Marine Life Aggregation</i>: Understanding the role of dFADs in marine ecosystems and their impact on marine biodiversity.</li> <li>• <i>Habitat Impact</i>: Assessing the environmental impact and guiding future dFAD deployments to avoid sensitive habitats and reduce ecological disruptions.</li> </ul>

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Since most of the abandoned dFAD data in the Indian Ocean are collected by NGOs and fisher communities, they could adopt the form presented in Annex 6. Member States could work collaboratively to report the data collected through the form to the IOTC on a regular basis.

#### **4. Conclusion**

The increase in dFAD use throughout the Indian Ocean had meant an increase in juvenile tuna catch and an increase in adverse ecological impacts. Managing this increase poses significant challenges for the IOTC, particularly given no systematic or required dFADs retrieval protocols are in place. In this paper, we analyzed different data collection forms used by coastal States in the Indian Ocean, other RFMOs and other entities, and proposed a standardized data collection form, which can improve the dFAD retrieval data collection process in the IOTC.

For the IOTC to meet its conservation and management mandate, improved FADs management throughout the region is imperative, and collection and reporting of retrievals data is one component of that necessary management. The proposed data collection protocols call upon the collective conscience of IOTC member States to prioritize the well-being of the marine habitat and to be accountable to one another in pursuit of ecosystem sustainability in the Indian Ocean.

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**Annex 1: Somalia Data FAD retrieval Form**

**SONRREC FAD RETRIEVAL FORM (F10) – Somalia**



<b>QUESTIONS/INSTRUCTIONS</b>	
<b>1. CONTACT DETAILS</b>	
1.1 NAME: ( )	PHONE ( ) EMAIL ( )
<b>2. DETAILS OF FOUND OBJECT</b>	
2.1 CONFIRMATION - IS IT A FAD? <input type="checkbox"/> YES <input type="checkbox"/> NO	DATE FOUND:
2.2 PHOTO OF THE RETRIEVED OBJECT [FAD00 ]	
<b>3. LOCATION DETAILS</b>	
3.1 LOCATION FOUND: ( )	NAME/COORDINATES: ( )
3.2 DESCRIBE HABITAT/LOCATION	
<input type="checkbox"/> OPEN OCEAN <input type="checkbox"/> BEACH <input type="checkbox"/> REEF <input type="checkbox"/> SEAGRASS <input checked="" type="checkbox"/> MEADOW <input type="checkbox"/> MANGROVE	
3.3 PHOTOS OF THE LOCATION [FAD00 ]	
<b>4. ENTANGLEMENTS</b>	
4.1 ENTANGLEMENT ANY CREATURES ENTANGLED? <input type="checkbox"/> YES <input type="checkbox"/> NO	
<input type="checkbox"/> DEAD <input type="checkbox"/> ALIVE	
4.2 TYPE OF ENTANGLEMENTS <input type="checkbox"/> FISH <input type="checkbox"/> TURTLE <input type="checkbox"/> SHARK <input type="checkbox"/> DOLPHIN <input type="checkbox"/> OTHER ( )	
4.3 PHOTOS OF THE ENTANGLED CREATURE [FAD00 ]	
<b>5. FAD DETAILS</b>	
5.1 MARKS ON THE BUOY: ( ) MARKS ON THE FAD: ( )	
5.2 RAFT DETAILS ( <i>Material and Size</i> )	
<input type="checkbox"/> BAMBOO <input type="checkbox"/> WOOD <input type="checkbox"/> METAL <input type="checkbox"/> PLASTIC <input type="checkbox"/> FLOATS <input type="checkbox"/> TUBES <input type="checkbox"/> ROPES <input type="checkbox"/> STEEL <input type="checkbox"/> NETS	
5.3 TAIL/SUBSTRUCTURE ATTACHED: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIA <input type="checkbox"/> UNKNOWN	
5.4 TAIL/SUBSTRUCTURE ( <i>Material and Size</i> )	
<input type="checkbox"/> UNKNOWN <input type="checkbox"/> PALM LEAVES <input type="checkbox"/> OPEN NET MESH SIZE: ( )	
5.5 PHOTOS OF RAFT, SUBSTRUCTURE, BUOY [FAD00 ]	
<b>6. EXTRA INFORMATION</b>	
6.1 IS THE FAD IS STORED? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> REUSED <input type="checkbox"/> OTHERS ( )	
6.2 WEIGHT OF DIFFERENT COMPONENTS ( <i>Kg</i> )	
BUOY ( ) RAF ( ) TAIL/SUBSTRUCTURE ( ) ROPES ( )	
<b>7. SHARING &amp; PRIVACY</b>	
7.1 CONSENT TO DATA USE AGREE TO TERMS <input type="checkbox"/> YES <input type="checkbox"/> NO	
7.2 ALLOW SHARING ON SOCIAL MEDIA <input type="checkbox"/> YES <input type="checkbox"/> NO	
7.3 COMPETITION FOR PRIZES <input type="checkbox"/> YES <input type="checkbox"/> NO	
7.4. SIGN HERE AND CONTACT: PHONE:	
Please submit completed forms and associated photographs to SONRREC, Hodan District, Opposite Jazeera University Campus three Mogadishu, Somalia. send an email to <a href="mailto:info@sonrrec.org">info@sonrrec.org</a>	

## Annexes 2: Seychelles (Island Conservation Society)

# FAD Sighting Data Form



Form No:

Data from this form is being collected by Island Conservation Society (ICS) from across the Indian Ocean to help gain a better understanding on the number of Fishing Aggregation Devices (FADs) washing up on beaches and being entangled on coral reefs. From your helpful contributions ICS will be able to document the number, distribution and type of these polluting FADs in our ocean and work towards their clean-up.

Please gather as much of the following information on *any* FAD or FAD debris that you encounter in your area.

Thank you for your contribution.

**Name:** [Click here to enter text.](#) **Organisation:** [Click here to enter text.](#) **Contact number:** [Click here to enter text.](#)

**Contact address/email:** [Click here to enter text.](#)

### Sighting Information

**Date:** [Click here to enter a date.](#) **Island:** [Click here to enter text.](#) **Location (if no GPS):** [Click here to enter text.](#)

**UTM co-ordinate:** **Zone** [Click here to enter text.](#) **Latitude:** [Click here to enter text.](#) **Longitude:** [Click here to enter text.](#)

**Habitat** (please tick):  Beach  Sand/ seagrass flats  Coral reef  Free-floating

### FAD Information

**Satellite buoy attached?**  Yes  No **Manufacturer:** [Click here to enter text.](#) **Serial number:** [Click here to enter text.](#) **Vessel name:** [Click here to enter text.](#)

**Size of Frame:** [Click here to enter text.](#) **Frame materials:**  Bamboo  Plastic  Wood  Steel  Tree log

**Shade material:**  Fishing net  Shade Cloth  Plastic sheet  Palm fronds or other biodegradable material

**Aggregator:**  Curtain net  Sausage net  Synthetic rope  Plastic bag  Palm frond  Biodegradable rope

Other (please state) [Click here to enter text.](#)

**Depth of Aggregator (m):** [Click here to enter text.](#) **Condition:**  New  Beginning to break  Mostly fallen apart

Use the space below for comments or drawings that aid FAD description:

[Click here to enter text.](#)

### Impact on Marine life

**Species Entanglement?**  Turtle  Shark  Coral  Fish  Other [Click here to enter text.](#) **Status:**  Dead  Alive

**Species** (if known): [Click here to enter text.](#)

If FAD is entangled on coral reef please state the approximate size of the area impacted: [Click here to enter text.](#)

**FAD removed?**  Yes  No **Disposal Method:** *Choose an item.*

**Photographs of FAD?**  Yes  No **If yes, please send with form.**

Please return completed forms and associated photographs to Island Conservation Society, Pointe Larue, P.O. Box 775, Victoria, Mahé, Seychelles or email to [science@ics.sc](mailto:science@ics.sc). For more information please contact ICS here via email or tel. +248 4375354

Entered by:  
Checked by:

### Annexes 3: Maldives

DFAD Information sheet

<b>Date</b>	<b>Time</b>	
Location ID number	Lat	Long
ID number		
DFAD composition		
Estimated abundance		
Observer name		
Observer contact		

## Annexes 4: Pacific Community (SPC)'s FAD sighting form

<b>FAD Sighting form<sub>v2</sub></b>	Entered in the database <input type="checkbox"/>
Data collected regarding FADs, FAD debris and/or satellite buoys found. Contact 28721 or <a href="mailto:rar@mmr.gov.ck">rar@mmr.gov.ck</a>	
<b>Form</b>	
Completed on: <a href="#">Click here to enter a date</a> Completed by: First name: <a href="#">Click here to enter text</a> Surname: <a href="#">Click here to enter text</a>	
<b>Observer/ person who found the FAD</b>	
Name: <a href="#">Click here to enter text</a> Phone number: <a href="#">Click here to enter text</a> Email: <a href="#">Click here to enter text</a>	
<b>Sighting information</b>	
(Tick one or several) <input type="checkbox"/> A FAD and/or <input type="checkbox"/> A buoy - ID Number: <a href="#">Click here to enter text</a>	
<input type="checkbox"/> drifting FAD <input type="checkbox"/> anchored FAD <input type="checkbox"/> Satellite (used on FADs) <input type="checkbox"/> Other: <a href="#">enter text here</a>	
Date of finding: <a href="#">Click here to enter a date</a> Location (village, island, beach, bay, etc.): <a href="#">Click here to enter text</a>	
Coordinates (if possible): <a href="#">Click here to enter text</a>	
Precise location (in case of absence of coordinates, describe where it was found): <a href="#">Click here to enter text</a>	
Environment: <input type="checkbox"/> Beach <input type="checkbox"/> Coral reef <input type="checkbox"/> Drifting in the lagoon <input type="checkbox"/> Drifting in the ocean <input type="checkbox"/> Rocky shore <input type="checkbox"/> Mangrove <input type="checkbox"/> Garden (found previously) <input type="checkbox"/> Wharf (found previously) <input type="checkbox"/> Other: <a href="#">Click here to enter text</a>	
If found previously (garden, wharf, landfill), initial date and location: <a href="#">Click here to enter text</a>	
<b>FAD Information</b>	
Painted marks on the buoy: <a href="#">Click here to enter text</a> Marks on the FAD: <a href="#">Click here to enter text</a>	
FAD condition: <input type="checkbox"/> Intact <input type="checkbox"/> Beginning to break <input type="checkbox"/> Mostly fallen apart	
Submerged tail presence (i.e., part of the FAD normally under water): <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/> Unknown	
Raft materials: <input type="checkbox"/> Unknown <input type="checkbox"/> Bamboo <input type="checkbox"/> Wood <input type="checkbox"/> Metal drum <input type="checkbox"/> Plastic drum <input type="checkbox"/> Floats <input type="checkbox"/> PVC tubes <input type="checkbox"/> Cords <input type="checkbox"/> Steel <input type="checkbox"/> Nets, mesh size: <a href="#">Click here to enter text</a> <input type="checkbox"/> Cotton canvas <input type="checkbox"/> Plastic sheet <input type="checkbox"/> Palm leaves <input type="checkbox"/> Polystyrene <input type="checkbox"/> Other: <a href="#">Click here to enter text</a>	
Shape of the raft: <input type="checkbox"/> Square <input type="checkbox"/> Rectangular <input type="checkbox"/> Floats « sausage » <input type="checkbox"/> Cylindrical <input type="checkbox"/> Other: <a href="#">Click here to enter text</a>	
Submerged tail materials: <input type="checkbox"/> Unknown <input type="checkbox"/> Palm leaves <input type="checkbox"/> Open net, mesh size: <a href="#">Click here to enter text</a> <input type="checkbox"/> Net tied as a "sausage", mesh size: <a href="#">Click here to enter text</a> <input type="checkbox"/> Cord <input type="checkbox"/> Cotton canvas <input type="checkbox"/> Plastic sheet <input type="checkbox"/> Other: <a href="#">Click here to enter text</a>	
Estimated size of the raft (m) (Length x Width): <a href="#">Click here to enter text</a> Estimated depth of submerged tail (m): <a href="#">Enter text here</a>	
<b>Fate of the FAD/ the buoy</b>	
FAD removed? <input type="checkbox"/> No <input type="checkbox"/> Yes* If yes, why? <input type="checkbox"/> Landfill <input type="checkbox"/> Burned <input type="checkbox"/> Research <input type="checkbox"/> Recycled <input type="checkbox"/> Storage <input type="checkbox"/> Re-used (specify): <a href="#">text here</a>	
*If found in a garden or house, check yes If no, fate: <input type="checkbox"/> Unknown <input type="checkbox"/> Left <input type="checkbox"/> Sunk <input type="checkbox"/> Fished, species and catch (kg): <a href="#">text here</a> <input type="checkbox"/> Other: <a href="#">text</a>	
Buoy removed? <input type="checkbox"/> Yes <input type="checkbox"/> No* If so, why? <input type="checkbox"/> Landfill <input type="checkbox"/> Burned <input type="checkbox"/> Recycled <input type="checkbox"/> Research <input type="checkbox"/> Storage <input type="checkbox"/> Re-used (specify): <a href="#">text here</a>	
*If found in a garden or house, check yes If no, fate: <input type="checkbox"/> Unknown <input type="checkbox"/> Left <input type="checkbox"/> Sunk <input type="checkbox"/> Other: <a href="#">Click here to enter text</a>	
<b>Impact on marine life</b>	
Entangled animals? <input type="checkbox"/> None <input type="checkbox"/> Turtle <input type="checkbox"/> Shark <input type="checkbox"/> Coral <input type="checkbox"/> Fish <input type="checkbox"/> Marine mammal <input type="checkbox"/> Other: <a href="#">Click here to enter text</a>	
Status: <input type="checkbox"/> Dead <input type="checkbox"/> Alive <input type="checkbox"/> Unknown Species (if known): <a href="#">Click here to enter text</a> Number of individuals: <a href="#">enter text here</a>	
Fish or other species aggregated around the FAD <input type="checkbox"/> Yes <input type="checkbox"/> No Species (if known): <a href="#">Click here to enter text</a>	
If FAD is entangled on coral reef, please state the approximate size of the area impacted: <a href="#">Click here to enter text</a>	
Number of pictures: <a href="#">text</a>	Comments: <a href="#">Click here to enter text</a>

# FAD Data Collection Form

## The FAD Tracking Project

Please send photo of what you have found (including the full FAD, materials, and the satellite buoy to [info@fadtracking.com](mailto:info@fadtracking.com))

<b>Date of finding:</b>	<b>Contact email/number:</b>
<b>Reporters name:</b>	

<b>FAD information</b>	<b>GPS location:</b>
<b>Location</b> (EEZ/reef/beach):	
<b>Habitat?:</b> <input type="checkbox"/> beach <input type="checkbox"/> shallow waters <input type="checkbox"/> open ocean <input type="checkbox"/> reef <input type="checkbox"/> seagrass <input type="checkbox"/> mangrove	
<b>Approximate size of area affected:</b>	
<b>Entanglements?:</b> <input type="checkbox"/> shark <input type="checkbox"/> turtle <input type="checkbox"/> dolphin <input type="checkbox"/> fish <input type="checkbox"/> coral <input type="checkbox"/> other (please specify):	
<b>Species (if known):</b>	

<b>FAD components</b>	<b>Buoy markings:</b>
<input type="checkbox"/> <b>Satellite buoy?</b>	
<b>Serial number:</b>	
<b>Manufacturer:</b>	
<input type="checkbox"/> <b>Raft?</b>	<b>Dimensions:</b>
<b>Raft frame material:</b> <input type="checkbox"/> steel <input type="checkbox"/> bamboo <input type="checkbox"/> wood <input type="checkbox"/> plastic	
<b>Raft cover material:</b> <input type="checkbox"/> netting <input type="checkbox"/> shade cloth <input type="checkbox"/> hessian <input type="checkbox"/> bamboo <input type="checkbox"/> plastic sheet	
<input type="checkbox"/> biodegradable material <input type="checkbox"/> other (please specify):	
<b>Raft weight (g):</b>	
<input type="checkbox"/> <b>Curtain?</b>	
<b>Curtain material:</b> <input type="checkbox"/> hanging net <input type="checkbox"/> sausage net <input type="checkbox"/> polystyrene tubing <input type="checkbox"/> synthetic rope	
<input type="checkbox"/> biodegradable rope <input type="checkbox"/> plastic sheet <input type="checkbox"/> biodegradable material	
other (please specify):	
<b>Curtain length (cm):</b>	
<b>Curtain weight (g):</b>	
<b>Material conditions:</b> <input type="checkbox"/> like new <input type="checkbox"/> worn <input type="checkbox"/> some damage <input type="checkbox"/> broken <input type="checkbox"/> fallen apart	
<b>Notes/other comments:</b>	

## Annexes 6: Proposed IOTC FAD Retrieval Form

# FAD RETRIEVAL DATA

Name of the CPC: [Click here to enter a date](#)

Data collected regarding FADs, FAD debris and/or satellite buoys found. Contact [iotc-secretariat@fao.org](mailto:iotc-secretariat@fao.org)

### Contact Details

Completed on: [Click here to enter a date](#) Contact name: [Click here to enter text](#) Phone: [Click here to enter text](#) Email: [Click here to enter text](#)

### Retrieval information

Date of finding: [Click here to enter a date](#) Coordinates: [Click here to enter text](#) In absence of coordinates, location: [Click here to enter text](#)

FAD number: [Click here to enter text](#) FAD Flag State: [Click here to enter text](#)

Type of FAD:  drifting FAD  anchored FAD

FAD components (Tick one or several)  Raft  Tail/curtain  Satellite buoy (dFADs)  Other: [Click here to enter text](#)

Environment:  Beach  Coral reef  Lagoon  Open Ocean  Rocky shore  Mangrove  Seagrass  Other: [Click here to enter text](#)

Upload photos (Raft frame, covers, buoy, tail, and the location/environment) Number of pictures: [Click here to enter text](#)

### FAD Information

FAD Markings: [Click here to enter text](#) Buoy markings: [Click here to enter text](#) Buoy Serial Number: [Click here to enter text](#)

Buoy size: [Click here to enter text](#)

FAD condition:  Complete  Beginning to break  Mostly fallen apart

Raft frame materials:  Metal  Bamboo  Wood  Plastic  Other: [Click here to enter text](#)

Raft cover materials:  Shade cloth  Bamboo  Leaves  Rope  Netting  Plastic  Hessian  Other: [Click here to enter text](#)

Raft size dimensions [Click here to enter text](#)

Tail materials:  Open net  Sausage net  Synthetic rope  Biodegradable rope  Plastic  Biodegradable material

Polystyrene tubing  Cotton piece  Other: [Click here to enter text](#)

Mesh size: [Click here to enter text](#) Meshed material weight: [Click here to enter text](#)

Tail length [Click here to enter text](#) Tail weight [Click here to enter text](#)

Upload photos (buoy marks, FAD structure, Raft materials & tail materials) Number of pictures: [Click here to enter text](#)

### Fate of FAD/the buoy

FAD removed?  No  Yes If no, why? [Click here to enter text](#)

If yes, where?  Junkyard  Burned  Recycled  Research  Storage  Re-used (specify): [Click here to enter text](#)

Buoy removed?  Yes  No If no, why? [Click here to enter text](#)

If so, why?  Landfill  Burned  Recycled  Research  Storage  Re-used (specify): [Click here to enter text](#)

### Impact on Marine Life

Entangled animals?  None  Turtle  Shark  Coral  Fish  Marine mammal  Other: [Click here to enter text](#)

Status:  Dead  Alive  Unknown Species (if known): [Click here to enter text](#) Number of individuals: [Click here to enter text](#)

Fish or other species aggregated around the FAD  Yes  No Species (if known): [Click here to enter text](#)

If FAD is beached on habitat, please state approximate size of area impacted: [Click here to enter text](#)

Upload photos of the marine life impact: [Click here to enter text](#) Number of pictures: [Click here to enter text](#)

Comments: [Click here to enter text](#)

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