

IATTC – 8th FAD WORKING GROUP
7-8 JUNE 2024

Update on BIODEGRADABLE dFADS: CURRENT STATUS AND FUTURE PROSPECTS

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Biodegradable dFADs: current status and prospects
Adopted recommendations at different FAD Working Groups

IOTC FAD WG05 – Recommendations related to biodegradable dFAD :

- The WGFAD therefore **RECOMMENDED** that the SC urge the Commission to initiate an ambitious step-wise approach for the implementation of biodegradable DFADs as soon as possible.

IATTC AD HOC FAD WG07 – Recommendations related to biodegradable dFAD :

- The AD HOC FAD WG **RECOMMENDED**:
 - (1.1) a definition for biodegradable FAD ...,
 - (1.2) biodegradable FAD categories based on their degree of biodegradability ...,
 - (1.4) to establish a gradual timeline for implementation of biodegradable FADs...

WCPFC SC19 – Recommendations related to biodegradable dFAD :

- SC19 recommended that the FADMO-IWG and TCC review the timelines for the stepwise introduction of biodegradable dFADs...
- SC19 recommended the FADMO-IWG and TCC consider incentivising the use of biodegradable dFADs.

Biodegradable dFADs: current status and prospects

Current situation at t-FRMOs



ICCAT – Rec. 22-01:

- When designing dFADs the use of biodegradable materials should be prioritized.
- Endeavour that as of January 2021 all dFADs deployed are non-entangling, and constructed from biodegradable materials, including non-plastics, with the exception of materials used in the construction of dFAD tracking buoys.
- **Biodegradable dFAD definition and categories no defined yet.**



IOTC – Res 24/02:

- Transitioning to the use of biodegradable dFADs (New categories), with the exception of materials used for the instrumented buoys, by their flag vessel is proposed from 1 January 2024.
- Meshed material is NOT permitted for surface/sub-surface constructions.
- The sub-surface structure shall be limited to a length of 50 meters.
- **Biodegradable dFAD definition and categories adopted. Timeline adopted.**



IATTC – C-23-04

- To reduce the amount of synthetic marine debris, the use of natural or biodegradable materials (such as hessian canvas, hemp ropes, etc.) for drifting dFADs should be promoted.
- CPCs, ..., shall encourage the design and use of biodegradable nonentangling FADs.
- **Biodegradable dFAD definition and categories adopted. Timeline be adopted.**



WCPFC – CMM 23-01

- To reduce the amount of synthetic marine debris, CCMs shall encourage vessels flying their flag to use, or transition towards using, non-plastic and biodegradable materials in the construction of FADs.
- Meshed materials are NOT permitted for surface/sub-surface constructions.
- **Biodegradable dFAD definition adopted. Categories and Timeline to be adopted no later than 2026.**

Standardized Biodegradable FAD definition at IOTC (Res 24/02), IATTC (C-23-04) and WCFPC (23-01):

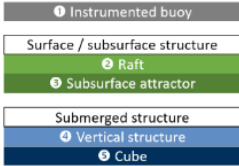
“Biodegradable” means non-synthetic materials and/or bio-based* alternatives that are consistent with international standards for materials that are biodegradable in marine environments. The components resulting from the degradation of these materials should not be damaging to the marine and coastal ecosystems or include heavy metals or plastics in their composition.”

¹ For example, plant-based materials such as cotton, jute, manila hemp (abaca), bamboo, natural rubber, or animal-based such as leather, wool, lard.

² International standards such as ASTM D6691, D7881, TUV Austria, European or any such standards approved by the Members of the Commission.

Biodegradable dFADs: current status and prospects

Biodegradable dFAD implementation: approach

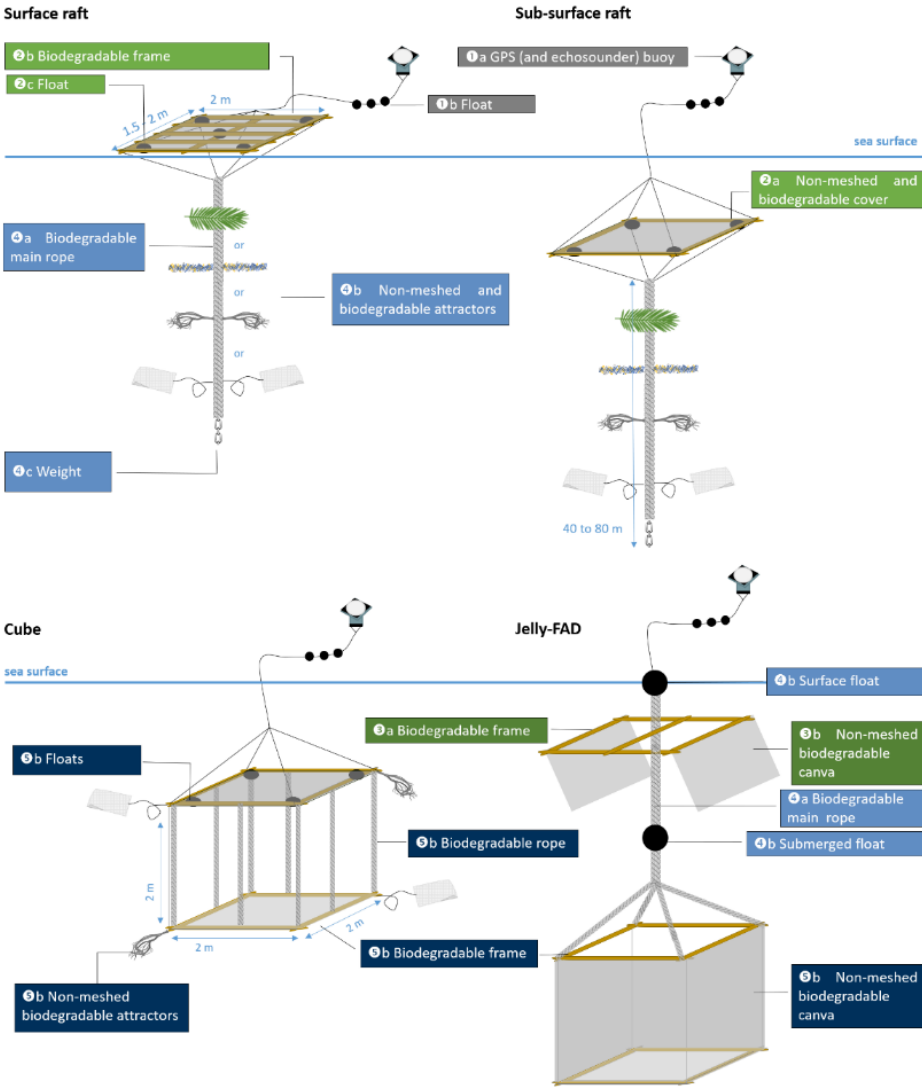


CATEGORY	DESCRIPTION	IMPLEMENTATION YEAR			
		IOTC	IATTC	WCPFC	ICCAT
Cat I	The DFAD is made of fully biodegradable materials.	2029	2031**	--	--
Cat II	The DFAD is made of fully biodegradable materials except for flotation components (e.g. buoys, foam, purse-seine corks).	2027	2029	--	--
Cat III	The subsurface part of the DFAD is made of fully biodegradable materials, whereas the surface part and any flotation components contain non-biodegradable materials (e.g., synthetic raffia, metallic frame, plastic floats, nylon ropes).	2026	2026	--	--
Cat IV	The subsurface part of the DFAD contains non-biodegradable materials, whereas the surface part is made of fully biodegradable materials, except for, possibly, flotation components.	2026	2026	--	--
Cat V	The surface and subsurface parts of the DFAD contain non-biodegradable materials.	2025	2025	--	--

**At the annual meeting in 2030, the Commission shall decide whether to require by 2031 CPCs to only allow vessels to deploy or redeploy drifting FADs of Category I

Surface vs. Subsurface ~ Submerged

Potential need of clarification within the adopted definition



Biodegradable dFADs: current status and prospects

Data collection procedures

ANNEX I

DATA COLLECTION FOR DFADs AND THEIR INSTRUMENTED BUOYS

- 1) For each activity on a DFAD, floating object and/or instrumented buoy, whether followed by a set or not, each fishing, supply vessel shall report the following information:

Object or buoy	Identifier	Identifier	Y (when present)	In case of DFAD visit this should be provided to the extent possible, i.e. without having to lift the DFAD out of the water
Floating object	Type	Dictionary entry	Y	As defined in paragraph 3 of this annex
	Biodegradability category (if the floating object is a DFAD)	Dictionary entry	Y	As defined in this Resolution.
	Activity type	Dictionary entry	Y	As defined in paragraph 4 of this annex

FAD LOGBOOK / OBSERVERS DATA:

- Information on **FOBs** (FADs and other floating objects)
- Date, Time [GMT], position of each activity
- **Type of vessel** (supplies and purse seiners)
- **Identification:** Vessel and trip ID
Buoy [ID of the manufacturer and owner]
- **FOB Type:** CECOFAD categories or enough information for posterior classification on CECOFAD categories.
- **FOB structure:** Main structure dimension [aaxbb] and Depth of the Hanging Structure [m] or structure type; Materials [NE character given by the mesh size and configuration; **and nature of materials partially described**]
- **Activity with FOB and buoys** [CECOFAD categories] or enough information to posterior classification on CECOFAD categories.
- **Estimation of the Catch:** Target species [tn, Fate= retained, discarded]
Bycatch [n° or tn, Fate = retained, discarded, released in case of sensitive species]

Need to adapt existing forms to identify biodegradable categories **considering the existing difficulties...**

Biodegradable dFADs: current status and prospects

Data collection procedures



Potential difficulties for data collection on biodegradable materials.

- When FADs are constructed on vessels and therefore:
 - ✓ port visit allow to evaluate only partly the biodegradable character of FADs.
 - ✓ FADs cannot be classified in biodegradable categories proposed by IOTC in port visits.
- In activities at sea potential difficulties in determining the biodegradable character of material.

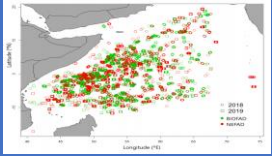
Biodegradable dFADs: current status and prospects

Past, present and future actions

PAST & ONGOING LARGE-SCALE TRIALS

IOTC - Indian Ocean

BIOFAD – IO (2017-2019)

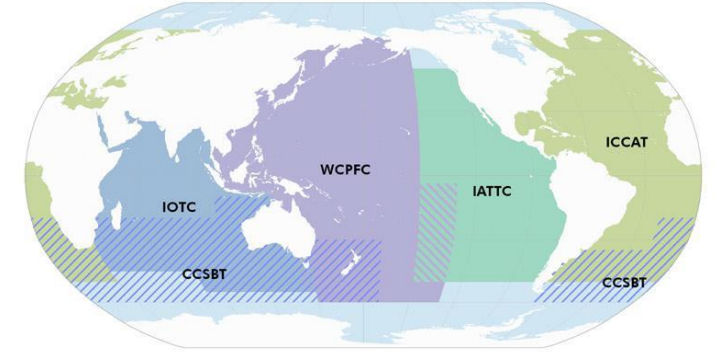


- 771 BIOFAD deployed
 - 3 tested models
 - Raft and ropes biodegradable (except floats & weight)
 - 40-81% less synthetic material.
 - 1-50% weight reduction
 - Lifespan > 365 days
- Murua et al., 2023*

ZUNFLOAT – IO (2024-2025)



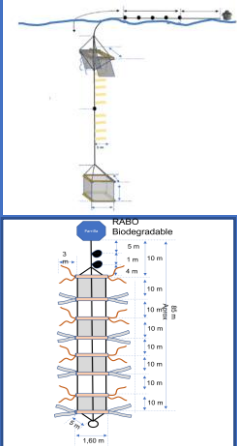
- 150 ZUNFLOAT to be deployed
- Raft compostable bio-based plastic



PAST & ONGOING LARGE-SCALE TRIALS

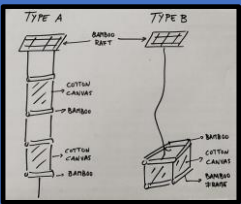
ICCAT - Atlantic Ocean

JellyFAD – AO (2021-2023)



- 214 BIOFAD deployed
- OPAGAC fleet
- 1 model of JellyFAD
- Raft and ropes biodegradable (except floats & weight)
- Lifespan ~ 340 days
- 1 model of biodegradable tail to be tested in 2023

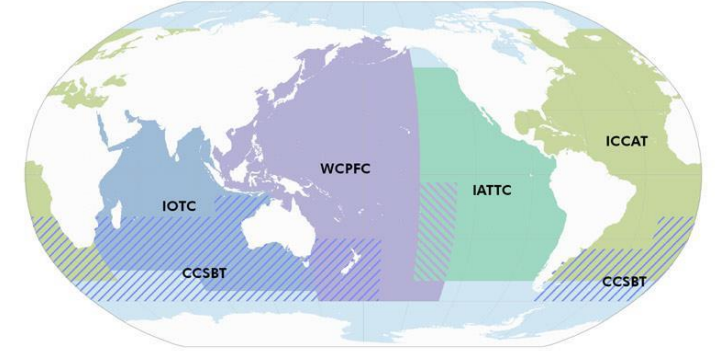
JellyFAD – AO (2018-2021)



- 147 JellyFAD deployed
- Ghanaian fleet
- 2 models of JellyFAD
- Raft and ropes biodegradable (except floats & weight)
- Lifespan ~ 130-190 days

Biodegradable dFADs: current status and prospects

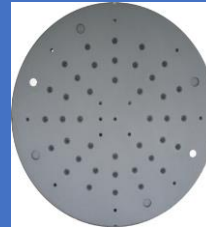
Past, present and future actions



Other Jelly-FAD trials:

- **Pevasa** (Anabac, Spain): +100 Jelly-FADs (Atlantic Ocean)
- **Via Ocean** (France): 60 Jelly-FADs (Atlantic Ocean)

ZUNFLOAT – AO (2024-2025)



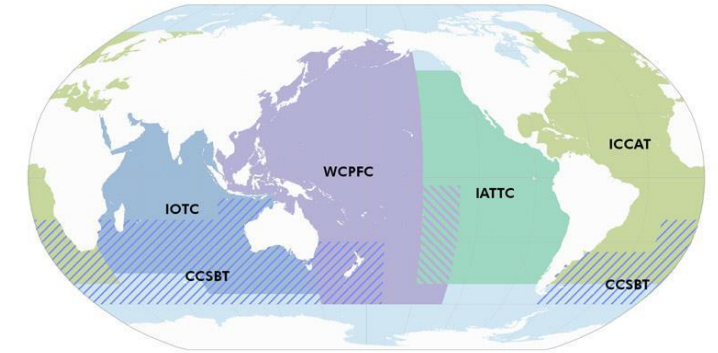
- 60 ZUNFLOAT to be deployed
- Raft bio-based compostable plastic

Biodegradable dFADs: current status and prospects

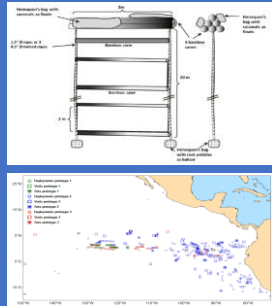
Past, present and future actions

PAST & ONGOING LARGE-SCALE TRIALS

IATTC - Eastern Pacific Ocean



NEDs – EPO (2018-2021)



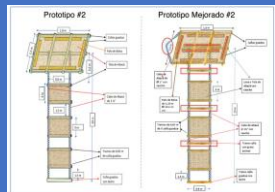
- 780 NEDs deployed
- 3 tested models
- FAD all biodegradable
- Lifespan > 790 days

[FAD-07-02 - Biodegradable FADs project report](#)

Other Jelly-FAD trials:

- **USA:** 260 jelly-FADs (East & West Pacific)
- **Nirsa (Ecuador):** 100 jelly-FADs (EPO)

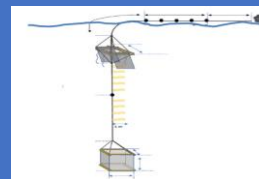
Eco-FADs – EPO (2018-2021)



- > 1400 Eco-FADs deployed
- TUNACONS fleet
- 2 tested models
- FAD all biodegradable
- Lifespan > 100 days
- TUNACONS deploying 20% Eco-FADs

[INF-C. Implementation of biodegradable FADs in the Eastern Pacific Ocean](#)

JellyFAD – EPO (2020-2023)



- 2500 JellyFADs deployed
- UGAVI fleet
- 2 tested model (organic and mix)
- Raft and ropes biodegradable (except floats & weight)
- Lifespan ~ 338 days
- Total catch around 2404 tns

Biodegradable dFADs: current status and prospects

Past, present and future actions

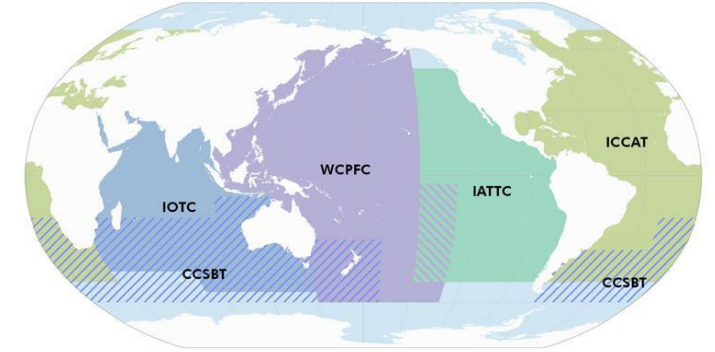
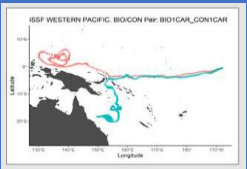
PAST & ONGOING LARGE-SCALE TRIALS

WCPFC - Western Pacific Ocean

JellyFAD – WCPO (2020-2023)



- 150 JellyFAD deployed
- CFC fleet
- 2 tested models of JellyFAD
- Tail all biodegradable
- Lifespan ~ 331 days



Other Jelly-FAD trials:

- **Caroline Fisheries Corporation (FSM):** 150 FSM (WPO)
- **USA:** 260 jelly-FADs (East & West Pacific)
- **Silla (Korea):** 34 jelly-FADs (WCPO)
- **FCF (Taiwan):** 50 jelly-FADs (WCPO)

Biodegradable dFADs: current status and prospects

Recommendations FOR IATTC

- ☐ Agreed biodegradable definition by t-RFMOs. – DONE (IATTC C-23-04)
- ☐ Different levels/categories of biodegradability of biodegradable dFADs,. – DONE (IATTC C-23-04)
- ☐ A stepwise process, including a timeline, towards the implementation of fully biodegradable dFADs – PARTLY ADOPTED (IATTC C-23-04)
- ☐ Further research on natural and synthetic materials that meet the biodegradable definition is required. – IN PROCESS
- ☐ Gradual modification of current dFAD design at a short term. – IN PROCESS
- ☐ Define data collection procedure on biodegradable material for categories classification – IN PROCESS