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

Testing of new compostable materials for the construction of dFAD raft

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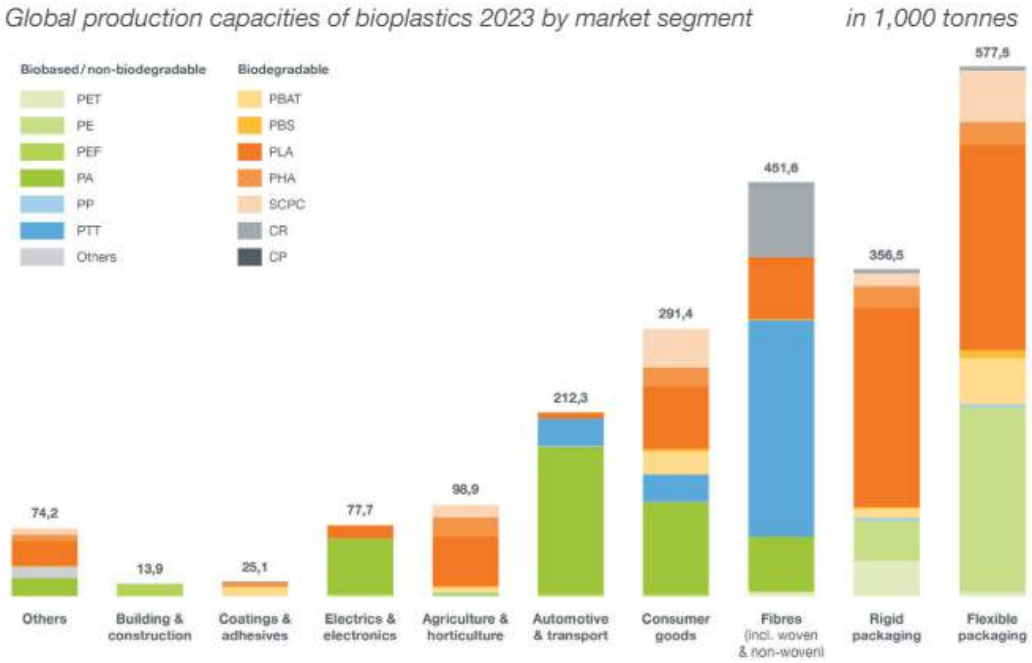
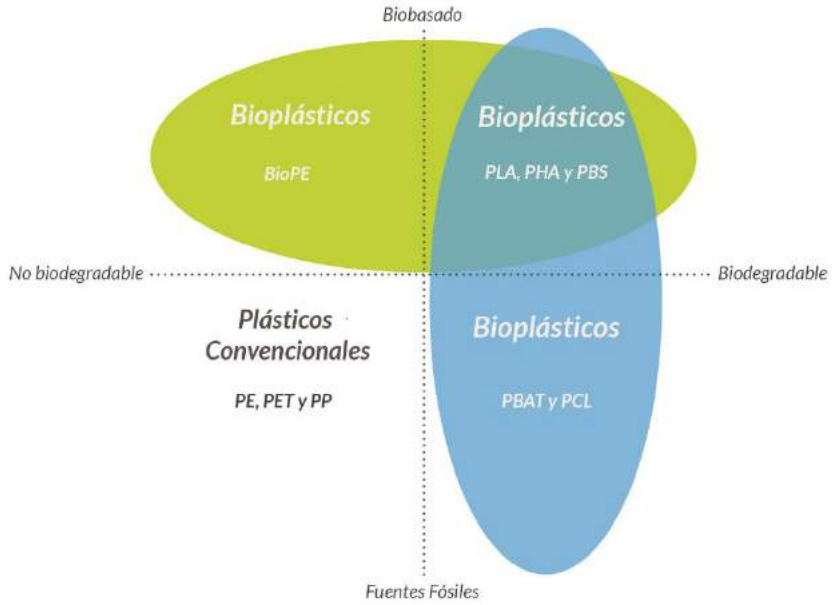
CIAT
IATTC

zunibal MOVED BY THE OCEAN

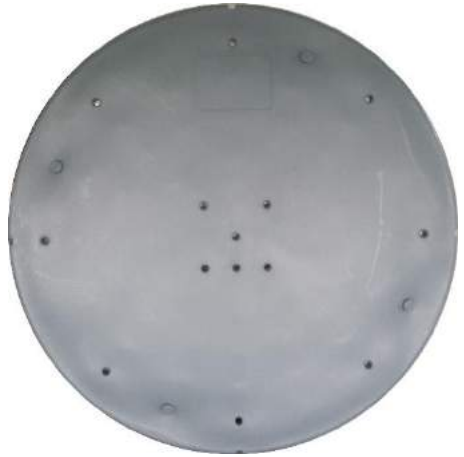
CONTEXT

- Concern about the potential impact of lost dFADs and their contribution to marine litter, especially conventional plastics used for their construction.
- Bioplastic materials are not specifically described as an alternative to conventional plastics, but may be an option to consider.
- Bioplastics currently represent roughly 0.5 percent of the over plastic produced annually. Global bioplastics production capacity is set to increase significantly from around 2.18 to 7.43 million tonnes during 2023-2028.
- There are still doubts about the usefulness of bioplastics in the construction of biodegradable FADs: feasibility in fishing operations, potential impacts, difficulties in the certification of the final product.





OBJECTIVES



Main goal:
To develop a biobased plastic alternative, using new compostable materials, for the construction of dFAD platform (raft developed by ZUNIBAL – ZUNFLOAT BIO).

- To assess the feasibility of the new raft for the tropical tuna purse seine fleet.
- To reduce dFAD potential impacts by reducing the use of conventional plastic
- To reduce the amount of elements used in dFAD construction.

Project working plan for 2023-2025

- PHASE I. Test design process
- PHASE II. Semi-controlled condition tests at IATTC (Achotines – Panama).
- PHASE III. Real condition sea test in the Indian and Atlantic Oceans.

	2023				2024												2025							
	Sept	Oct	Nov	Dic	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago
PHASE I																								
PHASE II																								
PHASE III																								

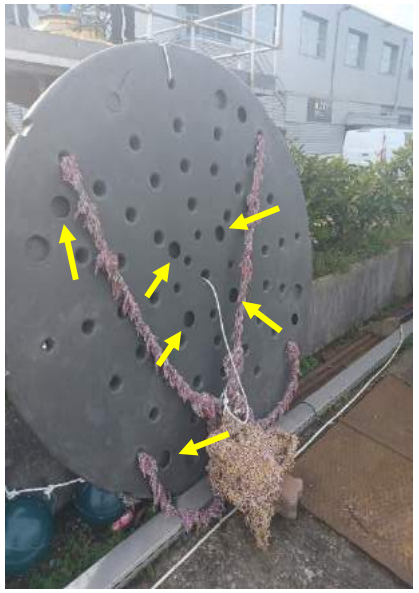
PHASE I – ZUNFLOAT BIO TEST DESIGN PROCESS

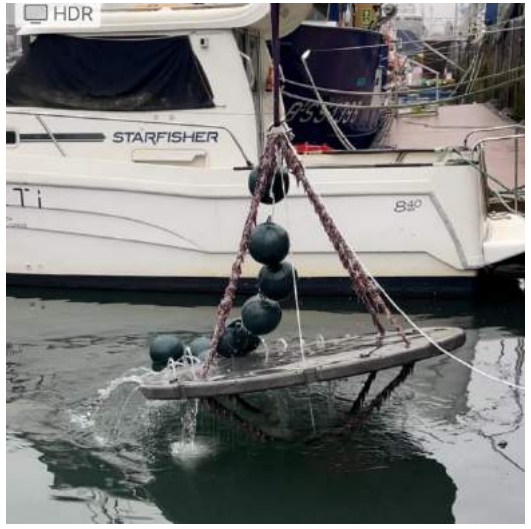
Since 2014 Zunibal has been working on the industrialization process of bio-based and compostable plastic materials by the rotomolding method.

Selected material is a PBS, a bioplastic derived from renewable material. It is chemically synthesised from components obtained from glucose and sucrose by fermentation.

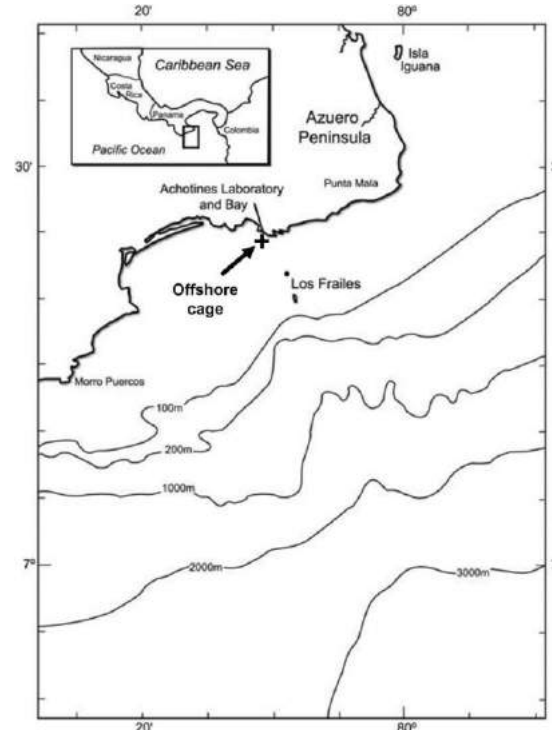
<u>During 2023-2024:</u>

- Workshops with the European tuna purse seine fleet to learn about their needs and seek their commitment to the project.
- Adaptation of the platforms to the needs of the different oceans.
    - Preparation of the platform to submerge it and facilitate the fishing maneuver.
- Testing of the platform at AZTI facilities.





PHASE II – Semi-controlled sea test



<u>During 2024-2025:</u>

- Deployment of 12 platforms at IATTC's laboratory facilities in Achotines Panama.

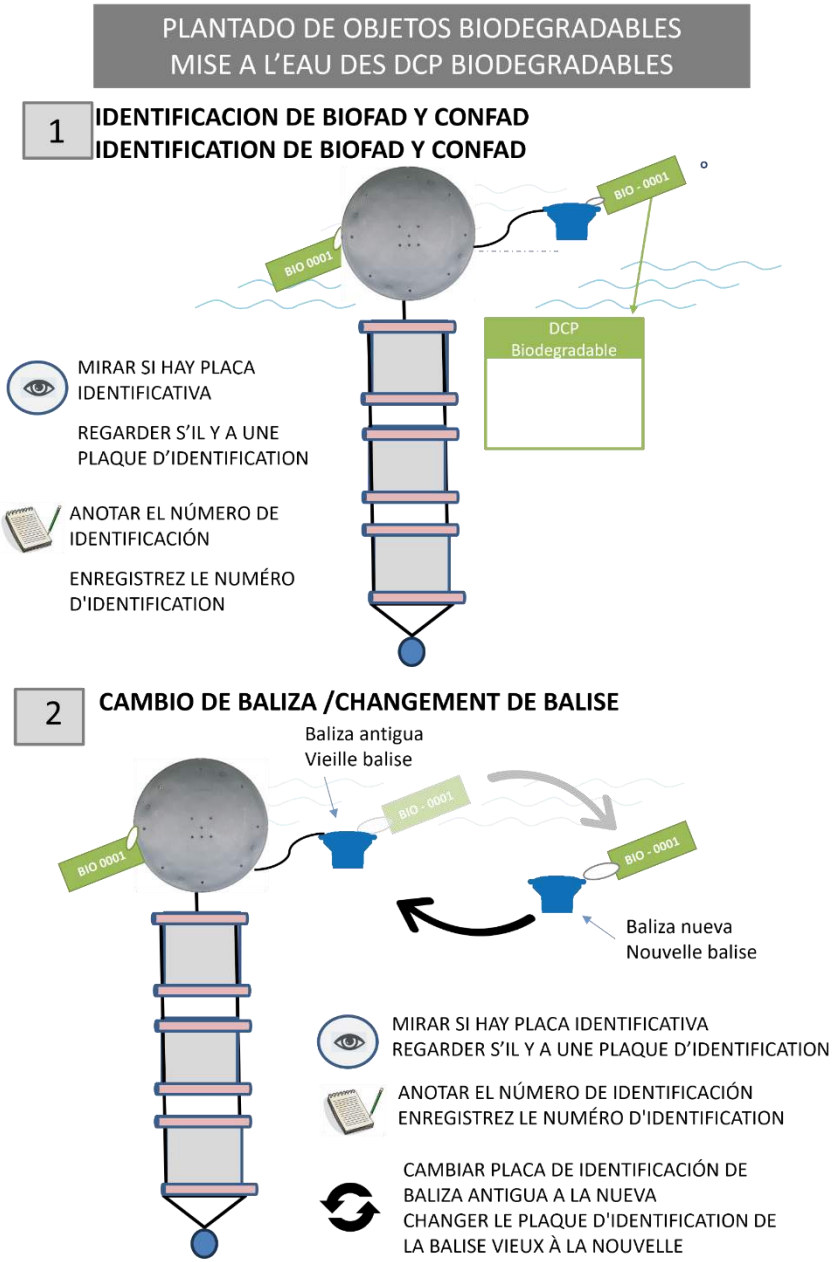
- Development of the sampling protocol and work plan between AZTI and IATTC research staff.
  - 18-month sampling experiment.
  - Weekly control trips.
  - Bimonthly sampling trips.

- Assessment of physical characteristics of the materials:
  - Weight
  - Flotation/water absorption
  - Thickness
  - Breaking strength
  - Presence of brakes
  - State of degradation (visu)
  - Color
  - Colonization of epiphytes (visu)

PHASE III – Real sea condition test

<u>During 2024-2025:</u>

- Deployment of 210 platforms by the tuna purse seine fleet:
  - Atlantic Ocean: 60
  - Indian Ocean: 150
- Development of the deployment protocol and data collection to assess feasibility of new materials.
- Assessment of important parameters for dFAD functionality in real fishing operations:
  - Drift patterns.
  - Tuna aggregation.
  - Fishing efficiency
  - Degradation of materials.



FUTURE WORKS

During 2024-2025:

- Creation of a group of experts with the aim of working on biodegradable materials/components in the marine environment:
- Three work axes have been defined:
  - ✓ Axis_1: Definitions and available materials:
  - ✓ Axis_2: International standards and European regulation.
    - Requirements/difficulties for international certifications e.g. TUV-Austria.
    - Status and requirements of European regulation on biodegradable materials in the marine environment.
    - Implications for end product certification.
  - ✓ Axis_3: Implication with Regulations/recommendations in the different RFMOs regarding bio-based materials.