

A global review of BIOFAD data and sea-tests

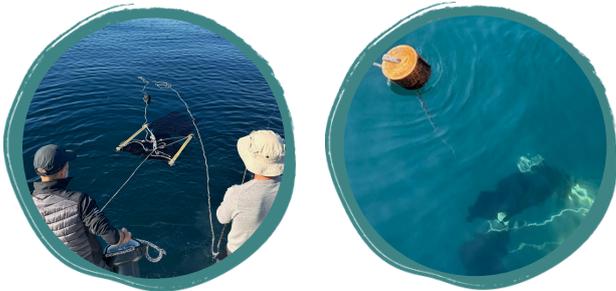


Biodegradable FADs (BIOFADs) offer an innovative alternative to traditional plastic dFADs, which threaten sensitive marine environments. We conducted a global review of sea-trials comparing conventional dFADs and BIOFAD models and asses key performance indicators. Data suggests that BIOFAD prototypes perform similarly to traditional FADs in catch performance.

Background

Drifting Fish Aggregating Devices (dFADs) are often used in purse seine tuna fisheries to attract fish. The durable plastic materials from which they are made can accumulate in sensitive areas like coral reefs once these devices are lost or abandoned.

Recent years have seen an acceleration in global trials of biodegradable FADs (BIOFADs) made from natural materials. This reflects a growing commitment from both the scientific community and the fishing industry to reduce the environmental impact of conventional plastic-based FADs.



Left and Right: SEACRULAR BIOFAD design being deployed in the Mediterranean for semi-controlled trials. Images courtesy of ISSF.

Next Steps

This global review provides a basis from which to scale up BIOFAD adoption and informs future improvements in design and material selection. Our findings highlight the technical feasibility, environmental benefits, and remaining challenges associated with transitioning toward fully biodegradable FAD solutions.

SEARCULAR aims to reduce marine litter and microplastic pollution originating from European fisheries. This report presents the work and outcomes of Work Package 3 (Deliverable D3.1). More information about our work on biodegradable FADs can be found [on our website](#).

Our Research

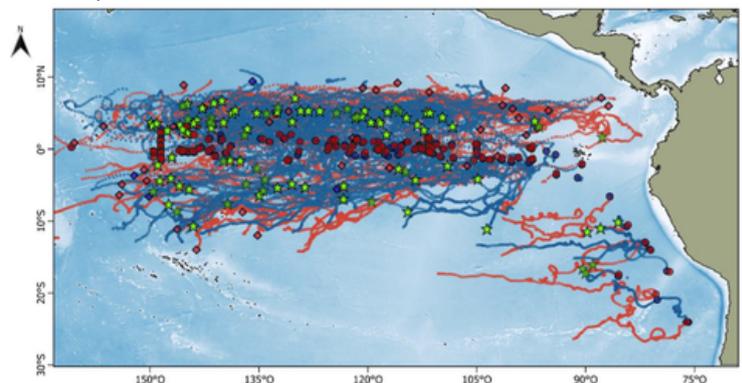
SEARCULAR has collated data from BIOFAD trials across the globe to assess performance of BIOFADs against conventional plastic-based FADs across several key indicators.

A total of 1836 BIOFADs were analyzed across the Indian, Atlantic and Pacific Oceans, with each trial testing multiple designs. Several performance indicators were assessed including:

- Drift behaviour
- Catch performance
- Lifespan
- Tuna aggregation
- Material degradation
- Environmental Impact

Our review found that across all trials, BIOFADs used less than half the amount of materials than plastic FADs, with more than 60% of their materials being fully biodegradable.

Crucially, our data showed that the BIOFAD prototypes performed just as well as traditional dFADs. Indicators such as drift behaviour, tuna aggregation and catch performance showed minimal variation in comparison to traditional dFADs. Moreover, BIOFADs exhibited similar lifespan to traditional dFADs.



Drift patterns of biodegradable and conventional FAD pairs in the Eastern Pacific Ocean, 2028-2025. Data courtesy of Ugavi fleet.