

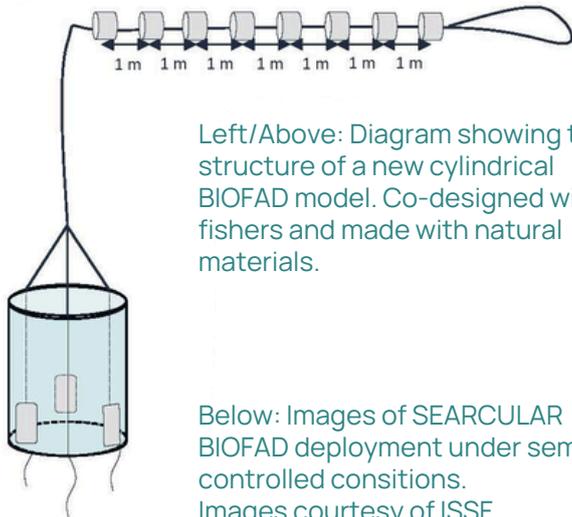
## Stakeholder participation in the co-design of biodegradable dFAD models



SEARCULAR's biodegradable 'BIOFADs' offer an innovative alternative to traditional plastic dFADs, which threaten sensitive marine environments. SEARCULAR has taken a structured and iterative approach to develop and test three BIOFAD designs, a process which emphasized stakeholder participation and scientific rigour.

### 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 dFADs are lost or abandoned. To address this issue, SEARCULAR has developed a new model of biodegradable FAD (BIOFAD) - using natural materials as an alternative to traditional plastic.



Left/Above: Diagram showing the structure of a new cylindrical BIOFAD model. Co-designed with fishers and made with natural materials.

Below: Images of SEARCULAR BIOFAD deployment under semi-controlled conditions. Images courtesy of ISSF.



### Our Research

To develop the BIOFADs, fishery stakeholders were first consulted to gather information on current FAD usage and design. This - in combination with an extensive literature review - allowed researchers to make an informed selection of new materials to be tested. Materials were selected following rigorous laboratory and field testing. Preliminary Life Cycle Assessment was conducted to assess the selected materials' carbon footprint.

We undertook several co-creation workshops with industry stakeholders to collect feedback and ensure the proposed BIOFAD models met our environmental objectives whilst remaining operationally viable.

From these workshops, three BIOFAD models were developed, all designed to minimize environmental impacts whilst maintaining fishing productivity.

### Next Steps

The integration of stakeholders in the design of novel BIOFAD models enabled SEARCULAR to develop prototypes that align with ecological sustainability goals while addressing the practical realities of tropical tuna fisheries. The final designs will next be tested at sea aboard fishing vessels.

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 D3.2). More information about our work on biodegradable FADs can be found [on our website](https://www.searcular.eu).