

Towards more sustainable baits

Tuna, a major resource in the world's oceans, is caught mainly by two types of fishing equipment: pelagic longlines and purse seine nets. These two techniques have a similar economic weight and a large environmental footprint.



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Artificial baits filled with fishing waste to replace whole natural bait, Reunion Island.

Pelagic longline fishing involves setting a line, sometimes over 100 km long, with up to 4,000 hooks. Each one carries natural bait (mackerel, sardine or squid) to catch large fish (such as tuna or swordfish). However, sometimes protected species - turtles and marine mammals - or seabirds are caught accidentally. And that is not the only flaw of this method.

Worldwide, it is estimated that this type of fishing uses 600,000 to 800,000 tonnes of marine resources each year, which could be consumed by humans instead of being used as bait. The amount of waste is all the greater given that only 5 to 10% of this bait is actually successful in catching the target fish species. The rest is thrown back into the sea. Plus, the cost of bait is always increasing, and it has to be kept frozen both on land and at sea, which represents a significant expense.

Artificial and reusable lures are emerging as sustainable alternatives to natural bait. A first step in this direction was made with the development of the first eco-friendly artificial bait, which was tested and then patented. In practical terms, it is a semi-rigid, reusable shell made from a bio-based polymer and filled with fish waste pulp.

Trials have been encouraging, showing that this bait can catch tuna and swordfish while avoiding protected species. But acceptability surveys among fishermen have led to the project being abandoned, as it would require changes to fishing equipment that would likely reduce yields. Furthermore, though the shells are reusable, they contribute to plastic pollution.

A new concept is proving more promising: fish- or squid-shaped bait made from a silicone-type paste made from protein waste and food texturisers. Already being tested by fishermen in mainland France and Reunion Island, this alternative bait could be on the market by 2028.

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... Alternative baits are being researched
to reduce the environmental impact
of longline fishing ...



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School of yellowfin tuna, Seychelles.

“Thanks to the efforts of professional fishermen in our organisation of producers promoting ethical fishing, as well as longstanding scientific partnerships, sustainable alternatives are emerging: reusable bait made from marine waste offers a new way of preserving ecosystems, while responding to the needs of the tuna industry. Let's work towards using the oceans more responsibly!”

Nolwenn Cosnard and Bertrand Wendling, SATHOAN, France

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Children fishing on a reef flat in Reao, French Polynesia. © IRD/S.Andréfouët

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