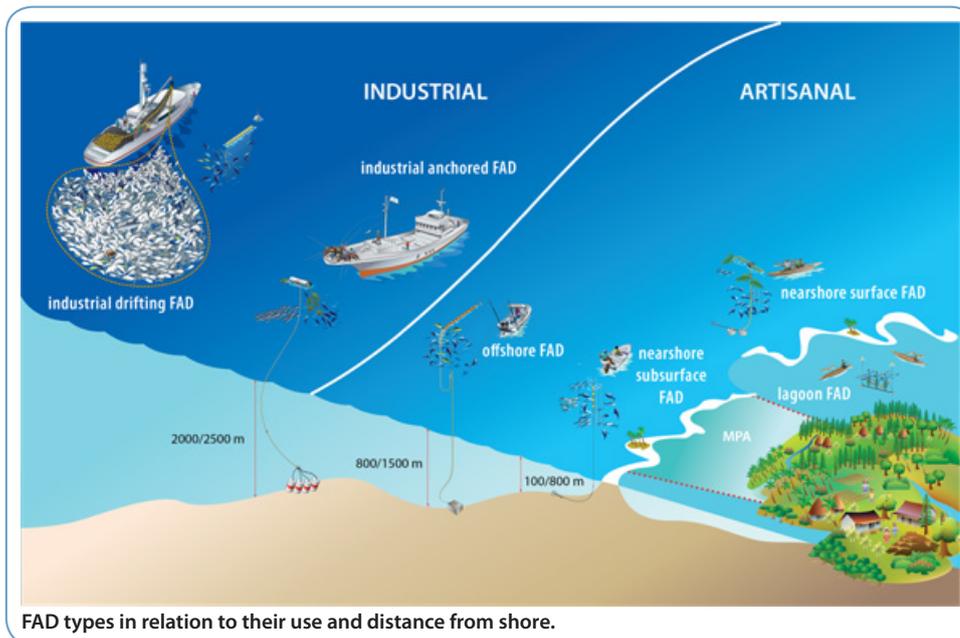


What are FADs? Fish aggregating devices (FADs) are drifting or anchored buoys or rafts that attract and aggregate pelagic* fish, making them easier to find and catch. Fishers have long known that fish congregate around naturally occurring floating logs or other debris including dead whales. This aggregating phenomenon is not completely understood and there are several theories to explain it. It is believed that floating objects offer a refuge from predators* and a meeting place for schooling companions (like the tree in the Ténéré desert, in Africa, where every caravan stops even if there is nothing other than a tree – no water, no food and not even enough shade for all members of the caravan). Another theory posits that because floating objects host a variety of small marine animals, a food chain is established around it and it becomes a feeding place for large pelagic fish. Whatever the cause, knowledge about such aggregating behaviour led to the innovative idea of anchoring something similar to a floating log to attract the fish to a place that can be easily found by fishers.



Types of FADs and their use

In coastal areas, local fishers or fisheries departments moor FADs on the sea bottom in depths of 50–2,500 metres in order to encourage tunas to gather not too far offshore, where small artisanal fishing vessels can catch them. Anchored FADs improve the catch rate of people who catch fish to feed their families or sell in small amounts at local markets, as well as people who fish as a hobby. They also allow fishing effort* to be moved away from lagoons and reef areas, where resources are both limited and fragile, towards the open ocean where tuna resources are not as sensitive at such scales. The upper part of these anchored FADs can be set under the sea surface (subsurface FADs) or it can float on the surface (surface FADs). When deployed within the reach of paddled canoes, the device is called a nearshore FAD and when moored further offshore, it is called an offshore FAD and its use is limited to motorised fishing boats. Low-cost FADs can also be moored inside lagoons (lagoon FADs) where they attract small pelagic and bottom fish species.*

In the open ocean, operators of tuna purse-seiners also exploit the tendency of large pelagic fish to aggregate around floating objects. They set their large nets around FADs that have been purposely set adrift and are monitored throughout the ocean by electronic tracking beacons. One purse-seine vessel can have up to 100 drifting

FADs (d-FADs) equipped in this way. These d-FADs are tools that may be considered to be 'too efficient' but getting rid of them would strike a heavy blow to the world's tuna canning industry. In fact, the volume of catches around these d-FADs (by all types of fishing combined) accounts for about 1.8 million tonnes, or 43%, of the 4.2 million tonnes for the three main tuna species worldwide. It has been suggested that purse-seine fishing around d-FADs is leading to catches of small, undersized (juvenile) tunas, unwanted bycatch such as mahi mahi and wahoo and endangered species such as sharks and sea turtles. The use of d-FADs in the Pacific needs to be regulated and monitored to avoid the overfishing of those species.

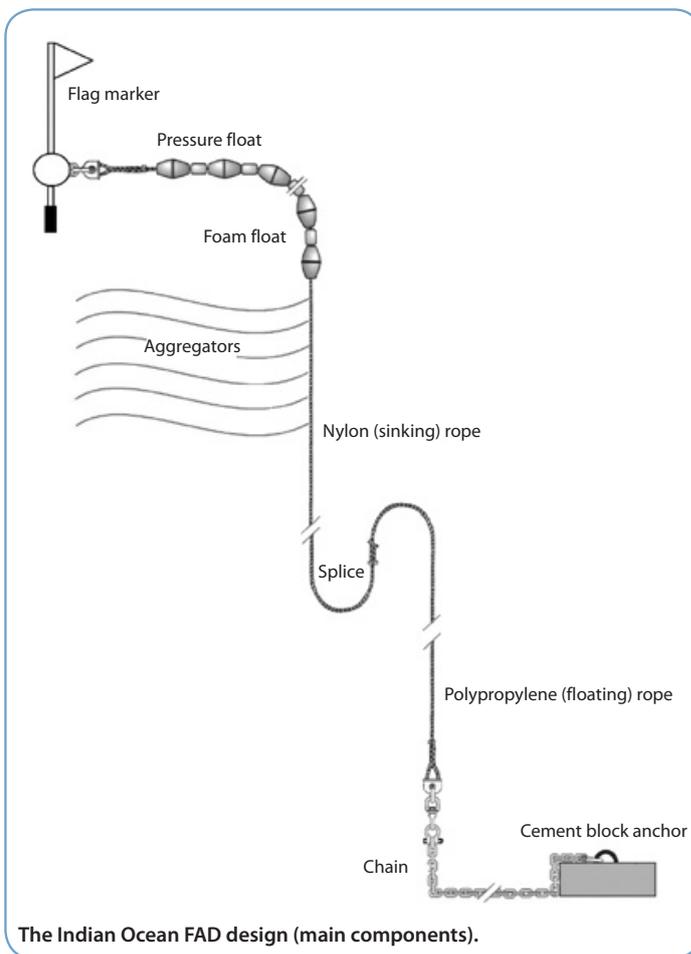


In 180 AD, the Greek poet Oppian of Corycus included, in his treatise on sea fishing 'Halieutika', a description of mahi-mahi fishing under the first recorded man-made fish aggregating devices. Those FADs were drifting devices made of bundled reeds and set adrift. Much later on, Southeast Asian countries constructed anchored FADs made of bamboo (called 'payaos'), and these are still used today in support of industrial fisheries. With assistance from SPC, Pacific Island countries and territories started to use anchored FADs in the early 1980s.

i Artisanal fishers in the Pacific currently catch less than 5% of the tuna caught in the western and central Pacific Ocean and will need to harvest more in future for food security. Anchored FADs are important tools for domestic fisheries development as they can contribute to increasing the share of the tuna catch going to Pacific communities.

A FAD commonly used in the Pacific: the Indian Ocean FAD design

The FAD design illustrated here was first used at Reunion Island, in the Indian Ocean, in the early 1990s. SPC successfully introduced the design in the Pacific during the mid-1990s, with some refinements to the gear configuration. It is still widely used in the region as it is easy to deploy from relatively small boats and is cost-effective (USD 1,500 to 2,500 depending on the anchoring depth, for an average life-span of two years).



The Indian Ocean FAD design (main components).



Purse-seine catch.

Marc Taquet © FADIO/IRD-Ifremer



Artisanal fisherman displaying a yellowfin tuna caught at a nearshore FAD off Yaren, Nauru.

William Sokimi © SPC

i **A cause for concern: sabotage**
 One of the biggest constraints to successful FAD programmes in artisanal fisheries is vandalism, in which the upper section of a surface FAD is intentionally cut loose by fishers or other boat operators. Jealousy and ignorance are the main causes. To address this problem SPC is promoting the use of subsurface FADs.