Introduction

Fish aggregating devices, more commonly called as FADs, are anchored or drifting objects that are placed in the ocean to attract fish. They may be a permanent, semi-permanent or temporary structure or device made from any material and used to lure fish. It acts as an ecosystem and provides a habitat for fish, increasing fish biomass in the inshore areas.

The earliest surface/ midwater FADs were elements from nature such as driftwood and trees. Traditional FADs, based on a long-term fishing experience, are made on the spot with local materials and used in shallow coastal waters up to a depth of 50-200 m by small-scale fishers to catch small pelagic fishes. For modern FADs, the results of imported technologies and materials, can be anchored to over 3000 m.

Categorization of FADs

FADs may be classified into two - Artisanal and Industrial types. The artisanal FADs are smaller and used by subsistent, artisanal and recreational fishers. These are mostly anchored offshore or near-shore and in lagoons and may be surface or subsurface. The Industrial FADs are huge structures and may be drifting or anchored.

Industrial FADs improve the catch rate of purse-seine and pole & line vessels that target large schools of tuna. These are commonly drifting rafts, with an electronic beacon so that, the fishing boat can find the FAD and sometimes sonar equipment that shows the number of fish under it.

Types of FADs

- Drifting FADs are not tethered to the bottom and can be natural objects such as logs or man-made.
- Moored FADs occupy a fixed location and attach to the sea bottom using a weight such as a concrete block. A rope made of floating synthetics such as polypropylene attaches to the mooring and in turn, attaches to a buoy. The buoy can float at the surface (lasting 3–4 years) or lie subsurface (mid-water FAD) to avoid detection and surface hazards such as weather and ship traffic.
- The midwater FADs – where the only surface component is a small marker buoy are less subject to stress from wind and waves and the risk of damage by ships.
- Subsurface FADs last longer (5–6 years) due to less wear and tear, but can be harder to locate. In some cases, the upper section of the rope is made from heavier-than-water metal chains so that, if the buoy detaches from the rope, the rope sinks and thereby avoids damage to passing ships that no longer use the buoy to avoid getting tangled in the rope.
- Smart FADs include sonar and GPS capabilities, so that the operator can remotely contact it through satellite to determine the population under the FAD.

Artisanal FADs:

Advantages
- Food security
- Vessel efficiency
- Coastal resource management
- Climate change adaptation
- Tourism
- Safety at Sea

Disadvantages
- Short lifespan
- User conflicts
- Budget constraints

Industrial FADs

Advantages
- Food security
- Efficiency
- Domestic development
- Distribution of effort and license revenue

Disadvantages
- Increased catch of big eye tuna though not targeted
- Catch small-sized tunas
- By-catch

FADs can be used in either single or multiple arrangements. Common practice is to use more than one with enough distance between each. The most suitable distance between each FAD depends on the abundance and type of species targeted; ranging between several hundred and one thousand meters for small pelagic fish FADs in coastal or shallow waters, or 5 to 10 nautical miles for deep-water tuna FADs.

Some FADs are permanent structures while others are movable. The former is set mainly in deep waters and relocation is virtually impossible. The expected life of a permanent FAD would be 2 to 3 years. The mobile, lighter structures can be moved to attract fish to a particular point. Still others can be removed from the water during certain seasons when the fishes are not in the area or when the weather is rough expecially in monsoon.

Conclusion

The deployment and proliferation of FADs in an extensive way have influenced harvesting practices and become the concern of fisheries managers. Technological advances in FAD design have increased fishing efficiency and FADs have contributed to increasing tuna catches especially skipjack and yellowfin tuna.

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Fish Aggregating Devices: A glance

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