



FISH AGGREGATING DEVICES

ISSUE BRIEF

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SUMMARY

This International Pole & Line Foundation (IPNLF) issue brief outlines the difference between anchored and drifting fish aggregating devices (FADs), how they are used in one-by-one tuna fisheries, the current challenges associated with FAD use, and the work IPNLF is doing to ensure they are used responsibly.



THE ROLE OF FADs IN TUNA FISHERIES

Tuna and other pelagic fish naturally gather under objects floating near the surface of the ocean, and fishers have used this behaviour to optimise their catch for hundreds of years. In recent decades, FAD use has evolved dramatically, particularly due to the soaring use of technologically advanced, man-made drifting FADs. The uninhibited expansion of drifting FADs has had detrimental impacts on tuna stocks and the broader marine ecosystem, and their uncontrolled use poses a continued threat to coastal fishing communities.

International Pole & Line Foundation
Issue Brief – Fish Aggregating Devices (FADs)

ANCHORED FADs

Historically, fishing communities constructed anchored fish aggregating devices (aFADs) in nearshore waters to attract deep-water species, primarily tuna. First recorded in the Mediterranean Sea in the 17th century, aFADs were later introduced to the Philippines and Indonesia in the early 1900s. Today, networks of aFADs are accessible to coastal and artisanal fishers using one-by-one tuna fishing methods throughout the world. Due to the fish-aggregating phenomenon of FADs, they are known to increase catch per unit of effort (CPUE), providing social, economic, health and environmental value for the communities they serve by enhancing food security, increasing employment opportunities, improving safety at sea, protecting vulnerable inshore reef fisheries and reducing reliance on imported and less healthy protein sources. These aFADs are widely used by pole-and-line fleets and in many cases, local people play a role in maintaining and monitoring fishing around specific aFADs, thus building a sense of community ownership and stewardship for these relatively expensive devices



Anchored Fish Aggregating Devices are widely used by pole-and-line fleets to improve fishing efficiency © IPNLF

DRIFTING FADs

Drifting fish aggregating devices (dFADs) are man-made rafts deployed into the open ocean where tuna schools aggregate around them; firstly small fish are attracted and secondly large fish arrive. Fishing on these aggregations allow large-scale, offshore fishing vessels, usually purse seiners, to increase their fishing efficiency. Today's dFADs are not only increasing in number but continuously evolving technologically – equipped with satellite tracking

buoys and echo sounders to detect both their location and the amount of fish underneath them. Their use is associated with increasing levels of fishing capacity and effort, higher levels of juvenile tuna catches, bycatch of non-target species, proliferation of marine litter, entanglements of vulnerable species, and a range of potential wide-scale ecological effects (Davies et al, 2004). Globally, dFAD use has been on the rise, and today upwards of 100,000 dFADs are deployed each year by purse seine vessels and their supply vessels (Gershman et al, 2015). The use of these dFADs and their negative ecological impacts have drawn considerable global attention and been the target of campaigns by environmental NGOs like Greenpeace and the Pew Charitable Trust (IPNLF, 2015).



Drifting Fish Aggregating Device washed up on the beach © Adam Baske

While aFADs and dFADs have different applications, both must be effectively managed to minimise negative environmental impacts. The organisations responsible for the management of dFADs – the regional fisheries management organisations (RFMOs) – have done little to manage the use of this fishing gear, and the negative consequences are regularly borne by coastal communities in less economically developed countries.



WHAT ARE THE CHALLENGES?

Some of the key issues that need to be addressed include:

- RFMOs do not always account for effort creep made possible by dFADs, allowing technologically advanced fishing fleets to take more of the overall catch, and reducing availability of tuna to coastal small-scale and artisanal fishers.
- A better understanding of the extent of all FAD use is required to fully comprehend their impact. Fishing vessels track dFADs in all oceans areas but do not share this valuable information with scientists or managers. This lack of transparency undermines the ability to effectively manage dFADs and impairs future stock assessments.
- Coastal states lack strong licensing requirements for dFADs used by foreign fleets in their waters. Exploiting this loophole is a common type of illegal, unregulated, and unreported (IUU) fishing activity.
- Bycatch of vulnerable species around FADs, particularly sharks and juvenile yellowfin and bigeye tuna, are associated with unselective gears such as purse seines. RFMOs have failed to address this significant conservation concern.



Anchored Fish Aggregating Device (aFAD), Maldives © AR Jauharee/MRC

- No meaningful, science-based, limits of dFAD numbers exist. In the Indian and Atlantic Oceans, for example, vessels can deploy more than 400 dFADs per year. The number is not justified and allows for significant increases in dFADs.
- No accountability measures exist for lost or abandoned dFADs, giving purse seine fleets a free pass to pollute the marine environment.

- Ghost fishing of dFADs leads to entanglement of non-target species like sea turtles and sharks. An estimated 500,000 silky sharks die each year in the Indian Ocean due to entanglement in dFADs (Filmalter, 2013).
- Improvements in aFAD management must be made at the domestic level to ensure access for small scale, selective fisheries to tuna stocks.



WHAT IPNLF IS DOING TO IMPROVE THINGS

IPNLF works to develop solutions and drive management improvements in one-by-one (pole-and-line, handline, troll) tuna fisheries in order to enhance the wellbeing of coastal fisheries, and the people and seas connected to them. Recognising challenges faced by one-by-one tuna fisheries with respect to FADs, IPNLF is working in the following areas:

1. RAISING THE PROFILE

One-by-one fisheries often receive less recognition in international markets and policy-making fora. IPNLF acts as a voice and champion for the one-by-one sector to help 'tell-and-sell' the story of the people and places behind the product to influence and advance global tuna sustainability. Our work on FADs supports evidence-based advocacy for political and market recognition of the contribution of one-by-one fisheries to the communities and states where they are located.

2. IMPROVING INTERNATIONAL MANAGEMENT

Growing concern is being expressed in international fora about the need to improve the management of FAD fisheries. IPNLF continues to work with our Members and NGO partners to advocate for improved international management at the RFMOs, including revising and strengthening FAD management measures around the world. However, the adoption of strong

IPNLF works to improve international management of FADs at the RFMO level



measures that would enhance data availability and rein in dFAD use has not occurred. In 2015, IPNLF, WWF and The Pew Charitable Trusts developed a joint position on FAD fisheries management to the Western and Central Pacific Fisheries Commission, which oversees the world's largest dFAD fishery (IPNLF, 2015). We encourage the furthering of such collaborative efforts in the future.

3. ENHANCING DOMESTIC MANAGEMENT OF aFADs

Since most aFAD fisheries occur in territorial waters (0-12 nautical miles from shore), IPNLF works with individual one-by-one fisheries to ensure best-practice domestic aFAD management measures are in place and enforced.



Pole-and-line tuna fishing in Indonesia © Paul Hilton & IPNLF

4. FAD Research

IPNLF's Scientific and Technical Advisory Committee (STAC) brings together high calibre fisheries scientists to identify areas where we can work with our partners to address key data gaps and implement on the water research. Current research priorities include studies on tuna behaviour around the network of aFADs in the Maldives, and identifying best-practice for aFAD spacing in Indonesia's territorial waters.

IPNLF identifies data gaps and implement on-the-water research into tuna behaviour around aFADs, and best-practice for

5. COMMUNICATING RESULTS

IPNLF employs a variety of platforms to promote on-going research, technical reports, and the good work of our members. IPNLF uses traditional and social media tools to spread news on the latest developments to a global audience.

IPNLF FAD RESOURCES

IPNLF article on the role of aFADs: [Baske, A., \(2015\)](#)

IPNLF press on FAD limits: [IPNLF \(2016\)](#)



REFERENCES

Baske, A (2015) IPNLF attend the 19th session of the Indian Ocean Tuna Commission (IOTC) International Pole & Line Foundation [LINK](#)

Baske, A., (2015) The role of anchored FADs for coastal tuna fishing, International Pole & Line Foundation [LINK](#)

Davies T. K., Mees C. C., Milner-Gulland E. J., (2014) The past, present and future use of drifting fish aggregating devices (FADs) in the Indian Ocean, Marine Policy, Volume 45, Pages 163-170. [LINK](#)

Filmalter J. D., Capello M., Deneuborg J. L., Cowley P. D., Dagorn L., (2013). Looking behind the curtain: quantifying massive shark mortality in fish aggregating devices. *Frontiers in Ecology and the Environment* 11.6: 291-296. [LINK](#)

Gershman D., Nickson A., O'Toole M., (2015) Estimating the use of FADs around the world – An updated analysis of the number of fish aggregating devices deployed in the ocean, The Pew Charitable Trust [LINK](#)

IPNLF, (2015) Letter to the WCPFC - FAD Management Options Working Group Input *The International Pole & Line Foundation, Pew Charitable Trusts, WWF* [LINK](#)



ABOUT IPNLF

The International Pole & Line Foundation (IPNLF) works to develop, support and promote socially and environmentally responsible pole-and-line and handline tuna fisheries around the world. IPNLF's ambition is to contribute to thriving coastal fisheries, including the people, communities, businesses and seas connected with them. As a hub for sustainably-minded organisations, we use the influence of the market to forge change through practical fishery projects and stakeholder cooperation. IPNLF membership is open to organisations involved in the one-by-one caught tuna supply chain. Allied with our Members, IPNLF demonstrates the value of one-by-one caught tuna to consumers, policymakers and throughout the supply chain. We work across science, policy and the seafood sector, using an evidence-based, solutions-focused approach with guidance from our Scientific & Technical Advisory Committee and Board of Trustees.

IPNLF was officially registered in the United Kingdom in 2012 (Charity 1145586), with branch offices in London and the Maldives, and a staff presence in Indonesia.

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