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**ISSF FAD Research and Best Practices Infographic**

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**Submitted by**  
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# Addressing FAD Ecological Impacts

## Research & Best Practices to Reduce Bycatch and Ocean Debris



Although purse-seine fishers also set on free-swimming schools and use naturally occurring floating objects to catch tuna, they're relying more on artificial Fish Aggregating Devices (FADs).

**Over 40%** of the global tuna catch is made with FADs, which have increased in all oceans.



FADs, like other fishing gears, need to be managed to reduce their ecological impacts, including:

- 1. The unintentional capture** of small tuna, which can contribute to overfishing<sup>1</sup>
- 2. The unintentional capture/entanglement** of non-target species such as sharks and sea turtles<sup>2</sup> or other finfish and billfish (also known as bycatch)
- 3. Damage and marine litter**,<sup>3</sup> when FAD structures are lost or abandoned, in fragile marine habitats like coral reefs
- 4. Ghost fishing**,<sup>4</sup> the accidental capture of marine life by fishing gear lost or discarded at sea that continues to entangle animals

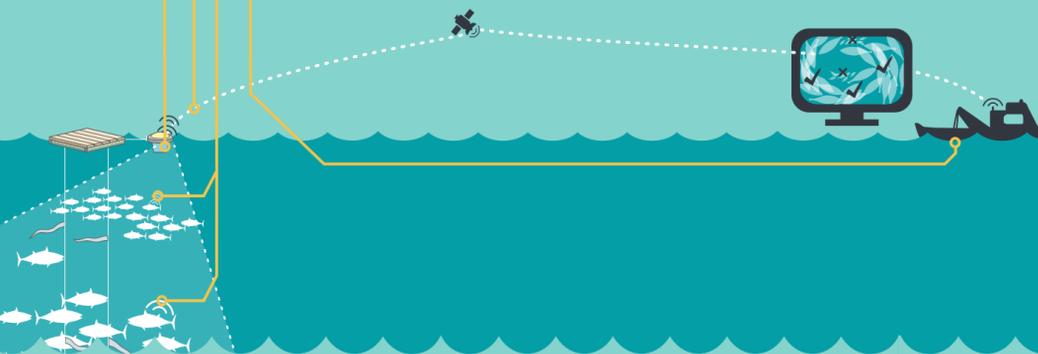


**ISSF is investigating** ways to lessen FAD fishing's impacts



### Ongoing Research

- Echosounder buoys** to remotely assess the amount of bigeye and yellowfin tuna around FADs → Reduce bigeye and yellowfin catch in areas that need to reduce fishing pressure on those species
- Acoustic and underwater observations** to assess behavior of fish aggregations around FADs and in the net → Potential reduction of bycatch through avoidance or selective release; i.e., escape panels, backdown procedure
- Acoustic tagging and tracking** of bigeye and non-target species around FADs → Potential avoidance of small bigeye and non-target species
- Double FAD experiments** to examine potential to separate bycatch from tuna on adjacent FADs → Potential avoidance of non-target species, with special focus on sharks before net is set
- Large-scale testing** of biodegradable FADs with collaboration of fleets in Indian and Atlantic Oceans → Reduction of FAD-structure impact on ecosystem
- Release sharks** from net during purse-seine fishing operations → Increase shark survival and avoid risks for crew on deck



### Best Practices

- Do not cover FAD surfaces with mesh** → Reduces turtle entanglement
- Use non-meshed materials** such as ropes or canvas sheets for hanging components → Reduces shark entanglement
- Use natural or biodegradable materials** such as bamboo, palm leaves or other vegetal fibers → Reduces ocean debris and damage on coastal ecosystems
- Simplify FAD structure**, reducing size, volume and weight as much as possible → Reduces ocean debris and facilitates FAD retrieval
- Avoid setting on small tuna schools** → Can reduce bycatch with little impact on total target catch
- Focus on shark and mobulid ray release** efforts from the deck, in the first brails → Increases survival of released sharks

<sup>1</sup>Restrepo, V. et al. (2017). A summary of bycatch issues and ISSF mitigation initiatives to date in purse seine fisheries, with emphasis on FADs. ISSF Technical Report 2017-06.

<sup>2</sup>Leroy, B. et al (2013). A critique of the ecosystem impacts of drifting and anchored FADs use by purse seine tuna fisheries in the Western and Central Pacific Ocean. Aquatic Living Resources 26: 49-61.

<sup>3</sup>Moreno, G. et al (2018). Workshop for the reduction of the impact of Fish Aggregating Devices structure on the ecosystem. ISSF Technical Report 2018-19A.

<sup>4</sup>Dagorn, L. et al (2012). Is it good or bad to fish with FADs? What are the real impacts of the use of drifting FADs on pelagic marine ecosystems? Fish and Fisheries