



# Mitigating shark bycatch

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International Workshop on Mitigating Environmental Impacts  
of Tropical Tuna Purse Seine Fisheries

12-13 March, 2019 | FAO HQ, Rome, Italy



Food and Agriculture  
Organization of the  
United Nations



# Key Shark Species Caught by Purse Seiners

**Over 90%** of shark bycatch by purse seiners  
is composed of **Silky Sharks**  
(mostly small individuals)



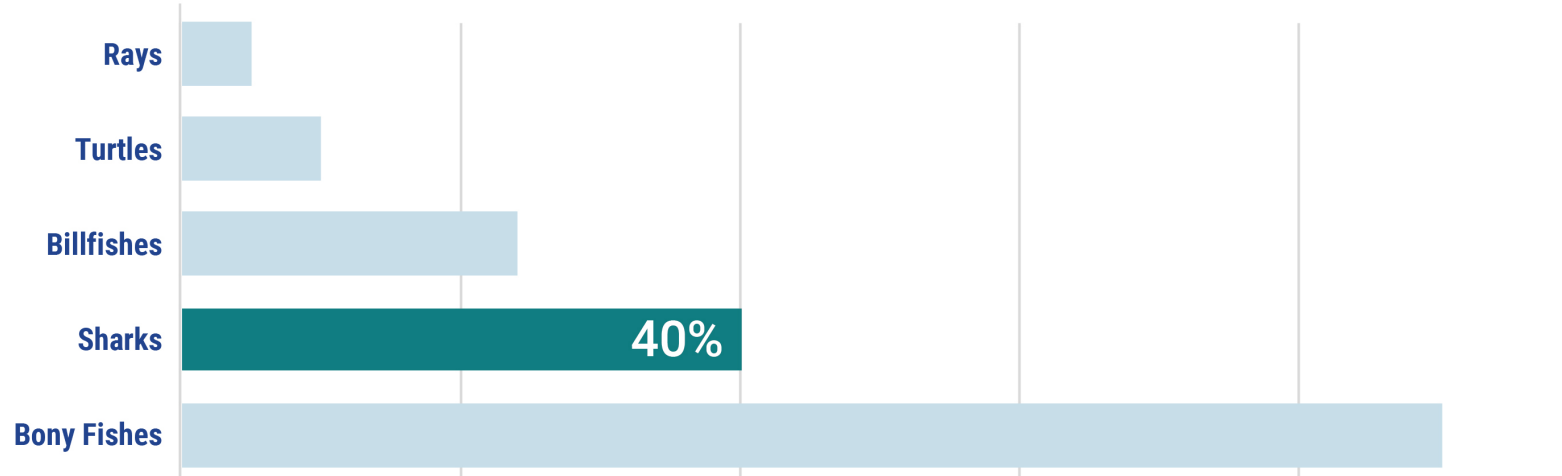
# Key Shark Species Caught by Purse Seiners

- Second main shark species caught at FADs is **Oceanic White Tip Sharks**
- Commonly **perceived as rare**
- There is a wide consensus that **populations are decreasing**

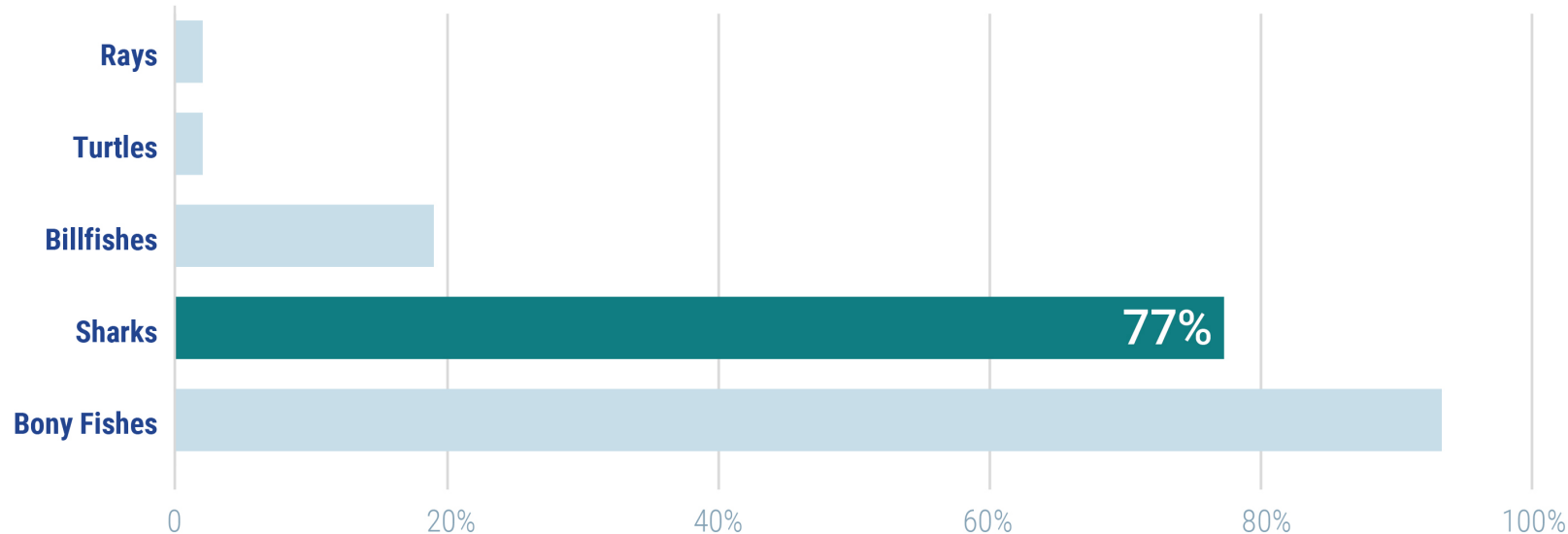


# Most Floating Objects Have Sharks

## Atlantic Ocean



## Indian Ocean



Source:  
French Observers Data  
IRD MARBEC Ob7  
2013-2017

# Mitigation

Not a single easy method to solve the issue

BUT

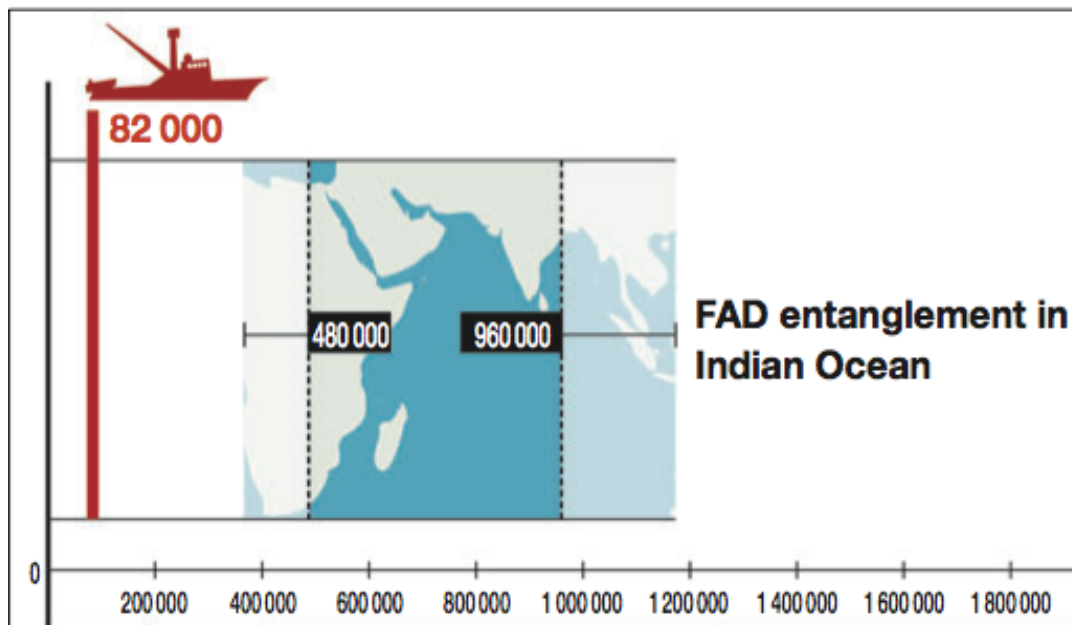
4 successful methods to reduce impacts of FADs and FAD fishing on sharks



# Entanglement Issues

## Scientists, managers, fishers:

Problem of entanglement of sharks in nets of FADs was evidenced and quantified in the Indian Ocean



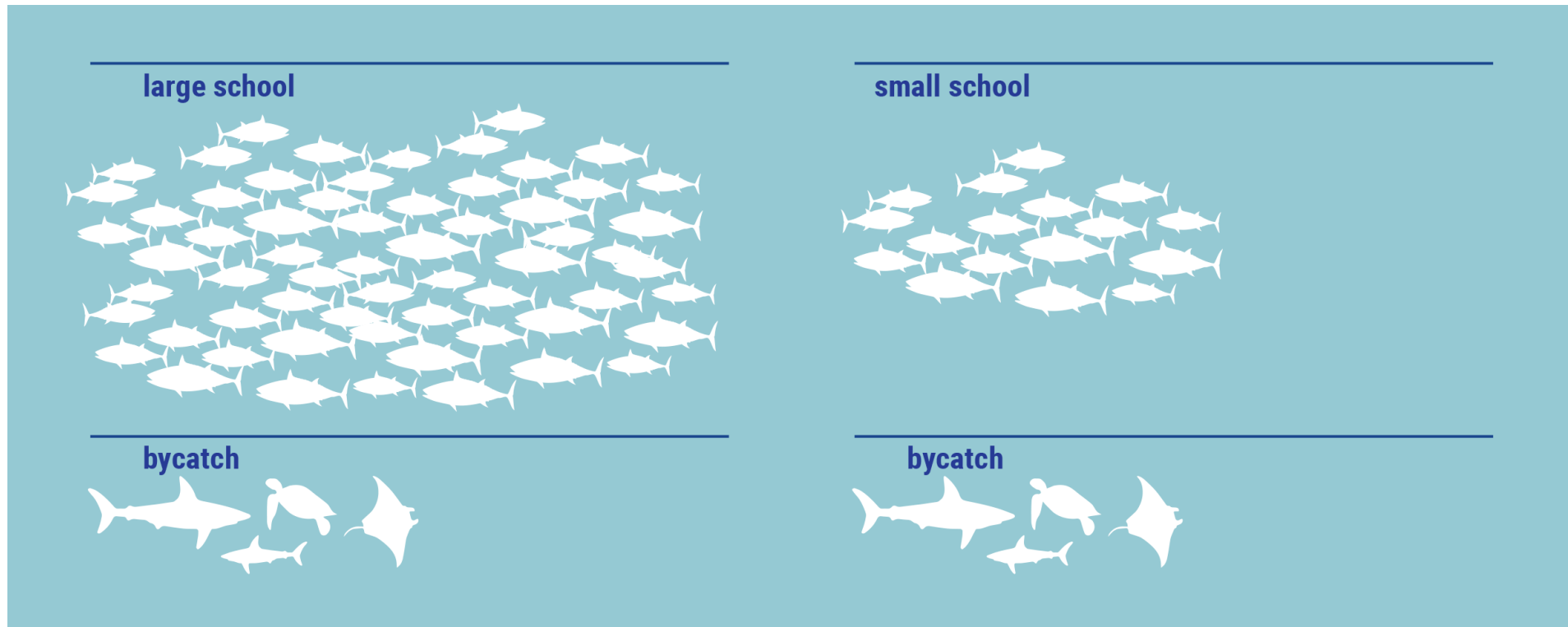
Ban the use of netting to build FADs (See *ISSF guide for Non Entangling FADs*)



# Target Large Schools

Avoiding sets on schools of tuna less than 10 tons would reduce the amount of bycatch of silky sharks by **21-41%** depending on the ocean.

*Dagorn et al. 2012*



# Fish-and-Release Success

**15–35%** of sharks present in the net can be caught and released  
(depending on shark fishing experience) with **97% survival rate**

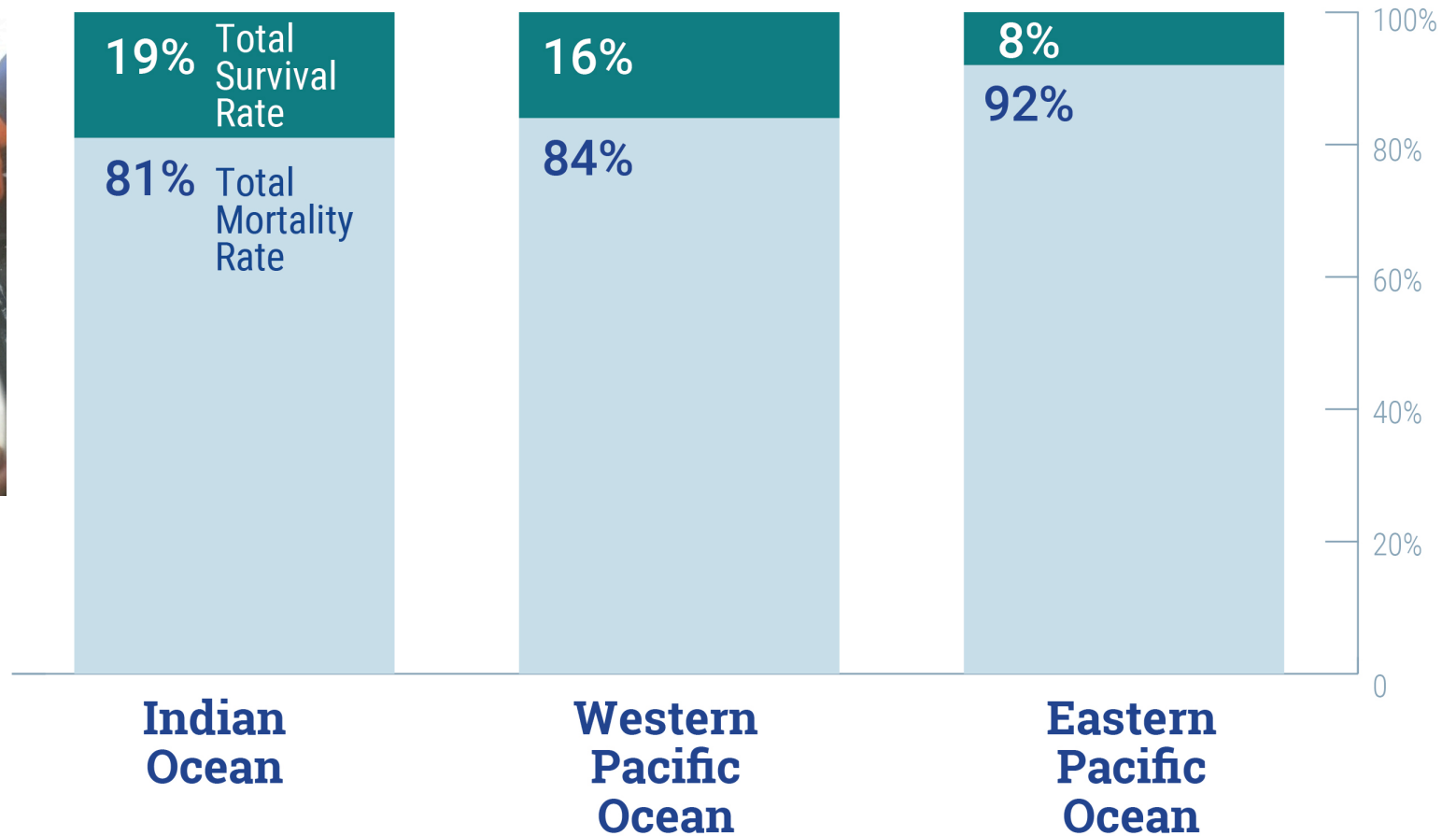




# Post-Release Survival of Silky Sharks released from the deck



Studies in three oceans, onboard different purse seiners, have shown that about **50% of sharks released can survive**



*Poisson et al. 2014*  
ISSF, EU MADE, Orthongel CAT Requins

*Hutchinson et al. 2015, ISSF*

*Eddy et al. 2015, ISSF*

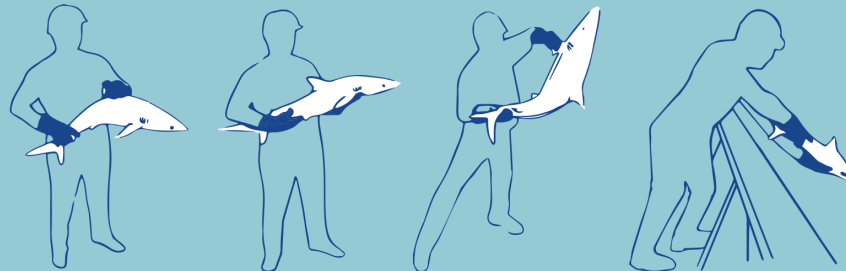
# Protecting Sharks

## 4. Release from deck after incidental catch

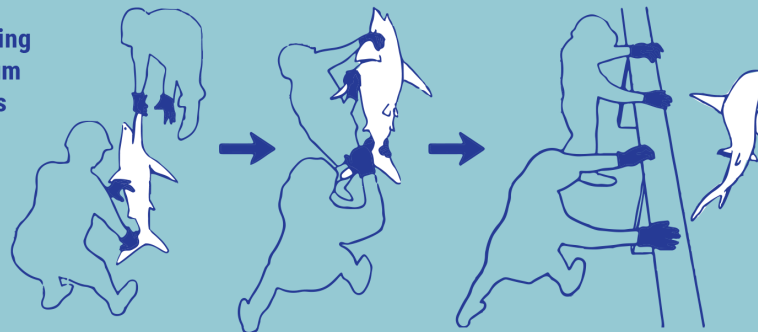
Implement best practices to  
maximize shark survival after release

Can save  
**15-20%**  
of sharks  
caught

Handling  
small sharks



Handling  
medium  
sharks



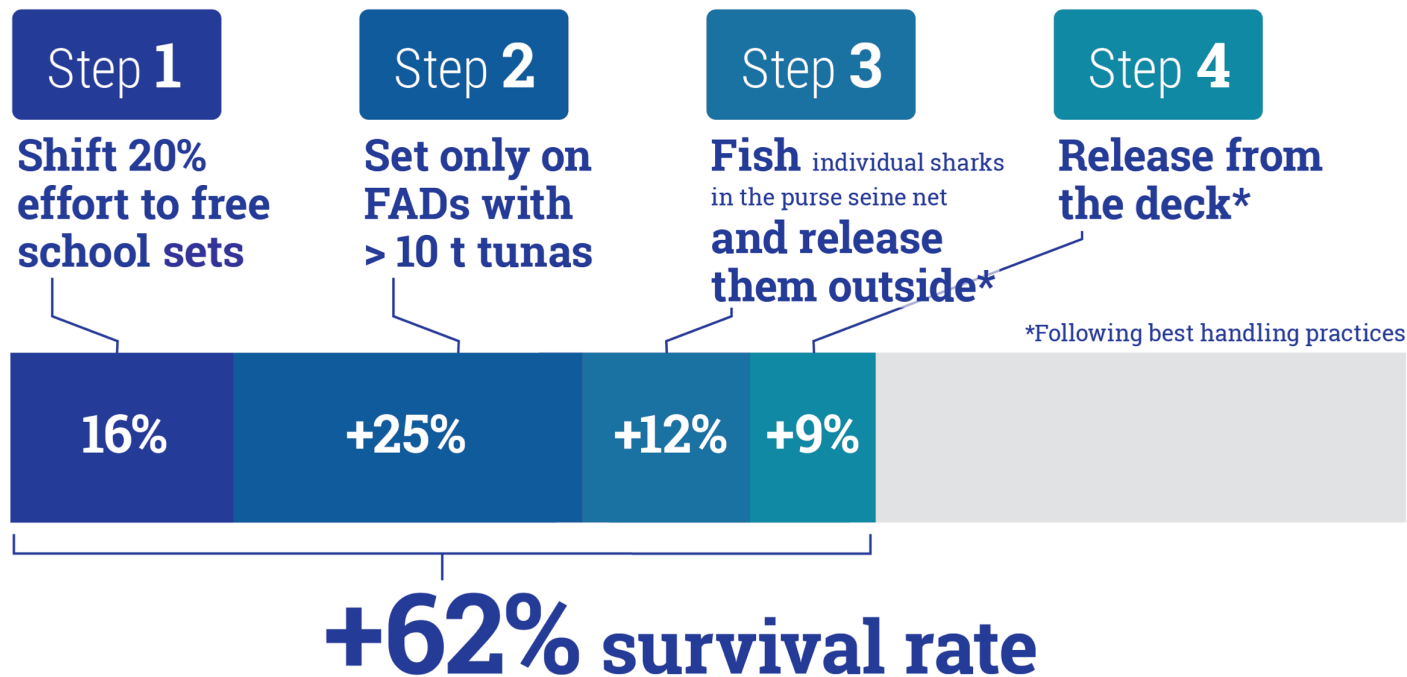
Illustrations based on Poisson et al, 2012

# Improvements Achieved So Far



## Improving Silky Shark Survival

Used in combination,  
**Four actions can increase silky shark survival** in purse seine fisheries **by 62%.**



Use of non-entangling FADs will also increase survival related to unobserved (ghost) mortality.

# Future research

- Electronic buoy counting sharks
- Attract sharks away from FADs
- Separate sharks from tuna in the net
- Avoid hotspots (exceptional sets with lots of sharks)

