Comisión Interamericana del Atún Tropical
Inter-American Tropical Tuna Commission





Mitigating environmental impacts of Fish Aggregating Devices in the tropical tuna purse seine fisheries

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2ª Reunión del Grupo de Trabajo conjunto de las OROP atuneras sobre plantados
2nd Meeting of the Joint Tuna RFMOs Working Group on FADs
San Diego, California USA, 08-10 May 2019

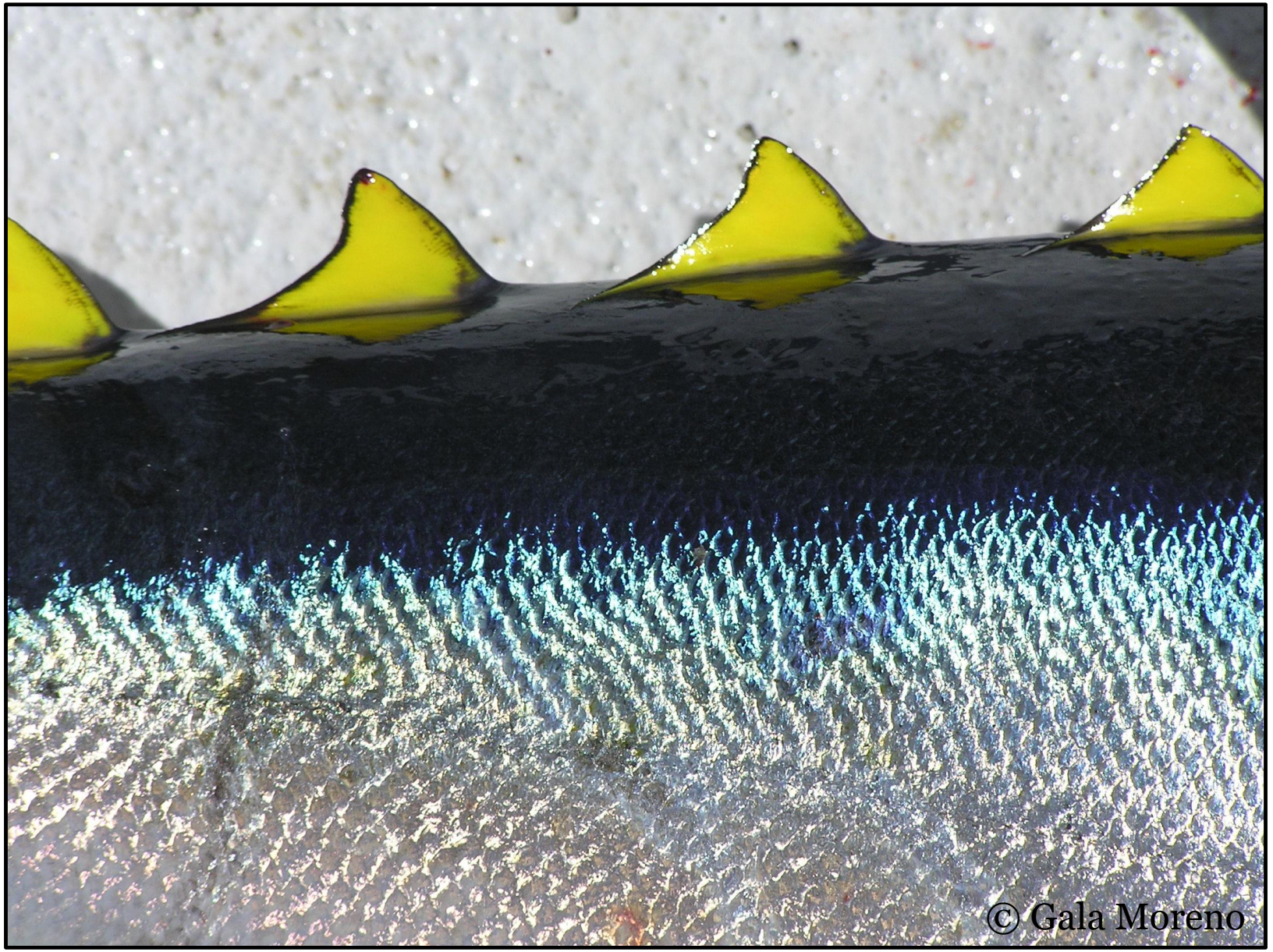
Outline

- Address undesired mortality of **tuna**
- Lessen the impact of FADs on **by-catch** species
- Avoid **FAD´s structure impact** on the ecosystem

Special focus on what is Proven or Promising

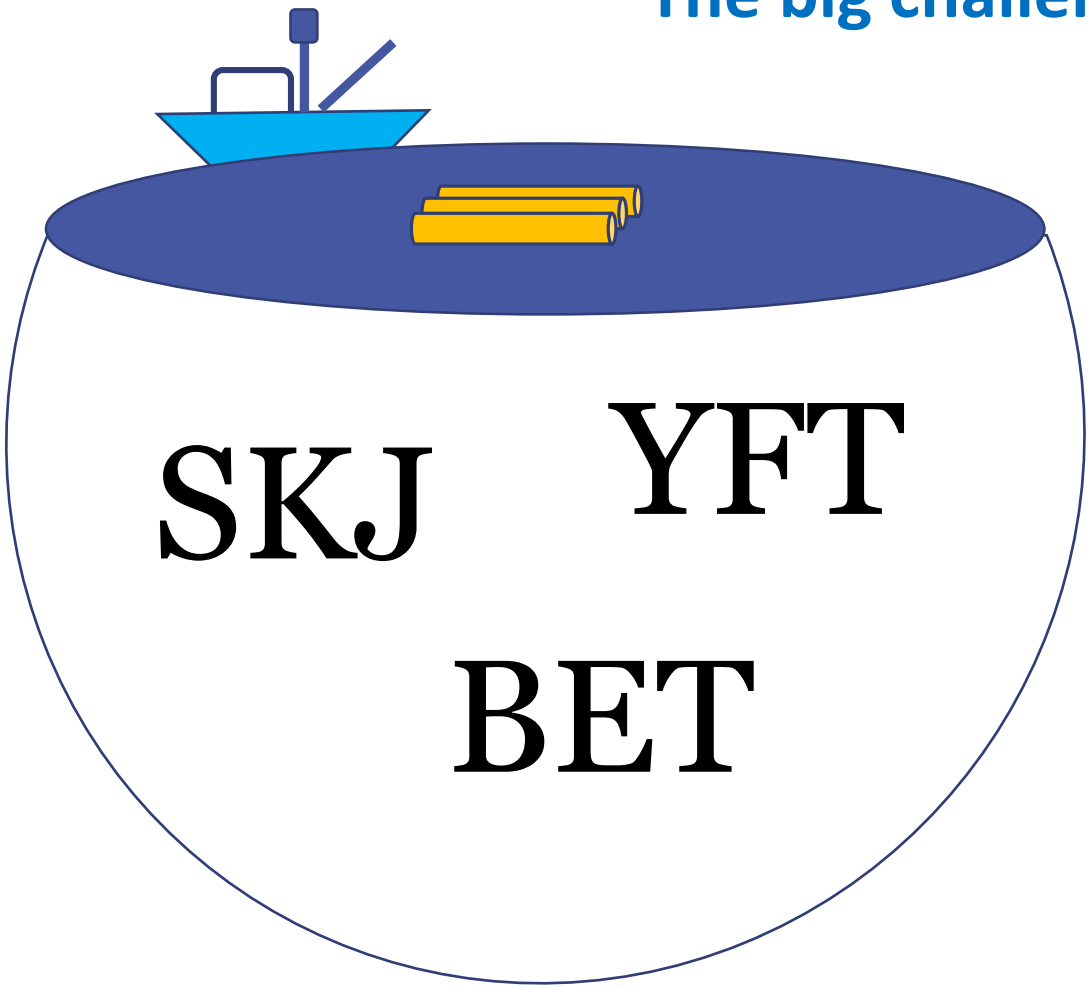
Co-funded by
European Union

Small YFT and BET



Small YFT and BET

The big challenge



PS net encircles the **three tuna species simultaneously** at FADs

Small YFT and BET

Research conducted

✗ Tuna species segregation before the set

✗ Investigation of the effect of different depths of materials suspended beneath FADs in the EPO → Region Specific? Research in other areas?

✓ Selective catch at FADs: Acoustic Discrimination

✗ Behaviour of species at FADs and Set time in the Indian Ocean → Region Specific? Research in other areas?

? Sorting grids: Tuna species segregation within the net

By-catch

By-catch

The Chronological hierarchy of by-catch mitigation

ANIMAL SURVIVAL ANIMAL SURVIVAL ANIMAL SURVIVAL

Any by-catch arriving on the deck are usually in bad conditions and solutions should be prioritized for when animals are still in the water.

By-catch: Sharks

Research conducted

Unobserved mortality

✓ Non-entangling FADs (RFMO measures and ISSF guide)

Observed mortality

✗ Set time

✓ Best release practices from deck (15-20% mortality reduction)

✓ Avoid setting on small schools (20-40% mortality reduction)

✓ Release sharks from the net

By-catch: Bonyfish

Research conducted

✓ Avoid setting on small schools (20-40% mortality reduction)

✓ Selective catch at FADs: Acoustic Discrimination

✓ Set time: studying daily associative behaviour

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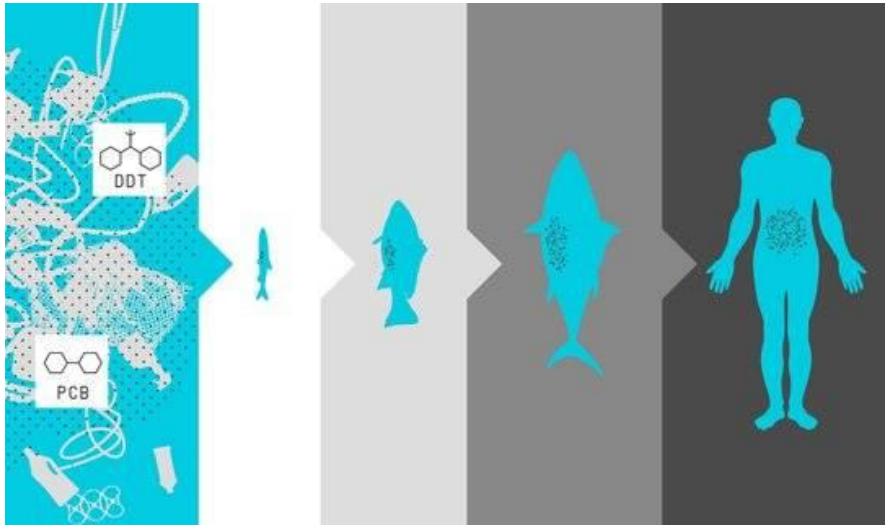
Impacts caused by FAD Structure

Ghost Fishing: Entanglement Issues

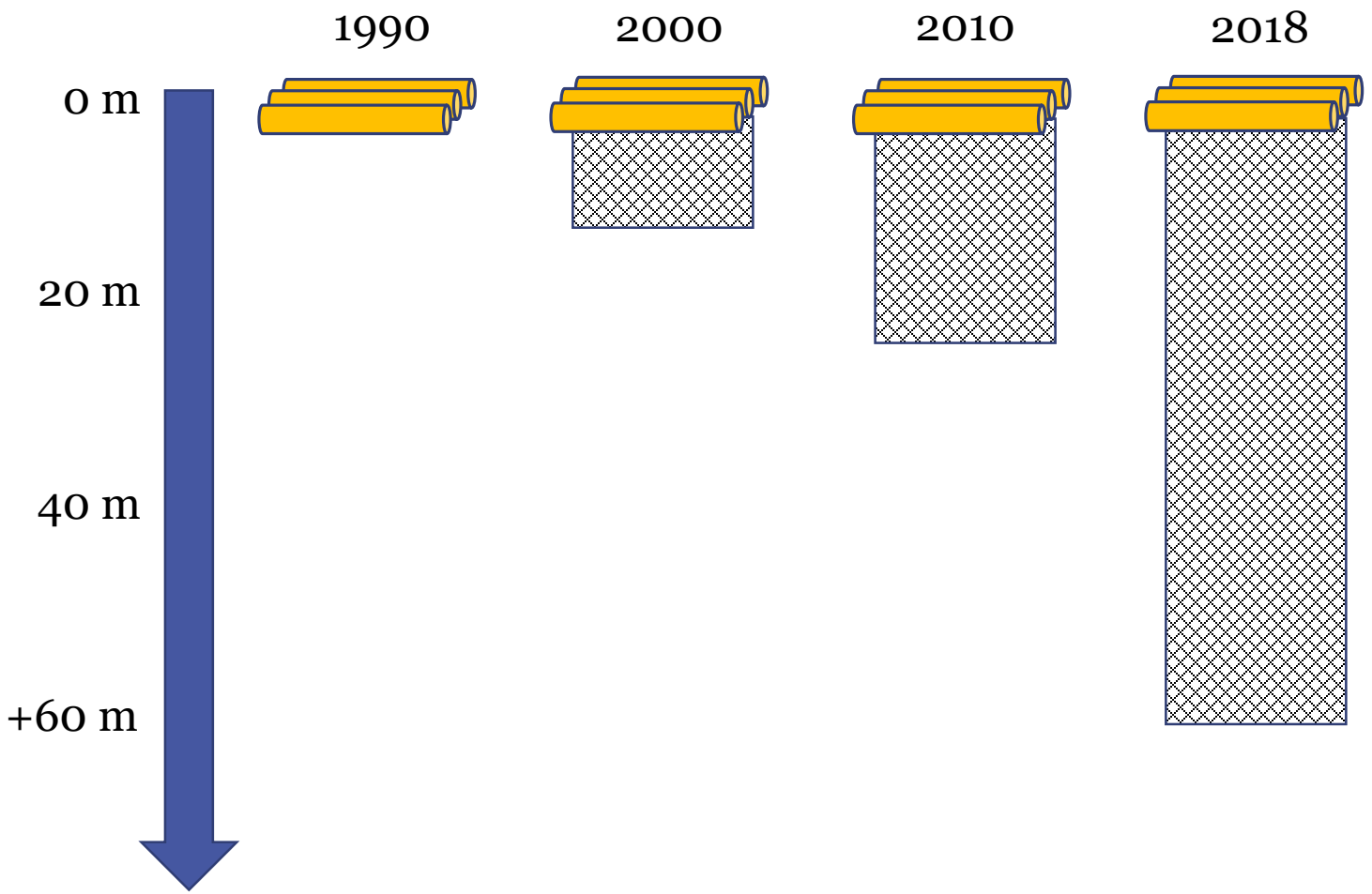
FAD Beaching & Marine Pollution

Marine Pollution: Oceans Can Not “Digest” Plastics

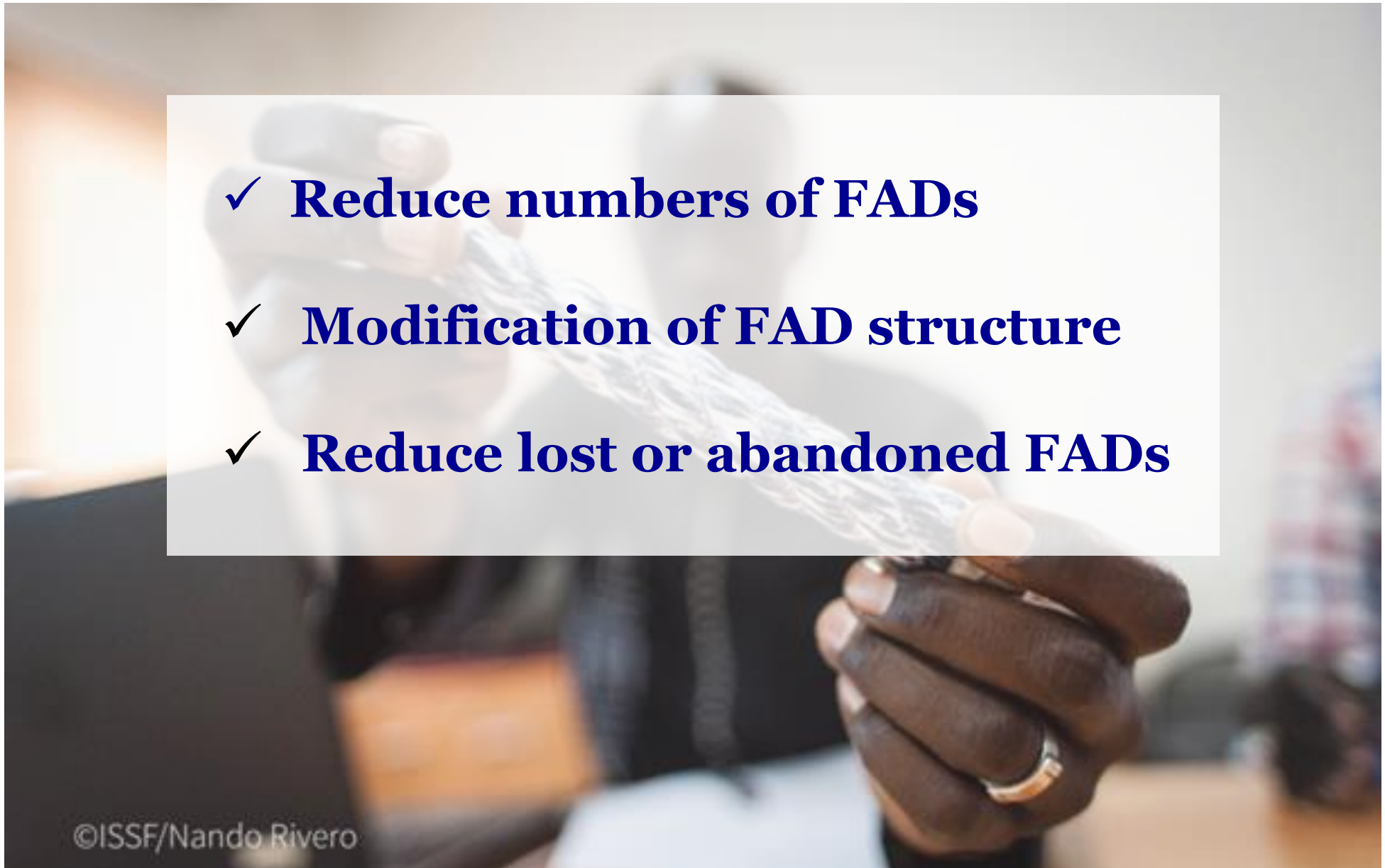
FADs accumulate year after year



Global trend towards deeper FADs



Reducing Marine Pollution by FADs

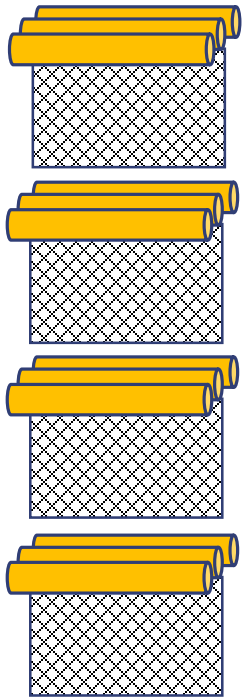


- ✓ **Reduce numbers of FADs**
- ✓ **Modification of FAD structure**
- ✓ **Reduce lost or abandoned FADs**

Reducing marine pollution by FADs

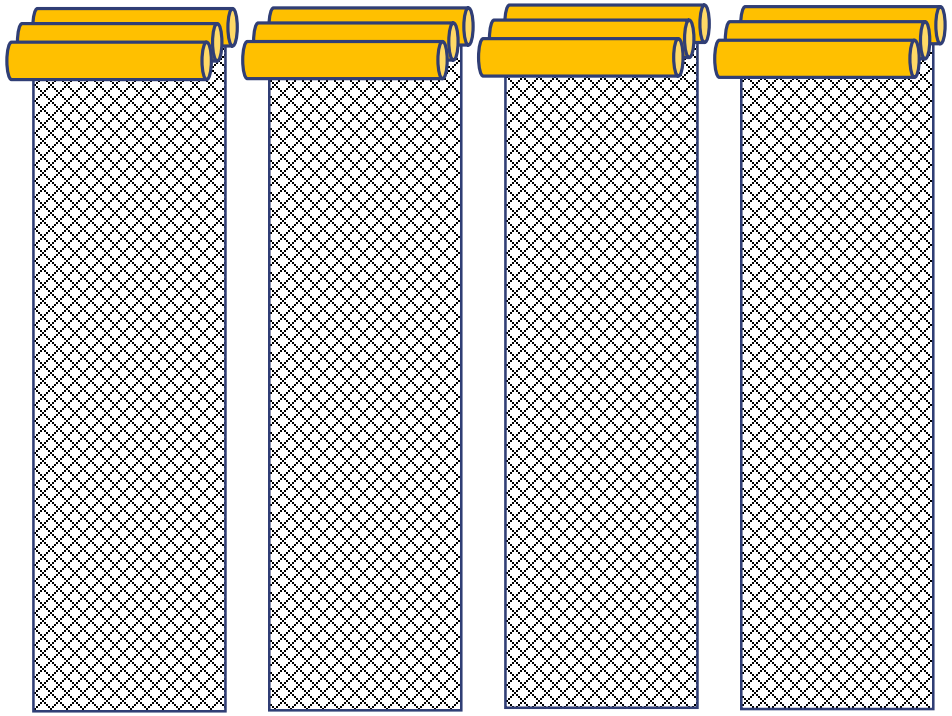
The impact is proportional to the **number** of FADs and their **size**

FAD structure
2000



Impact of
4 FADs (2000)

FAD structure
2018



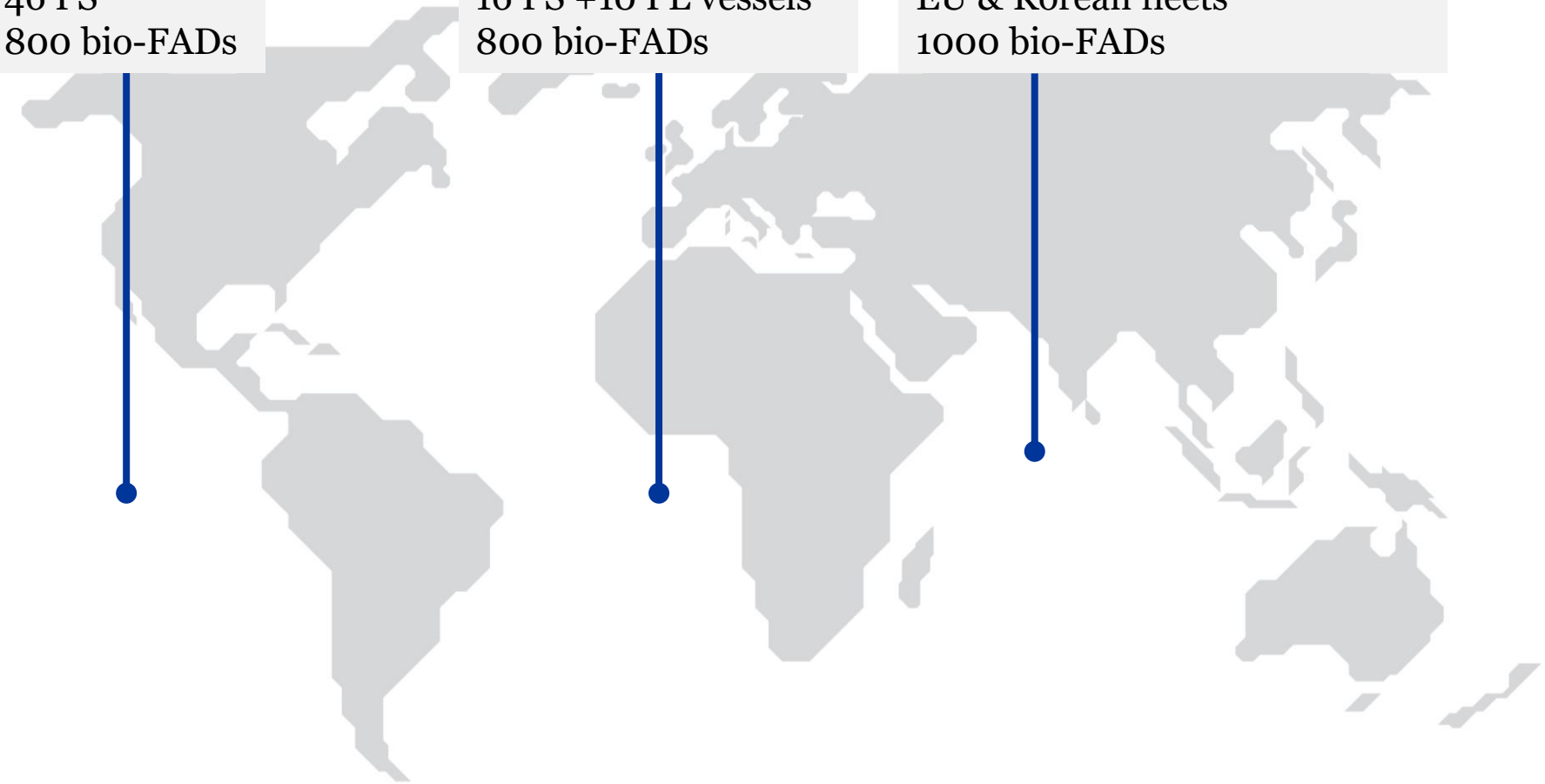
Impact of 4 FADs (2018)

Large-Scale Deployment of Biodegradable FADs

2019–2020
EPO fleet
46 PS
800 bio-FADs

2019
Ghanaian fleet
16 PS +10 PL vessels
800 bio-FADs

2018–2019
BIOFAD project Indian Ocean:
EU & Korean fleets
1000 bio-FADs



Other Options to Investigate

- FAD retrieval programs with a database with all FAD trajectories, automatic quantification of beaching, setting alerts to sensitive areas.
- Change fishing strategy with FADs. Use FADs shared by all fishers (similar to some anchored FAD arrays)
- Use anchored FADs in areas where drifts of FADs are likely to end up beaching
- The use of FADs with navigation capability

Recommendations

- **Vessel owners:** Progress towards the use of FADs without netting.
- **Vessel owners:** Consider vessel designs that facilitate the safe and live release of bycatch.
- **Scientists**: Conduct region-specific research or pilots. What works in one area may not work in others.
- **Scientists**: Involve fishers in the process of finding solutions as key and knowledgeable stakeholders.

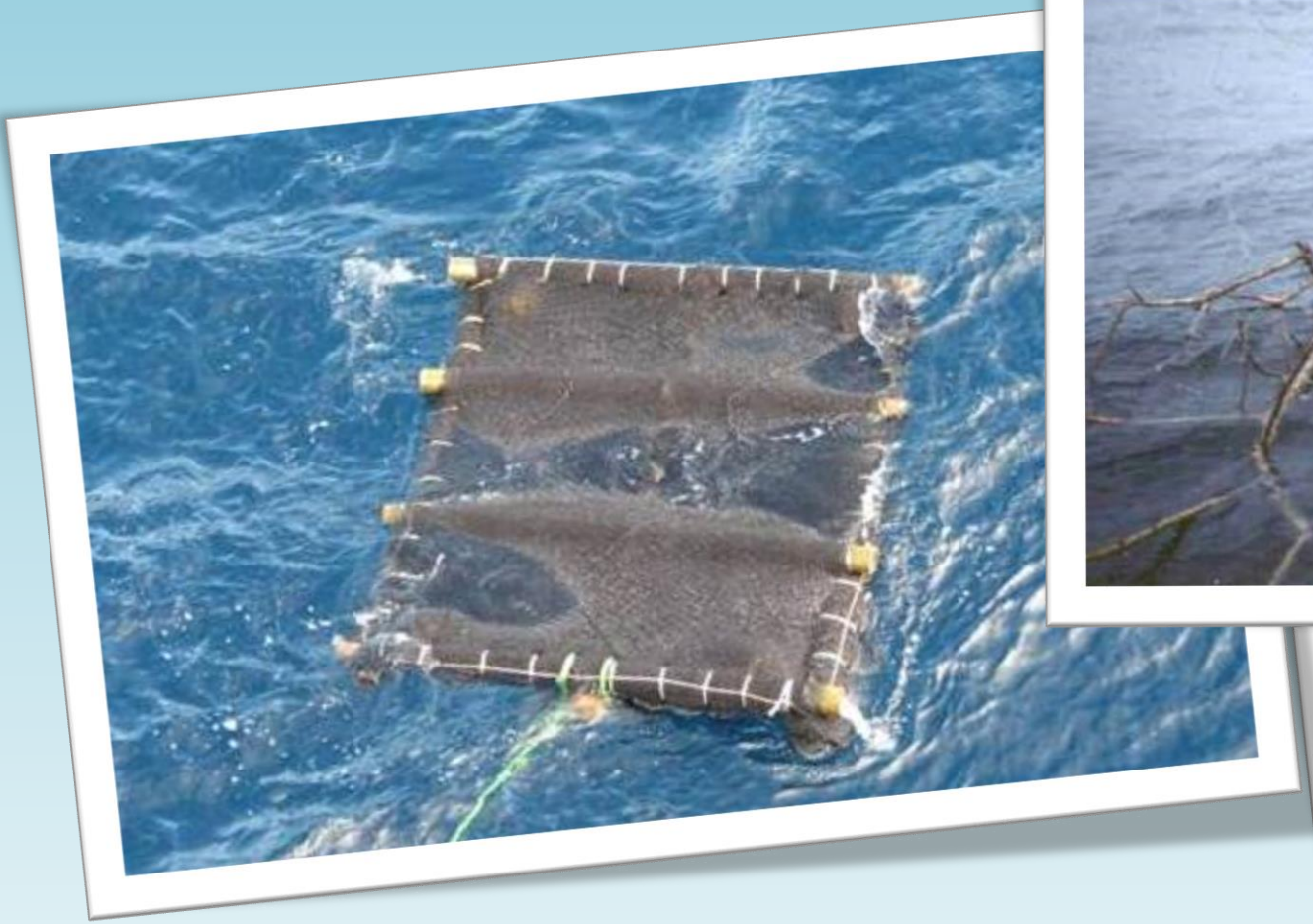
Recommendations

- **Scientists/RFMOs**: A combination of solutions adapted to each ocean and region may be necessary. There is no unique solution to reduce the impacts of FAD structure on ecosystems.

- **RFMOs**: Consider regulatory and/or market incentives to achieve implementation of technological solutions.

- **RFMOs**: Consider adopting measures to phase in the use of only FADs constructed without netting as these only can completely eliminate entanglement.

- **RFMOs**: Coordinate research currently being conducted disparately by fleets (e.g. on biodegradable FADs). Joining forces would allow tracking FADs and catches for the ir entire lifetime.



Questions