

IATTC

OPAGAC

AGAC

# Implementing Management Plans And Voluntary Initiatives Regarding Fads: The Opagac Experience

MIGUEL HERRERA & JULIO MORON

3<sup>rd</sup> Meeting of the IATTC ad-hoc Working Group on FADs, La Jolla 11-12 May 2018

# Outline



- The fleet
- Impact on target species
- Impact on bycatch species
- Impact on the marine environment
- Caveats and Conclusions

# OPAGAC in a Nutshell



- OPAGAC is a Producers Organisation which represents the interests of 9 purse seine fishing companies, 48 seiners, in Spain and abroad
- 4 companies integrated with the processing industry
- Present in tropical and sub-tropical waters worldwide
- We fish approximately 8% of the tropical tuna global catch ( $\approx 380.000$  MT)
- Contribution to the development of coastal states (Fisheries Agreements, port activities, processing, etc)
- Main market: EU



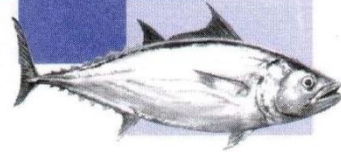
**ALBACORA, S.A.**



**ATUNERA  
DULARRA**



**NIGRA. 7. S.L.**



**ATUNERA  
SANT YAGO, S.A.**



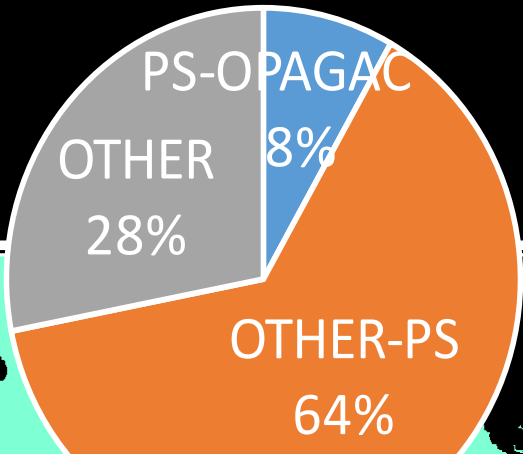
**TUNAMOL CORPORATION S.A.**

**CAMPOS**

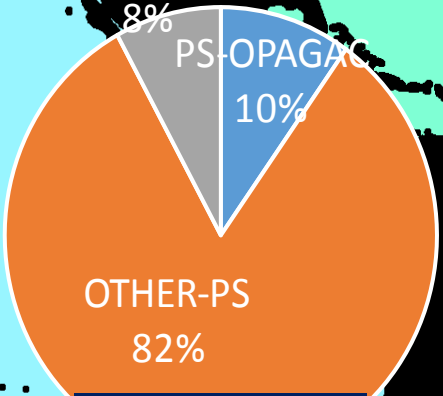
**Calvo**<sup>®</sup>

*Calidad desde 1887.*  
**ISABEL**<sup>®</sup>  
Conservas Garavilla S.A.

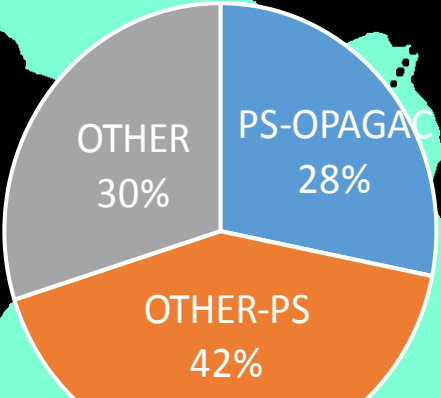
**Escuiris**



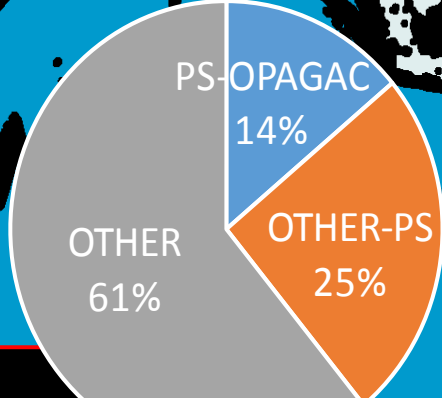
**WORLDWIDE 2014-16**



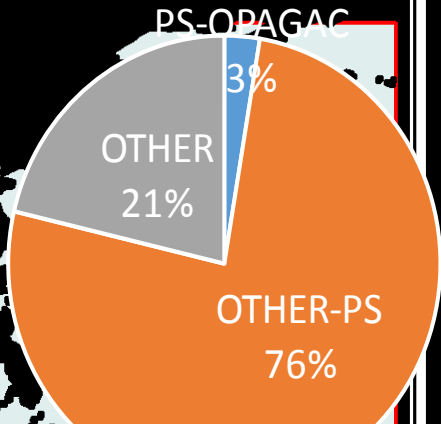
**IATTC 2014-16**



**ICCAT 2014-16**



**IOTC 2014-16**



**WCPFC 2014-16**



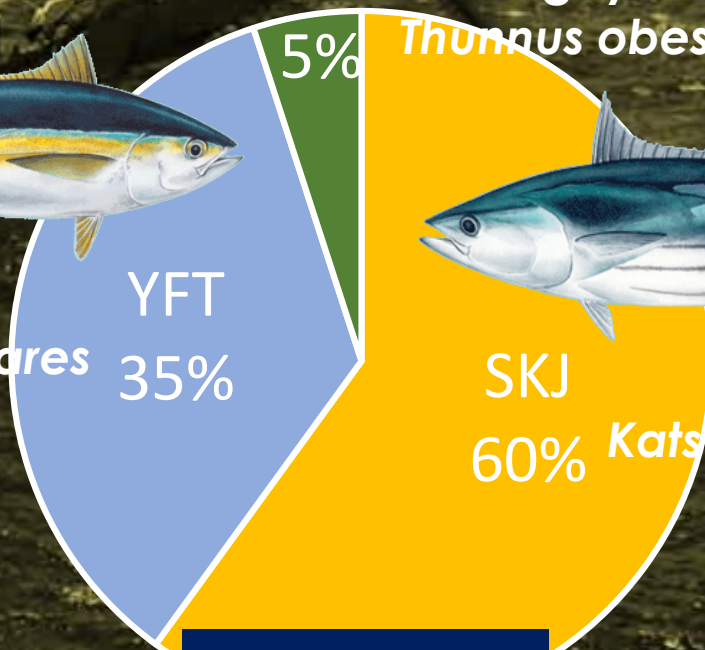
BET 5%  
Bigeye  
*Thunnus obesus*



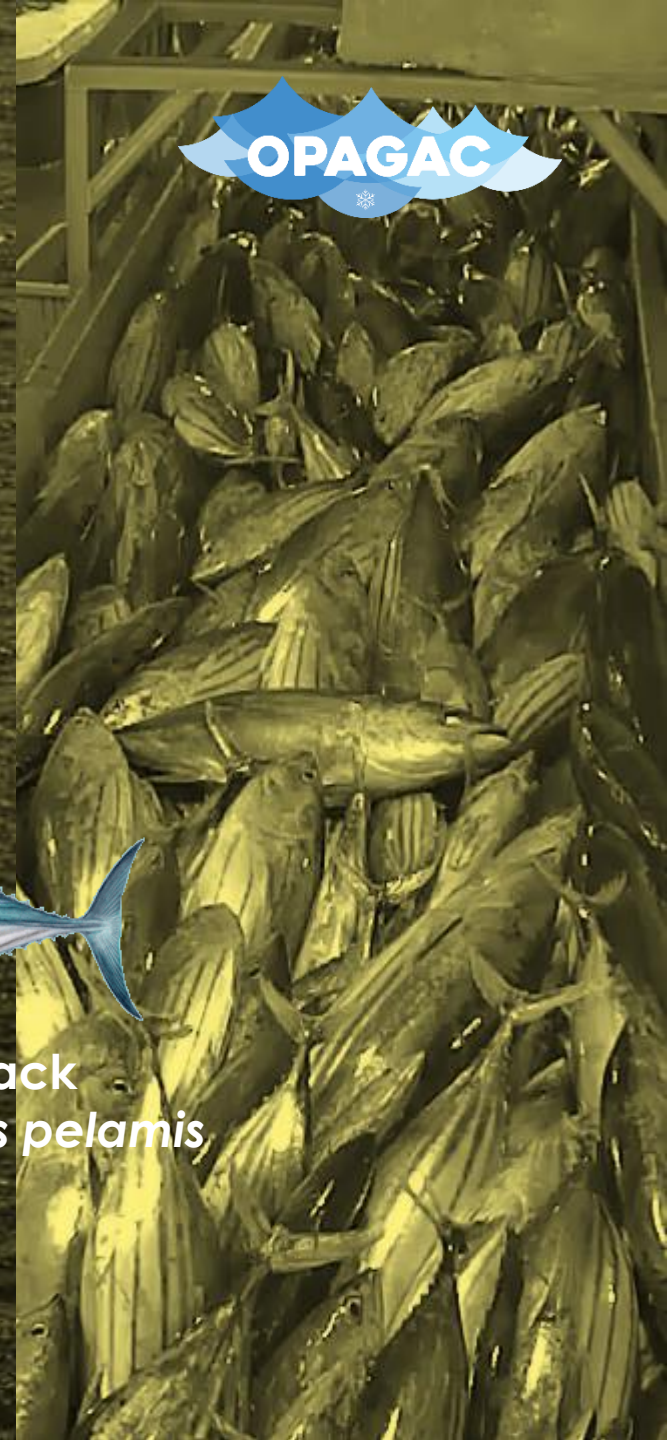
YFT 35%  
Yellowfin  
*Thunnus albacares*



SKJ 60%  
Skipjack  
*Katsuwonus pelamis*



BY SPECIES



An underwater photograph showing a large school of fish swimming around a dark, cylindrical buoy. The water is a murky, yellowish-brown color, and the scene is dimly lit, suggesting an underwater environment.

# FAD Impacts on target species

# Issues

- Catches of juveniles of YFT and BET
- Effort creep
- Ecological trap



Biology and behaviour of pelagic fish aggregations

## Drifting FADs used in tuna fisheries: an ecological trap?

Francis Marsac, Alain Fonteneau, Frédéric Ménard

IRD, centre de Montpellier, laboratoire HEA, BP 5045, 34032 Montpellier Cedex 1, France  
marsac@ird.fr

### Abstract

This paper discusses the hypothesis that small tunas and the various species found in association with drifting FADs (such as “mahi-mahi”, rainbow runner, wahoo, etc.) may be biologically trapped by such a

## DOCUMENT SAC-09-05

### STATUS OF BIGEYE TUNA IN THE EASTERN PACIFIC OCEAN IN 2017 AND OUTLOOK FOR THE FUTURE

Haikun Xu, Carolina Minte-Vera, Mark N. Maunder, and Alexandre Aires-da-Silva

but then fluctuated around a constant level (Figure 3). The increase in the fishing mortality of the younger fish was caused by the expansion of the purse-seine fisheries that catch tuna in association with fish-aggregating devices (FADs). It is clear that the longline fishery had the greatest impact on the stock prior to 1995, but with the decrease in longline effort and the expansion of the FAD fishery, at present the

## THE USE OF FADS IN TUNA FISHERIES

Gerald P. Scott and Jon Lopez

### Likely Methods by which FAD Fishing has increased a Vessel’s Ability to Catch Fish

“Effort creep” through 23 technological elements contribute to gains in purse seine fishing efficiency.

Use of FADs and associated factors (support vessels, technological improvement of FADs, and technological improvement in buoys attached to FADs) have had Major Impact and resulted in Steep Increase in vessels’ ability to catch fish.



# Assisting Evaluation



- Science–Industry cooperation towards:
  - Best data collection and reporting standards on FADs
    - EU Projects RECOLAPE & CECOFAAD 2
    - Joint–t–RFMO FAD WG
  - Research and analysis
    - Indices of abundance tropical tunas PS Fishery Indian & Atlantic:
      - Fishery dependent: FAD Density
      - Fishery Independent: Biomass estimates FAD Buoys Echo–sounder data
    - FAD Buoy Echo–sounder Species Discrimination

# Species Discrimination



- OPAGAC is cooperating with ISSF and various private companies on research towards discriminating buoys:
  - The main objective is reducing catches of juvenile YFT & BET

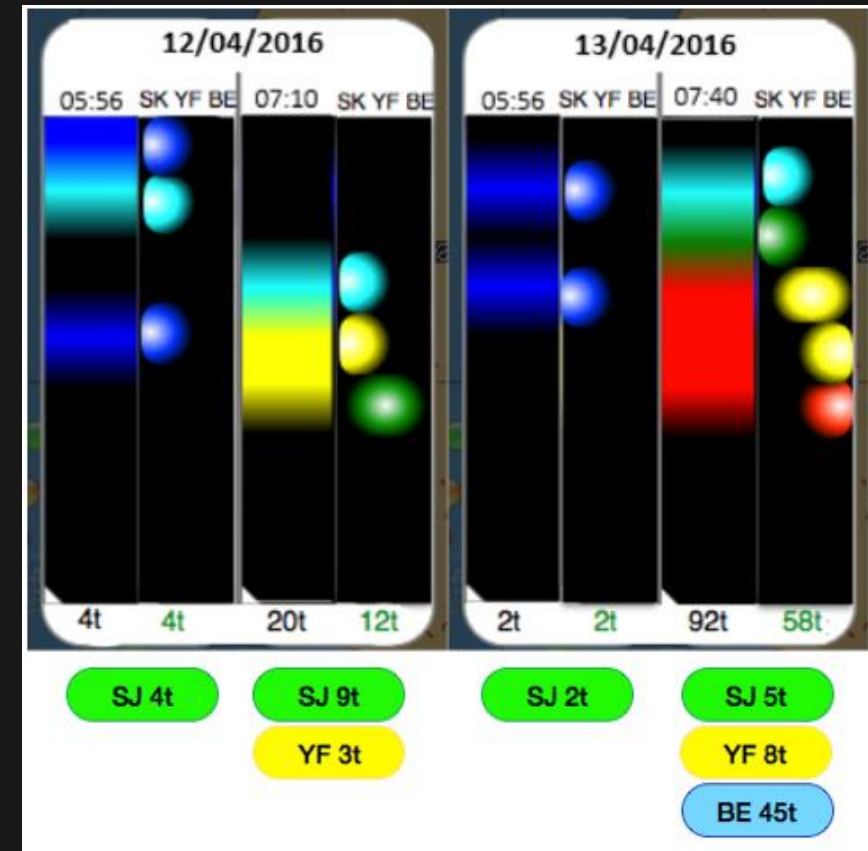
SCRS/2015/087

Collect. Vol. Sci. Pap. ICCAT, 72(3): 697-704 (2016)

## TOWARDS ACOUSTIC DISCRIMINATION OF TUNA SPECIES AT FADS

Gala Moreno<sup>1</sup>, G. Boyra<sup>2</sup>, I. Rico<sup>2</sup>, I. Sancristobal<sup>2</sup>, J.D. Filmater<sup>3</sup>, F. Forget<sup>4</sup>, Jefferson Murua<sup>5</sup>, Nicolás Goñi<sup>2</sup>, Hilario Murua<sup>2</sup>, J. Ruiz<sup>5</sup>, Josu Santiago<sup>5</sup>, Victor Restrepo<sup>1</sup>

Scientific acoustic equipment was carried onboard a commercial tuna fishing cruise in the central Pacific Ocean. The cruise took place during one month in May 2014 onboard the purse seiner F/V ALBATUN TRES, a 115 m Spanish purse seiner built in 2004 with 4,406 GT (2,260 tons carrying capacity). The cruise started in Christmas



# Mitigation of Impacts




- Compliance with FAD limits and measures in the four t-RFMOs:
  - IATTC: 350 active FAD boat/day plus corralito plus fishery closures plus capacity limits
  - Other t-RFMO: FAD and support vessel limits, time-area closures, TACs, capacity limits
- Compliance verified by AZTI

**RESOLUTION C-17-01**

**CONSERVATION OF TUNA IN THE EASTERN PACIFIC OCEAN DURING 2017**

The Inter-American Tropical Tuna Commission (IATTC), gathered in La Jolla, California (USA), on the occasion of its 91<sup>st</sup> Extraordinary Meeting:

 **azti**  
tecnalia

Verificación de la Resolución CIAT C-17-02

**Verificación de la Resolución CIAT C-17-02**

Informe elaborado por AZTI para para OPAGAC



# FAD Impacts on bycatch



# Issues



- Collateral damage: Bycatch associated to tuna schools on purse seine sets on FADs
- Ghost fishing: Bycatch entanglement on FAD netting
  - Mostly Billfish, Sharks & Marine turtles



# Assisting Evaluation



- Collecting and reporting data on bycatch and interactions:
  - 100% Observer Coverage (since 2015)
  - Assisting in the design of best practices to avoid bycatch entanglements on FADs
  - Best practices for the safe release of bycatch
  - Estimates of bycatch levels by the OPAGAC fishery, in all oceans, and contribution to overall fishing mortality

# Research and Capacity Building



- OPAGAC supports training & research on bycatch mitigation techniques (ISSF, IEO, AZTI):
  - ISSF/AZTI Skipper workshops
  - Bottom-up approach to bycatch mitigation solutions
  - Assess post-release mortality levels
  - Changes in gear configuration/fishing operation

SCRS/2015/089

Collect. Vol. Sci. Pap. ICCAT, 72(3): 705-713 (2016)

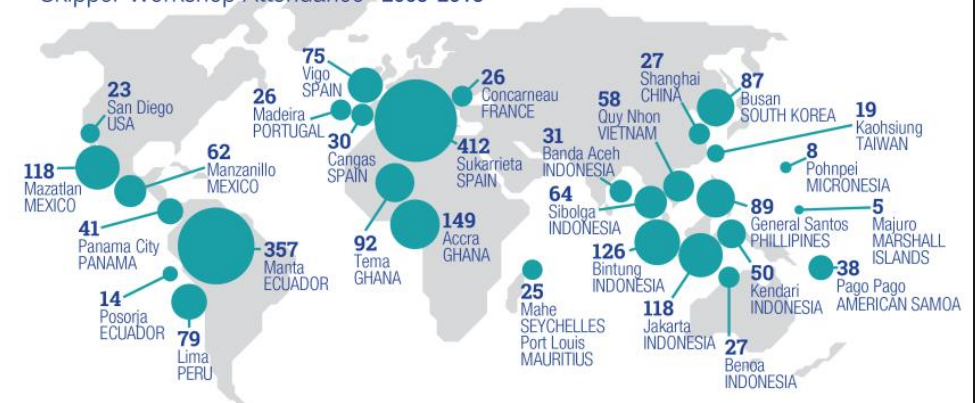
## ISSF SKIPPERS WORKSHOPS: UNDERSTANDING FADS FROM A FISHER'S PERSPECTIVE

Jefferson Murua<sup>1</sup>, Gala Moreno<sup>2</sup>, Victor Restrepo<sup>2</sup>



## Making a Difference: On the Water

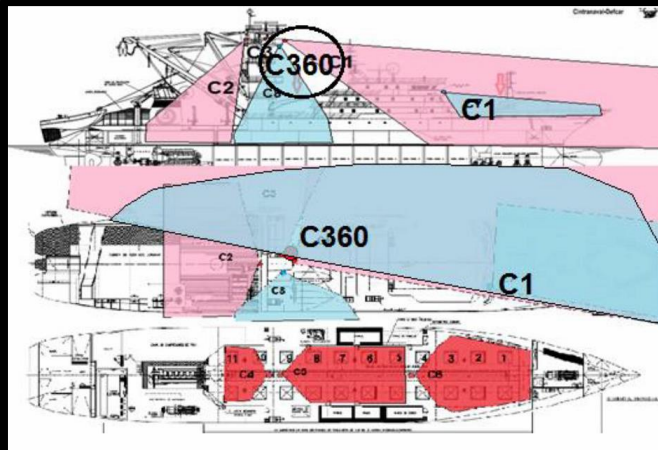
Skipper Workshop Attendance 2009-2016



# Bycatch Mitigation



- The Spanish Purse seine fishing industry adopted a VOLUNTARY Code of Good Practices (effective since 2012):
  - Safe release of bycatch and 100% non-entangling FADs
  - Implemented by fishermen & monitored by observers
  - Conformity with the Code validated by AZTI





# FAD Ecosystem Impacts



# Issues



- Loss of FADs
  - Contribute to marine litter
  - Damages coastal ecosystems
- Hazard to some marine activities (e.g. prospecting for petrol)



# Evaluating Impacts



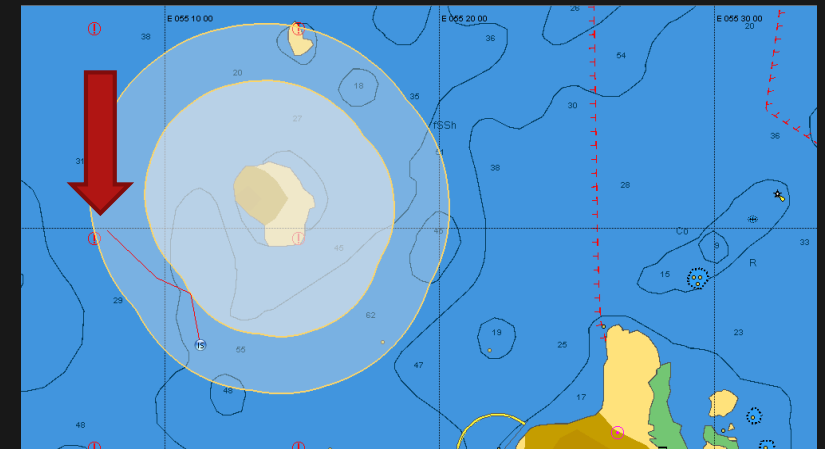
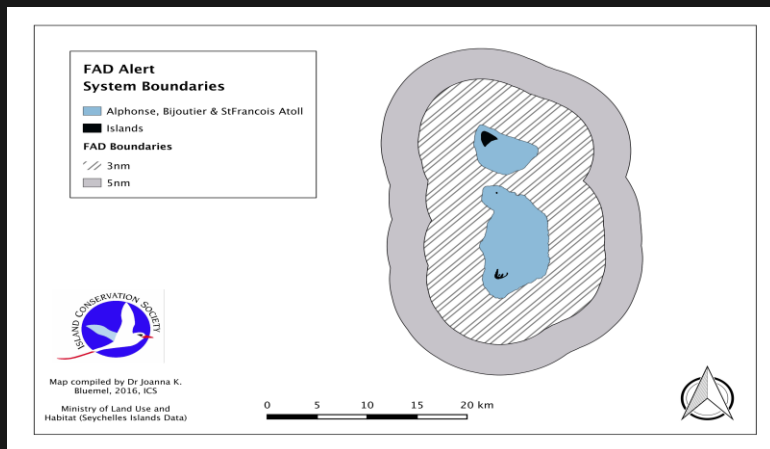
- OPAGAC [+ WWF] FIP:
  - All FAD data released to AZTI for:
    - The evaluation of areas sensitive to FAD beaching events
    - The beaching potential of FADs in the Seychelles
  - Assess feasibility of actions to mitigate impacts
    - Biodegradable FADs
    - Other Pilots to retrieve FADs



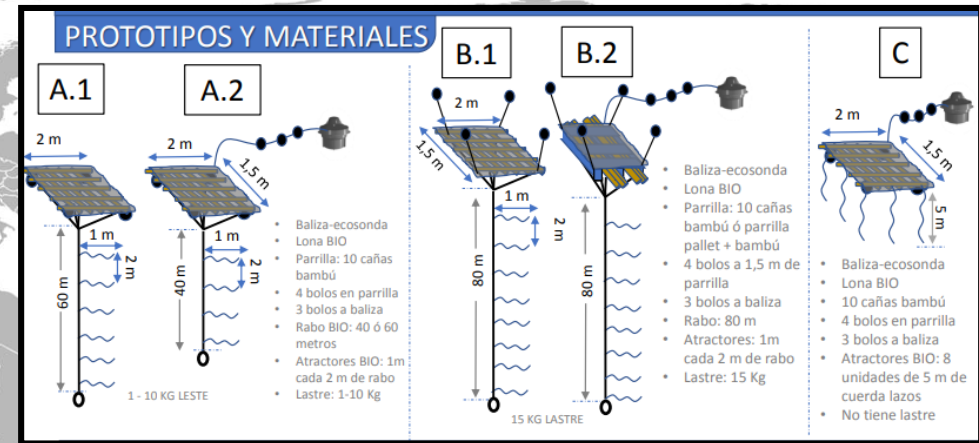
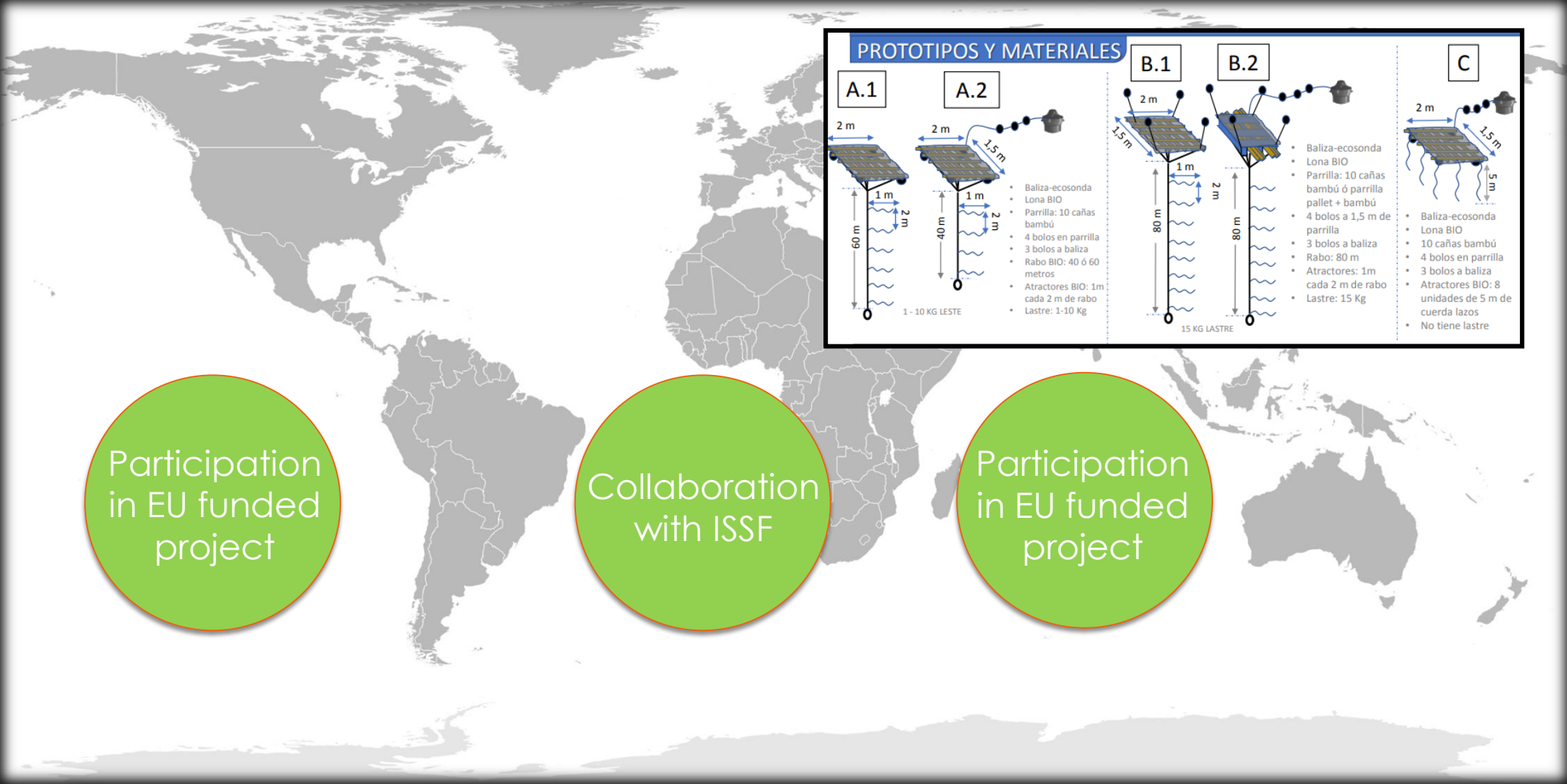
# FAD-Watch Pilots



- OPAGAC supports a Pilot FAD-Watch Projects in Seychelles, Gabon, Mauritania, etc. to prevent FADs from beaching events/colliding with prospecting gear, through safe retrieval
  - Carried out by NGOs or prospecting companies
  - Release of real-time FAD data
  - Blueprint for implementation of similar initiatives in other areas



# Biodegradable FAD Pilots



Participation  
in EU funded  
project

Collaboration  
with ISSF

Participation  
in EU funded  
project

# The Future



- Indices of abundance
  - Short term: fishery-dependent
  - Medium-term: fishery-independent
- Move to non-entangling biodegradable FADs to reduce ecosystem impacts to the maximum
- Discrimination of unwanted specimens on sets on FADs (bycatch and target species)
- Evaluate contribution of bycatch to fishing mortality and mitigate impacts on bycatch, as required

# Thanks For Your Attention

[www.opagac.org](http://www.opagac.org)  
[Miguel.Herrera@opagac.org](mailto:Miguel.Herrera@opagac.org)  
[Julio.Moron@opagac.org](mailto:Julio.Moron@opagac.org)