24th Prediction and Research Moored Array in the Tropical Atlantic

"Fishing operations to catch tunas on aggregated schools at the vicinity of the PIRATA data buoys in the western Atlantic"

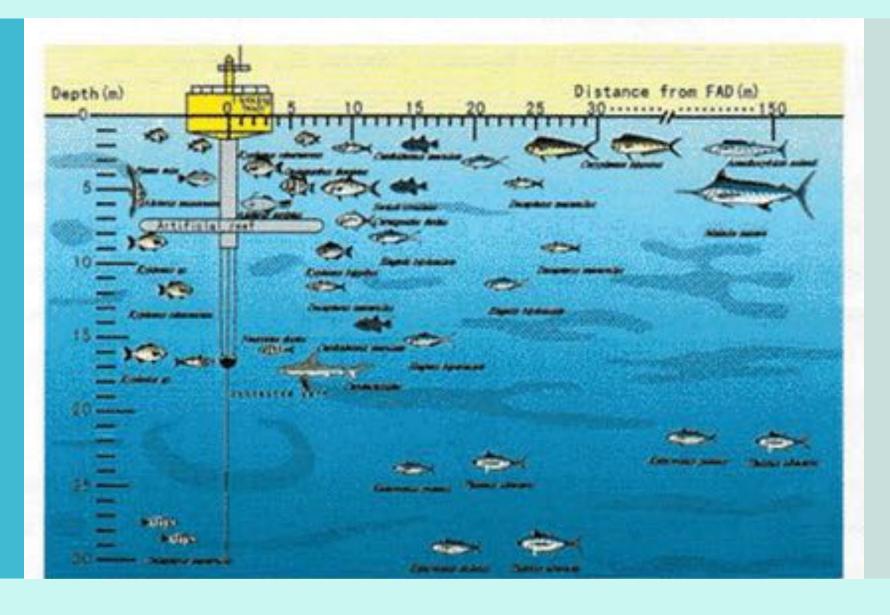




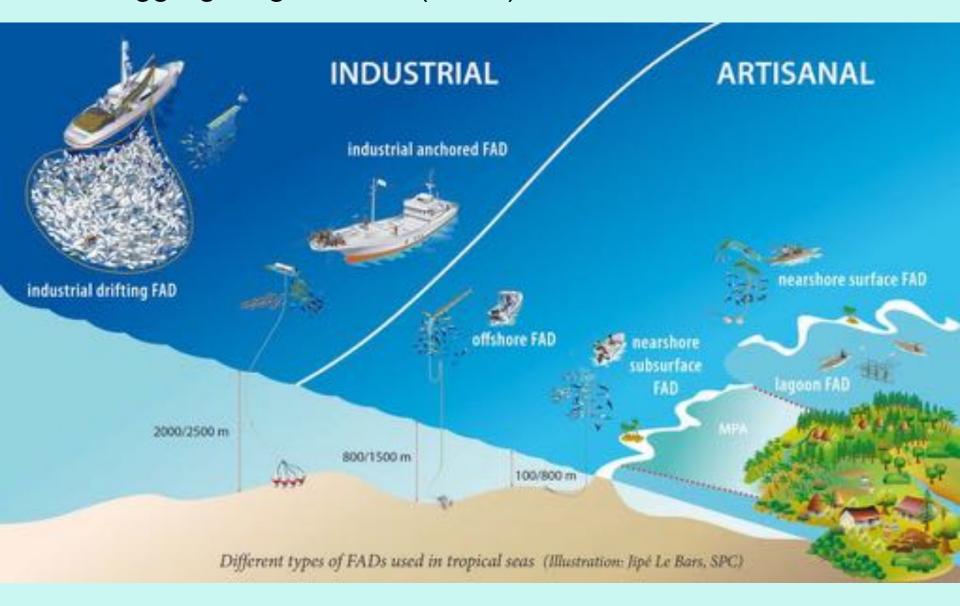




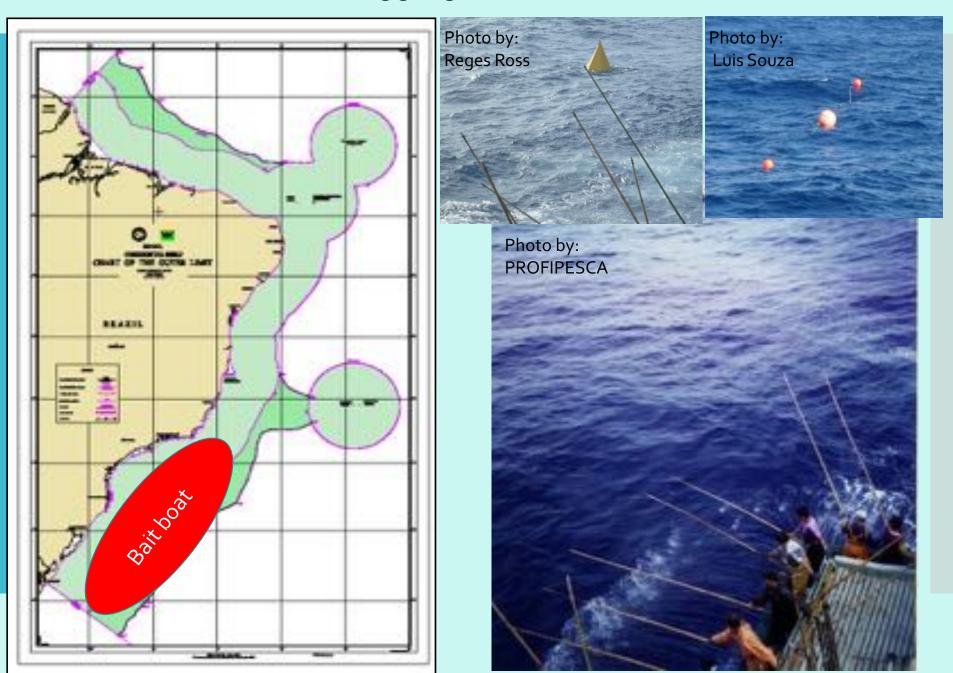
✓ Aggregative behavior of pelagic fishes on floating objects



√ Fish Aggregating Devices (FADs)



✓ Brazilian fisheries on aggregated schools



✓ Bait boat Fisheries near the petroleum drilling platforms in the southeastern Brazil



✓ Since 2003, two skippers has developed a technique where
the boats act as FADs, with school exchanges between them



F. DE A. SCHROEDER & J. P. CASTELLO

Pan-American Journal of Aquatic Sciences (2007) 2 (1): 66-74

✓ Definition

- <u>Associated School Fisheries</u>: fishing technique which consists of attracting and concentrate schools of fish, mainly tunas, using the own vessel's hull as a Fish Aggregating Device (FAD).



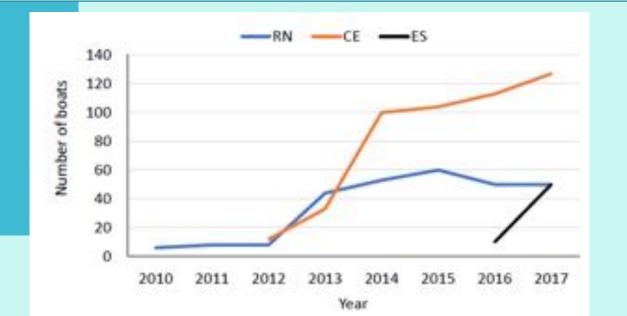
✓ Chronological development

2009 – Fishers from Rio Grande do Norte, northeastern Brazil, discover the aggregations of tuna schools near data buoy starting to explore them.

2012 – The fleet expands to Ceará state, northeastern Brazil, with a rapid increase in the number of boats

2016 – The fleet expands to Espirito Santo state, southeastern Brazil

2018 – The Brazilian government recognizes this kind of fishery as legal



✓ Fishing Technology: Fleet





✓ Fishing gears:

Pole and line







Trolling





Handlines: each fisher has a bunch of reels













√ Spatial Distribution – Experience and Interviews

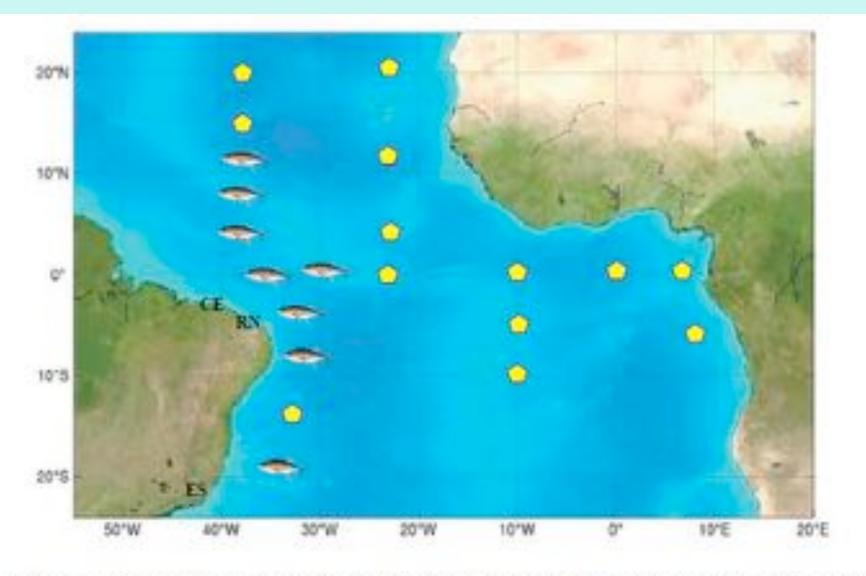
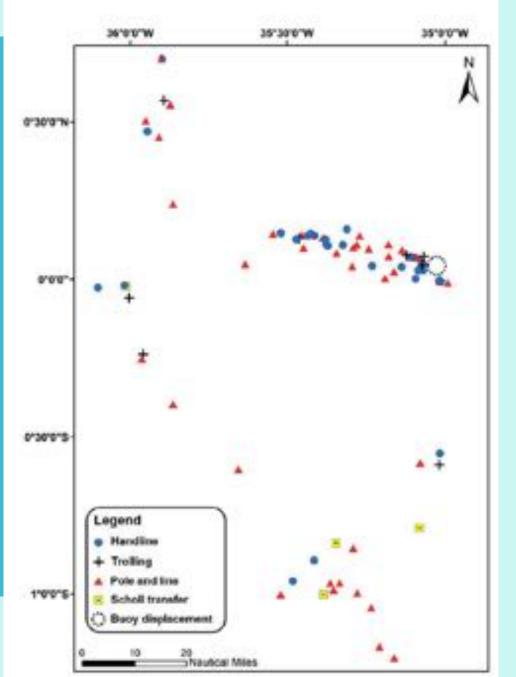
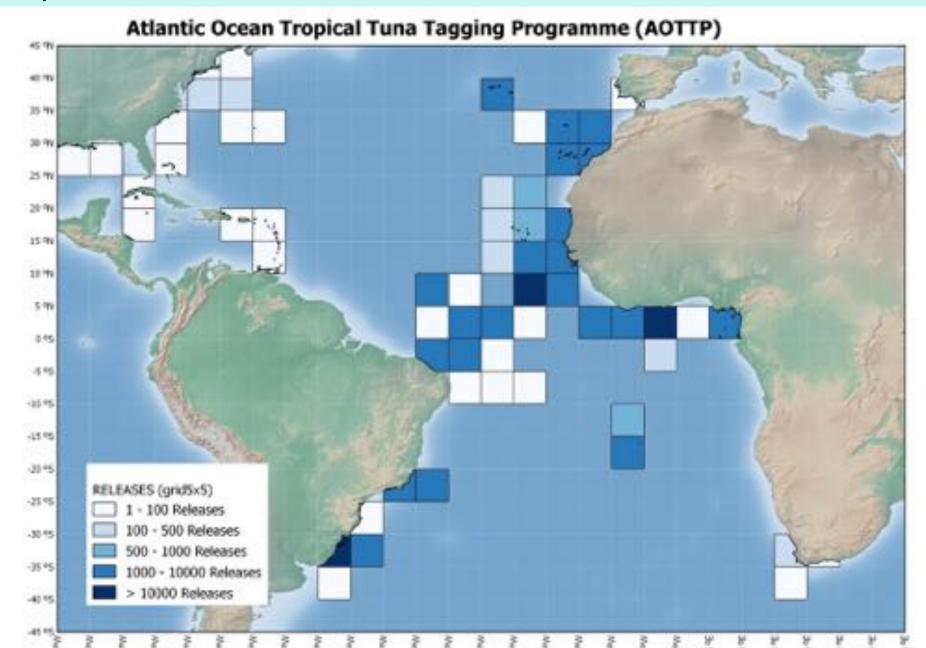


Figure 1. Location of the PIRATA buoy array (yellow) in the Atlantic and the main States in Brazil (CE, RN and ES) where the fleet is based. Buoys with interaction with fisheries are marked with tunas (Adapted from Bourlés at al., 2008).

✓ Spatial Distribution – 2010 - 2013



✓ Spatial Distribution – 2017 - 2020



✓Impacts

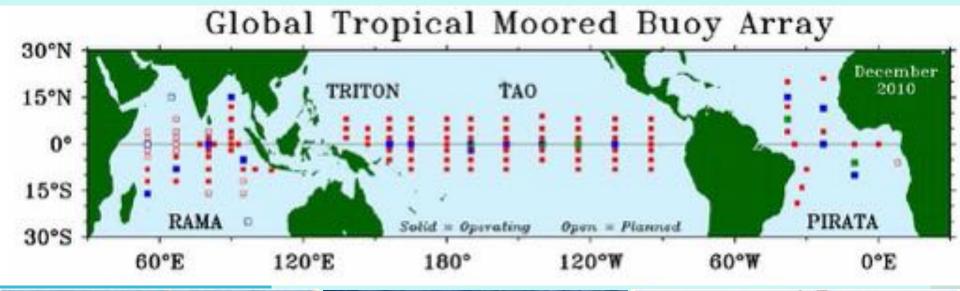








Figure 7 TAO buoy superstructure damage due to vessel collision

Figure 9 TAO vandalism – fishing activity (possible sling shot)

Data Buoy Cooperation Panel, 2011.

- In the beggining, all the fishing activities (2010) were developed tied to the data buoy (5~6 boats tied in line)



- Longliner from South Brazil catching tunas near data buoy (2010).



- Small bait boats from southeasten Brazil tied on data buoy (2011)



✓PIRATA campaign maintenance (2010/2011)





✓ Governamental Measures

PORTARIA INTERMINISTERIAL Nº 59-A, DE 9 DE NOVEMBRO DE 2018

Define as medidas, os critérios e os padrões para a pesca de cardume associado e para outros aspectos da pesca de atuns e afins no mar territorial, na Zona Econômica Exclusiva e nas águas internacionais por embarcações de pesca brasileiras.

"Defines the measures, the criteria, and the patterns for the Brazilian fleet engaged in the aggregated school fishery and another aspects of the tuna fisheries in the territorial sea, EEZ, and international waters"

- It recognizes this activity as legal and establishes the criteria for obtaining the license for operation.
- 2 National calls with 300 licenses available (~234 filled).

✓ Regulation regarding data buoys

Art. 3th. § 2th. It is prohibited any type of fishing aimed at catching tunas in a distance of less than two hundred meters from oceanographic buoys located in the EEZ and in international waters.

Art. 3th. § 3th. It is prohibited to tie any vessel on oceanographic buoys located in the EEZ and in international waters.

Art. 4th. II) It is responsibility of the boat owners the maintenance and use of satellite tracking equipment installed on board, under the terms of the National Vessel Monitoring Program.

✓ Further considerations

- Development of awareness program along with the fishing community to demonstrate the importance of the PIRATA data buoys to the society
- Development of projects to identify the main impacts from fishery activities and define mitigating measures.
- Reinforce the monitoring measures along with the Brazilian government.



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