

**Outcomes of a French program
aiming at a widespread use
of “non-entangling FADs”:
one way to eliminate incidental
entangling of sharks and turtles
in FADs**

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EBFMtuna-2012 : Towards ecosystem-based management of tuna fisheries
Mitigating impacts of fishing on pelagic ecosystems - 15-18/10/2012 Montpellier

Introduction: between science and management

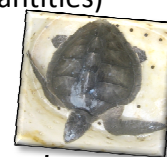
- Principles of Orthongel's programs
 - Initiated by the sector
 - Starting from scientific research
 - Giving tools and objectives
 - Involving all fishermen willing to participate
- A mix between research and implementation
- More like a dynamic than a single finite action
- Possible because of
 - A concern for sustainability
 - A good cooperation with scientists of IRD
 - European Fisheries Fund

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Introduction: issues to be addressed

- Sharks and rays
 - Presents in FAD sets (in small quantities)
 - Little value for crew (shark finning forbidden)
 - Release alive was less a priority ...
 - ... than security issues
- Turtles
 - Presents in both fishing modes (in very small quantities)
 - Often released alive
- Sharks and turtles
 - Existence of an additional mortality through entanglement in the FAD's nets parts



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The non-entangling FAD program: methodology

- Methodology
 - Identifying the possible technical solutions through a WG of scientists, captains and technicians of the ship-owners
 - Based on results of MADE and IEO/IRD previous programs
 - Elaboration of a first guide with initial designs and guidelines :
 - Non-entangling
 - Resistant to sea conditions
 - Similar drift than traditional FADs
 - Similar yields when fishing
 - Similar furtiveness
 - Reduced additional cost, quick and easy to built



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The non-entangling FAD program: methodology

- Methodology
 - Materials (black cloths, ropes) were distributed to the vessel
 - Crew were asked to document the FADs they designed
 - Setting of any non-entangling FADs was reported on a specific form, as well as fishing

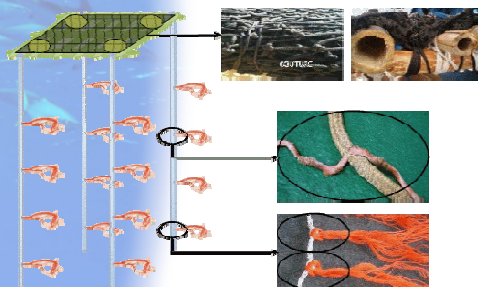


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The non-entangling FAD designs

- Type B: the ropes design
 - The underwater hanging structure is composed of 1 to 4 recycled weighted ropes. To increase the drift, salt bags and/or small unbraided sections of recycled ropes are attached to the ropes



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The non-entangling FAD designs

- Type C: the twisted net design
 - The underwater hanging structure is composed of a single twisted and weighted net hanging from under the middle of the raft.



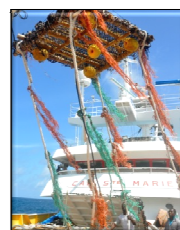
The non-entangling FAD designs

- Type D: the 2 to 4-net strips design
 - The underwater hanging structure is composed of 2 to 4 twisted and weighted strips of net attached to each corner of the raft



Dimension of the non-entangling FAD program

- More than 1200 non-entangling FADs seeded in the IO (since January 1st, 2012, vessels are not allowed to seed anything else but non-entangling FADs)
- About 100 non-entangling FADs seeded in the AO (same resolution for the OA starting January 1st, 2013)



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Yields of the non-entangling FAD

- (as of July 1st 2012)
 - 124 sets made on non-entangling FADs
 - 92% of the sets made on non-entangling FADs made on non-entangling FADs belonging to the fishing vessel
 - Average time between the seeding and the first set made is between 4 weeks and 10 weeks

Indicators of fishing efficiency of non-entangling and regular FADs

Parameters and indicators	Non-entangling FADs sets	2010-2011 log sets	2005-2010 log sets*
Number of observations	124	-	11 832
Average catch per set	25.3 t	-	25.0 t
Number of observations used for Shapiro-Wilk test	67	1345	-
Average catch per set	25.0 t	25.2 t	
%age of sets of <10 t	22.6%	29.8%	25.2%
%age of sets of 10-50 t	62.9%	57.6%	60.6%
%age of sets of >50 t	14.3%	12.6%	14.2%

*Including null sets.

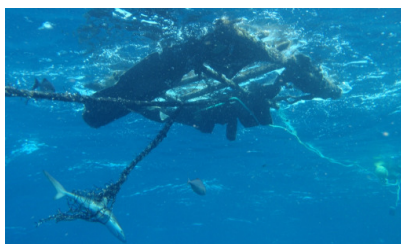


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Room for improvements of non-entangling FADs

- Results in terms of entanglement
 - 2 sharks, 1 turtle and 1 barracuda seen entangled in insufficiently braided and sewn parts of twisted nets



- As a conclusion, it was decided by the ship-owners to transfer the building of FADs to land-based workshops monitored by Orthongel, allowing even more testing of improved designs...



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Thank you for your attention

More information on www.orthongel.fr (in French)

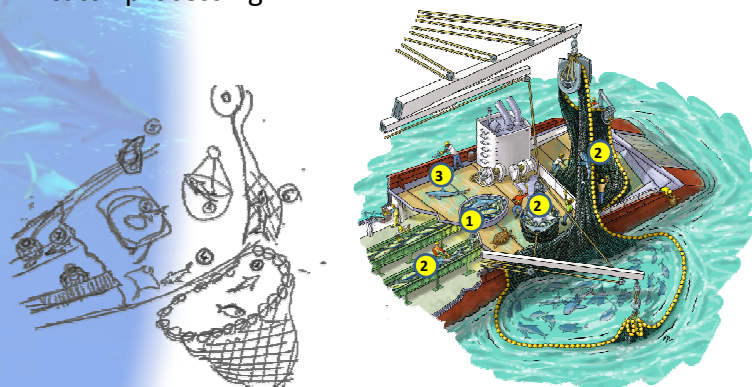


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A few words about the shark live-release program

- Methodology
 - Identifying the conditions faced by sharks, rays and turtles during the different phases of the fishing operations and catch processing



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A few words about the shark live-release program

- Methodology
 - Testing tools and procedures for the release of shark or rays with two objectives
 - Improve the health conditions of the released animal
 - Improve the conditions of security of the crewmen
 - Tagging individuals during the program to measure progress and validate the effectiveness of the live release



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A few words about the shark live-release program

- Results
 - Good practices & tricks explained to the crew through training sessions for each vessel

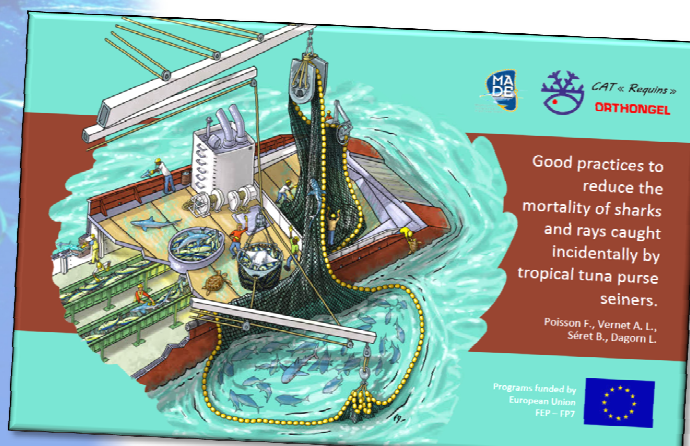


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A few words about the shark live-release program

- Results
 - A guide of good practices for the boards + 6 metal panels



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More information on www.orthongel.fr (in French)
(English & Spanish versions of the guide of good practices
also available)



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