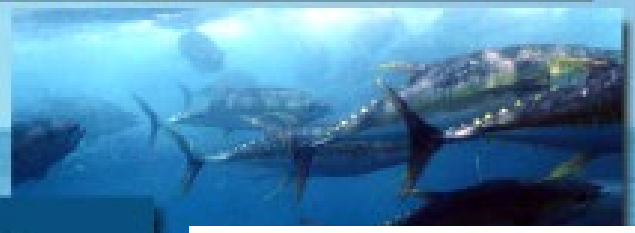
Comisión Interamericana del Atún Tropical
Inter-American Tropical Tuna Commission



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Testing Biodegradable Materials and Prototypes for Tropical Tuna FAD Fishery – Progress Report

Martin Hall – Marlon H Román

10th Meeting of the Scientific Advisory Committee San Diego, California USA, 13-17 May 2019

Project objective and timeline

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- **Objectives**
  - Design FAD prototypes that will not entangle pelagic species
  - To be degradable to reduce the accumulation of anthropogenic debris in the coasts and high seas

- **Testing of non-entangling and biodegradable Fish Aggregating Devices (FADs) – Grant 1**
  - IATTC Achotines laboratory (Panama)
  - From August 1, 2015 to January 31, 2018
    - Companies have tested prototypes similar to those developed in this testing
      - No controls to compare with
      - Still in good condition after 3 months at sea
      - Cotton canvas replaced by abaca

Project objective and timeline

Co-funded by the European Union

- **Testing of non-entangling and biodegradable Fish Aggregating Devices (FADs) – Grant 1**
  - IATTC Achotines laboratory (Panama).
  - From August 1, 2015 to January 31, 2018
    - Companies have tested prototypes similar (material and configuration) to those developed in this testing
      - No controls to compare with
      - Still in good condition after 3 months at sea
      - Cotton canvas replaced by abaca (cotton quality?)

Project objective and timeline

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- **Testing Biodegradable Materials and Prototypes for Tropical Tuna FADs – Grant 2**
  - February 1, 2018…

Testing Biodegradable Materials and Prototypes for Tropical Tuna FADs

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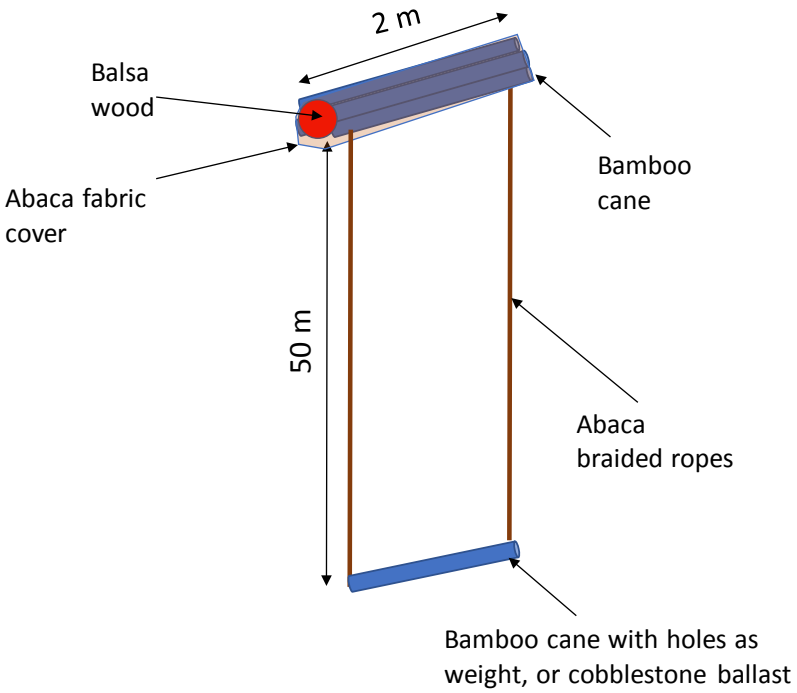
- **Grant 2. Project description**
  - Two best performing prototypes observed during the phase 1 will be used in fishing trials
  - After discussions with the skippers and fleet managers, they finally selected 3 prototypes

- **Current situation**
  - Dec 14, 2018: Memorandums of Understanding (MOUs) between vessel groups with the IATTC
    - Prototypes allocation by vessel
      - Class-6 (> 1,200 m^3): 5 per quarter
      - Class-6 (≤ 1,200 m^3): 4 per quarter
      - Classes 4 & 5: 3 per quarter
      - Classes 1 – 3: 1 per quarter

Prototypes

1



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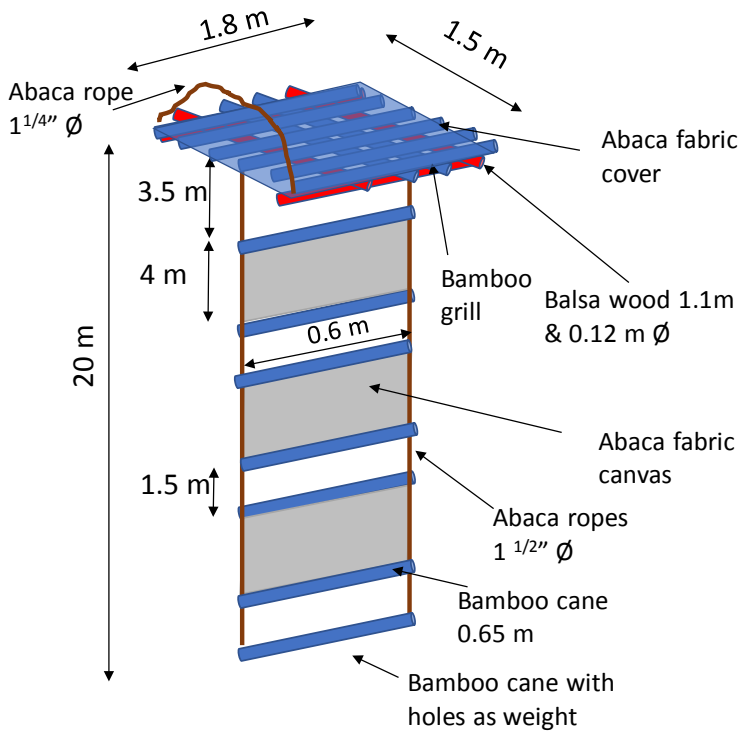

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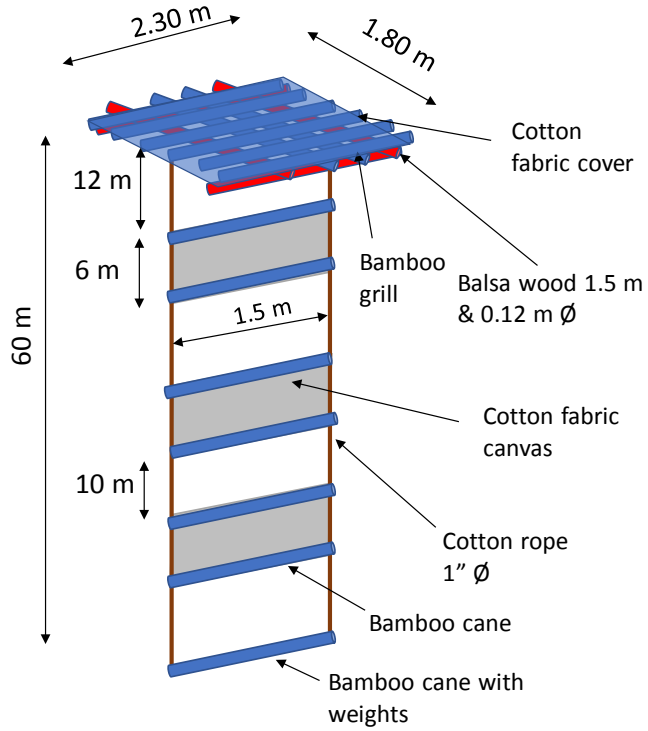

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Testing Biodegradable Materials and Prototypes for Tropical Tuna FADs

- After discussions with the skippers and fleet managers, they initially selected 3 designs

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Current situation

- Dec 14, 2018: Memorandums of Understanding (MOUs) between vessel groups with the IATTC
  - Prototypes allocation by vessel
    - Class-6 (> 1,200 m^3): 5 per quarter
    - Class-6 (≤ 1,200 m^3): 4 per quarter
    - Classes 4 and 5: 3 per quarter
    - Classes 1 – 3: 1 per quarter
  - Each prototype will be code-labeled and deployed in pairs with traditional FADs sharing the same label code
  - Vessel companies shall provide geo-referenced information of the tested prototypes

- May 1, 2019: Prototype materials are being purchased

Purchase, construction and delivery strategies for the prototypes by vessel groups

OPAGAC

Vessel name	Class	Prototype no.				Deployments by quarter	Quarterly cost
		1	2	3	4		
GUAYATUNA UNO	6	0	0	0	5	5	2647.5
GUAYATUNA DOS	6	0	0	0	5	5	2647.5
PANAMA TUNA	6	0	0	0	5	5	2647.5
UGAVI	6	0	0	0	5	5	2647.5
JOCAY	6	0	0	0	5	5	2647.5
UGAVI DOS	6	0	0	0	5	5	2647.5
JANE IV	6	0	0	0	5	5	2647.5
SISARGAS	6	0	0	0	5	5	2647.5
AURORA B	6	0	0	0	5	5	2647.5
ROSITA C	6	0	0	0	5	5	2647.5
CHARO	6	0	0	0	5	5	2647.5
SAN ANDRES	6	0	0	0	5	5	2647.5
MONTEROCIO	6	0	0	0	5	5	2647.5
MONTELUCIA	6	0	0	0	5	5	2647.5
TOTAL		0	0	0	70	70	37065

TUNACONS

Vessel name	Class	Prototype no.				Deployments by quarter	Quarterly cost
		1	2	3	4		
DRENEC	6	0	0	5	0	5	2290.95
ELIZABETH F	6	0	0	4	0	4	1832.76
GABRIELA A	4	0	0	3	0	3	1374.57
GLORIA A	6	0	0	4	0	4	1832.76
MARIA DEL MAR A.	6	0	0	5	0	5	2290.95
MILAGROS A	6	0	0	5	0	5	2290.95
MILENA A	6	0	0	4	0	4	1832.76
RAFA A	3	0	0	1	0	1	458.19
RICKY A	6	0	0	4	0	4	1832.76
ROBERTO A	4	0	0	3	0	3	1374.57
ROSA F	6	0	0	4	0	4	1832.76
VIA SIMOUN	6	0	0	5	0	5	2290.95
EL MARQUEZ	6	0	0	4	0	4	1832.76
ALESSIA	5	0	0	3	0	3	1374.57
DOÑA ROGE	6	0	0	4	0	4	1832.76
JO LINDA	5	0	0	3	0	3	1374.57
MIRANDA	6	0	0	4	0	4	1832.76
CLAUDIA L.	5	0	0	3	0	3	1374.57
MALULA.	6	0	0	4	0	4	1832.76
PANCHITO L.	6	0	0	4	0	4	1832.76
YOLANDA L.	6	0	0	4	0	4	1832.76
MEDJUGORJE	6	0	0	4	0	4	1832.76
REINA DE LA PAZ	6	0	0	5	0	5	2290.95
LJUBICA	6	0	0	5	0	5	2290.95
DIVA MARIA	6	0	0	5	0	5	2290.95
CAPE BRETON	6	5	0	0	0	5	2094.4
CAPE FERRAT	6	5	0	0	0	5	2094.4
CAPE FINISTERRE	6	5	0	0	0	5	2094.4
CAPE COD	6	5	0	0	0	5	2094.4
CAPE ELIZABETH III	6	5	0	0	0	5	2094.4
CAPE MAY	6	5	0	0	0	5	2094.4
TOTAL		30	0	99	0	129	57927.21

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Testing Biodegradable Materials and Prototypes for Tropical Tuna FADs

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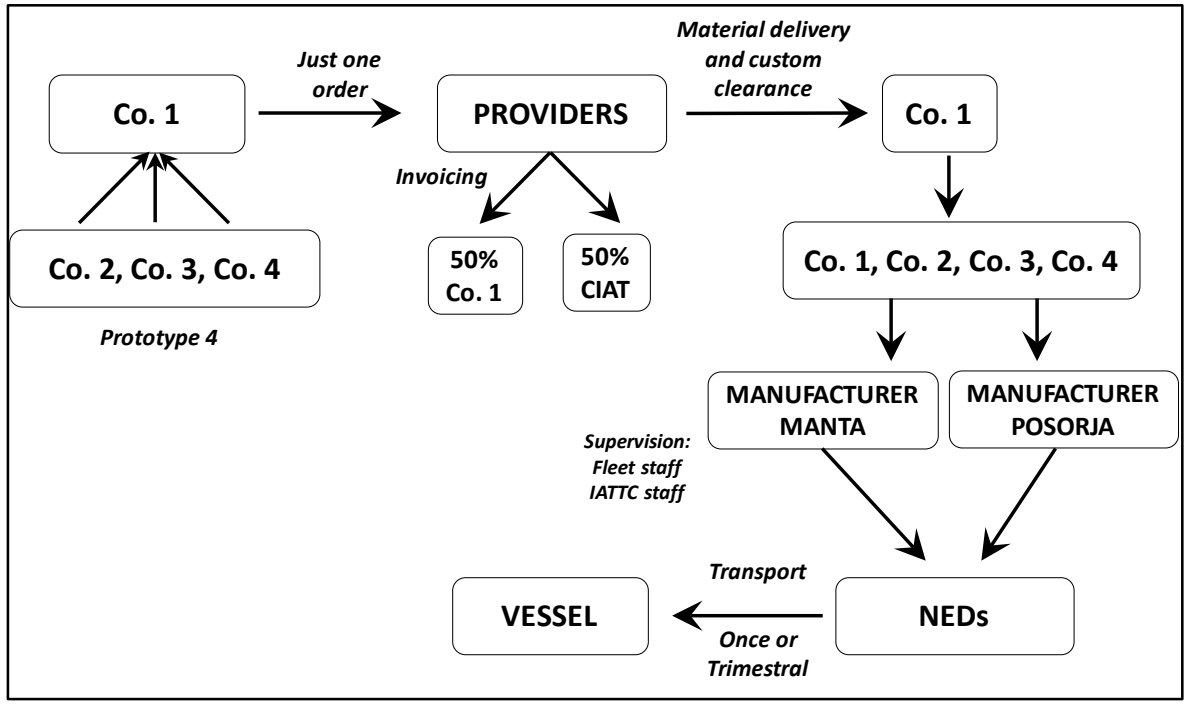
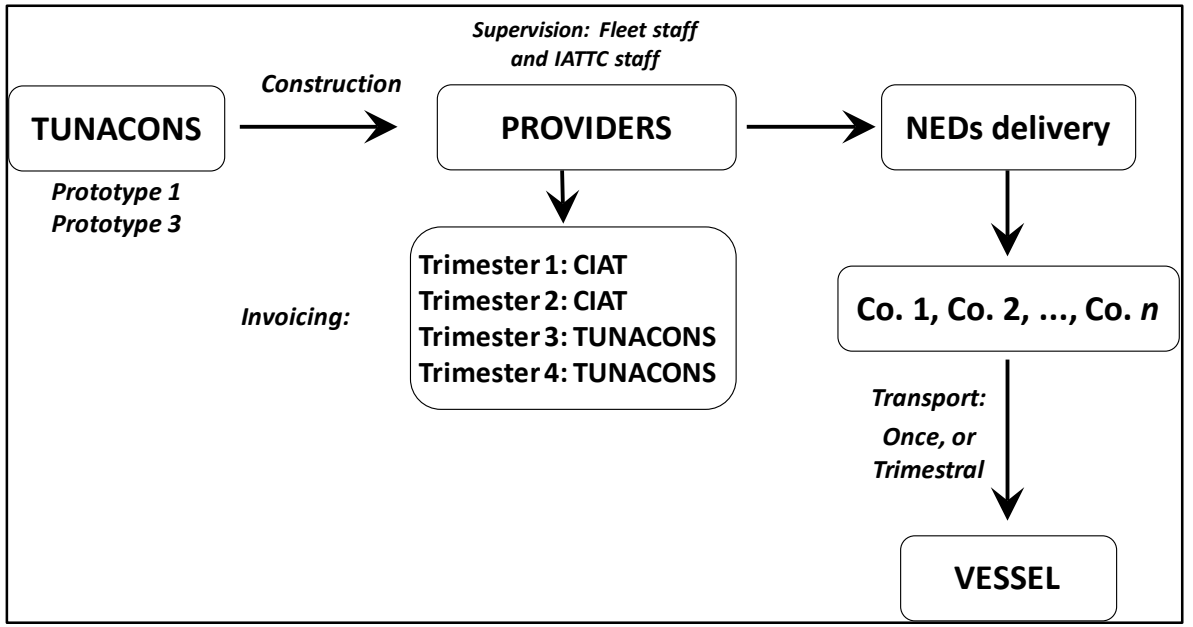
- Grant 2. Project description
- **Current situation**
  - Dec 14, 2018: Memorandums of Understanding (MOUs) between vessel groups with the IATTC
    - Prototypes allocation by vessel
      - Class-6 (> 1,200 m^3): 5 per quarter
      - Class-6 (≤ 1,200 m^3): 4 per quarter
      - Classes 4 & 5: 3 per quarter
      - Classes 1 – 3: 1 per quarter
    - Each prototype will be code-labeled and deployed in pairs along with traditional FADs sharing the same label code
    - Vessel companies shall provide geo-referenced information of the tested prototypes
  - May 1, 2019: Waiting for agreement on purchase, construction and delivery strategies for the prototypes by TUNACONS

Purchase, construction and delivery strategies for the prototypes by vessel groups

OPAGAC



TUNACONS



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Tests by the fleet in regular operations

Similar to prototype

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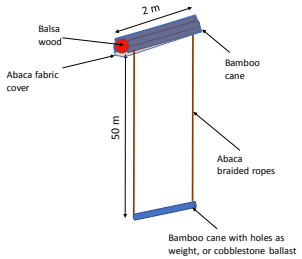
FADs observed*

174

1: 22



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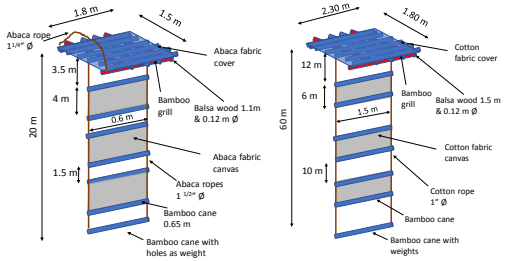

OTH: 6

Sets 17 **24.8 MT**

*Updated at: 2019/05/01

Conclusions and Challenges to date

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- **Researchers integration**
  - NED development has been an open cooperation among researchers working on the subject
  - E-meetings TUNACONS – OPAGAC – IATTC
  - ISSF: connecting researchers in all regions
- **Fulfilling fleet requirements**
  - Life expectancy (6 – 9 – 12 months)
  - Discussions on materials/dimensions caused no. of prototypes to constantly change (initially 2, then 4, and finally 3)
- **Timeline**
  - The initial approach was to start in the first quarter in the Humboldt System
    - ➢ Postponement: project was moved back to the second semester of the year, in the area west of Galapagos

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Questions