

# Comisión Interamericana del Atún Tropical Inter-American Tropical Tuna Commission

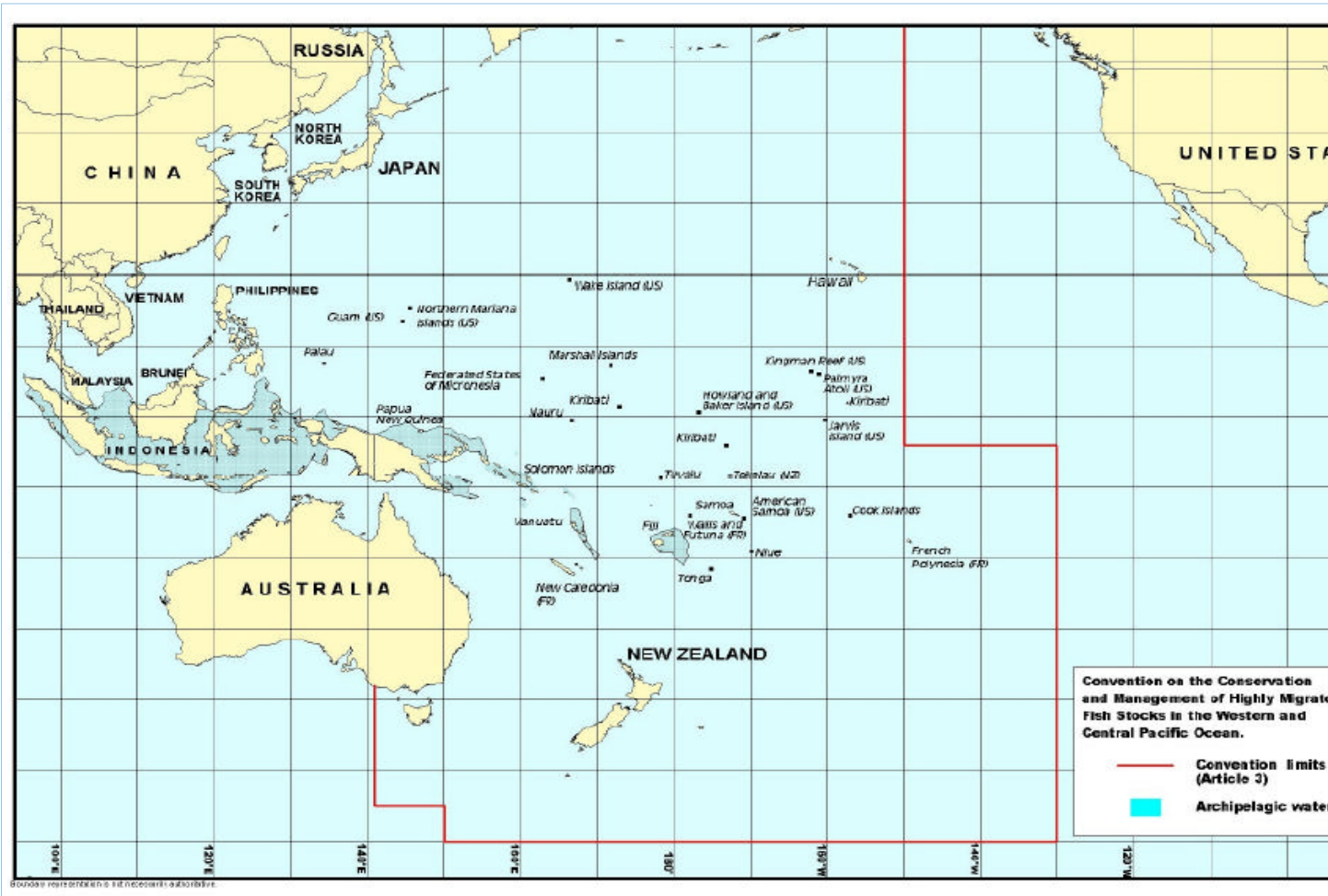


Western and Central Pacific Fisheries Commission

Tony Beeching [Secretariat] Lauriane Escalle [SPC]

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

# WCPFC Convention Area



- Many Island States, including archipelagic waters
- No strict boundary North and West
- Overlap area of jurisdiction with IATTC



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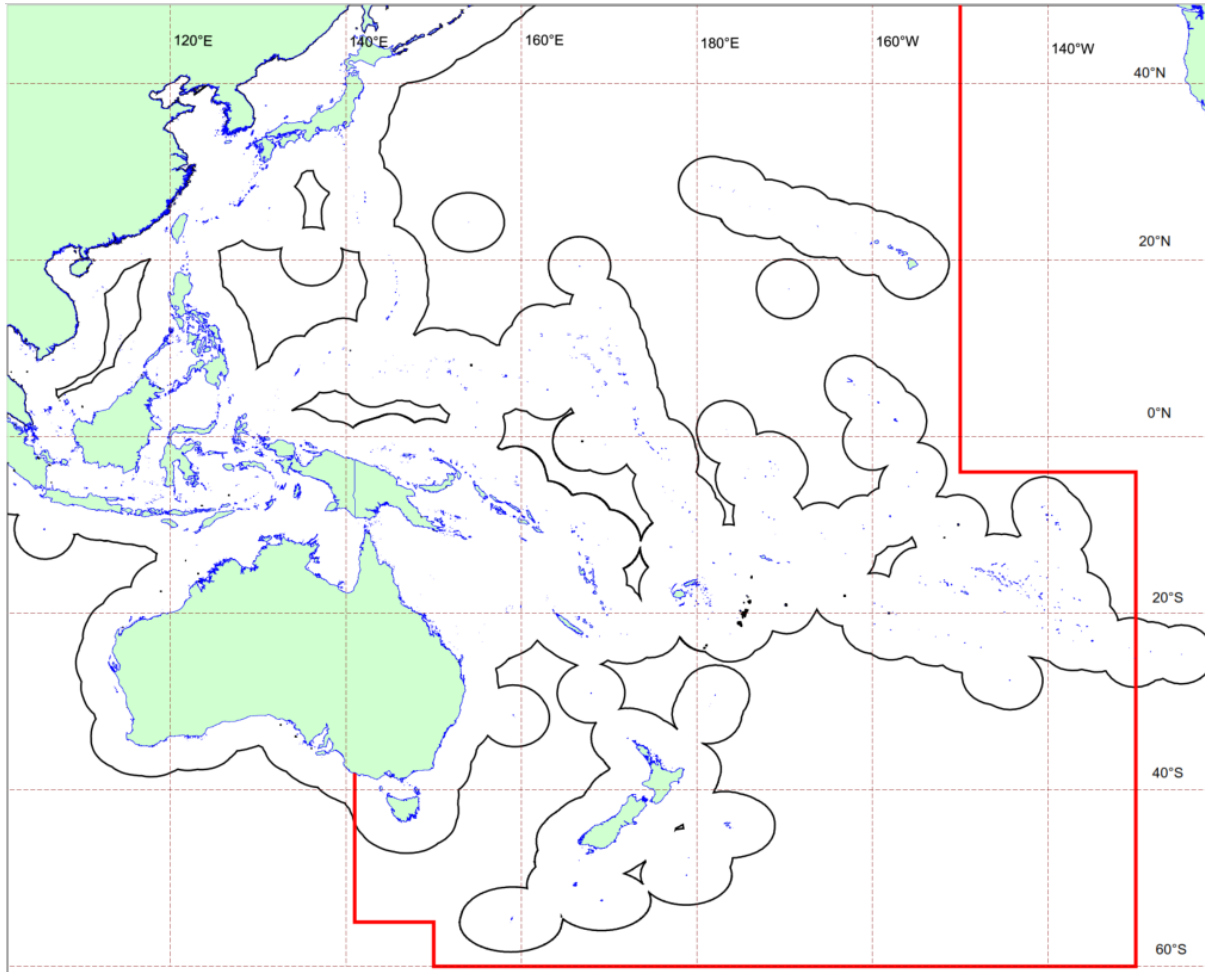
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# WCPFC EEZs



- WCPO EEZs [52.5%]
- Tuna catch 2015-17 EEZ:HS was 87%:13%
- tRFMO manages fishing on the high seas, and....
- ....facilitates compatible fishery management throughout the jurisdiction

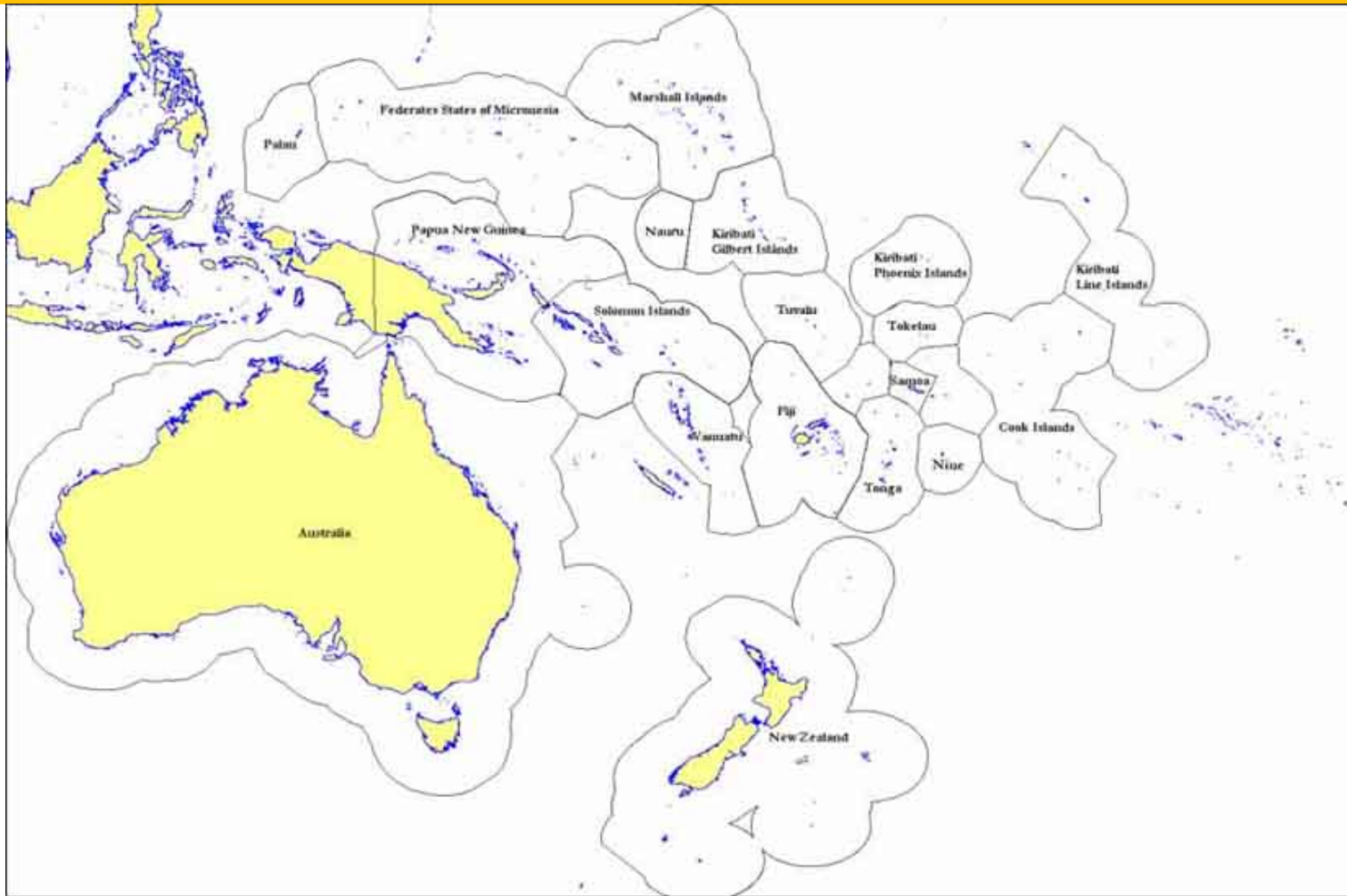


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# Pacific Islands Forum Fisheries Agency [FFA]



- Established 1979
- Includes most Pacific Islands.
- Am Samoa is an observer and French territories are eligible to join.
- Late 1990s FFA developed a sub regional O.P.



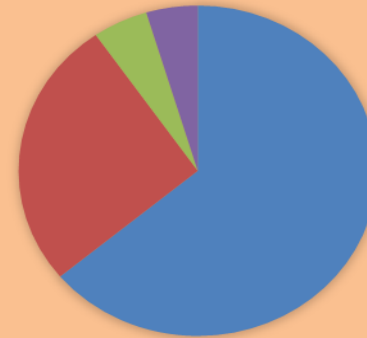
# Tuna Catch and Value

2017 WCPO TUNA CATCH  
(MT) BY GEAR



Purse  
Seine,  
1812474,  
71%

2017 WCPO TUNA CATCH  
(MT) BY SPECIES



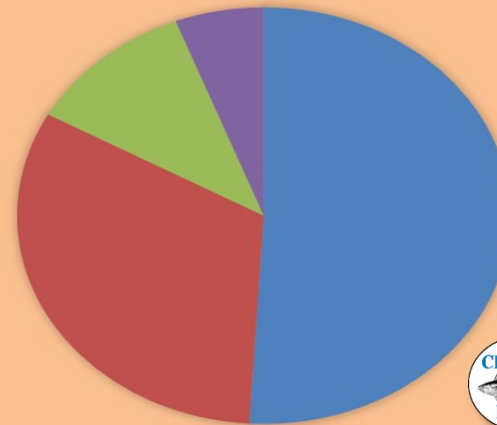
SKJ,  
1624162,  
64%

2017 WCPO TUNA CATCH VALUE  
BY GEAR [BN\$]



Purse  
Seine, 3.4

2017 WCPO TUNA CATCH VALUE  
BY SPP [BN\$]



SKJ, 2.98

- Main spp for value and catch tonnage is **Skipjack**
- Skipjack is caught by P/S
- Main gear for value and catch tonnage is **P/S**



# Parties to the Nauru Agreement [PNA]



**8 Members  
FSM, Kiribati,  
RMI, Nauru,  
Palau, PNG,  
Solomon Islands  
and Tuvalu**

**Fishing revenue for the eight PNA nations and Tokelau has increased from \$60 million annually to \$450 million a year in the last decade due to the VDS.**



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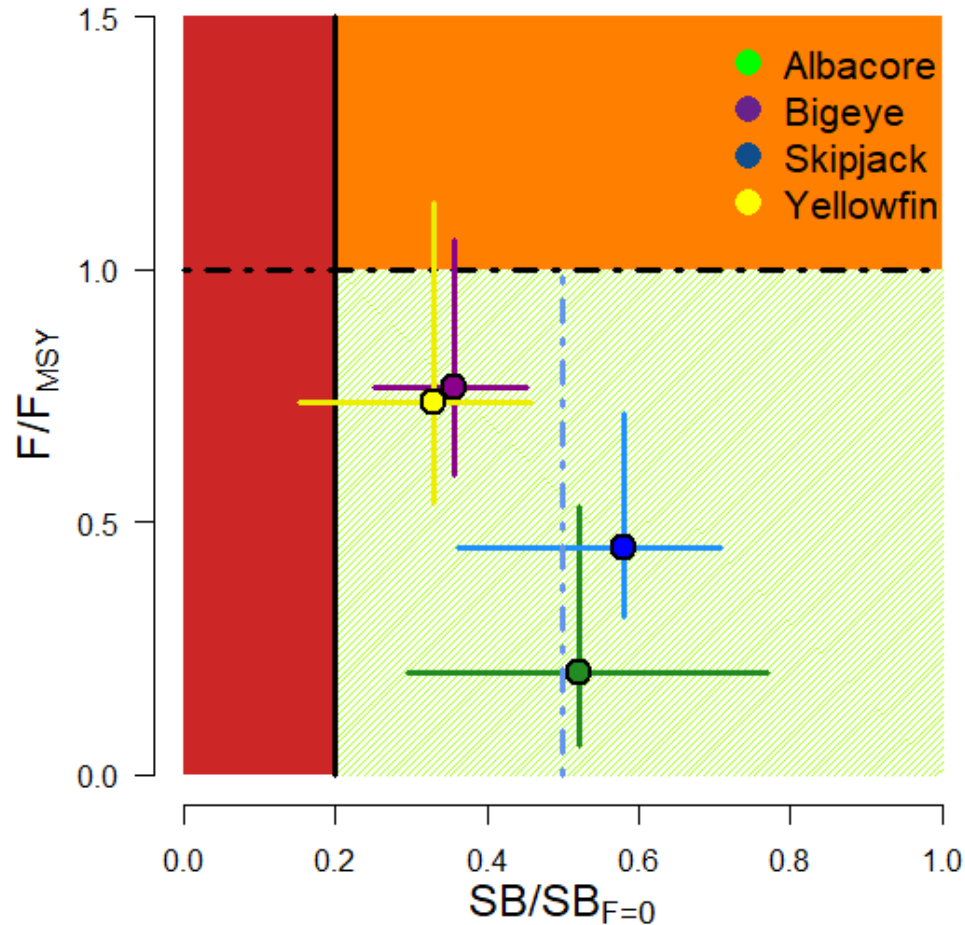
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# Status WCPFC main tuna stocks [Majuro Plot]



- LRP – 20%  $SB/SB_{F=0}$
- TRP Skipjack – 50%  $SB/SB_{F=0}$
- BET was previously considered to be overfished with special concern for juvenile mortality



# Drivers for WCPFC FAD Management Actions

Initially:

- Concerns regarding catches juvenile tuna on fads especially Juvenile BET

Later increasing concern regarding:

- FAD Beaching – especially on vulnerable habitat
- Entanglement of fish, marine mammals and turtles
- Non-biodegradable elements in the ocean environment - especially plastics



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# Three FAD Intercessional Working Groups [IWG]

- 2015 FAD IWG 1

Additional FAD data, marking and identification, electronic signatures, monitoring, tracking and control; it also considered FAD Management Options.

- 2016 FAD-IWG 2

Monitoring and Tracking and development of a prioritised research plan

- 2018 FAD-IWG 3

Non-entangling and Biodegradable FADs



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# FAD Definitions

## **CMM 2008-01**

Definition: "For the purposes of these measures, the term Fish Aggregation Device (FAD) means any man-made device, or natural floating object, whether anchored or not, that is capable of aggregating fish."

## **CMM 2009-02**

The definition above shall be interpreted as including:

"any object or group of objects, of any size, that has or has not been deployed, that is living or non-living, including but not limited to buoys, floats, netting, webbing, plastics, bamboo, logs and whale sharks floating on or near the surface of the water that fish may associate with"

## **CMM 2018-01**

The provisions .....CMM 2009-02 apply to the high seas FAD closures. ....any set where small amounts of plastic or small garbage that do not have a tracking buoy attached are detected shall not be considered to be a FAD set for the purposes of the FAD closure. This shall apply in 2019 only and will be reviewed to determine whether it resulted in increased catch of bigeye and small yellowfin tuna.



# FAD Management Plans

- **CMM 2008-01**

CCMs fishing on the high seas shall submit to the Commission Management Plans for the use of FADs by their vessels on the high seas.

**The FAD-MPs should include:**

- An Objective
- Scope
- Institutional Arrangements for management of the FAD-MP
- FAD construction specifications and requirements
- Applicable areas
- Applicable period for the FAD-MP





# Key FAD Management Actions

- Time and area closures [an alternative option is that members may elect to report catches of BET and stop fishing when a predetermined limit is reached.] Exemptions may apply.
- During FAD closures VMS polling frequency is increased and P/S vessels will not operate without normal automatic reception of VMS positions
- Limit FAD Numbers – Current Maximum of 350 FADs deployed per vessel – under review
- All FADs must be deployed with instrumented buoys
- 100% Observer Coverage on P/S [dedicated observer FAD report form [Gen 5]]



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# Biodegradable and Non-entangling FADs

## **CMM 2018-01 Para 19 – 20:**

- Specifies design and construction to which members should conform to the extent possible
- Use of non-plastic and biodegradable material is encouraged.
- Scientific Committee will continue to review non-entangling and biodegradable options
- In 2020 the Commission will consider adoption of measures on the implementation of non-entangling and biodegradable FADs



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# Variety of stakeholder actions



- Industry
- NGO
- Government



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# Available data

- Logsheet: FAD set positions

FAD logsheet under development

- Observer data: 100% coverage since 2011: FAD set, deployment and recovery positions

Other information not systematically recorded: FAD characteristics, buoy number...

- PNA FAD tracking data: positions of dFADs drifting within PNA waters since 2016



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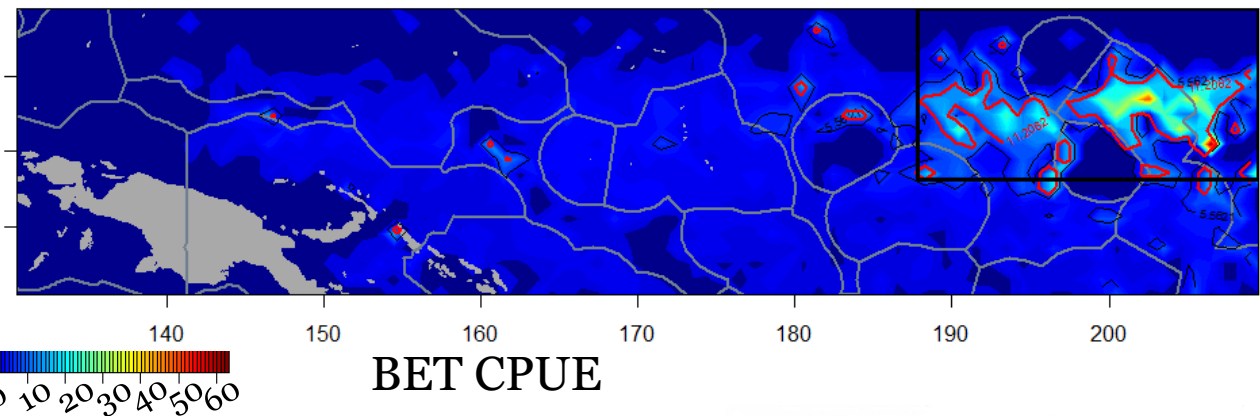
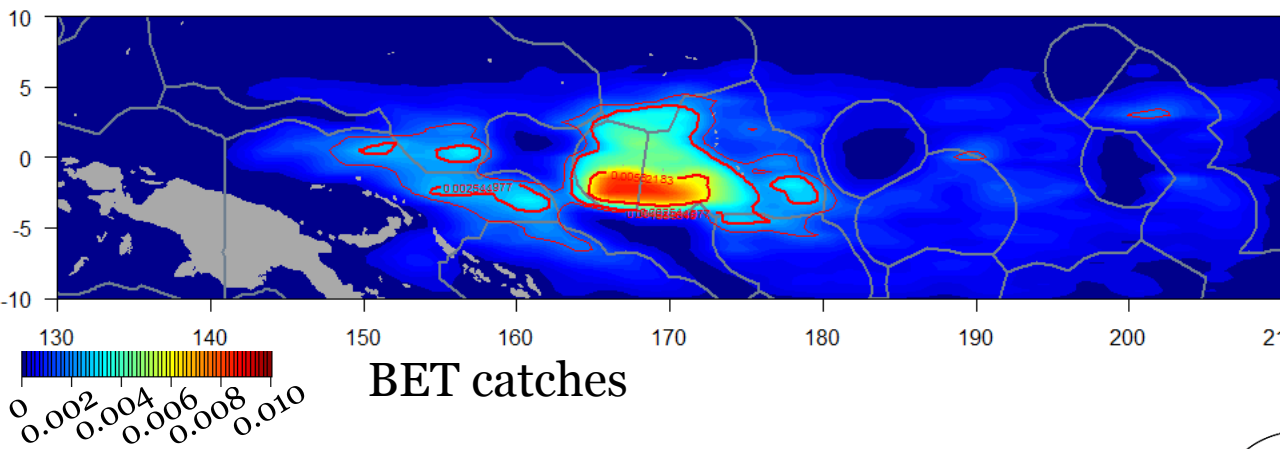
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# Previous projects

## 1) Bigeye hotspot analyses

Development of potential measures to reduce interactions with bigeye tuna in the purse seine fishery in the western and central Pacific Ocean

- Influence of several factors: vessel characteristics, FAD design, environmental variables, on bigeye tuna catch
- Spatial management considerations



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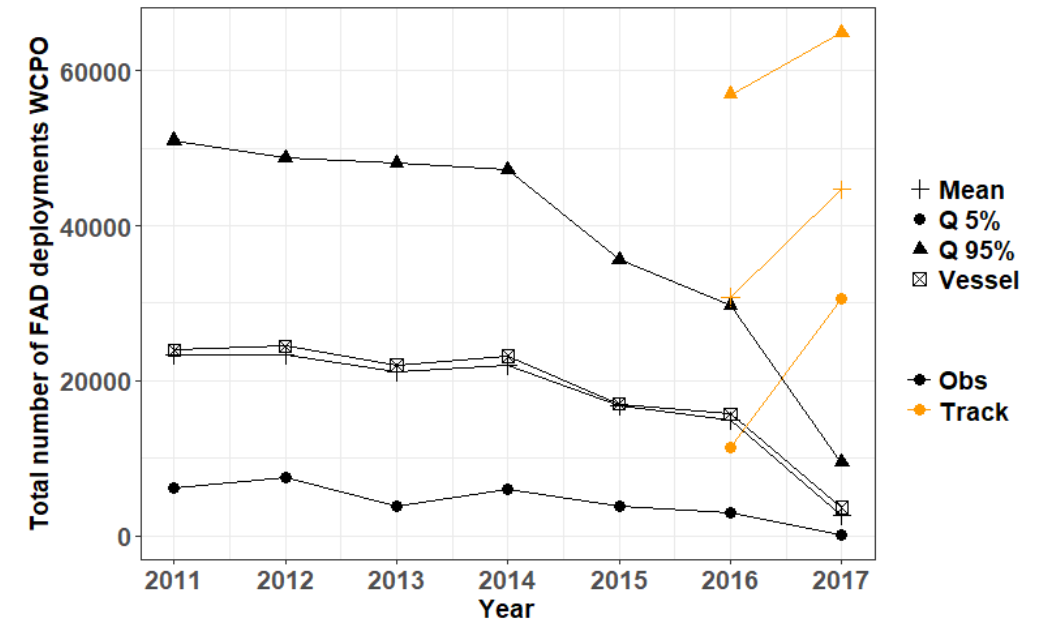
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# Previous projects

## 2) Number of FADs use per vessel

- Estimates of the number of deployments and active FADs per vessel and in total in the WCPO over the last 7 years, using several methods.
- Influence of FAD density on CPUE.

	Vessels with $\geq 350$ <b>deployments</b> per year by estimation method				Vessels with $\geq 350$ <b>active FADs</b> $\geq 150$ <b>active FADs</b>	
	Vessel	Mean	Quantile 95%	FAD tracking	per year FAD tracking	per day FAD tracking
2011	1.9 %	0 %	18.4 %	-	-	-
2012	0.4 %	0 %	2.7 %	-	-	-
2013	0.4 %	0 %	2.7 %	-	-	-
2014	2.5 %	0 %	2.5 %	-	-	-
2015	0 %	0 %	0 %	-	-	-
2016	0 %	0 %	0 %	10.4 %	1.1 %	0 %
2017	0 %	0 %	0 %	25.5 %	15.7 %	3.9 %

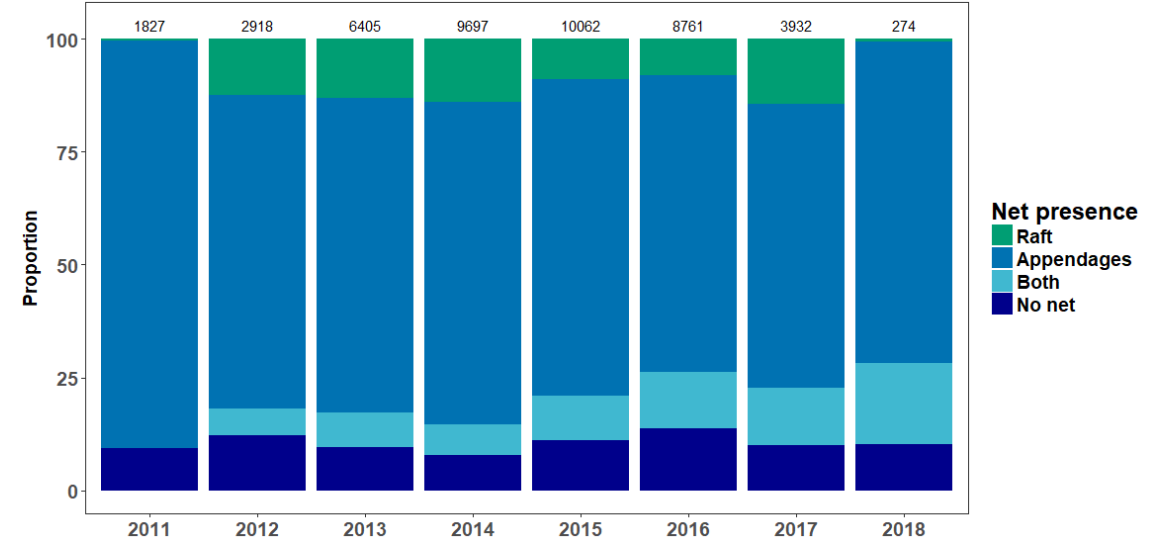
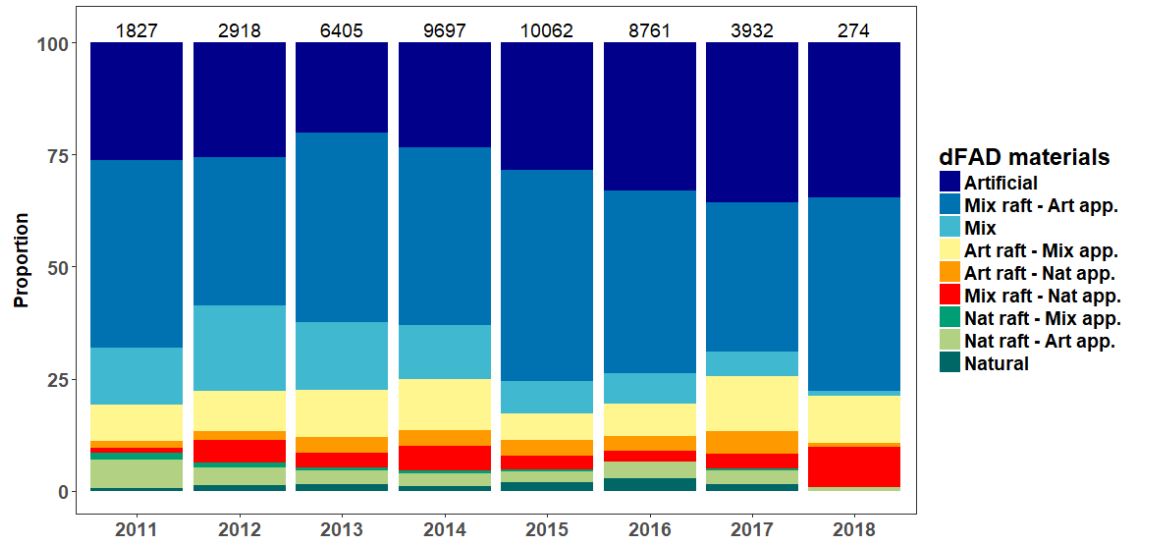




# Previous projects

## 3) Evaluation of dFAD construction materials in the WCPO

Reviewed the materials used to construct dFADs, and the use of nets, as recorded by observers over the last 8 years.



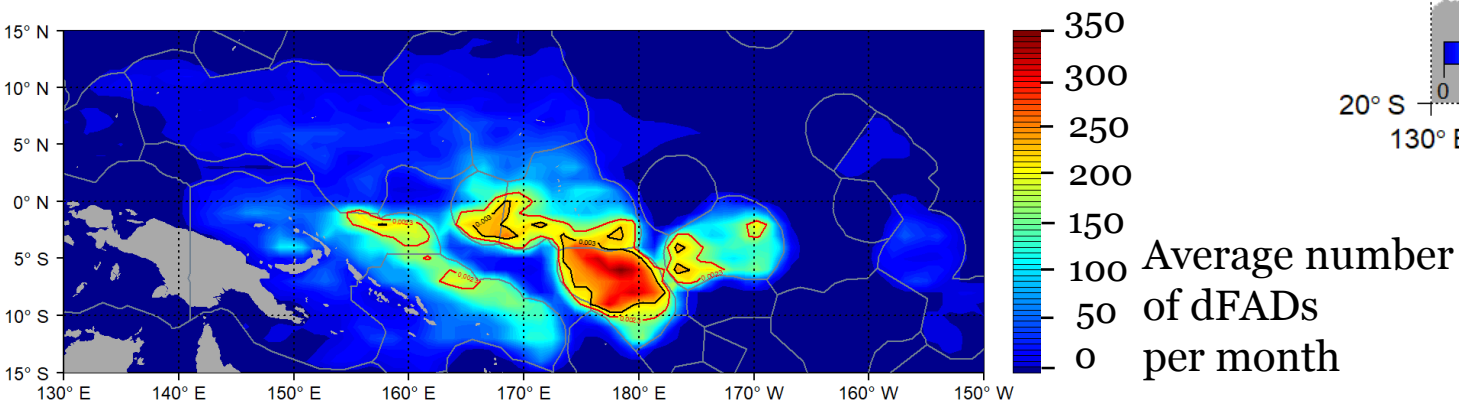
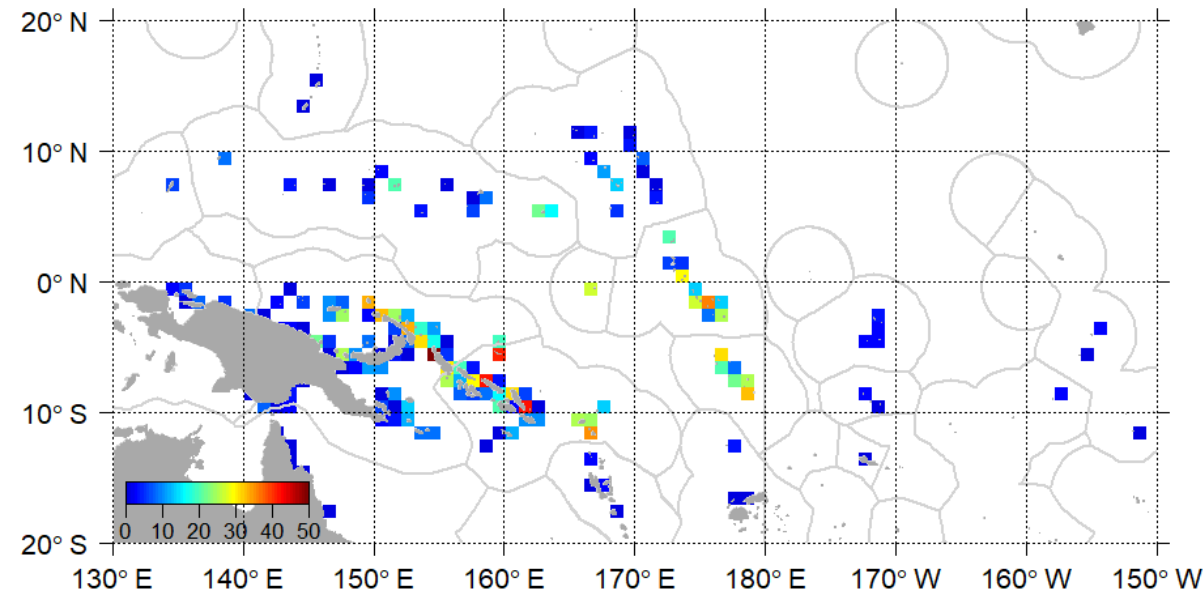
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# On-going: Analyses of the PNA FAD tracking data

- Spatio-temporal distribution of buoy deployments
- FAD densities, influence on CPUE
- FAD connectivity
- Fate of FADs: FAD lost and FAD beaching



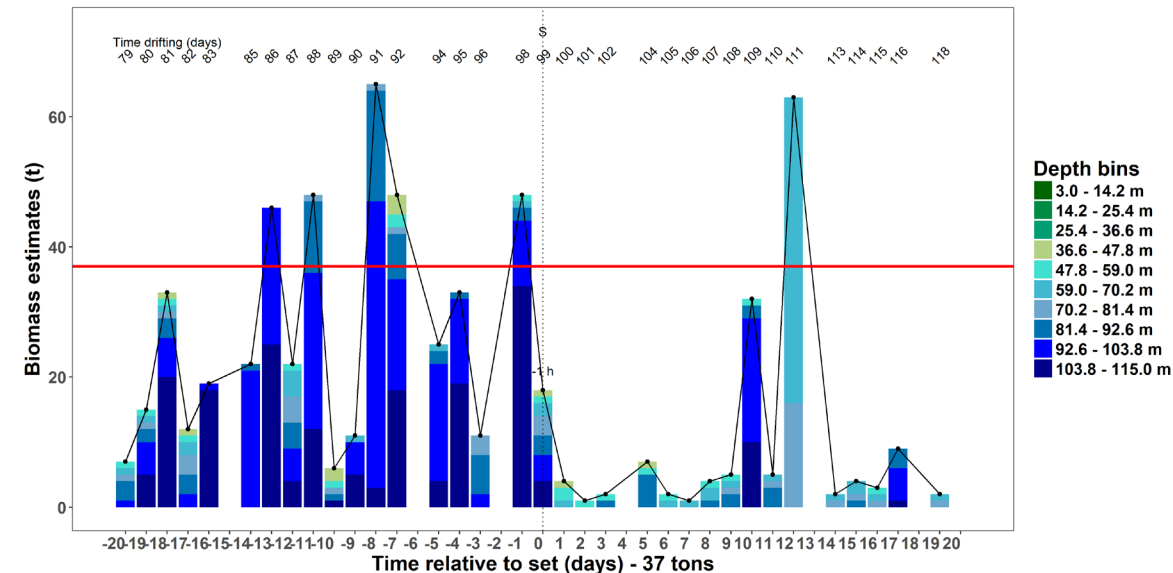
WCPFC-SC13-2017/MI-WP-05  
WCPFC-SC14-2018/MI-WP-09



# On-going: Analyses of echo-sounder buoy data

## Sounding out tuna – can new acoustic FAD data offer regional solutions to reducing ‘non-target’ catches and enhance stock assessments?

- Collaboration with industry partners
- Preliminary analyses: April 2018 – June 2019
- Data from >3000 Satlink and Zunibal buoys between 2016-2018
- Matching with logsheet and observer fishing sets using date and position



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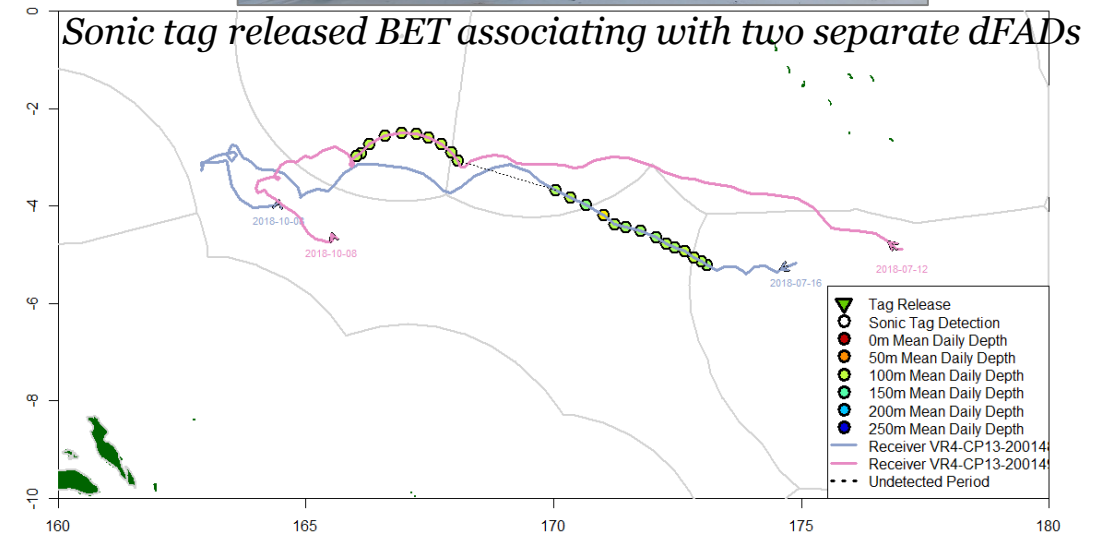
# On-going: Mitigating Bycatch of BET and YFT Tuna Juveniles

## Aims

1. Obtain new information and conduct integrated analyses on spatiotemporal variability in tuna behavior as it relates to oceanography
2. Identify a scientific basis for potential interventions and operational changes to reduce FAD-related BET and YFT mortality

## Approach

- 7 Trimarine and 1 abandoned dFAD equipped with acoustic receivers during 2018
- Release of sonic tagged fish at these dFADs (108 BET, 57 YFT)
- Examine FAD-behaviour and presence/exodus of dFAD-association in response to environmental covariates, echo-sounder biomass estimates and local dFAD-density



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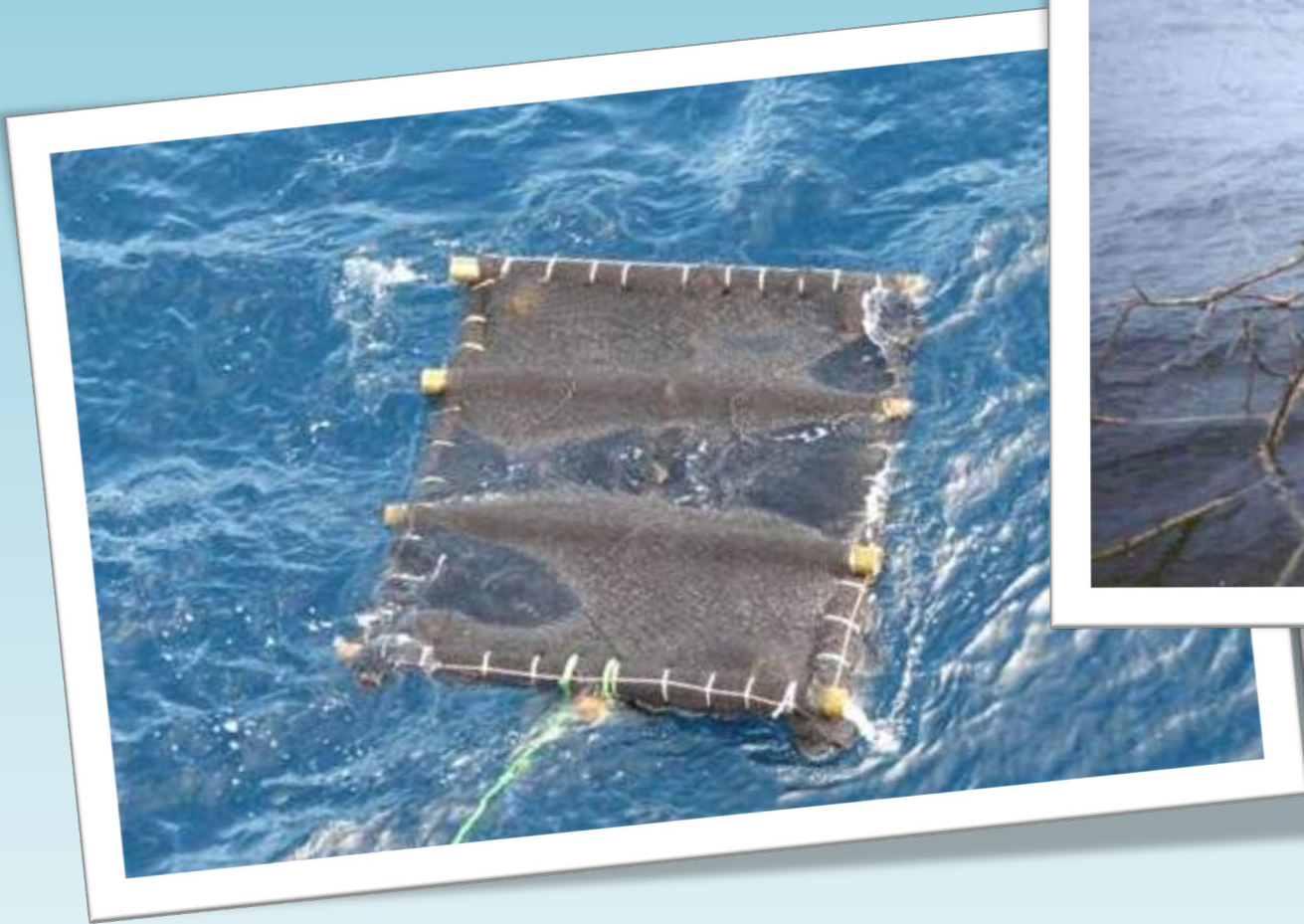
**Thank you**

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Questions