Comisión Interamericana del Atún Tropical
Inter-American Tropical Tuna Commission





FAD indicators

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

Background

- 1st joint t-RFMO FAD meeting in Madrid, 2017.
- Technical WG-FADs created in late 2018
- Different tasks, among others:
  - Develop a series of FAD indicators to assess the FAD fishery

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Background

- IATTC leading this task: Workplan developed.

- **Compile** the different FAD fishery indicators considered by t-RFMOs and other entities of interest.
- Review, summarize and propose a **first draft** of FAD fishery indicators
- Develop a **second draft** of FAD fishery indicators
- Conduct a first trial on **estimating** the selected FAD fishery indicators by ocean
- The Joint t-RFMO FAD Working Group will **adopt and recommend** a set of FAD fishery indicators

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Set of indicators considered

Indicator Type	Priority level (1 Major, 2 Moderate, 3 Minor)
Catch and effort	1
Activity	1
Buoy/FAD-use	1
Bio-Eco-Behavior	3
Capacity	1
Technology	2
Socio-Economiv	3
Eco-Impact	2

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1. Catch and effort

Catch and effort indicators

Ideally, catch indicators should be estimated separately for both the owned and not-owned objects components of the fishery.

Data: estimated from a variety of data sources, including, but not limited to FAD logbooks, official reports, fishing logbooks.

Spatial scale: when possible, the indicators in this section should also be estimated at a spatial scale of 1ºx1º.

P:1

Catch 1.a	Number of sets	1	*Effort* 1.g	Days at sea	1
1.b	Number of sets per days at sea	1	1.h	Fishing time	3
1.c	Proportion of set types	1	1.i	Searching time	1
1.d	Catch per set	1	1.j	Number of explored grid cells	2
1.e	Catch per positive set	1	1.k	Number of fished grid cells	1
1.f	Proportion of null/skunk sets	3	1.l	Number of supply vessels	1

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2. Activity

Activity indicators **Data**: mainly estimated through observer fine-scale data or FAD logbooks. **Spatial scale**: when possible, the indicators in this section should also be estimated at a spatial scale of i) 1°x1° and ii) fishing zone (i.e. statistical areas)		**P:1**
2.a	Number of deployments	1
2.b	Number of visits	1
2.c	Number of retrievals	2
2.d	Log densities	3

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3. Buoy/FAD use indicators

Buoy/FAD use indicators **Data**: mainly estimated through buoy fine-scale data and FAD logbooks **Spatial scale**: when possible, the indicators in this section should also be estimated at a spatial scale of i) 1°x1° and ii) fishing zone (i.e. statistical areas)		**P:1**
3.a	Number of active buoys	1
3.b	Proportion of buoys with echo-sounder	2
3.c	Number of shared buoys	2
3.d	Buoy densities	1
3.e	Number of abandoned / lost buoys	1

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4. Biological, ecological and behavioral indicators

Biological, ecological and behavioral indicators **Data**: ideally estimated from port sampling, logbooks, tagging and observer information **Spatial scale**: N/A except for ecological indicators, that could be estimated for each fishing zone (i.e. statistical area)		**P:3**
Biological 4.a	Average/median weight	3
4.b	Average/median size	3
4.c	Maturity	3
Ecological 4.d	Species composition of the catch	1
4.e	Size frequency composition of the catch	1
4.f	Biodiversity indices	2
Behavioral 4.g	Residence times	2

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5. Capacity indicators

Capacity indicators **Data**: ideally computed from official national administrations and RFMO fishing licenses **Spatial scale**: N/A		**P:1**
5.a	Number of vessels	1
5.b	Active capacity at sea	1

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6. Technology

Technology indicators **Data**: estimated from companies', national administrations' or RFMOs' official records **Spatial scale**: N/A		**P:2**
6.a	Equipment onboard	1
6.b	Net size	2
6.c	FAD depth	2

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7. Socio-economic indicators

Socio-economic indicators **Data**: Mainly estimated from official market prices and national administrations' or international organizations' statistics **Spatial scale**: N/A		**P:3**
7.a	Market price of species	2
7.b	Price of fuel	3
7.c	Number of jobs	3

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8. Ecological impacts indicators

Ecological impacts indicators **Data**: Estimated from companies', national administrations' or RFMOs' official records, FAD logbooks and/or observers' data **Spatial scale**: N/A, except for 8.d which should ideally be estimated by fishing zone (i.e. statistical area)		**P:2**
8.a	Non-entangling FADs	2
8.b	Biodegradable FADs	2
8.c	Stranding events	2
8.d	Bycatch ratios	1

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		In place				Data available to develop the indices			
	Indicator	IATTC	ICCAT	IOTC	WCPFC	IATTC	ICCAT	IOTC	WCPFC
Catch and effort	1.a	X	X		X			X	X
	1.b	X	X		Partly			Partly	x
	1.c	X	X		Partly			X	X
	1.d	X	X		Partly			X	X
	1.e	X	X		Partly				X
	1.f		X		Partly	X			X
	1.g	X	X		Partly		X	X•	X
	1.h		X		X	X	X	X•	X
	1.i					X		X∞	
	1.j		X			X		X∞	x
	1.k		X			X	X	X∞	x
	1.l	N/A	X			N/A	X	X	
Activity	2.a	X	X		Partly		X	X∞	Partly
	2.b		X		Partly	X		ROS	Partly
	2.c	X	X		Partly			ROS	Partly
	2.d		X			X	X		
Buoys	3.a		X		Partly Δ	Partly¥	*		Partly
	3.b		X			Partly¥	*		
	3.c				Partly				Partly
	3.d		X		Partly	Partly¥	X	X∞	Partly
	3.e					Partly¥			Partly
Bio-Eco-Behav.	4.A	X	X		X		X		
	4.b	X	X		X		X	X	
	4.c								X
	4.d	X	X		X		X	ROS	
	4.e	X	X		X		X	X	
	4.f					X	X		X
	4.g					Partly£			X®
Capacity	5.A	X	X	X	X		X	Partly	
	5.B	X	X	X	X		X		
Techno	6.a					X		ROS	X
	6.b				X	X		ROS	X
	6.c				Partly	X		X°	Partly
Socio-Eco	7.a				Xμ				
	7.b				Xμ				
	7.c								
Eco Impact	8.a		X		Partly	Partly€		X	Partly
	8.b		X		Partly	Partly€		X	Partly
	8.c				Partly	Partly¥		X	Partly
	8.d				X	X		X	

Conclusions

- A set of 40 indicators have been developed, and a priority level has been assigned.
- This document/presentation serves as a basis for discussion, and will facilitate future work of the technical group and RFMOs for minimum standards.
- Data collection and reporting needs exist at different levels in each RFMO to estimate some of the indicators proposed.
- To be more consistent, this tasks should coordinate with data collection and definition.
- Document online in EN, ES, FR.

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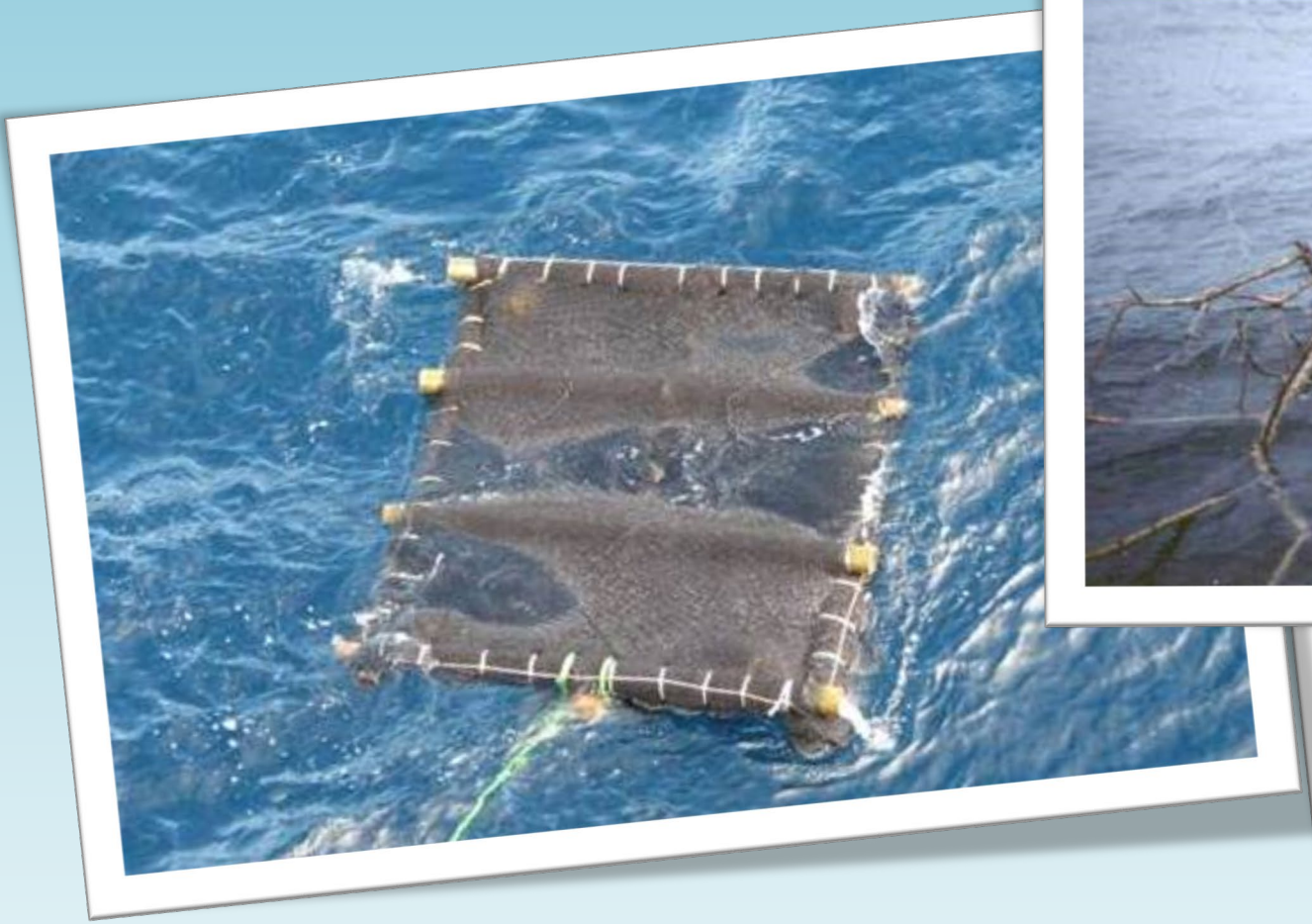

Questions