
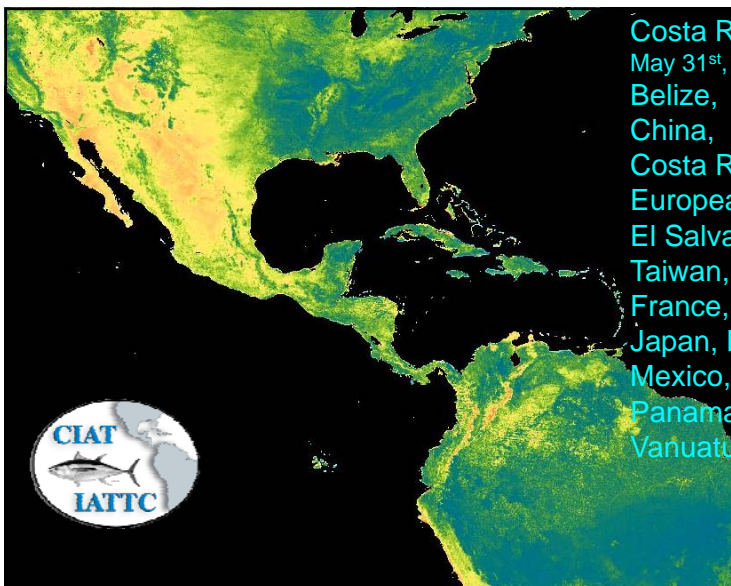



The Inter-American Tropical Tuna Commission (IATTC): Overview of the observed and unobserved data, and some aspects on the potential use of the Electronic Monitoring Systems (EMS) in the tuna purse-seine fishery

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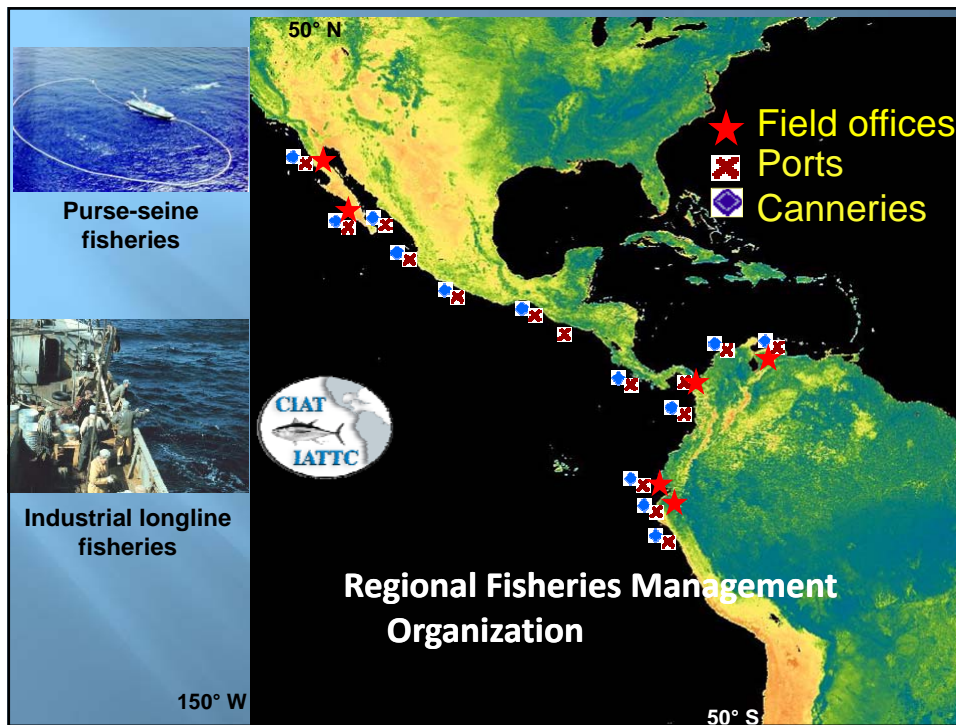


International Workshop on Application Electronic Monitoring Systems  
 in Tuna Longline Fisheries  
 Dec 16<sup>th</sup> – Dec 18<sup>th</sup>  
 Kaohsiung, Taiwan

Costa Rica United States  
 May 31<sup>st</sup>, 1949  
 Belize, Canada,  
 China, Colombia,  
 Costa Rica, Ecuador,  
 European Union,  
 El Salvador,  
 Taiwan,  
 France, Guatemala,  
 Japan, Korea,  
 Mexico, Nicaragua,  
 Panama, Peru,  
 Vanuatu, Venezuela

**Inter-American Tropical Tuna Commission**  
 Members Countries

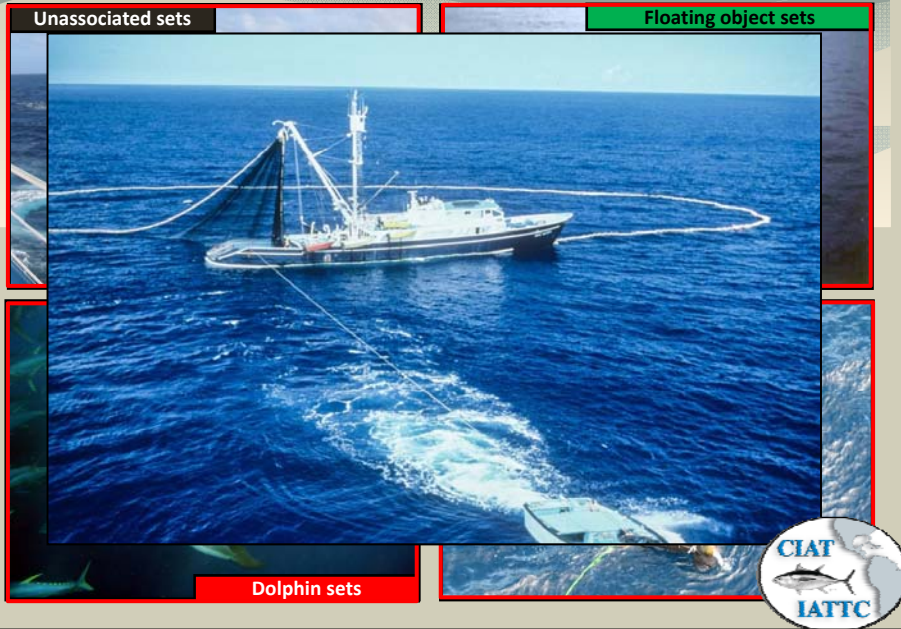


## The industrial longline fishery

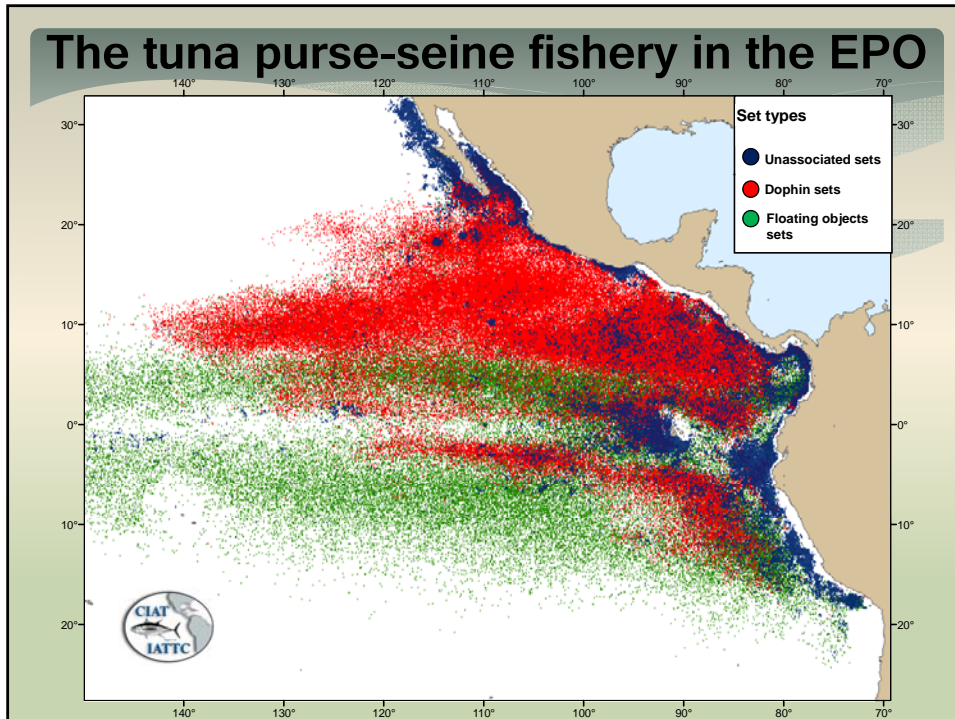
- **Industrial longline fisheries data held by IATTC**
  - Catch and effort data aggregated by country, year, month, 5°x5° square
  - Not categorized by observed/unobserved data
  - Small amount of data at a finer resolution (Species, catches, gears, effort, etc.)
- **IATTC does not hold artisanal longline fisheries data**



# The tuna purse-seine fishery



# The tuna purse-seine fishery in the EPO



## Main tuna species captured by the tuna purse-seine fishery



*Thunnus albacares*

*Katsuwonus pelamis*

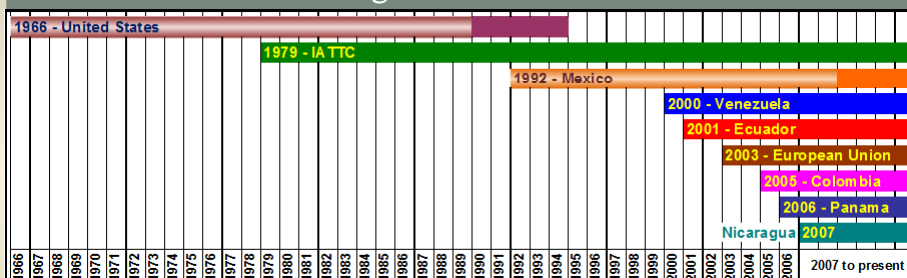
*Thunnus obesus*

## Incidental capture (Bycatch) in the tuna purse-seine fishery



## Tuna purse-seine Observer database

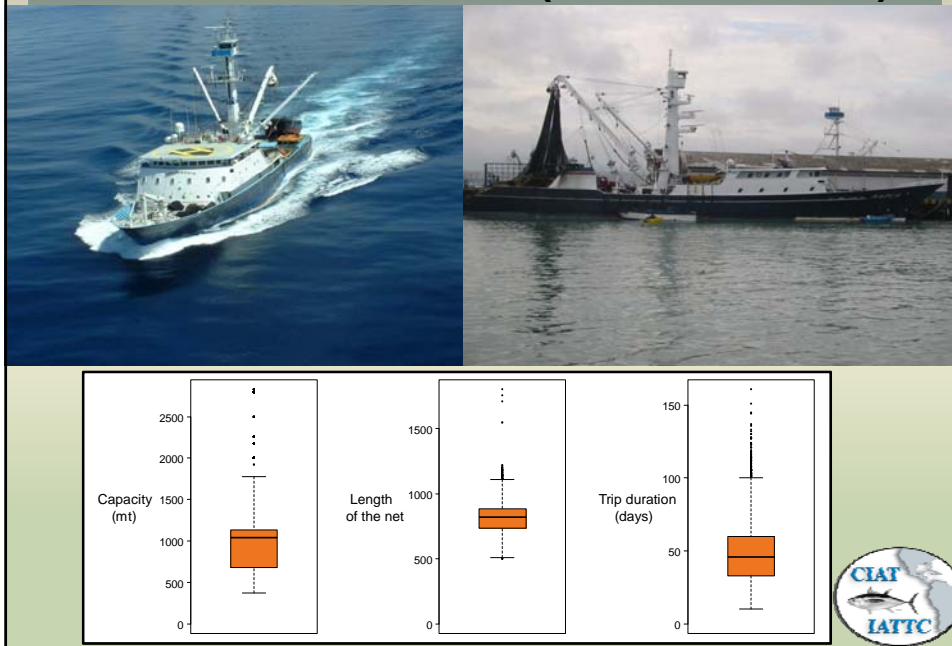
Composed by IATTC and National observer programs  
8 active – all using an identical database structure



- 1966 – United States (implemented the common database structure 1990 – 1994)
- 1979 – IATTC
- 1992 – Mexico (implemented the common database structure 2009 – present)
- 2000 – Venezuela
- 2001 – Ecuador
- 2003 – European Union
- 2005 – Colombia
- 2006 – Panama
- 2007 – Nicaragua

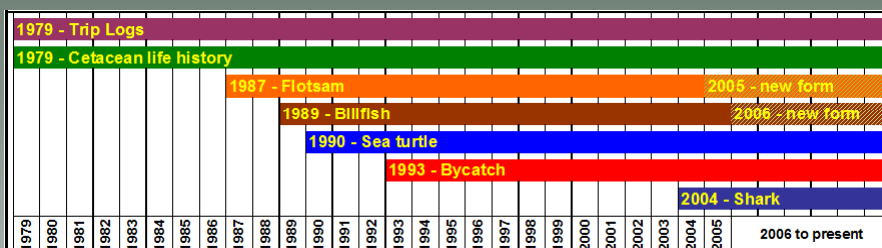


## The observed vessels (Class 6 vessels)



## Tuna purse-seine Observer database

Time frame of data sets



- 1979 – Trip logs
- 1979 – Cetacean life history
- 1987 – Flotsam (major modification in 2005)
- 1989 – Billfish (major modification in 2006)
- 1990 – Sea turtle
- 1993 – Bycatch by taxonomic groups (down to species in 2005)
- 2004 – Shark



\* Data is subjected to a comprehensive editing process before becoming available for analysis

Inter-American Tropical Tuna Commission  
**SHARK RECORD**

Trip Number	Record Number	Set Number	Species	Total number of sharks
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**INDIVIDUAL SECTION**

Total length (cm)	Estimation	Sex			Destiny (code)
		M	F	U	
	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	[ ]	[ ]	[ ]	[ ]

**COLLECTIVE SECTION**

Estimation by number of individuals			Destiny (code)
Small (<90 cm)	Medium (90-100 cm)	Large (>100 cm)	
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]

**DESTINY CODES**

- 1 - Human consumption
- 2 - Discarded
- 3 - Released alive
- 4 - Other
- 5 - Unknown

**FIRST DORSAL FIN SHAPE**

**RELATION BETWEEN THE FIRST DORSAL AND PECTORAL FIN**

**INTERNAL BORDER LENGTH OF THE SECOND DORSAL FIN**

**PECTORAL FIN COLORATION (external face)**

**PRESENCE - ABSENSE OF THE INTERDORSAL CREST**

**CAUDAL FIN SHAPE**

**HEAD SHAPE**

**ADDITIONAL COMMENTS:**

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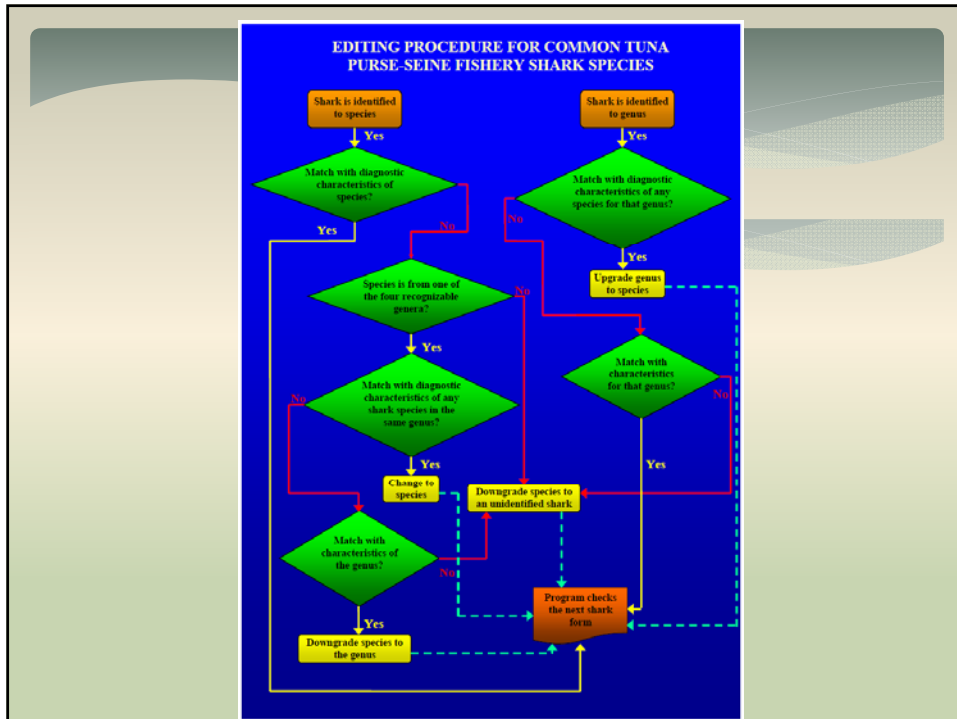
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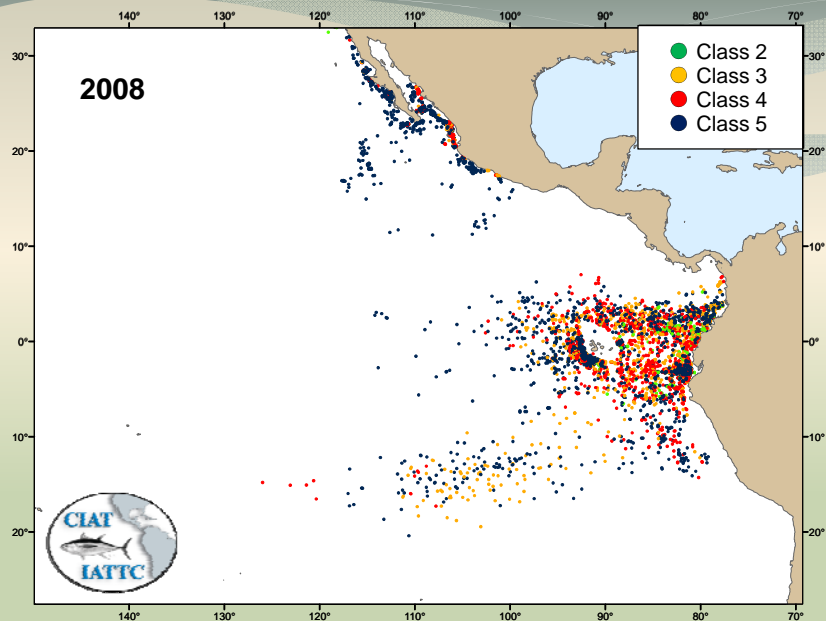


## The unobserved tuna purse-seine vessels (Class 2-5)

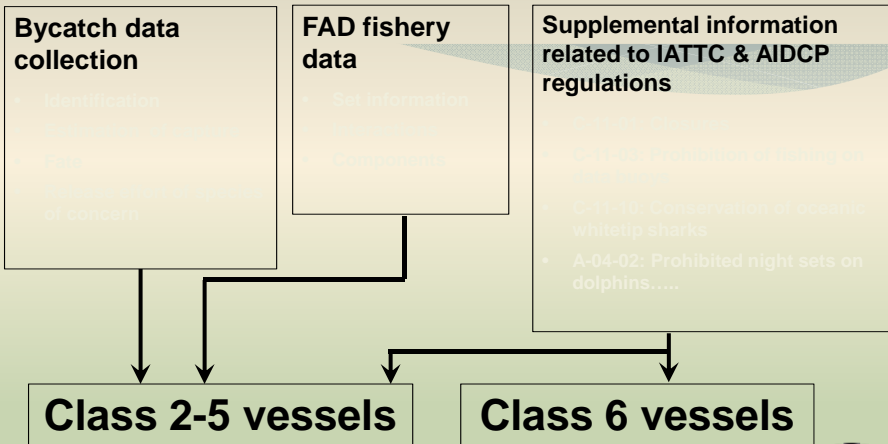
- Vessels less than 364 mt
- About 15% the tuna catch in the EPO
- Tuna data is collected through unloading logbooks
- Bycatch and tuna discard data is not collected
- +/- 20% FAD activity not recorded



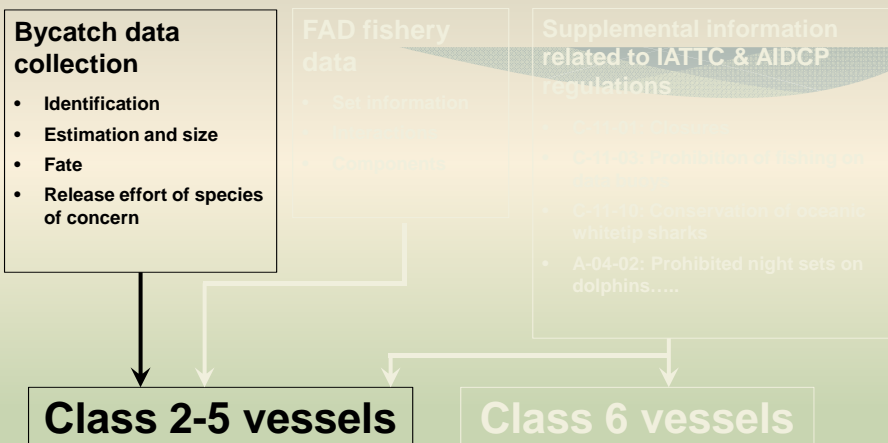
## Sets made by class 2-5 vessels



## Future objectives of the tuna purse-seine fishery data collection program

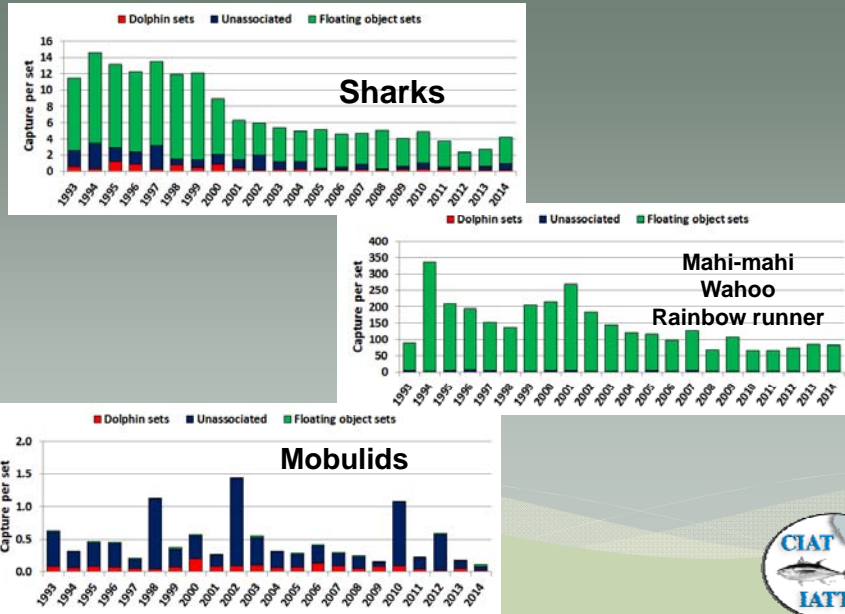


## Future objectives of the tuna purse-seine fishery data collection program

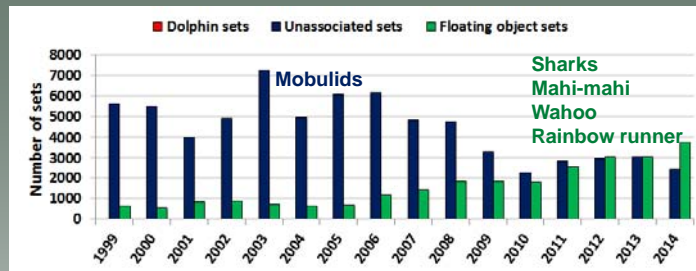




## Class 6 vessels: Bycatch per set type

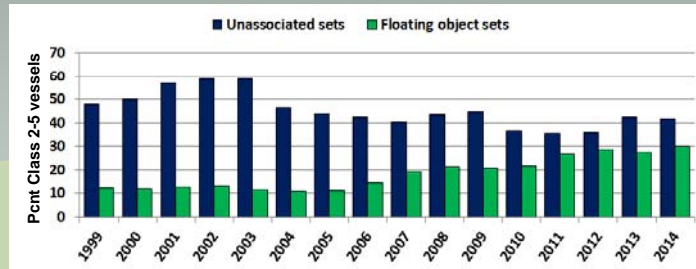


## Class 2-5 vessels sets



IATTC. SAC-06-03 The fishery in the EPO-2014

### Percentage of sets on class 2-5 vessels in the tuna purse-seine fishery



IATTC. SAC-06-03 The fishery in the EPO-2014



## Potential use of EMS to monitor bycatch of Class 2-5 vessels



### Identification

- By taxonomic group
- By species
- ID training is good, and improves with experience



## Potential use of EMS to monitor bycatch of Class 2-5 vessels



### Challenges

- Difficult to estimate species directly from the brail
  - ✓ Easier if dropped into a hopper
- Time required to review EMS video



## Future objectives of the tuna purse-seine fishery data collection program

### Bycatch data collection

- Identification of species of concern
- Catch
- Mortality of species of concern

### FAD fishery data

- Set information
- Interactions
- Components

### Supplemental information related to IATTC & AIDCP regulations

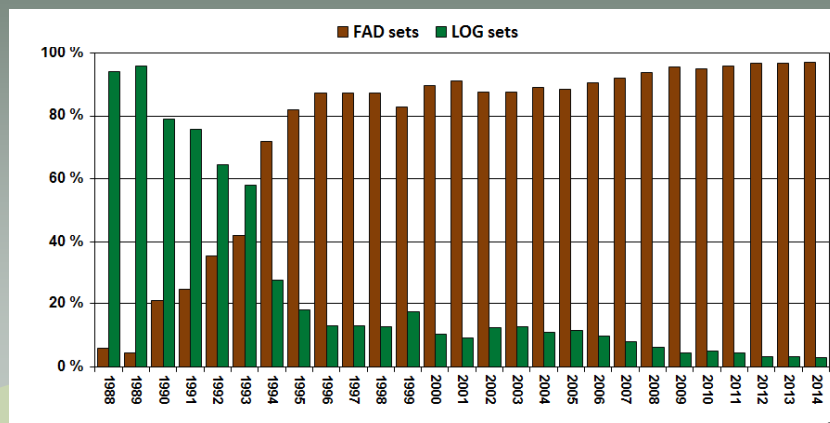
- C-11-01: Conservation of oceanic whitetip sharks
- C-11-02: Prohibited night sets on dolphins.....

**Class 2-5 vessels**

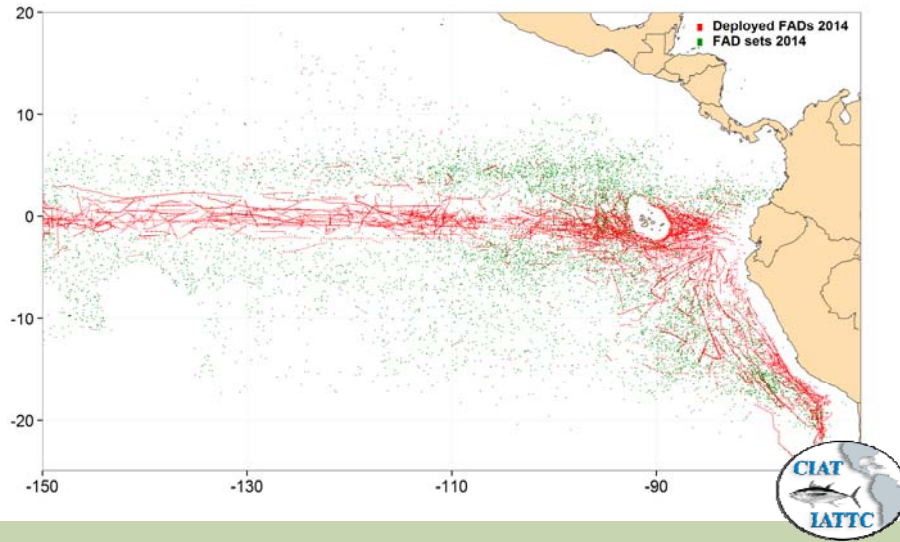
**Class 6 vessels**



## FAD sets vs Log sets. Changes in number of EPO sets by class 6 vessels



## FADs deployment and sets Class 6 vessels (2014)



## Potential use of the EMS to monitor FAD activity on Class 2-5 vessels



**Interactions:** FAD deployment, FAD encounter, FAD shape and components, FAD sets, FAD removals, other interactions



## Future objectives of the tuna purse-seine fishery data collection program

### Bycatch data collection

- Identification of species of concern
- Estimation of abundance of species of concern

### FAD fishery data

- Set information
- Abundance of species of concern

### Supplemental information related to IATTC & AIDCP regulations

- C-11-01: Closures
- C-11-03: Prohibition of fishing on data buoys
- C-11-10: Conservation of oceanic whitetip sharks
- A-04-02: Prohibited night sets on dolphins.....

Class 2-5 vessels

Class 6 vessels




## The AIDCP

- The Agreement on the International Dolphin Conservation Program (AIDCP), entered into force in February 1999
- **The first Objective:**
  - Reduce the dolphin mortality in the tuna purse-seine fishery in the EPO to levels approaching zero
    - Tuna caught in sets in which dolphins are not killed or seriously injured is defined as “dolphin-safe” hence eligible for **AIDCP Dolphin Safe Tuna Certification**
    - EMS could be helpful in validation of observer data and evaluation of possible infractions to the AIDCP in cases of disagreement between the government and observer data





**CIAT IATTC** **EMS: IATTC and AIDCP Resolutions** 

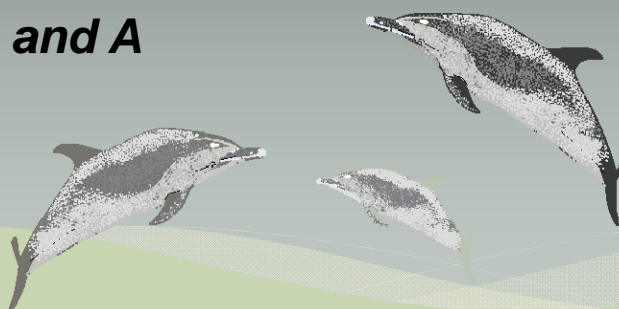
- **A-04-02:** Night set infractions
- **C-11-03:** Prohibiting fishing on data buoys
- **C-07-03:** Sea turtles
- **C-05-03:** Sharks
- **C-11-10:** Conservation of oceanic whitetip sharks
- **C-13-04:** FADs

***Thank You Very Much!***

Comisión Interamericana  
del Atún Tropical  
Inter-American Tropical  
Tuna Commission



***Q and A***



Class ID	Description
1	0 - 45 mt
2	46 - 91 mt
3	92 - 181 mt
4	182 - 272 mt
5	273 - 363 mt
6	364 - 9999 mt

**C-11-08:** Observers on longline vessels