

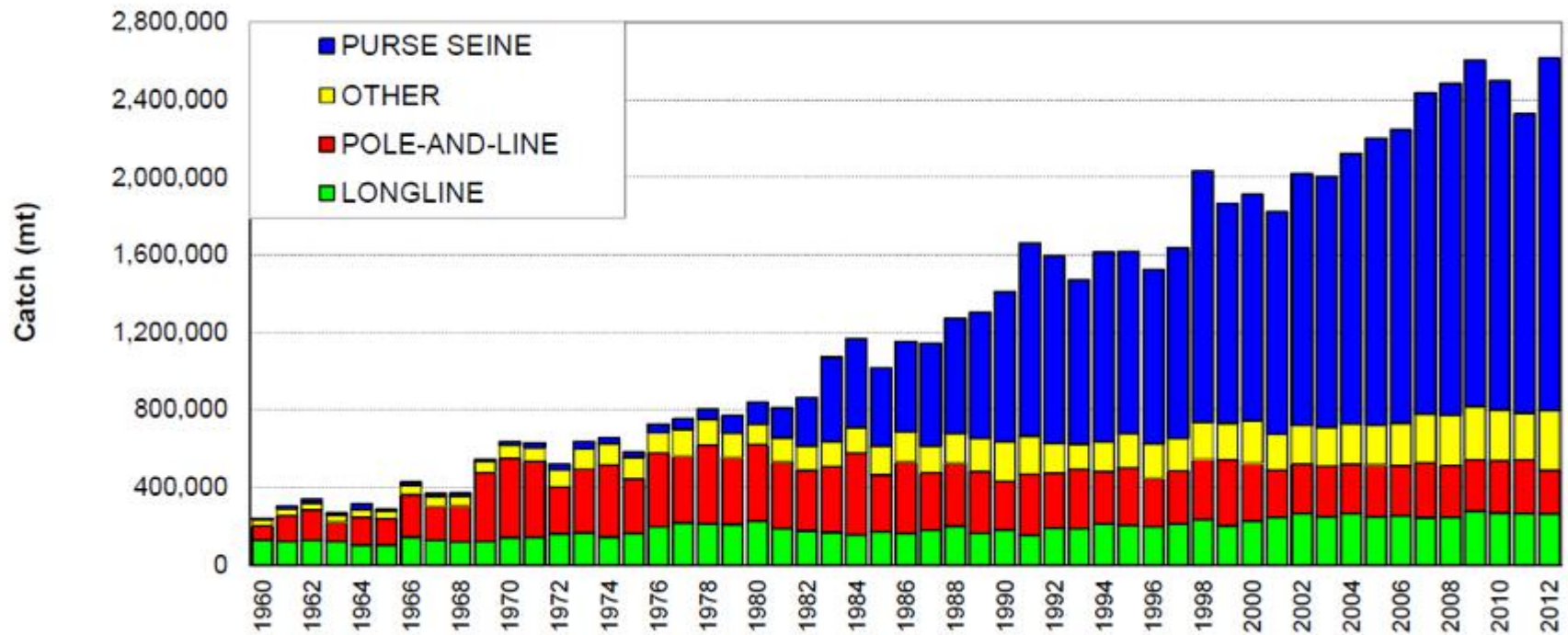
# *ISSF SKIPPERS WORKSHOPS*

**Finding best practices in bycatch reduction with the collaboration of tuna purse seine fishers**



# Tropical Tuna Purse Seine Fishery

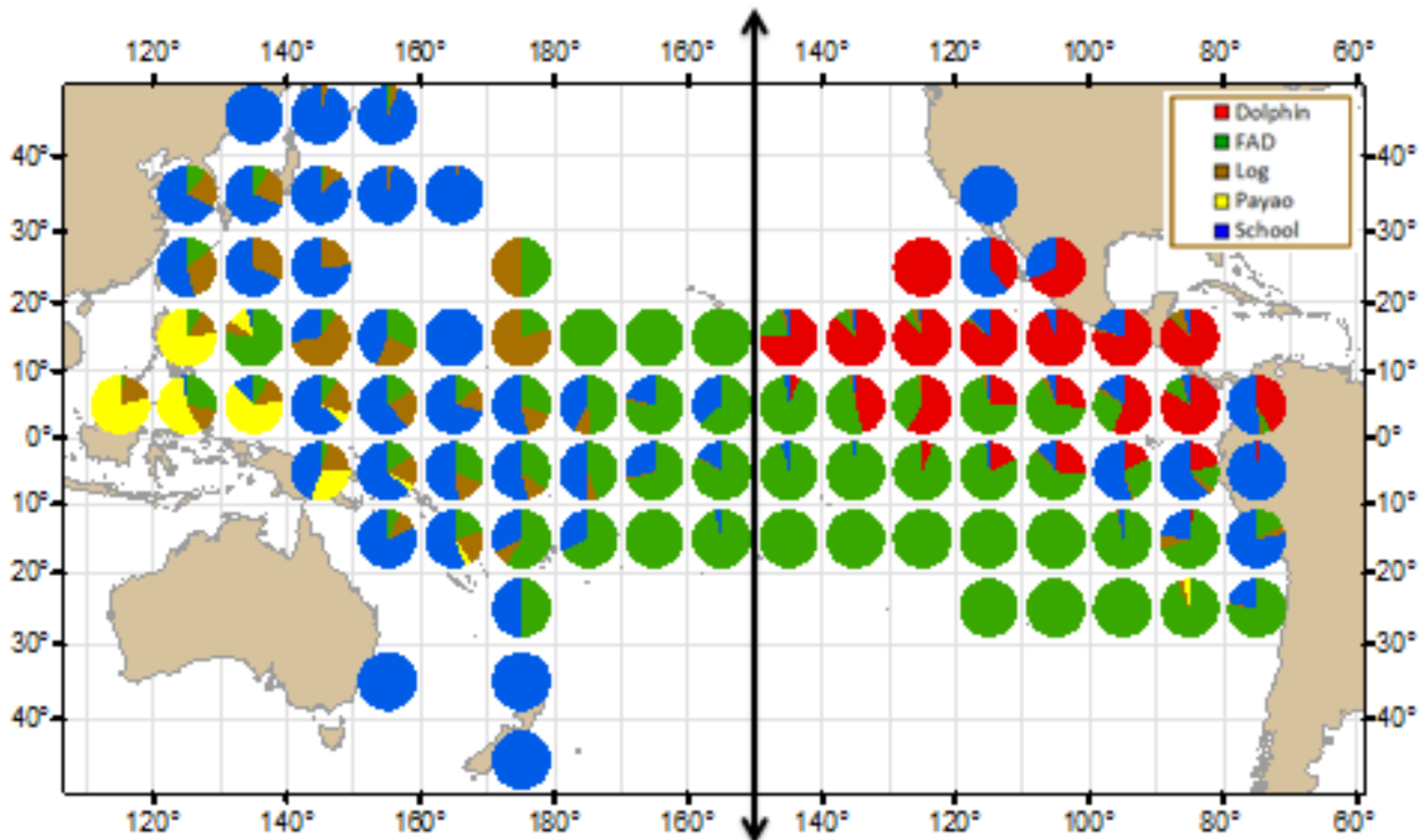
- Exists in equatorial band from about 10°N to 20°S all oceans



- Proliferation of FADs has raised bycatch concerns

# FADs

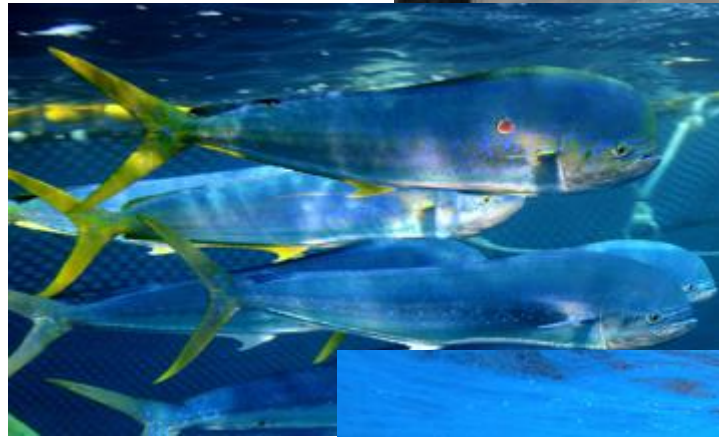
Distribution of sets by type  
2005 - 2011



# Target Species



# Bycatch Species



# Bycatches in MT per 1000 MT all tunas

## Dolphin sets

## School sets

## Floating objects/FADs

0.14 MT

1.34 MT

2.64 MT

Main non-tuna  
components

Main non-tuna  
components

Main non-tuna  
components

1.66 MT mahi

0.43 MT silky

0.14 MT wahoo

**0.11 MT mantas**

**1.07 MT mantas**

**0.03 MT mantas**

0 MT tunas

7 MT tunas

16 MT tunas

0.14 MT/1000 MT

8.34 MT/1000 MT

18.6 MT/1000 MT

0.01 %

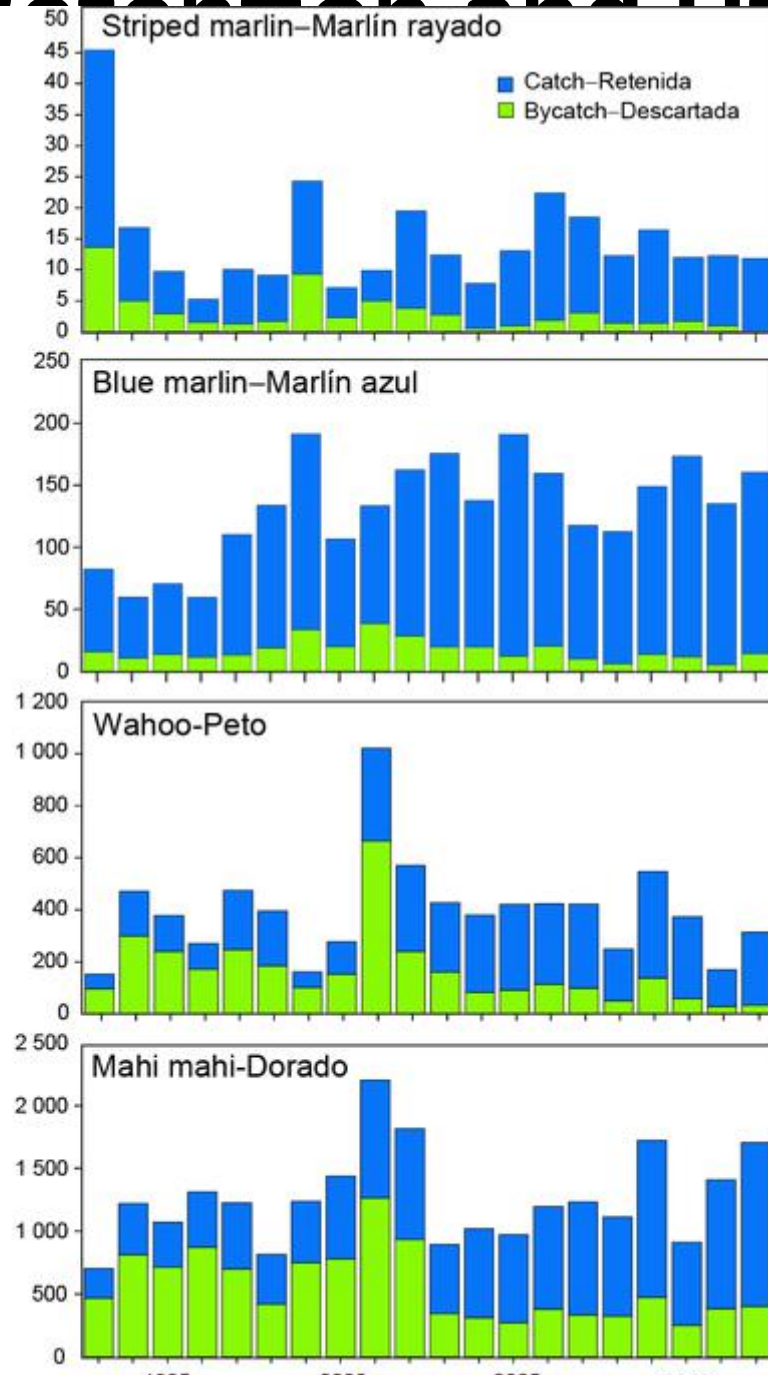
0.83 %

1.86 %

# Bycatch Retention and Utilization



Capture (t)–Captura (t)



### Capture of oceanic whitetip sharks by size interval in the Eastern Pacific Ocean, 1993–2008

Year	Number			Total	Percent		
	Small	Medium	Large		Small	Med	Large
1993	220	494	310	1024	21.4	48.3	30.3
1994	95	1130	1440	2665	3.5	42.4	54.1
1995	408	2984	2149	5541	7.4	53.9	38.8
1996	647	2765	2483	5895	11.0	46.9	42.1
1997	592	2258	2995	5845	10.1	38.6	51.2
1998	452	1862	2683	4997	9.1	37.3	53.7
1999	340	1213	2210	3764	9.0	32.2	58.7
2000	18	547	1426	1991	0.9	27.5	71.6
2001	80	729	1252	2662	3.9	35.4	60.7
2002	15	122	540	677	2.2	18.0	79.8
2003	0	105	266	371	0.0	28.4	71.6
2004	4	38	132	174	2.3	21.8	75.9
2005	1	23	30	54	1.9	42.6	55.6
2006	1	33	48	82	1.2	40.2	58.5
2007	1	18	23	42	2.4	42.9	54.8
2008	0	11	19	30	0.0	36.7	63.3

Note: Small < 90 cm, medium 90–150 cm, large >150 cm.

Source: IATTC observer database.



# ISSF Skippers Workshop Concept

TARGET TROPICAL TUNA (SKJ, YFT, BET)



FAD BYCATCH



ISSF BYCATCH SCIENTISTS

+



PS SKIPPERS

=



ISSF RESEARCH CRUISES

# ISSF BYCATCH RESEARCH CRUISES

OCEAN	VESSEL	LEAD SCIENTIST
EPO	Yolanda L.	Kurt Schaefer
INDIAN	Torre Giulia	Laurent Dagorn
WCPO	Cape Finisterre	David Itano
WCPO	Cape Finisterre	Jeff Muir
WCPO	Albatun Tres	Igor Sancristobal

- Design of **non-entangling FADs**
- **Selectivity of buoys** with echosounder
- **Pre-estimation of bycatch** with acoustics
- **Behavior in the net** and manipulation
- Modifying **selectivity of gear (i.e. net windows)**
- Best **release practices from deck**



# WORKSHOP STRUCTURE

- \* BYCATCH IMPORTANCE EDUCATION
- \* LATEST DEVELOPMENTS ON BYCATCH REDUCTION
- \* PRESENTATION OF ISSF CRUISE RESULTS
- \* FISHERS HELP IDENTIFY BEST SOLUTIONS & IMPROVE PRACTICES
- \* QUESTIONNAIRES (FISHING EC
- \* VISITS ONBOARD (WHEN POSS

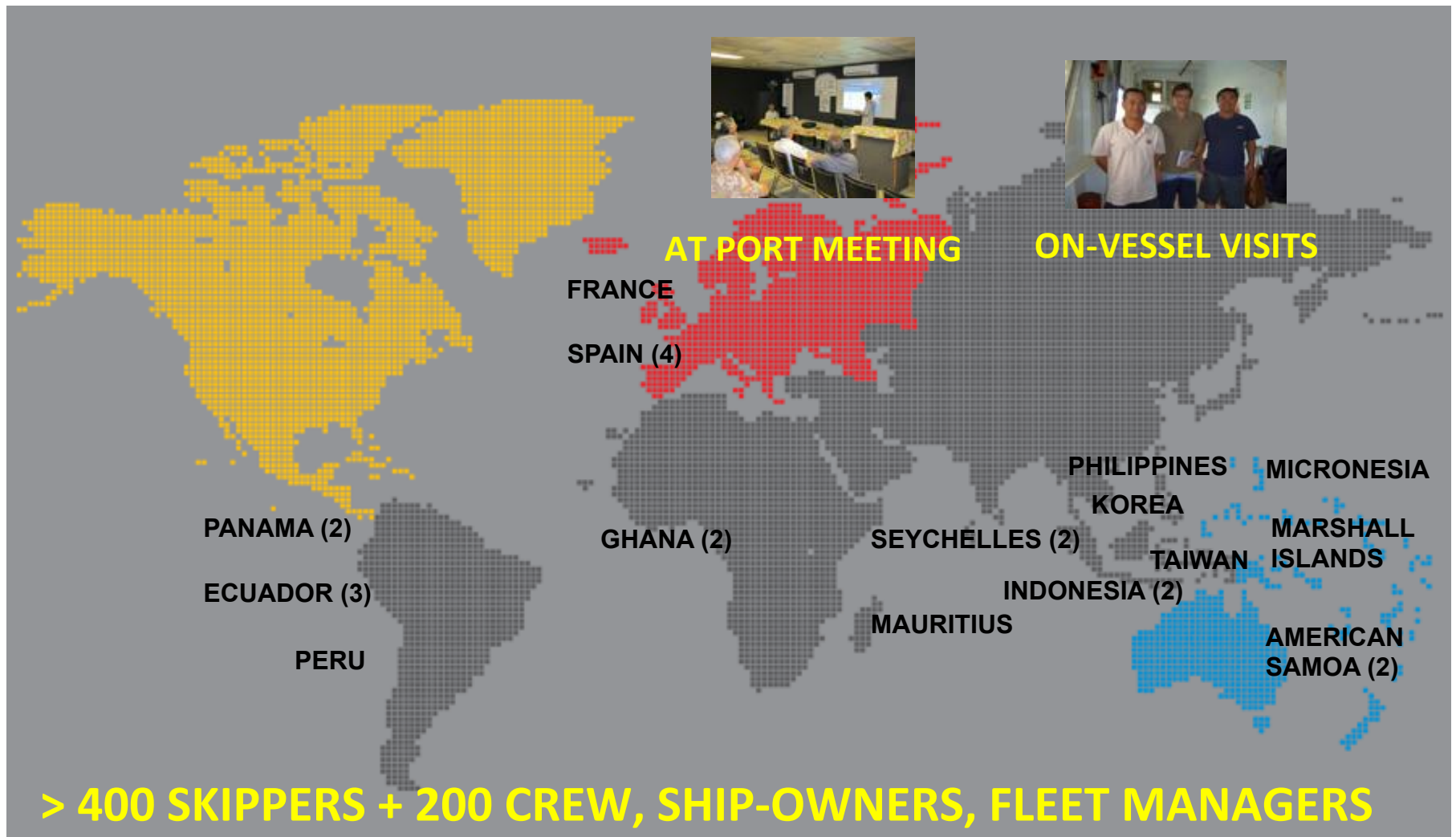
In 2013 ISSF Participating Companies have made a commitment to source tuna from vessels with skippers that have completed an ISSF sponsored workshop.



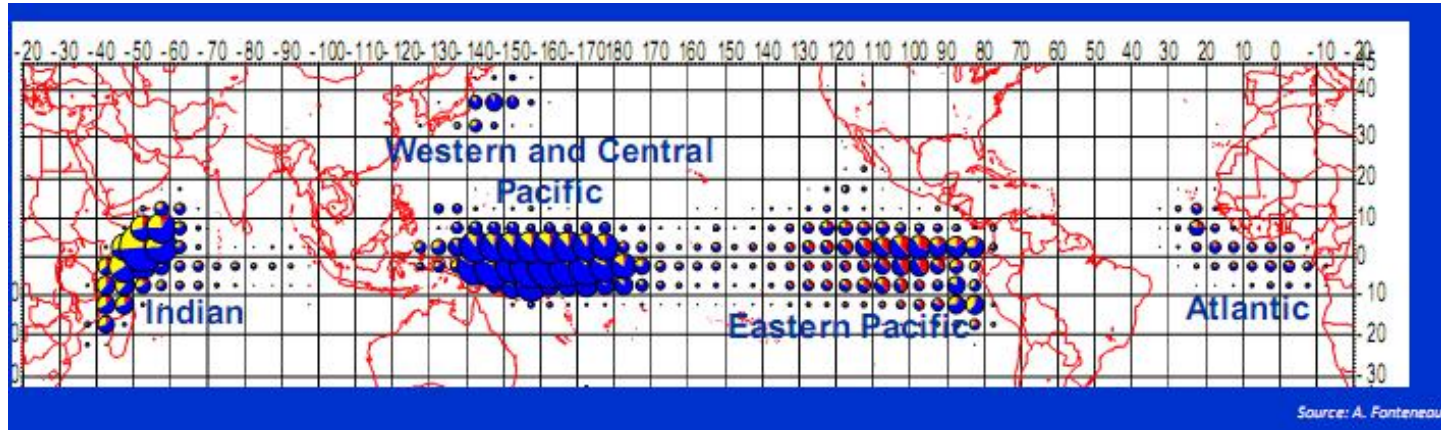
Poisson et al. 2012 © MADE



# WORKSHOP MAP



# OCEANS AND FLEETS ARE DIFFERENT



# SKIPPERS FEEDBACK

## SKIPPERS WORKSHOPS N°1 - COMMENTS + NEW IDEAS

### SHORT TERM ACTIONS

#### SHARKS

Move away from FAD

Release practices

Eco-FADs

#### TURTLES

Eco-FADS

Release practices

#### SMALL TUNA

Buoys with echosounder

Pre-estimation of bycatch

Net modifications (grids/Windows)

SKJ away from the FAD

### LONG TERM (FUNDAMENTAL RESEARCH) ACTIONS

#### BONY FISH

Natural behavior (movements, double-FADs)

Removal from net

Migratory patterns

Utilization for sale

Feeding habits

Ecosystem functions

### BENEFITS:

- 1000'S HOURS "SAMPLING"
- GEAR USE EXPERTISE
- FISHING TECHNOLOGY
- OCEAN SPECIFIC KNOWLEDGE
- IMPROVE SCIENTIST IDEAS
- "NOVEL" BEST PRACTICES

### CAVEATS:

- OBSERVATIONS NON-STATS
- GEAR FOR FISHING
- PEER "RESPECT"
- BYCATCH SECONDARY

# SKIPPERS CONTRIBUTIONS



# ACCEPTANCE BY FLEET



ACTIVITY ACCEPTANCE LEVEL BY FLEET						
ISSF Research Activity	Ecuador/Panama	Ghana	Spain	France	Samoa	Majuro/Pohnpei
<b>1. Passive mitigation of by-catch</b>						
a. Instrumented buoys (echo-sounder, etc.)	HIGH	NULL	HIGH	HIGH	HIGH	HIGH
b. Ecological DFADs	LOW	HIGH	HIGH	HIGH	HIGH	HIGH
c. FADs design composition fish aggregations	MEDIUM	HIGH	MEDIUM	NULL	MEDIUM	MEDIUM
<b>2. Avoid catching by-catch before setting</b>						
a. Pre-estimation of by-catch	HIGH	NULL	MEDIUM	LOW	MEDIUM	MEDIUM
b. Natural behavior	HIGH	HIGH	HIGH	HIGH	MEDIUM	HIGH
c. Catch free-swimming SKJ away from FADs	NULL	LOW	NULL	NULL	NULL	NULL
d. Double FADs	LOW	MEDIUM	HIGH	LOW	MEDIUM	MEDIUM
e. Attraction of sharks away from DFADs	MEDIUM	HIGH	NULL	NULL	NULL	LOW
<b>3. Release from the net</b>						
a. Natural behavior of fish in the net	HIGH	MEDIUM	HIGH	HIGH	MEDIUM	MEDIUM
b. Behavioral manipulations	MEDIUM	HIGH	LOW	LOW	LOW	LOW
c. Modifying the selectivity of gear	MEDIUM	LOW	MEDIUM	NULL	LOW	MEDIUM
<b>4. Release from the deck</b>						
a. Best practices for handling sharks onboard	HIGH	LOW	HIGH	HIGH	MEDIUM	HIGH
b. Survival of released sharks	MEDIUM	LOW	HIGH	HIGH	HIGH	MEDIUM



# IMPROVING BYCATCH PRACTICES



Tuna purse seiner. (Foto: Facebook/TunaSeiners)



## Tuna fishers seeking to minimize purse seine fishery impact



**SPAIN**

**Tuesday, February 21, 2012, 23:40 (GMT + 9)**

The Spanish tuna fleet promised to take measures to minimize to the utmost the impact of purse seine fishing on non-target species.

The National Association of Tuna Freezer Vessel (ANABAC) and the Associate Producer of Big Tuna Freezer Organization (OPAGAC), integrated into the Spanish Fisheries Confederation (CEPESCA), presented in Sukarrieta (Vizcaya) a joint strategy for fisheries sustainability for the Spanish purse seiners.

The presidents of both organizations, Jose Luis Telletxea and Jon Uria, respectively, along with General Secretary of CEPESCA, Javier Garat, approved the application to the whole fleet of a joint strategy for a sustainable purse seine fishery.

### PROACTIVE VESSEL REGISTER



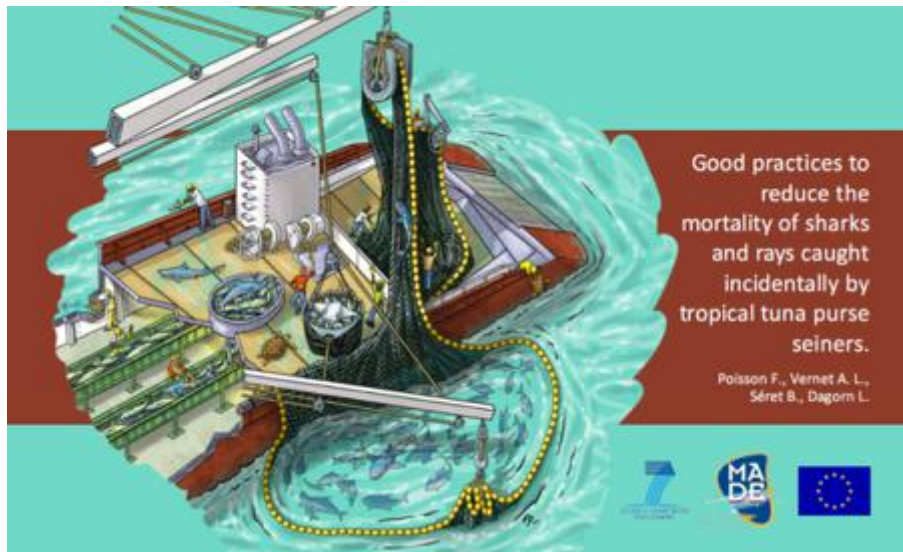
The International Seafood Sustainability Foundation (ISSF) has launched the ProActive Vessel Register, an innovative and effective way for vessel owners to identify themselves as active participants in meaningful sustainability efforts.

The ProActive Vessel Register (PVR) will provide validated information to tuna purchasers of the positive steps each vessel is taking in implementing a series of commitments designed to improve responsible practices in tuna fishing.

2012	2013	2014
<ul style="list-style-type: none"> <li>• Flagged to IFMO Member or Cooperating Nonmember</li> <li>• IMO Number</li> </ul>	<ul style="list-style-type: none"> <li>• IATTC Number (if no IMO Number)</li> <li>• Observer Coverage</li> <li>• IAO Logbook</li> <li>• Skipper Training</li> <li>• All Tuna Retained</li> </ul>	<ul style="list-style-type: none"> <li>• Observer Program</li> <li>• Full Bycatch Reported</li> <li>• Flagged to State in "Substantial Compliance"</li> </ul>

Participation provides each vessel owner, skipper and crew with access to continuing education in best practices in bycatch mitigation and handling, data submission, and species identification.

# RELEASE PRACTICES FROM DECK

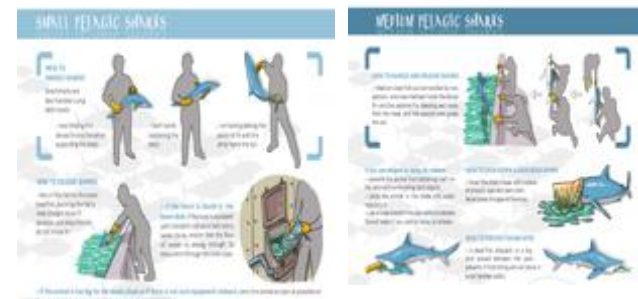


Best release practice guide available to all fleets

Maximum survival of sharks with best available practices about 15% (examined Pacific, Indian Ocean)



The rest **85%** arrive dead to deck:  
**FOCUS ON AVOIDING CATCH IN NET**  
**(IF CAUGHT THEN RELEASE BEFORE HAULING)**



# ISSF SKIPPERS WORKSHOP SUMMARY

- \* **EXPERT FEEDBACK ON GEAR, OPERATIONS, ACOUSTICS**
- \* **LEARN ON EQUIPMENT USE BY EACH FLEET AND REAL TIME “EVOLUTION”**
- \* **SPOT DIFFERENCES BETWEEN OCEANS/REGIONS: TUNA BEHAVIOR, VESSEL TYPE, FAD DESIGNS (“PS FLEET BIODIVERSITY”)**
- \* **NEW IDEAS OR TECHNIQUES**
- \* **IMPROVED RESEARCH CRUISES (“EDUCATED GUESSES”)**
- \* **PASS ON TO SKIPPERS BEST CURRENT FISHING PRACTICES**
- \* **INVOLVEMENT OF FISHERS IN BYCATCH REDUCTION: EDUCATION, LEGITIMACY, COMPLIANCE → REAL CHANGES IN THE INDUSTRY**



**MERCI**

