# On the fast track to managing FADs

*Collecting better data & improving the gear*

**Susan Jackson**

**EBFMtuna-2012 : Towards ecosystem-based management of tuna fisheries**

*Mitigating impacts of fishing on pelagic ecosystems*

*15-18 Oct 2012*

***Montpellier, France***

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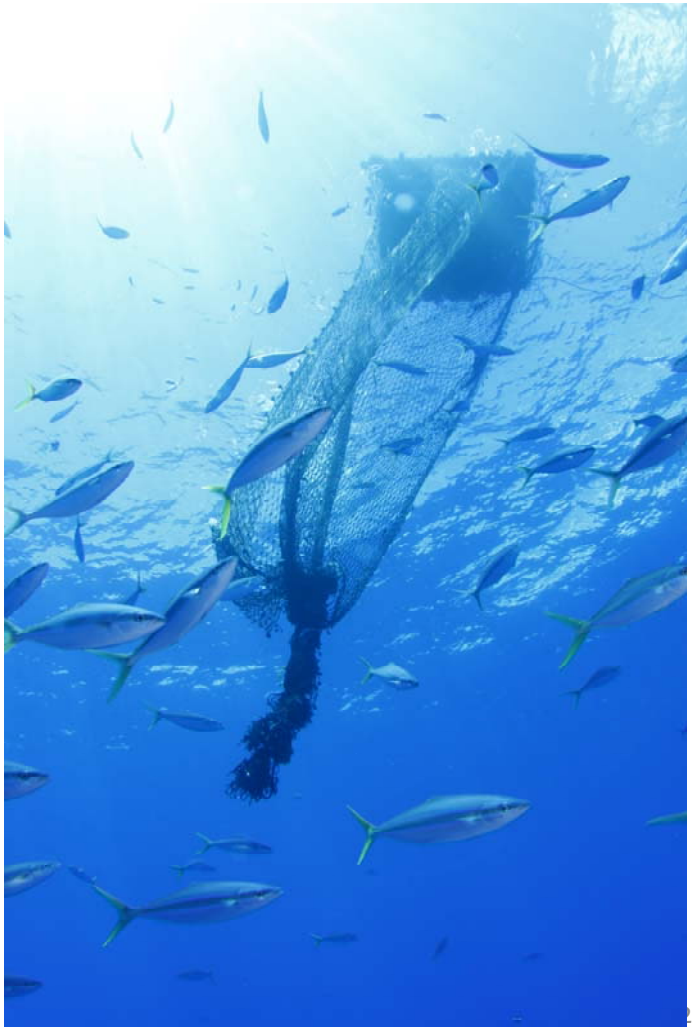
# Fish Aggregating Devices (FADs)



- fishers have known about floating objects for centuries
- naturally occurring & manmade (FADs)
- 90% efficiency compare to 50% on free school
- lead to mixed aggregations
- used by purse seine and pole & line

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# Largest share of the tuna catch

**FAD fishing by purse seiners represents about 37% of global Tuna catches and 48% of global Skipjack catches**

**Tuna Catches by Gear Type**

| | Total | Skipjack |
|---|---|---|
| Purse Seine FADs | 37% | 48% |
| Purse Seine School | 24% | 25% |
| Other (Long Line, P&L, etc.) | 39% | 27% |
| Total | 100% | 100% |

**Fishing on FADs results in higher catches of skipjack, most robust species of tuna**

**Avg Purse Seiner Composition of Catch**

| | School | FAD |
|---|---|---|
| Skipjack | 63% | 75% |
| Yellowfin | 35% | 16% |
| Bigeye | 2% | 9% |
| Total | 100% | 100% |

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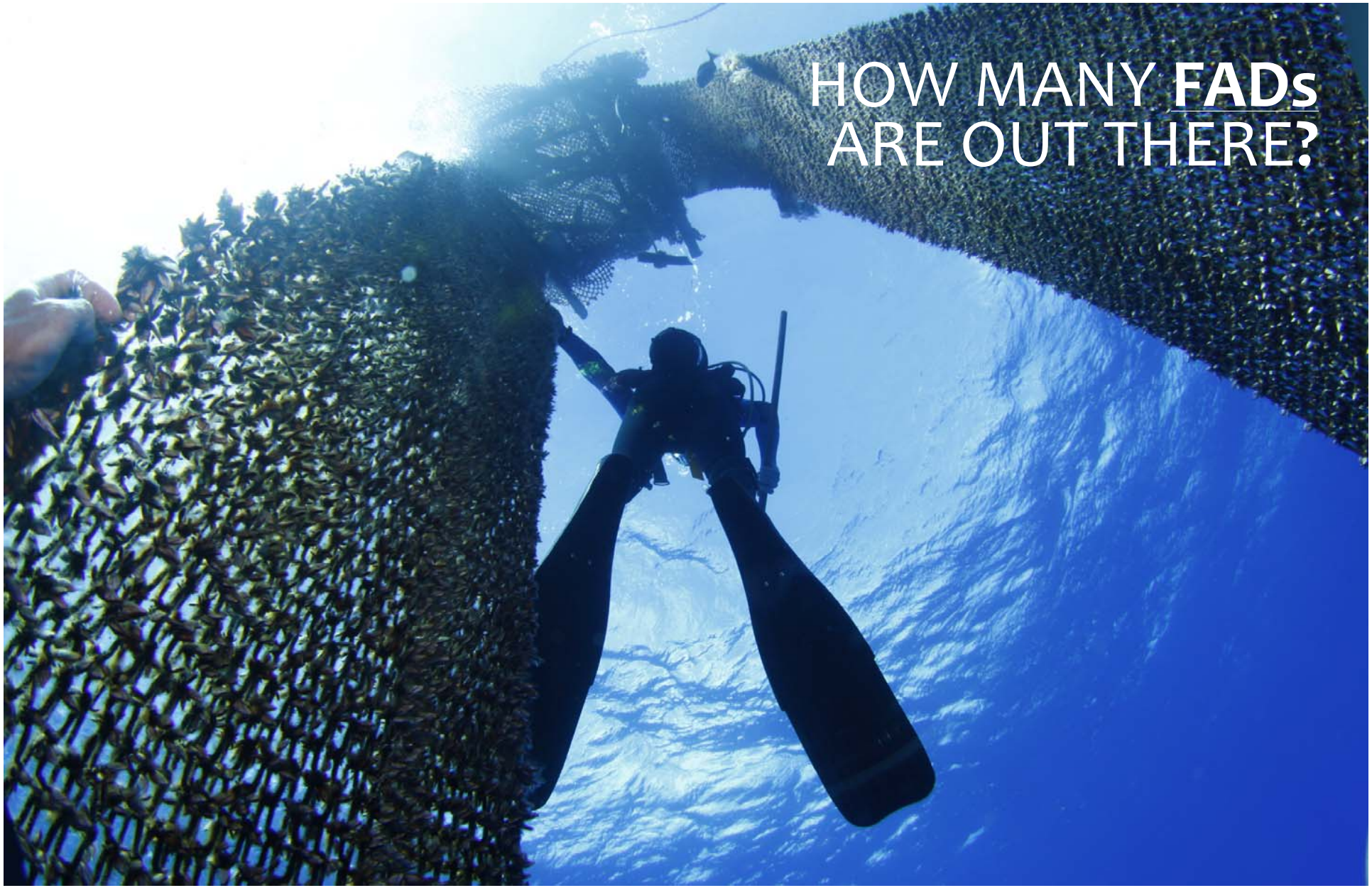


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**Lack of data = Lack of management**

Mainly limited to closures & bans to protect tuna stocks in decline

**FAD Logbooks**

first step to collecting data, measuring impact

# Getting FAD Logbooks on the Water

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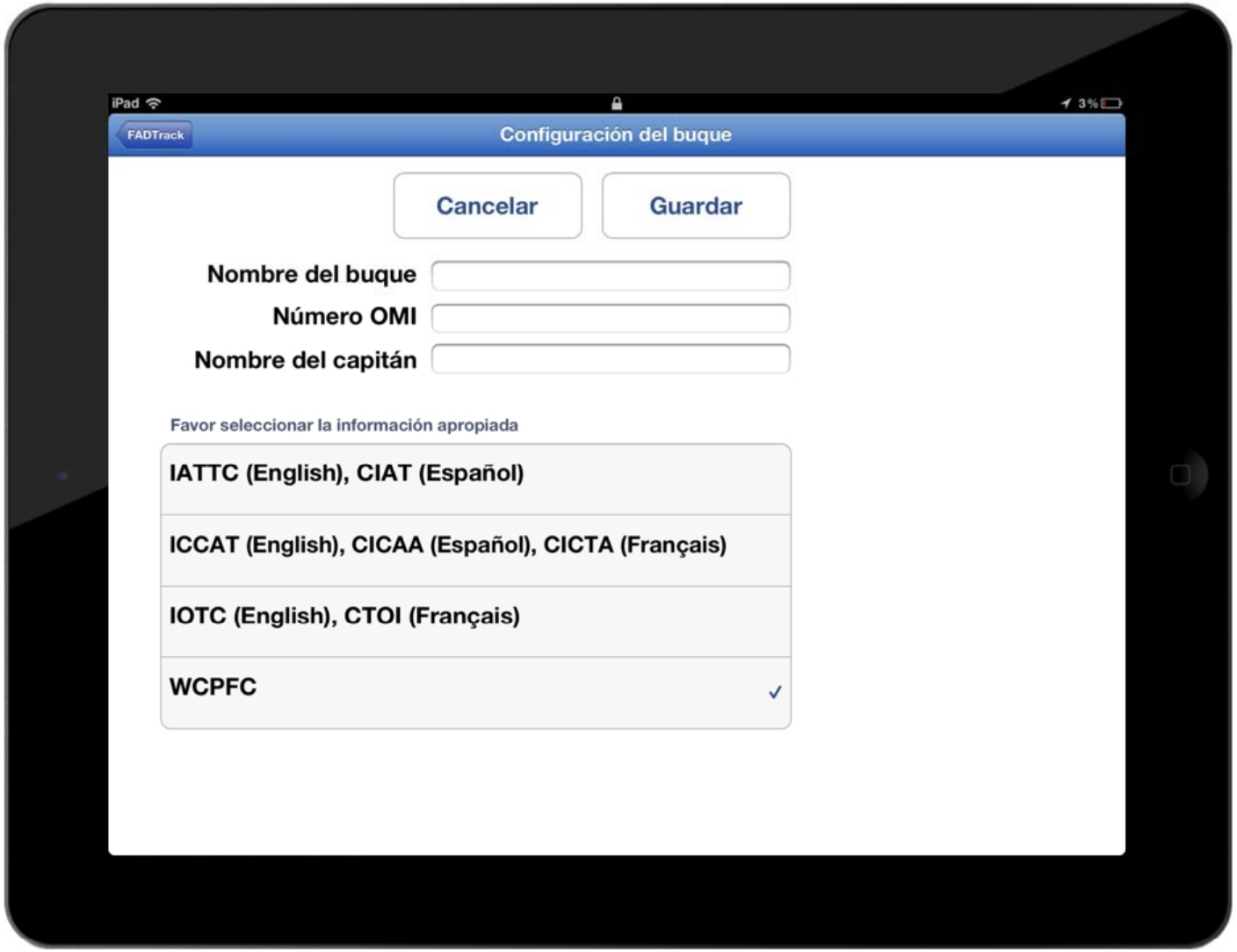
iPad
3%
FADTrack
Configuración del buque
Cancelar
Guardar
Nombre del buque
Número OMI
Nombre del capitán
Favor seleccionar la información apropiada
IATTC (English), CIAT (Español)
ICCAT (English), CICAA (Español), CICTA (Français)
IOTC (English), CTOI (Français)
WCPFC

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INTERNATIONAL
SEAFOOD
SUSTAINABILITY
FOUNDATION
Inventario de FAD
Actividad de FAD
Transmisión

# Data Collected

* FAD construction, description
* Anchored? Drifting?
* Date & location FAD is deployed
* Date & location of FADs visited
* Whether net is set around FAD

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# Reducing Impact of FADs

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# Bycatch of non-target species is higher for FAD fishing , but below 4% in three of the major oceans

**Purse Seine By-Catch - Non-Target Species**

| | WTP | ETP | Indian | Atlantic |
|---|---|---|---|---|
| School | 0.3% | 0.8% | 0.8% | 2.8% |
| FAD | 1.7% | 2.4% | 3.6% | 8.9% |
| Observer Coverage | 100% (1) | 100% | < 10% | < 10% |

(1) Implemented in 2011 and historic observer data is not broadly available

80-95% of bycatch is of species not at risk; primary issues are with two species of sharks; the Atlantic shows a high rate of bycatch but most of this fish has a market in western Africa

# #BycatchProject

- Globally coordinated project
- Identify best practices, new techniques and enhanced technologies to minimize catch of non-target marine life
- Scientists test ideas on board fishing vessel
- Skippers are educated through participatory workshops around the world

**Best Practices Development – FADs**

**1. Before arriving at a FAD**

a. Instrumental Bouy
b. Ecological FADs
c. Design of FADs

2. **Avoid catching bycatch before setting**

a. Pre-estimation of catch
b. Natural behavior of fish
c. Catching Skipjack away from FADs
d. Double FADs
e. Attraction of sharks away from FADs

3. **Release from the net**

a. Natural behavior of fish in the net
b. Behavioral manipulations
c. Modifying the selectivity of the gear

4. **Release from the deck**

a. Best practices for handling sharks onboard
b. Survival of released sharks

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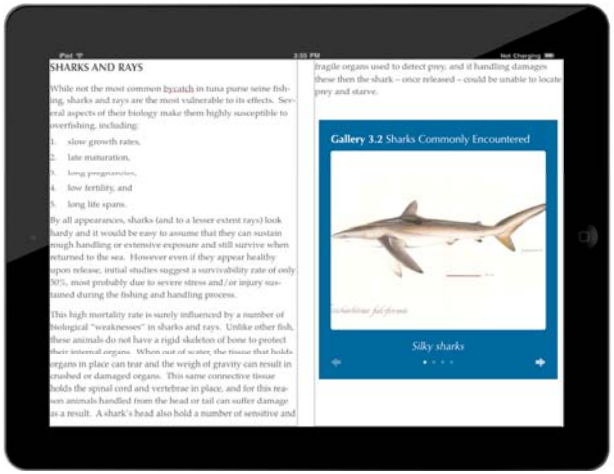
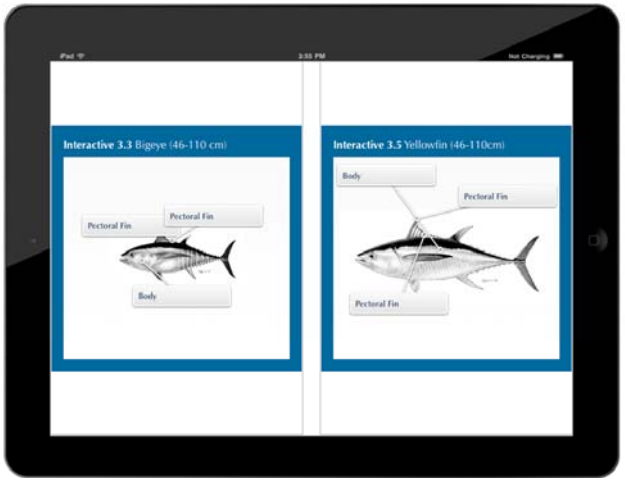
# Working with Fishers

To date, workshops have been held in North America, Central and South America, Africa, Europe and the Pacific Island Region.

# Skipper's Guidebook




**Purse Seine – v1 Complete**
**Longline – v1 Completion target 12/1**

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Figure 2.a

The development of specific designs should be left to industry and the expertise of fishermen. However, basic guidelines for non-entangling environmentally friendly FADs are presented below:

- To reduce entanglement of turtles on the FAD itself, the surface structure should not be covered (Fig. 2.a.) or only covered with non-meshed material (Fig. 2.d, 2.e, 2.g).
- If a sub-surface component is used, it should not be made from netting but from non-meshed materials such as ropes or canvas sheets (Fig.2.a, 2.d, 2.f).
- To reduce the amount of synthetic marine debris, and to promote environmentally friendly FADs, the use of natural or biodegradable materials should be promoted (Fig. 2.d, 2.e).

# BEST PRACTICE RECOMMENDATIONS

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# Implementing & Validating Best Practices

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## PURSE SEINE

**2013**

- Data Reporting to RFMO of All Tuna and Bycatch

**2014**

- Flagged to RFMO Member or CNM
- FAD Logbook Submission to RFMO
- Observer Onboard (Human or Elec.)
- Skipper ISSF-trained
- Full Retention of All Tunas
- Observer Meets Baseline Standards
- Full Retention of All Bycatch
- Flagged to State in "substantial compliance" with RFMO Obligations
- Participation in VMS Meeting Global Standards

## POLE & LINE

**2014**

- Baitfish Management System

## LONGLINE

**2013**

- Data Reporting to RFMO – Bycatch and All Tuna (>24m)
- Skipper ISSF-trained

**2014**

- Electronic VMS/Observer System (>24m)
- Data Reporting to RFMO – Bycatch and All Tuna (<24m)

**2015**

- Electronic VMS/Observer System (<24m)

## ALL VESSELS

**2012**

- No IUU List
- IMO Number
- No Finning Finding (past 2 years)
- Vessel Anti-Finning Policy

**2013**

- UVI, if no IMO Number
- FAD – Improved Design

**Ongoing**

- Best Practices in Bycatch Mitigation

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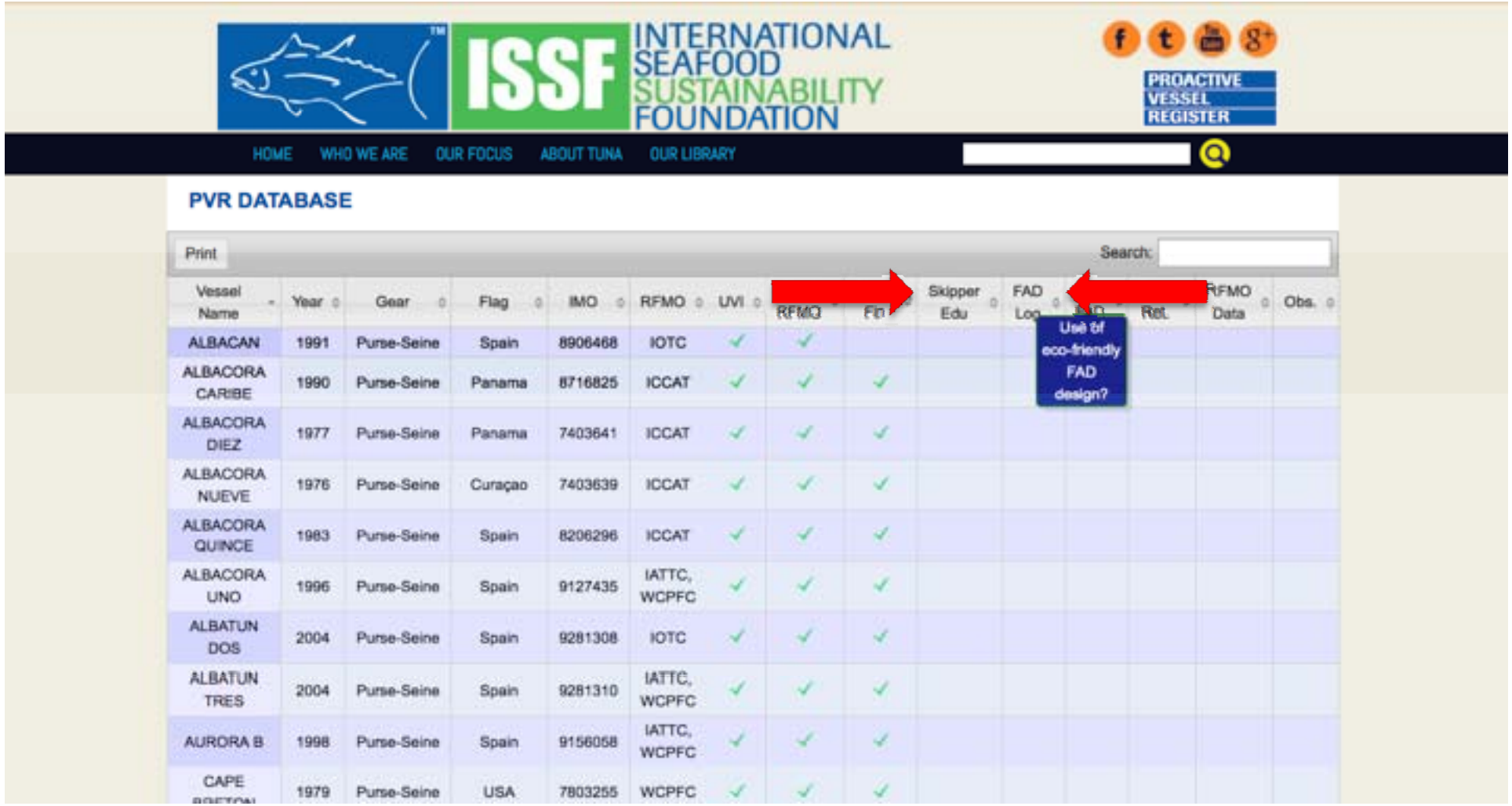


| Vessel Name | Year | Gear | Flag | IMO | RFMO | UVI | RFMO | Fin | Skipper Edu | FAD Log | Ret. | RFMO Data | Obs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALBACAN | 1991 | Purse-Seine | Spain | 8906468 | IOTC | ✓ | ✓ | | | | | | |
| ALBACORA CARIBE | 1990 | Purse-Seine | Panama | 8716825 | ICCAT | ✓ | ✓ | ✓ | | | | | |
| ALBACORA DIEZ | 1977 | Purse-Seine | Panama | 7403641 | ICCAT | ✓ | ✓ | ✓ | | | | | |
| ALBACORA NUEVE | 1976 | Purse-Seine | Curaçao | 7403639 | ICCAT | ✓ | ✓ | ✓ | | | | | |
| ALBACORA QUINCE | 1983 | Purse-Seine | Spain | 8206296 | ICCAT | ✓ | ✓ | ✓ | | | | | |
| ALBACORA UNO | 1996 | Purse-Seine | Spain | 9127435 | IATTC, WCPFC | ✓ | ✓ | ✓ | | | | | |
| ALBATUN DOS | 2004 | Purse-Seine | Spain | 9281308 | IOTC | ✓ | ✓ | ✓ | | | | | |
| ALBATUN TRES | 2004 | Purse-Seine | Spain | 9281310 | IATTC, WCPFC | ✓ | ✓ | ✓ | | | | | |
| AURORA B | 1998 | Purse-Seine | Spain | 9156058 | IATTC, WCPFC | ✓ | ✓ | ✓ | | | | | |
| CAPE | 1979 | Purse-Seine | USA | 7803255 | WCPFC | ✓ | ✓ | ✓ | | | | | |

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# Moving Forward

- Work with industry to make improvements
- FAD logbooks provide scientists/ fishery managers with information necessary to better manage FAD fisheries
- Improvements can be made to reduce environmental impact of FAD fishing
- Collect & share best practices with skippers
- Track progress & provide tools for advancement through ProActive Vessel Register (PVR)

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# Thank You!

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