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A decade of monitoring Best Practices in tuna purse seine fisheries: implications for observer data collection

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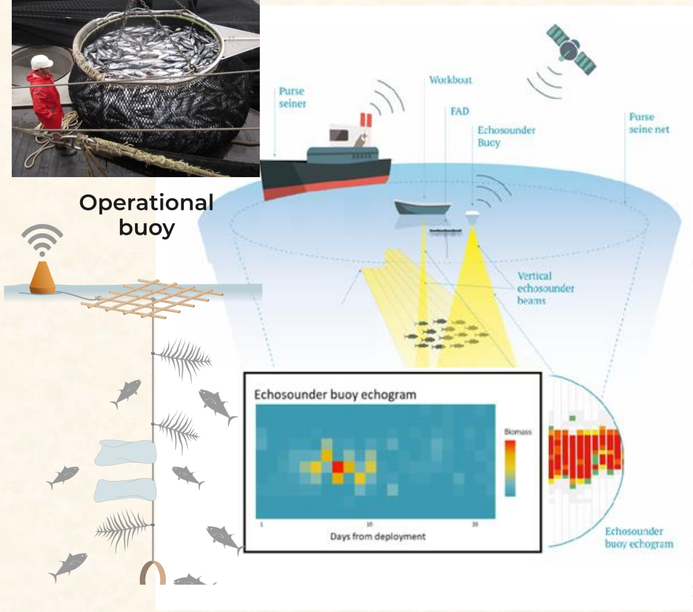
SNAPSHOT OF THE LARGE-SCALE TROPICAL TUNA PURSE SEINERS

Large-scale purse seine = main tuna fishery in IATTC

Operational buoy



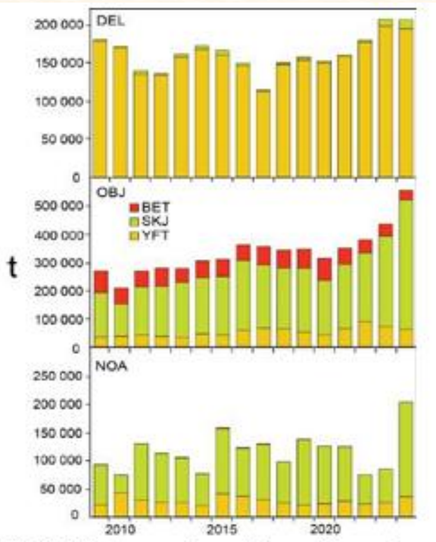
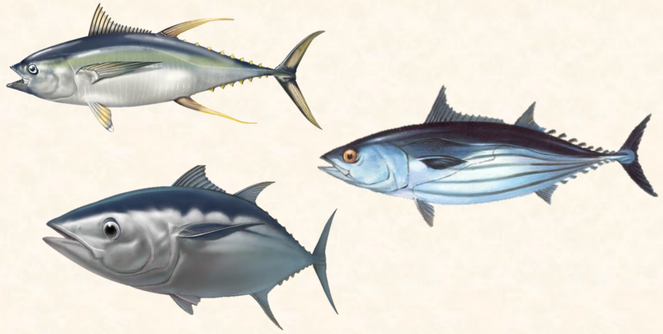
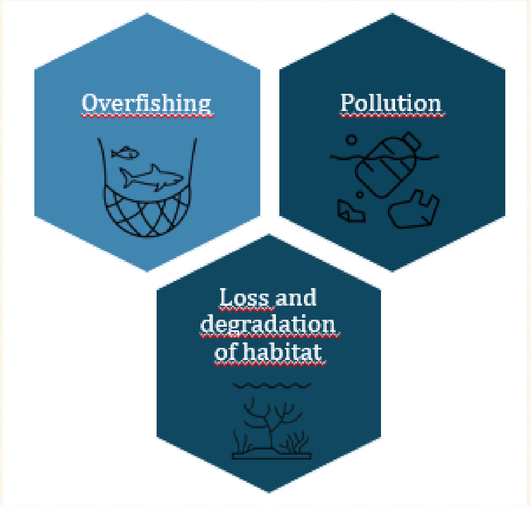


FIGURE 1. Purse-seine catches of tunas, by species and set type, 2009-2024

Sustainable explotation of target species



Assessment and mitigation of ecosystem impacts



Ecosystem-based management approach

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BYCATCH IN THE LARGE-SCALE TROPICAL TUNA PURSE SEINERS

Among the impacts associated with purse seine fishing:

Bycatch → Relatively **low** compared to other fishing gears → Still a **priotity for conservation**. Special concern for ETP species

Conservation and Management Measures (CMMs) aimed at minimizing mortality of non-target species

e.g. C-15-04; C-19-04; C-19-06; C-25-08

OBSERVER PROGRAM IN IATTC

Since the late 1990s, the IATTC observer program has achieved **100% coverage** of trips for large-scale tuna vessels (Class 6).

Solid scientific basis to support ecosystem-based fisheries management approaches

Increasing interest in improving the survival of vulnerable species in tuna fisheries **through the application of Best Handling and Release Practices**

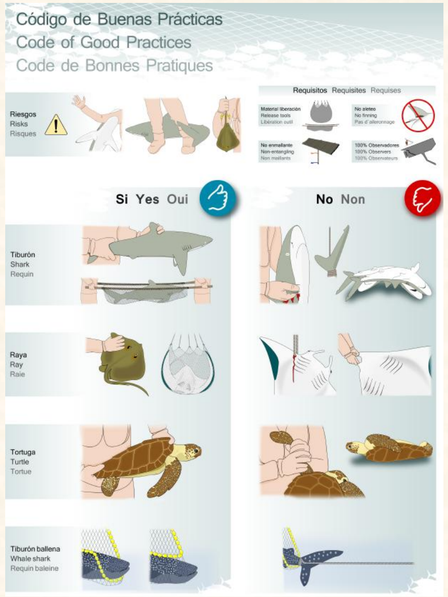
IATTC scientific staff, in collaboration with the SAC and the EBWG, are **updating guidelines on Best handling and Release Practices for ETP species**.

CODE OF BEST PRACTICES BY OPAGAC FLEET

Adopted in 2012, and revised annually since 2014

Good Practices for Responsible Tuna Purse-Seining

Among other measures, incorporates species-specific handling and release procedures for ETP species



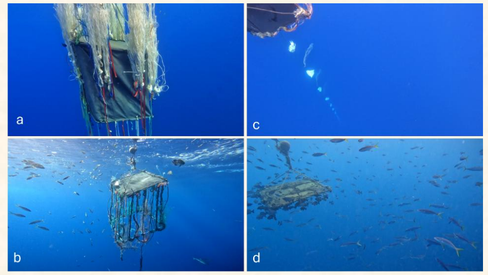
Benefits in terms of reducing bycatch mortality but also valuable operational experience

Adopted as best practice standards by various RFMOs

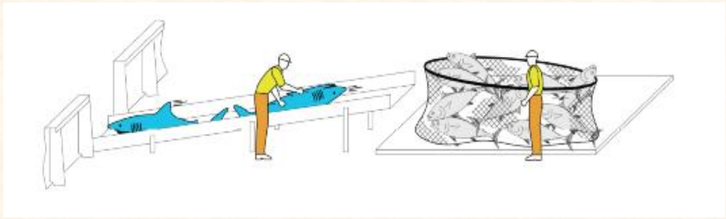
An **updated Best Practices guide** that integrates proper handling techniques and new release devices specifically designed for ETP species

CODE OF BEST PRACTICES AS MITIGATION MEASURE

1. The design, construction, and use of **non-entangling and progressively biodegradable FADs**.

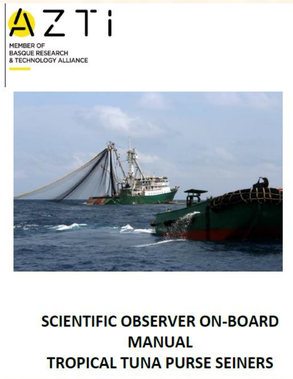


2. The application of **species-specific protocols for the safe handling and release of bycatch**, with special attention to ETP species such as sharks, mobulids, sea turtles, and whale sharks.



3. The execution of projects aimed at assessing the **survival of ETP species** under different release practices **through satellite tagging**.

4. The development of **data collection protocols** to enable more effective monitoring of FAD-related operations and of the implementation and effectiveness of Best Handling and Release Practices .



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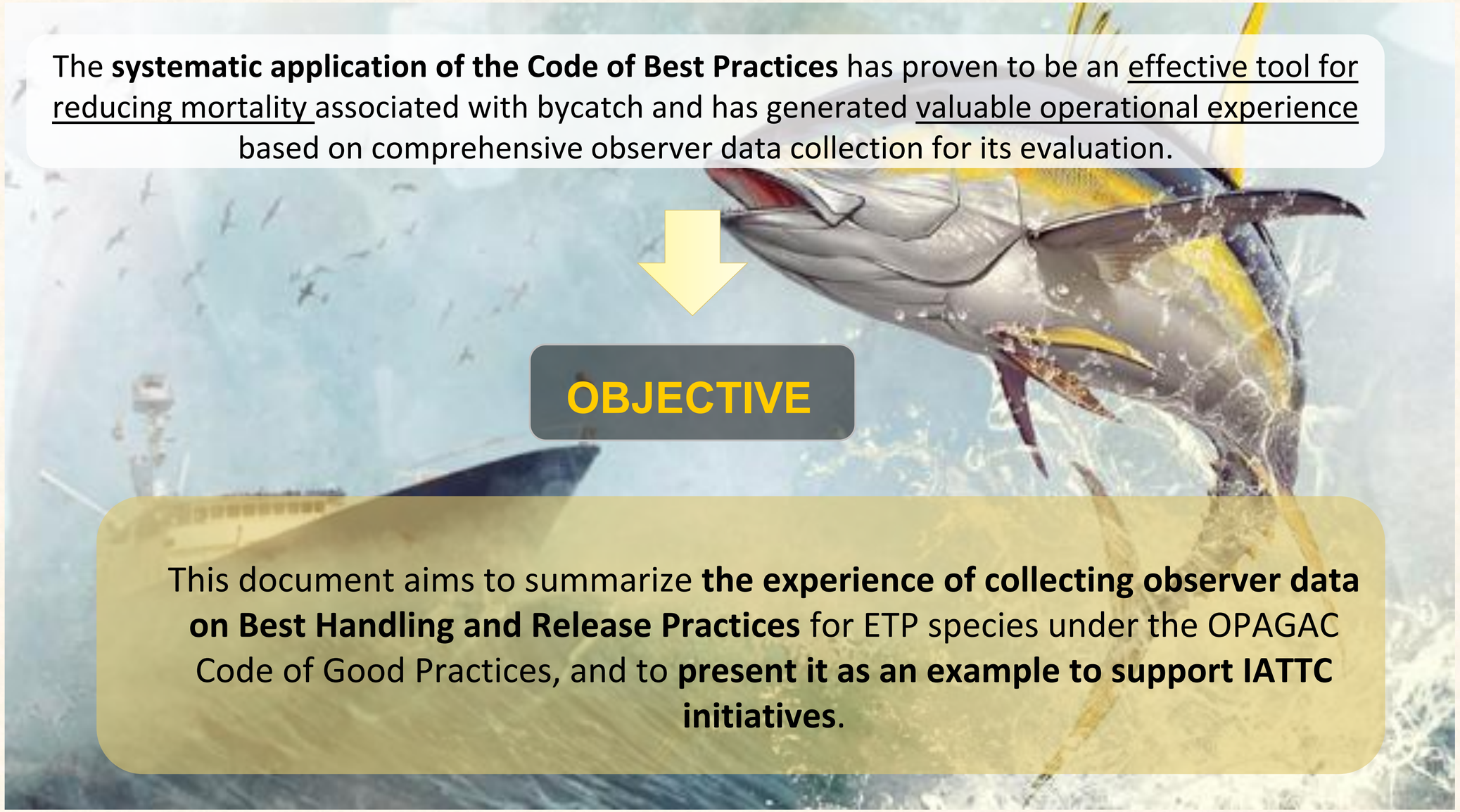


The **systematic application of the Code of Best Practices** has proven to be an effective tool for reducing mortality associated with bycatch and has generated valuable operational experience based on comprehensive observer data collection for its evaluation.

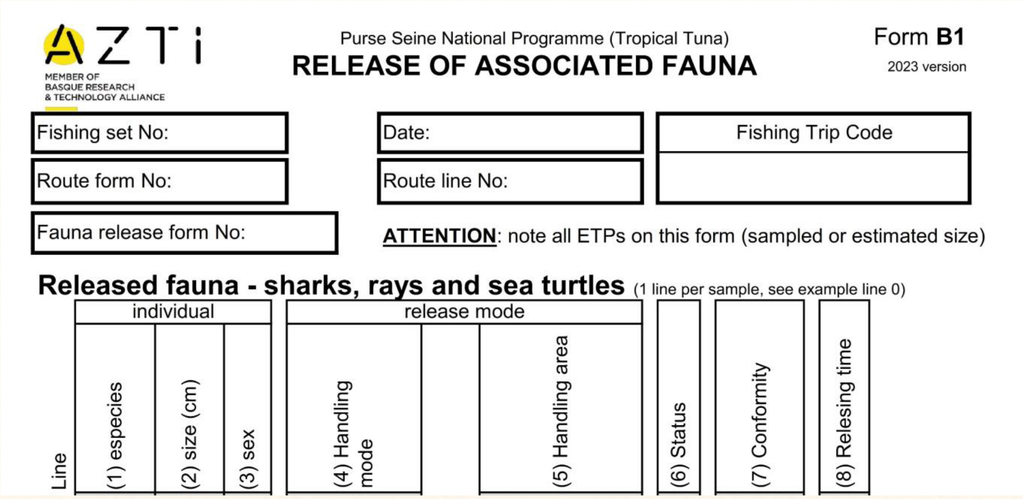
OBJECTIVE

This document aims to summarize **the experience of collecting observer data on Best Handling and Release Practices** for ETP species under the OPAGAC Code of Good Practices, and to **present it as an example to support IATTC initiatives**.

MONITORING OF SAFE HANDLING AND RELEASE OPERATIONS

100% observation coverage = Human observer + Electronic monitoring systems

A **form on the release of bycatch** was developed and used within the framework of the Code of Best Practices



Purse Seine National Programme (Tropical Tuna)

RELEASE OF ASSOCIATED FAUNA

Form **B1**

2023 version

Fishing set No:	Date:	Fishing Trip Code
Route form No:	Route line No:	
Fauna release form No:		

ATTENTION: note all ETPs on this form (sampled or estimated size)

Released fauna - sharks, rays and sea turtles (1 line per sample, see example line 0)

	individual			release mode					
Line	(1) especies	(2) size (cm)	(3) sex	(4) Handling mode		(5) Handling area	(6) Status	(7) Conformity	(8) Relesing time

(i) **Biological characteristics:** species, size, and sex, whenever identification is possible.

(ii) **Release method**

(iii) **Release time**

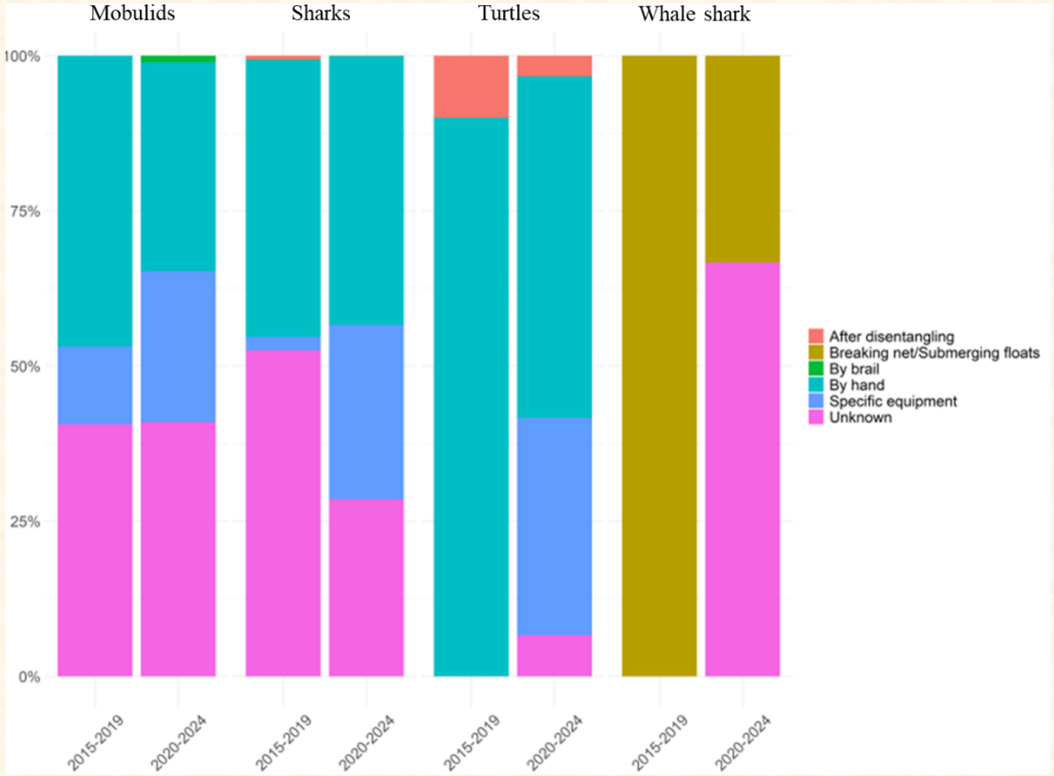
(iv) **Handling area**

(v) **Condition of the animal at the time of release**

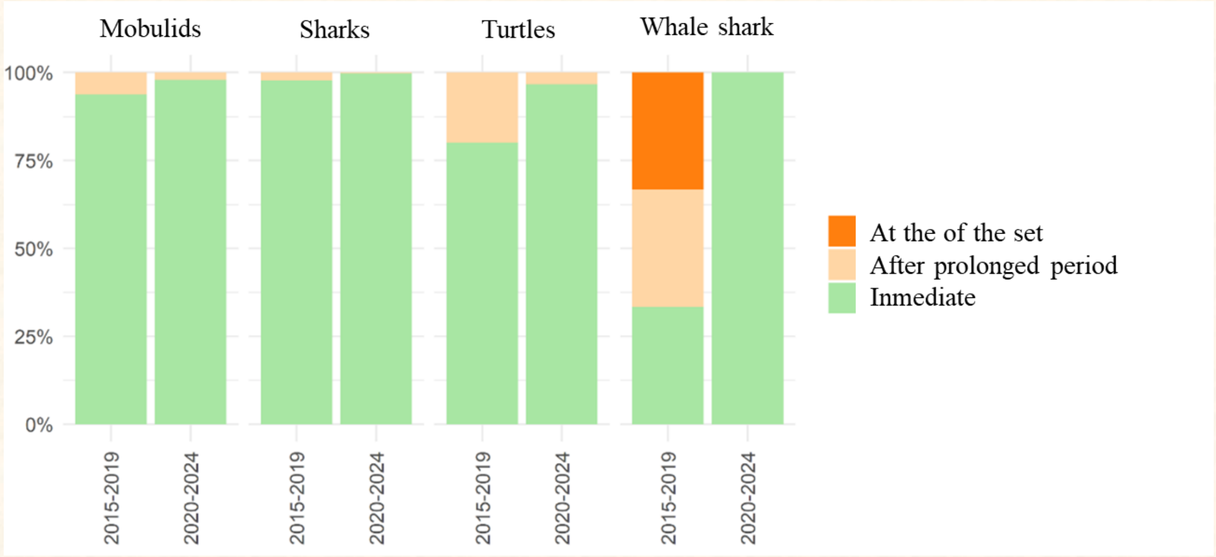
MONITORING OF SAFE HANDLING AND RELEASE OPERATIONS

Key examples of collected datas:

Release mode



Release time



Based on this recording system, the information collected within the Code of Best Practices framework allows for a **comprehensive analysis of how the applied release techniques**.

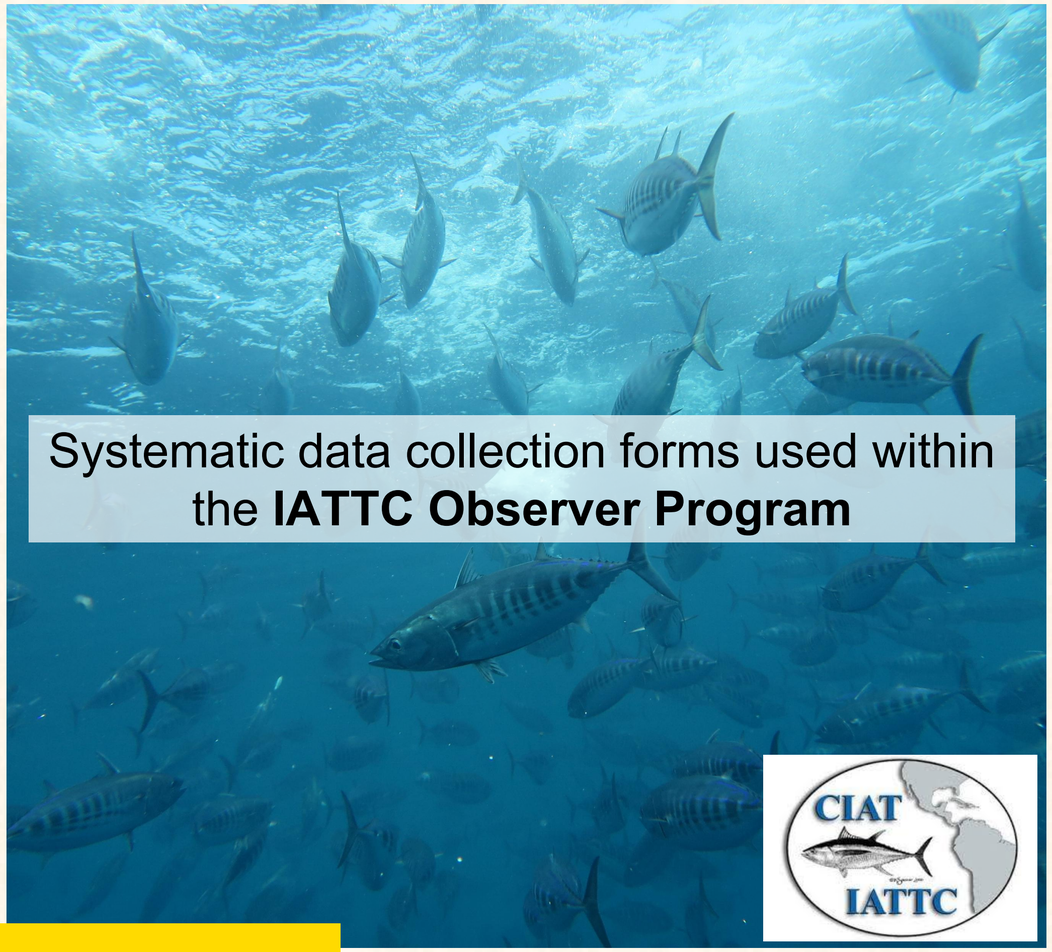
MONITORING OF SAFE HANDLING AND RELEASE OPERATIONS

Detail of **the key variables** currently used in the Code of Best Practices

Release mode	Sinking the cork line Cutting the net By brailer After disentanglement By stretcher, tarpaulin, ‘sarria’ or cargo net Gaff, hook, or other pointed tools Rope noose hanging Rope noose pulling Manually by the fins or the body Manually hanging from the tail (sharks and rays) or fins (turtles) Manually by sensitive organs Manually dragged or pulled Hopper with ramp Ramp Sorting grid for manta and devil rays Hanging from the tail with velcro Lower deck conveyor belt and gutter
Release time	Immediate After a prolonged period At the end of the set
Handling area	Upper deck Lower deck
State of the animal	Excellent Good Correct Poor Very poor

DETAILED DATA COLLECTION NEEDS

The monitoring system in IATTC for safe handling and release operations is based on **full observation coverage.**



Sea Turtle Record (RTM)
Shark Record (RDT)
Ray Record (RDR)

→ Biological data + fate (e.g. released alive).
No data on Best Handling and Release Practices

Compliance summaries (RDC)

→ **Very limited** data on Best Handling and Release Practices

Shark Sampling and Tagging Record (RMMT) and the Mobulid Record (RMMM)

→ Biological and operational data to assess post-release survival.
Complete data but labour-intensive and only research cruises

DETAILED DATA COLLECTION NEEDS

It is considered necessary to **incorporate a specific form, or to slightly expand existing ones**, to systematically record data related to release method, timing, handling area, and animal status

Recording **only four key parameters** can help clarify Best Handling and Release Practices.

Parameter	Description	Main usefulness
Release method	Technique used to return the animal to the sea	Assess risk of injury and stress
Release time	Time interval from detection to release	Key indicator of survival
Handling area	Area of the vessel where the animal is detected and handled	Characterize operational conditions
Condition of animal	Physiological condition at the time of release	Post-release survival estimation

It is important to note that these results should be interpreted from **a descriptive perspective to assess temporal trends**, as these parameters observed in individual cases may be influenced by specific operational factors (e.g. bad weather, operational limitations, etc.)

CONCLUSIONS & RECOMMENDATIONS

- **Consistent use of Best Handling and Release Practices** in purse seine tuna fisheries helps reduce impacts on vulnerable bycatch species and supports ecosystem-based management within IATTC.

- Better knowledge of release patterns **is needed to design fleet-specific solutions**. Thus, integrating more detailed data collection by observers is recommended.

- **Key variables** to record include release mode (how animals are returned to water), release time (time from detection to release), handling area (location on vessel where animal is detected) and condition at release (vitality of the animal).

- **Standardized protocols and proper observer training** are necessary to ensure consistent, comparable, high-quality data.

- Strengthening data collection systems **will support more accurate recommendations and improve implementation by fleets**.

- Monitoring oriented toward continuous improvement, without a punitive/individual approach.

- Improved information will **help enhance management of interactions with vulnerable species and increase post-release survival rates**.

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