



E-training tool descriptor

Supra-category: IOTC ROS Scientific Field Observer Training (IOTC ROS SFO)

Category: Purse-seine onboard data collection and recording (TR18)

The following case study is designed to familiarized observers with data gathering processes and priorities for the tuna purse-seine fisheries, the type of information gathered and how to capture it into the relevant IOTC ROS data collection forms. This exercise also aims to raise observers’ awareness on work and sampling protocols to follow when deployed on-board a tuna purse-seiner.

The narrative of the exercise is in three formats:

1. explanatory narratives for the exercise to provide certain information in situations which the observer would be expected to record (provided in italics); and
2. extracts from an observer’s daily notebook (which they would be expected keep onboard);
3. information that an observer would record while on deck or sampling.

As far as possible, the exercise and information are designed to be as realistic and practical to what an observer is likely to experience in the field.

IOTC ROS Guidelines to be followed

Guidelines for observers on tuna purse-seiners.

Filled data forms provided

FORM 1-PS IOTC REGIONAL OBSERVER SCHEME VESSEL AND TRIP INFORMATION SHEET

Data forms to be filled in

FORM 2-PS IOTC REGIONAL OBSERVER SCHEME LONGLINE GEAR SPECIFICATIONS

FORM 3A-PS DAILY ACTIVITY LOG

FORM 3-PS IOTC REGIONAL OBSERVER SCHEME FISHING EVENT

FORM 4-PS IOTC REGIONAL OBSERVER SCHEME FISHING EVENT - CATCH DETAILS

FORM 5-PS IOTC REGIONAL OBSERVER SCHEME- CATCH DETAILS - BIOMETRIC INFORMATION

FORM 6-PS IOTC REGIONAL OBSERVER SCHEME FISHING EVENT – CATCH DETAILS – BIOLOGICAL DATA AND SAMPLE COLLECTION

FORM 7-PS VESSEL TRANSHIPMENT





Case Study: Observer deployment on a Purse-seine Vessel

Note that all dates and times given are expressed in UTC.

You embarked on the Spanish tuna purse-seiner Intertuna I, in Dar es Salam, Tanzania the 24 February 2020 at 12:00 UTC.

On the same day as you embarked, you asked the captain for detailed vessel information. The captain allowed you to consult the following documents: vessel registration, fishing license, safety certificate, fishing gear characteristics, crew list. the electronic devices, the fishing gear and the crew; and gave you a tour of the bridge to check vessel electronic equipment present.

The vessel left the port of Dar es Salam, Tanzania to (6° 49,58' S / 039° 17,36'E) to begin its trip on the 25 February 2022, at 9:00 UTC.

TASK 1 Fill in Form 1-PS with the information provided in the text and collected by the observer when consulting vessel documents and during the guided visit to the bridge (report to [vessel information](#) section).

TASK 2 Fill in Form 2-PS with the information provided collected by the observer when consulting vessel documents (see [vessel information](#)); and during the guided visit to main and lower deck recorded in the [notebook](#).

Since the ship left port, it has sailed uninterruptedly until 18h00 UTC when he stopped the engine and drifted for the night at 05° 36,00'S and 041° 59,05'E. As instructed during training you have recorded vessel position every two hours on your notebook.

TASK 3 Start filling Form 3A-PS with the information recorded in the observer [notebook](#).

On February 26th, the ship set off at 03:00 and the watchman went up to the crow nest. At 05:15., the watchman reported a FAD ahead of the boat with birds diving around it. At the sonar, the skipper notices a school of tuna of 50 MT and decides to fish it, even if there's a there's a SW current of 5 knots at 50 meters deep.

The Skiff is deployed at 06:15 in the position 06 °06,10'S and 042° 17,07'E. The anemometer indicates a wind of 3 knots and the sea is calm. This is the first fishing event (set) the vessel is doing during the observed trip.

Twenty minutes later, the skiff passes the cables to the purse seiner, which begins to purse the seine. All the purse rings are at the gallows at 07:00 and the hauling of the net starts.

You watch the pursing and hauling of the net from the upper deck and notice that while the net is being hauled, the Skiff is replacing FAD satellite buoy with a buoy from the Intertuna 1. You ask the 1st officer





if the vessel follows any special good practices concerning bycatch and ask him to keep note of the individuals released alive to the sea, that you won't be able to sample.

At 08h30 the brailing begins. You watch the 1st brail coming on-board from the upper deck, you move to the main deck (behind the purse winches) and remind crew members in charge of removing large individuals from the brail (sharks, marlins...) to place dead specimens aside for later sampling.

You move to the lower deck, where the crew has started to sort the catch. You place yourself next to the discharge hatch and you collect several samples of the discards at different moments of the brailing and store them in vessel sorting bins and you start processing them according to the most adequate sampling protocol (refer to Guidelines for Observers on Tuna Purse-seiners).

Brailing starts to slow down. You go up to the main deck, you observe the last brails coming onboard and check that the net is not capsized. You also use this time to exhaustively sample all large individuals set aside.

The brailing ends at 09:15, you move back to the lower deck, you collect a sample of the discards from the last brails, and you continue to process your sample.

At 09:30 you hear the Skiff being brought onboard; you note the time that the set ends.

*Before leaving the factory, you ask the Factory Manager for an estimation of the weight of fishing event sorted catch stored in the wells. You also ask the crew if any fish was kept for cooking and they tell you that 15 tripletails (*Lobotes surinamensis*) of 1.5 kg were taken to the kitchen.*

On the upper deck the 1st officer tells you that 12 silky sharks and a green turtle were rejected alive and 1 black marlin managed to s 'escape from the net, and provides you with an estimation of the brailed catch.

A crew member that was in the Skiff calls you and tells you that they've found a dead loggerhead turtle meshed tail of the FAD. That the turtle was tagged and that they brough it back to the Observer for species confirmation and sampling. The observer samples the turtle and takes a photo.

The observer asks the crew to describe the FAD and the buoy attached, they say that both the raft and the tail was covered with a large mesh net. The observer inspects the satellite buoy, its markings indicate that the buoy belong to the FV Albacora IV and it has written on it the number. The observer notices that the buoy is equipped with artificial lights.

After finalizing the sampling, the observer changes and goes back to the cabin to fill in IOTC ROS data collection forms.

TASK 4 Fill in Form 3-PS with the information provided in the text and recorded in the [notebook](#).

TASK 5 Continue filling Form 3A-PS with the information recorded in the observer [notebook](#).





TASK 6 Estimate fishing event catch composition based on the information provided on the text and recorded on [observer slate](#).

At 12h15, the fishing master detects movement 5nm ahead using the bird radar, the watchman in the crow's nest confirms the sighting of birds and of tuna jumping at the surface.

The Skiff is deployed at 12h30 in the position 06 °08,02'S and 042° 11,03'E. There's no wind and the sea look like a mirror.

Twenty minutes later, the skiff passes the cables to the purse seiner, which begins to purse the seine. All the purse rings are at the gallows at 13:00 and the hauling of the net starts.

You watch the pursing and hauling of the net from the upper deck and notice that there's a whale shark underwater. Following confirmation of the presence of the whale shark the fishing master capsizes the net, freeing the whale shark and around 15 tons of tuna (as indicated by the sonar).

The Skiff is back onboard the vessel at 14h30. The Skipper calls the watchers down from the crow's nest and stops the vessel for the night.

You collect vessel position at 15h00 - 06 °08,08'S and 042° 11,30'E and you go to your cabin to fill in IOTC ROS data collection forms.

TASK 7 Fill in Form 3-PS with the information provided in the text and recorded in the [notebook](#).

TASK 8 Continue filling Form 3A-PS with the information recorded in the observer [notebook](#).

TASK 9 Estimate fishing event catch composition based on the information provided on the text and recorded on [observer slate](#).





VESSEL INFORMATION

Vessel details

| | |
|----------------------|--|
| Ships name: | INTERTUNA 1 |
| IOTC Reg No | IOTC000136 |
| Flag: | Seychelles |
| Country registration | Seychelles |
| Port of registration | Victoria |
| National reg No: | 50125 |
| Radio call sign: | S7RY |
| IMO No: | 7805966 |
| E-mail: | interuno@albacora.es |
| Phone N°: | 008816223866250 |
| Fax N : | 008816223866251 |

Vessel Characteristics

| | |
|-----------------------|----------------------------------|
| Vessel Type | Purse-seiner |
| GT | 2167 |
| Length Over All | 67.44 m |
| Fishing gear | Purse-seine |
| Hull material | Steel |
| Speed | Max: 17 knots / Cruise: 10 knots |
| Range | 2 months |
| Main engine: | Caterpillar / 2000 HP |
| Fish storage capacity | 2250 m3 (wells (brine at -17°C) |

Administrative information

| | |
|----------------|---|
| Owner | Intertuna N.V Grebbelinieweg 88- A, Curacao, Netherlands Antilles |
| Operator | INTERATUN LTD. (Box 177, Maison La Rosiere, Palm Street, Victoria, Mahé, Seychelles) |
| Captain | Jose Irigualdes (Espagne) |
| Fishing master | Joseba Arizarco (Espagne) |
| Crew | 30 |

Licenses

| | | | | | |
|-----|---------------|------------|-------|----------------------------------|-----------------------------|
| URT | Intertuna uno | Seychelles | 50125 | From 2020-01-01 to 2020-12-31 | Tuna & tuna like species |
|-----|---------------|------------|-------|----------------------------------|-----------------------------|





Navigation and detection equipment

- 2 radios HF and 2 VHF
- 2 bird radar
- 2 radars
- 1 acoustic depth sounder
- VMS and AIS
- Fisheries Information System
- Satellite communication system
- 2 track plotters
- 3 sonars
- 1 acoustic depth sounder
- 1 doppler current meter
- 1 WEATHER FACSIMILE
- 1 VMS FURUNO
- 1 bathythermograph

Fishing gear and catch storage

- Mid-net stretched mesh size: 10 cm
- Bunt stretched mesh size: 5 cm
- Net max length: 1500 m
- Net max depth: 240 m
- Power Block Marco Puretic
- Purse-seine winches Marco Puretic
- 1 skiff, 11 m, 250HP
- Maximum brail capacity: 10 MT





OBSERVER NOTEBOOK

24/02/2022

11H00

- Arrived to Dar es Salam port to board Spanish tuna purse-seiner Intertuna 1
- Put mobile phone time into UTC
- Left laptop time in TZA local time

11H00

- Meet the captain
- Conducted vessel-pre-safety inspection with the captain (all ok)

11H50

- Confirmed embarkation with coordinator by phone

12H00

- Embarked on the Spanish tuna purse-seiner Intertuna 1
- Will be staying in the infirmary all by myself. It's a large cabin on the offices deck. It's clean, has loads of light and has a desk to work on. Also has a private bathroom. Looking good 😊!
- Went to the bridge to ask the captain for detailed vessel information start filling Form 1-PS

13H00

- Lunch with the bridge officers and engine officers

14H00

- Visited vessel main and lower deck with bosum. Vessel equipped with a sorting and discharge conveyor belt, that ends on a discharge hatch that allows for discards sorted on the lower deck to be directly discharged at sea.
- Explained to the bosum the work I'm to do. Bosum agreed that I can place myself next to the discharge hatch when sampling on the lower deck and behind the winches when sampling on the main deck. Bosum accepted to lent me 5 discharge bins (Av. average capacity 30Kg). Bosum showed me where to keep my oil skinks, hard hat, boots and sampling equipment.
- Measure purse-seine net stretched mesh: Av.5 cm for the bunt; Av.10 cm for the mid-net.

16H00 - Organizing my cabin and relaxing

20H00 - Dinner





25/02/2022

09h00 - Leaving port - $6^{\circ}49,58' S / 039^{\circ}17,36' W$

11h00 - Sailing - $6^{\circ}36,18' S / 039^{\circ}43,16' W$

13h00 - Sailing - $6^{\circ}25,10' S / 040^{\circ}07,06' W$

15h00 - Sailing - $6^{\circ}01,11' S / 041^{\circ}01,36' W$

17h00 - Sailing - $5^{\circ}50,05' S / 041^{\circ}26,30' W$

18h00 - Drifting for the night with the engine off - $05^{\circ}36,00' S / 041^{\circ}59,05' E$

26/02/2022

03H00 - Searching - $05^{\circ}36,00' S$ $041^{\circ}59,05' E$

05H00 - Searching - $05^{\circ}46,10' S$ $042^{\circ}00,07' E$

05H15

- watchman detected a FAD, there's also birds
- sonar indicates a school of tuna of 50 MT
- SW current of 5 knots at 50 meters deep

06H15 - skiff deployed - start fishing - $06^{\circ}06,10' S / 042^{\circ}17,07' E$. Wind 3 knots, sea calm (check Beaufort scale on the manual).

06H35 - pursing starts

Note: Skiff replacing FAD satellite buoy with a buoy from the Intertuna, while the net is hauled

08H30 - brailing begins

09H15 - brailing end

09H30 - Skiff onboard - $06^{\circ}06,20' S$ and $042^{\circ}18,00' E$.



- both the raft and the tail of FAD covered with a large mesh net
- satellite buoy n°33 from FV Albacora IV - equipped with artificial lights
- Estimation of brailed catch (1st officer) = 50 tons
- Estimation of discards from lower deck (Factory Manager) = 3 tons
- Estimation of catch stored in the wells:
 - o YFT = 16 tons
 - o BET = 11 tons
 - o SKJ = 20 tons

11H00 - Searching - 06°02,02'S / 042°10,13'E

12H30 - Skiff is deployed - 06°08,02'S and 042°11,03'E (no wind and the sea look like a mirror)

13H00 - Hauling of the net starts (there's a whale shark on the net)
Net inverted - whale shark free - 15 tons of tuna (sonar) lost.

14H30 - Skiff onboard the vessel - 06°08,08'S / 042°11,02'E.
vessel stops for the night.

15h00 - Drifting with the engine off - 06°08,08'S / 042°11,30'E,

OBSERVER SLATE

Random sample of discards (collected directly from the discard belt, by spilling all discards into bins at different moments of the brailing operation):

| | | |
|---------------------------------------|---------------|---|
| <i>Coryphaena hippurus</i> (DOL) | 12 Kg | 15 Kg of <i>Lobotes surinamensis</i> retained for crew consumption (taken to the kitchen). Factory Manager estimates 3 tons of discards for the set. Retained sorted catch estimation from Factory Manager YFT = 16 tons BET = 11 tons SKJ = 20 tons |
| <i>Auxis thazard</i> (FRI) | 5 Kg | |
| <i>Canthidermis maculatus</i> (TRI) | 35 Kg | |
| <i>Caranidax sexfasciatus</i> (CGX) | 5 Kg | |
| <i>Euthynnus affinis</i> (KAW) | 260 Kg | |
| <i>Auxis rochei</i> (BLT) | 5 Kg | |
| <i>Elagatis bipinnulata</i> (RRU) | 4 Kg | |
| <i>Carcharhinus falciformis</i> (FAL) | 115 Kg | |
| <i>Thunnus albacares</i> (YFT) | 5 Kg | |
| <i>Thunnus obesus</i> (BET) | 4 Kg | |
| <i>Katsuwonus pelamis</i> (SKJ) | 20 Kg | |
| <u>TOTAL</u> | <u>470 Kg</u> | |

Dead individuals set aside on the main deck by the crew, measured for reference length using a metal flexible tape, weight estimated by eye.

| <u>Spp.</u> | <u>Fate</u> | <u>N°</u> | <u>Processing type</u> | <u>Weight (kg)</u> | <u>Length (cm)</u> | <u>Condition at capture</u> | <u>Condition at release</u> |
|-------------|--|-----------|------------------------|--------------------|--------------------|-----------------------------|-----------------------------|
| BLM | Retained crew consumption | 1 | Whole | 100 | 350 | very weak, dying | NA |
| | Dead caught on FAD | 1 | Whole | 10 | 42 | Dead | Dead |
| TUG | Discarded retention ban on the species | 1 | Whole | 40 | 70 | injured, distressed | active, healthy |
| BTH | Retained crew consumption | 1 | Whole | 70 | 200 | very weak, dying | NA |
| FAL | Dead entangled on the net | 3 | Whole | 60 | UNK | very weak, dying | Dead |

* 12 silky sharks and 1 green turtle caught and released alive in good health.; 1 black marlin escaped from the net

Length frequency sampling of discards

- A minimum 1 fish per species per ton of total catch sampled for bycatch species or a maximum of 50 fish per bycatch species sampled
- Discarded target species exhaustively sampled

SKJ (FL in cm): 36/32/29/32/36/32/39/36/32/29/29/31/26/34/27/30/28/33/32/30/27/32/30/27 ((all individuals discarded sampled)

YFT (FL in cm): 30/27/35/37/35/28/30 ((all individuals discarded sampled)

BET (FL in cm): 25/28/30/29/31/26/24 ((all individuals discarded sampled)

C. hippurus (FL in cm): 56/62/59/62/56/62/59/61/66/64/67/70/58/63/62/70/67/65/68/70/59/61/66/64 (all individuals caught sampled)

C. falciformis (PCT in cm): 94/96/98/94/98/97/95/102/98/92/96/102/110/105/109/110/120/92/131/98/94/98/97/95/102/98/92/98/94/98/97/95/102/98/92/96/102/110/105/109/107/120/92/131/98/94/98/97/95/103 (pulled by hand from the discharge conveyor belt).

Canthidermis maculatus (FL in cm): 30/28/32/30/27/35/28/29/31/26/24/27/30/28/23/22/30/37/33/32/30/38/22/35/28/30/36/32/29/32/36/32/39/36/30/28/32/30/27/35/28/29/31/26/24/27/30/28/23/22 (pulled by hand from the discharge conveyor belt).

Caranidax sexfasciatus (FL in cm): 56/62/59/62/56/62/59/61/66/64 (all specimens caught sampled)

Elagatis bipinnulata (FL in cm): 30/28/32/30/27/35/28/29/31/26/24/27/30/28/23 ((all specimens caught sampled).



TAG DETAILS

Tag right flipper: A2045

Tag left flipper: A2046

Check IOTC Turtle ID manual for species confirmation.