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RECORDING AND REPORTING OF CATCH AND EFFORT BY FISHING VESSELS IN THE IOTC AREA OF COMPETENCE

Paper submitted to the Indian Ocean Tuna Commission's

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Contents

1 Introduction

The collection and reporting of catch and effort data from all fishing gears is essential in order to accurately assess the stock status of tuna and tuna-like species and thus to enable species to be managed sustainably by the Indian Ocean Tuna Commission (IOTC) within its Area of Competence. Currently there are minimum data requirements for fishing undertaken with longline (08/04 *Concerning the recording of catch by longline vessels in the IOTC area*), purse seine (10/03 *Concerning the recording of catch by fishing vessels in the IOTC area*) and for coastal fisheries (10/02 *Mandatory statistical requirements for IOTC Members and Co-operating Non-Contracting Parties* (*CPCs*)). However, there are no specific data requirements for gillnet and pole and line fisheries. This results in considerable uncertainty in stock assessments carried out for the Commission.

In this report we illustrate the key data requirements – for the purpose of stock assessment and related analyses – for each of the four main gear types. We also explain how these requirements relate to standardisation of catch-per-unit-effort (CPUE), an essential aspect of stock assessment.

In 2010, the 13th Session of the IOTC Scientific Committee (SC) endorsed the recommendations from the Working Party on Data Collection and Statistics (WPDCS) which had noted the urgent need to improve the logbooks for all gear types and develop and implement minimum data reporting for gillnet and pole and line fisheries in the IOTC area of competence. In 2011, the 15th Session of the Commission adopted Recommendation 11/06 *Concerning the recording of catch and effort by fishing vessels in the IOTC area of competence* (Appendix I) and requested that the Science Committee make further recommendations regarding the minimum data requirements.

There have been ongoing discussions at the IOTC Commission, science committee and subsidiary bodies about the need for improved data collection and reporting by members. We have provided a brief summary of previous discussions and recommendations by the Commission and its subsidiary bodies; however, our coverage of historical discussions is not exhaustive and we expect ongoing discussion and revision of these data requirements to reflect any future changes in fisheries for tunas and tuna-like species in the IOTC area of competence. It is hoped that this approach will be welcomed by IOTC Members and Co-operating Non-Contracting Parties (CPCs) and that Members and CPCs will collaborate with Australia to develop a Resolution that ensures the recording and reporting of the data necessary to enable sustainable management arrangements to be implemented by the Commission.

2 Aims of this paper

Australia, with the support of other interested Members and CPCs, intends to present a proposal at IOTC16 based on Recommendation 11/06 *Concerning the recording of catch and effort by fishing vessels in the IOTC area of competence*, incorporating and reconciling earlier Resolutions on catch recording and reporting, and taking into account the advice of WPDCS8 and SC14. It may be useful for IOTC to have a single resolution outlining minimum data requirements for all gear types, to aid uniform data collection and compliance with data collection and reporting to the IOTC Commission.

Improved data recording and reporting will assist evidence-based decision-making by the Commission, through the reduction of uncertainty in stock assessments for tunas and tuna-like species and associated species in the IOTC Area. Furthermore, the proposal would simplify compliance and monitoring arrangements, while providing mechanisms to ensure the long-term sustainability of fisheries for tunas and tuna-like species and associated species in the Indian Ocean.

Australia recognises that tunas, tuna-like species and associated species are important regional food sources that provide food security and economic development opportunities throughout the countries of the Indian Ocean rim. Australia's proposal therefore seeks to support a sustainable management approach without imposing a disproportionate burden on developing States.

This report aims to provide Members and CPCs with a brief explanation of why the IOTC should specify data requirements across all relevant fisheries and what is the utility of each proposed requirement. Australia is now seeking comments from other Members and CPCs to guide the drafting of a new Resolution, and so welcomes discussion on this issue.

3 Scientific basis for data collection and reporting

In order to ensure that stock assessments can be undertaken and that they produce accurate results from which management advice can be derived, good quality data from all gear types must be collected and reported. In particular, scientists need catch and effort data that can be used to calculate catch-per-unit-effort (CPUE). CPUE is a fundamental component of stock assessments that can provide an index of abundance. CPUE is calculated differently for each gear type (Table 1) due to the nature of the gear. A lack of data with which to calculate robust CPUE series for stock assessments hinders the ability of the IOTC to sustainably manage tuna stocks.

There are many examples of data deficiencies and how this lack of data impacts stock assessments for each of the gear types. For example, the 2011 *Report of the First Working Party on Neritic Tuna* noted that they were unable to perform quantitative stock assessments on all the neritic tuna species they examined due to a lack of good quality data (WPNT 2011; para 94). As a result, all the species they examined were classified as 'uncertain'. The *Report of the First Session of the IOTC Working Party on Neritic Tuna* specifically identified data issues from longline and purse seine fleets (WPNT 2011; Appendix V). Similarly, the 2011 *Report of the Ninth Session of the IOTC Working Party on Billfish* identifies issues with longline and purse seine data relevant to billfish stock assessment (WPB 2011; Appendix V).

Uncertainty in catches from gillnet and pole-and-line fisheries have also been flagged in IOTC Working Parties as an issue to be addressed. For example, the 2011 Working Party on Billfish notes issues with gillnet data (WPB 2011; Appendix V) while the 2011 Working Party on Tropical Tuna identified data deficiencies and issues relating to gillnets and pole-and-line fisheries that affect yellowfin, bigeye and skipjack tuna assessments (WPTT 2011; Appendix V).

Table 1. Factors important for standardisation of catch-per-unit-effort (CPUE) for different fishing gear types.

Gear:	Longline	Purse seine	Pole-and-line	Gillnet
Targeting:	nominal target species, catch composition, hooks-between-floats, time-of-set, latitude, longitude, trace/leader type, hook type, bait type, use of light sticks	nominal target species, catch composition, use of FADs , sonar, radar, time-of-set, latitude, longitude	nominal target species, use of FADs, catch composition, latitude, longitude, time-of-fishing	nominal target species, catch composition, latitude, longitude, depth, time-of-fishing
Fishing power:	vessel identity, vessel length/tonnage, fishing company, skipper, total hooks, GPS, sonar, plotter, bait type, soak time,	FAD type (drifting, anchored, satellite, sonar), numbers, place of deployment, soak time; vessel length/tonnage, fishing company, skipper, cruising speed, winch, GPS, sonar, radar; helicopter, fuel use; mesh size, net size	FAD type, numbers, soak time, vessel length/tonnage, hull type, bait tank type, engine size, vessel speed, radar, sonar, GPS, plotter, search area, number of poles/crew	GPS, plotter, area (length x depth) of net, water depth, soak time, mesh size
Catch:	total catch by length/weight and number of individuals, plus discards (alive/dead)	total catch and discards, including species composition by length/weight	total catch by length/weight and number of individuals	total catch by length/weight and number of individuals, plus discards (alive/dead)

FAD: fish aggregating device; GPS global positioning system

4 Recommendations and Resolutions on catch recording and reporting

Requirements for minimum data reporting for longline and purse seine have been in place in the IOTC since 1998 with Resolution 98/01 *Mandatory statistical requirements for IOTC members*. This resolution detailed the catch and effort statistics required, as well as when the data had to be reported to the IOTC.

This resolution was later superseded by Resolution 01/05 *Mandatory statistical requirements for IOTC members.* This revised resolution also included requirements to report:

- number and characteristics of supply vessels
- levels of activity by supply vessels (number days at sea by 1 degree grid)
- total number and type of FADs operated by the fleet by 5 degree grid area and month basis.

Resolution 08/01 *Mandatory statistical requirements for IOTC members* then superseded Resolution 01/05 and included new catch and effort data reporting requirements that specify:

- Surface fisheries: catch weight by species and fishing effort
- Longline fisheries: catch by species in numbers or weight
- Coastal fisheries (new): available catch by species, fishing gear and effort
- Rewording of size data requirements to indicate that this data "shall be provided" rather than "should be provided".

Resolution 10/02 *Mandatory statistical requirements for IOTC members* is the current resolution on data reporting and includes the following requirements in addition to those in Resolution 08/01:

- New size data requirement, referring to sampling coverage of at least 1 fish measured by tonne caught, by species and type of fishery
- Notes that, alternatively, size data for longline fleets may be provided as part of the regional observer scheme, where such fleets have at least 5% observer coverage.

However, despite this long history of updating Resolutions to include improved and more focussed data reporting requirements for longline and purse seine fisheries, no specific catch and effort data reporting requirements for pole-and-line or gillnet fisheries have yet been specified.

Resolutions for data recording also focus on the requirements for longline and purse seine fisheries. Resolution 07/03 *Concerning the recording of catch by fishing vessels in the IOTC area* was the first resolution that indicated what information should be recorded in logbooks for purse seine vessels and to whom this information would be passed. This resolution also noted that CPCs committed to adopt similar logbook standards for longline vessels. This was superseded by resolution 10/03, which removed the reference to longline vessels. Information for longline vessels and logbooks is now given in Resolution 08/04 *Concerning the recording of catch by longline fishing vessels in the IOTC area.*

Again, no similar Resolutions have been adopted for pole-and-line and gillnet vessels, as no minimum data standards have been agreed for these fisheries.

5 Discussion of data requirements at recent WPDCS and SC meetings

The lack of minimum standards for pole-and-line and gillnet fisheries was recognised at the 2010 WPDCS:

"The WPDCS noted that the Commission has not adopted minimum requirements for the collection of operational data (logbook) from gillnet and pole-and-line fisheries, in particular those fisheries that operate in offshore waters. The WPDCS agreed on the need to implement minimum requirements for gillnet and pole-and-line fisheries as soon as possible, in line with those implemented for industrial purse seine and longline fisheries." (para 45)

Further, the WPDS provided minimum standards for these gear types.

"The WPDCS agreed on the minimum requirements for gillnet (as presented in Appendix VI) and pole-and-line (as presented in Appendix VII) fisheries. The WPDCS also agreed that initially these requirements should apply only to decked vessels 15 meters length overall or greater." (para 46)

Following this agreement by the WPDS, the SC endorsed these requirements for minimum data at its 2010 meeting:

"The SC endorsed the minimum data requirements for gillnet and pole-and-line fisheries. In order to complete this work, the SC recommended that this minimum requirement are translated into proposal of Resolutions for the recording of catch by gillnet and pole-and line fisheries in the IOTC area for presentation at the next meeting of the Commission." (para 141)

In 2011, the IOTC Commission adopted Recommendation 11/06 *Concerning the recording of catch by fishing vessels in the IOTC area of competence*. However, some CPCs indicated that they would not be in a position to implement the proposal.

Recommendation 11/06 includes the provision that "*The Commission will review this recommendation at its 2012 annual meeting, taking into account the recommendations of the Scientific Committee, with the view of adopting a resolution to implement reporting requirements across all gear types."*

6 Summary and conclusions

This report provides a summary of previous discussions and recommendations concerning minimum data recording and reporting requirements for vessels fishing in the IOTC Area of Competence. Although there have been requirements in place for purse seine and longline vessels since 1998, and these requirements have improved over time, no such requirements exist for pole and line and gillnet vessels. As discussed at the 2011 Working Party on Tropical Tuna, such a lack of data hinders stock assessments and limits the evidence base available to the IOTC Commission in order to sustainably manage stocks of tunas and tuna-like species.

This report:

- clarifies why certain information is required for each gear type and how that information contributes to stock assessments (Table 1)
- illustrates the progress in the IOTC on minimum data requirements to date
- explains the need for minimum data requirements for pole-and-line and gillnet fisheries.

As illustrated in Table 1 and in Figures 1 to 4, different gear types require the collection and reporting of different statistics for use in stock assessments. This is simply due to the inherent nature of the fishing gear types themselves. For all gears it is essential to have knowledge about what species are being targeted and then further measures of fishing effort and estimates of total catch; however, the number and nature of the particular data fields required will depend on the type of fishing gear used.

It is our aim that this paper be used as a basis for discussion at the WPDCS to further our progress on minimum data standards, which is a crucial aspect for the assessment and management of fisheries resources. The WPDCS and the SC should consider Recommendation 11/06 and provide further advice to the Commission concerning recommended data recording and reporting requirements, so as to reduce uncertainty in stock assessments and improve the quality of the evidence base available to the Commission.

Figure 1. Illustrated data requirements for longline gear

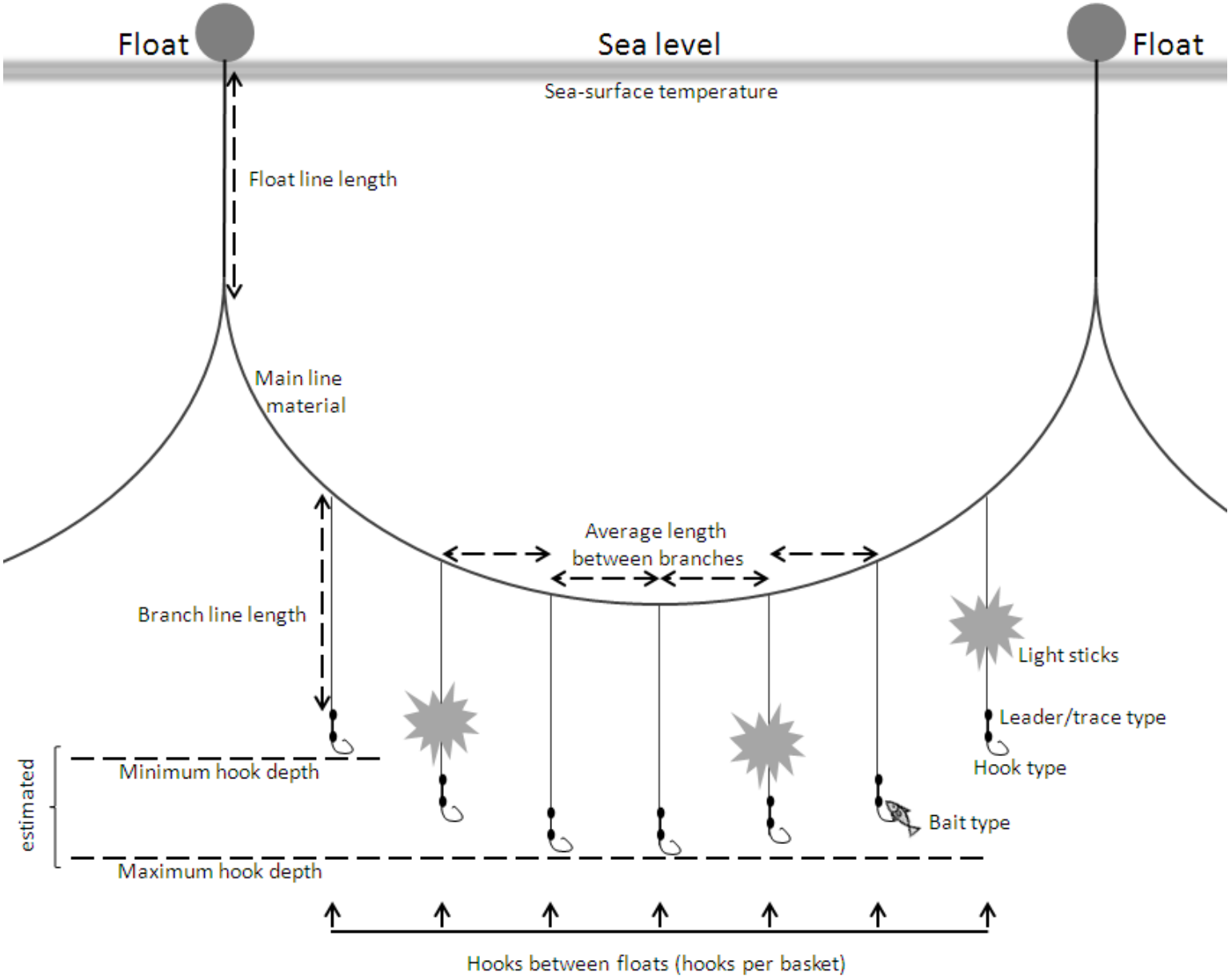


Figure 2. Types of Fish Aggregating Device (FAD) used in purse seine and pole-and-line fisheries

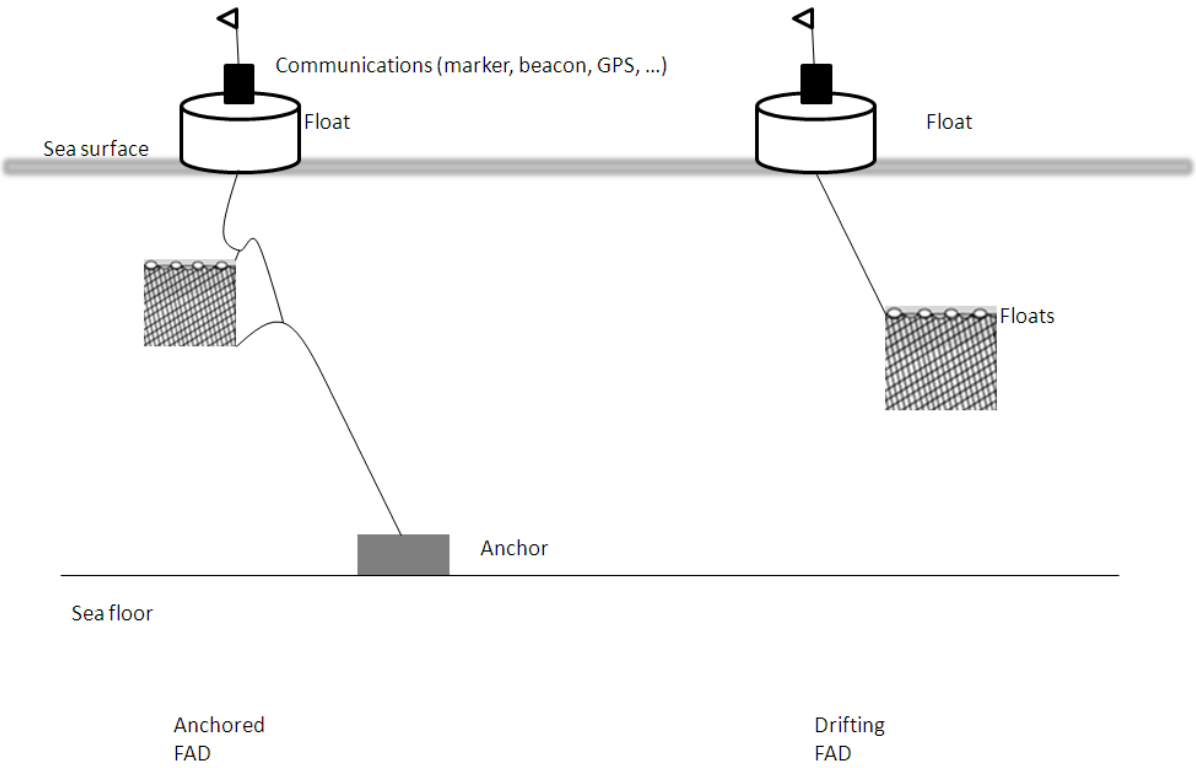


Figure 3. Illustrated data requirements for gillnet gear

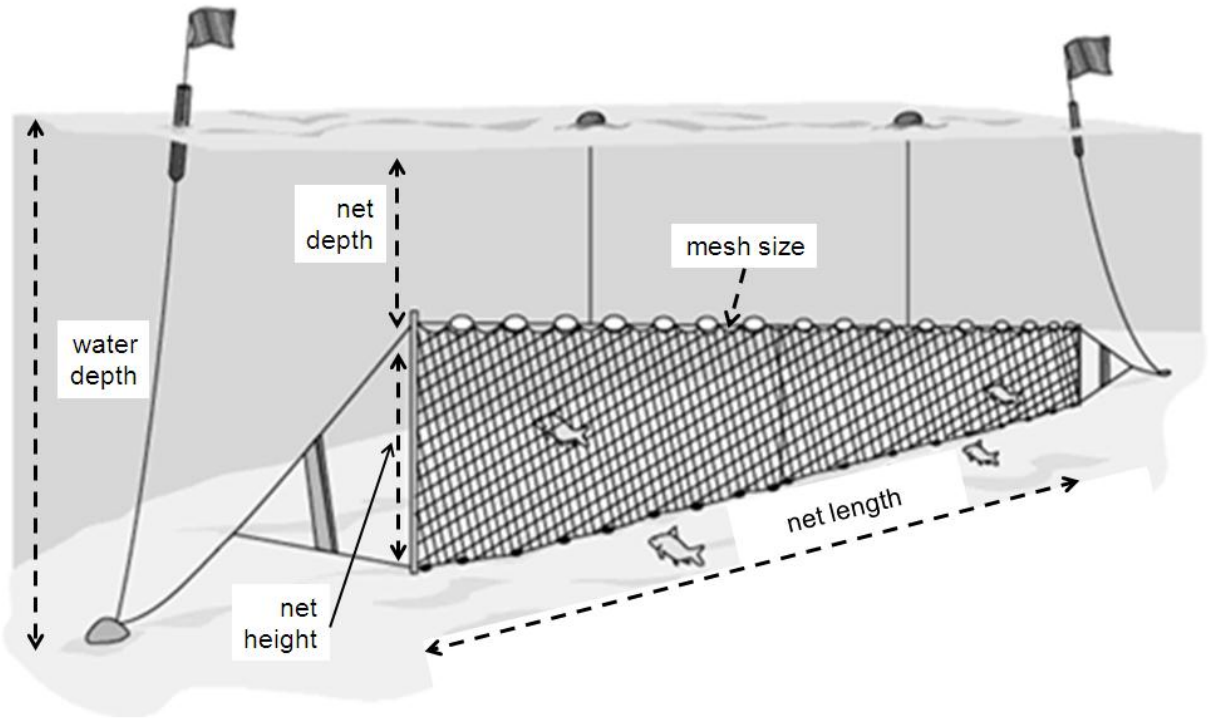
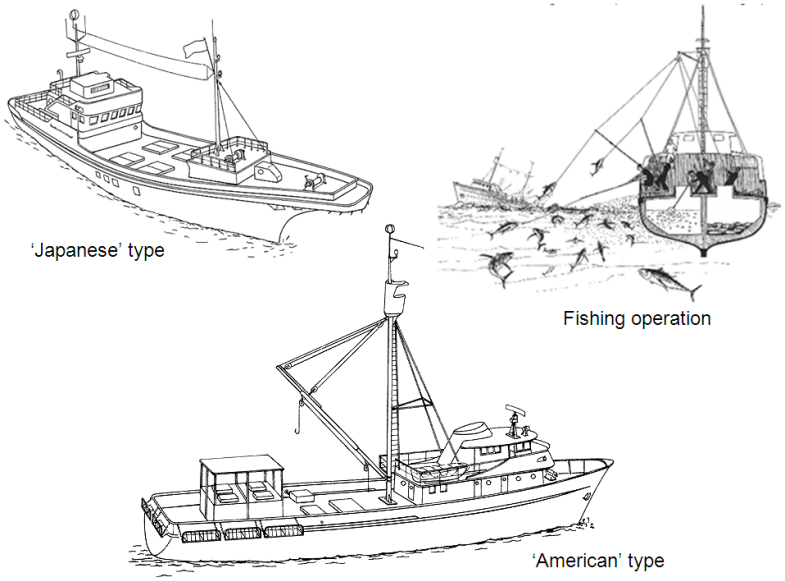
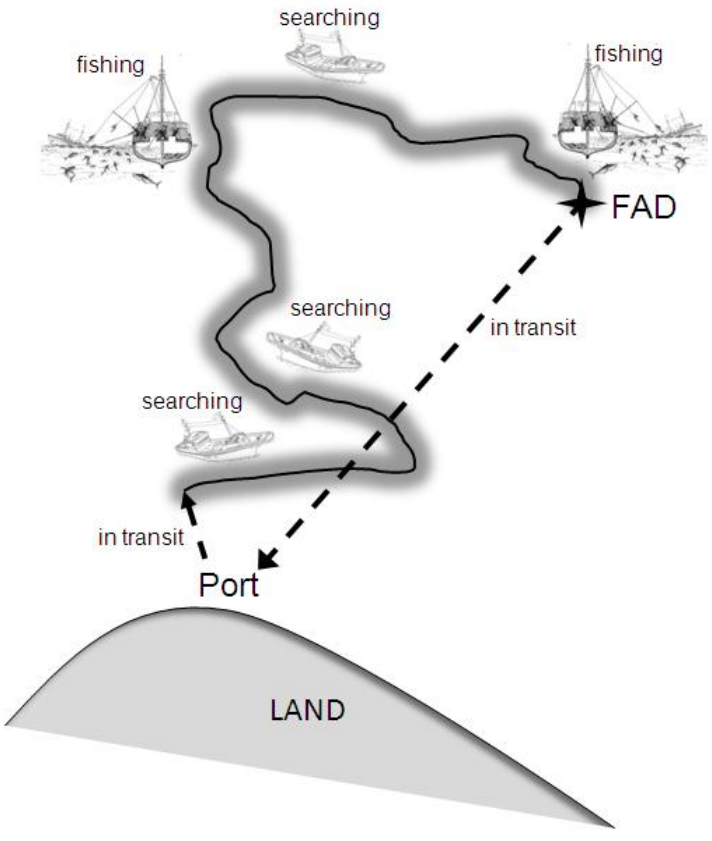


Figure 4. Pole-and-line vessel types and an example fishing trip



In the example below, a pole-and-line vessel steams from port to its intended fishing grounds, so it is in transit; once there the vessel commences actively searching for tuna schools, using sight and radar to detect birds that may indicate the presence of tuna schools, and sonar to directly detect the schools. Search area depends on the cruise speed of the vessel and its detection range; this may be a more important measure of fishing effort than the number of fishers or poles used once fishing. Sometimes a pole-and-line vessel will fish on a FAD rather than a free school of tuna; this is important to know as the FAD itself is a component of fishing effort. As the vessel returns to port it is no longer actively searching, so it is in transit; this is important to know so that this time is not counted in the estimation of fishing effort. Images of pole-and-line vessels from FAO-Fish.Tech.Pap.267, Fig. 20, p.24 (Japanese type) and Fig. 21, p.25 (American type).



Appendix I. RECOMMENDATION 11/06 CONCERNING THE RECORDING OF CATCH AND EFFORT BY FISHING VESSELS IN THE IOTC AREA OF COMPETENCE

The Indian Ocean Tuna Commission (IOTC),

RECALLING the commitment made by members under Article V of the IOTC Agreement to keep under review the conditions and trends of the stocks and to gather, analyse and disseminate scientific information, catch and effort statistics and other data relevant to the conservation and management of the stocks and to fisheries based on the stocks covered by the Agreement;

CONSIDERING the provisions set forth in Resolution 10/02 Mandatory Statistical Requirements for IOTC Members and Co-operating Non-Contracting Parties (CPCs), and in particular paragraph 3, which sets out the catch and effort reporting requirements for surface fisheries, longline and coastal fisheries;

ACKNOWLEDGING that the IOTC Scientific Committee has repeatedly stressed the importance of the timeliness and accuracy of data submissions for members;

ALSO RECALLING the outcomes of the 9th Session of the IOTC Scientific Committee held in Victoria, Seychelles from 6 to 10 November 2006 where it was agreed that a standardised logbook would be advantageous and agreed on the minimum requirements for all purse seine and bait boat fleets operating in the IOTC Area of competence in order to harmonize data gathering and provide a common basis for scientific analysis for all IOTC Contracting Parties and Cooperating non-Contracting Parties (CPCs);

FURTHER RECALLING the recommendations adopted by the KOBE II workshop on Bycatch, held in Brisbane, Australia, 23-25 June 2010; in particular that RFMOs should consider adopting standards for bycatch data collection which, at a minimum, allows the data to contribute to the assessment of bycatch species population status and evaluation of the effectiveness of bycatch measures, and that the data should allow the RFMOs to assess the level of interaction of the fisheries with bycatch species;

ALSO CONSIDERING the deliberations of the 12th Session of the IOTC Scientific Committee held in Victoria, Seychelles from 30 November to 4 December 2009;

FURTHER CONSIDERING the deliberations of the 13th Session of the IOTC Scientific Committee held in Victoria, Seychelles from 6 to 10 December 2010, that recommended one option of mandatory reporting of a revised list of shark species in logbooks to improve the data collection and statistics on sharks in the IOTC Area of competence;

FURTHER CONSIDERING the works of the small task force created by the IOTC Scientific Committee during its 10th Session held in Seychelles in November 2007, to harmonise the various forms currently used by the fleets and the IOTC Scientific Committee agreement on the minimum standard requirements for all purse seine, longline and gillnet fleets as well as the produced logbook template;

RECOMMENDS in accordance with the provisions of the Agreement Establishing the IOTC, that:

1 Each flag CPC should ensure that all purse seine, longline, gillnet and pole and line fishing vessels flying its flag and authorized to fish species managed by IOTC be subject to a data recording system.

2 Within the IOTC Area of competence, all purse seine, longline, gillnet and pole and line fishing vessels over 24 metres length and those under 24 metres if they fish outside the EEZs of their flag States should keep a bound or electronic logbook to provide data for use by Working Parties and the Scientific Committee that includes, as a minimum requirement, the information and data in the logbook set forth in Annex I and II.

3 The logbooks format consists of two parts, Annex I and Annex II, and logbook templates are provided for illustrative purposes only for all gears (Annex III, IV, V and VI):

Annex I includes information on vessel, trip and gear configuration, and need only be completed once for each trip, unless the gear configuration changes during the trip. Annex II contains information of purse seine, longline, gillnet and pole and line operations and catch, which must be completed for each set of the fishing gear.

4 The logbook data should be provided by the fishing masters to the flag State administration, as well as to the coastal State administration where the vessel has fished in that coastal State's EEZ. The flag State and the States which receive this information should provide all the data for any given year to the IOTC Secretariat and the Scientific Committee by June 30th of the following year on an aggregated basis. The confidentiality rules set out in Resolution 98/02 Data Confidentiality Policy and Procedures for fine-scale data shall apply.

5 The Commission will review this recommendation at its 2012 annual meeting, taking into account the recommendations of the Scientific Committee, with the view of adopting a resolution to implement reporting requirements across all gear types. Updated July 2011 Page 239 of 247

ANNEX I Record once per trip (unless gear configuration changes)

1.1 REPORT INFORMATION

1) Date of the submission of logbook

2) Name of reporting person

1.2 VESSEL INFORMATION

1) Vessel name and/or registration number

2) IOTC number, where available

3) Call sign: if call sign is not available, other unique identifying code such as registration or fishing licence number should be used

4) Vessel size: gross tonnage and/or overall length (meters)

1.3 CRUISE INFORMATION For multiday fishing operations record the

1) Departure date and port

2) Arrival date and port

1.4 OTHER REQUIRED INFORMATION

Longline (Gear Configuration):

1) Average branch line length (meters): straight length in meters between snap and hook (Figure 1)

2) Average float line length (meters): straight length in meters from the float to the snap

3) Average length between branch (meters): straight length of main line in meters between successive branch lines

4) Main line material classified into four categories:

a. Thick rope (Cremona rope)

b. Thin rope (PE or other materials)

c. Nylon braided

d. Nylon monofilament

Purse Seine (Search Information):

1) Days searched

2) Spotter plane used (Yes/No)

Gillnet (Gear Configuration):

1) Minimum and maximum fishing depth of assembled net (meters): record the maximum and minimum of the depth range fished

2) Mesh size of net (millimetres): record the size of the mesh size used during the trip

3) Height of assembled net (meters): height on assembled net in meters

4) Netting material: e.g. nylon braid, nylon monofilament, etc

5) Total length of net lost and not recovered (meters): record the total length lost during the trip

Pole and line

1) Activity: reported each day from the start of the trip to the end of the trip. Activities should include “a day fishing or search with bait onboard”, “no fishing – collecting bait”; “no fishing – in transit”; no fishing – gear breakdown”; no fishing – bad weather” and no fishing – in port

ANNEX II Record once per set/shot/operation

2.1 OPERATION

For longline:

1) Date of set (YYYY/MM/DD)

2) Position in latitude and longitude: either at noon (local time) position or position of start of gear, area code of operation (e.g. Seychelles EEZ, High seas, etc) may be optionally used

3) Local Time (24 hr) of starting setting the gear

4) Sea surface temperature at noon with one decimal point, if available (XX.XoC)

5) Number of hooks between floats: if there are different hooks counts between floats in a single set then record the most representative (average) number

6) Total number of hooks used in the set

7) Number of light-sticks used in the set

8) Type of bait used in the set

For purse seine:

1) Date of fishing activity (YYYY/MM/DD)

2) Position in latitude and longitude: for each set or at noon (local time) position

3) Details of the set or deployment of FAD: specify if the set was successful, nil, time, well

4) Type of school: FAD association (specify the type e.g. object, beacon, whale shark, whale, etc) and/or free swimming school

5) Sea surface temperature at noon with one decimal point, if available (XX.XoC)

6) Current speed (knots) and direction (degrees)

For gillnet:

1) Date of set (YYYY/MM/DD): record the date for each set of day at sea (for days without sets)

2) Total length of net (meters): length floatline used for each set in meters

3) Start fishing time: record the UCT time (24 hr) when starting each set

4) Start and end position in latitude and longitude: record start and end latitude and longitude that represent the area that your gear is set between. Record the latitude and longitude at noon for days with no set.

5) Depth at which net is set (meters): approximate depth at which the gillnet is set

6) Start Haul Time: record the UTC time (24 hr) when hauling starts

7) Finish Haul Time: record the UTC time (24 hr) when hauling ends

For pole and line

1) Date of fishing: record the day of fishing. Each fishing day should be recorded separately.

2) Number of fishermen: record the number of fishermen on the boat by fishing day (fishing event)

3) Number of fishing gears used: Record the number of fishing gears used during the day (fishing event)

4) Start fishing time: record the UTC time (24 hr) immediately after bait fishing is complete and the vessel heads to the ocean for fishing. For multiple days, the time at which search starts should be recorded

5) End fishing time: record the UTC time (24 hr) immediately after fishing is complete from the last school. This is the time that the captain decides to head home. On multiple days this is the time fishing stopped from the last school.

6) Position of the catch: record the latitude and longitude at the start of the fishing event, record the latitude and longitude at noon for non-fishing days. Where information is recorded by day, record the average 1o x 1o area(s) where fishing took place.

7) Type of school: FAD associated and/or free school

2.2 CATCH

1) Catch weight (kg) or number by species per set/shot/fishing event for each of the species and form of processing in section 2.3:

a. For longline by number and weight;

b. For purse seine by weight;

c. For gillnet by weight;

d. For pole and line by weight or number

2.3 SPECIES

For longline:

Fish Species	Other Species
Southern Bluefin Tuna (*Thunnus maccoyii*)	Blue Shark (*Prionace glauca*)
Albacore Tuna (*Thunnus alalunga*)	Mako Sharks (*Isurus* spp.)
Bigeye Tuna (*Thunnus obesus*)	Porbeagle Shark (*Lamna nasus*)
Yellowfin Tuna (*Thunnus albacares*)	Oceanic Whitetip Shark (*Carcharhinus longimanus*)
Skipjack Tuna (*Katsuwonus pelamis*)	Hammerhead Sharks (*Sphyrna* spp.)
Swordfish (*Xiphius gladius*)	Other sharks
Striped marlin & blue marlin (*Tetrapturus audax & Makaira indica*) Swordfish (*Xiphius gladius*)	**Optional species to be recorded**
Black Marlin (*Makaira mazara*) Striped marlin & blue marlin (*Tetrapturus audax* & *Makaira indica*)	Thresher Sharks (*Alopias* spp.)
Shortbilled spearfish (*Tetrapturus angustirostris*) Black Marlin (*Makaira mazara*)	Tiger Shark (*Galeocerdo cuvier*)
Indo-Pacific Sailfish (*Istiophorus platypterus*) Shortbilled spearfish (*Tetrapturus angustirostris*)	Crocodile Shark (*Pseudocarcharias kamoharai*)
Other bony fishes Indo-Pacific Sailfish (*Istiophorus platypterus*)	Other Requiem sharks (*Carcharhinus* spp.)
Other bony fishes	Great White shark (*Carcharodon carcharias*)
	Pelagic stingray (*Pteroplatytrygon violacea*)

For purse seine:

Fish Species	Other Species
Albacore Tuna (*Thunnus alalunga*)	Whale Shark (*Rhincodon typus*)
Yellowfin Tuna (*Thunnus albacores*)	Oceanic Whitetip Shark (*Carcharhinus longimanus*)
Skipjack Tuna (*Katsuwonus pelamis*)	Silky Sharks (*Carcharhinus falciformis*)
Bigeye Tuna (*Thunnus obesus*)	Other sharks
Other fishes	

For gillnet:

Fish Species	Other Species
Albacore Tuna (*Thunnus alalunga*)	Blue Shark (*Prionace glauca*)
Bigeye Tuna (*Thunnus obesus*)	Mako Sharks (*Isurus* spp.)
Longtail Tuna (*Thunnus tonggol*)	Porbeagle (*Lamna nasus*)
Yellowfin Tuna (*Thunnus albacores*)	Oceanic Whitetip Shark (*Carcharhinus longimanus*)
Skipjack Tuna (*Katsuwonus pelamis*)	Hammerhead sharks (*Sphyrna* spp.)
Frigate Tuna (*Auxis thazard*)	Other sharks
Kawakawa (*Euthynnus affinis*)	
Narrow banded Spanish Mackerel (*Scomberomorus comerson*)	**Optional species to be recorded**
Indo-Pacific King Mackerel (*Scomberomorus guttatus*)	Thresher Sharks (Alopias spp.)
Marlins (*Tetrapturus* spp.& *Makaira* spp.)	Tiger Shark (Galeocerdo cuvier)
Indo-Pacific Sailfish (*Istiophorus platypterus*)	Crocodile Shark (*Pseudocarcharias kamoharai*)
Shortbilled Spearfish (*Tetrapturus angustirostris*)	Other Requiem Sharks (*Carcharhinus* sp
Swordfish (*Xiphius gladius*)	Great White Shark (*Carcharodon carcharias*)
Other fishes	

For pole and line:

Fish Species
Skipjack Tuna (*Katsuwonus pelamis*)
Yellowfin Tuna (*Thunnus albacores*)
Bigeye Tuna (*Thunnus obesus*)
Albacore Tuna (*Thunnus alalunga*)
Frigate Tuna (*Auxis thazard*)
Kawakawa (*Euthynnus affinis*)
Longtail Tuna (*Thunnus tonggol*)
Narrow Banded Spanish Mackerel
(*Scomberomorus comerson*)
Other fishes

2.4 REMARKS

1) Discard Weight (kg) or number

a. For longline by number and weight

b. For purse seine estimate weight for each species

c. For gillnet by weight

d. For pole and line by weight or number

2) Any interactions with whale sharks (*Rhincodon typus*) and marine mammals are encouraged to be recorded

3) Discard of tuna, tuna-like fish and sharks, turtles and seabirds should be recorded in the remarks

4) Other information is also written in the remarks

5) Recall the Recommendation 10/13 On the Implementation of a Ban on Discards of Skipjack Tuna, Yellow Fin Tuna, Bigeye Tuna and Non Targeted Species Caught by Purse Seiners

Note: The species included in the logbooks are regarded as minimum requirement. Optionally other frequently caught shark and/or fish species should be added as required across different areas and fisheries.