# Outputs from the expert review workshop on standards for the IOTC Regional Observer Scheme – data collection fields

This document follows the report of the expert review workshop on standards for the IOTC Regional Observer Scheme which outlines the proposed changes to the programme standards and data reporting requirements (paper IOTC-2018-WPDCS14-35 Rev_1). This document outlines the proposed changes to the data collection fields (Appendix I) as well as those fields which may be useful for specific research purposes but not as a routine requirement, currently designated as 'recommended' data fields. To avoid confusion with official Commission terminology, 'recommended' has been substituted with 'suggested' in this document (Appendix II).

# Appendix I

## DATA COLLECTION FIELDS

## DATA FIELDS PROPOSED FOR ADDING

### *LONGLINE INFORMATION*

#### Fishing event[1]

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***90*** | *None* | *None* | *New sub-field to be added under Catch details section:* "Hauling methods: For incidentally taken /affected bycatch, record how the specimen was brought on-board using codes provided (Table #).<br><br>*Information required for estimating mortality of incidentally taken / affected bycatch as requested by IOTC CMMs.*<br><br>*CPCs shall collect (including through logbooks and observer programs) and provide to the IOTC Secretariat all data on their vessels" interactions with incidentally taken /affected bycatch", therefore data field reporting requirement should be of mandatory collection.* |
| ***91*** | *None* | *None* | *Information was requested under "Release details" data field as a sub-field. Taking into account that this is only applicable for turtles it is proposed to collect this information via an independent data field as follows.*<br><br>"Resuscitation (for turtles only): For incidentally taken /affected turtles record if the release took place with resuscitation (Y/N)." |

[1] Information required for every set/operation. This information is presently grouped under IOTC Form 4-LL.

## *GILLNET INFORMATION*

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***62*** | *None* | *None* | *New sub-field to be added under Catch details section:* "Hauling methods (for incidentally taken /affected bycatch): Record how the specimen was brought on-board using codes provided (Table #).<br><br>*Information required for estimating mortality of incidentally taken / affected bycatch as requested by IOTC CMMs.*<br><br>*CPCs shall collect (including through logbooks and observer programs) and provide to the IOTC Secretariat all data on their vessels" interactions with incidentally taken /affected bycatch", therefore data field reporting requirement should be of mandatory collection.* |
| ***63*** | *None* | *None* | *Information was requested under "Release details" data field as a sub-field. Taking into account that this is only applicable for turtles it is proposed to collect this information via an independent data field as follows.*<br><br>"Resuscitation (for turtles only): For incidentally taken /affected turtles record if the release took place with resuscitation (Y/N)." |

## *PURSE-SEINE INFORMATION*

### Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***6*** | *None* | *None* | *Insert new DF as follows:*<br><br>"Skiff power: Record the skiff engine power and precise units (e.g. in HP, KW)." |

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***6*** | *None* | *None* | *Insert new DF as follows:*<br>"School size: record estimation of the size of the tuna school being targeted expressed in tonnes. This information can be requested from the bridge officers". |
| ***17*** | *None* | *None* | *Insert new DF as follows:*<br>"Maximum closing net depth (m): Record the real, measured, closed net depth (m). Record only if depth gauge is used. Use information from middle gauge if more than one gauge is present." |
| ***18*** | *None* | *None* | *Insert new DF as follows:*<br>*"*Support vessel[2] presence*:* Record if a support vessel is present during the observed set".<br>*Important to assess support vessel's participation (active or inactive) to purse-seiner fishing operations.* |
| ***19*** | *None* | *None* | *Insert new DF as follows:*<br>*"*Support vessel name*:* Record the name of the support vessel present during the observed set".<br>*Important to assess support vessel's participation (active or inactive) to purse-seiner fishing operations.* |
| ***20*** | *None* | *None* | *Insert new DF as follows:*<br>"Support vessel participation: Record if the Supply Vessel takes part to the set operation (YES/NO). If YES, describe it (e.g. acting as floating objet, etc.)."<br>*Important to assess support vessel's participation (active or inactive) to purse-seiner fishing operations.* |

[2] As defined onIOTC-2018-WPICMM01-04_Rev2_-_Glossary_of_terms_and_definitions (1): Includes any vessel used equipped to be used, or intended to be used for fishing related activities involving transporting goods, personnel, equipment or other supplies in support of fishing vessels for supporting fishing vessels in the purse seine fishery using drifting FADs, including deploying, monitoring, modifying and retrieving drifting FADs and motherships.

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|---|---|---|---|
| ***21*** | *None* | *None* | *Insert new DF as follows:*<br><br>"Cetacean/whale shark sighting: If cetaceans or whale sharks are sighted during the set record: (1) species code (Tables #); (2) number of individuals sighted per species; (3) if sighting occurred before setting (Y/N); (4) if caught inside the net (Y/N); (5) if landed (Y/N)."<br><br>*Allows for the crosschecking of information on school association as observers tend to forget to change schools association type from non-associated to associate when a Cetacean/whale shark is sighted after the net is set.*<br><br>*Consistent with IOTC Res 13/04; Res 13/05* |
| ***49*** | *None* | *None* | *Insert new DF as follows:*<br><br>*For discarded / released turtles record if the release took place with resuscitation (Y/N).*<br><br>*Information was requested under "Release details" DF but its only applicable for turtles* |

## POLE AND LINE INFORMATION

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***54*** | *None* | *None* | *New sub-field to be added under Catch details section:* "Hauling methods (for SSI[3]): Record how the specimen was brought on-board using codes provided (Table #). This information is only to be collected for species of special interest as defined in IOTC-2018-SC21-R or any subsequent report from the Scientific Committee."<br><br>*Information required for estimating mortality of incidentally taken / affected bycatch as requested by IOTC CMMs.*<br><br>*CPCs shall collect (including through logbooks and observer programs) and provide to the IOTC Secretariat all data on their vessels" interactions with incidentally taken /affected bycatch", therefore data field reporting requirement should be of mandatory collection.* |
| ***57*** | *None* | *None* | *Information was requested under "Release details" data field as a sub-field. Taking into account that this is only applicable for turtles it is proposed to collect this information via an independent data field as follows.*<br><br>"Resuscitation (for turtles only): For incidentally taken /affected turtles record if the release took place with resuscitation (Y/N)."<br><br>*Note: No turtles are directly caught in pole and line tuna fishery however these can be caught during live bait fishing or entangled in anchored FADs.* |

[3] A list of Species of Special Interest (SSI) is to be defined by IOTC Scientific Committee (SC). This should include all Protected Endangered and Threatened species (PETs), billfish (all/specific), shark species (all/specific) and any other species deemed of special interest by the SC for the collection of detailed information under IOTC ROS.

## *SURFACE FISHERIES AND DAILY ACTIVITIES INFORMATION*[4]

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***7*** | *None* | *None* | *Need to clarify and to clearly connect the cue that indicates the possible presence of a tuna school and the type of school detected (i.e. if free or associated to a FAD). This will allows for comparing data collected and reported under different tRFMOs as free and associated tuna school systems varies between them.*<br><br>*Insert new data field as follows:*<br><br>"School type: describe the type of school detected (i.e. free, associated or undetermined) using codes provided in the two end Table #. |
| ***10*** | *None* | *None* | *Insert new data field as follows:*<br><br>*"BUOY ID:* For every activity involving an artificial or natural FAD equipped with a buoy record BUOY ID (e.g.: visit, deployment, reparation, repair, fishing, etc.)." |
| ***11*** | *None* | *None* | *Insert new data field as follows:*<br><br>"Buoys equipped with artificial lights: Record if type of devices equipped with artificial light deployed and/or recovered".<br><br>*Conforms to IOTC Res 16/07* |
| ***12*** | *None* | *None* | *Insert new data field as follows:*<br><br>"Artificial FAD design: Characterize artificial FAD design using codes provided to describe raft (floating part) and tail (underwater hanging structure) materials Table #).<br><br>*Add new tables listing artificial FAD design materials data options for the observer to choose upon.* |

[4] Information designed to capture surface fisheries (purse seine and pole & line vessels) daily activities. This information is presently compiled under IOTC Form 3-GEN.

# DATA FIELDS PROPOSED FOR REMOVAL

## *GENERAL VESSEL AND TRIP INFORMATION FOR ALL VESSEL TYPES*

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***22*** | *Contact person(s)* | *Record full name, contact telephone and fax numbers and email of the contact person from the observer's controlling organisation.* | *Redundant. CPC already has access to this information by other means.* |
| ***52b*** | *Position fixing equipment* | *Record model and make and if the vessel has one or more GPS units in operation. Note a GPS may be an independent unit or linked or incorporated into track plotters and acoustic systems.* | *Not feasible. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| ***54b*** | *Radars* | *Record power and frequency range of the radar systems in place. Vessels targeting surface fish often have high frequency radars to search for seabird activity or activity on the sea surface. These are usually not used for normal navigation purposes. Note the make and model.* | *Change data field description as follows:*<br>*Not relevant. Not feasible. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| ***55b*** | *Track plotters* | *Record make and model. Note if linked to an external GPS or have GPS built in* | *Not relevant. Not feasible. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| ***56b*** | *Acoustic equipment*<br>*Depth sounder* | *Record the make and the model of the acoustic depth sounder.* | *Not relevant. Not feasible. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |

| | | | |
|---|---|---|---|
| ***59*** | *Radios* | *Record the number of VHF, HF radios onboard, make and model and the power and frequency range. A vessel will often have several radios. VHF is used for short-range communications between vessels at sea or port communications. VHF also includes "Digital Selective Calling" (DSC) to alert other boats, ships, and shore stations with a single button press in an emergency situation. High Frequency (HF) radio frequencies range between 3 and 30 MHz and are used for long distance communication. These systems include radiotelephone and radiotelex (narrow-band direct printing) equipment, with calls initiated by digital selective calling (DSC). Worldwide broadcasts of maritime safety information are also made on HF narrow-band direct printing channels. Radios are also an integral part of the safety equipment onboard and are also specified if the vessel conforms to the GMDSS requirements. However, vessels under 300 gross tonnage (GT) are not subject to GMDSS requirements.* | *Not relevant. Not feasible. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| ***64*** | *Species/weight transhipped at sea* | *Record the species, weight and product code of all fish products observed being transhipped to either a carrier vessel or another fishing vessel during the trip. Record if all or part of the catch or processed catch is transhipped at sea to another vessel. Where possible check if a transhipment declaration has been completed by the vessel and obtain a copy.* | *Duplication. Requested under Transhipments Log.* |
| ***65*** | *Carrier / Fishing Vessel details* | *Record the name and registration number of the vessels to which fish are transhipped or from which fish are received. Where possible record the vessels IOTC registration number. This can be requested from the Fishing Master and should also be recorded on the declaration form if it is filled in. Also note the call sign displayed.* | *Duplication. Requested under Transhipments Log.* |

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|---|---|---|---|
| **66** | *Total processed weight of fish onboard at disembarkation* | *Record the total weight of product that is onboard the vessel at the time of observer disembarkation. Note this can be calculated from the sum of the product produced during the observed trip, less any product transhipped off the vessel or include any product received from another vessel. If any product was onboard prior to the time the observer embarked this should also be noted.* | *No scientific value. No administrative value. Control information.* |
| **67** | *Species/Processing code* | *Record a breakdown of the product onboard by species and product code using the IOTC/FAO codes (**Error! Reference source not found.**). Where a specific code is not available or only an aggregation of species is available record as much detail as possible and include this description in the 'comments' section.* | *No scientific value. No administrative value. Control information.* |

## *LONGLINE INFORMATION*

### Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| **5b** | *Line setter* | *Note the make and model. Record the range of setting speeds (m/s). Note if the line setter is operational, or not used for any reason. When the equipment is only used for part of the trip, provide reasons.* | *Not relevant for scientific purposes. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel. Range of setting speeds (m/s) to be collected at event level as setting speed can vary between sets.* |
| **6(b)** | *Line hauler* | *Record the make and model of the equipment used to haul in the mainline. Also describe the means of transfer and packing of the line into the line storage bin.* | *Not relevant for scientific purposes. If interested in collecting such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| **10(b)** | *Bait casting machine* | *Record the make and model. Note if it is operational and how often it is used (always, often, rarely, never).* | *Not relevant for scientific purposes. If interested in collecting such information CPCs should develop a gear catalogue to be updated by trained personnel.* |

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***24*** | *Mainline weights attached* | *Record if any weights were attached to the mainline. These may be clipped on at intervals.* | *Not relevant for scientific purposes. The attaching of weights to the mainline it's an uncommon practice and is unlikely to ever be included in analyses.* |
| ***25*** | *Mainline weighting* | *Record the total weight in kilograms of weights attached to the mainline.* | *Not relevant for scientific purposes. The attaching of weights to the mainline it's an uncommon practice and is unlikely to ever be included in analyses.* |
| ***54*** | *Weather observations*<br>*Date* | *Record the date of the observation (DD:MM:YYYY).* | *No evidence of data usage, data deemed surplus.* |
| ***55*** | *Weather observations*<br>*Time* | *Record the time of the observation (hh:mm)* | *No evidence of data usage, data deemed surplus.* |
| ***56*** | *Weather observations*<br>*Wind force* | *Record the force of the wind according to the Beaufort scale.* | *No evidence of data usage, data deemed surplus.* |
| ***57*** | *Weather observations*<br>*Wind direction* | *Record the direction from which the wind is blowing. Cardinal points (E, W, SW ….) or degrees are also used to record the wind direction.* | *No evidence of data usage, data deemed surplus.* |
| ***58*** | *Weather observations*<br>*Sea height* | *Sea height is expressed in meters and is the height from the trough to the crest of the wave. This height has to be estimated by the Observer. One method is to look at an object on the sea surface (for example a bird or white patch from a recently broken wave) and watch it move as a number of waves pass and attempt to estimate the height of its vertical movement. As the heights vary from wave to wave an average is estimated. With time and experience you will become more accurate with your estimations. The wave height and sea condition also forms a cross-reference to estimating wind strength.* | *No evidence of data usage, data deemed surplus.* |
| ***59*** | *Weather observations*<br>*Sea direction* | *The sea direction is expressed as the direction from which the sea is coming. Cardinal points (E, W, SW ….) or degrees are also used to record the direction of the sea. Sea waves are generated locally by the prevailing wind and move in the same direction as the surface wind.* | *No evidence of data usage, data deemed surplus.* |

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|---|---|---|---|
| ***60*** | *Weather observations*<br>*Swell height* | *Swell direction and height is estimated in the same way as determining sea height and direction. However a swell will never break or have a "white cap" and has no relation to the prevailing wind.* | *No evidence of data usage, data deemed surplus.* |
| ***61*** | *Weather observations*<br>*Swell direction* | *The sea direction is expressed as the direction from which the sea is coming. Cardinal points (E, W, SW ….) or degrees are also used to record the direction of the sea. Sea waves are generated locally by the prevailing wind and move in the same direction as the surface wind.* | *No evidence of data usage, data deemed surplus.* |
| ***80*** | *Predator ID reliability* | *Note the likely accuracy and reliability of the species identified as associated with depredation (good/fair/poor).* | *Redundant. The use of predator species or group codes in previous fields will indicate predator ID reliability.* |

## *GILLNET INFORMATION*

### Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***2b*** | *Net drum/hauler* | *Document the make and model of the net hauler* | *Not relevant. Collection of make and model of the net hauler/drum are considered as not relevant for scientific purposes. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |

## Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***29*** | *Weather observations*<br>*Date* | *Record the date of the observation (DD:MM:YYYY).* | *No evidence of data usage, data deemed surplus.* |
| ***30*** | *Weather observations*<br>*Time* | *Record the time of the observation (hh:mm)* | *No evidence of data usage, data deemed surplus.* |
| ***31*** | *Weather observations*<br>*Wind force* | *Record the force of the wind according to the Beaufort scale (**Error! Reference source not found.**)* | *No evidence of data usage, data deemed surplus.* |
| ***32*** | *Weather observations*<br>*Wind direction* | *Record the direction from which the wind is blowing using cardinal points (E, W, SW ….).*<br>*To avoid unnecessary complexity in the e-Reporting interface, it was decided to stick to one format only: cardinal points.* | *No evidence of data usage, data deemed surplus.* |
| ***33*** | *Weather observations*<br>*Sea height* | *Estimate and record sea height in meters from the trough to the crest of the wave.* | *Redundant. Information collected under Beaufort.* |
| ***34*** | *Weather observations*<br>*Sea direction* | *Record sea direction using cardinal points (E, W, SW...).* | *No evidence of data usage, data deemed surplus.* |
| ***35*** | *Weather observations*<br>*Swell height* | *Record swell height, in meters, from the trough to the crest of the wave.* | *No evidence of data usage, data deemed surplus.* |
| ***36*** | *Weather observations*<br>*Swell direction* | *Record swell direction expressed in cardinal points (E, W, SW...).* | *No evidence of data usage, data deemed surplus.* |

## PURSE-SEINE INFORMATION

### Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| **4b** | *Supply vessel(s) name(s)* | *Data field present in IOTC form 2-PS but not in DF description (IOTC-ROS Manual v1.2).* | *Redundant. Supply vessel information can be found in the Purse-seiners IOTC licence.* |
| **9b** | *Power block* | *Record the make and model.* | *Not relevant. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| **10b** | *Purse winch* | *Note make and model and if possible the wire specifications and retrieve speed. The vessel engineer should be able to assist with this information.* | *Not relevant. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| **11** | *Number of buoys onboard at embarkation* | *Record the total number of satellite and or radio buoys onboard at the time the observer boards the vessel.* | *Not feasible to collect this information in a precise way.* |
| **12** | *Number of buoys at sea at embarkation* | *Record the total number of satellite and or radio buoys that are reportedly deployed at sea at the time the observer boards the vessel (this information shall be requested from the Fishing Master).* | *Redundant. Information is directly collected by CPCs with instrumented buoys operators and reported to IOTC on a regular basis.* |

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***5*** | *Target Species* | *Record the species in the school being targeted.* | *Information is often filled in wrong. Observers use a mix of crew opinion and logbook information after the fishing operation. Furthermore this information can be collected in an independent way under the "Catch details" section.* |
| ***7*** | *Time School detection* | *Record the time the school of fish was first detected.* | *Duplication. Already collected under Surface fisheries daily activity log.* |
| ***8*** | *School detection method* | *Record the detection code that best describes how the school was found. If more than one detection method was used or responsible for locating the fish use the code that first prompted the vessel to change course to investigate the school.* | *Duplication. Already collected under Surface fisheries daily activity log.* |
| ***9*** | *School Association* | *Record code that best describes the association of the school targeted with any object or marine mammals or birds or if he school was detected as a free school un-associated.* | *Duplication. Already collected under Surface fisheries daily activity log.* |
| ***10*** | *FAD buoy number / ID* | *Where the school is associated with a FAD, record the FAD radio buoy number.* | *Duplication. Already collected under Surface fisheries daily activity log.* |
| ***11*** | *Time start pursing* | *Record the time the purse winches start to purse the net.* | *Not relevant for scientific purposes.* |
| ***15*** | *Average weight of brail* | *Record the average estimated weight of a brail. Note some vessels may have more than one brailing net and the average for each may differ. Clearly record this if both are used.* | *Duplication. Information already collected under Gear specification.* |
| ***24*** | *Date* | *Record the date of the observation (DD:MM:YYYY).* | *Redundant. Same as set date.* |
| ***25*** | *Time* | *Record the time of the observation (hh:mm)* | *Redundant. Same or near of set start date.* |
| ***27*** | *Wind direction* | *Record the direction from which the wind is blowing. Cardinal points (E, W, SW ….) or degrees are also used to record the wind direction.* | *Not relevant scientific purposes.* |

| | | | |
|---|---|---|---|
| ***28*** | *Sea height* | *Sea height is expressed in meters and is the height from the trough to the crest of the wave. This height has to be estimated by the Observer. One method is to look at an object on the sea surface (for example a bird or white patch from a recently broken wave) and watch it move as a number of waves pass and attempt to estimate the height of its vertical movement. As the heights vary from wave to wave an average is estimated. With time and experience you will become more accurate with your estimations. The wave height and sea condition also forms a cross-reference to estimating wind strength.* | *Not relevant scientific purposes.* |
| ***29*** | *Sea direction* | *The sea direction is expressed as the direction from which the sea is coming. Cardinal points (E, W, SW ….) or degrees are also used to record the direction of the sea. Sea waves are generated locally by the prevailing wind and move in the same direction as the surface wind.* | *Not relevant scientific purposes.* |
| ***30*** | *Swell height* | *Swell direction and height is estimated in the same way as determining sea height and direction. However a swell will never break or have a "white cap" and has no relation to the prevailing wind.* | *Not relevant scientific purposes.* |
| ***31*** | *Swell direction* | *Swell waves have been generated elsewhere and have travelled out of the area where they were generated and have no relation to the prevailing wind direction. In many cases the swell direction will be different from that of the prevailing sea. If two wave forms are observed and their movement is in the direction of the surface wind, the system, which has the longer distance between crests and a more regular form, is considered to be the swell.* | *Not relevant scientific purposes.* |
| ***44*** | *Well* | *Record which well in which this part of the catch was deposited.* | *Not relevant scientific purposes.* |

## *POLE AND LINE INFORMATION*

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***5*** | *Time School detection* | *Record the time the school of fish was first detected.* | *Duplication. Data already collected under Surface fisheries and daily activity information log.* |
| ***6*** | *School Detection* | *Record the detection code that best describes how the school was found. If more than one detection method was used or responsible for locating the fish use the code that first prompted the vessel to change course to investigate the school.* | *Duplication. Data already collected under Surface fisheries and daily activity information log.* |
| ***7*** | *Association type* | *Record code that best describes the association of the school targeted with any object or marine mammals or birds or if the school was detected as a free school un-associated.* | *Duplication. Data already collected under Surface fisheries and daily activity information log.* |
| ***19*** | *Type of synthetic lure* | *If synthetic lures were used during the operation record the type* | *Not relevant. Information already collected under "Type of lures used".* |
| ***23*** | *Weather observations*<br>*Date* | *Record the date of the observation (DD:MM:YYYY).* | *Redundant. Weather observation date is the same as fishing event date.* |
| ***24*** | *Weather observations*<br>*Time* | *Record the time of the observation (hh:mm)* | *Redundant. Weather observation time is the same as fishing event time.* |
| ***26*** | *Weather observations*<br>*Wind direction* | *Record the direction from which the wind is blowing using cardinal points (E, W, SW ….).*<br>*To avoid unnecessary complexity in the e-Reporting interface, it was decided to stick to one format only: cardinal points.* | *No evidence of data usage, data deemed surplus.* |
| ***27*** | *Weather observations*<br>*Sea height* | *Estimate and record sea height in meters from the trough to the crest of the wave.* | *Redundant. Information collected under Beaufort.* |
| ***28*** | *Weather observations*<br>*Sea direction* | *Record sea direction using cardinal points (E, W, SW...).* | *No evidence of data usage, data deemed surplus.* |
| ***29*** | *Weather observations*<br>*Swell height* | *Record swell height, in meters, from the trough to the crest of the wave.* | *No evidence of data usage, data deemed surplus.* |

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| ***30*** | *Weather observations*<br>*Swell direction* | *Record swell direction expressed in cardinal points (E, W, SW...).* | *No evidence of data usage, data deemed surplus.* |
| ***42*** | *Weight code 2 (post processing)* | *Record the product code for each species according to the IOTC processing codes (Table 32).* | *Redundant. Fish caught by PL vessels is kept whole.* |

## *SURFACE FISHERIES AND DAILY ACTIVITIES INFORMATION*

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***13*** | *Object and school sightings* | *Keep note of the number floating or anchored objects and free schools (including those that were detected and not fished) observed throughout the day. Try to note if the objects have fish with them or not. This can be an approximate but realistic count kept through tally strokes.* | *Approved for removal.*<br>*Redundant. Proposed changes to data collection field tables "Association" and "Detection" will allow accounting for floating or anchored objects and free schools visited/observed throughout the day, including those that were detected and not fished.* |

## *VESSEL SIGHTINGS INFORMATION*

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***1*** | *Date* | *Record the date of the sighting* | *Scientific observers shouldn't be requested to collect vessel sightings information as this is a compliance-issue. The relevancy of the whole form is questionable as well as the feasibility and practicability of collecting the required information.*<br><br>*If the WPDCS decides to maintain the collection of such fields than experts participating to the IOTC standards workshop will advise to approve consultant proposed changes and to define if this information is to be collected on an opportunistic basis or if the observer should be provided with instructions on when to start/stop to monitor sighted vessels.* |
| ***2*** | *Time* | *Record the time when first sighting or detecting the vessel.* | |
| ***3*** | *Number of vessels* | *If there was more than one vessel sighted, record the total number of vessels.* | |
| ***4*** | *Position* | *Record your position in latitude and longitude. Where possible also record the actual position of the vessel sighted. This is possible to determine on some radar and integrated track plotters. Be clear on the form which position is being recorded.* | |
| ***5*** | *Relative position (direction/distance)* | *Record the distance (range) and compass bearing of the vessel from your position.* | |
| ***7*** | *Vessel details* | *Record the name, flag and call sign of the vessel. Note how the information was obtained: if the call sign and name were visible on the vessel and recorded from these observations and or if communications were established with the vessel and the details were obtained directly from the vessel personnel. Record the activity of the vessel when it was sighted, fishing, steaming, drifting etc. or if this cannot be determined. Provide a short description of the vessel and note any outstanding descriptive features that are visible, radar towers, antenna and vessel colour(s).* | |
| ***8*** | *Photo taken* | *Record if photographs were taken (Y/N). If possible take photographs of the vessels sighted and attempt to capture details of the bridge and antenna array, hull showing any dents or structural features and of fishing gear or equipment visible.* | |

# PROPOSED CHANGES TO EXISTING DATA FIELDS

## *GENERAL VESSEL AND TRIP INFORMATION FOR ALL VESSEL TYPES*

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***26*** | *Total days spent in fishing area* | *Record the number of days the vessel is in the fishing area while the observer was onboard. Note this does not include transit time even if the area being transited is within the fishing area.* | *Change DF name to: "Number of days spent in the fishing area".*<br><br>*Difficulties in understanding the meaning of "Fishing area" applied to the pelagic fisheries covered by the IOTC-ROS.*<br><br>*Note for the WPDCS:*<br>• Clarify the meaning of "Fishing area", in such a way that can be applied to pelagic fisheries covered by the IOTC-ROS.<br>• Change data-field description accordingly. |
| ***27*** | *Total days transiting to fishing areas* | *Record the number of days the vessel spent steaming or transiting to fishing areas while the observer was onboard.* | *Change data-field name to: "Number of days transiting".*<br><br>*Difficulties in understanding the meaning of "Fishing area". Differences of opinion on the need to also account for days transiting between fishing areas and from fishing areas to port.*<br><br>*Note for the WPDCS:*<br>• Clarify the meaning of "Fishing area", in such a way that can be applied to pelagic fisheries covered by the IOTC-ROS.<br>• Advise if also need to account for days transiting between fishing areas and from fishing areas to port.<br>• Change data-field description accordingly. |
| ***47*** | *Hull material* | *Record the hull material; steel, wood or glass-reinforced plastic (GRP) also known as fibre glass.* | *Change data field description as follows:*<br><br>"Record vessel hull material (Table #)."<br><br>*Insert HULL MATERIAL table.* |
| ***53b*** | *Vessel Monitoring Systems (VMS)* | *If present, describe if it has security seals in place and whether it is operational. Note the make and model.* | *Change data field description as follows:*<br><br>"If present, describe if it has security seals in place and whether it is operational."<br><br>*VMS make and model information considered not relevant. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |

| | | | |
|---|---|---|---|
| ***56c*** | *Acoustic equipment*<br>*Sonar* | *Record if the vessel has an acoustic sonar on-board and note its make, model, power and frequency range.* | *Change data field description as follows:*<br>"Record presence/absence (Y/N) of acoustic sonar(s)."<br>*Sonar make, model, power and frequency range considered not relevant and not feasible for collection by observers. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| ***56d*** | *Acoustic equipment*<br>*Doppler current meter* | *Record if the vessel has an acoustic doppler current meter, the make and model. This is important to ascertain the current speed* | *Change data field description as follows:*<br>"Record if the vessel has an acoustic doppler current meter."<br>*Acoustic doppler current meter make and model considered not relevant and not feasible for collection by observers. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| ***57*** | *Expendable bathythermographs (XBT)* | *Record if the vessel has onboard and deploys expendable bathythermographs XTBs. These are usually mounted on the bridge wings and are used periodically to determine the depth of the thermocline. Note the make and model.* | *Change data field description as follows:*<br>"*Record if the vessel has onboard and deploys expendable bathythermographs XTBs. These are usually mounted on the bridge wings and are used periodically to determine the depth of the thermocline.* "<br>*Expendable bathythermographs (XBT) make and model considered not relevant and not feasible for collection by observers. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| ***61*** | *Sea Surface Temperature (SST)* | *Record if the vessel has a SST gauge on the bridge and or if the vessel has access to SST charts (most likely to be associated to Fisheries Information Services systems. Note the make and model.* | *Change data field description as follows:*<br>"Record if the vessel has a SST gauge on the bridge (Y/N)."<br>*Information on make, model not relevant. Not feasible for observer to collect this information. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |

| | | | |
|---|---|---|---|
| ***62*** | *Weather facsimile* | *Record if the vessel has a weather facsimile. Weather information may also be received from Fisheries Information Services systems. Note the make and model.* | *Change data field description as follows:*<br>"Record if the vessel has a Weather facsimile on the bridge (Y/N)".<br>*Information on make, model not relevant. Not feasible for observer to collect this information. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| ***63*** | *Fisheries information services* | *Vessels may receive real-time information on some oceanographic features that will provide them with information on SST, phytoplankton densities or sea height. Note the make and model.* | *Change data field description as follows:*<br>"Vessels may access Fishery information services to get instant information on weather and oceanographic features (SST, phytoplankton densities or sea height).<br>Record if the vessel has Fisheries information service (Y/N)."<br>*Information on make, model not relevant. Not feasible for observer to collect this information. If interested in having such information CPCs should develop a gear catalogue to be updated by trained personnel.* |
| ***71*** | *Waste category* | *Record the category of the waste, organic, inorganic-burnable, (plastic) or un-burnable, (glass or metal).* | *Change data field description as follows:*<br>*"Record the category of the waste produced by the vessel (Table #)."*<br>*Insert WASTE CATEGORY table* |
| ***72*** | *Storage/Disposal method* | *Record how the waste was disposed of; for example, incinerated, stored in sacks or disposed of overboard.* | *Change data field description as follows:*<br>"Record how the waste was stored or disposed by the vessel (Table #)."<br>*Insert STORAGE/DISPOSAL METHOD.* |

## *LONGLINE INFORMATION*

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***8*** | *Setting speed* | *Record the vessel's average setting speed in knots. It will take several hours to set the line. Record the speed from the GPS several times during the operation and take the average.* | *Change data field as follows:*<br>*"*Vessel speed: Record the vessel's average speed in knots during setting. It will take several hours to set the line. Record the speed from the GPS several times during the operation and take the average.*"* |
| ***10*** | *Clip on time* | *The cue to the crew to clip on a branch line or buoy is an audible "beep." The timing of this is usually controlled by the Fishing Master on the bridge. Record the average time interval in seconds between the "beeps" The average time between branch lines and buoys should be recorded.* | *Data field to be divided into fields as follows, to cover the possibility of different branchline / buoys clip on times during the same set.*<br>*BRANCHLINE CLIP ON TIME(S)*<br>*Record the average time interval in seconds between the "beeps" between branch lines.*<br>*BUOYS CLIP ON TIME(S)*<br>*Record the average time interval in seconds between the "beeps" between buoys.* |
| ***19*** | *Number of light sticks used* | *Record whether light sticks were attached and the total number of light sticks used during the operation.* | *These data fields are presently over restrictive as today there are other forms of lights attached to the LL. Light colour should also be collected since it has been proven that certain light colours help reducing turtle bycatch.*<br>*Replace data fields with a unique field as follows:*<br>*"Attached lights: Record number of lights attached to the branchlines per type (Table #) and colour (Table #)."* |
| ***20*** | *Colour of light sticks used* | *Record the colour of the light sticks used during the operation.* | |
| ***51*** | *Number of bite-offs (per leader type)* | *Record for each type of branchline set up previously identified (A, B, C, D) how many have had the hook bitten off.* | *Data field name and description to be changed as follows:*<br>*"N°OF BITE-OFFS (BY BRANCHLINE TYPE): Record for each type of branchline set up previously identified (A, B, C, D) how many have had the hook bitten off.*<br>This only include bite-offs observed while the observer was in a position to observe and record the hooks coming directly out of the water."<br>*"(Per leader type)" should be removed since this information is obsolete. Only total bite-offs is of interest.* |

| | | | |
|---|---|---|---|
| ***75*** | *Weight code 2 (post processing)* | *Record the product code for each species according to the IOTC processing codes (Table 30).* | *Change data field as follows:*<br>"PROCESSING CODE: Record the product code for each species (Table #). If the fish hasn't been processed than make sure to record code for unprocessed (or round, whole, live) weight (i.e. RD)." |
| ***76*** | *Weight 1 (pre-processing)* | *Record the weight in kilograms of the unprocessed, round, whole, live weight of the specimen.* | *"WEIGHT" to replace Weigh 1 (pre-processing), Weight code 2 (post – processing) and Weight 2 (post-processing) DFs.*<br>*Change data field as follows:*<br>*"Record specimen weight corresponding to the specified weight estimation method used and fate category (specify units). Small amounts are to be recorded in numbers."* |
| ***77*** | *Weight 2 (post-processing)* | *Record the raw weight measurement in kilograms (kg) corresponding to the specified product type* | |
| ***86*** | *De-hooker/line cutter (for bycatch)* | *Record if a particular de-hooking or line cutting device was used to extract the hook from the bycatch* | *Data field should apply only toSSI and not for all bycatch. Change data field as follows:*<br>"De-hooker/line cutter (for SSI): Record de-hooking or line cutting device used to extract the hook using codes provided (Table #).This information is only to be collected for species of special interest as defined in IOTC-2018-SC21-R or any subsequent report from the Scientific Committee. |
| ***89*** | *Release details (for discards)* | *Provide details such as whether the release took place before or after landing, and with or without resuscitation.* | *Data field should apply only to incidentally taken /affected bycatch and not for all discards (e.g. depredated tuna).*<br>*Data field name and description should be changed to:*<br>"Specimen brought on board: For incidentally taken /affected bycatch record if incidentally taken /affected bycatch specimen was brought on-board (Y/N)".<br>*Consistent with IOTC Resolutions 13/04; 13/05; 12/04; 12/06; 12/09.* |

## *GILLNET INFORMATION*

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***8*** | *Set end time* | *Record the end time of the setting operation (hh:mm). This is the time that the last net panel has entered the water.* | *Change data field description as follows:*<br>"Record the time at the end of the setting operation (hh:mm). This is the time when the gillnet is secured to an anchoring device, or completely deployed." |
| ***49*** | *Weight* | *Record the raw weight measurement in kilograms (kg) corresponding to the specified product type* | *Change data field as follows:*<br>"Weight (Kg): Record the combined catch weight by species in kilograms (kg), corresponding to the weight tool used and processing type specified".<br>*In gillnet the observer won't be able to count, identify and weight every single fish. Therefore he must be allowed to estimate weight / number per species and fate category.* |
| ***51*** | *Weight code* | *Record the product code for each species according to the IOTC processing codes (**Error! Reference source not found.**).* | *Change data field as follows:*<br>*"*Processing code: Record the product code for each species using codes provided (Table #). If the fish hasn't been processed than make sure to record the corresponding code. I.e. RD: unprocessed weight (or round, whole, live)." |
| ***61*** | *Release details (for discards)* | *Provide details such as whether the release took place before or after landing, and with or without resuscitation.* | *Data field should apply only to SSI and not for all discards (e.g. depredated tuna).*<br>*Change data field as follows:*<br>"Specimen brought on board (for SSI): Record if specimen was brought on-board (Y/N) This information is only to be collected for species of special interest as defined in IOTC-2018-SC21-R or any subsequent report from the Scientific Committee."<br>*Consistent with IOTC Resolutions 13/04; 13/05; 12/04; 12/06; 12/09.* |

## PURSE-SEINE INFORMATION

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| **12** | *Time net pursed* | *Record the time when the net is fully pursed (when the last purse ring through which the purse wire runs is onboard).* | *Change DF description as follows:*<br>"Record the time (hh:mm) when the net is fully pursed. All rings are up." |
| **47** | *Release details (for discards)* | *For discards, provide any relevant details, such as whether the release took place before or after landing, if the animal escaped still entangled in some netting, if any resuscitation took place etc.* | "Specimen brought on board (for SSI): Record if specimen was brought on-board (Y/N). This information is only to be collected for species of special interest as defined in IOTC-2018-SC21-R or any subsequent report from the Scientific Committee."<br>*Consistent with IOTC Resolutions 13/04; 13/05; 12/04; 12/06; 12/09.* |

## POLE AND LINE INFORMATION

### Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| **4** | *Type of lures used* | *If the vessel uses lures or jiggers in place of bait record the type and make and hook type.* | *Information initially collected at fishing event level. It was considered that is wasn't feasible to collect this at fishing event level and proposed to collect it once a trip as a gear specifications information.*<br>*Data field to be changed as follows:*<br>"Record Yes or No if the vessel uses lures or jiggers during the observed trip. If Yes, record lures or jiggers type, make (brand) and hook type (Table 21)." |

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***9*** | *Time end fishing* | *Record the time when fishing activity stops and the vessel starts a new activity, i.e. searching or steaming.* | *End fishing time should be defined as the moment that the last gear (in this case "line" comes out of the water.*<br>*Data field description to be changed as follows:*<br>"Record the time when fishing activity stops and the vessel starts a new activity (hh:mm). When the last line comes out of the water.<br>If the vessel targets the same school more than once and it stops fishing for a period of at least 10 minutes than the Observer should consider that the fishing event ended even if fishing is to restarts shortly after." |
| ***43*** | *Weight 1 (pre-processing)* | *Record the weight in kilograms of the unprocessed, round, whole, live weight of the specimen.* | *"WEIGHT" DF replaces Weigh 1 (pre-processing), Weight code 2 (post – processing) and Weight 2 (post-processing) DFs.*<br>*Approved to change DF as follows:*<br>"Record species weight corresponding to the specified weight estimation method used and fate category (specify units). Small amounts are to be recorded in numbers."<br>*In pole and line the observer won't be able to count, identify and weight every single fish. Therefore he must be allowed to estimate weight / number per species and fate category.* |
| ***44*** | *Weight 2 (post-processing)* | *Record the raw weight measurement in kilograms (kg) corresponding to the specified product type* | |
| ***55*** | *De-hooker/line cutter (for bycatch)* | *Record if a particular de-hooking or line cutting device was used to extract the hook from the bycatch* | *Data field should apply only to SSI and not for all bycatch.*<br>*Change data field as follows:*<br>"De-hooker/line cutter (for SSi): Record de-hooking or line cutting device used to extract the hook using codes provided (Table #). This information is only to be collected for species of special interest as defined in IOTC-2018-SC21-R or any subsequent report from the Scientific Committee. |

## *SURFACE FISHERIES AND DAILY ACTIVITIES INFORMATION*

<table>
<tr><th>#</th><th>Data field name</th><th>Current data field description</th><th>Proposed changes and justification</th></tr>
<tr><td>5</td><td>Activity code</td><td>Record one code for every activity change throughout the day (Error! Reference source not found.). If it seems that two different codes could be used, record only the most important one and note the other in comments column.</td><td>Change data field as follows:<br><br>“Activity: For every change in vessel’s activity, select the most relevant code from activity lists provided (Tables # for Purse-seine and Table # for pole and line vessels).”<br><br>Create two distinct activity tables. One for purse-seiners (Table #) and another for pole and line vessels (Table #).<br><br>Note that IOTC surface activity code table was originally created based on SPC-PIFRO activity lists for the purse-seine and the pole and line fisheries and the activity list created for the RTTP-IO.<br><br>Proposed revisions take into account the following surface fisheries activity lists: IOTC-ROS, Observe (EU) and SPC-PIFRO.</td></tr>
<tr><td>6</td><td>School association</td><td>School sightings should be recorded as well as if they were free or associated to a FAD, natural LOG, animal, feeding on baitfish or unassociated.<br><br>Table 1. School association[5]<br><table><tr><th>Code</th><th>English description</th></tr><tr><td>FSU</td><td>Unassociated (free school)*</td></tr><tr><td>FSB</td><td>feeding on baitfish (free school)</td></tr><tr><td>LS</td><td>Drifting log, debris, dead animal</td></tr><tr><td>DFAD</td><td>Drifting rafts, FAD</td></tr><tr><td>AFAD</td><td>Anchored raft/payao</td></tr><tr><td>LW</td><td>Live whale</td></tr><tr><td>LWS</td><td>Live whale shark</td></tr><tr><td>OTH</td><td>Other (specify)</td></tr><tr><td>DOL</td><td>Dolphin associated</td></tr><tr><td>NTA</td><td>No tuna associated (blank set)</td></tr><tr><td>SM</td><td>Seamount (common for P&L)</td></tr></table></td><td>Need to clarify and to clearly connect the cue that indicates the possible presence of a tuna school and the type of school detected (i.e. if free or associated to a FAD). This will allows for comparing data collected and reported under different tRFMOs as free and associated tuna school systems varies between them.<br><br>Change data field as follows:<br><br>“School sighting cue (Observed system): Record up to the first three cues which leads the vessel to detect the presence of a tuna school (Table #).”</td></tr>
</table>

5 http://iss-foundation.org/2012/04/19/fad-free-defined/

<table>
<tr>
<td>8</td>
<td>School detection</td>
<td>Record how the investigated school of object was found based on the code categories. If more than one method was used, use code that shows what first made vessel change course.
<table>
<tr><td>SV</td><td>Seen from vessel</td></tr>
<tr><td>MB</td><td>Marked with beacon (instrumented buoy)</td></tr>
<tr><td>BR</td><td>Bird radar</td></tr>
<tr><td>AS</td><td>Acoustic – sonar / depth sounder</td></tr>
<tr><td>IV</td><td>Info. from other vessel</td></tr>
<tr><td>FAD</td><td>FAD</td></tr>
<tr><td>OTH</td><td>Other (specify)</td></tr>
<tr><td>OVF</td><td>Presence of another tuna vessel fishing</td></tr>
<tr><td>BIR</td><td>Presence of birds</td></tr>
</table></td>
<td>Need to clarify and clearly distinguish between the cue that indicated the possible presence of a tuna school and the tuna school first detection method.<br><br>Change data field as follows:<br><br>“First detection method: Record how the vessel first detects the tuna school, floating object or birds (Table #). If more than one method was used record only what first made the vessel change course.”<br><br>Note that existing IOTC school detection list was originally created based on SPC-PIFRO. Proposed revisions take into account existing IOTC-ROS, Observe (IRD) and SPC-PIFRO school detection lists.</td>
</tr>
<tr>
<td>9</td>
<td>Object</td>
<td>Record the FAD or payao or buoy number here</td>
<td>Change data field as follows:<br><br>“Object ID: For every activity involving an artificial FAD record FAD ID (e.g.: visit, deployment, reparation, repair, fishing, etc.).”</td>
</tr>
<tr>
<td>14</td>
<td>Comments</td>
<td>Record and comment on the day activities, including exceptional sightings. This would include sightings of marine mammals and turtles.</td>
<td>Change data field as follows:<br><br>“Comments: Record short commentaries on exceptional events that could not be described by the fields included in the forms”.</td>
</tr>
</table>

## *VESSEL TRANSHIPPMENTS INFORMATION*

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***5*** | *Category* | *Record if transhipping to another vessel or receiving fish from a vessel.* | *Change data field as follows:*<br>Record if your vessel is transhipping to or from, (i.e. receiving fish from) another vessel (carrier/fishing vessel) or if loading or allowing to load fish from the net (this may occur if a purse seiner has pursed more fish than its present loading capacity). |
| ***6*** | *Product transhipped* | *Record details of the products being transhipped.* | *Experts participating to the IOTC Standards Workshop manifested concerns regarding observer safety if they attempt to collect this information when a vessel engages in unauthorised transhipments. In such cases Observer should only request a copy of the signed declaration form, which will have all the required information.*<br>*Change data field as follows:*<br>"Record the quantity of fish products transhipped (per species) using FAO spp.3-Alpha and IOTC "Product" categories, Remember to record the unit of measure used i.e. Kg, tonnes or numbers. If the vessel engages in unauthorised transhipment to a carrier vessel (i.e. a vessel that it's not covered by an IOTC ROP observer), request only a copy of the signed declaration form, which will have all the required information. Bear in mind that collecting this information is not mandatory if an IOTC ROP observer is present on a carrier vessel monitoring the transhipment." |

| | | | |
|---|---|---|---|
| *7* | *Name of carrier/fishing vessel* | *Record the name and registration details of the carrier or fishing vessel.* | *Experts participating to the IOTC Standards Workshop manifested concerns regarding observer safety if they attempt to collect this information when a vessel engages in unauthorised transhipments. In such cases Observer should only request a copy of the signed declaration form, which will have all the required information.*<br><br>*Change data field as follows:*<br><br>"Record the name and registration details of the fishing vessel (i.e. name, national registration number, port of registry, flag and call sign. If the vessel engages in unauthorised transhipment to a carrier vessel (i.e. a vessel that it's not covered by an IOTC ROP observer), request only a copy of the signed declaration form, which will have all the required information.<br><br>Bear in mind that collecting this information is not mandatory if an IOTC ROP observer is present on a carrier vessel monitoring the transhipment." |

# PROPOSED TABLES

## Table listing weight tool that can be used to collect weight measurements

| Code | English Description |
|---|---|
| EB | Electronic balance |
| SB | Spring balance |
| MB | Mechanical balance |
| EM | Eye measurement (optical) |
| LO | Vessel logbook |
| WE | Length weight relationship |
| ET | Estimation |

## Table listing hauling methods for bringing on-board incidentally taken /affected bycatch)

| Code | English Description |
|---|---|
| HD | By hand |
| GR | Using the gear |
| GF | Using a gaff |
| BR | Using a brailler |
| SN | Using a scoop net |
| ON | Using another net |
| OT | Using another method |

## Types of light-emitting sources that can be attached to the fishing gear

| Code | English Description |
|---|---|
| CL | chemical light sticks |
| EL | electric lights |
| LL | luminescent lights |
| OT | Other (describe ) |

## Colour of light-emitting sources that can be attached to the fishing gear

| Code | English Description |
|---|---|
| YL | Yellow |
| RE | Red |

| | |
|---|---|
| *GR* | *Green* |
| *BL* | *Blue* |
| *OT* | *Other (describe )* |

## *De-hooking and line cutting devices*

| ***Code*** | ***English Description*** |
|---|---|

## *Processing/product type codes*

| ***Code*** | ***English Description*** |
|---|---|
| *RD* | *Unprocessed; Round (whole/* |
| *GG* | *Gilled-and-gutted (bill-off)* |
| *HD* | *Headed-and-gutted* |
| *PD* | *Headed and caudal peduncle-off* |
| *HT* | *Headed and tailed* |
| *HG* | *Headed, gutted and tailed* |
| *FL* | *Fish loins* |
| *GT* | *Gilled, gutted and tailed* |
| *GO* | *Gutted only (gills left)* |
| *FW* | *Fillet* |
| *FT* | *Fins and trunk (shark)* |
| *SF* | *Fins (shark)* |

## *Purse-seine surface fishery activity codes*

| Code | English Description |
|---|---|
| PO | In port |
| DW | Drifting because of bad weather |
| DT | Drifting due to mechanical problems |
| DF | Drifting during the day near a tuna school, a log or a FAD; |
| DN | Drifting during the night (engine stopped) |
| ES | End of searching (when the watchers stop searching for fish using binoculars) |
| FI | Fishing (skiff is deployed) |
| ZC | EEZ zone change |
| IF | Installation or modification of a floating objet (log or FAD). |
| OT | Other activities (describe in comments). |

| | |
|---|---|
| SE | Searching in general (for tuna schools, logs or FADs) |
| SO | Steaming at night towards a floating object (logs or FADs) |
| SI | Steaming towards (& investigating) observed system (birds, floating object, etc.) associated to the tuna school. |
| ST | Transit (steaming without searching day or night). |
| TR | Transhipping at sea. |

## *Pole and line fishery activity codes*

| Code | English Description |
|---|---|
| BA | Searching / gathering bait |
| BF | Bait fishing (the net is set or launched) |
| CH | Chasing a tuna school |
| DF | Drifting with a tuna school, log or FAD |
| DN | Drifting during the night (engine stopped) |
| DT | Drifting due to mechanical problems |
| DW | Drifting because of bad weather |
| FI | Tuna Fishing (Spraying, chumming or poling) |
| PO | In port |
| ST | Transit (steaming without searching day or night). |
| SE | Searching in general (for tuna schools, logs, or FADs or other vessels) |
| OT | Other activities (describe in comments). |
| SI | Steaming towards (& investigating) observed system (birds, floating object, etc.) associated to the tuna school. |

## *School sighting cue / School type*

| School sighting code/description | | School type code/description | |
|---|---|---|---|
| NSC | No sighting cue | 0 | Undetermined |
| UTS | Tuna school (no details given on the type of school) | 2 | Free school |
| CSA | Changes on sea surface appearance.<br>Marks left by the fish on the surface of the water. It can take the form of a track (i.e. a zone of the surface presenting a different texture), oil marks left by the presence of tuna. It can be a rippling of the sea surface as if produced by a breeze, an area of extremely choppy sea that gives the impression that the sea | 2 | Free school |

| | | | |
|---|---|---|---|
| | surface is boiling, an area of very choppy / foamy sea surface, created by the constant jumping of small fish. Or the presence of a fish school can be indicated by the jump of individual tuna. | | |
| DTS | Presence of a deep tuna school | 2 | Free school |
| BIR | Presence of birds | 2 | Free school |
| LWH | Presence of large whales (killer whales, sperm whales, baleen whales)) | 2 | Free school |
| SWH | Presence Small toothed whales / dolphins (dolphins, pilot and/or false killer whales) | 2 | Free school |
| SHA | Presence of shark(s) | 2 | Free school |
| OVF | Another tuna vessel | 1 | Associated school |
| STS | Same school that escaped the previous set | 0 | Undetermined |
| SAV | School associated to the tuna vessel | 1 | Associated school |
| SEM | Fishing on a seamount | 1 | Associated school |
| OTH | Other (to detail in the comments) | 0 | Undetermined |
| SBV | Supply or bait-boat vessel | 1 | Associated school |
| WSB | Whale shark seen before set | 1 | Associated school |
| WSA | Whale shark seen later during set | 1 | Associated school |
| FAD | FAD (natural or man-made) | 1 | Associated school |
| FSB | Feeding on bait fish | 2 | Free school |

## *Surface fisheries first detection method*

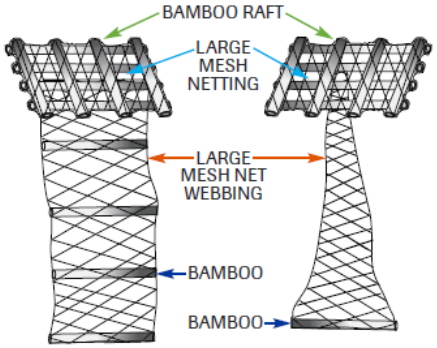
| Code | English Description |
|---|---|
| EYE | Naked-eye |
| BNC | Binoculars |
| MB | Marked with beacon (instrumented buoy) |
| BR | Bird radar |
| SNR | Sonar |
| ECS | Echo-sounder |
| IV | Info. from other vessel |
| OTH | Other (specify) |
| RDR | Radar |
| UNK | Unknown |

## *Artificial FAD design/materials*[6]

| ***Code*** | ***English Description*** |
|---|---|
| *RE* | *Raft covered with ecological materials (Burlap, Canvas of sisal, thick fabric, tarpaulin, rafia, canvas claustra, horticultural felt).* |
| *RNS* | *Raft covered using a net with a stretched mesh of less than 7 cm* |
| *RNL* | *Raft covered with large mesh net (stretched mesh of more than 7 cm)* |
| *RNC* | *Raft not covered* |
| *TNS* | *Tail made of nets rolled in "sausages“* |
| *TNS* | *Tail made of nets panels with a stretched mesh of less than 7 cm* |
| *TRO* | *Tail made of ropes* |
| *TRC* | *Tail made of ropes and canvas* |
| *TNL* | *Tail made of hanging large mesh net (stretched mesh of more than 7 cm)* |

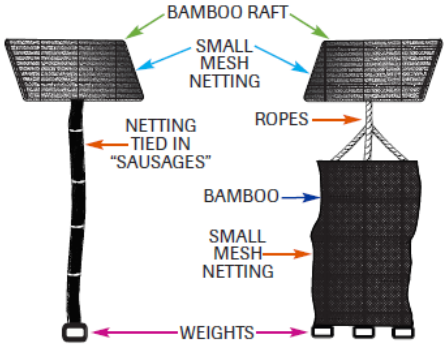
[6] ISSF GUIDE FOR NON-ENTANGLING FADs, International Seafood Sustainability Foundation (ISSF), 2015

## HIGHEST ENTANGLEMENT RISK FADs:



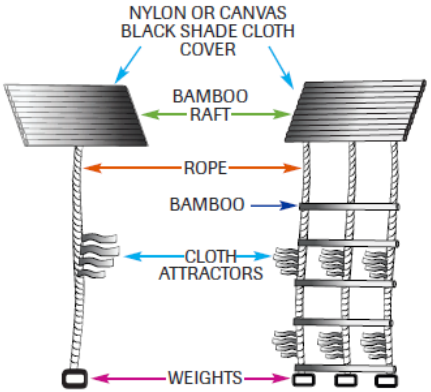

- Constructed with any netting materials, including old purse seine netting, used to cover rafts or suspended beneath in open panels
- These DFADs are known to cause entanglements with turtles and sharks

## LOWER ENTANGLEMENT RISK FADs:



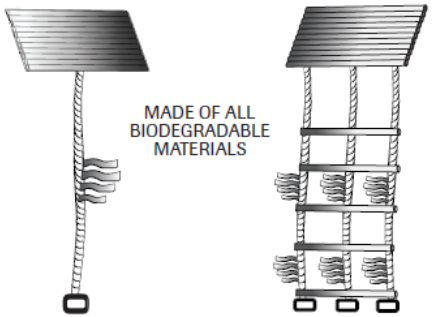

- Only small mesh netting used (e.g. < 2.5 inch (7 cm) stretched mesh)
- Rafts are tightly wrapped with small mesh netting, with no loose netting hanging from it
- The underwater structure is tightly tied into bundles (sausages)
- A single panel can be used instead of bundles, but the panel must be weighted to keep it taut
- The panel should consist of either netting with a stretched mesh of 2.5 inches (7 cm) or less, or a solid sheet (e.g., canvas or nylon)
- Despite using netting, these design elements reduce the risk of entanglement events

## NON-ENTANGLING FADS:




- No netting is used in their construction
- The raft is not covered or covered with shade cloth or canvas
- The subsurface structure is made with ropes, canvas or nylon sheets, or other non-entangling materials
- These FADs are expected to have minimum risk of causing entanglement

## BIODEGRADABLE NON-ENTANGLING FADS:




- In addition to having minimal risk of entanglement, they are constructed exactly like other non-entangling FADS, but using only natural and/or biodegradable materials, further reducing the environmental impact of DFADs on the oceans

**HIGHEST RISK** ⟵ ⟶ **LOWEST RISK**

## Vessel Hull material

| Code | English description |
|---|---|
| STE | Steel |
| FRP | Fibre glass reinforced plastic |
| WOO | Wood |
| ALU | Aluminium |
| OTH | Other (specify) |

## WASTE CATEGORY

| Code | English description |
|---|---|
| **PL** | Plastic |
| **CP** | Cardboard and paper |
| **KW** | Kitchen waste |
| **OF** | Oil and fuel |
| **MG** | Metal and glass |
| **NB** | None biodegradable fishing gear |
| **OT** | Other (detail) |

## STORAGE/DISPOSAL METHOD

| Code | English description |
|---|---|
| **AS** | At sea disposal |
| **IN** | Incinerated |
| **RO** | Retained on board |
| **LD** | Land disposal |
| **UK** | Unknown |
| **OT** | Other (specify) |

## Types of light-emitting sources attached to the gear

| Code | English description |
|---|---|
| CL | chemical light sticks |
| EL | electric lights |
| LL | luminescent lights |
| OT | Other (describe ) |

## Colour of light-emitting sources attached to the gear

| Code | English description |
|---|---|
| YL | Yellow |
| RE | Red |
| GR | Green |
| BL | Blue |
| Ot | Other |

# Appendix II

## SUGGESTED DATA COLLECTION FIELDS

## DATA FIELDS PROPOSED FOR ADDING

### GILLNET INFORMATION

#### Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***10*** | *None* | *None* | *Insert new DF as follows:*<br>"Mesh count, vertical: Record the number of vertical meshes of a net in this gear. This information may be obtained from the captain." |
| ***16*** | *None* | *None* | *Insert new DF as follows:*<br>"Distance between floats: Record the average distance along the head-rope between the floats used on this gear (specify units)." |
| ***17*** | *None* | *None* | *Insert new DF as follows:*<br>"Droplines: Record whether droplines are used in this gear (Y/N). If YES, Record the length of the droplines used in this gear (specify units). This length is the distance from the floats (at the water's surface) to the float-line. This information may be obtained from the captain." |

#### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***26b*** | *None* | *None* | *Add new data field, as follows, to cover for any future trials/usage of bycatch mitigation techniques.*<br>"Mitigation device: Use codes provided (Table#) to describe mitigation device(s) used." |

### PURSE-SEINE INFORMATION

#### Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***32*** | *None* | *None* | *Insert new data fields as follows:*<br>"SST (°C): Record Sea Surface Temperature (SST): to the nearest tenth of a degree Celsius (example: 25.7°C). Note: this information can be collected from the bridge equipment."<br>*Data useful for scientific purposes. However it requires observer to use vessel's instruments or to ask information to the captain.* |
| ***34*** | *None* | *None* | *Insert new data fields as follows:*<br>"Current direction: Record current direction using cardinal points (E, W, SW, SSW, etc.). This information is to be requested from bridge officers."<br>*Data useful for scientific purposes. However it requires observer to use vessel's instruments or to ask information to the captain.* |
| ***35*** | *None* | *None* | *Insert new data fields as follows:*<br>"Current speed: Record current speed in knots. This information is to be requested from bridge officers."<br>*Data useful for scientific purposes. However it requires observer to use vessel's instruments or to ask information to the captain.* |
| ***36*** | *None* | *None* | *Insert new data fields as follows:*<br>"Current depth: Record current depth in meters. This information is to be requested from bridge officers."<br>*Data useful for scientific purposes. However it requires observer to use vessel's instruments or to ask information to the captain.* |

## Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| *48* | *None* | *None* | *Insert new data field as follows:*<br>"Hauling method: For incidentally taken /affected bycatch, record how the specimen was brought on-board (Table #)".<br>*Information required for estimating mortality of incidentally taken / affected bycatch as requested by IOTC CMMs.*<br>*Approved for Suggested Collection as the observer is not necessarily on the "false deck" and can't always provide this information.* |

## *POLE AND LINE INFORMATION*

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| *54* | *None* | *None* | *Insert new data field as follows:*<br>"Hauling method: For incidentally taken /affected bycatch, record how the specimen was brought on-board (Table #)".<br>*Information required for estimating mortality of incidentally taken / affected bycatch as requested by IOTC CMMs.* |

# DATA FIELDS PROPOSED FOR REMOVAL

## *GENERAL VESSEL AND TRIP INFORMATION FOR ALL VESSEL TYPES*

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***51*** | *Vessel cruising /maximum speed* | *Record the vessel's average operational cruising and maximum speed capabilities in knots.* | *For PS and LL vessels cruising and maximum speed can be estimated by VMS data. Not feasible to collect this information with the GILL and PL vessels, except if the observer is provided with a GPS that measures speed.* |

## *LONGLINE INFORMATION*

### Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***12*** | *Bait hooked twice* | *Record how often the hook was laced through the bait twice (always, often, rarely, never). This is thought to reduce turtle mortality.* | *The feasibility of collecting this information at both trip and set level and the reliability of estimates of % of double-hooked bait, is very questionable. It will be extremely difficult for an observer to collect this information even on vessels that don't use bait a casting machine. Furthermore there aren't any published studies that demonstrate the efficiency of this measure in reducing turtle bycatch and mortality.* |

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***15*** | *Line set type* | *Record whether the line was set slack or under tension to provide an indication of the line curvature underwater.* | *Redundant. Information can be inferred from existing data fields: vessel speed, line setter speed, line setter use (if no line setter used the line set will be always set under tension).* |

## *GILLNET INFORMATION*

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| **52** | *Net material* | *Where possible, the material of the panel in which the individual is caught should be specified (**Error! Reference source not found.**)* | *Duplication, information will be the same as the one collected under gear specifications as panel net type will be always the same through the string of panels.* |
| **53** | *Mesh size* | *Where possible, the size of mesh (mm) of the panel in which the individual is gilled/entangled should be specified (**Error! Reference source not found.**).* | *Duplication, information will be the same as the one collected under gear specifications as panel mesh size will be always the same through the string of panels.* |
| **54** | *Method of capture* | *Where possible, the way in which the individual interacted with the gillnet should be specified (e.g. whether it was gilled or entangled).* | *Not feasible to collect this information for every observed specimen.* |
| **57** | *Predator ID reliability* | *Note the likely accuracy and reliability of the species identified as associated with depredation (good/fair/poor)* | *The use of predator species or group codes in previous fields will indicate predator ID reliability.* |

## *PURSE-SEINE INFORMATION*

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| **45** | *Sampling* | *Record the type of sampling undertaken for this row of data. This might be 'total enumeration' where all individuals have been recorded, 'sample extrapolated' where a sample has been taken and the information recorded in this row has already been extrapolated. Alternatively it may be 'unextrapolated sample' where a sample has been taken but no raising has yet been applied.* | *Duplication. This information is already requested under DF N°22 ("Sampling methods for the estimation of catch per species").*<br>*Redundant. Observer should always record extrapolated sample values when filling catch details section.* |
| **46** | *Sampling coverage* | *This provides the percentage of the sample taken from the total catch. For 'sample extrapolated' catches, the raising has already been undertaken based on this percentage, whereas for 'unextrapolated sample' the raising has yet to be undertaken and will be based on the number provided in this field. For 'total enumeration', this will always be 100%.* | *Redundant. Observer should always record extrapolated sample values when filling catch details section.* |

## *POLE AND LINE INFORMATION*

## Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***8*** | *Total quantity of bait used during trip* | *The total quantity (in kg) or bait used throughout the course of the entire trip (for all fishing events).* | *Duplication. Data already collected at event level.* |
| ***9*** | *Total time spent bait fishing* | *The number of hours spent fishing for bait during the course of the trip* | *Duplication. Data already collected at event level.* |
| ***10*** | *Number of FADs deployed* | *Record the total number of FADs deployed during the trip* | *Duplication. Data already collected under surface fishery daily activity.* |
| ***11*** | *Number of FADs investigated* | *Record the total number of natural and artificial FADs investigated for which there was no fishing event* | *Duplication. Data already collected under surface fishery daily activity.* |

## Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***49*** | *Hook type (bycatch)* | *For bycatch species, record the type of hook the individual was hauled on, where possible (Table 21)* | *Duplication. Information already collected at trip level. Hook type does not change between fishing events.* |
| ***50*** | *Bait (bycatch)* | *For bycatch species, record the bait for the hook the individual was hauled on, where possible (Table 29).* | *Duplication. Information on bait type used during the set has been collected under section "Bait detail".* |
| ***51*** | *Leader type (for bycatch)* | *For bycatch species, record the leader type the individual was hauled, where possible (Table 20)* | *Redundant. Unlike longline leaders are not used in pole and line fishery.* |

# PROPOSED CHANGES TO EXISTING DATA FIELDS

## *GENERAL VESSEL AND TRIP INFORMATION FOR ALL VESSEL TYPES*

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***8*** | *Licensed target species* | *Vessels will generally target a narrow range or aggregation of species and specified by the licences or permit conditions under which authority the vessel is operating (**Error! Reference source not found.**).* | *Change data field description as follows:*<br>"Vessels will generally target a narrow range or aggregation of species. Record licensed target species as specified by the licences or permit conditions under which authority the vessel is operating using codes provided (Table # to #). Note that target species may not be IOTC species."<br>*Licences target species such as oilfish would be very important to record, to explain low CPUE for IOTC spp. The recording of non-IOTC target species can be done by allowing observer to use species codes present in tables 1 to 4 and table 8.*<br>*Include FAO 3A Species Codes for "TUX-Tuna-like fishes nei" and "TUN - Tunas nei" to Table 1, to allow for the recording of "Tuna and tuna like species" as licenced target species as per fishing licences provided by CPCs.* |

## *LONGLINE INFORMATION*

### Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***13*** | *Depredation mitigation devices (DMDs) used* | *Record if any depredation devices are used and describe the type, e.g. "spiders" or "socks".* | *Change data field description as follows, to allow for the insertion of a code table listing different types of DMD :*<br>"Record if any DMD is used (Y/N). Record DMD type using codes provided (Table #). |
| ***24*** | *Towed objects* | *Record the total number and type of towed objects used to mitigate against bird bycatch.* | *Change data field description as follows:*<br>"Record the total number and type of towed objects used to maintain tori line tension and achieve aerial extent when deployed." |

### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***9*** | *Length of floatlines* | *Record the length of the floatlines on-board the vessel (in metres).* | *Information to be collected at fishing event level taking into account that the length of the floatlines can vary between sets.* |
| ***13*** | *Total number of floats set* | *Record the total number of floats/buoys deployed during the set.*<br>*This can be determined by counting the number of buoys in their holders before the start of setting and then again after setting. The Fishing Master will also be able to provide these figures.* | *Change data field description as follows:*<br>*"Record the total number of floats deployed during the set (this should not include the radio/dhan buoys)."* |
| ***17*** | *Shallowest hook depth* | *Record the depth of the hook set closest to the surface in metres. The Fishing Master will be able to provide this figure for most large-scale vessels.* | *Replace "Shallowest hook depth" and "Deepest hook depth" with a new field as follows.*<br>"Floatline lengths (1, 2 and 3): Record different length of the floatlines used in meters". |
| ***18*** | *Deepest hook depth* | *Record the depth of the hook set closest to the bottom in metres. The Fishing Master will be able to provide this figure for most large-scale vessels.* | |
| ***22*** | *Number of shark lines set* | *Record if shark lines are used and, if so, note the length of shark lines on-board the vessel (in metres).* | *Change DF as follows:*<br>"Shark lines: Shark lines are lines set directly from floats specifically targeting sharks.<br>(a) Record if shark lines are used (Y/N)<br>(b) Record the number of shark lines set during the operation. If no shark lines are set than record zero (0)." |
| ***33*** | *Other bycatch and depredation mitigation measures used* | *Record any other bycatch / depredation mitigation measures used, e.g. bird curtains or any measures used to prevent depredation and provide a brief description.* | *Change data field description as follows:*<br>"Record any other bycatch / depredation mitigation measures observed using codes provided (Table #). |

| | | | |
|---|---|---|---|
| ***36*** | *Number of hooks set by type* | *Record the number of each type of hook set* | *Change data field as follows:*<br>"% of hooks set by type: Record the percentage (%) of hooks set by type using codes provided in table21".<br>*Note: Table 21 to be replaced with SPC (WCPFC) hook catalogue to standardize data collection among tRFMOs. Standardization of hook types is very important for data recording and analysis and for scientific studies on the effects of terminal gear on catch rates and post-capture survival.* |
| ***46*** | *Method to stunning fish* | *Record the method used to stun fish during hauling, e.g. percussive stunning, carbon dioxide narcosis, spiking or electrocution (Table 29).* | *Information initially required at trip level to be collected at fishing event/set level as method used to stun fish can vary between sets.*<br>*Change data field as follows:*<br>"Method to stun fish: Record the method used to stun fish during hauling, e.g. percussive stunning, carbon dioxide narcosis, spiking or electrocution (Table 29)." |

| | | | |
|---|---|---|---|
| ***82*** | *Hook type (for bycatch)* | *For bycatch species, record the type of hook the individual was hauled on, where possible (Table 19).* | *Change data field as follows:*<br>"Hook type (for SSI[7]): Record the type of hook the individual was hauled on, where possible, using codes provided in Table 21. This information is only to be collected for species of special interest as defined in IOTC-2018-SC21-R or any subsequent report from the Scientific Committee."<br>*Replace Table 21- Hook type with hook catalogue developed by the SPC.*<br>*Hooks used in large pelagic fisheries (mainly longline) can have or not a ring, be made of galvanized or stainless steel and be either offset or non-offset (except for Japan tuna hooks that are typically offset of 10–20º).*<br>*Both offset and non-offset hooks have been tested in regards to turtle bycatch rates in pelagic longline fishing, and some issues have been raised (Beverly S. 2016[8]). According to Beverly S. (2016),* the use of stainless steel hooks has implications for bycatch post-capture mortality. Stainless steel may last longer than galvanised steel in a turtle's mouth or oesophagus. In fact, stainless steel hooks are not allowed in the US Atlantic swordfish fishery (Federal Register 2004). *Results from studies*[9] *conducted on the effect of hook ring on catch and bycatch indicates that the presence of a ring has the potential to negate some conservation benefits and has motivated fisheries managers to consider factors in addition to hook shape when aiming to promote sustainable fishing practices.* |
| ***83*** | *Bait (for bycatch)* | *For bycatch species, record the bait for the hook the individual was hauled on, where possible (Table 12);* | *Change data field as follows:*<br>"Bait (for SSI): Record the type of bait (fish, squid, other) for the hook the individual was hauled on, where possible. This information is only to be collected for species of special interest as defined in IOTC-2018-SC21-R or any subsequent report from the Scientific Committee." |

[7] A list of Species of Special Interest (SSI) is to be defined by IOTC Scientific Committee (SC). This should include all Protected Endangered and Threatened species (PETs), billfish (all/specific), shark species (all/specific) and any other species deemed of special interest by the SC for the collection of detailed information under IOTC ROS.
[8] Beverly S. 2016. *Hooks used in longline fishing.* SPC Fisheries Newsletter #117 – April/June 2006. Page 45 – 48.
[9] Piovano S. et Swimmer Y. 2016. *Effects of a hook ring on catch and bycatch in a Mediterranean swordfish longline fishery: small addition with potentially large consequences.* Published in: https://doi.org/10.1002/aqc.2689

| | | | |
|---|---|---|---|
| ***84*** | *Leader type (for bycatch)* | *For bycatch species, record the leader type the individual was hauled, where possible (Table 18)* | *Change data field as follows:*<br>"Leader (for SSI): Record the leader material and thickness the individual was hauled, where possible, using codes provided in Table 20. This information is only to be collected for species of special interest as defined in IOTC-2018-SC21-R or any subsequent report from the Scientific Committee."<br>*Covers for situations where vessels opt to use thick materials other than wire traces (e.g. very thick monofilament line).* |
| ***100*** | *Length of floatlines* | *Record the length of the floatlines on-board the vessel (in metres).* | *Information to be collected at fishing event level taking into account that the length of the floatlines can vary between sets.*<br>*Change data field as follows:*<br>"Record the length of the floatlines deployed (in metres)." |

## *GILLNET INFORMATION*

### Gear specifications

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***6*** | *Net material* | *Record the material the net is made of (multifilament or monofilament)* | *Change data field as follows:*<br>"Net Type: Record the material of the net webbing using codes provided (Table #)."<br>*Change table name to "Net Type" since "material" makes reference to material like polyamyd; polyetylen; polyester, etc.* |
| ***14*** | *Floats type* | *Record the type of buoyancy aid that is attached to the net (e.g. polystyrene/ plastic)* | *Change data field as follows:*<br>"Float type: Record the type of buoyancy aid that is attached to the head-rope using codes provided (Table #)". |
| ***15*** | *Float number* | *Record the total number of floats used to support the net during setting* | *Information initially required at fishing event/set level to be collected at trip level since number of floats used in a specific gillnet won't change between sets.*<br>*Change data field as follows:*<br>"Float number: Record an approximate total number of floats used on this gear. This number must include the number of floats across a space that may occur at the bridle at the end of a net. This information may be obtained from the captain." |
| ***19*** | *Sinker type* | *Record the type of weight attached to sink net (e.g. lead or cement).* | *Change data field as follows:*<br>"Sinker type: Record the type of sinker attached to the footrope using codes provided (Table #)". |
| ***21*** | *Number of weights used* | *Record the total number of weights that are used to hang the net during this setting operation* | *Information initially required at fishing event/set level to be collected at trip level, since changes in gillnet configuration (max 2 nets per vessel) are only done in case the net gets damaged and the resulting net will need to be re-characterized.*<br>*Change data field as follows:*<br>"Sinker Number: Record the total number of sinkers attached to footrope. This information can be requested from the Captain." |
| ***22*** | *Individual sinker weight* | *Record the average weight of each sinker in grams.* | *Information initially required at fishing event/set level to be collected at trip level.*<br>*Change data field as follows:*<br>*"Sinker average weight: Record sinker average weight (specify units)."* |

| | | | |
|---|---|---|---|
| ***68*** | *Length 2* | *Record the length (in centimetres) corresponding to the length type taken (length code 2) rounded to the lowest centimetre size bin.* | *Change data field as follows:*<br>"Record the length corresponding to the length type taken rounded to the lower centimetre. For LD1 this should be rounded to the lower half centimetre." |

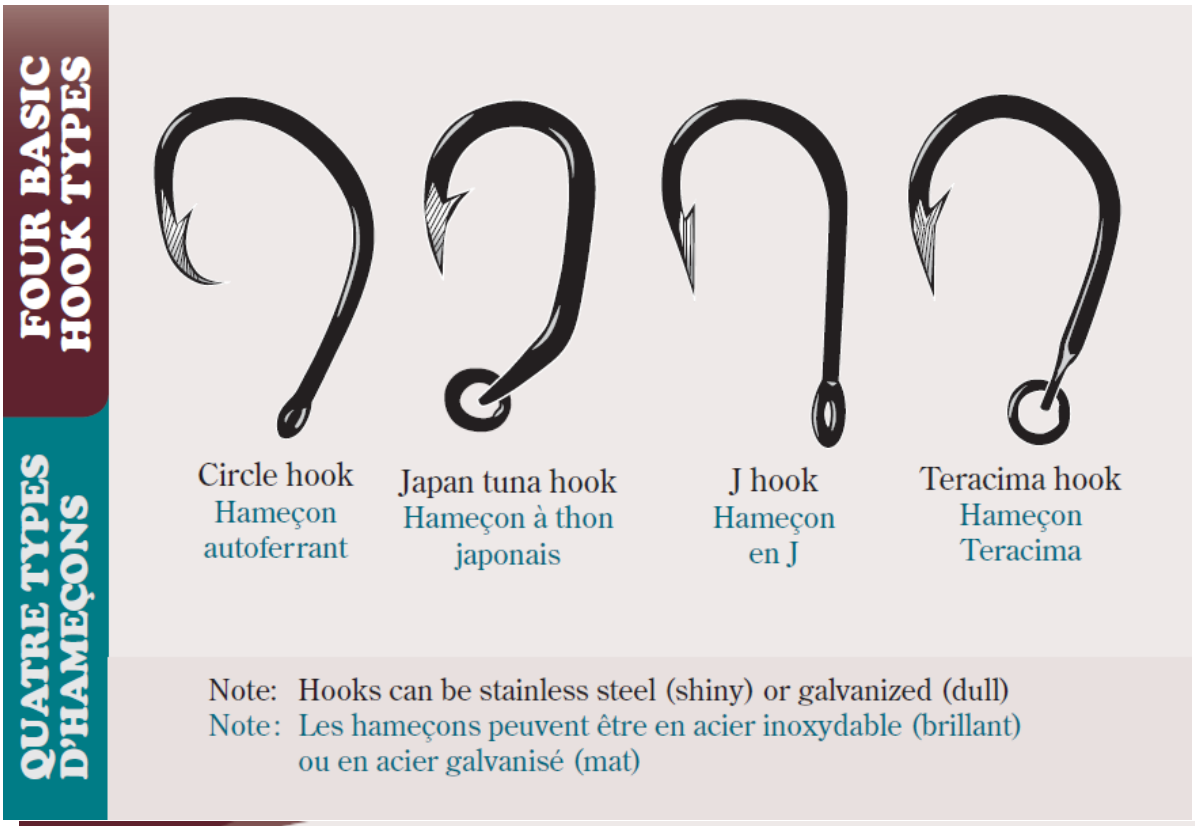
## *POLE AND LINE INFORMATION*

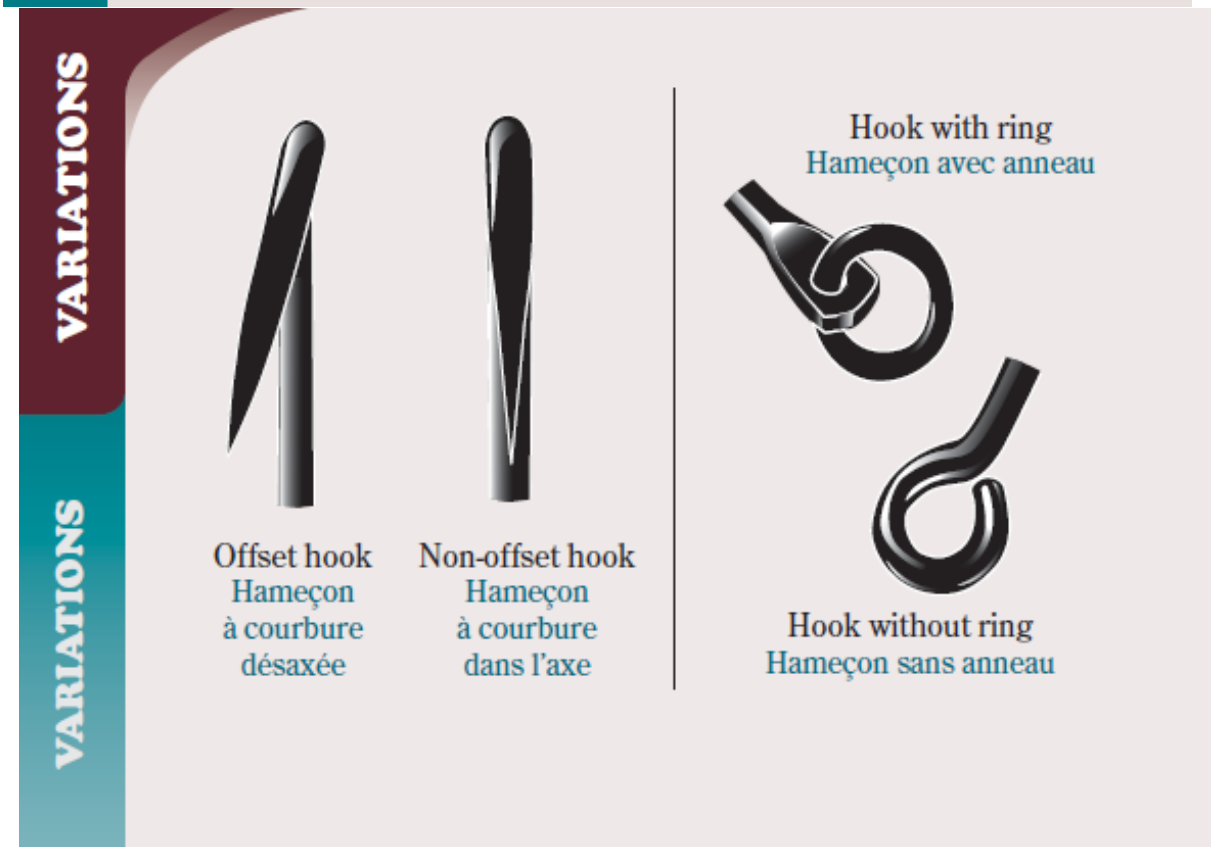
### Fishing event

| # | Data field name | Current data field description | Proposed changes and justification |
|---|---|---|---|
| ***58*** | *Release details (for discards)* | *Provide details such as whether the release took place before or after landing, and with or without resuscitation.* | *Change data field as follows:*<br>"Specimen brought on board (for species of special interest): Record if the specimen was brought on-board (Y/N). This information is only to be collected for species of special interest as defined in IOTC-2018-SC21-R or any subsequent report from the Scientific Committee."<br>*Consistent with IOTC Resolutions 13/04; 13/05; 12/04; 12/06; 12/09.* |
| ***63*** | *Length 2* | *Record the length (in centimetres) corresponding to the length type taken (length code 2) rounded to the lowest centimetre size bin.* | *Change data field as follows:*<br>"Record the length corresponding to the length type taken rounded to the lower centimetre. For LD1 this should be rounded to the lower half centimetre." |

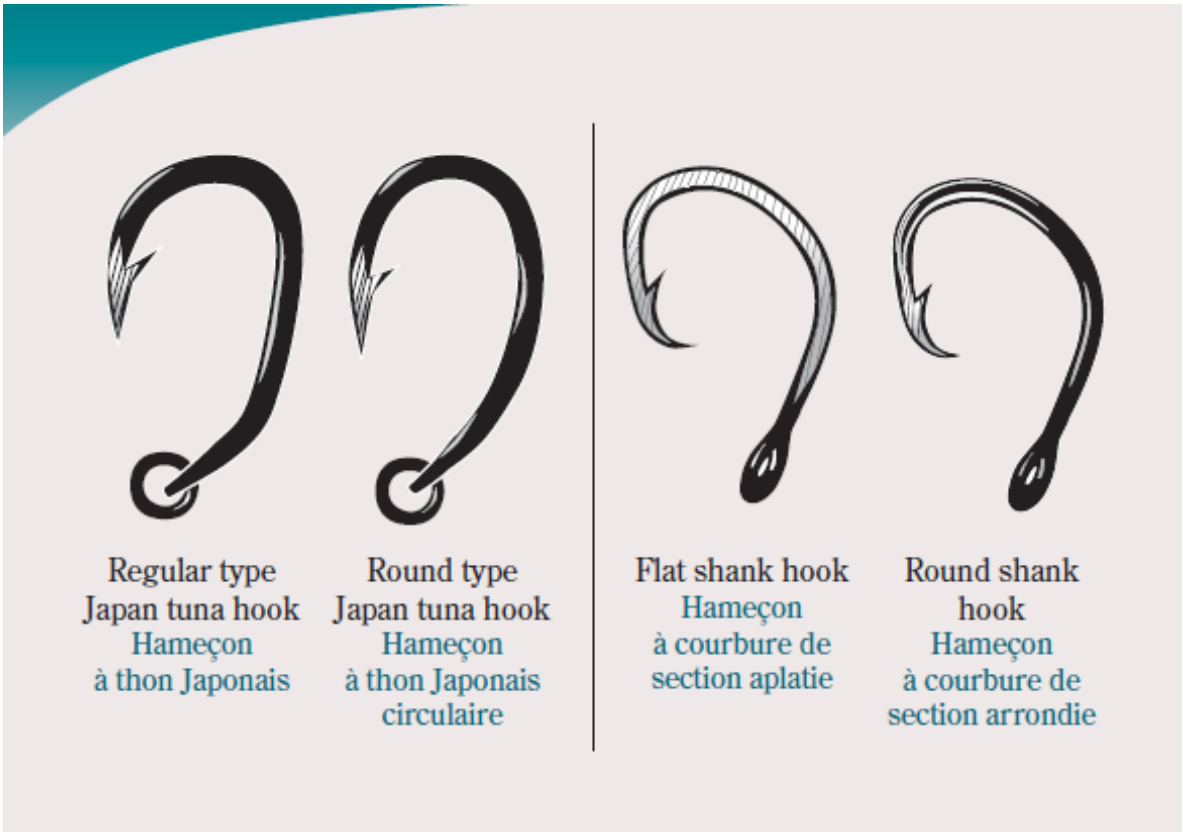
## PROPOSED TABLES

### *Hook type*[10]




[10] *Table 21 to be replaced with SPC (WCPFC) hook catalogue to standardize data collection among tRFMOs*




*It is important that hooks used in pelagic fisheries are correctly identified and characterised based on type, type variations, material and presence/absence of hook ring, as these characteristics can have an effect, not only on target species catch rates, but on catch rates and post-release survival of bycatch species including marine turtles. Standardization of hook types and characteristics is therefore very important for data recording and analysis and for scientific studies on their effects on catch rates and post-capture survival.*

| ***Code*** | ***English Description*** | ***French Description*** |
|---|---|---|
| ***Circle Hooks*** | | |
| ***C*** | *Circle hook without ring* | *Hameçon autoferrant sans anneau* |
| ***SC*** | *Stainless steel (shinny) Circle hook without ring* | *Hameçon autoferrant en acier inoxydable (brillant) sans anneau* |
| ***GC*** | *Galvanized steel (dull) Circle hook without ring* | *Hameçon autoferrant en acier galvanisé (mat) sans anneau* |
| ***OSC*** | *Offset Stainless Circle hook without ring* | *Hameçon autoferrant en acier inoxydable à courbure désaxée, sans anneau* |
| ***NSC*** | *Non-offset Stainless Circle hook without ring* | *Hameçon autoferrant en acier inoxydable à courbure dans l'axe, sans anneau* |
| ***OGC*** | *Offset Galvanized Circle hook without ring* | *Hameçon autoferrant en acier galvanisé à courbure désaxée, sans anneau* |
| ***NSC*** | *Non-offset Galvanized Circle hook without ring* | *Hameçon autoferrant en acier inoxydable à courbure dans l'axe, sans anneau* |
| ***CR*** | *Circle hook with Ring* | *Hameçon autoferrant avec anneau* |

| | | |
|---|---|---|
| ***SCR*** | *Stainless steel (shinny) Circle hook with Ring* | *Hameçon autoferrant en acier inoxydable (brillant) avec anneau* |
| ***GCR*** | *Galvanized steel (dull) Circle hook with Ring* | *Hameçon autoferrant en acier galvanisé (mat) avec anneau* |
| ***OCSR*** | *Offset Stainless Circle hook with Ring* | *Hameçon autoferrant en acier inoxydable à courbure désaxée, avec anneau* |
| ***NCSR*** | *Non-offset Stainless Circle hook with Ring* | *Hameçon autoferrant en acier inoxydable à courbure dans l'axe, avec anneau* |
| ***OCGR*** | *Offset Galvanized Circle hook with Ring* | *Hameçon autoferrant en acier galvanisé à courbure désaxée, avec anneau* |
| ***NCGR*** | *Non-offset Galvanized Circle hook with Ring* | *Hameçon autoferrant en acier galvanisé à courbure dans l'axe, avec anneau* |
| ***Japan Hooks*** | | |
| ***NT*** | *Normal (regular) Japan tuna hook* [11] *without ring* | *Hameçon à thons Japonais normale* [12] *sans anneau* |
| ***RT*** | *Round Japan tuna hook without ring* | *Hameçon à thons Japonais circulaire sans anneau* |
| ***SNT*** | *Stainless steel (shinny) Normal Japan tuna hook without ring* | *Hameçon à thons Japonais normale en acier inoxydable sans anneau* |
| ***GNT*** | *Galvanized steel (dull) Normal Japan tuna hook without ring* | *Hameçon à thons Japonais normale en acier galvanisé sans anneau* |
| ***SRT*** | *Stainless steel (shinny) Round Japan tuna hook without ring* | *Hameçon à thons Japonais circulaire en acier inoxydable sans anneau* |
| ***GRT*** | *Galvanized steel (dull) Round Japan tuna hook without ring* | *Hameçon à thons Japonais circulaire en acier galvanisé sans anneau* |
| ***NTR*** | *Normal (regular) Japan tuna hook with ring* | *Hameçon à thons Japonais normale avec anneau* |
| ***RTR*** | *Round Japan tuna hook with ring* | *Hameçon à thons Japonais circulaire avec anneau* |
| ***SNTR*** | *Stainless steel (shinny) Normal Japan tuna hook with ring* | *Hameçon à thons Japonais normale en acier inoxydable avec anneau* |
| ***GNTR*** | *Galvanized steel (dull) Normal Japan tuna hook with ring* | *Hameçon à thons Japonais normale en acier galvanisé avec anneau* |
| ***SRTR*** | *Stainless steel (shinny) Round Japan tuna hook with ring* | *Hameçon à thons Japonais circulaire en acier inoxydable avec anneau* |
| ***GRTR*** | *Galvanized steel (dull) Round Japan tuna hook with ring* | *Hameçon à thons Japonais circulaire en acier galvanisé avec anneau* |
| ***J Hooks*** | | |
| ***J*** | *J hook without ring* | *Hameçon en J sans anneau* |
| ***RJ*** | *J hook with ring* | *Hameçon en J avec anneau* |

[11] Japan tuna hooks typically have a 10–20º (kirbed) offset.
[12] Les hameçons à thons Japonais ont typiquement une courbure désaxéé de 10-20°.

| | | |
|---|---|---|
| ***SJ*** | *Stainless steel (shinny) J hook without ring* | *Hameçon en J en acier inoxydable sans anneau* |
| ***GJ*** | *Galvanized steel (dull) J hook without ring* | *Hameçon en J en acier galvanisé sans anneau* |
| ***SRJ*** | *Stainless steel (shinny) J hook with ring* | *Hameçon en J en acier inoxydable avec anneau* |
| ***GRJ*** | *Galvanized steel (dull) J hook with ring* | *Hameçon en J en acier galvanisé avec anneau* |
| ***OSJ*** | *Offset Stainless J hook without ring* | *Hameçon en J en acier inoxydable à courbure désaxée, sans anneau* |
| ***NSJ*** | *Non-offset Stainless J hook without ring* | *Hameçon en J en acier inoxydable à courbure dans l'axe, sans anneau* |
| ***OSRJ*** | *Offset Stainless J hook with ring* | *Hameçon en J en acier inoxydable à courbure désaxée, avec anneau* |
| ***NSRJ*** | *Non-offset Stainless J hook with ring* | *Hameçon en J en acier inoxydable à courbure dans l'axe, avec anneau* |
| ***OGJ*** | *Offset Galvanized J hook without ring* | *Hameçon en J en acier inoxydable à courbure désaxée, sans anneau* |
| ***NGJ*** | *Non-offset Galvanized J hook without ring* | *Hameçon en J en acier inoxydable à courbure dans l'axe, sans anneau* |
| ***OGRJ*** | *Offset Galvanized J hook with ring* | *Hameçon en J en acier inoxydable à courbure désaxée, avec anneau* |
| ***NGRJ*** | *Non-offset Galvanized J hook with ring* | *Hameçon en J en acier inoxydable à courbure dans l'axe, avec anneau* |
| ***Spanish Hooks*** | | |
| ***S*** | *Spanish hook without ring* | *Hameçon Espagnols sans anneau* |
| ***RS*** | *Spanish hook with ring* | *Hameçon en Espagnols avec anneau* |
| ***SS*** | *Stainless steel (shinny) Spanish hook without ring* | *Hameçon en Espagnols en acier inoxydable sans anneau* |
| ***GS*** | *Galvanized steel (dull) Spanish hook without ring* | *Hameçon en Espagnols en acier galvanisé sans anneau* |
| ***SRS*** | *Stainless steel (shinny) Spanish hook with ring* | *Hameçon en Espagnols en acier inoxydable avec anneau* |
| ***GRS*** | *Galvanized steel (dull) Spanish hook with ring* | *Hameçon en Espagnols en acier galvanisé avec anneau* |
| ***OSS*** | *Offset Stainless Spanish hook without ring* | *Hameçon en Espagnols en acier inoxydable à courbure désaxée, sans anneau* |
| ***NSS*** | *Non-offset Stainless Spanish hook without ring* | *Hameçon en Espagnols en acier inoxydable à courbure dans l'axe, sans anneau* |

| | | |
|---|---|---|
| ***OSRS*** | *Offset Stainless Spanish hook with ring* | *Hameçon en Espagnols en acier inoxydable à courbure désaxée, avec anneau* |
| ***NSRS*** | *Non-offset Stainless Spanish hook with ring* | *Hameçon en Espagnols en acier inoxydable à courbure dans l'axe, avec anneau* |
| ***OGS*** | *Offset Galvanized Spanish hook without ring* | *Hameçon en Espagnols en acier inoxydable à courbure désaxée, sans anneau* |
| ***NGS*** | *Non-offset Galvanized Spanish hook without ring* | *Hameçon en Espagnols en acier inoxydable à courbure dans l'axe, sans anneau* |
| ***OGRS*** | *Offset Galvanized Spanish hook with ring* | *Hameçon en Espagnols en acier inoxydable à courbure désaxée, avec anneau* |
| ***NGRS*** | *Non-offset Galvanized Spanish hook with ring* | *Hameçon en Espagnols en acier inoxydable à courbure dans l'axe, avec anneau* |
| ***Teracima Hooks*** | | |
| ***T*** | *Teracima hook without ring* | *Hameçon Teracima sans anneau* |
| ***RT*** | *Teracima hook with ring* | *Hameçon en Teracima avec anneau* |
| ***ST*** | *Stainless steel (shinny) Teracima hook without ring* | *Hameçon en Teracima en acier inoxydable sans anneau* |
| ***GT*** | *Galvanized steel (dull) Teracima hook without ring* | *Hameçon en Teracima en acier galvanisé sans anneau* |
| ***SRT*** | *Stainless steel (shinny) Teracima hook with ring* | *Hameçon en Teracima en acier inoxydable avec anneau* |
| ***GRT*** | *Galvanized steel (dull) Teracima hook with ring* | *Hameçon en Teracima en acier galvanisé avec anneau* |
| ***OST*** | *Offset Stainless Teracima hook without ring* | *Hameçon en Teracima en acier inoxydable à courbure désaxée, sans anneau* |
| ***NST*** | *Non-offset Stainless Teracima hook without ring* | *Hameçon en Teracima en acier inoxydable à courbure dans l'axe, sans anneau* |
| ***OSRT*** | *Offset Stainless Teracima hook with ring* | *Hameçon en Teracima en acier inoxydable à courbure désaxée, avec anneau* |
| ***NSRT*** | *Non-offset Stainless Teracima hook with ring* | *Hameçon en Teracima en acier inoxydable à courbure dans l'axe, avec anneau* |
| ***OGT*** | *Offset Galvanized Teracima hook without ring* | *Hameçon en Teracima en acier inoxydable à courbure désaxée, sans anneau* |
| ***NGT*** | *Non-offset Galvanized Teracima hook without ring* | *Hameçon en Teracima en acier inoxydable à courbure dans l'axe, sans anneau* |
| ***OGRT*** | *Offset Galvanized Teracima hook with ring* | *Hameçon en Teracima en acier inoxydable à courbure désaxée, avec anneau* |

| | | |
|---|---|---|
| ***NGRT*** | *Non-offset Galvanized Teracima hook with ring* | *Hameçon en Teracima en acier inoxydable à courbure dans l'axe, avec anneau* |

## *Mitigation devices to reduce bycatch and depredation*

| ***Code*** | ***English Description*** |
|---|---|
| *SPD* | *"Spiders" or "Socks", physically protects hooked fish from depredation by cetaceans.* |
| *VID* | *Visual decoys or deterrents (e.g. dummy buoys)* |
| *ACD* | *Acoustic decoys, transmits acoustic cues to attract animals away from true fishing activity (e.g. hauling noises broadcasted from moored buoys).* |
| *AAD* | *Active Acoustic Deterrents transmits sounds that deter animals from the vessels. These can be sounds that provoke physical discomfort (e.g. pingers), an avoidance response (e.g. transient killer whale sounds), or "jam" the biosonar of a species.* |
| *PAD* | *Passive Acoustic Deterrents, use sonar reflective systems on the fishing gear, such as streamers with reflective spheres, cones, and cylinders* |
| *LIS* | *Light-sticks can be used to illuminate portions of the nets to reduce sea turtle bycatch.* |
| *LIG* |  *Lights of different colour (LEDs or UV) are attached to the net headline every 5 m to 10 m. Can be placed on nets or longlines to reduce sea turtle and sea-bird bycatch.* |
| *OVM* | *Other Visual Methods used to increase net visibility reduce sea-turtles, cetaceans and sea-birds bycatch.*<br>• Reflective material<br>• Solid, high visibility panels<br>• Making the net itself more visible, by using high visibility webbing, weaving colours through nets, using high visibility monofilament (entire net), high contrast rope in mesh, etc.<br>• Streamers |
| *AWM* | *Above Water Methods can be used to reduce sea-turtles, cetaceans and sea-birds bycatch.*<br>• Tori lines above water over the net<br>• Kites or drones flown over net<br>• Raptor silhouettes |
| *NTS* | *Net Type and Setting: the use of sub-surface nets can help to reduce sea-turtles, cetaceans and seabird bycatch.* |
| *OTH* | *Other (specify)* |
| *UNK* | *Unknown* |

## *Type of net webbing*

| ***Code*** | ***English Description*** |
|---|---|
| *MO* | *Monofilament* |
| *MU* | *Multifilament* |
| *BR* | *Braided* |
| *UNK* | *Unknown* |

| | |
|---|---|
| *OTH* | *Other (to be detailed)* |

## *Type of floats used in the gillnet fisheries*

| ***Code*** | ***English Description*** |
|---|---|
| *FLF* | *Floatline with foam core* |
| *HDPE* | *HDPE plastic* |
| *PVC* | *PVC plastic* |
| *FOA* | *Styrofoam (Polystyrene)* |
| *OTH* | *Other (detail e.g. plastic bottles)* |
| *UNK* | *Unknown* |

## *Sinkers used in the gillnet fisheries*

| ***Code*** | ***English Description*** |
|---|---|
| *WLL* | *Weighted footrope* |
| *LEA* | *Lead* |
| *CEM* | *Cement* |
| *STO* | *Stones* |
| *OTH* | *Other, record on comments* |
| *UNK* | *Unknown* |

## *Net material*

| ***Code*** | ***English Description*** |
|---|---|
| *MO* | *Monofilament* |
| *MU* | *Multifilament* |
| *BR* | *Braided* |
| *UNK* | *Unknown* |
| *OTH* | *Other (to be detailed)* |

## *Hauling methods*

| ***Code*** | ***English description*** |
|---|---|
| *HD* | *By hand* |
| *GR* | *Using the gear* |
| *GF* | *Using a gaff* |
| *BR* | *Using a brailler* |
| *SN* | *Using a scoop net* |

| | |
|---|---|
| *ON* | *Using another net* |
| *OT* | *Using another method (describe)* |