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Progress on Kobe III bycatch Technical Working Group

WCPFC-SC9-2013/EB-WP-04

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Executive Summary

Background

The Kobe By-catch Joint Technical Working Group was established in 2009 and its work plan endorsed by the Kobe III meeting in July 2011 and the Scientific Committee of WCPFC in August 2011. This report documents the progress towards achieving this plan, which includes:

- Harmonisation of t-RFMO fishing data
- Harmonisation of identification guides
- By-catch research priorities and collaborative work
- Information sharing through the BMIS
- Facilitation of Risk Assessments (sharks as the priority)
- Funding Sources
- Compliance with data reporting requirements

The Scientific Committee is invited to both note the report, but also to provide guidance on the future of this By-catch Joint Technical Working Group.

Harmonisation of tuna RFMO fishing data

Purse-seine harmonisation was presented to the Eighth Regular Session of the WCPFC Scientific Committee (SC8)

Long-line harmonisation has been initiated by ICCAT. A preliminary comparison between available RFMO data field standards for long-line forms has been completed (Appendix 1).

Harmonisation of identification guides

ACAP has completed a harmonized guide for seabirds (see WCPFC-SC8-EB-IP-04 for details).

No progress report on shark and sea turtle identification guides is provided. The harmonisation of shark identification guides has been included in the recently approved GEF-ABNJ project.

Research priorities

No action undertaken. The provisional list of Research Priorities remains as specified in SC7-EB-WP-14.

BMIS

The progress of the BMIS is reported in WCPFC-SC9-2012/EB-IP-03.

The BMIS is currently supported by WCPFC (web and database architecture) and ISSF (database administration and support). The expansion of the BMIS into a tuna RFMO-wide tool is a specified objective of the TWG and resourcing for this activity is included in the recently approved GEF-ABNJ project. WCPFC is a partner to this project and the SC should seek guidance from its secretariat on the timing on the release of funds to implement BMIS related activities in this project.

Risk Assessments

No progress on this activity.

Funding Sources

No progress on this activity since reporting to SC8.

The GEF-ABNJ project has commenced which includes the following components of the TWG work plan:

BMIS

- The expansion of the WCPFC BMIS into a tuna RFMO wide database including training and development workshops.

Harmonisation

- The harmonisation of shark identification guides

Research priorities

Longline

- Testing the effectiveness of line weighting, night setting and bird-scaring lines to minimise seabird interactions in Asian fleet operations, with a focus on identifying the most effective gear configuration for the specific characteristics of these vessels and their fishing operations.
- Testing the effectiveness of safe handling and release techniques for sea turtles.

Purse-Seine

- Characterize the numbers and behaviours of by-catch under FADs to develop practical techniques for the reduction of by-catch, including best practices for handling and release.
- Tagging studies of post-release mortality of sharks, including whale sharks, for which t-RFMO “no-retention” management measures exist
- Mining and/or processing of historical and alternative data sets to produce usable data (unsubmitted data, duplicated data, filtering/rectification of logsheet data, trade data to cross-check catch data) for shark assessments.

Compliance with data reporting requirements

The purpose of this activity in the work plan was to facilitate comparison of the effectiveness of particular mitigation measures. Summary data can be prepared, with appropriate confidentialities maintained, however this would require agreement for access to Part 2 Annual report information, or for the WCPFC Secretariat to provide this summarized information. Advice from the SC is requested on the usefulness of this activity for assessing the effectiveness of mitigation measures prior to proposing this activity to the TCC.

Introduction

The Kobe By-catch Technical Working Group was established as an outcome of the Kobe II Workshop on By-catch held in Brisbane between June 23rd and 25th in 2010. The Terms of Reference are:

The By-catch Joint Technical Working Group (TWG) should be small in nature so as to work more efficiently (e.g. 2-3 representatives from each Tuna RFMO). The TWG will support, streamline, and seek to harmonize the by-catch related activities of Ecosystems/By-catch working groups. The TWG will have the ability, where necessary, to consult and work with other experts including those from fishing industry, IGOs and NGOs. The findings/recommendations of the TWG will be considered by each RFMO, including, as appropriate, their technical bodies, in accordance with the procedures of each RFMO. The RFMOs may provide feedback to the TWG as necessary. To the extent possible, the BWG will meet electronically.

Terms of Reference:

1) Identify, compare and review the data fields and collection protocols of logbook and observer by-catch data being employed by each Tuna RFMO. Provide guidance for improving data collection efforts (e.g., information to be collected) and, to the extent possible, the harmonization of data collection protocols among Tuna RFMOs.
2) Identify species of concern that, based on their susceptibility to fisheries and their conservation status, require immediate action across Tuna RFMOs. Review all available information on these species and identify their data needs.
3) Review and identify appropriate qualitative and quantitative species population status determination methods for by-catch species.
4) Review data analyses to identify all fishery and non-fishery (e.g. oceanographic and physical) factors contributing to by-catch, taking into account the confidentiality rules of each RFMO.
5) Review existing by-catch mitigation measures including those adopted by each Tuna RFMO and consider new mitigation research findings to assess the potential utility of such measures in areas covered by other Tuna RFMOs taking into consideration differences among such areas.
6) Review and compile information on by-catch research that has been already conducted or is currently underway to delineate future research priorities and areas for future collaboration.
7) The duration of the WG will depend on the needs and requests of the Tuna RFMOs.

The first meeting of the TWG was held in La Jolla on July 11, 2011 in the margins of the Kobe III meeting. The TWG agreed to meet electronically every 3 months and to meet in person whenever possible in conjunction with Kobe meetings or in the absence of Kobe meeting every three years. Over the next several years the Working Group proposes the following work plan:

- Harmonization of data collection
- Development of harmonized identification guides and release protocols
- Identify and recommend research priorities
- Prioritization of collaborative work
- Progress BMIS information sharing website
- Funding sources
- Compliance with data reporting requirements

This report provides the first annual report of the TWG's progress to achieving this work plan to the WCPFC Scientific Committee.

Work Plan Progress

Work-plan Activity	Progress
Harmonization of data collection	
The working group will identify the minimum data standards and data fields that should be collected across all RFMOs with a view to allowing interoperability.	*Purse Seine* Task completed and reported to WCPFC-SC8 *Long-line* ICCAT is leading the harmonization of long-line observer data. A preliminary comparison between available RFMO data field for long-line observer forms has been completed (Appendix 1), however this has not yet been reviewed by the TWG or the relevant RFMOs.
Harmonized identification guides and release protocols	
1. Seabird identification: the tuna Secretariats will provide ACAP with existing seabird identifications, and ACAP will develop a standardized identification guide. The drafts of the identification guide will be reviewed by the Working Group working group and Tuna RFMO working groups.	*Seabirds* Task completed and reported to WCPFC-SC8
2. Shark identification: the Working Group, with WCPFC and ICCAT taking the lead, will harmonize guidance for shark identification, in collaboration with the IUCN shark specialist group and others. (Note-- IATTC shark ID guide is available in its website, and it provides a useful model for observer use).	The harmonisation of shark identification guides has been included in the recently approved GEF-ABNJ project. The SC is advised to consult with its secretariat on the timing of implementation of this activity.
3. Sea Turtle identification: The Secretariats will provide the Working Group Chair with the	No action undertaken

materials currently in use for turtle identification so these can be harmonized and distributed to all tuna RFMOs.	
4. The Working Group should consider a process to develop harmonized marine mammal identification guides for the fisheries for which they are not available.	No action undertaken
Identify and recommend research priorities & prioritization of collaborative work	
Research Priorities Provisional list of research activities has been identified. All RFMOs to review and revise the draft list by 31 December 2011. The BMIS to be modified to include this list. The list should also include current and upcoming research conducted or supported by tuna RFMOs. This would help to avoid overlap and ensure the efficient use of limited research resources. The list might include an outline, timetable and contacts for the research program, i.e. who is doing what, where and when. Such information would also be useful for scientists in government and academia, as well as NGOs.	Task completed and reported to WCPFC-SC8
Collaboration Each RFMO should designate/employ a dedicated bycatch staff person to work collaboratively with other RFMOs to promote bycatch related work. The Working Group should consider meeting in	No action undertaken

person every three years to prioritize research in line with the TOR of the Working Group. The Working Group in consultation with experts should undertake a review of ecological risk assessments used by the RFMOs and provide recommendations to standardize these assessments across RFMOs	
Progress BMIS information sharing website The Working Group agreed to meet to develop a centralized bibliographic bycatch database that includes information on mitigation, bycatch conservation and management measures adopted by the RFMOs and past assessments undertaken by RFMOs; with the effort will be led by ICCAT, IOTC, and WCPFC.	See WCPFC-SC9-2013/EB-IP-03.
Sharks	
The working group will also examine if there is commonality in the incidence of whale and marine mammal interactions with purse seine fisheries across RFMOs.	No action undertaken
The Working Group is concerned with the practice of intentional sets on whale sharks, in RFMOs where there is evidence of the practice occurring, and recommends that tuna RFMOs initiate research to determine the impact and outcome of this practice.	Task reported to WCPFC-SC8. SeeWCPFC-SC8-2012/EB-WP-03 and WCPFC-SC8-2012EB-WP-04. Updated information is provided in WCPFC-SC9-2013/EB-WP-01
RFMOs should conduct risk assessment processes to develop their priorities for shark species which may need further assessment or	The attention of the SC is directed to the recent publications Moore JE, Curtis KA, Lewison RL, Dillingham PW, Cope JM, Fordham SV, Heppell SS, Pardo SA, Simpfendorfer CA, Tuck GN, Zhou S. 2013. Evaluating sustainability of fisheries bycatch mortality for marine megafauna: a

mitigation. RFMOs may wish to consider the WCPFC key shark nomination processes.	review of conservation reference points for data-limited populations. Environmental Conservation, doi:10.1017/S037689291300012X. Arrizabalaga Haritz, de Bruyn Paul, Diaz Guillermo A., Murua Hilario, Chavance Pierre, de Molina Alicia Delgado, Gaertner Daniel, Ariz Javier, Ruiz Jon, Kell Laurence T. 2011. Productivity and susceptibility analysis for species caught in Atlantic tuna fisheries. Aquatic Living Resources. 2011 24:1-12 The SC should also note that Productivity-Susceptibility Analyses have been completed for WCPFC (SC2-EB-WP-1, SC3-EB-WP-1, SC4-EB-WP-1, SC5-EB-WP-5).
RFMOs should take action to improve data collection on sharks and manta and devil rays in targeted industrial and artisanal fisheries. As an example, the Working Group noted that a fins naturally attached requirement would improve species identification and enforcement and should be considered as part of existing shark finning bans.	No action undertaken The SC is referred to CMM 2010-07 for WCPFC which places responsibility on whether the fins of landed sharks are naturally attached with the CCM. The SC may wish to revise this CMM to satisfy the TWG requirement. The SC is advised to note that CMM2010-07 is consistent with IATTC (C-05-03), IOTC (05/05), ICCAT (04-10) and CCSBT (which simply recommends that vessels comply with WCPFC and IOTC CMMs when fishing in their waters)
RFMOs should consider supporting studies to investigate post-release survival of sharks in longline fisheries in relation to hook type and duration of set, among other factors.	No action undertaken
RFMOs should consider supporting studies to further develop shark bycatch mitigation strategies for longline fisheries.	See WCPFC-SC9-2013/EB-WP-02
RFMOs should evaluate the costs and benefits of banning the use of wire leaders in tuna longline fisheries.	No action undertaken
RFMOs should develop handling and release	Task completed and reported to WCPFC-SC8

protocols for all sharks and manta and devil rays, taking into consideration the safety of the crews.	
Funding sources	No action undertaken The GEF-ABNJ project has commenced which includes the following components of the TWG work plan: BMIS • The expansion of the WCPFC BMIS into a tuna RFMO wide database including training and development workshops. Harmonisation • The harmonisation of shark identification guides Research priorities Longline • Testing the effectiveness of line weighting, night setting and bird-scaring lines to minimise seabird interactions in Asian fleet operations, with a focus on identifying the most effective gear configuration for the specific characteristics of these vessels and their fishing operations. • Testing the effectiveness of safe handling and release techniques for sea turtles. Purse-Seine • Characterize the numbers and behaviours of by-catch under FADs to develop practical techniques for the reduction of by-catch, including best practices for handling and release. • Tagging studies of post-release mortality of sharks, including whale sharks, for which t-RFMO "no-retention" management measures exist • Mining and/or processing of historical and alternative data sets to produce usable data (unsubmitted data, duplicated data, filtering/rectification of logsheet data, trade data to cross-check catch data) for shark assessments. The SC is advised to consult with its secretariat on the timing of implementation of these activities.
Compliance with data reporting requirements	No action undertaken The purpose of this activity in the work plan was to facilitate comparison of the effectiveness of particular mitigation measures. Summary data can be prepared, with appropriate confidentialities maintained, however this would require agreement for access to Part 2 Annual report information or for the WCPFC Secretariat to provide this summarized information. Advice from the SC is requested on the usefulness of activity for assessing the effectiveness of mitigation measures prior to proposing this activity to the TCC

Appendix 1. Preliminary Tables of comparison for harmonising long-line observer data forms.

Table 1: Summary of shared, additional and missing information from the t-RFMO forms for Longline fishery

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Summary of general information that is shared on all forms				
Vessel identification	Vessel identification	Vessel identification	Vessel identification	
Vessel trip information	Vessel trip information	Vessel trip information		
Observer information	Observer information	Observer information	Observer information	
Crew information		Crew information	Crew information	
Vessel and gear attributes	Vessel and gear attributes	Vessel and gear attributes	Vessel and gear attributes	
	Catch information	Catch information	Catch information	
Length/biological info	Length/biological info	Length/biological info	Length/biological info	
Tag information	Tag information		Tag information	
Species special interest info	Species special interest info	Species special interest info		
Summary of additional information specific to certain t-RFMO forms				
Vessels and aircraft sightings	Summary of meterological details			
Observer trip monitoring summary	Summary of fishing strategy			
Did the vessel do any of the following…?	Lost fishing gear			
	Vessel sightings			
Summary of information missing from certain t-RFMO forms				
Catch information	Crew information	Tag information	Vessel trip information	
			Species special interest info	

Table 2: summary of information examined

RFMO	Source	Email date	Document year
IATTC	http://www.iattc.org/Downloads/Forms/LonglineNormal-forms-and-manual.pdf	7/16/2013	2012
WCPFC	http://www.wcpfc.int/doc/Table-ROP-data-fields-including-instructions	7/14/2013	None
CCSBT	http://www.ccsbt.org/userfiles/file/docs_english/operational_resolutions/observer_program_standards.pdf	7/14/2013	None
IOTC	IOTC-2010-ROS-06 IOTC Observer Manual(Nov2010)[E] in IOTC Observer fields.zip	7/10/2013	2010
template	sukarrietaII_kobi_summary_29-August.doc	6/26/2013	None

OBSERVER LONG LINE DATA HARMONISATION

Harmonisation of Effort Data

Part 1. Vessel Identification

The current "Minimum Data-field Standards" specified by each of the Tuna Regional Fisheries Management Organisations (t-RFMOs) are outlined in the Table below. However, if each t-RFMO fully participates in the TUVI database then the TUVI number is all that is required to uniquely identify vessels for inter-operability.

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Name of vessel (including numbers) **Flag State registration number** (sourced from the vessel papers). **International radio call sign** (ICRS; issued to the vessel by the flag State in accordance with IMO regulations). **Vessel owner/company** **Hull markings consistent with CMM 2004-03** **WIN markings consistent with CMM 2004-03** **WIN format for markings consistent with CMM 2004-03**	**Vessel name** **IOTC registration number** **Vessel type and main gear** Stated on cover page of Observer Trip Report along with: Observer name; Nationality; IOTC Certification number; Trip started; and Trip ended.	**Vessel** (Name) **Registration Number** **Company name**	**Vessel Name** **Vessel Call-sign** **Vessel flag country**	

Part 2. Vessel Trip Information

The current "Minimum Data-field Standards" specified by each of the t-RFMOs are outlined in the Table below. Currently IOTC requires a 5-day status report.

The clear reporting of when a trip commences and concludes is required to reduce the potential for inappropriate representation of trip data when inter-t-RFMO comparisons are undertaken.

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Date and time of departure **Port of departure** **Date and time of return to port** **Port of return**	**Date of departure** (dd/mm/yyyy) **Port / Position of departure** **Arrival on fishing ground** (dd/mm/yyyy) **Start fishing** (dd/mm/yyyy) **End fishing** (dd/mm/yyyy) **Departure of fishing ground** (dd/mm/yyyy) **Date of return** (dd/mm/yyyy) **Port / Position of return** **Comments**	**Departure date** **Departure Port** **Departure Time** **Arrival date** **Arrival port** **Arrival time**	**None – refer to observer info**	

Part 3. Observer Information

The current "Minimum Data-field Standards" specified by each of the t-RFMOs are outlined in the Table below. The most important data are those that identify the duration of the observers trip and information that can be used to uniquely identify the observer for the purpose of interoperability.

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Observer name **Nationality of observer** **Observer provider** – country and/or organization **Date, time and location of embarkation** **Date, time and location of disembarkation**	**Observer name**(First and Last Name) **Nationality** **Controlling organization** **Contact address** **Boarding date** (dd/mm/yyyy) **Boarding Time** (GMT) **Boarding Location** **Disembarkation date** (dd/mm/yyyy) **Disembarkation time** (GMT) **Disembarkation Location** **Comments**	**Observer's name is on each form**	**Observer's name** **Observer's organization** **Date observer embarked** (24hr clock, UTC to the day) **Date observer disembarked** (24hr clock, UTC to the day)	

Part 4. Crew Information

The current "Minimum Data-field Standards" specified by each of the t-RFMOs are outlined in the Table below. The most important data are those that identify the total crew number and uniquely identify the captain/fishing master. The creation of a joint t-RFMO captain/fishing master register may be an efficient way to achieve the "unique observer identity" (i.e. similar principal to TUVI).

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Name of captain **Nationality of captain** **Identification document** (passport) **Name of fishing master** **Nationality of fishing master** **Identification document** (passport) **Vessel monitoring system**	**None**	**Captain name** **Number of crew**	**Name of captain** **Name of fishing master** **Number of people in crew (all staff, excluding observers)**	

Part 5. Vessel and Gear Attributes

The current "Minimum Data-field Standards" specified by each of the t-RFMOs are outlined in the Table below. The characteristics of the vessel and gear assist with standardizing effort and the over-riding principal for data collection should be to maximize the detail to improve standardization.

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Vessel attributes				
Vessel cruising speed to optimize fuel usage; not top speed of vessel **Vessel fish hold capacity** (metric Tons mT) **Freezer type** (Y/N to all types on board, many vessels have more than one type of freezer) **Length** (LOA specify unit) **Tonnage** (Gross Tonnage [GT or GRT] specify unit) **Engine power** (specify unit) **Refrigeration method** (Y/N to all types on board, many vessels have more than one type of refrigeration)	**Vessel name** **Radio call sign** **Flag state** **Port of registration** **Vessel type** **Main fishing gear** **Owner** **Charterer** **Gross tonnage** **Length over all (m)** **Blast freezer capacity (m3)** **Fish storage capacity (m3)**	**Length** (m) **Width** (m) **Draft** (m) **Dist. deck to water** (m) **Well capacity** (MT) **Main motor** **Auxiliary motor** **Fuel capacity** (gallons) **Fuel used** (gallons) **Type of fuel** – gas, diesel, etc **Water capacity** (gallons) **Catch conservation method -** describe the method used to conserve the catch, for example ice, ammonia, etc. **Only if applicable:** **Type (fibra-mother ship)** **Number of fibras** **If the vessel is a 'fibra' name of mothership**	**Year vessel built** **Engine brake power (kw/hp)** **Overall length** **Gross tonnage** **Total freezer capacity (m^3)** **Fuel capacity (tonnes)**	
Gear Attributes				
Mainline material **Mainline length** (miles or km)	**Longline type(s) used** (ITOC gear code)	**Mainline material** (use code tables) **Mainline diameter** (mm)	**Mainline material** (nylon, cotton thread, other)	

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Mainline diameter (mm) **Branch line material(s)** **Wire trace** (Y/N) **Mainline hauler** (Y/N) **Branch line hauler** (Y/N) **Line shooter** (Y/N) **Automatic bait thrower** (Y/N) **Automatic branch line attached** (Y/N) **Hook type(s)** (J, circle, offset circle etc) **Hook size(s)** **Tori pole** (Y/N) **Bird curtain** (Y/N) **Weighted branch lines** (Y/N and record mass weight) **Blue dyed bait** (Y/N) **Distance between bottom of the weight and eye of hook** (m) **Underwater setting shoot** (Y/N) **Disposal method for offal management** **Date and time of start of set** **Latitude and longitude of start of set** (GPS reading when first buoy is thrown in water) **Date and time of end of set** **Latitude and longitude of end of set** (GPS reading when last buoy is thrown in water)	**Line setter** (Y/N) make & model **Bait casting machine** (Y/N) make & model **Line hauler** (Y/N) make & model	**Mainline length** (total length; nm) **Mainline colour** (use code tables)	**Material of branch lines** (nylon, cotton thread, other) **Material of buoy lines** (nylon, cotton thread, other) **Tori Pole used** (Yes/No) **Bait thrower/line shooter used** (Yes/No)	
	Mainline material **Mainline length (m) onboard** **Mainline diameter (mm)**	**Upper gangion material** (use code tables) **Upper gangion diameter** (mm) **Upper gangion length** (fath) **Upper gangion colour** (use code tables)		
	Branch line storage (basket/tub/reel)	**Middle gangion material** (use code tables) **Middle gangion diameter** (mm) **Middle gangion length** (fath) **Middle gangion colour** (use code tables)		
		Lower gangion material (use code tables) **Lower gangion diameter** (mm) **Lower gangion length** (fath) **Lower gangion colour** (use code tables)		
	No. Hooks per basket/tub/reel **Hook type(s)** **Hook size(s)**	**Total number of hooks on the line** **Observations**		
		Floatline/dropline material (use code tables) **Floatline/dropline length** (cm) **Floatline/dropline colour** (use code tables)		

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Total number of baskets or floats **Number of hooks per basket, or number of hooks between floats** **Total number of hooks used in a set** (maybe calculated by multiplying number of baskets by number of hooks between baskets) **Line shooter speed** **Length of float-line** **Distance between branch lines** **Length of branch lines** **Time-depth recorders** (TDRs) Number used and where on the mainline do they attach them to the branch lines **Number of light sticks** used and where on the mainline do they attach them to the branch lines **Target species** **Bait species** **Date and tiem of start of haul** **Date and time of end of haul** **Total amount of basket, floats monitored by observer in a single set** (count number of floats brought on board)	**Branch line 1 material(s)** **Branch line 1 diameter (mm)** **Branch line 2 material(s)** **Branch line 2 diameter (mm)** **Branch line 3 material(s)** **Branch line 3 diameter (mm)** **Branch line 4 material(s)** **Branch line 4 diameter (mm)**	**Buoy quantity** **Buoy material** (use code tables) **Buoy diameter** (cm) **Buoy colour** (use code tables)		
		Flag quantity **Flag material** (use code tables) **Flag colour** (use code tables)		
	Leader 1 material **Leader 1 diameter (mm)** **Leader 2 material** **Leader 2 diameter (mm)** **Leader 3 material** **Leader 3 diameter (mm)** **Leader 4 material** **Leader 4 diameter (mm)**	**Float quantity** **Float material** (use code tables) **Float diameter** (cm) **Float colour** (use code tables)		
	Refrigeration method **Fish storage method** **Comments** on the set-up and use of gear. Note differences in branch line construction.	**Distance between hooks** **Max. hooks on mainline** **Number of lights** **Number of radio buoys**		
		Mainline weights (Yes/No) **Mainline retrieval** (By hand, manual crank, hydraulic crank, other) **Dropline connection to mainline** (knots; snaps) **Fishing gear diagram** (space for observer to draw)		
		Hooks A, B, C, D, E: **Type** (J/C) **Size**		

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
		J-straight / J-curved **Material** (use code tables) **Manufacturer** **Offset** **Ring** (Yes/No) **Other details** **Observations**		
Vessel electronics (preference for make(s) and model(s) to be specified for each piece of equipment)				
Radars (Y/N) **Depth sounder** (Y/N) **Global position system** (Y/N) **Track plotter** (Y/N) **Weather facsimile** (Y/N) **Sea surface temperature (SST) gauge** (Y/N) **Sonar** (Y/N) **Radio/satellite buoys** (Y/N) **Doppler current meter** (Y/N) **Expendable bathythermograph** (XBT) (Y/N) **Satellite communications services** (phone/fax/email numbers) satellite numbers if Yes **Fishery information services** (Y/N) **Vessel monitoring system(s) –** indicate the type of system	**Onboard acoustic equipment** **Position fixing equipment** **Vessel Monitoring System** (Present/Absent) **VMS unit and transmitter equipment type** **Radars** **Communication equipment** **Plotters** **Comments**	**Navigation and fishing equipment:** describe any navigation or fishing equipment (GPS, sonar, thermometers, etc.) on the vessel, including the make, model, range, etc.	**NNSS** (Yes/No) **GPS** (Yes/No) **Omega** (Yes/No) **Radio direction finder** (Yes/No) **Radar** (Yes/No) **Weather fax** (Yes/No) **Track plotter** (Yes/No) **NOAA receiver** (Yes/No) **Sounder** (1=colour monitor; 2=monochrome monitor; 3=printer) **Sonar** (1=scanning; 2=PPI) **Doppler current monitor** (Yes/No) **Sea surface temperature recorder** (Yes/No) **Bathy-thermograph** (Yes/No) **Bird radar** (Yes/No)	

Harmonisation of catch data

Part 8 Catch Information

Each of the t-RFMO requires that the observer estimate the weight of the catch and/or numbers of bycatch species. The weight categories differ between the t-RFMOs and this places restriction on the inter-operability of the data collected. Information on whether the catch is retained or discarded is collected by each t-RFMO.

Observed Catch Information (applies to CCSBT) – relates to that part of the catch that was actually observed by the observer during the hauling process. All information recorded here relates only to the period(s) that were observed. This data should be collected as per the hierarchies to prioritise data collection as circumstances prevail on the observed vessel. The hierarchies for data collected by species and SBT data are: fishing operation information (all vessel and shot info); Monitoring hauls (time and species caught; retained or discarded with life status); Biological sampling (length and whole and/or processed weight including processed state; presence of tag(s); sex; biological samples; photos). Prioritise monitoring of hauls and biological sampling procedures by species group as follows: SBT (1st); other tunas, billfishes, gasterochisma and sharks (2nd); all other species (3rd).

The current "Minimum Data-field Standards" specified by each of the t-RFMOs are outlined in the Table below.

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Comprehensive catch, effort and environmental information for each set. This information is recorded for each set while the observer is on-board a vessel, regardless of whether the set/haul was actually observed.				
Hook number between floats (count hooks from the last float hauled on board to next float to determine hook number of caught fish) **Species code** (FAO code)	**Total number of days in the fishing area** (days) **Total number of days** (days) **Days lost** (weather, breakdown…) (days) **Steaming/Searching days** (days) **Target species** **Total number of sets/drifts** **Number of hooks/panels** **Number of hooks/panels lost** **Total number of sets/drifts observed/sampled**		**Wind speed** (with unit) **and direction** (N, NNE, NE etc) **of the operation** **At the period of the wind measured for operation** (e.g. Noon, start of set etc) **Sea surface temperature** (degrees C, to 1 decimal place) **at start of set** **Intended target species** (using FAO species codes or national codes and providing translation to FAO codes) **Location at end of set** (latitude+N/S and longitude+E/W	

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
	Number of hooks/panels observed/sampled **Comments**		to minute of accuracy) **Direction of line set** (e.g. straight=S, curved=C, U-shaped=U) **Comment**: It is enough to collect the temperature at the start of set) At the period of the location and wind are measured for the operation (e.g. noon, start of set etc.	
	Retained catch details (all species) per calendar months: Year **Month** **Species** **Square number (1^{o}x1^{o})** **Processing code** **Processed weight (kg)** **Comments**		**Total number by species of SBT, and other tuna and tuna-like species caught, retained or discarded.** **Total processed weight** (kg) **and Processed State** (RD=round/whole, GG=gilled & gutted, DR=dressed etc as per TIS codes) **by species of SBT, and other species caught (i.e. all fish, birds, turtles etc.)**	
	Processing details: **Species** **Processing code** **Comments**		**Date and time at start of set** (24 hr clock; UTC) **Date and time at end of set** (24 hr clock; UTC) **Date and time at start of retrieval** (24 hr clock; UTC) **Date and time at end of retrieval** (24 hr clock; UTC) **Location at start of Set** (latitude+N/S and longitude+E/W to minute of accuracy)	
	Fish discards: **Year**		**Actually used mainline length** (km) **Actually used branch line length**	

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
	Month **Species** **Square number (1^{o}x1^{o})** **Number or Weight (kg)** **Reason**		(m) **Actually used buoy line length** (m) **Intended depth of the shallowest hook** (m) **Intended depth of the deepest hook** (m) **Number of hooks** **Number of baskets** **Distance between baskets, beacons, buoys, or floats as is appropriate to the operation** (m)	
	Bait used (type/species) **Bait ratio** (%)		**Percentage of bait by bait categories** that were Fish, Squid, Artificial, and Other **Bait status** (live or dead)	
	Comments		**Comment**: All species should be reported with FAO species codes, or using National codes and providing a translation table to FAO species codes.	
Observed catch information relates to that part of the catch that was actually observed by the observer during the hauling process				
Not specified in WCPO-Table-ROP-data-fields-instructions.pdf		**Set number** **Time** **Species name** **Number caught** **Hook A, B or C** **Hook location** (use code tables) **Disposition** (use code tables)	**Date and time at the start of the observation period** (translatable to 24 hour clock, UTC) **Date and time at the end of the observation period** (translatable to 24 hour clock, UTC) **Number of hooks observed**	

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
		Set number **Date** **Target fishery** (use code tables) **Set start Latitude** **Set start Longitude** **Set start time** **Set end Latitude** **Set end Longitude** **Set end time** **Retrieval start Latitude** **Retrieval start Longitude** **Retrieval start time** **Retrieval end Latitude** **Retrieval end Longitude** **Retrieval end time** **Set special** (Yes/No) **Set patrolled** (Yes/No) **Retrieval direction:** start to end; OR end to start **Sea surf temperature** **Number of hooks in set by type: A, B, C** Hook labels A, B, C are assigned to each of the 3 lines used to describe the hooks. These different labels are used as a reference to the hooks in the other forms (Set, Specimen and Turtle forms). **Total number of hooks in set** **Number of hooks lost**	**Total number by species of caught and retrieved retained during the observed period** **Total processed weight** (kg) **by species and Processed State of all species caught and retained during the observed period** **Total number and weight when possible** (whole weight, in kilograms) **by species caught but discarded during the observed period and life status.** **Comment:** All species should be reported with FAO species codes, or using National codes and providing a translation table to FAO species codes.	

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
		Number of hooks between floats **Average hook depth** (fath) **Bottom longline?** (Yes/No)		
		Bait 1: type of bait; and % of total **Bait 2**: type of bait; and % of total **Bait 3**: type of bait; and % of total		
		Observations		

Part 9 Length & Biological Information

IATTC currently do not require length measurements to be undertaken on the vessel and have implemented port sampling for these data. The diversity of unloading locations for the IATTC is believed to be low and the traceability of tuna catch high. Consequently length based information collected in port can be related back to the set. The traceability of catch in the WCPFC is more complex due to the occurrence of well sorting and high diversity of unloading locations and observers are required to undertake length measurements on the vessel. This includes measurement of discarded species and those of special interest which provides the opportunity to raise the catch data into finer resolution size increments. This is not possible for discarded species in the IATTC and inter-operability with the IATTC is poor for this data field. The current "Minimum Data-field Standards" specified by each of the t-RFMOs are outlined in the Table below.

CCSBT - Biological measurements of individual fish. Biological measurements are only required for SBT, but where possible, effort should be made to measure other species. For the purposes of SBT analyses, accurate size measurements of SBT are required. SBT should be selected in a manner to ensure within strata randomness. For example, for large numbers of fish caught in a single operation (e.g., a purse seine vessel) a systematic sampling may be appropriate. The actual number of fish should be spread throughout as many separate fishing operations as possible. For example, it is nearly always the case that sampling 20 fish (randomly) from each operation is much better than sampling 200 fish from every 10th operation. The required actual number of samples should be re-evaluated from time to time and as needs change.

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Length of fish use recommended measurement method **Length measurement code** (include type of measurement code e.g. UF = upper jaw to fork length) **Gender** (M, F, I=indeterminate if difficult to determine, U=unknown on whole fish no seen) **Condition when caught** (code) **Fate** (code) **Condition when discarded** **Tag recovery information** (as much information as possible)	A range of **length** measurements can be recorded for different fish species. Note clearly which measurements are recorded and in which units they were recorded. For example TL (total length) and cm (centimeters). Refer to IOTC code tables. In all cases fish should be measured on a horizontal flat surface. Fish, which have a crushed or broken snout or tail or are not frozen in a straight position should not be measured.	**Sex** (M=1; F=2) **Weight** (kg) **Lengths (cm)** for POL-FL-TL-CCL; PCL-*DL*; IDS-*DW*-CCW **Male Sharks** for CL (cm); CAL; SEMEN **Observations** Form provides drawings of different species illustrating how to measure: POL postocular length; FL fork length; TL total length; PCL precaudal length; IDS interdorsal	**Species** (using FAO species codes) **Life status category** (distinguish life status categories as: dead and damaged; dead and undamaged; alive and vigorous; or unknown.) **Length** (for SBT, fork length measured on straight length, rounded up to the cm.) **Length unit** **Length code** (fork length, eye fork, etc) **Length, lower jaw-fork length** **Whole weight** (kg), if possible, i.e.	

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
	Tuna (figure 17) are mostly measured for “fork length”(UJFL) from the tip of the upper or top jaw to the fork of the tail. In situations where the fish are too large for the available equipment or the tails have been cut off for production purposes then the “pre-dorsal length”(LD1) from the tip of he upper jaw to the insertion of the first dorsal spine can be taken. However, it is importance to always note down clearly what measurements have been taken. Billfish (figure 18) are preferably measured from the tip of the lower jaw to the fork of the tail, (LJFL). The length of most billfish make it impractical to use callipers or a measuring board and the preferred measurements are taken with a flexible tape pulled over the contours of the body. On some commercial vessels it may not be possible to take the LJFL length as the fish are first dressed by the crew. Alternative measurements that can be taken in these situations are: Eye-fork length (EFL) Measurement is taken from the posterior edge of the eye socket to the fork of the tail. Pectoral-fork length (PFL) The length is taken from the most	space; CL caudal length; DW disc width; DL disc length; CCL curved carapace length; CCW curved carapace width	measured weight before processing as opposed to a calculated whole weight. **Processed weight** (kg) **Processed State** (RD=round/whole, GG=gilled and gutted, DR=dressed etc., as per TIS codes.) **Sex** (F=female, M=male, I=indeterminate, D= not examined) **Samples taken**, specifying: a unique identification number given to the sample; the type of samples taken, including: whole specimen, or samples of otoliths, scales, vertebrae, stomach, muscle, tissue, gonads, etc)	

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
	anterior insertion of the pectoral fin to the fork of the tail. Pectoral-dorsal length (PDL) The length is taken from the most anterior insertion of the pectoral fin to the most anterior insertion of the second dorsal fin. Pectoral-anal length (PAL) The length is taken from the anterior insertion of the pectoral fin to the posterior rim of the anal sphincter. Again it is important to note the means and type of measurements taken.			

Part 10 Species of Special Interest

The information collected by the t-RFMOs provides for some inter-operability between the datasets. General information describing the type of interaction and set details along with information on the species and fate when landed on the deck and when released is collected (with level of detail varying between t-RFMO). The IATTC and IOTC also collect specific information on turtle interaction. The current "Minimum Data-field Standards" specified by each of the t-RFMOs are outlined in the Table below.

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Type of interaction (e.g. caught on line; swimming around) **Date and time of interaction** **Latitude and longitude of interaction** **Species code of marine reptile, marine mammal or seabird** (FAO codes) **Vessel's activity during interaction** **Condition observed at start of interaction** **Condition observed at end of interaction** **Description of interaction** (with vessel gear only) **Number of animals sighted during interaction**	**Summary of incidental catches:** **Mitigation measures:** Did the vessel operate south of 25^{o}S? List the mitigation measures used **If tori lines were used:** What was the number of sets where Tori lines were deployed? What was the percentage of sets which Tori lines were deployed? Were the Tori lines constructed according to IOTC guidelines? **Comments**	**Vessel name** **Sample number** **Set number** **Time** **Species name** **Hook A, B, C, D, E** **Condition** (use code tables) **Hook location (**use code tables) **Fate** (use code tables) **Sex** **Length** (cm) **Weight** (kg) **Observations**	Both the monitoring of hauls and the biological sampling procedures should be prioritised among species groups as follows: 1st priority = SBT 2nd priority = Other tunas, billfishes, Gasterochisma, and **sharks** 3rd priority = all other species	

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Sharks				
Length (cm) **Length measurement code** (for species) **Gender** (if possible) **Estimated shark fin weight by species** **Estimated shark carcass weight by species** **Condition when landed on deck** **Condition when released** **Tag recovery information** **Tag release information**				
Rays				
		Rays should be measured by total length **TL** from the tip of the disc to the tip of the tail		
Seabirds				
Length (cm) **Length measurement code** (for species) **Gender** (if possible) **Condition when landed on deck** **Condition when released** **Tag recovery information** **Tag release information**	**Year** **Month** **Species** **Square number (1^{o}x1^{o})** **Fate: Dead; or Released alive** **Comments**			

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Marine Mammals caught				
Length (cm) **Length measurement code** (for species) **Gender** (if possible) **Condition when landed on deck** **Condition when released** **Tag recovery information** **Tag release information**	**Year** **Month** **Species** **Square number (1^{o}x1^{o})** **Fate: Dead; or Released alive** **Comments**			
Sea Turtles				
Length (cm) **Length measurement code** (for species) **Gender** (if possible) **Condition when landed on deck** **Condition when released** **Tag recovery information** **Tag release information**	**Year** **Month** **Species** **Square number (1^{o}x1^{o})** **Fate: Dead; or Released alive** **Comments**	**Vessel name** **Sample number** **Observer** **Date** **Time** **Set number** **Species** **Sex** **CCL** (curve carapace length) (cm) **CCW** (curve carapace width) (cm) **Tail (LTC)** (cm) **Hook A, B, C** (the hook characteristics are defined in the Vessel form. Use the same label to reference the corresponding hooks in the turtle form) **Colour of nearest float or buoy** (use code tables) **Position Latitude** **Position Longitude**		

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
		Condition (use code tables) **Entanglement** (use code tables) **Hooking** (use code tables) **Disposition** (use code tables) **Observations** **Turtle location in relation to fishing gear** (diagrammatic in relation to surface fishery and bottom fishery) **Hook location and turtle entanglement** (diagrammatic) **Existing tag 1:** **Existing tag 2:** **New tag 1:** **New tag 2:** Form also provides diagram demonstrating how to measure tail LTC and shell length (LCC) and shell width (WCC).		
Depredation				
	Number of sets with observed depredation **Percentage of sets with observed depredation** **Percentage of catch per species damaged by depredation** **Was fish loss attributed to predator but not directly observed? (Yes/No)** **List of predator species observed:** **Comments**			

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Tag recovery information – Some of the data recorded here duplicates data that already exists in the previous categories of information. This is necessary because tag recovery information may be sent separately to other observer data.				
	Tag No. **Species** **Length (cm)** **Length type** **Weight (kg)** **Weight type** **Position recovery:** Lat: N/S Long: E **Finder details** **Comments** (e.g. Full label on tag, tag type)		**Observer's name** **Vessel's name** **Vessel's call sign** **Vessel flag** **Collect and provide the actual tags** **Tag colour** **Tag numbers** (The tag number is to be provided for all tags when multiple tags were attached to one fish. If only one tag was recorded, a statement is required that specifies whether or not the other tag was missing) **Date and time of capture** (UTC) **Location of capture** (latitude+N/S and longitude+E/W to 1 minute of accuracy) **Length** (fork length, rounded up to the nearest cm) **Processed Weight** (kg.) **Processed State** RD=round/whole, GG=gilled and Gutted, DR=dressed etc., as per TIS codes **Details of samples taken**, specifying: a unique identification number given to the sample; the type of samples taken, including: whole specimen, or samples of otoliths, scales, vertebrae, stomach, muscle, tissue, gonads, etc.)	

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
			Sex (F=female, M=male, I=indeterminate, D=not examined) **Condition of recaptured fish and life status** **Whether tags were found during a period of fishing that was being observed** (Y/N) **Reward information** (e.g. name and address where to send reward)	
Summary of biological data collected				
	Species **Total number of individuals sampled** **Number measured** **Number weighed** **Number sexed** **Maturity stage recorded** **Otoliths collected** **Other (specify)** **Carcass retained**			
Biological sample storage location				
	Sample type **Species** **Number collected** **Location to be sent/stored**			
	Biological sub-sampling methodologies: description of sub-sampling methodology used during trip			

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
Tagging information				
	Species **Tag type** **Number of animals tagged** **Comments**			

Part 11 Additional information

Additional information provided by specific tRFMO forms is outlined in the Table below.

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
<u>Vessel & Aircraft Sightings</u>: **UTC Date and time of sighting** **Observers vessel latitude and longitude position** **Where possible sighted vessel or aircraft name** **Where possible sighted vessel or aircraft call-sign** **Flag of sighted vessel if possible** **Other vessel markings** **Type of vessel (e.g. purse-seine, long line etc)** **Compass bearing from observers vessel to sighted vessel** **Estimated distance from observers vessel to sighted vessel** **Activity of sighted vessel e.g. steaming, fishing, drifting etc.** **Comments**	**Summary of meteorological details** **Summary of fishing strategy** **Vessel sightings:** were fishing/supply vessels sightings being recorded? (Yes/No) **Lost fishing gear:** include information on lost fishing gear, such as length of line lost and other gear such as floats.			
Vessel Trip Summary: **Observer name & nationality** **Observer trip number** (used on all forms) **Observer Provider/Programme** **Name of vessel** **Vessel call sign** **Vessel gear type** **Coastal state license, when**	**General comments:** provide a description and/or comment on fishing activities or incidences that are not routinely captured by the data sheets.			

WCPFC	IOTC	IATTC	CCSBT	ICCAT (French & Spanish)
applicable **Vessel certificate of registration** **WCPFC authorization** (WIN number if supplied) **Nationality of any boarding inspection vessel**				