Annual Review of National SBT Fisheries for the Extended Scientific Committee

(Revised as agreed at SC22 following CCSBT 24)

1. Introduction

- Background

No directed fisheries of Southern Bluefin Tuna (SBT) are permitted under the EU quota system of SBT and, therefore, EU fishing vessels do not target SBT. Any incidental catches of SBT by EU vessels are the result of by-catches of longliners operating in the Southern Hemisphere targeting swordfish in association with sharks, notably in the IOTC Convention Area (Table 1).
Activities in South Atlantic and Southwest Pacific, in areas where SBT bycatch could occur are very low and therefore the information provided for those areas are general and less than the data provided for Indian Ocean.
EU Purse Seiners operating in the Southern hemisphere do not harvest SBT as they fish in tropical tunas fishing grounds.

Area	Year	SBT reported catch (tonnes)
Indian Ocean	2000	0
Indian Ocean	2001	0
Indian Ocean	2002	0
Indian Ocean	2003	3
Indian Ocean	2004	22
Indian Ocean	2005	0
Indian Ocean	2006	3
Indian Ocean	2007	18
Indian Ocean	2008	14
Indian Ocean	2009	2
Indian Ocean	2010	11
Indian Ocean	2011	3
Indian Ocean	2012	4
All	2013	0
All	2014	0
All	2015	0
All	2016	0
All	2017	0

Table 1. Total reported EU bycatch of SBT.

- Summary of historical developments in the fishery

Indian Ocean

In 2016 (last IOTC report), 20 EU long-liners were fishing for swordfish in association with sharks in IOTC in which interaction with SBT has taken place in the past (13 vessels from Spain, 6 from Portugal and 1 from UK). The average size of the longliners is roughly 40 meters, ranging from 30 to 50 meters. There are also some small longliners active in La Reunion EEZ, mainly fishing Albacore but not operating in areas of SBT distribution (i.e. not interfering with SBT fisheries). The number of EU longliners has decreased in recent years from around 31 in 2013 to 20 in 2016,

Atlantic Ocean

In 2017, 23 Spanish longliners were active in Southern Atlantic but mainly operating outside the SBT distribution area (North of 30°S). There were also 3 Longliners from Portugal with some fishing trips entering the zone where encounters with SBT could occur.

West Pacific

In 2017 there were 3 Spanish longliners operating in the Southwest Pacific Ocean that had some fishing trips in the SBT distribution area.

- Overview of the most recent fishing season

No by-catch of SBT in 2016 and 2017 was reported by the EU fleets, including data provided by observers, operating in all oceans in areas where incidental catch of SBT could occur.

2. Catch and Effort

- Trends by gear type (surface and longline), and
- Trends by area and season

(Table should include: catch & effort for above strata as well as totals for the entire history of the fishery)

The EU fleet does not target SBT and there were no incidental catches of SBT by EU vessels operating in the SBT distribution area. The information and data provided below concerns fishing activities of the EU longliners operating in areas where SBT encounters could occur in all oceans.

Indian Ocean

Catch and effort of the EU longline fleet targeting swordfish in association with sharks is distributed in the Southern Indian Ocean between latitudes 20°S and 40°S, mainly north 30 ºS, in the Mozambique Channel, at the south of Madagascar and at the longitude of 100°E (Figures 1 to 3).

The nominal effort – number of hooks - for all longliners targeting swordfish in association with sharks has decreased since 2013 (Table 2). EU fleet (Spain, Portugal and UK flagged vessels) mainly operate in IOTC high seas. In 2016, catches of swordfish represented about 40 % of total catches and Sharks, all together, contributed around 48 % to the total catches.

Year	Effort	Catches						
	(10^6 hooks)	SWO	BSH	SMA	TUS	BIL	NEI	Total
2011	5,353	4.682	4.459	612	159	52	259	**10.223**
2012	5,941	5.770	4.559	750	110	51	146	**11.385**
2013	8,324	6.692	1.765	887	224	84	164	**9.816**
2014	7,665	5.285	5.794	1.026	324	45	100	**12.574**
2015	6,312	5.240	5.166	692	402	69	126	**11.696**
2016	6,398	4.958	5.166	715	913	237	303	**12.265**

Table 2. Nominal efforts (number of hooks) and catches in tonnes of live weight of the EU longliners in IOTC area targeting Swordfish in association with sharks.

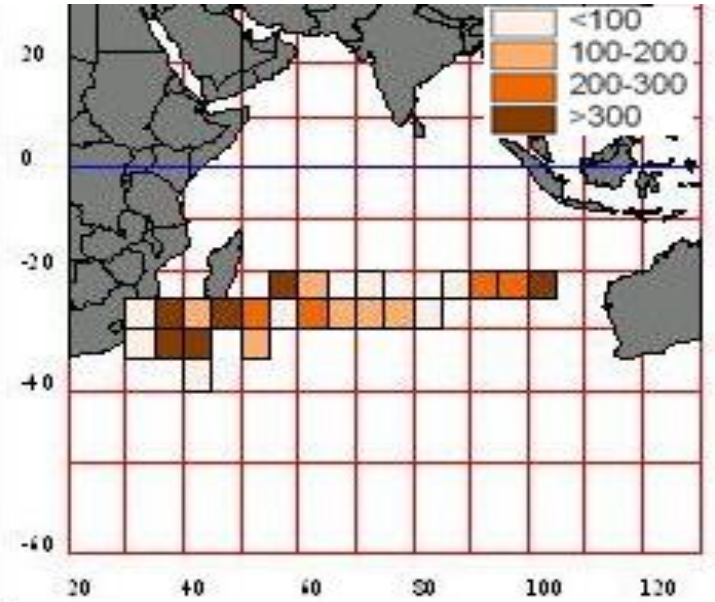


Figure 1. Map of the distribution of the nominal fishing effort (thousands hooks) , by the Spanish surface longline fleet operating in the IOTC area of competence during 2016.

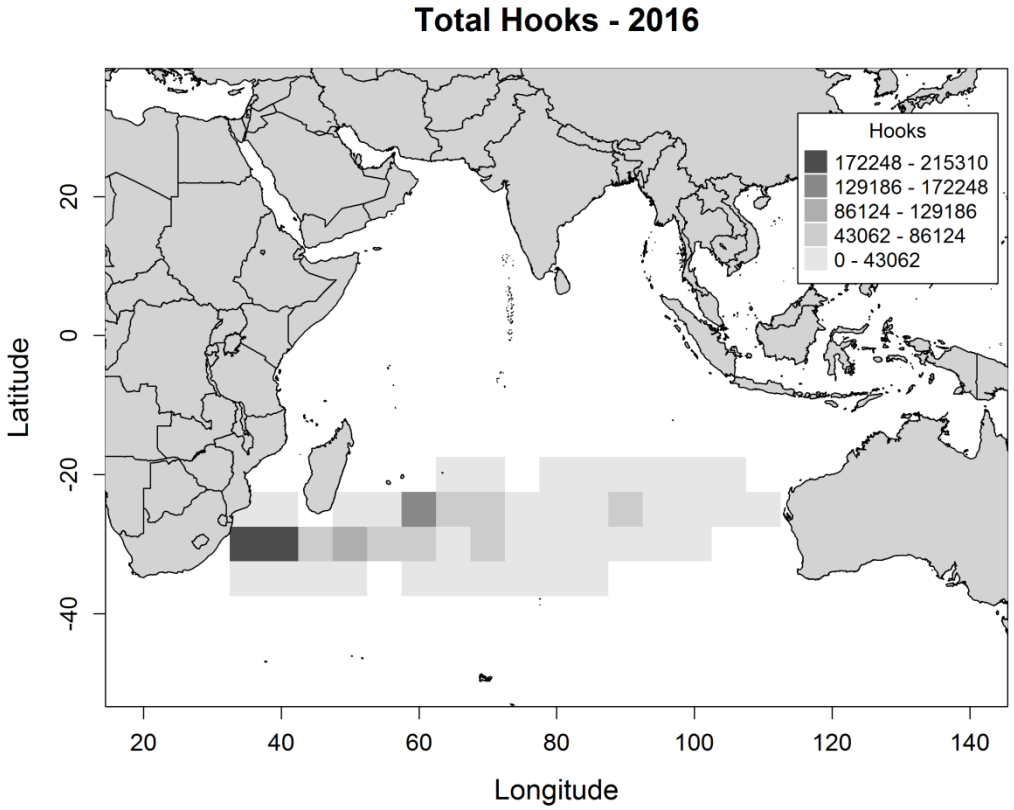


Figure 2. Map of the distribution of the nominal fishing effort (number of hooks deployed), by the Portuguese longline fleet operating in the IOTC area of competence during 2016.

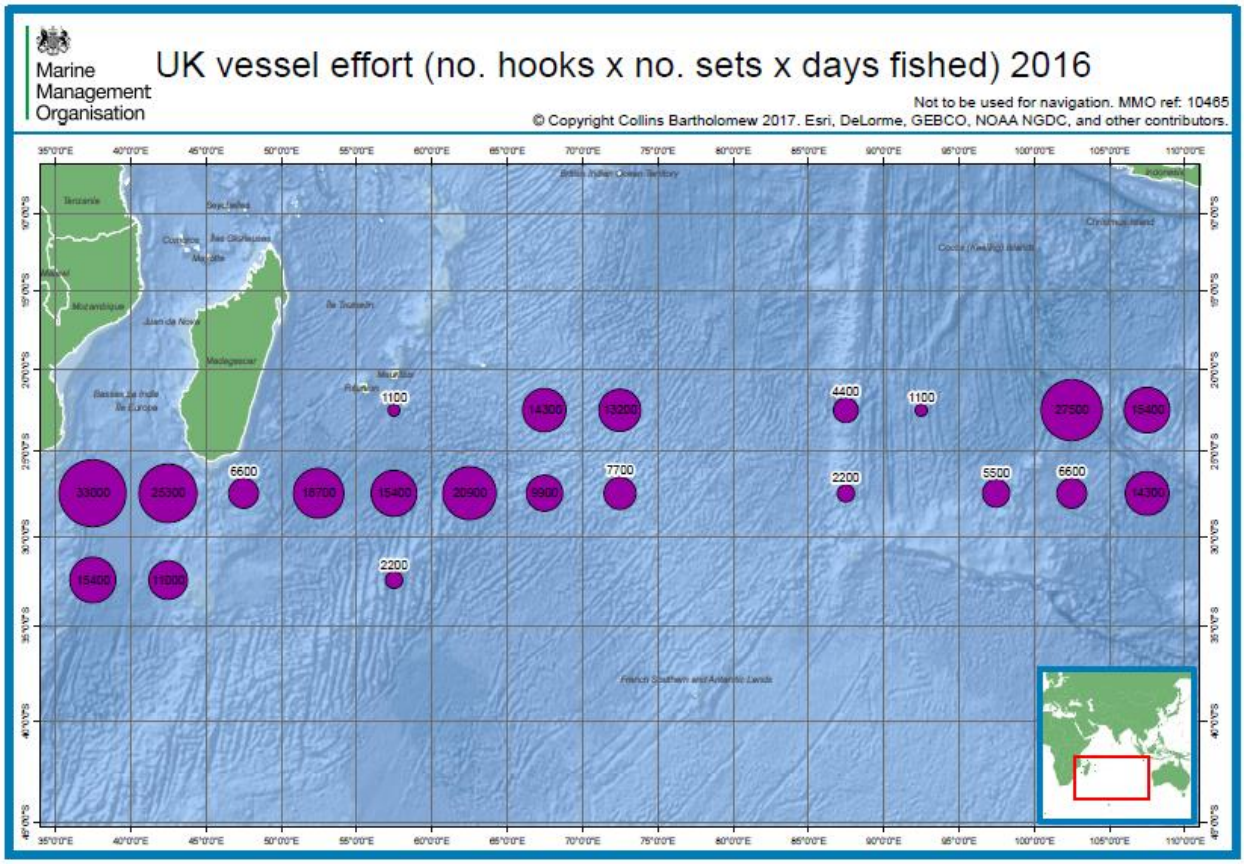


Figure 3. Map of the distribution of the nominal fishing effort (number of hooks deployed * no of sets * days fished), by the UK longline fleet operating in the IOTC area of competence during 2016.

Southern Atlantic Ocean

The EU longline fleet operating in the Southern Atlantic Ocean, targets swordfish in association with sharks (same characteristic as those operating in IOTC). Some fishing trips intermittently entered the SBT distribution area.

Relevant information on catch and effort of this fleet has been provided to ICCAT secretariat (see section 3).

West Pacific

Spanish fleet:

The Spanish longline fleet is composed by 3 longliners. The activity of the fleet commenced in 2004, and it has been targeting swordfish since then. Some fishing trips intermittently entered in the SBT distribution area.

Relevant information on catch and effort of this fleet has been provided to WCPFC secretariat (see section 3).

3. Nominal CPUE

Where appropriate:

- Trends by gear type (surface and longline)

The EU doesn't have SBT fisheries, however, information of nominal catch rates of the fleet targeting swordfish is presented as well as on Ecological Related Species..

- Trends by area and season

(Table should include: nominal CPUE for above strata as well as totals for the entire history of the fishery)

Indian Ocean

Spanish fleet:

During the year 2016 a total of 4,427 thousand hooks were deployed by 13 longliners. A total of 3,354t of swordfish (round weight) were caught during 2016. The overall nominal catch rate was 758 kg (round weight) per thousand hooks (Figure 4, 5 and table 3).

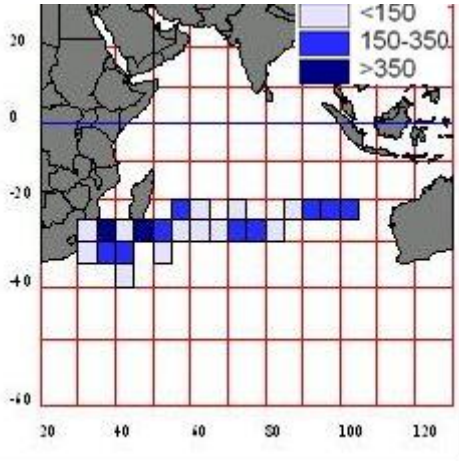


Figure 4. Map of the distribution of swordfish catch (tons round weight) by 5ºx5º squares of the Spanish surface longline fleet in 2016

	TOTAL CATCH SWO		NOMINAL FISHING EFFORT
YEAR	Number of fish	Kg RW	hooks*1000
2008	76882	3924743	4885
2009	66000	3306663	3634
2010	61100	3116458	3174
2011	63165	3191553	3758
2012	85472	4396670	4674
2013	92909	4766588	6263
2014	79373	4164218	6107
2015	64698	3421352	4509
2016	66952	3354291	4427

Table 3. Catch in number of fish and in kg round weight of swordfish by the Spanish surface longline fishery and total number of hooks (in thousands) set in the Indian Ocean during the period 2008-2016.

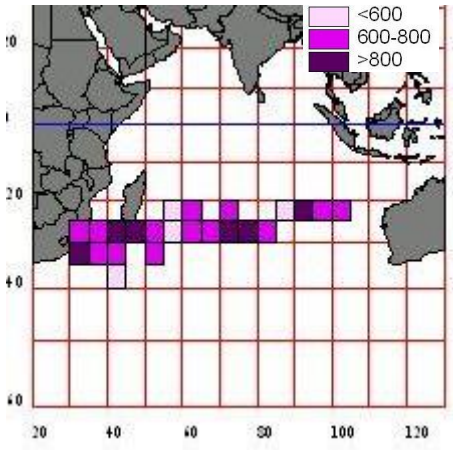


Figure 5. Distribution of the nominal CPUE in kg (round weight) of swordfish landed per thousand hooks set by 5ºx5º degrees, carried out by the Spanish surface longline fleet in the Indian Ocean during the year 2016.

Portuguese fleet:

During 2016 the overall fishing effort was 1,699 thousand hooks, with the SW area being the most heavily fished. During the first years of the fishery the fishing effort was concentrated in the SW Indian Ocean, but then developed towards the Central and Eastern regions of the convention area. However, in recent years due to a number of reasons (including piracy, oil price and the decreased number of active boats), most of the fishing activity in occurring in the SW area of the Indian Ocean (Figure 6). The 2016 overall production was 3,511 mt, which represents a 76% increase from the 2014 catches (1,924 mt) and a 3.7% increase from 2015 (3386 mt) (Table 4).

Year	Total effort	Total Catch	SWO	BSH	SMA	TUS	BIL	NEI
2012	689	1489	696	554	118	44	22	55
2013	1558	3080	1370	1160	220	163	61	106
2014	978	1924	594	885	148	230	30	37
2015	1415	3386	1454	1249	225	308	60	90
2016	1699	3511	1400	1375	241	311	84	100

Table 4. Total EU-Portugal longliners annual catch (MT - metric tons) and effort (x10^3 hooks) and catch for the primary species (or group of species) in the IOTC area of competence, for the period 2012 to 2016. SWO – swordfish; BSH – blue shark; SMA – shortfin-mako; TUS – tuna; BIL – other billfishes; NEI – not elsewhere included, category for all other species combined.

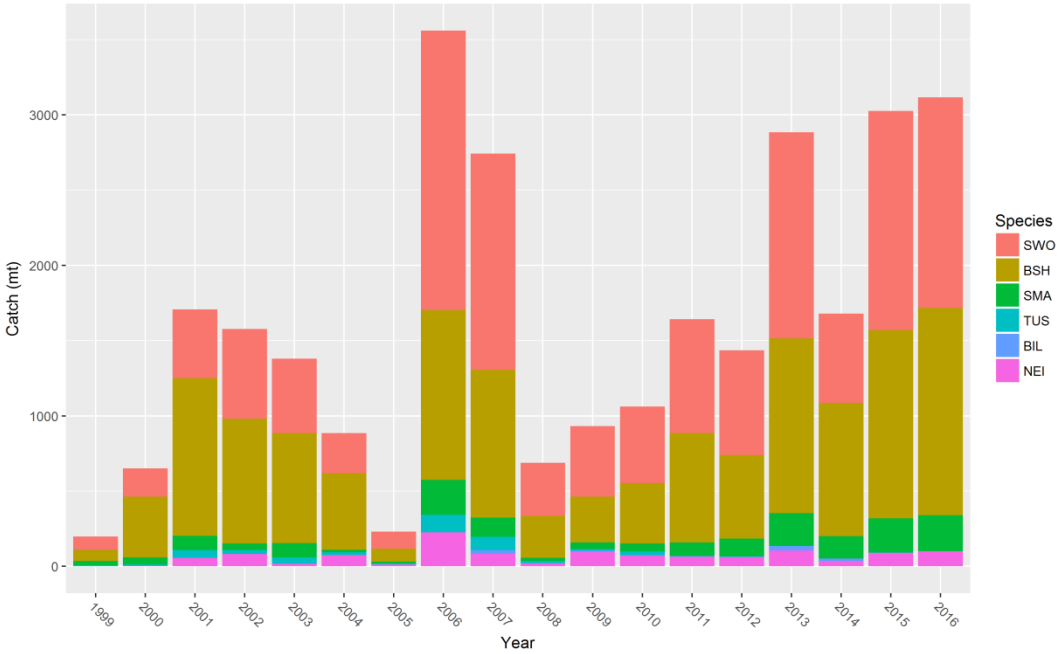
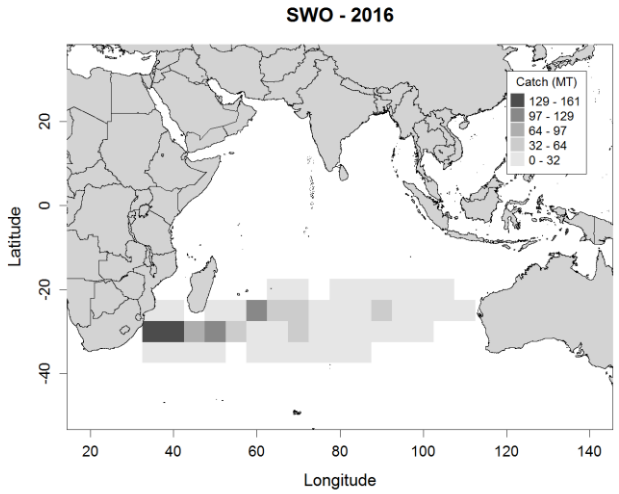
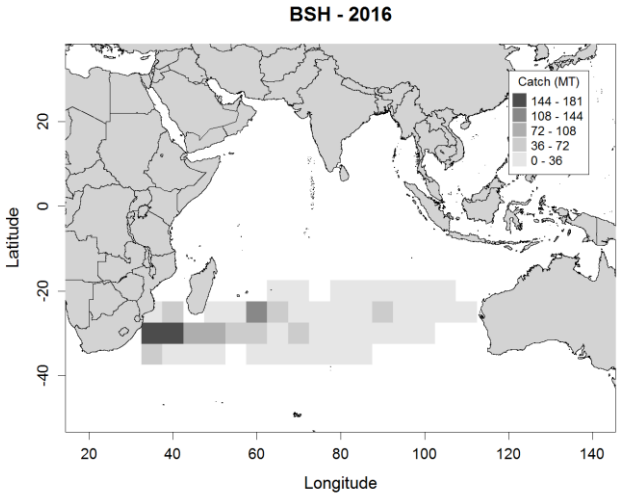


Table 5. Historical annual catch for the Portuguese longline fleet, by primary species (or groups of species), for the IOTC area of competence for the entire history of the fishery (1998-2016). SWO – swordfish; BSH – blue shark; SMA – shortfin mako; TUS – tuna; BIL – billfishes; NEI - category for all other species combined.





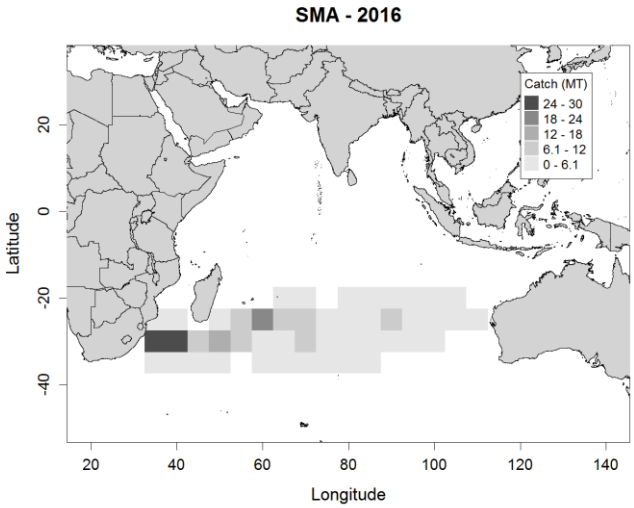
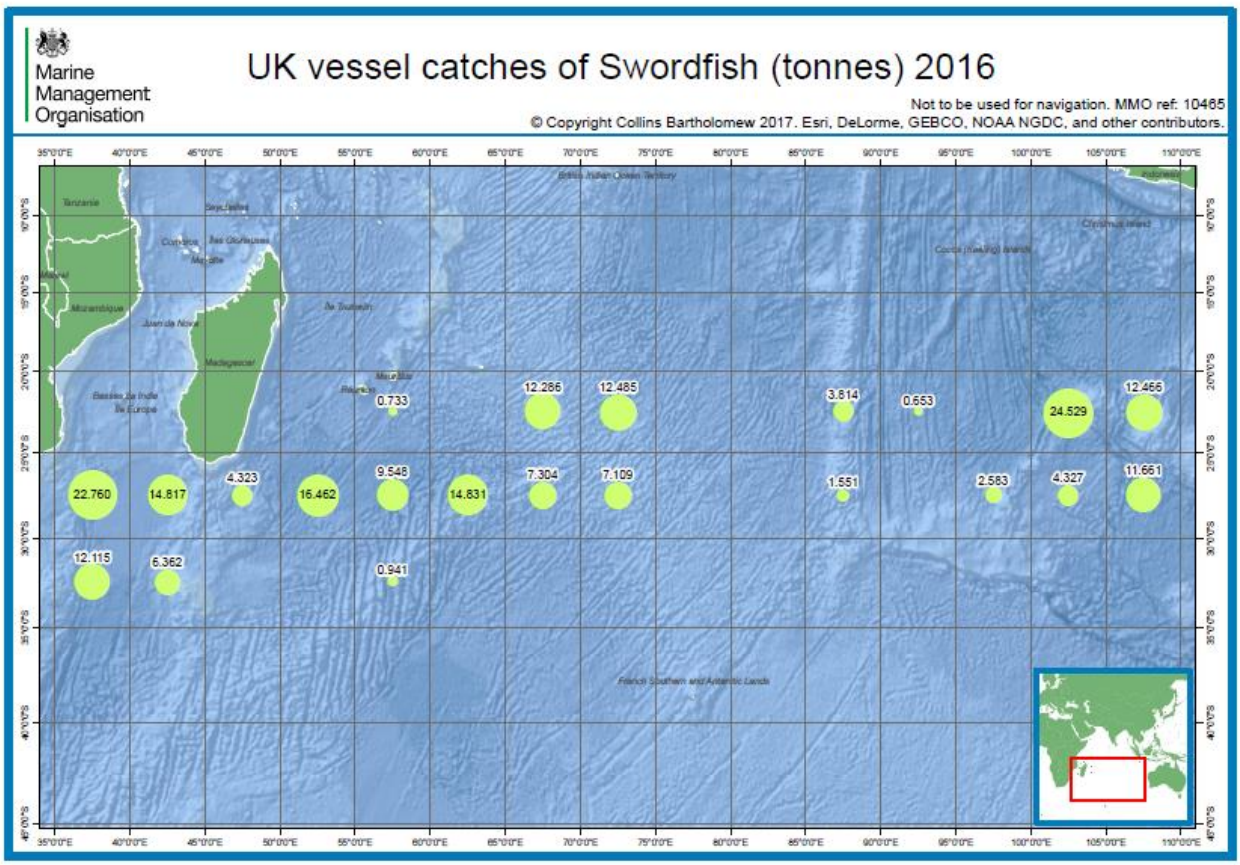
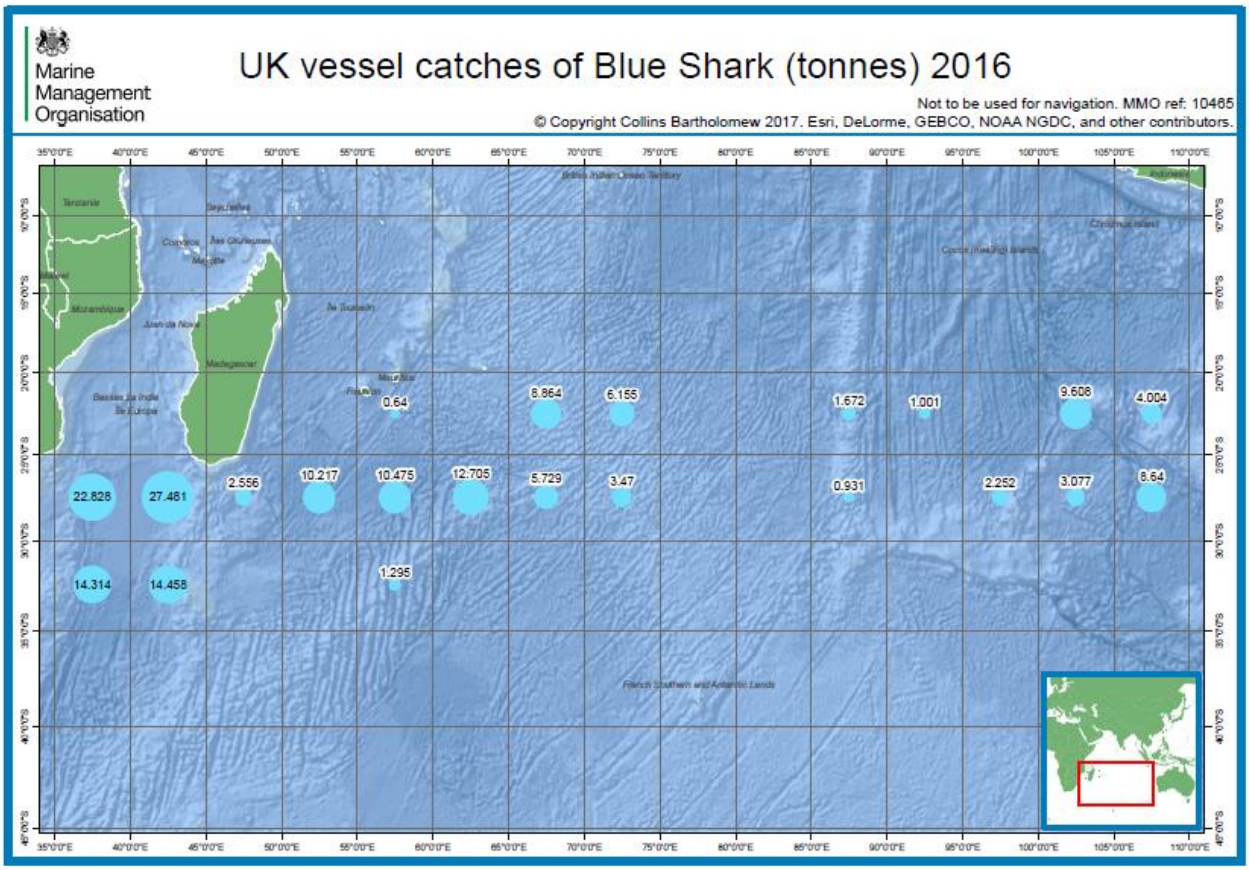


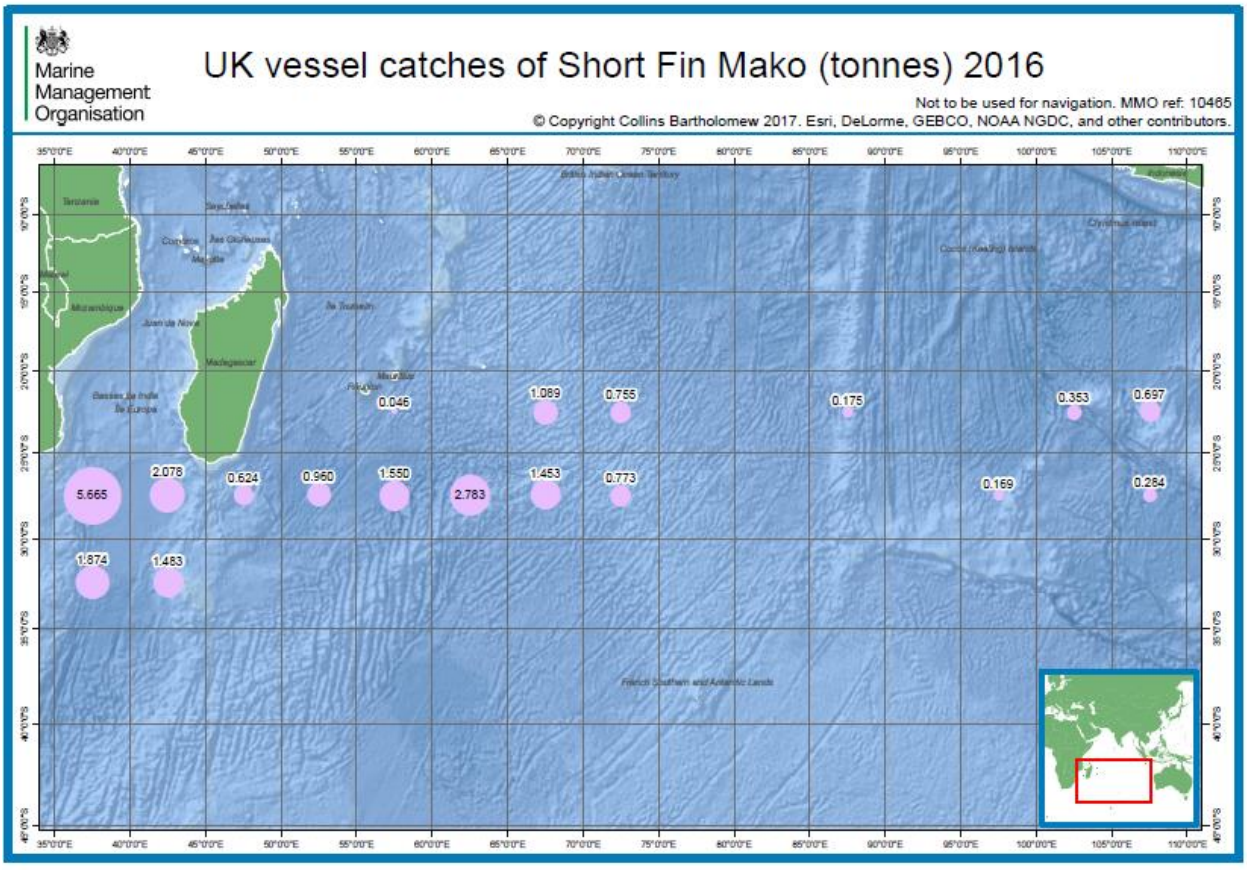
Figure 6. Map of distribution of the catches (MT) by major species in the IOTC area of competence in 2016: SWO (swordfish) – *Xiphias gladius*; BSH (blue shark) – *Prionace glauca*; and SMA (shortfin mako) - *Isurus oxyrinchus*). Note: different catch scales.

UK fleet:

In 2016 a total of 469.4 tonnes were caught in the IOTC. This figure includes 2.1 tonnes of albacore, 172.4 tonnes of blue shark, 3.5 tonnes of blue marlin, 19.6 tonnes of snake mackerel, 1.7 tonnes of Indo-Pacific sailfish, 22.8 tonnes of short fin mako, 203.7 tonnes swordfish, 0.4 tonnes of wahoo, 41.8 tonnes of yellowfin tuna, and 1.4 tonnes of yellowtail amberjack (Figure 7).




Marine Management Organisation
UK vessel catches of Blue Shark (tonnes) 2016
Not to be used for navigation. MMO ref: 10465
© Copyright Collins Bartholomew 2017. Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors.
0.64
8.864
6.155
1.672
1.001
9.608
4.004
22.828
27.481
2.556
10.217
10.475
12.705
5.729
3.47
0.931
2.252
3.077
8.64
1.295
14.314
14.458


Marine Management Organisation
UK vessel catches of Short Fin Mako (tonnes) 2016
Not to be used for navigation. MMO ref: 10465
© Copyright Collins Bartholomew 2017. Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors.
0.046
1.089
0.755
0.175
0.353
0.697
5.665
2.078
0.624
0.960
1.550
2.783
1.453
0.773
0.169
0.264
1.874
1.483

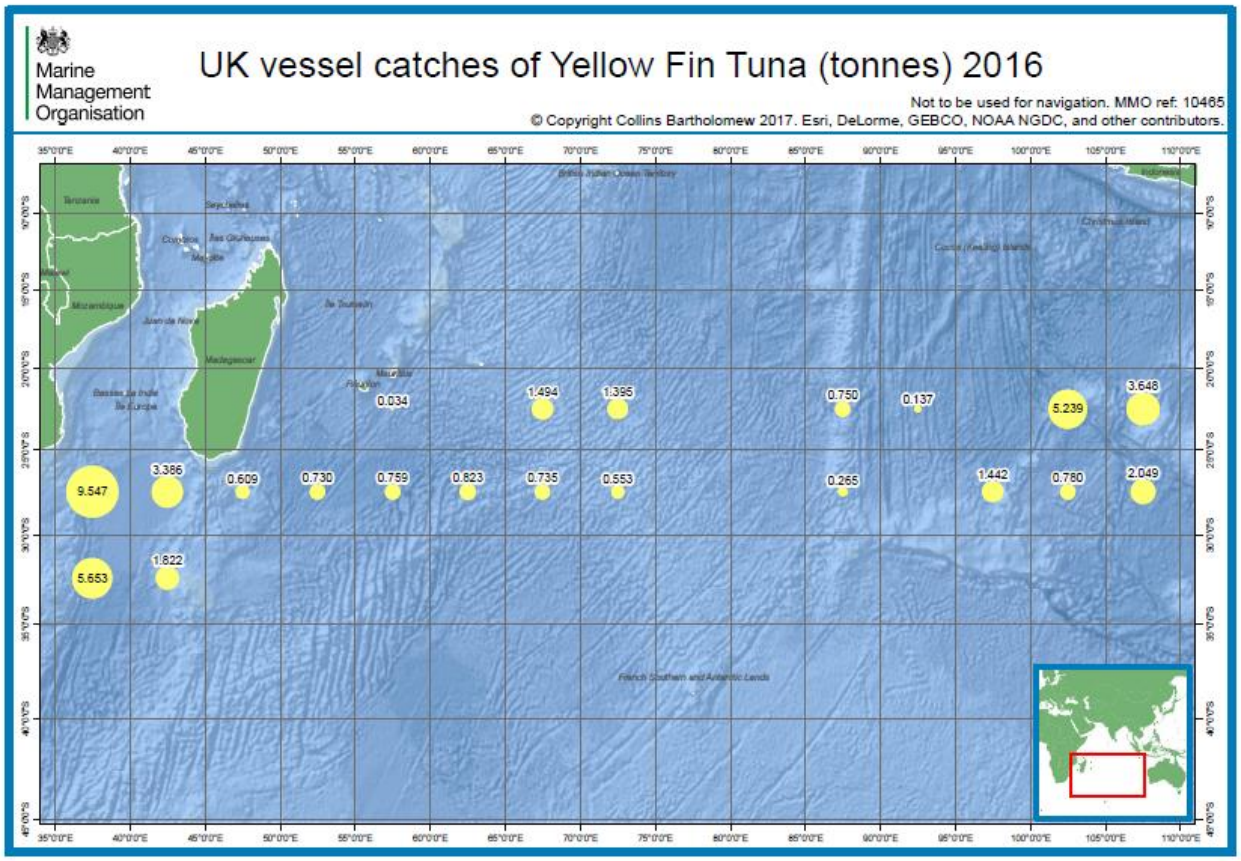


Figure 7: Maps showing EU-UK catches of swordfish, Blue shark and Short Fin Mako (tonnes) in 2016 by 5º * 5˚ area.

Atlantic Ocean

Globally the EU swordfish catches in the Southern Atlantic were 5242 tonnes in 2016, which represented a decrease of 1 % compared to 2015.

With regard to sharks, the most important shark species caught by the EU fleet are the Blue Shark (*Prionace glauca*) and the Shortfin Mako (*Isurus oxirynchus*). Catches for these two species in 2016 amounted to 15717 tons for Blue Shark and 1276 tons for Shortfin Mako (Table 6).

Year	SWO	BSH	SMA
2012	5036	16772	1383
2013	4309	12120	1215
2014	4365	13069	1203
2015	5295	12559	1020
2016	5242	15717	1276

Table 6. EU catches of swordfish, blue shark and shortfin mako for their Southern Atlantic stocks in the ICCAT area in the period 2012-2016.

West Pacific

Spanish fleet:

The data hereby included have been obtained from mandatory electronic logbooks for 2017 activity. All Spanish flagged longliners process the swordfish on board in dressed weight (eliminating the head, viscera and fins) and keep it frozen.

The vessels carry on lengthy trips lasting for 2 to 3 months. These vessels target swordfish and do not catch tropical shark species (non-retention species in WCPFC) such as oceanic whitetip shark or silky shark. They usually deploy wire leaders, since catches of blue shark and shorfin mako are significant for this fleet.

The total amount of catches indicated in the table 7 is based on logbook data of longliners authorized in WCPFC area.

Species	BET	SKJ	YFT	BLM	BUM	ALB	MLS	PBF	SWO
Total Catch (Kg)	21.387,00	0	7.390,00	25.004,00	503,00	1.636,00	6.477,00	0	932.135,00

Table 7. Total estimated catches for EU longliners in WCPFC in 2017.

4. Size composition

- Trends by gear type (surface and longline)
- Trends by area and season

(Figures should include: average size frequency distributions by gear type for each 10 year period, as well as individually for each of the last 5 years)

As mentioned the EU has no SBT catches to report and therefore no size frequencies to be transmitted to the CCSBT or referred in this report. Notwithstanding, size frequencies for other species caught by EU vessels in ICCAT, IOTC and WCPFC have been transmitted to their respective secretariats according to the mandatory data requirements of these organisations.

5. Fleet size and distribution

- Trends by season
- Trends by area

(Maps should include: historical catch and effort by gear type for the entire history of the fishery, as well as individually for each of the last 5 years)

Indian Ocean

There were 20 EU longliners operating in the IOTC area in the distribution area of SBT, 13 from Spain, 6 from Portugal and 1 from UK. Catch and effort of the mentioned EU longline fleet is distributed between latitudes 20°S and 40°S, mainly north 30 ºS, the Mozambique Channel and at the south of Madagascar at the longitude of 100°E.

Atlantic Ocean

There were 26 EU longliners (23 from Spain and 3 from Portugal) operating in the ICCAT area mainly operating outside the distribution zone of the SBT but intermittently entering in the latitude southern to 30°S where SBT encounters could occur. However, no SBT by-catch has been reported by masters and observers.

West Pacific

Spanish fleet:
The 3 Spanish longline vessels in the Western and Central Pacific operate in the temperate area south of 20º south and they mostly work around 30º South.

Portuguese fleet:
The Portuguese longline operating in the Pacific Ocean did not fish in the SBT distribution area in 2017.

6. Research and monitoring to improve estimates of attributable catch

Any research or monitoring activities focused on better understanding the level of mortality related to:

- *releases and/or discards;*
- *recreational fishing;*
- *other sources (e.g. customary, traditional and/or artisanal fishing)*

The EU fleets operating in the SBT distribution area didn't bycatch any SBT (including releases and discards). There are no specific research activities and monitoring to improve estimates of attributable catch.

Information reported to the EU on activities of longliners operating in the SBT distribution area includes data provided by observers.

The EU has neither recreational vessels nor artisanal fishing boats operating in the SBT distribution area.

7. Development and implementation of scientific observer programs[1]

- Provide a report containing the information specified in Annex 1 on the sampling scheme and arrangements for collecting data from the Member's/CNM's observer program.

Indian Ocean
Spanish fleet:
The sampling at sea programme started at the beginning of the fishery in 1993. A total of 580,530 hooks were observed between 2010 and 2016.

The main task of the observers at sea is recording catch and effort data as well as sampling the size of the target species, the species composition of catches to more detailed taxonomic level possible and to observe the interaction with bycatch species. At the same time, information about fishing operations and fishing gear configuration is also taken. The working protocol for scientific purposes of observers is based on recording of catches of the target species, biological and obtaining biometric information and sampling to various studies.

[1] Section 11 and Attachment 2 of the CCSBT Scientific Observer Program Standards.

Portuguese fleet:
Since 2011 an observer program has been fully implemented by IPMA (Portuguese Research Institute for Fisheries). The program aims to cover 10% of the fishing effort on the convention, while a minimum of 5% is established in IOTC (Table 8).

Five observers have received the necessary training to collect a wide range of fisheries data, to fulfil all fields covered by the IOTC Observer Trip Report. Furthermore, starting in 2011, the observers started collecting information on all specimens caught, which includes: ID to the most detailed taxonomic possible level; size; sex; the condition at-haulback (alive / dead); fate (retained/discarded); and, condition if discarded (alive/dead). Finally, biological samples are collected for some of the major shark and bony fish species, aiming a number of studies focusing on: life history issues (ages, growth and reproduction); genetics (population structure and paternity; and, morphometrics (weight:length, length:length, weight:weight relationships).

Year	Gear	Observer coverage		Size data coverage
		Hooks (%)	Sets (%)	
2011	Pelagic longline	17.9%	16.3%	All retained specimens and dead discards
2012	Pelagic longline	10.7%	10.9%	
2013	Pelagic longline	11.0%	9.9%	
2014	Pelagic longline	7.3%	5.7%	
2015	Pelagic longline	11.1%	8.2%	
2016	Pelagic longline	9.1%	7.2%	

Table 8. Annual observer coverage of the Portuguese pelagic longline fleet since it was established in 2011 in IOTC, measured as a percentage of the total effort in number of hooks and sets, for the period 2011–2016.

UK fleet:
An observer programme has been implemented for UK vessels in July 2017. More than 10% of the fishing trips are covered by observers since then.

Atlantic Ocean
An EU-wide framework for the collection of fisheries data is in place since the early 2000s. Under this Framework, implemented by the relevant research institutes and ministerial departments in each EU coastal Member State, a complete set of information pertaining to the fleets (catch, effort and economic indicators) is compiled. In 2016 and 2017, the EU sampling activities concerning species under the competence of ICCAT targeted the main species and fleets. Table 9 below presents the number of individuals of each species sampled.

Species	BFT	SWO	ALB	YFT	BET	SKJ	Small tunas
Nb of individuals	13079	138886	145171	21264	8980	9412	21448

Table 9. Sampling intensity (nb of individuals measured per species) by EU observer programs in 2016

Observers:
The EU national scientific observers cover the main fisheries in which the EU is involved, including SWO (long-liners). These observers follow appropriate training courses including data validation training. The information collected concerns all target and not-target species and, where possible, the collection of data is extended to cover turtles, seabirds and marine mammals. The type of data collected refer to catch, discards, by-catch, vessels and fishing

gear characteristics as well as biological parameters such as length, weight, sex, maturity and growth.

West Pacific
EU longliners have observers onboard according to the rules and coverage rate adopted in WCPFC. In 2017 the observer coverage in EU longliners operating in WCPFC was about 10%.

As in other RFMOs, vessels are equipped with two VMS systems, one installed by the national authorities, in accordance with the EU legislation, providing VMS information every two hours, and the other installed in accordance with WCPFC's VMS requirements, transmitting to the WCPFC's Secretariat. Vessels are equipped with an electronic logbook (ERS), as required with the EU legislation, allowing for the electronic registration and communication of catches. Both systems were fully operational during activity in WCPFC. The functionality of both systems was confirmed by the observer.

8. Other relevant information

Notes:

- *Data on catches should be presented by both calendar year and fishing year.*
- *Weight data should be reported as whole weight, conversion factors used should be specified.*
- *Nominal CPUE, particularly for longline fisheries, should be expressed in standard units (eg, number of SBT per 1000 hooks).*
- *State where estimates are scaled from sample data.*
- *Where appropriate measures can be calculated.*

The EU does not have SBT fisheries and in 2016 and 2017 there was no by-catch of SBT. Information related to the EU longline activities in the SBT distribution area is provided in the previous chapters of this report. In this chapter, complementary information and data mainly concerning Ecological Related Species is reported.

IOTC
Spanish fleet
This report includes data of by-catch data obtained during 2016. The by-catch by species since the beginning of the longline fishery in 1993 have been described in several scientific papers previously presented and also provided by reports of the National Fishing Authority. Total catch of sharks in 2016 was estimated as 4,043 t, 149 t for billfishes, 558 t for tunas and 180 t for other species. Moreover, the interaction between seabirds and the Spanish surface longline targeting swordfish in the areas of the IO (lat $\geq 25^{o}$ south) during the period 2011-2015 was also presented to IOTC (Fernandez-Costa *et al.* 2016. IOTC/2016-WPEB12-29).

Sharks
The sharks, trunks or carcass with their respective fins naturally attached are retained, frozen and stowed on board and landed for human consumption. By-catch data of sharks is reported for year 2010-2016 in table 10.

SPECIES	2010	2011	2012	2013	2014	2015	2016
Carcharhinus spp.	281021	145803	25625	565	0	0	0
Galeocerdo cuvieri	260	241	0	0	0	0	0
Isurus oxyrinchus	349959	439784	561690	620973	823549	441013	450893
Isurus paucus	289	228	250	791	171	0	122
Lamna nasus	0	0	0	0	0	0	0
Prionace glauca	2422054	3290769	3686452	414948	4657270	3701847	3592515
Other sharks	289	228	0	0	0	0	0

Table 10. Scientific estimation of shark catches by species (kg round weight) for the Spanish longline fleet in the Indian Ocean for the 2010-2016 period.

Seabirds

During 2016 a total of 105,918 hooks were analyzed in the Spanish surface longline fishery targeting swordfish in the Indian Ocean which corresponds to a total of 83 fishing days. The observed area ranged between 20ºS-25ºS and 70ºE-80ºE. There was no interaction with seabirds, so the interaction and mortality rates observed during 2016 was nil (Table 11). After analyzing 580,530 hooks during the period 2010-2016, the overall interaction rate was of $6.72E^{-05}$ seabirds by hook.

Night setting and low levels of lighting during setting operations as well as other fishing protocols applied by the vessels were identified as the most important factors to explain the regularly low or null interaction with seabirds. More complete studies of sea birds interaction with the surface longline gear for the period 2011-2015 can be found in Fernández-Costa *et al*. 2016**.**

	Year	Interaction rate	Mortality rate	Number
SEABIRDS	2010	0	0	0
	2011	0	0	0
	2012	0	0	0
	2013	$7.19E^{-05}$	$7.19E^{-05}$	13
	2014	$2.83E^{-05}$	$2.83E^{-05}$	2
	2015	$8.75E^{-05}$	$8.75E^{-05}$	4
	2016	0	0	0

Table 11. Observed annual interactions rates of surface longline gear on seabirds for the 2010-2016 period and total number of individuals observed in IOTC area.

Marine Turtles

During the year 2016 a total of 83 sets and 105,918 hooks were analyzed in the Spanish surface longline fishery targeting swordfish in the Indian Ocean. Four encounters with marine turtles were observed in 2016. One of the turtles was of the species *Caretta caretta* that ended up dead and the other three turtles belonged to the species *Dermochelys coriacea* and all of them were released alive.

After analyzing 580,530 hooks during the period 2010-2016, the overall interaction rate reached was of $3.27E^{-05}$ marine turtles by hook (Table 12).

	Year	Interaction rate	Mortality rate	Number
TURTLES	2010	0	0	0
	2011	0	0	0

2012	0	0	0
2013	$1.49E^{-04}$	$2.76E^{-05}$	27
2014	$7.07E^{-05}$	0	5
2015	$4.37E^{-05}$	0	2
2016	$3.78E^{-05}$	$9.44E^{-06}$	4

Table 12. Observed annual interactions rates of surface longline gear on marine turtles for the 2010-2016 period and total number of individuals observed in IOTC area.

Portuguese fleet

All IOTC Resolutions and Recommendations concerning Sharks, Seabirds and Marine Turtles are broadly publicized among fishermen operating in the IOTC convention area. IPMA prepared and distributed among the fleet ID sheets for all major species usually caught in the fishery. These ID sheets include photos, FAO and scientific names for target, by-catch and accidentally species caught (including marine turtles and seabirds). The recently IOTC ID guides will be distributed as Portuguese and/or Spanish printed translations are made available.

Sharks

Major shark species catches are reported annually. Fishermen are encouraged to release by-catch species that are alive at-haulback, as well as juvenile specimens. The fleet has to comply with the EU regulations on shark finning and fins-attached policy. Blue shark belly have been observed as being occasionally used as bait, particularly in areas/seasons when high shark bycatch occur. Accordingly, an increase use of wire traces has also been observed. Since 2013 a strong increase on shark catches was reported as regards the previous years, due to the overall increase on fishing effort, as several vessels have returned to the Indian Ocean after a few years fishing in the Atlantic (Table 13).

FAO code	**Species name**	**2012**	**2013**	**2014**	**2015**	**2016**
BSH	*Prionace glauca*	554.0	1160.4	885.0	1248.8	1375
CWZ	Carcharhinidae					
FAL	*Carcharhinus falciformis*	6.6				
LMA	*Isurus paucus*					
OCS	*Carcharhinus longimanus*					
SBL	*Hexanchus griseus*					
SMA	*Isurus oxyrinchus*	118.1	219.7	148.0	225.1	241
SPN	*Sphyrna* spp.					
SPZ	*Sphyrna zygaena*					
SKH	Not elsewhere included					
	Total	678.7	1380.1	1033.0	1473.9	1616

Table 13. Total weight (MT) of sharks, by species, retained by the Portuguese fleet in the IOTC area of competence during the period 2012-2016.

In Table 14 the observed number of sharks, by species, released/discarded in the IOTC area of competence in 2016, including their life status at haulback and upon released/discarded, is summarized. However, these figures should be regarded carefully, as they are based on the

observer coverage with represented 9.1% in 2016 of the total fishing effort and are limited both geographically and seasonally.

Amongst the prohibited shark species, it's worth noting that 44% of the bigeye threshers (BTH) were released alive, while only 1 oceanic whitetip (OCS) was captured and released dead. Stress of capture and handling is usually assumed to cause additional mortality; therefore these percentages are minimum mortality values as post-release mortality is not taken into consideration.

FAO code	Species name	Status at release		Total no. sharks released/discarded
		Dead	Alive	
BSH	*Prionace glauca*	1	0	1
BTH	*Alopias superciliosus*	5	4	9
FAL	*Carcharhinus falciformis*	1	0	1
LMA	*Isurus paucus*	1	4	5
OCS	*Carcharhinus longimanus*	1	0	1
POR	*Lamna nasus*	35	4	39
PSK	*Pseudocarcharias kamoharai*	1	8	9
SMA	*Isurus oxyrinchus*	1	2	3
	Total	46	22	68

Table 14. Observed number of sharks, by species, released/discarded in 2016 by the EU-Portugal longline fleet in the IOTC area of competence, including life status at haulback and upon released/discard. Note: Information represents 9.1% of the total EU-Portugal fishing effort and is limited in terms of geographical and seasonal distribution of the fishing effort in the Indian Ocean.

Seabirds

IOTC recommendations on seabirds have been made available to the fishermen operating longline gear. Skippers are encouraged to adopt mitigation measures, namely the use of *tori* lines, line weights and to conduct night gear setting with minimum deck lights, when fishing south of 25^0 South or whenever interaction with seabirds is foreseen. Moreover, within the scope of the EU data collection framework (EU-Portugal mainland component), skippers are encouraged to report the incidental catches of seabirds. The recently IOTC ID sea-bird guides are distributed to the fleet.

During 2016 only 1 seabird was accidentally captured in the sets covered by the fishery observer program. In 2016 the fishery observer program covered 9.1% of the total fishing effort. The full high resolution sea-bird interactions data with date, biology, fate and in 1*1 degree spatial resolution was reported to IOTC in the respective observer trip reports and data. Table 15 provides a summary of this data.

Marine Turtles

Fishermen are encouraged to carefully handle marine turtles accidentally caught, and immediately release them after gear removal. IPMA has provided guidance on how to safely handle and release the turtles, as well as ID guides. Within the scope of the EU data collection framework (EU-Portugal mainland component), skippers are encouraged to report the incidental catches of marine turtles.

During 2016, 6 sea turtles were accidentally captured in the sets covered by the fishery observer program, and all those sea turtles were released alive (Table 15). The full high resolution

sea-turtle interactions data with date, biology, fate and in 1*1 degree spatial resolution was reported to IOTC in the respective observer trip reports and data.

Other ecologically related species (e.g. marine mammals, whale sharks)

The accidental catch of other species such as marine mammals and whale sharks are considered extremely rare. Whenever such animals are caught, fishermen are encouraged to immediately and safely release them.

In 2016 there was 1 interaction with a marine mammal in the sets covered by the fishery observer program, which was immediately released alive (Table 15).

Taxa	FAO Code	Scientific name	Status		Total no. specimens released/discarded
			Dead	Alive	
Sea birds	DCU	*Thalassarche cauta*	1	0	1
	Total sea birds		**1**	**0**	**1**
Marine turtles	TTL	*Caretta caretta*	0	3	3
	DKK	*Dermochelys coriacea*	0	3	3
	Total marine turtles		**0**	**6**	**6**
Marine mammals	KIW	*Orcinus orca*	0	1	1
	Total marine mammals		**0**	**1**	**1**

Table 15. Observed catches of species of special interest (marine turtles, seabirds and marine mammals) in 2016, for the EU-Portugal longline fleet operating in the IOTC area of competence. Observer coverage represented 9.1% of total fishing effort in 2016.

UK fleet

Sharks

Shark catches are reported by species and the vessels are encouraged to release bycatch species that are caught alive. Table 16 details the total weight of sharks, as well as the target species swordfish retained by the UK fleet in the IOTC area of competence. In 2010 the UK revoked the permits allowing for fins to be removed from sharks therefore all sharks retained must have their fins naturally attached.

	SPL	SMA	SKH	FAL	SWO	BSH
2016		22.8			203.7	172.4
2015		26.0			365.0	215.3
2014		54.0			527.2	251.8
2013		46.3			555.7	189.9
2012		69.5		1.5	677	318.7
2011		60.1		1.3	662.4	319.7
2010		7.9	0.0	1.0	581.1	332.6
2009	0.1	18.7	0.2	0.3	646.3	427.1

Table 16. Historic total (main) catches by species of UK LL in IOTC area (tonnes)

Turtles

No incidents reported in 2016. All vessels are aware of and use proper handling techniques and keep on board equipment needed for the release of live turtles. All skippers are encouraged to report all incidental catches of marine turtles.

Seabirds

No incidents reported in 2016. All longline fishing vessels are aware of the need to use mitigation measures when fishing south of 25 degrees south or whenever interaction with seabirds is expected. Additional information is being sent to vessels to ensure they are complying with their obligations.

Other ecologically related species (e.g. marine mammals, whale sharks)

No reported incidents in 2016. All fishers are encouraged to immediately and safely release them.

Atlantic Ocean

Data on interactions with ecologic related species of EU longliners including those operating in the southern Atlantic (not specifically available for the SBT distribution area) has been provided to the ICCAT (global data on sharks provided in section 3).

Pacific Ocean

Data on interactions with ecologic related species (not specifically available for the SBT distribution area) has been provided to the WCPFC. Total catch of sharks by EU fleet in WCPFC area is provided in Table 17.

Species	BSH	MAK (SMA)	MAK (LMA)	OCS	POR	FAL	THR/ALV	RHN	SPN/SPY
Total catch (Kg)	1.090.213,00	388.573,00	1.780,00	0	0	0	0	0	0

Table 17. Total estimated catches of sharks by EU longliners in WCPFC in 2017.

No interactions with seabirds, marine turtles and mammals have been reported in 2017 from EU longliners operating in WCPFC.

Annex 1

FORMAT OF NATIONAL REPORT SECTIONS ON DEVELOPMENT AND IMPLEMENTATION OF SCIENTIFIC OBSERVER PROGRAMS

(from the CCSBT Scientific Observer Program Standards)

REPORT COMPONENTS

The observer program implementation report should form a component of the annual National Reports submitted by members to the Scientific Committee. This report should provide a brief overview of observer programs for SBT fisheries, and is not intended to replace submitted papers containing proper analyses of collected observer data. This observer program report should include the following sections:

A. Observer Training

An overview of observer training conducted, including:

- Overview of training program provided to scientific observers.
- Number of observers trained.
- Summary of qualifications / training and years of experience of the observers deployed in SBT fisheries during the past year.
- A copy of the latest version of relevant manuals in their original language for reference

No observer program for SBT fisheries.

B. Scientific Observer Program Design and Coverage

Details of the design of the observer program, including:

- Which fleets, fleet components or fishery components were covered by the program.
- How vessels were selected to carry observers within the above fleets or components.
- How was observer coverage stratified: By fleets, fisheries components, vessel types, vessel sizes, vessel ages, fishing areas and seasons.

Details of observer coverage of the above fleets, including:

- Components, areas, seasons and proportion of total SBT catch, specifying units used to determine coverage.
- Total number of observer employment days, and number of actual days deployed on observation work.

No observer program for SBT fisheries.

C. Observer Data Collected

List of observer data collected against the agreed range of data set out in Attachment 1. In broad structure this would include:-

- Effort data: Amount of effort observed (vessel days, sets, hooks, etc), by area and season and % observed out of total by area and seasons
- Catch data: Amount of catch observed of SBT and other species (if collected), by area and season, and % observed out of total estimated SBT catch by area and seasons
- Length frequency data: Number of fish measured per species, by area and season.
- Biological data: Type and quantity of other biological data or samples (otoliths, sex, maturity, Gonosomatic index, etc) collected per species.
- The size of sub-samples relative to unobserved quantities.

In IOTC area observers covered nearly 5% of the hooks in 2015.

D. Tag Return Monitoring

Number of tags returns observed, by fish size class and area.

N/A

E. Problems Experienced

- Summary of problems encountered by observers and observer managers that could affect the CCSBT Observer Program Standards and/or each member's national observer program developed in the light of the Standards.

N/A

Annex 1

FORMAT OF NATIONAL REPORT SECTIONS ON DEVELOPMENT AND IMPLEMENTATION OF SCIENTIFIC OBSERVER PROGRAMS

(from the CCSBT Scientific Observer Program Standards)

REPORT COMPONENTS

The observer program implementation report should form a component of the annual National Reports submitted by members to the Scientific Committee. This report should provide a brief overview of observer programs for SBT fisheries, and is not intended to replace submitted papers containing proper analyses of collected observer data. This observer program report should include the following sections:

A. Observer Training

An overview of observer training conducted, including:

- Overview of training program provided to scientific observers.
- Number of observers trained.
- Summary of qualifications / training and years of experience of the observers deployed in SBT fisheries during the past year.
- A copy of the latest version of relevant manuals in their original language for reference

B. Scientific Observer Program Design and Coverage

Details of the design of the observer program, including:

- Which fleets, fleet components or fishery components were covered by the program.
- How vessels were selected to carry observers within the above fleets or components.
- How was observer coverage stratified: By fleets, fisheries components, vessel types, vessel sizes, vessel ages, fishing areas and seasons.

Details of observer coverage of the above fleets, including:

- Components, areas, seasons and proportion of total SBT catch, specifying units used to determine coverage.
- Total number of observer employment days, and number of actual days deployed on observation work.

C. Observer Data Collected

List of observer data collected against the agreed range of data set out in Attachment 1. In broad structure this would include:-

- Effort data: Amount of effort observed (vessel days, sets, hooks, etc), by area and season and % observed out of total by area and seasons
- Catch data: Amount of catch observed of SBT and other species (if collected), by area and season, and % observed out of total estimated SBT catch by area and seasons
- Length frequency data: Number of fish measured per species, by area and season.
- Biological data: Type and quantity of other biological data or samples (otoliths, sex, maturity, Gonosomatic index, etc) collected per species.
- The size of sub-samples relative to unobserved quantities.

D. Tag Return Monitoring

Number of tags returns observed, by fish size class and area.

E. Problems Experienced

- Summary of problems encountered by observers and observer managers that could affect the CCSBT Observer Program Standards and/or each member's national observer program developed in the light of the Standards.