

## EUROPEAN UNION

### Annual Review of SBT Fisheries for the Extended Scientific Committee

(mainly from IOTC scientific report)

#### 1. Introduction

- **Background**

The EU fleet does not target SBT. Any incidental catches of SBT by EU vessels are the result of by-catches of long-liners harvesting swordfish (notably in the IOTC Convention Area). EU Purse Seiners do not harvest SBT as they fish in tropical tunas fishing grounds.

A by-catch of 648 Kg of SBT was reported by the EU in 2015. On average, since 2000 the level of by-catches has been maintained below the 10 tonnes allocated to the EU under the CCSBT SBT TAC. Since 2011 the level of SBT by-catches by the EU fleet is very limited or close to zero (table 1).

#### EU CATCHES SBT (ton.)\*

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 (caught in Indian Ocean)	2015	0.6

Table 1. Total EU bycatch of SBT.

- **Summary of historical developments in the fishery**

There are currently 25 long-liners<sup>1</sup> fishing for swordfish in tuna RFMOs in which interaction with SBT has taken place in the past (vessels from UK, Portugal and mainly from Spain). The average size of the long-liners is roughly 35 meters, ranging from 21 to 47 meters. The long-liners vary their activity in various oceans covered by different RFMOs. There are also 35 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 trend of the EU long-line fleet targeting swordfish and operating in various oceans is as follows (table 2):

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<sup>1</sup> Previous years we only reported Spanish longliners, which are those with possible SBFT by-catches.

Year	Number of vessels
2009	21
2010	19
2011	21
2012	24
2013	31
2014	30
2015	25

Table 2.- Number of EU LL vessels operating in IOTC which can overlap with SBT distribution.

- **Overview of the most recent fishing season**

A by-catch of 648 Kg of SBT for 2015 was reported by the Spanish fleet operating in the Indian Ocean.

2. **Catch and Effort**

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

Spanish fleet

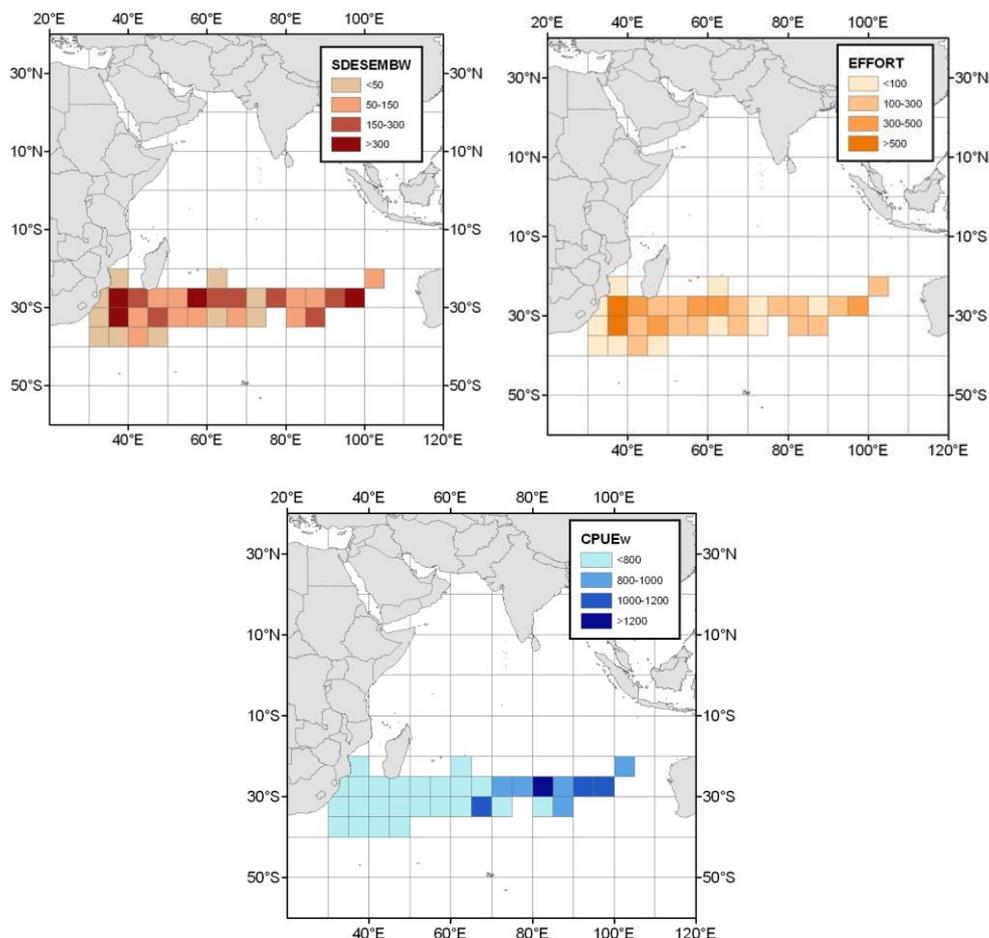
The total yearly catches of swordfish in number of fish and weight (kg round weight) and nominal fishing effort (thousands of hooks) for the 2008-2014 period are shown in the table 3. Table 3 also shows the historical annual swordfish catches of the Spanish longline fleet in the Indian Ocean since the beginning of the fishery in 1993. All the species caught are dressed, frozen and stowed on board.

The 21 longliners operating in the Indian Ocean (2014) deployed a total of 6,107 thousand hooks in 2014. The distribution of swordfish catches (tons round weight) by 5°x5° squares of the Spanish surface longline fleet in 2014 as shown in map 1. Map 1 also shows the spatial distribution for the nominal effort in number of thousand hooks and nominal yield in kg of round weight of swordfish per thousands hooks set in the Indian Ocean by the Spanish surface longline fleet in 2014.

A total of 4,164 t of swordfish (round weight) were caught in 2014. The overall nominal catch rate was 682 kg (round weight) per thousands hooks. Standardized catch rates in weight for swordfish using General Linear Modeling from scientific records of the Spanish surface longline targeting swordfish in the Indian Ocean over the period 2001-2012 was presented in the 2014 IOTC Working Party Billfishes (Fernández-Costa *et al.* 2014).

YEAR	TOTAL CATCH SWO		NOMINAL FISHING EFFORT
	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

Table 3. Catch in number of fish and in kg round weight of swordfish obtained by the Spanish surface longline fishery and total number of hooks (in thousands) set in the Indian Ocean during the period 2008-2014 (data of previous years have been already reported).



Map 1. Distribution of swordfish catch (tons round weight) (upper left panel). Distribution of the nominal fishing effort (thousands hooks) (upper right panel) and nominal CPUEw in kg (round weight) of swordfish landed per thousand hooks set (lower panel) by 5°x5° degrees, carried out by the Spanish surface longline fleet in the Indian Ocean in 2014.

### Portuguese fleet

The overall catch of the Portuguese LL fleet in the Indian Ocean had a peak in 2006 (4,867 MT) followed by a sharp decrease in 2008. In recent years a slight increase trend has been observed. The 2014 overall production was 1,924 MT which represents a 38% decrease regarding the 2013 catches (3,080 MT).

The Portuguese fleet in the Indian Ocean has swordfish as the target species. After a peak on the catches in 2007 of 1,956 MT (see Table 4 and Figure 1), the mean catches during the last 5 years were of 901 MT. In 2014 a total of 596 MT of swordfish were caught. Pelagic sharks and tropical tunas are the primary by-catch species. Pelagic sharks showed a peak on the catches in 2006, while tuna reached a peak in 2007. After a sharp decrease on the catches in 2008, both species groups followed a slightly increasing trend up to 2010, decreasing until 2012, but increasing in 2013 and decreasing again in 2014. Among the pelagic sharks, the blue shark is by far the dominant species, followed by the shortfin mako (see Table 4 and Figure 1). During the last five years, their mean catches were of 822 and 144 MT, respectively.

Year	Total effort	Total Catch	SWO	BSH	SMA	TUS	BIL	NEI
2010	780	2090	1015	661	121	126	20	148
2011	904	1988	828	848	112	110	36	54
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

Table 4. Total EU-Portugal longliners annual catch (MT) and effort (10<sup>3</sup> hooks) and catch for primary species (or group of species) in the IOTC area of competence, for the period 2009 to 2014. SWO – swordfish; BSH – blue shark; SMA – shortfin-mako; TUS – tuna; BIL – other billfishes; NEI – not elsewhere included category for all other species combined.

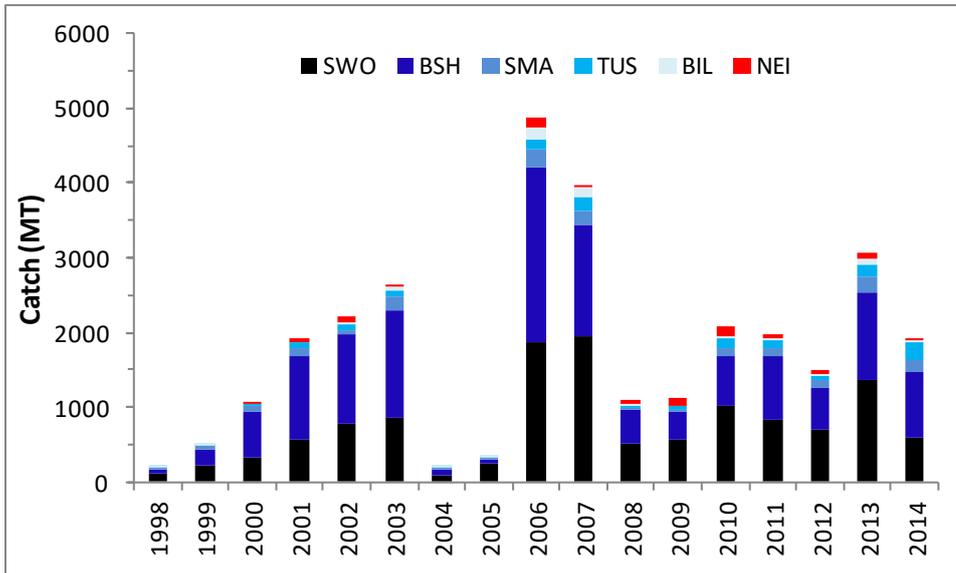
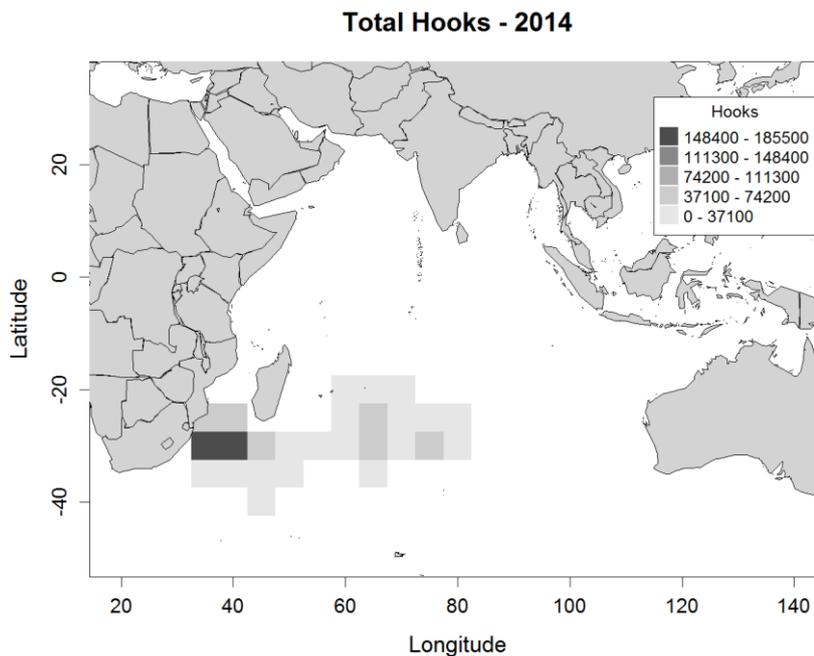


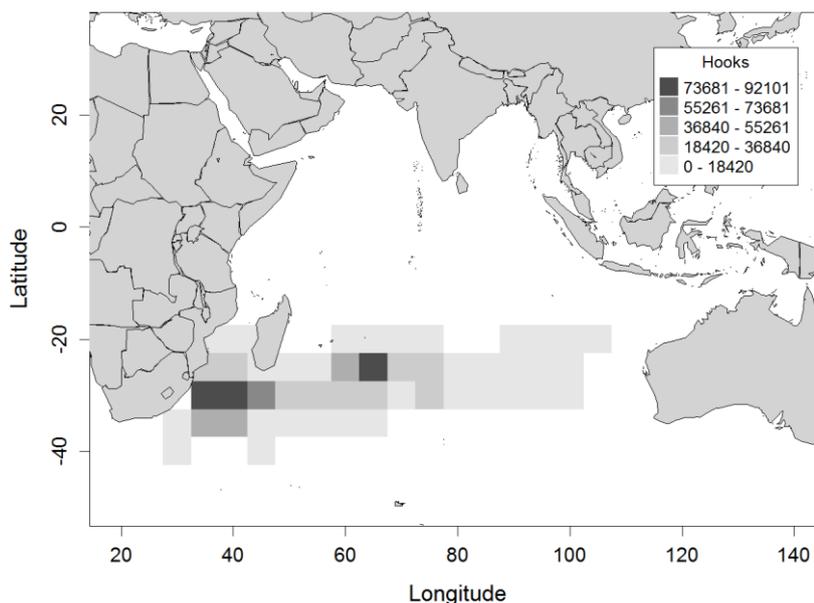
Figure 1. Historical annual catch for the Portuguese longline fleet, by primary species, for the IOTC area of competence for the entire history of the fishery (1998-2014). SWO – swordfish; BSH – blue shark; SMA – shortfin mako; TUS – tuna; BIL – billfishes; NEI - category for all other catch combined.

During 2014 the overall fishing effort arose to 978 thousand hooks (34% reduction compared to the previous year), 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 East part 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.



Map 2 of the distribution of fishing effort (number of hooks deployed), by the Portuguese longline fleet operating in the IOTC area of competence during 2014.

### Mean Hooks - 2010-2014



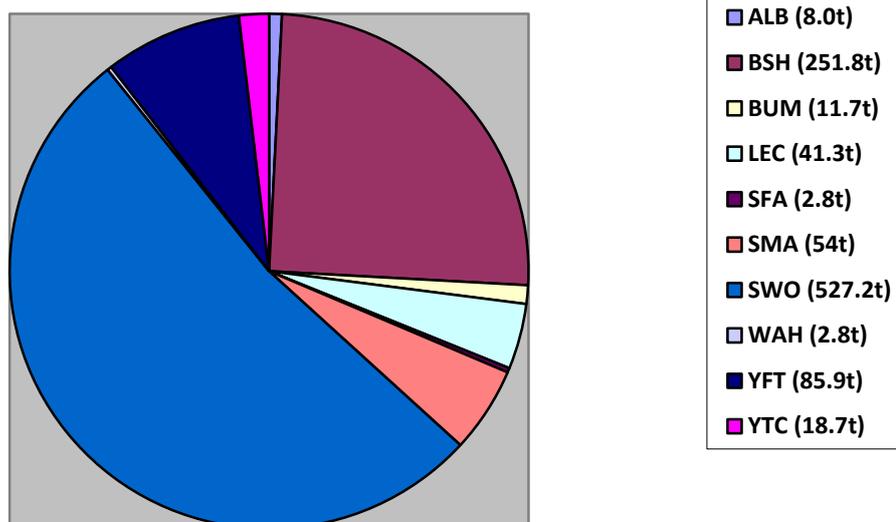
Map 3 of the distribution of mean fishing effort (number of hooks deployed), by the Portuguese longline fleet operating in the IOTC area of competence during the period 2010-2014.

### UK fleet

Overall, a total of 1 004 tonnes were caught in the Indian Ocean in 2014. This figure includes 8 tonnes of albacore, 251.8 tonnes of blue shark, 11.7 tonnes of blue marlin, 41.3 tonnes of snake mackerel, 2.8 tonnes of indo-pacific sailfish, 54 tonnes of short fin mako, 527.2 tonnes swordfish, 2.8 tonnes wahoo, 85.9 tonnes of yellowfin tuna, and 818.7 tonnes of yellowtail amberjack.

### Total 2014 UK (EU) catches in the IOTC area by composition.

#### Total 2014 UK (EU) catches in IOTC area: 1004 tonnes



	TOTAL
2014	1004
2013	931.1

2012	1224.9
2011	1165
2010	1064.6
2009	1295.9

Table 5. Historical total catches by UK (EU) in IOTC area (tonnes)

**Table 5A Historic total catches by species of UK (EU) in IOTC area (tonnes)**

	ALB	BET	BON	BSH	BUM	OIL	BIL	LEC	SAI	GRO	BAZ
2014	8.0			251.8	11.7			41.3			
2013	7.0			189.9	16.0			46.4			
2012	6.6	3.3		318.7	19.9			49.7	1.7		
2011	3.9	3.1		319.7	8.7			34.5	4.2		
2010	4.6	2.2		332.6		4.3	21.5	41.4		0.4	0.7
2009	8.8		5.8	427.1		32.7	21.7	8.2		1.0	

Table 5Aa.- Tuna and fishes

	SFA	AMX	SPL	SMA	SKH	FAL	SWO	WAH	YFT	YTC
2014	2.8			54.0			527.2	2.8	85.9	18.7
2013	5.6			46.3			555.7	2.1	53.6	8.3
2012	7.5			69.5		1.5	677	3.3	55.8	10.5
2011	2.9			60.1		1.3	662.4	1.4	42.1	20.7
2010	4.7	5.9		7.9	0.0	1.0	581.1	0.8	46.1	9.4
2009	0.9		0.1	18.7	0.2	0.3	646.3		120.3	3.8

\*FAO code used.

Table 5Ab. Sharks

### 3. Nominal CPUE where appropriate:

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

Not relevant, no SBT fisheries. General information included in Catch and Effort.

### 4. Size composition

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

No information, no SBT fisheries. General information included in Catch and Effort (see also tables 10 and 13).

### 5. Fleet size and distribution

- Trends by season
- Trends by area

#### Spanish fleet:

Swordfish fisheries: Table 6 shows the number of longliners fishing in the Indian Ocean during the period 2008-2014. The average characteristics of these vessels operating in the Indian Ocean were 187 TRB, 33.2 m in length and 611.4 HP. Two types of longline styles were operating in previous periods: the traditional multifilament gear and the monofilament 'American style' gear. However the last decade the fleet replaced the traditional Spanish type longline by the 'American' type which used an average of around 1,100 hooks per set – a smaller number than in the traditional longline, although slightly higher than in the 'Florida style' longline gear–.

PURSE SEINE	LONGLINE
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Year/Class	50-400	401-600	601-800	801-1200	1201-2000	>2000	total	C.Cap.	Supp	VAS*	# SHIPS
2008	0	0	0	3	10	4	17	24212	11	14	19
2009	0	0	0	2	9	4	15	20805	11	14	15
2010	0	0	0	1	8	4	13	20677	6	-	12
2011	0	0	0	1	8	4	13	20458	7	-	14
2012	0	0	0	1	9	4	14	21657	6		18
2013	0	0	0	1	9	4	14	22056	6	-	22
2014	0	0	0	2	9	4	15	20761	6		21

Table 6. Number of Spanish surface longliners fishing in the Indian Ocean during the period 2008-2014.

### Portuguese Fleet

The Portuguese fishing vessels operating in the IOTC area of competence consist only of pelagic longliners targeting swordfish. The number of vessels licensed increased from the beginning of the fishery in 1998 (five vessels) until 2009 (24 vessels). The number of active vessels followed a similar trend, with a peak in 2006 (17 vessels). However, during the last 5 years, the active vessels in the convention area decreased to as low as three (in 2009 and 2012). One of the main reasons for this decreasing trend on the number of active vessels is piracy in the Mozambique Channel, which traditionally was a major fishing area for the Portuguese fleet operating in the IOTC Convention area. In more recent years, specifically in 2013 and 2014, the number of active vessels increased again to 7 (table 7).

Year	No. vessels licensed	No. active vessels
1998	5	1
1999	8	3
2000	9	3
2001	9	6
2002	11	7
2003	12	6
2004	14	5
2005	16	7
2006	18	17
2007	17	15
2008	21	4
2009	24	3
2010	18	4
2011	16	4
2012	16	3
2013	16	7
2014	18	7

Table 7. EU-Portugal longline fishing vessels licensed and actively operating in the IOTC area of competence, for the period 1998 to 2014.

Traditionally these fishing vessels range in size from 35 to over 50m, with a GT between 220-760. In recent years the mean vessel size was 45 m (of total length), with a mean GT of 531 MT.

### UK Fleet

During 2014, there were two active the UK (European Union) pelagic longliners. The vessels ranged in size from 40 metres to 47metres and operated mostly in the south western and central areas of the Indian Ocean (table 8).

Year	Number of Vessels Licensed	Number of Vessels Active	Length

2014	3	2 (drifting longliners)	40metres- 47 metres
2013	3	2 (drifting longliners)	40 metres- 47 metres
2012	4	3 (longliners/ drifting longliners)	38 metres – 47 metres
2011		3 (longliners/ drifting longliners)	38 metres – 47 metres
2010		3 (longliners/ drifting longliners)	38 metres – 47 metres
2009		3 (longliners/drifting longliners)	38 metres - 47metres

Table 8. Number of vessels operating in the IOTC area of competence, by gear type and size

## 6. Development and implementation of scientific observer programs

### Spanish fleet:

The main task of the samplers 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 and incidental-bycatch species. At the same time, information about fishing operations and fishing gear configuration is also taken. The shipment of the sampler is made throughout the whole trip of the selected vessel in order to avoid the risk of at-sea transshipments that lead to this type of boats. All samplers are formed by IEO staff before the start of their duties at sea. The teaching of the samplers is performed in two phases. The first phase is in the laboratory, where they are established individually to every observer working patterns and protocols, identification keys of species, systems of information collected, making samples, etc. The second phase is in landing ports through practice. The working protocol for scientific purposes of sampler is based on recording of catches of the target species, biological and obtaining biometric information and sampling to various studies. They also record the number of individuals affected by the false killer whale attacks and possible sightings of cetaceans. In the case of sharks, sometimes reproductive factors and presence-absence of embryos is also studied. Moreover, general information related to general characteristics of the boat, trip and fishing gear configuration is obtained. The information obtained verified in the laboratory is integrated to contribute to the preparation of the annual tasks that are routinely submitted to the IOTC as well as to assess the interaction with marine turtles and seabirds. The sampling at sea programme started at the beginning of the fishery in 1993. A total of 70,750 hooks (1.15% nominal effort coverage) were observed during the year 2014 from March to June (table 9). The observations were restricted to areas with regular commercial activity.

Year	Hooks obs.
2008	173725
2009	73140
2010	106619
2011	63139
2012	7451
2013	180921
2014	70750

Table 9. Yearly number of hooks observed at sea in the Spanish surface longline fishery

SPECIES	#
<i>Acanthocybium solandri</i>	1
<i>Coriphaena spp.</i>	27
<i>Istiophorus platypterus</i>	1
<i>Isurus oxyrichus</i>	70
<i>Lepidocibium flavobrunneum</i>	35
<i>Prionace glauca</i>	292
<i>Rubettus pretiosus</i>	3
<i>Tetrapturus angustirostris</i>	1
<i>Thunnus alalunga</i>	14

<i>Thunnus albacares</i>	25
<i>Thunnus obesus</i>	163

Table 10. Number of specimens caught by Spanish pelagic longline that were measured during 2014

<u>SPECIES</u>	<u>#</u>
<i>Alepisaurus ferox</i>	9
<i>Alopias spp</i>	4
<i>Carcharhinus falciformis</i>	8
<i>Carcharhinus longimanus</i>	16
<i>Coriphaena spp.</i>	1
<i>Dasiatys violacea</i>	236
<i>Isurus oxyrinchus</i>	1
<i>Lepidocybium flavobrunneum</i>	1
<i>Mola mola</i>	5
<i>Mobula mobula</i>	25
<i>Prionace glauca</i>	3
<i>Pseudocarcharias kamoharai</i>	6
<i>Sphyrna lewini</i>	1
<i>Sphyrna zygaena</i>	1

Table11. Number of fish bycatch released alive observed during 2014

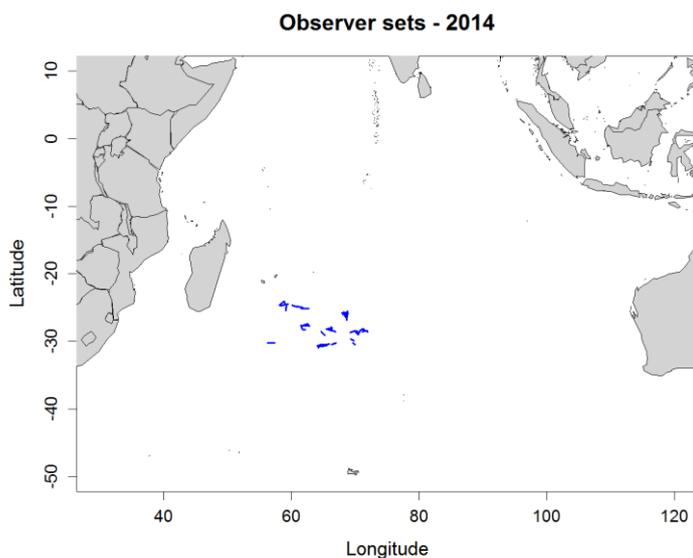
### Portuguese fleet

Since 2011 an observer program was fully implemented by IPMA (Portuguese Institute for the Ocean and Atmosphere). The current budget is approved until 2020. The program aims to cover a minimum of 10% of the fishing trips on the convention area (Table 12).

<b>Year</b>	<b>Gear</b>	<b>Observer coverage</b>		<b>Size data coverage</b>
		<b>Hooks (%)</b>	<b>Sets (%)</b>	
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%	

Table 12. Annual observer coverage of the Portuguese pelagic longline fleet, measured as a percentage of the total effort in number of hooks and sets, for the period 2011–2014.

Three 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 were collected for some of the major shark species, aiming a number of studies focusing on: life history issues (ages, growth and reproduction); genetics (population structure and paternity; and, morphometric (weight:length, length:length, weight:weight relationships). During 2014 observers were onboard one fishing vessel for 61 days, covering a total of 49 pelagic longline sets, which corresponded to 7.3% and 5.7% of the total fishing effort in terms of number of hooks and sets, respectively Map 4 and Table 12. The corresponding trip report was sent to the IOTC Secretariat in due time.



Map 4. The spatial distribution of longline sets covered by the observer program in 2014.

Size data were recorded for approximately 2,000 specimens during 2014 (Table 7). Most of the records corresponded to swordfish (43%), the target species of the fisheries, followed by the blue shark (35%), and to a much lower level the other species that are bycatch of the fishery. It is worth noting that in the past years (until 2013), skippers used to self-report size data for the major target species, as well as additional information on discards. However, since the new EU regulation (June 2013) that obliges sharks to be landed with fins naturally attached became mandatory (fishermen are no longer allowed to cut off shark fins at sea, while in the past some vessels had special permits that allow shark fin removal on board vessels), the level of self-reporting has decreased dramatically. Specifically, for 2014 no self-reporting size data was provided, and as such all the measurement reported come from the fishery observer program (Table 13).

FAO code	Species name	Size measurements
ALB	<i>Thunnus alalunga</i>	2
ALO	<i>Alepisaurus brevirostris</i>	8
ALX	<i>Alepisaurus ferox</i>	67
BAR	<i>Sphyræna</i> spp.	4
BET	<i>Thunnus obesus</i>	20
BLM	<i>Makaira indica</i>	3
BSH	<i>Prionace glauca</i>	678
BTH	<i>Alopias superciliosus</i>	6
BUM	<i>Makaira nigricans</i>	6
DOL	<i>Coryphaena hippurus</i>	46
GES	<i>Gempylus serpens</i>	106
LEC	<i>Lepidocybium flavobrunneum</i>	66
MLS	<i>Tetrapturus audax</i>	24
OCS	<i>Carcharhinus longimanus</i>	7
OIL	<i>Ruvettus pretiosus</i>	16
POR	<i>Lamna nasus</i>	2
SFA	<i>Istiophorus platypterus</i>	4
SKJ	<i>Katsuwonus pelamis</i>	1

SMA	<i>Isurus oxyrinchus</i>	16
SPZ	<i>Sphyrna zygaena</i>	5
SSP	<i>Tetrapturus angustirostris</i>	8
SWO	<i>Xiphias gladius</i>	844
WAH	<i>Acanthocybium solandri</i>	6
YFT	<i>Thunnus albacares</i>	9
<b>Total</b>		<b>1954</b>

Table 13. Number of specimens caught by pelagic longline that were measured during 2014.

Port sampling programme: All Portuguese vessels operating in the IOTC convention area are landing their catches in foreigner countries. Furthermore, the catches are transhipped to containers in IO ports and shipped to non-Portuguese ports (mostly Vigo, Spain). Thus, the current port sampling program for the Portuguese longline fleet does not cover those vessels operating in the IOTC conventional area.

### UK Fleet

There is a work being undertaken on this programme but no observation programme in place so far. However, all UK vessels operating in the IOTC Convention area land their catches in third countries. The catches are usually loaded into containers and shipped to non UK ports. The UK's port sampling programme does not cover these vessels but regular contact is made with the competent authorities of countries where we know that the vessels land. Port sampling is therefore carried out occasionally.

When the UK formalises an observer programme routine sampling will take place.

## 7. Other relevant information

### ECOSYSTEM AND BYCATCH ISSUES

#### Spanish fleet

The catches of the by-catch by species since the beginning of this fishery in 1993 have been described in several scientific papers previously presented to the IOTC. Total catch of sharks in 2014 was estimated as 5,481 t, 427 t for billfish, 961 t for tunas and 366 t for other species. Basic statistical tasks and the monitoring of the swordfish fishery as well as some research was conducted to find out what species are captured as by-catch or incidental interactions and their respective catch levels. Standardized catch rates in weight for blue shark (*Prionace glauca*) were developed using General Linear Modeling from scientific records of the Spanish surface longline targeting swordfish in the Indian Ocean over the period 2001-2013 (Fernández-Costa *et al.* 2015).

### **Sharks**

The sharks (trunks or carcass) with their respective fins naturally attached are retained, frozen and stowed on board and landed for human consumption. The profitable use of the different parts of the sharks is regularly better than that most of the teleost species. The presence of on-board observer when feasible has allowed us to compare data and acquire some additional biological information on the catches. By-catch data for the highest feasible taxonomic level has been obtained and reported for year 2014. Nevertheless, due to the low coverage of these by-catch species it was not feasible to obtain a scientifically robust data by area-time stratification. The annual by-catch data for various taxonomic levels are reported in the table 14.

SPECIES	2008	2009	2010	2011	2012	2013	2014
Carcharhinus spp.	236902	223975	281021	145803	25625	565	0

<i>Galeocerdo cuvieri</i>	600	437	260	241	0	0	0
<i>Isurus oxyrinchus</i>	474305	334761	349959	439784	561690	620973	823549
<i>Isurus paucus</i>	3944	2009	289	228	250	791	171
<i>Lamna nasus</i>	1263	2710	0	0	0	0	0
<i>Prionace glauca</i>	3880295	3101372	2422054	3290769	3686452	414948	4657270
Other sharks	45203	52689	289	228	0	0	0

Table14. Preliminary scientific estimation of shark, by species, of the by-catch annual landings (kg round weight) obtained by the Spanish longline fleet in the Indian Ocean for the 2008-2014 period.

## Seabirds

There was scientifically observed 70,750 hooks with an incidental interaction on 2 seabirds in surface longliners during the year 2014. Table 15 shows the incidence and mortality rates of seabirds after analyzing a total of 675,745 hooks during the combined 2008-2014 period.

	Year	Interaction rate	Mortality rate	Number
SEABIRDS	2008	2.30E <sup>-05</sup>	2.30E <sup>-05</sup>	4
	2009	0	0	0
	2010	0	0	0
	2011	0	0	0
	2012	0	0	0
	2013	7.19E <sup>-05</sup>	7.19E <sup>-05</sup>	13
	2014	2.83E <sup>-05</sup>	2.83E <sup>-05</sup>	2

Table15. Observed annual interactions rates of surface longline gear on seabirds for the 2008-2014 period and total number of individuals observed

## Marine Turtles

There was scientifically observed incidental interaction on 5 marine turtles in surface longliners on 70,750 hooks observed during the year 2014, all of them were released alive. Table 16 shows the incidence and mortality rates of marine turtles after analyzing 675,745 hooks during the combined 2008-2014 period.

	Year	Interaction rate	Mortality rate	Number
TURTLES	2008	9.21E <sup>-05</sup>	1.15E <sup>-05</sup>	16
	2009	0	0	0
	2010	0	0	0
	2011	0	0	0
	2012	0	0	0
	2013	1.49E <sup>-04</sup>	2.76E <sup>-05</sup>	27
	2014	7.07E <sup>-05</sup>	0	5

Table 16. Observed annual interactions rates of surface longline gear on marine turtles for the 2008-2014 period and total number of individuals observed.

## 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 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. EU regulation on shark finning is enforced and no shark finning is taking place onboard Portuguese fishing vessels. Moreover, shark fins are no longer removed from the trunks, as the fleet has no more special permissions. 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. In 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. In 2014 the catch was again reduced, following the lower fishing effort (Table 17).

FAO code	Species name	2010	2011	2012	2013	2014
BSH	<i>Prionace glauca</i>	661.2	847.5	554.0	1160.4	885.0
CWZ	Carcharhinidae	10.2				
	<i>Carcharhinus</i>	33.6	4.5	6.6		
FAL	<i>falciformis</i>					
LMA	<i>Isurus paucus</i>	0.0				
	<i>Carcharhinus</i>	2.2				
OCS	<i>longimanus</i>					
SBL	<i>Hexanchus griseus</i>	0.1				
SMA	<i>Isurus oxyrinchus</i>	120.7	112.4	118.1	219.7	148.0
SPN	<i>Sphyrna</i> spp.					
SPZ	<i>Sphyrna zygaena</i>	2.3				
SKH	Not elsewhere included	11.4				
	<b>Total</b>	841.7	964.4	678.7	1380.1	1033.0

Table 17. Total weight (MT) of sharks, by species, retained by the national fleet in the IOTC area of competence during the period 2010-2014.

In Table 18 it is summarized the observed number of sharks, by species, released/discarded in the IOTC area of competence in 2014, including their life status at haulback and upon released/discarded. However, these figures should be regarded carefully, as they are based on the observer coverage with represent only a fraction (7.3%) of the total fishing effort and are limited both geographically and seasonally.

Amongst the prohibited shark species, it's worth noting that 29% of the bigeye threshers (BTH) and 62% of the oceanic whitetip (OCS) were released alive. 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	<i>Prionace glauca</i>	1	0	1
BTH	<i>Alopias superciliosus</i>	5	2	7
MAN	Myliobatidae (family)	0	2	2
OCS	<i>Carcharhinus longimanus</i>	5	8	13
PLS	<i>Pteroplatytrygon violacea</i>	0	26	26
POR	<i>Lamna nasus</i>	0	2	2

SPZ	<i>Sphyrna zygaena</i>	5	0	5
Total		16	40	56

Table18. Observed number of sharks, by species, released/discarded in 2014 by the EU-Portugal longline fleet in the IOTC area of competence, including life status at haulback and upon released/discard. Note: Information represents only 7.3% 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° 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 sea birds. The recently IOTC ID guide has not yet been distributed as a translations into Portuguese and/or Spanish of these guides are not yet available. During 2014, no seabirds were accidentally captured in the sets covered by the fishery observer program. In 2014 the fishery observer program covered 7.3% of the total fishing effort.

### Marine Turtles

As reported above for seabirds, fishermen are also 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. The recently IOTC ID guide has not yet been distributed as a translations into Portuguese and/or Spanish of these guides are not yet available. Again, 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 2014, no sea turtles were accidentally captured in the sets covered by the fishery observer program (Table 19). In 2014 the fishery observer program covered 7.3% of the total fishing effort.

FAO species code and scientific name	Status		Total no. specimens released/discarded
	Dead	Alive	
<b>Seabirds</b>			
<i>No seabirds were caught in the observer program during 2014</i>			
Total	0	0	0
<b>Marine turtles</b>			
<i>No marine turtles were caught in the observer program during 2014</i>			
Total	0	0	0

Table19. Observed catches of species of special interest (marine turtles, seabirds and marine mammals) in 2014, for the EU-Portugal longline fleet operating in the IOTC area of competence. Observer coverage: 7.3% of total fishing effort.

### 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 2014 there were no records of marine mammal or any other sensitive species being accidentally caught in the sets covered by the fishery observer program. In 2014 the fishery observer program covered 7.3% of the total fishing effort.

### UK Fleet

#### **Sharks**

Shark catches are reported by species and the vessels are encouraged to release bycatch species that are caught alive. Table 5b of this report details the total weight of sharks retained by the UK fleet in the IOTC area of competence. In 2010 the UK revoked the finning permits for all vessels and therefore on-board finning is prohibited.

***Turtles***

No incidents reported this year.

***Seabirds***

No incidents reported this year.

***Orcas***

No reported incidents this year.

**EUROPEAN UNION**

**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 2.0% of the hooks in 2014.

**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.