Annual Review of National SBT Fisheries for the Extended Scientific Committee
(Revised at the Twenty-Sixth Annual Meeting: 17 October 2019)

1. Introduction
   - Background

No directed fisheries of Southern Bluefin Tuna (SBT) are permitted under the EU quota 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 surface longliners operating in the Southern Hemisphere targeting swordfish, sometimes in association with sharks, notably in the IOTC Convention Area (Table 1).

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	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
All	2018	0
All	2019	0
All	2020	0

Table 1. Total reported EU bycatch of SBT.

   - Summary of historical developments in the fishery

Indian Ocean
In 2019[1] as well as in 2020, 16 EU surface long-liners fishing for swordfish in association with sharks in IOTC (11 vessels from Spain, 3 from Portugal and 2 from UK) entered intermittently in the SBT distribution area. 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

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[1] The data provided to the Indian Ocean is taken from the last available last IOTC scientific report (2019). However when available it is also provided data for 2020.

fishing Albacore sometimes outside their EEZ but not operating in areas of SBT distribution (i.e. not interfering with SBT fisheries).

Atlantic Ocean
In 2020, there were 22 EU surface longliners (19 from Spain and 3 from Portugal) operating intermittently in the South Atlantic (ICCAT), that entered in fishing grounds south of 30° S. These surface longliners have the same characteristics as the EU oceanic surface longliners active in IOTC.

West Pacific
In 2020 (last WCPFC report), there were 3 Spanish surface longliners operating intermittently in the Southwest Pacific Ocean that had some fishing trips in the SBT distribution area. These surface longliners have the same characteristics as the EU oceanic surface longliners active in IOTC.

- Overview of the most recent fishing season

No by-catches of SBT in 2019 and 2020 were reported by the EU fleets, including data provided by observers, operating in all oceans in areas where incidental catches of SBT could occur.

2. Catch and Effort
   - Trends by gear type (surface and longline)
   - 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 that entered in the SBT distribution area.

The information and data provided below concerns fishing activities of the EU longliners that entered in fishing grounds 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 around of 30 °S, in the Mozambique Channel, at the south of Madagascar and around the longitude of 60°E (Figures 1a, 1b and 1c).

The nominal effort – number of hooks - for all longliners targeting swordfish in association with sharks has decreased since 2013 (Table 2). EU fleets (Spain, Portugal and UK flagged vessels) mainly operate in IOTC high seas. In 2018 (last IOTC scientific report available),

Year	Effort (10⁶ hooks)	Catches (t)						
		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	5.140	715	913	237	303	12.265
2017	5,697	4.609	4.495	798	431	159	271	10.763
2018	4,213	3197	3299	646	213	116	158	7628
2019	4,423	3109	3730	611	211	125	100	7886

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.
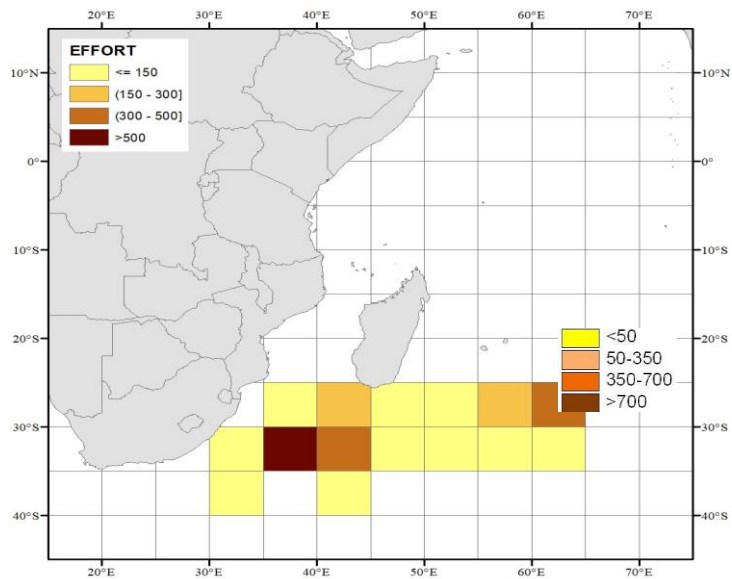

Figure 1a Distribution of the nominal fishing effort (thousands hooks) by 5°x5° squares carried out by the Spanish surface longline fleet in the Indian Ocean during the year 2019.
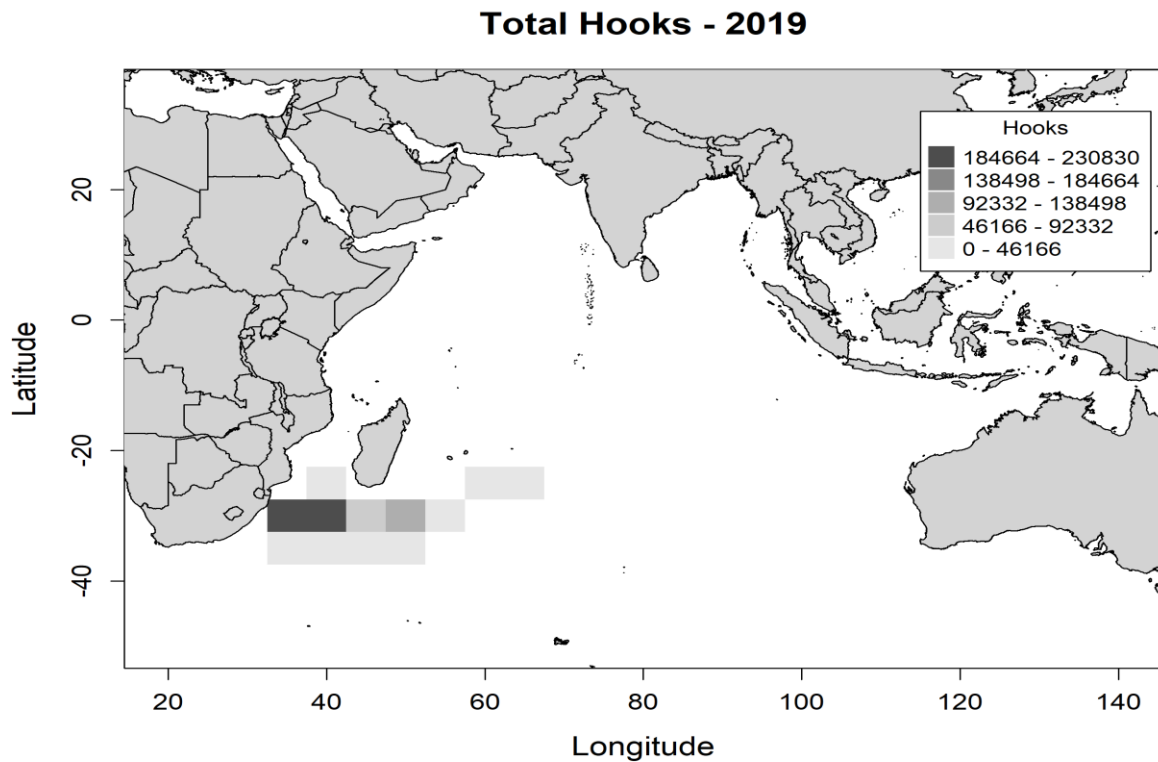

Figure 1b. Map of the distribution of fishing effort (number of hooks deployed), by the Portuguese longline fleet operating in the IOTC area of competence during 2019.
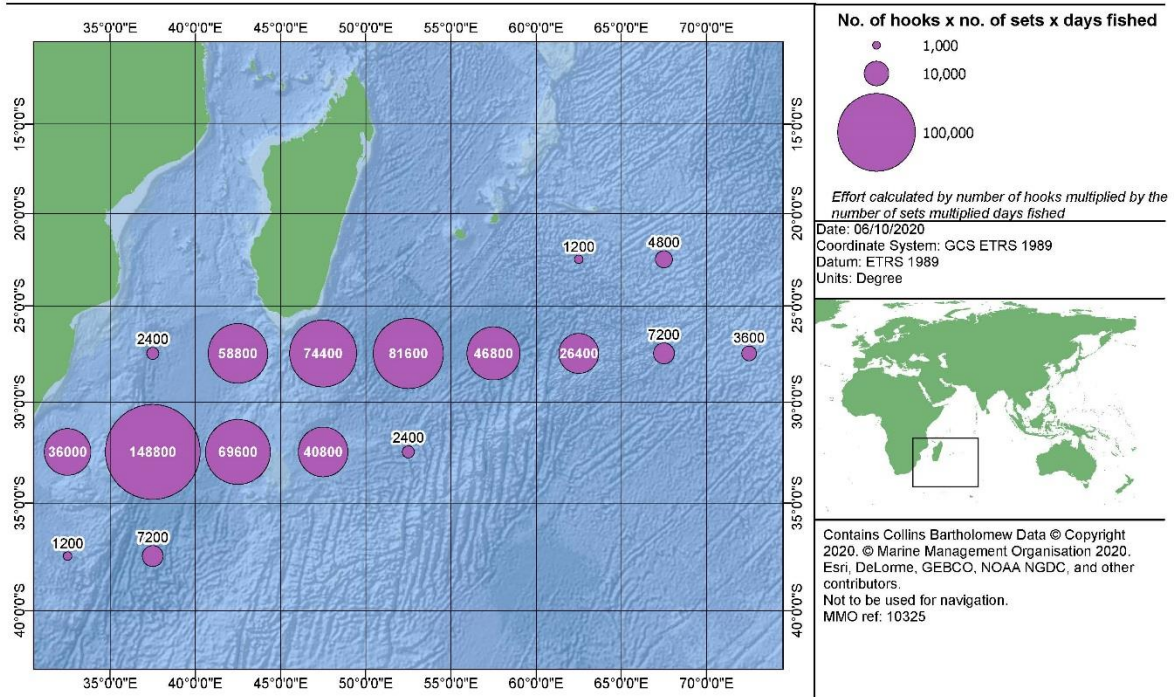
Figure 1c. Distribution of longline fishing effort (No. of hooks x no. of sets x days fished,) UK vessels in the IOTC area of competence (2019)

Southern Atlantic Ocean

The EU longline fleet operating in the Southern Atlantic Ocean, targets swordfish in association with sharks. These vessels mainly operated in fishing areas situated at the north of 30°S. but intermittently entered the SBT distribution area.

In 2020 in the South Atlantic, the Spanish surface longliners operated 763 fishing days in fishing grounds located at the south of 30°S. Main catches of the Spanish fleet (only in fishing grounds south of 30° S.) are shown in table 3.

Year	SWO	BSH	SMA
2018	636,92	3.737,10	308,48
2019	665,35	3.986,33	222,17
2020	344,58	2.257,42	145,56

Table 3: Spanish surface longliners catches (Tonnes) of the main species in (2018-2020), only in fishing grounds south of 30° S.
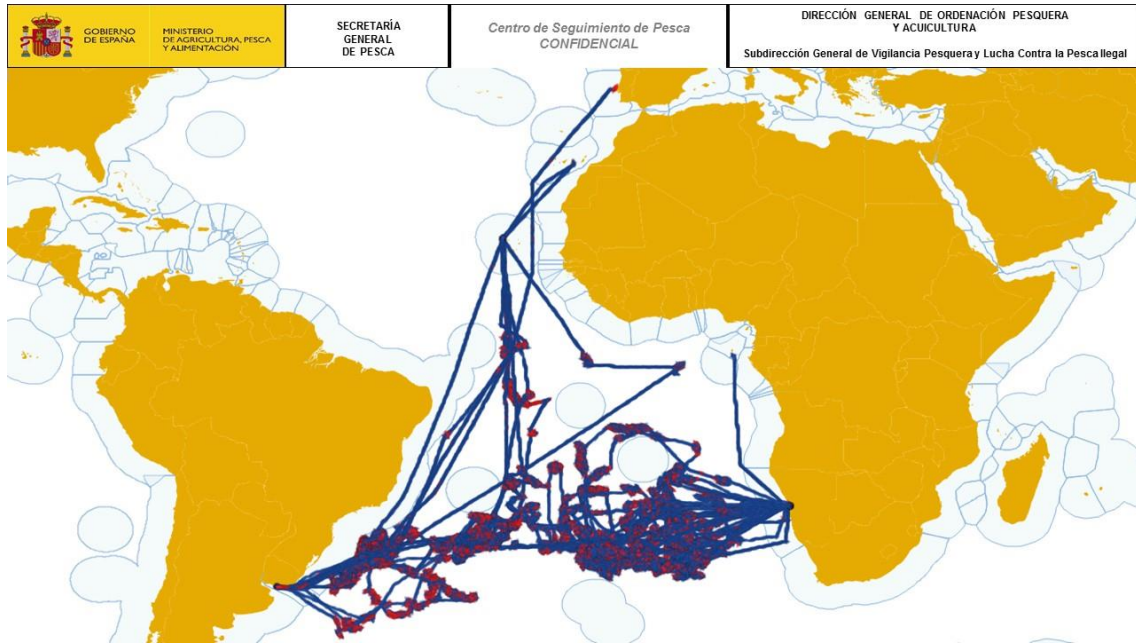
Figure 2. Fishing trips of the Spanish Surface Longline vessels that entered in fishing grounds south of 30° S.

In 2020 in the South Atlantic, the Portuguese surface longliners operated 447 fishing days in fishing grounds at the south of 30°S. Catches per species are shown in the table 4.

YEAR	AREA	SPECIES	CATCHES (TON)
2020	41.2.2	ALB	0,048
2020	41.2.2	BET	0,373
2020	41.2.2	BSH	249,133
2020	41.2.2	LAG	0,390
2020	41.2.2	LEC	0,257
2020	41.2.2	SMA	8,316
2020	41.2.2	SWO	13,975
2020	41.2.3	ALB	0,185
2020	41.2.3	BET	0,571
2020	41.2.3	BSH	123,382
2020	41.2.3	LEC	0,065
2020	41.2.3	SMA	8,523
2020	41.2.3	SWO	1,234
2020	41.2.4	ALB	1,298
2020	41.2.4	BET	5,880

2020	41.2.4	BSH	3 485,202
2020	41.2.4	DOL	1,013
2020	41.2.4	LAG	0,275
2020	41.2.4	LEC	2,756
2020	41.2.4	SMA	140,260
2020	41.2.4	SWO	67,732
2020	41.3.3	BSH	235,449
2020	41.3.3	LEC	0,065
2020	41.3.3	SMA	19,925
2020	41.3.3	SWO	2,364
2020	47.C.0	BSH	9,120
2020	47.C.0	LEC	0,085
2020	47.C.0	SMA	1,460
2020	47.C.1	BET	0,080
2020	47.C.1	BSH	11,560
2020	47.C.1	LEC	0,025
2020	47.C.1	SMA	0,090
	TOTAL		4 391,091

Table 4: Portuguese surface longliners, catches per area (including Sharks) in 2020 (some areas north of 30° S.).

West and Central Pacific

The EU surface longline fleet is composed by 3 Spanish surface longliners. These longliners operated in the temperate area south of 20° south and the mostly work around of 30° south (FAO fishing areas 77 and 81). The ports of Auckland (New Zealand) and Papeete (French Polynesia) are the main hubs for landings and supply activities.

The vessels carry on lengthy trips lasting for 2 to 3 months. The main catches are swordfish and blue shark. They displayed an average of 1181 hooks per vessel and operated 885 fishing days in 2020.

ALB	BET	BLM	BUM	MLS	PBF	SKJ	SWO	YFT
3,8502	40,0791	18,0227	24,0477	15,9194	0,0000	0,0000	1416,0070	32,7197

Table 5. Total estimated catches by species (sharks not included) in the Western and Central Pacific Ocean South of the Equator (Tons).
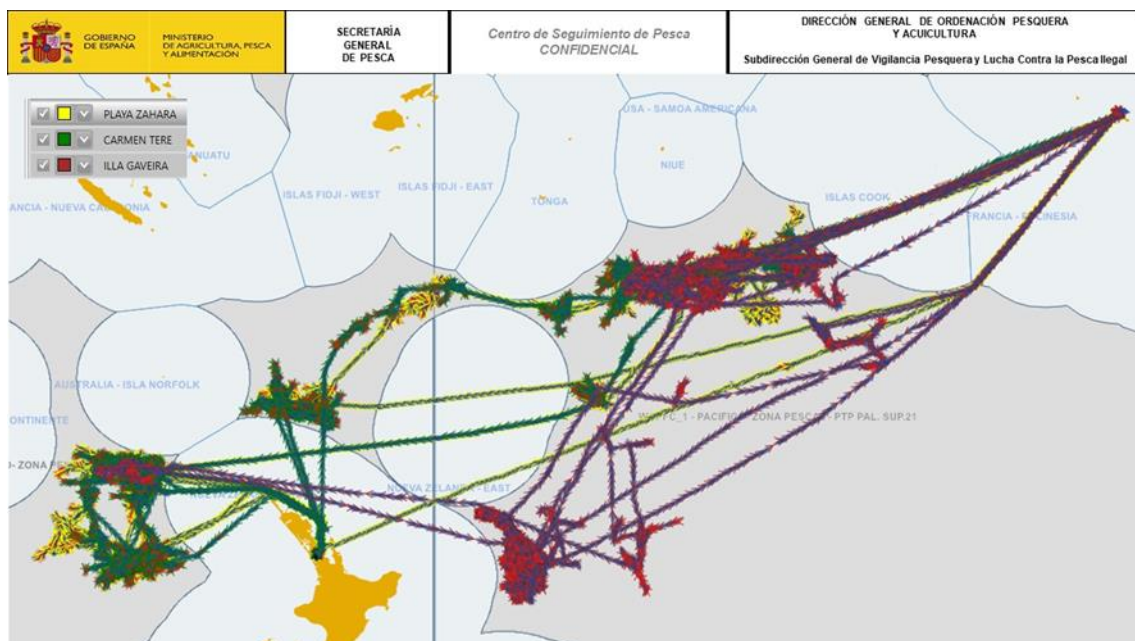
Figure 3. Fishing trips of the Spanish surface longline vessels that entered in fishing grounds south of 30° S.

3. Nominal CPUE
    Where appropriate:
    - Trends by gear type (surface and longline)
    - Trends by area and season
    (Table should include: nominal CPUE for above strata as well as totals for the entire history of the fishery)

The EU has no SBT catches to report and therefore no Nominal CPUE to be transmitted. Related information regarding EU surface longline vessels operating in the Southern Hemisphere in ICCAT, IOTC and WCPFC have been transmitted to the respective secretariats of these organisations according to their mandatory data requirements.

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)

The EU has no SBT catches to report and therefore no size frequencies to be transmitted. Size frequencies for other species caught by EU surface longline vessels operating in the Southern Hemisphere in ICCAT, IOTC and WCPFC have been transmitted to the respective secretariats of these RFMOs according to their mandatory data requirements.

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)

<u>Indian Ocean</u>
In 2019 (last IOTC report) and 2020, there were 16 EU surface longliners operating in the IOTC area intermittently entering in the distribution area of SBT – 11 vessels from Spain, 3 from

Portugal and 2 from UK. All fleets are targeting swordfish in association with sharks and is distributed in the Southern Indian Ocean between latitudes 20°S and 40°S, mainly around 30°S, in the Mozambique Channel, at the south of Madagascar and around the longitude of 60°E.

Atlantic Ocean
In 2020, there were 22 EU surface longliners (19 from Spain and 3 from Portugal) fishing in the ICCAT (South Atlantic) that entered intermittently in fishing grounds located at the south of 30°S.

West Pacific
In 2020, there were 3 Spanish surface longline vessels mainly fishing in the Western and Central Pacific in the temperate area, mostly operating in fishing grounds around 30° south.

6. Research and monitoring to improve estimates of components of attributable catch:

i. *Releases and/or discards*
   - *Describe the various sources of information and data used in calculating the estimates*
   - *Describe the method applied for estimating the catch*
   - *Provide the resulting estimated catch*

ii. *Recreational fishing*
   - *Describe the various sources of information and data used in calculating the estimates*
   - *Describe the method applied for estimating the catch*
   - *Provide the resulting estimated catch*

iii. *Customary and/or traditional*
   - *Describe the various sources of information and data used in calculating the estimates*
   - *Describe the method applied for estimating the catch*
   - *Provide the resulting estimated catch*

iv. *Artisanal*
   - *Describe the various sources of information and data used in calculating the estimates*
   - *Describe the method applied for estimating the catch*
   - *Provide the resulting estimated catch*

The EU fleets operating in the SBT distribution area did not catch 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 surface 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[2]
   - *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*

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

program.

The EU vessels do not target SBT and SBT is not a substantial by-catch and therefore the SBT scientific observer programme is not an obligation to the EU vessels operating in the SBT distribution area. However, observers are deployed in the EU surface Longliners according to the requirements of the relevant tuna RFMO (IOTC, ICCAT and WCPFC).

Indian Ocean

The observer coverage rate in 2019 of the EU surface longliners, operating in the Indian, was about 7,6% (number of hooks).

Spanish fleet:
In 2019, 78.466 hooks were observed onboard of 3 vessels during 119 fishing days and 119 sets in the IOTC area, under the responsibility of the General Fisheries Secretariat. In addition, the Spanish Institute of Oceanography also undertook observations on Spanish Longline activities during 44 fishing days (47,590 hooks). Both national Programs observed a total of 163 fishing days representing an observation coverage of 5,44% of fishing effort (2.998 total fishing days).

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

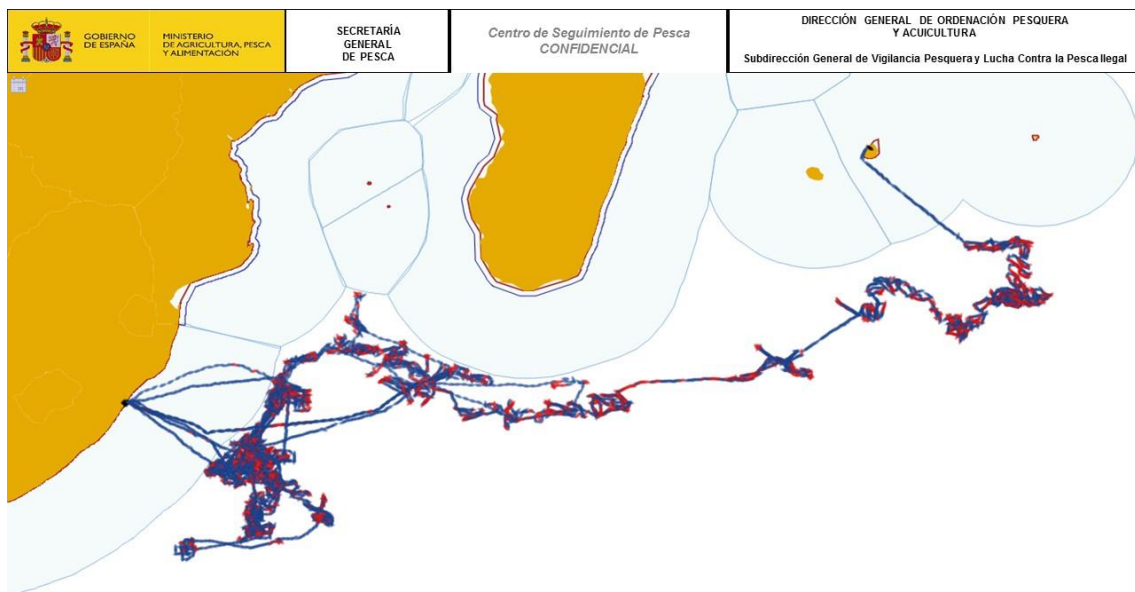No SBT catches have been reported by the observers deployed in the Spanish Longliners.

Figure 4: Map showing the spatial distribution of the Spanish surface longline sets covered by the observer program (General Fisheries Secretariat) in 2019.
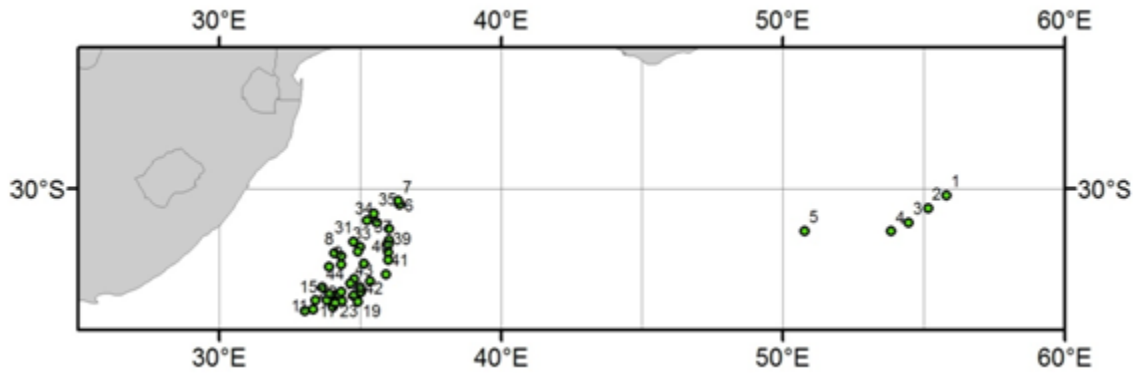
Figure 5: Map showing the spatial distribution of the Spanish surface longline sets covered by the observer program (Spanish Institute of Oceanography) in 2019.

Portuguese fleet:

Since 2011 an observer program has been fully implemented. The program aims to cover 10% of the fishing effort on the convention, while a minimum of 5% is established. Table 6 provides the coverage of the program by year calculated both in number of hooks and sets.

Year	Gear	Observer coverage		Size data coverage
		Hooks (%)	Sets (%)	
2011	Pelagic longline	17.9	16.3	
2012	Pelagic longline	10.7	10.9	
2013	Pelagic longline	11.0	9.9	Sizes are taken for all retained specimens and dead discards
2014	Pelagic longline	7.3	5.7	
2015	Pelagic longline	11.1	8.2	
2016	Pelagic longline	9.1	7.2	
2017	Pelagic longline	7.9	7.0	
2018	Pelagic longline	15.5	13.9	
2019	Pelagic longline	17.4	16.1	

Table 6: Annual observer coverage of the Portuguese pelagic longline fleet since it was established in 2011, measured as a percentage of the total effort in number of hooks and sets, for the period 2011–2019.

Seven 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. 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 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). Until 2018 the onboard fishery observers were part of the technical staff of IPMA, but since 2019 are hired through a private company. Still, all the training and data collection protocols are provided by IPMA.

During 2019 observers were onboard one fishing vessel for 157 days, covering a total of 123 pelagic longline sets, which corresponded to 17.4% and 16.1% of the total fishing effort by the fleet in 2019, in terms of number of hooks and sets, respectively.
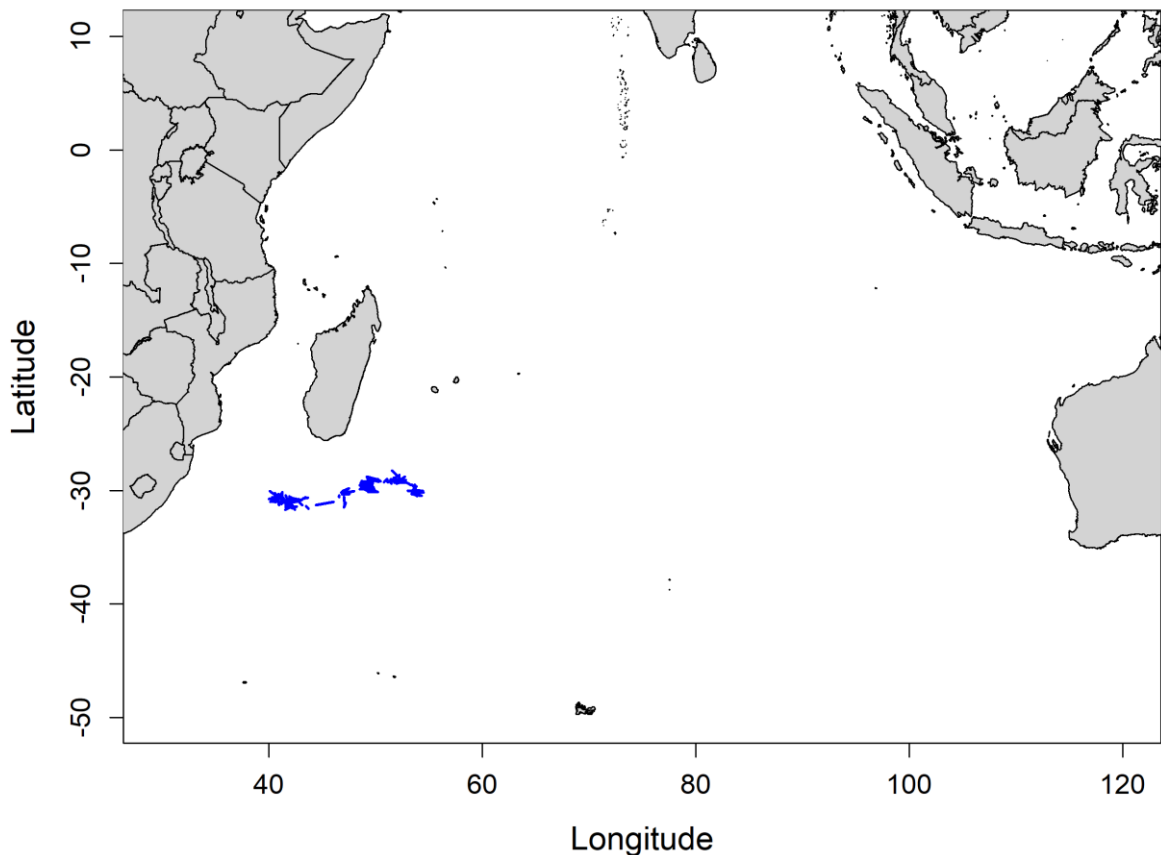
Observer sets - 2019

Figure 6: Map showing the spatial distribution of longline sets covered by the observer program in 2019.

No SBT reported by observers on the Portuguese longliners. In 2020, due to COVID 19 restrictions and according to exemptions agreed in IOTC, there were no fishing trips covered by scientific observers.

Port sampling programme

All Portuguese vessels operating in the IOTC convention area are landing their catches in foreigner countries. Furthermore, the catches are moved to containers in ports of those countries and shipped to non-Portuguese ports in Europe (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.

Unloading/Transhipment

Official logbooks have a special field for the reporting the quantities of unloaded or transhipped retained catch. So all the vessels report these data to the Administration together with data on captures since the year they began operating in the area. Besides all fish unloaded for containers are accompanied by a special form, reported to the Administration, to entry the UE market.

UK fleet:
An observer programme has now been put in place for UK vessels and routine sampling started from July 2017 with a single observer and the first report was received in October 2017. In 2019 the observer was present for just over 11 percent of the fishing days of the two UK vessels
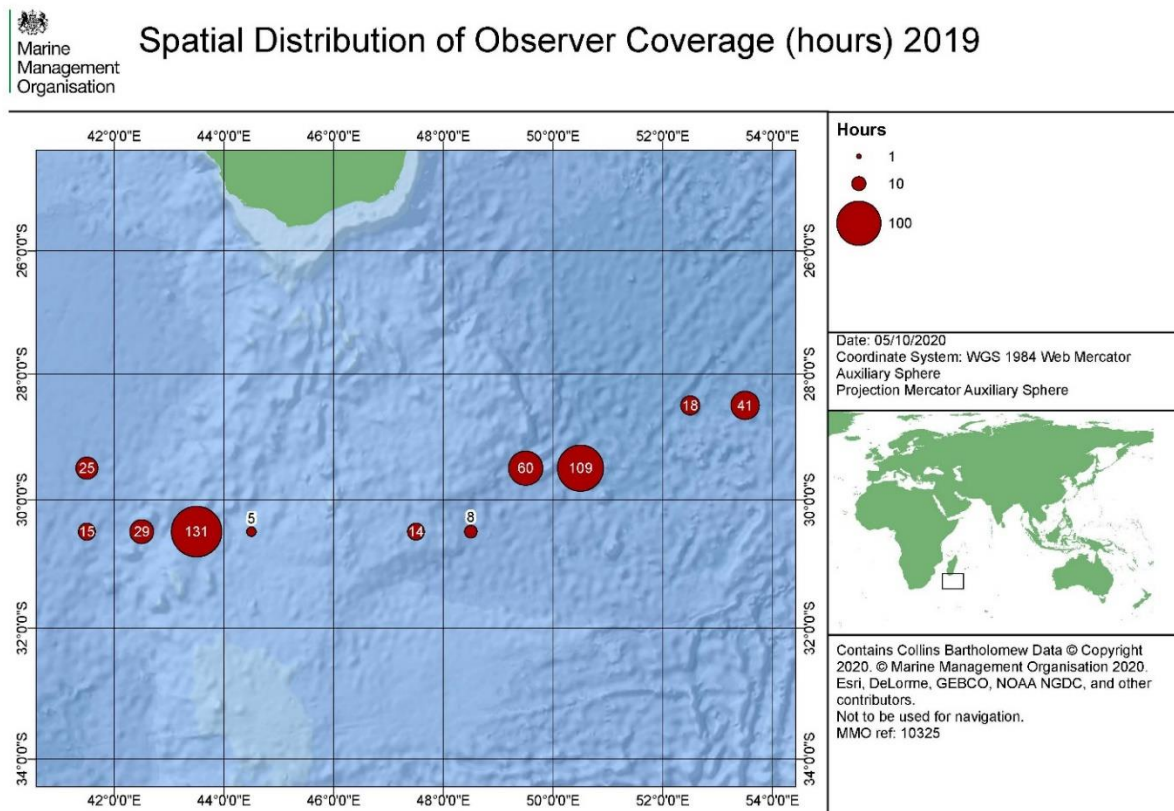
active in the IOTC area.

Figure 7. UK fleet - distribution of observer coverage (hours) in 2019

Port sampling programme [including date commenced and status of implementation]

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.

Unloading/Transhipment

The UK authorities are informed when transhipment takes place though usually catches are landed in ports.

Atlantic Ocean

An EU-wide framework for the collection of fisheries data is in place since the early 2000s.

Observers:

The EU national scientific observers cover the main fisheries in which the EU is involved, including SWO (longliners). 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.

Spanish Fleet

The total observed effort on board the Spanish longline fisheries decreased substantially in 2020 (2.4% coverage in all Atlantic) due to COVID19 restrictions, fishing grounds at the south of 30°South were not covered by observers.

Portuguese fleet

In 2020, due to COVID 19 restrictions, there were no fishing trips covered by scientific observers.

West Pacific

In 2020, due to COVID 19 restrictions, there were no fishing trips covered by scientific observers.

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 2019 and 2020, there were no SBT by-catches. Information related to the EU surface longline activities in the SBT distribution area is provided in the previous chapters of this report. In this chapter, complementary information and data is reported, mainly concerning Ecological Related Species.

Indian Ocean

Spanish fleet

Basic statistical tasks, the scientific monitoring of the swordfish fishery and some research was conducted to find out what species are captured as by-catch or incidental interactions occurred. This report includes data of by-catch data obtained during the year 2019. 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 and also provided by reports of the National Fishing Authority. Total catch of sharks in 2019 was estimated as 3,073 t, 142 t for tunas, 87 t for billfish and 62 t for other species.

Studies about the interaction between seabirds and the Spanish surface longline targeting swordfish was carried out following the scientific recommendations of the IOTC Scientific Committee and reported in several papers in previous years.

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 bony fish species. By-catch data of sharks is summarized in table 7 for 2012-2019 period. It was not feasible to obtain a scientifically robust data by extensive area-time stratification due to the low occurrence of most by-catch species. However, total catches of all by-catch species are scientifically estimated and reported for assessment.

SPECIES/YEAR	2012	2013	2014	2015	2016	2017	2018	2019
C. falciformis	25625	565	0	0	0	0	4075	923
Galeocerdo cuvieri	0	0	0	0	0	0	0	0
Isurus oxyrinchus	561690	620973	823549	441013	450893	532306	399838	424523
Isurus paucus	250	791	171	0	122	0	858	600
Lamna nasus	0	0	0	0	0	0	0	0
Prionace glauca	3686452	414948	4657270	3701847	3592515	3059154	2162043	2646743
Other sharks	0	0	0	0	0	0	0	0

Table 7. Scientific estimation of sharks by species, of the annual by-catch landings (kg round weight) obtained by the Spanish longline fleet in the Indian Ocean for the 2012-2019 period (the most recent period is included in this table).

Seabirds

During 2019 a total of 47,590 hooks were observed in the Spanish surface longline fishery targeting swordfish in the Indian Ocean that means a total of 44 fishing days and 56 days at sea. The observed area ranged 30ºS and 30º-55ºE. Only one interaction occurred with a seabird (*Thalassarche chlororinchos*), with a resulting mortality rate of 2.10E^{-05} seabird by hook.

After analyzing 721,170 hooks observed during the period 2010-2019, the overall interaction and mortality rates reached were of 2.77E^{-05} seabirds by hook. Table 8 shows the different rates obtained by year during the 2010 - 2019 period.

Fishing areas, night setting and low levels of lighting during setting operations as well as other fishing protocols applied by the vessels, including domestic regulations, were identified as the most important factors to explain the regularly low or null interaction with seabirds in this fishery.

SEABIRDS	Year	Interaction rate	Mortality rate	Number
	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
	2017	0	0	0
	2018	0	0	0
	2019	2.10E^{-05}	2.10E^{-05}	1

Table 8. Observed annual interactions rates of surface longline gear on seabirds for the 2010-2019 period and number of individuals observed.

In 2019, an additional number of 78,466 hooks were also observed by the Spanish General Secretariat of Fisheries in the Spanish surface longline fishery targeting swordfish in the Indian Ocean that means a total of 119 fishing days and 119 sets. There were no interactions occurred with seabirds. The data of this National Observer Program are not included in the analysis of the table 8.

Marine Turtles and sea mammals

During the year 2019 a total of 44 sets, 56 days at sea and 47,590 hooks observed in the Spanish surface longline fishery targeting swordfish in the Indian Ocean were analyzed. The observed

area ranged between 30ºS and 30º-55ºE.

There was only one encounter with a marine turtle that could not be identified so that the resulting interaction rate was $2.10E^{-05}$. This turtle was released alive so the mortality rate was null during 2019.

After analyzing 721,170 hooks observed during the period 2010-2019, the overall interaction rate reached for this period was of $5.82E^{-05}$ marine turtles by hook. The overall mortality rate for the period 2010-2019 reached was of $4.30E^{-05}$. Table 9 shows the different rates obtained by year for between 2010 and 2019.

There has been no interaction on marine mammals and neither on the basking shark.

In 2019, an additional number of 78,466 hooks were also observed by the Spanish General Secretariat of Fisheries in the Spanish surface longline fishery targeting swordfish in the Indian Ocean that means a total of 119 fishing days and 119 sets. Two interactions occurred with marine turtles of the specie *Caretta caretta*, one of them in the location 30ºS-35ºE in January 13th which was release alive and, the other in the location 31ºS-36ºE in December 21th. For the last interaction the state of the release is unknow. Finally, the global resulting interaction in the framework of this National Observer Program in 2019 was 2.55E-05 per hook.

Regarding cetaceans there was an interaction with a *Common dolphin* in the location 30ºS-53ºE in January 13th and it was released alive and other interaction with a *Megaptera novaeangliae* in the location 29ºS-48ºE in October 3rd, it was also released alive.

This data of the National Observer Program by the General Fisheries Secretariat are analyzed separately from the data presented in table 9.

TURTLES	Year	Interaction rate	Mortality rate	Number
	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
	2017	$3.34E^{-05}$	0	2
	2018	0	0	0
	2019	$2.10E^{-05}$	0	1

Table 9. Observed annual interactions rates of surface longline gear (Spanish fleet) on marine turtles for the 2010-2019 period and total number of individuals observed.

Portuguese fleet

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 must comply with the EU regulations on shark finning and fins-attached policy. Blue shark belly has been

observed as being occasionally used as bait, particularly in areas/seasons when high shark bycatch occurs. Accordingly, an increase use of wire traces has also been observed. Shark catches have increased between 2014 and 2017, but dropped substantially in 2018 and 2019 (Table 10). Only blue shark and shortfin mako are retained by the national fleet and commercialized, while the other species are discarded due to International and/or EU regulations. Those other species are therefore not retainer or landed, but are recorded and reported by the onboard observer program.

FAO code	Species name	2015	2016	2017	2018	2019
BSH	*Prionace glauca*	124.8	1375	1240	806	711
SMA	*Isurus oxyrinchus*	225.1	241	218	166	114
	Total	1473.9	1616.0	1458.3	973	825

Table 10. Total weight (MT) of sharks, by species, retained by the national fleet in the IOTC area of competence during the period 2015-2019.

Table 11 summarizes the observed number of sharks, by species, released/discarded in the IOTC area of competence in 2019, including their condition status at haulback and upon released/discarded. Those records come from the on-board observer program. These figures should be regarded carefully, as they are based on the observer coverage, which represented 17.4% in 2019 of the total fishing effort and are limited both geographically and seasonally.

FAO code	Species name	Status at release		Total no. sharks released/discarded
		Dead	Alive	
BSH	*Prionace glauca*	37	4	41
BTH	*Alopias superciliosus*	12	12	24
FAL	*Carcharhinus falciformis*	35	7	42
PLS	*Pteroplatytrygon violacea*	0	124	12
POR	*Lamna nasus*	59	3	62
PSK	*Pseudocarcharias kamoharai*	2	4	6
RMB	*Manta birostris*	0	7	7
RMM	*Mobula mobular*	0	15	15
SMA	*Isurus oxyrinchus*	11	2	13
SPZ	*Sphyrna zygaena*	1	0	1
	Total	**157**	**178**	**335**

Table 11: Observed number of sharks (elasmobranchs), by species, released/discarded in 2019 by the EU-Portugal longline fleet in the IOTC area of competence, including life status at haulback and upon released/discard. Note: Information represents 17.4% of the total EU-Portugal fishing effort in 2019 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 25º 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 have been distributed to the fleet.

During 2019, 1 (one) seabird was accidentally captured in the sets covered by the fishery observer program (Table 12). In case of any interaction, as occurred in previous years, the full high resolution seabird interactions data with date, biology, fate and in 1*1 degree spatial resolution is reported to IOTC in the respective observer trip data, that has always been submitted by EU.Portugal fully and in due time, in electronic database format in the more recent years.

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 2019, 4 (four) sea turtles were accidentally captured in the sets covered by the fishery observer program. From those, all 4 specimens were released alive (Table 12). 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, that in recent years has been provided as full electronic datasets.

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 2019 there were 2 interactions with marine mammals in the sets covered by the fishery observer program, and in both cases the specimens died (Table 12). The full high-resolution marine-mammal interactions data with date, biology, fate and in 1*1 degree spatial resolution was reported to IOTC in due time in the respective observer trip reports and data, which in recent years has been provided in electronic format.

Taxa	FAO Code	Scientific name	Status		Total no. specimens released/discarded
			Dead	Alive	
Sea birds	CTH	*Catharacta chilensis*	0	1	1
	Total sea birds		**0**	**1**	**1**
Marine turtles	TTL	*Caretta caretta*	0	3	3
	DKK	*Dermochelys coriacea*	0	1	1
	Total marine turtles		**0**	**4**	**4**
Marine mammals	MAM	*Mammalia nei*	0	2	2
	Total marine mammals		**0**	**2**	**2**

Table 12. Observed catches of species of special interest (marine turtles, seabirds and marine mammals) in 2019, for the EU-Portugal longline fleet operating in the IOTC area of competence. Observer coverage represented 17.4% of total fishing effort in 2019.

UK fleet

Sharks

Shark catches are reported by species and the vessels are encouraged to release bycatch species that are caught alive. The UK fleet retained in 2018: 330,7 tons of blue shark, 79,7 tons of shortfin mako and 0.3 tons of longfin Mako, 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 still naturally attached.

Shark catches are reported by species and the vessels are encouraged to release bycatch species that are caught alive. Table 13 details the total weight of sharks 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 still naturally attached.

Species name	2014	2015	2016	2017	2018	2019
Blue Shark	251.8	215.3	172.4	195.7	369.5	371.8
Longfin mako	0.0	0.0	0.0	0.3	0.3	0.0
Shortfin mako	54.0	26.1	22.8	68.2	87.4	72.0

Table 13: Total weight of sharks, by species, retained by the national fleet in the IOTC area of competence: 2014–2019

Seabirds

No incidents reported in 2019.

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 has been sent to vessels to ensure that they are complying with their obligations and whilst one of the two vessels was noted as carrying mitigation measures, this was not deployed during observations.

Marine Turtles

All vessels are aware of and use proper handling techniques and keep on board equipment needed for the release of live turtles. Additional information is being sent to vessels to ensure that they are complying with their obligations.

Just one turtle was observed as being caught in 2019 and was released alive.

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

No reported incidents this year. All fishers are encouraged to immediately and safely release them.

Atlantic Ocean

Spanish fleet

The Spanish fleet caught in 2020: 2.257,42 t. of blue shark and 145,56 t. of shortfin mako (fishing grounds at the south of 30°S. not including chartered vessels).

According to information provided by observers (including fishing activities at the north of 30° S.):
- Interactions with birds: 0.
- Interaction with cetaceans: 3 (1 HUW *jorobada*, 1 BHW *Zifio de Hector* and 1 FAW *orca falsa*).
- Interactions with turtles are shown in table 13.

ESPECIE	Released alive	Released death
DDK (Laud)	34	2
TTL (Careta)	48	6
LKV (Golfina)	4	1

Table 13: Interactions with see turtles in 2020

Portuguese fleet

Sharks catches reported by the Portuguese fleet that entered in fishing grounds at the south of 30°S.: Blue shark (BSH) 4113.846 t. and Shortfin Mako (SMA) 178.574 t..

No interactions with Seabirds, Marine Turtles and mammal have been reported in 2020 (due to the Covid19 there were no fishing trips covered by scientific observers).

Western and Central Pacific

Total catch of sharks by the EU fleet in WCPFC area is provided in Table 14.

NAME	Species	Total (t)
Shortfin mako	SMA	465.7200
Blue shark	BSH	1345.4079
Total		**1811.1279**

Table 14. Blue shark and Shortfin mako catches according fishing logbooks and landing declarations.

Furthermore, there were no reported interactions with other sharks, seabirds, marine turtles and mammals in 2020 (no fishing trips covered by observers due to Covid19 restrictions).

**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

As indicated in point 7, EU vessels are not targeting SBT and SBT is not a substantial by-catch and therefore the SBT scientific observer programme is not an obligation to the EU vessels operating in the SBT distribution area.

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.

Idem (see point 7).

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.

Idem. Observers (in EU surface longline fleets) covered nearly 5% of the hooks in the Indian Ocean (2018), more than 7% in the Atlantic Ocean (2019) and more than 5% Western and Central Pacific (2019).

D. Tag Return Monitoring

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

There were no Tags recovered.

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.

NA (see A).