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Abstract	
This report present	s an overview of the fishery data available from the European Union (EU) fleets
operating at SIOFA	area updating previous reports to the end of 2022.
Information about	Catch CPLIE Data collection VME and other data of interest are included All

Information about Catch, CPUE, Data collection, VME and other data of interest are included. All catch and effort data for fishing operations during 2022 will be submitted to SIOFA in accordance with CMM 2021/02.

While EU-France did not request any authorisation in 2022 and therefore did not fish in the SIOFA area, Spanish fishing activities (one active vessel) have been focused in three fishing grounds, namely Walter Shoals (Area 2), Southwest Indian Ridge (Area 3b and 3a).

No VME indicator thresholds were triggered during 2022.

The report will be made publicly available in perpetuity on the SIOFA website.

¹ Restricted documents may contain confidential information. Please do not distribute restricted documents in any form without the explicit permission of the SIOFA Secretariat and the data owner(s)/provider(s).

² Documents available only to members invited to closed sessions.

Recommendations

It is recommended that the SC:

• Notes the National Report provided by the EU.

• Notes that the EU has complied with the annual reporting requirements of the SIOFA Scientific Committee.

European Union 2023 annual report on fishing activities in the Southern Indian Ocean Fisheries Agreement Area

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1. Description of fisheries

1.1. Fleet composition

This section includes fleet composition data from the EU Member States active in SIOFA (France and Spain) during the period 2000-2022 as indicated in Tables 1 and 2 respectively for France (2009-2022) and Spain (2000-2022).

Year	Number of vessels
2009	2
2010	2
2011	2
2012	2
2013	2
2014	1
2015	Interruption
2016	1
2017	1
2018	0
2019	0
2020	0
2021	0
2022	0

Table 1 Summary of EU-France fleet activity in the SIOFA Area.

Two EU-France longliners, less than 25m, have a demersal fishery history in the SIOFA Area, in the Saya de Malha Bank, in addition to their tuna directed activities. There was no request for any authorisation in 2022 and therefore, there was no fishing in the SIOFA area.

EU-Spain fishing activities within the SIOFA Area have been focused in two fishing grounds, namely Walter Shoals (Area 2) and Southwest Indian Ridge (Area 3b and 3a). Historically have also been some activities in the Madagascar ridge (Area 1) and more recently in the SE Indian Ocean (Area 7) while some fishing sets have also been located in the Ninety-Degree East Ridge (Area 4) in 2020.

Information on Table 2 summarizes the fishing periods by gear (trawl, trap, bottom longline and bottom gillnet) conducted by the EU-Spain fleets within the SIOFA Area.

Only bottom longlines have been used from April 2015 up to now, mainly using the Autoline system. In 2018 a second vessel has participated using the bottom Spanish system LL. In 2022 only one vessel has been fishing with Autoline system (319 days at sea).

Year	Number vessels	Fishing period	Gear
2000	1	May - November	Bottom trawl / Midwater trawl
2001	1	October - November	Bottom trawl / Midwater trawl
2003	1	May - June	Bottom longline
2004	2	August - November September - December	Bottom longline
2005	2	August - November January-February & November - December	Bottom longline
2006	2	August - December January & November - December	Bottom longline
2007	2	January - December January-February & December	Bottom longline
2008	2	January - May January - December	Bottom longline
2009	1	January - March	Bottom longline
2013	1	January - December	Gillnet
2014	1	January - December	Gillnet
2015	1	January - December	Gillnet: January-March Bottom longline: April-December
2016	1	January - December	Bottom longline
2017	1	January & May-December	Bottom longline
2018	2	January-February & April-October (1 vessel) May-August (1 vessel)	Bottom longline
2019	1	January-December	Bottom longline
2020	1	January-December	Bottom longline
2021	1	January-December	Bottom longline
2022	1	January-December	Bottom longline

1.2. Fishing footprint

The fishing footprint of the EU-Spain fleet in 2022 is shown in Figure 1 (below), using a 10'x10' grid. Fishing took place in Areas 2, 3a and 3b. Grid colours are classified by the number of sets in a grid.



Figure 1 EU-Spain 2022 footprint

2. Catch, Effort and CPUE summaries

2.1. Catch

Historically, the target species of EU fleet operating in SIOFA seamounts were: Alfonsino (*Beryx* spp.); Orange roughy (*Hoplostethus atlanticus*); Wreckfish (*Polyprion* spp.); Portuguese dogfish (*Centroscymnus coelolepis*); Southern boarfish (*Pseudopentaceros richardsoni*); and Patagonian toothfish (*Dissostichus eleginoides*). Within the by-catch species of commercial interest it can be highlighted: the Bluenose warehou (*Hyperoglyphe antarctica*); Blackbelly rosefish (*Helicolenus dactylopterus*); Common mora (*Mora moro*); Oilfish (*Ruvettus pretiosus*); Black cardinal fish (*Epigonus telescopus*); Birdbeak dogfish (*Deania calcea*); Kitefin shark (*Dalatias licha*); Gulper sharks (*Centrophorus* spp); Lanternshark (*Etmopterus* spp); Roudi escolar (*Promethichthys prometheus*); Violet warehou (*Schedophilus velaini*); Oreo dories (*Oreosomatidae*) and others.

Identification of all deep-seas sharks to the lowest taxonomical level is not possible where no scientific observer is onboard. Surveys with observer coverage identify most of the sharks to the species level.

SC-08-04 From 2017 all fishing vessels targeting Patagonian toothfish have 100% observer coverage.

Following the entry into force of CMM 2019/12, the EU fleet has ceased the fishery targeting sharks and avoidance measures³ were adopted in the case of by-catch of these species. The EU submitted a document to the SERAWG4 about Monitoring, Management and Impact Mitigation in the shark bycatch (SERAWG-04-13).

Tables 3 and 4 show the total catch (tons) from 2014 to 2022 by area and gear (GN above and LLS below).

Year	Area 2
2014	1527.3
2015	515.0

Table 3 Retained	GN	catch	(t)	by	area*
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			,		
Voor			Area		
fear	2	3 a	3b	4	7
2015	1384.1	0.0	0.0	0.0	0.0
2016	1840.8	0.0	0.0	0.0	0.0
2017	1060.2	0.0	253.6	0.0	0.0
2018	1406.1	0.0	314.4	0.0	362.6
2019	1014.3	0.0	106.5	0.0	183.9
2020	619.7	79.8	275.6	12.7	87.1
2021	1001.1	51.12	346.9	0.0	2.5
2022	1430.3	8	227.2	0	0

Table 4 Retained LLS catch (t) by area*

Table 5 shows the catch by year of the 8 most fished species (from 2001 to 2022). Although the vessel usually takes all the catch, there are always some specimens that are discarded.

³ AVOIDANCE MEASURES:

⁽a) The first time that the total weight of the catch of deep-sea sharks is the greatest percentage by weight of the total catch, the vessel shall immediately move at least 3 nautical miles from any position of the previous set. In this case it shall be considered as by-catch2 and the targeted fisheries species violation shall not apply.

⁽b) If the same circumstance occurs in the second haul, it shall move at least 10 nautical miles and shall not return for at least 60 hours. In this case it shall also be considered as by-catch.

⁽c) On return to the initial location after at least 60 hours, a trial haul of no more than 3 hours shall be made. If the total weight of the deepsea shark catches is the greatest percentage by weight of the total catch, in this case it shall not be considered as directed fishing, but the vessel shall change position in accordance with paragraphs (a) and (b). CATCH MINIMISATION:

To release all shark species listed as a "high risk" in Annex 1 of the CMM 2022/12 that are alive and in good condition.

Table 5 Retained catch (t) by species*

Year	СҮО	SCK	DCA	ТОР	RIB	GUP	SHL	WRF	Others	Total
2001	0.0	3.1	0.0	0.0	0.6	0.0	0.0	0.8	27.6	32.0
2003	0.0	0.0	0.0	24.5	0.0	0.0	0.0	0.0	0.0	24.5
2004	419.8	0.0	0.0	1.2	6.6	0.0	0.0	85.8	87.3	600.7
2005	0.0	0.0	0.0	0.0	3.9	0.0	0.0	51.4	94.4	149.7
2007	0.0	0.0	0.0	3.5	2.7	0.0	0.0	2.3	12.7	21.2
2008	293.2	224.7	186.8	0.0	90.2	106.1	0.0	11.1	143.1	1055.1
2009	76.7	74.6	62.5	0.0	5.5	43.6	0.0	0.0	9.9	272.7
2013	316.1	409.9	369.9	0.0	143.2	127.7	0.0	1.1	144.3	1512.2
2014	505.0	341.4	314.5	0.0	159.1	106.1	0.0	0.0	101.2	1527.3
2015	924.9	365.9	290.7	0.0	128.2	133.7	0.0	0.8	54.9	1899.1
2016	1276.6	266.6	130.9	0.0	56.7	74.4	0.0	0.0	35.7	1840.8
2017	519.3	210.6	104.0	139.6	53.7	22.7	74.7	0.0	183.5	1308.2
2018	814.1	323.6	22.3	503.7	24.3	6.9	74.5	0.1	267.3	2036.9
2019	716.2	12.8	0.1	217.7	15.6	4.4	189.2	6.9	134.9	1297.8
2020	442.7	65.1	2.9	188.5	39.4	2.3	78.9	140.1	114.7	1074.6
2021	805.8	41.5	4.1	121.0	72.3	0	41.7	108.1	207.1	1401.6
2022	1059.2	21.4	3.6	157.9	71.6	9.2	195.4	14	133.3	1665.5

*CYO: Centroscymnus coelolepis; SCK: Dalatias licha, DCA: Deania calcea, TOP: Dissostichus eleginoides, RIB: Mora moro, GUP: Centrophorus granulosus, SHL: Etmopterus spp, WRF: Polyprion americanus.

Tables 6 and 7 show the discards of the most retained species and the most discarded species respectively.

Year	СҮО	SCK	DCA	ТОР	RIB	GUP	SHL	WRF	Others	Total
2001	0.0	0.0	0	0	0.0	0	0.0	0.0	3.6	3.6
2004	1.0	0.0	0	0	7.3	0	26.0	0.1	34.2	68.6
2005	0.0	0.0	0	0	0.0	0	0.0	0.0	6.3	6.3
2007	0.1	0.2	0	0	0.0	0	0.9	0.0	4.2	5.4

Table 6 Discarded catch (t) of the main retained species* by year

	Year	СҮО	SCK	DCA	тор	RIB	GUP	SHL	WRF	Others	Total
-	2017	0.0	0.0	0	0	0.0	0	0.0	0.0	6.1	6.1
	2018	0.0	0.0	0	0	0.0	0	0.2	0.0	46.4	46.6
	2019	0.0	0.0	0	0	0.0	0	0.0	0.0	6.8	6.8
	2020	0.0	0.0	0	0	0.0	0	0.0	0.0	3.9	3.9
	2021	0.0	0.0	0	0	0.0	0	0.0	0.0	2.7	2.7
	2022	0	0	0	0	0	0	0	0	0	0

*CYO: Centroscymnus coelolepis; SCK: Dalatias licha, DCA: Deania calcea, TOP: Dissostichus eleginoides, RIB: Mora moro, GUP: Centrophorus granulosus, SHL: Etmopterus spp, WRF: Polyprion americanus.

Year	GRV	SHL	RFA	ANT	сох	RIB	QUB	PRP	Others	Total
2001	0	0	0	0	0	0	0	0.03	3.57	3.6
2004	0	25.96	0	0.05	3.83	7.3	5.09	3.97	22.38	68.59
2005	0	0	0	0	3.43	0	0	0	2.84	6.27
2007	0	0.86	0	2.11	0.37	0	0	0	2.1	5.44
2017	0	0	5.08	0	0	0	0	0	1.07	6.14
2018	22.53	0.19	12.1	6.63	0.05	0	0	0	5.1	46.61
2019	3.81	0	0.48	0.51	0.2	0	0	0	1.85	6.85
2020	0.01	0	0	1.76	0	0.03	0	0	2.12	3.91
2021	0	0	0	2.56	0.06	0	0	0	0.07	2.7
2022	0	0	0	0	0.03	0	0	0	0	0.03

Table 7 Discards (t) by species and year *

* GRV: Macrourus spp; SHL: Etmopterus spp; RFA: Amblyraja taaf; ANT: Antimora rostrata; COX: Congridae; RIB: Mora moro; QUB: Squalus blainville; PRP: Promethichthys Prometheus

2.2. Fishing effort

The fishing effort in 2014 was high although only one vessel using gillnets was operating (Fig. 2). In 2015 the vessel using gillnets replaced the gear to bottom longline Autoline. Effort remained stable in the period 2016-2017 at a level of around 3 200 000 hooks per year (one vessel), increased up to 5 432 000 hooks (two vessels) in 2018, finally decreasing in 2019 and 2020. In 2021 and 2022 the trend is upwards but very close to the mean (2015-2022) that is 3 492 000 hooks.



Figure 2 EU-Spain Fishing effort by gear (Bottom Longliners: nº hooks*1000, Gillnets: km) from 2014 to 2022. The black dotted line is the mean effort (2015-2022)

Effort by year, gear and area are shown in Tables 8 and 9.

Year	Area 1	Area 2	Area 3b
2008	760.1	4004.0	NA
2009	NA	898.6	NA
2013	275.0	5034.0	133.1
2014	NA	4945.2	NA
2015	NA	1121.3	NA

Table 8 Gillnet effort (km) by year and area

Table 9 Bottom Longline effort (nº hooks*1000) by year and area.

Year	2	3 a	3b	4	7	Total
2015	2370.4	0.0	0.0	0.0	0.0	2370.4
2016	3223.5	0.0	0.0	0.0	0.0	3223.5
2017	1793.6	0.0	1403.3	0.0	0.0	3196.9
2018	2383.9	0.0	2119.3	0.0	928.8	5432.0
2019	1902.5	0.0	552.5	0.0	980.6	3435.6
2020	910.7	249.1	810.1	50.8	530.6	2551.2
2021	1536.4	207.5	904.9	0.0	42.1	2690.9
2022	2968.3	56.2	878.9	0	0	3903.4

2.3. Catch per unit effort (CPUE)

Figure 3 presents the CPUE (k/1000 hooks) by year (up) and area (down) of the LLS EU-Spain fleet (period 2014- 2022).

In Area 2 the main targeted species is the wreckfish (*Polyprion* spp.) and secondly the common mora (*Mora moro*), although significant shark bycatches are also achieved in this area. In Del Cano rise and Williams ridge the main species caught is the Patagonian toothfish (TOP). In 2022 the highest CPUE has been 592 k/1000 hooks, with the mean CPUE for the entire period being 179 k/1000 hooks.



*CYO: Centroscymnus coelolepis, GUQ: Centrophorus squamosus, RFA: Amblyraja taaf, RIB: Mora moro, SCK: Dalatias licha, SHL: Etmopterus spp, TOP: Dissostichus eleginoides, WRF: Polyprion americanus.

Figure 3 CPUE (k/1000 hooks) by year (up) and area (down) of the EU-Spain LLS fleet (period 2014-2022).

3. Fisheries data collection and research activities

3.1. Data collection

EU data are obtained from different sources: Logbook data (provided to SIOFA in accordance with SIOFA CMM 2021/02 and its successor 2022/02), declaration system, records from the master and scientific observation, when available.

C2 and observer logbook data are collected in an Excel spreadsheet and processed at the IEO (Spanish Institute of Oceanography) for storage in a linked Access database. Analysis of the data are made using R software.

3.2. Toothfish tagging/recaptures

In 2022 *Dissostichus spp* specimens caught have been tagged and released at a rate of at least 5 fish per tonne green weight caught, in agreement with the CMM 2021/15. The overlap statistic for tag release was over the 60% minimum overlap statistic stablished.

The tagging is done by the scientific observer with the help of the crew when needed. The tagging protocol is described in the National Report of the European Union presented to SIOFA SC in 2022, SC-07-16.

Recaptures

In 2022, five TOP specimens were recaptured in Area 3b. Two of the recaptures were tagged in a previous survey from the same vessel (342 and 368 days at sea). Figure 4 shows the location (tagging and recapture) and the distance travelled (6.1 and 29.8 km respectively). From the three remaining recaptures, two had an Australian tag and one a French one.



Figure 4 Location of TOP tagging and recaptures and the distance travelled.

3.3. Marine mammal interaction

An analysis of the Marine Mammal (MM) interaction with fishing activities targeting Patagonian toothfish was reported to CCAMLR in 2019 (CCAMLR, Gasco et al., 2019).

Odontocete marine mammals have been sighted in two of the three fishing trips with scientific observers in 2022 in the Area 3b.

In the first fishing trip, out of a total of 29 MMs sightings, 7 showed signs of predation of the catch, while in the second one, out of 24 sightings, 9 showed signs of predation. The species observed has always been the sperm whale except on one occasion where one False killer whale was sighted, with no evidence of predation on the catch.

3.4. Previous relevant research activities

López-Abellán in 2005 presented a document to CCAMLR regarding a Spanish Patagonian toothfish fishery in the statistical FAO area 51: «Patagonian toothfish in international waters of the Southwest Indian Ocean (statistical area 51)» that has been published in CCAMLR Science, Vol. 12 (2005): 207-214.

An analysis of tag recaptures in the SIOFA Area from Patagonian toothfish tagged in the CCAMLR Convention area was presented at CCAMLR WG-FSA-18 (Sarralde and Barreiro, 2018).

Also, several analysis of the Patagonian toothfish stock in the SIOFA Area from data collected from observers on board vessels that operated between 2017 and 2019 in SIOFA 51.7 and 57.4 areas have been presented both in SIOFA WG-SERA-19 (Sarralde and Barreiro, 2019) and CCAMLR WG-FSA-19 (Sarralde et al, 2019).

Three documents were submitted to SERAWG and/or the SIOFA Scientific Committee in March 2020 and 2021:

- Gasco N, Tixier P, Massiot-Granier F, Péron C, Selles J, Sarralde R, Soeffker M. 2020. No boundaries for whales interacting with fishing activities targeting Patagonian toothfish. SERAWG-2020.
- Sarralde R, F. Massiot-Granier2, J. Selles2, Soeffker M. 2020. Preliminary analysis of the Patagonian toothfish fishing data of the Del Cano Rise SIOFA. SERAWG-2020.
- Preliminary Assessment of Bottom Fishing Impact for the EU fisheries in the SIOFA CA Update (2021) EU-Spain.

4. VME Thresholds

From 2019, the EU bottom longline fleet is applying the protocols adopted by SIOFA in the CMM 2019/01 (and its successor CMM 2020/01). Previously the fishing vessels followed the rules adopted by their fisheries administration, similar to those applied in SEAFO and CCAMLR in the definition of the VME encounter and thresholds (see SC-06-21 for details).

The annual catch (k) by main VME taxa is shown in Table 10. Gorgonians (GGW) and Scleractinians (CSS) are the most abundant taxa although in 2022 the highest bycatch ratio has been for Demospongia.

The maximum encounters (in kg) by taxa* in a line segment randomly selected for sampling, from the last Spanish surveys (from 2017 to 2022) within the SIOFA convention areas are shown in Table 11.

The threshold of 10 or more VME indicator units by segment has never been reached.

Year	GGW	CSS	DMO	AJH	АХТ	ΑΤΧ	CWD	BZN	Others	Total VME
2017	0.53	0	0.64	0	0.3	0.11	0	0	0.15	1.73
2018	0.61	1.56	3.41	0	0	0	0	0	0.46	6.04
2019	4.45	4.79	4.49	0	0	0.47	1.53	0.06	1.96	17.75
2020	17.82	16.6	4.42	3.5	2.67	0.88	0.02	1.33	1.74	48.99
2021	16.22	10.06	0.98	0	4.35	1.45	0.3	1.5	2.84	37.7
2022	3.2	1.7	5.16	0	0.8	1.2	0	0.4	2.4	14.86

Table 10 VME bycatch (kg) of the main taxa* by year

Table 11 Maximum bycatch of the main VME taxa*(kg) by year

COD_SP	2017	2018	2019	2020	2021	2022
AJH	0	0	0	1.5	0	0
AJZ	0	0	0	0.4	0.6	1.8
AQZ	0	0	0.1	0.4	0.5	0.35
ATX	0.08	0	0.3	0.2	0.6	1
AXT	0.3	0	0	0.9	0.7	0.8
AZN	0	0	0.03	0	0	0
BWY	0	0	0	0.01	0	0
BZN	0	0	0.04	0.45	0.8	0.4
CSS	0	0.47	1.8	1.2	2.5	1
CVD	0	0	0	0.005	0	0
CWD	0	0	1.3	0.02	0.2	0
DMO	0.51	0.3	0.7	1.4	0.3	1.9
GGW	0.49	0.07	1.67	1.8	3	1.5
HQZ	0	0	0.1	0.01	0.03	0
HXY	0.03	0	0.03	0.03	0	0
NTW	0	0	0.22	0.27	0.1	0

COD_SP	2017	2018	2019	2020	2021	2022
OOY	0.05	0.08	0	0.1	0.2	0.15
PFR	0	0	0	0.01	0.4	0
SZS	0	0	1.14	0	0	0
WOR	0	0	0.01	0	0	0
ZOT	0	0	0	0.3	0.5	0

* AJH: Anthozoa; AJZ: Alcyonacea; AQZ:Antipatharia; ATX:Actiniaria; AXT: Stylasteridae; AZN: Anthoathecatae; BWY: Bathylasmatidae ;BZN:Briozoan; CSS:Scleractinia; CVD:Cidaridae; CWD:Stalked crinoids;DMO: Demospongiae; GGW: Gorgonacea; HQZ: Hydrozoa; HXY: Hexactinellida; NTW: Pennatulacea; OOY: Ophiurida; PFR: Porifera; SZS: Serpulidae ; WOR: Polychaeta; ZOT: Zoanthidea

5. Biological sampling and length/age composition of catches

Since 2017 biological and size composition sampling by species are conducted by scientific observers on board the EU-Spanish vessels.

Tables 12a and 12b below show the biological sampling information by species in 2022 and during the period 2017-2022 respectively, when more than 100 specimens have been sampled. Information about sex and maturity is also available. Macrourid length measures are made to the Total length and additionally Anal length.

Sp	Scientific_name	Num	Min	Max	Mean
ТОР	Dissostichus eleginoides	2870	38	160	83,8
СҮО	Centroscymnus coelolepis	2508	47	123	92,6
MCH	Macrourus holotrachys	881	42	92	66,3
RIB	Mora moro	668	39	81	59
SHL	Etmopterus spp	536	38	77	59,7
GUQ	Centrophorus squamosus	493	79	153	109,7
RFA	Raja taaf	491	53	145	85,1
ETM	Etmopterus granulosus	481	40	81	67,5
DCA	Deania calcea	316	55	117	92,1
WRF	Polyprion americanus	227	57	149	88,7
ANT	Antimora rostrata	213	40	132	56,9

Table 12a Sampling information by species, number and total length (cm) min, max and mean in2022

Sp	Scientific_name	Num	Min	Max	Mean
SCK	Dalatias licha	206	64	145	110,7
BRF	Helicolenus dactylopterus	156	26	48	37,4
SDC	Diastobranchus capensis	114	70	128	97,7
HYD	Hydrolagus spp	105	57	147	97,4

Table 13b Sampling information by species, number and total length (cm) min, max and mean during 2017-2022

Sp	Scientific_name	Num	Min	Max	Mean
ТОР	Dissostichus eleginoides	21115	36	188	86
CYO	Centroscymnus coelolepis	9912	39	158	93,2
SHL	Etmopterus spp	4166	25	82	59,1
ANT	Antimora rostrata	3902	0	132	57,2
MCH	Macrourus holotrachys	3829	12	102	46,9
ETM	Etmopterus granulosus	3756	2,4	81	61
RIB	Mora moro	2953	33	85	59
GRV	Macrourus spp	2490	1,5	93	34,4
WRF	Polyprion americanus	2202	55	167	94,9
RAJ	Rajidae	1607	38	109	60,1
RFA	Raja taaf	1479	41	145	79,9
GUQ	Centrophorus squamosus	1352	55	155	109,1
DCA	Deania calcea	734	55	118	93,7
BRF	Helicolenus dactylopterus	656	25,5	51,5	37,1
SCK	Dalatias licha	599	51	168	117,6
BYR	Bathyraja irrasa	478	57	161	85,8
BXD	Beryx decadactylus	470	34	64	49,9
GUP	Centrophorus granulosus	444	76	172	119
SVY	Synaphobranchidae	434	25	158	99 <i>,</i> 9
HYD	Hydrolagus spp	376	45	152	98,6

Sp	Scientific_name	Num	Min	Мах	Mean
WHA	Polyprion oxygeneios	328	65	148	101,3
CGZ	Conger spp	324	53	154	85,9
COX	Congridae	240	64	145	93,5
ROK	Helicolenus spp	167	25	45	36,8
SDC	Diastobranchus capensis	114	70	128	97,7
SDU	Deania profundorum	112	56	106	87,8
ОРН	Ophidiidae	107	30	75	39,3
BWA	Hyperoglyphe antarctica	103	57	133	81,1

6. Description of data verification mechanisms

Data from the EU fleet are reviewed searching for outliers on catch and effort data; species names; and fishing set position errors. In the periods where scientific observation is available, data from the vessels are contrasted with the observer's data. Vessels are also controlled through the VMS positioning system.

7. Summary of observer and port sampling programs

Scientific observers have been deployed on board the EU-Spain fishing vessels operating in the region since 2017. The scientific observers (Biologist or Marine Science degree) are trained at the *Instituto Español de Oceanografía*, specific training is also adapted for all monitored fleets. Reports on the scientific observations and information on toothfish recaptures were prepared and provided to SIOFA Secretariat.

Four fishing trips have taken place in 2022, one straddling the year 2021 and another straddling the year 2023 (the latter is still unfinished). In 2022 a total of three trips out of four have been covered by an on-board observer. This corresponds to observation of 100% of the TOP targeted fishing days and 31% of the fishing days targeting other species from a total of 319 fishing days.

No accidental catches have been observed for birds or marine mammals in 2022.

Bird scare (tori) lines are deployed in most of the setting/hauling (if weather permits).

The EU has no port sampling program for vessels fishing within the SIOFA Area.

8. Relevant social and economic information

Catches are landed frozen on Reunion Island.

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