EUROPEAN UNION REPORT
FOR THE SCIENTIFIC COMMITTEE OF THE INDIAN OCEAN TUNA COMMISSION, 2023
(2022 DATA)

Laura Marot
Directorate-General for Maritime Affairs and Fisheries of the European Commission

In accordance with IOTC Resolution 15/02 (and other data related CMMs as noted below), final scientific data for the previous year were provided to the IOTC Secretariat by 30 June of the current year, for all fleets other than longline [e.g., for a National Report submitted to the IOTC Secretariat in 2023, final data for the 2022 calendar year must be provided to the Secretariat by 30 June 2023)	YES, partially. Data regarding the Italian fleet is only partially available. All effort are made to ensure that data from 2016 will be submitted shortly to the IOTC.
In accordance with IOTC Resolution 15/02, provisional longline data for the previous year was provided to the IOTC Secretariat by 30 June of the current year [e.g., for a National Report submitted to the IOTC Secretariat in 2023, preliminary data for the 2022 calendar year were provided to the IOTC Secretariat by 30 June 2023). **REMEMBER: Final data** for the past year on longliners are expected at the IOTC Secretariat before 30 December of the current year (e.g.: for a national report submitted to the IOTC Secretariat in 2022, the final data for calendar year 2021 must have been provided to the Secretariat by 30 December 2022).	YES

SUMMARY

The EU fleet fishing in the waters of the Indian Ocean is composed of two main segments. The first is an offshore segment including:

- Purse seiners treating the three species of tropical tunas:
    - 26 active vessels
    - 219,881 t of catch
        - YFT 40 %
        - SKJ 54 %
        - BET 9 %
- Longliners swordfish with significant associated catches of some pelagic shark species
    - 10 active vessels
    - $2{,}572 * 10^6$ Hooks
    - 5,474 t of catch
        - SWO 40 %
        - BSH 51 %
        - SMA 7 %
- Longliners swordfish with significant associated catches of tunas (La Réunion)
    - 21 active vessels ($\geq$ 12 m)
    - $3{,}61 * 10^6$ Hooks
    - 1.776 t of catch
        - SWO 48 %
        - YFT & BET 22 %
        - ALB 23 %

The second is a coastal segment, understanding vessels of less than 12 m fishing for and testing broad pelagic species and associated species, some of which use anchored fish aggregating devices (AFADs) over Mayotte and La Réunion Islands, the two outermost regions of the European Union of the Indian Ocean. This coastal segment corresponds to the following:

- Longliners
    - 21 vessels at La Réunion (< 12m)
        - $0{,}601 * 10^6$ Hooks
        - 502 t of catch
            - SWO 31 %
            - YFT & BET 28 %

- ALB 22 %
  - ○ 2 vessels at Mayotte
    - ▪ 71 t of catch
      - YFT 54 %
      - SWO 32 %
- ▪ Trolling line and handlines
  - ○ La Réunion: 130 vessels
    - ▪ 515.6 t of catch
  - o Mayotte: 132 vessels
    - ▪ 282 t of catch

The fishing capacity of the EU fleet authorised to deploy a fishing activity for large pelagic species in the IOTC Convention Area is managed by provisions on capacity limits set out in the IOTC Resolution and by European Union legislation.

Furthermore, the conditions of access to certain fishing areas in waters under the jurisdiction of coastal states of the South West Indian Ocean are subject to specific provisions defined in public agreements engaging the European Union and named Sustainable Fisheries Partnership Agreements (SFPA).

In accordance with IOTC Resolution 15/02, flag EU Member States (Spain, France, Italy, Portugal and United Kingdom) have undertaken scientific data Characteriising the activity of the EU fleet fishing in 2019 in the IOTC area of competence and enabling the IOTC Scientific Committee to conduct its work.

COMPILATION OF THE NATIONAL REPORTS OF THE MEMBER STATES OF THE EUROPEAN UNION ON THE SITUATION OF THE FLEET AND FISHING ACTIVITIES

The summary report submitted by the European Union for 2023 sets out the highlights of the activities of the fishing fleet flying the flag of the Member States of the Union for 2022.

The details of the information and data presented in this report, as well as the graphical representations and maps, can be found in the three national reports annexed to this report, which correspond to the flag Member States of the EU fleet using the IOTC Convention Area, namely Spain, France, Italy and Portugal.[1]

1. BACKGROUND AND GENERAL INFORMATION ON FISHERIES

1.1. MANAGEMENT OF FISHING CAPACITY

The EU fishing fleet catching oceanic, tuna, tuna-like and associated species, including sharks, in the IOTC Convention Area shall be registered in the European Union Fleet Register[2] and fly the flag of Spain, France, Italy and Portugal.

The access of these vessels to the IOTC Convention Area, taking into account that Regulation 15/11 is no longer in force, is still regulated by IOTC Resolution 03/01 on the implementation of a limitation on the fishing capacity of Contracting Parties and Cooperating Non-Contracting Parties.[3]

Moreover, the capacity of the Union's fishing fleets is also governed by the texts adopted in the European Union on fishing opportunities, in particular Regulation (EU) 2022/109 in force,[4] Section 5 of which and Annex VIII specifically concern the limitation of the fishing capacity of vessels fishing in the IOTC Convention Area and take over the elements of the previous Regulations which it replaced.

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[1] The scientific report for EU-Italy is not annexed to this report. As a result of the United Kingdom's departure from the European Union since 1 January 2021, the activities of that fleet since 2020 have been carried over directly by the United Kingdom delegation.
[2] https://webgate.ec.europa.eu/fleet-europa/index_en
[3] *IOTC-2018 – S22 – RF:* § 125
[4] Council Regulation (EU) 2022/109 of 27 January 2022 fixing for 2022 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters.

Member States	2017		2018		2019		2020		2021		2022	
	Maximal number	Maximal capacity (GT)	Maximal number	Maximal capacity (GT)	Maximal number	Maximal capacity (GT)	Maximal number	Maximal capacity (GT)	Maximal number	Maximal capacity (GT)	Maximal number	Maximal capacity (GT)
Vessels targeting tropical tunas [1]												
Spain	22	61,364	22	61,364	22	61,364	22	61,364	22	61,364	22	61,364
France	27	45,383	27	45,383	27	45,383	27	45,383	27	45,383	27	45,383
Italy	1	2,137	1	2,137	1	2,137	1	2,137	1	2,137	1	2,137
Portugal	5	1,627	5	1,627	5	1,627	5	1,627	5	1,627	5	1,627
Total EU	55	110,511	55	110,511	55	110,511	55	110,511	55	110,511	55	110,511
Vessels targeting sharks and albacore [2]												
Spain	27	11,590	27	11,590	27	11,590	27	11,590	27	11,590	27	11,590
France[3]	41	7,882	41	7,882	41	7,882	41	7,882	41	7,882	41	7,882
Portugal	15	6,925	15	6,925	15	6,925	15	6,925	15	6,925	15	6,925
Total EU	87	27,797	87	27,797	87	27,797	83	26,397	83	26,397	83	26,397

[1] Also allowed to fish for sharks and albacore

[2] Also allowed to fish for tropical tunas

[3] Dependant of fleet development plan of Mayotte

Table 1. *Maximum capacity (expressed in number of units and in GT) of fishing vessels flying the flag of the Member States of the European Union, of a length of more than 24 m OAL (overall length), or of more than 18 m OAL fishing outside the EEZs of their flag, authorised to fish for tropical tunas, swordfish and albacore in the IOTC Convention Area*

The fishing capacity of the European Union fishing fleet is also governed by a specific system laid down in Chapter IV of Regulation (EU) No 1380/2013[5]. This management of fishing capacity is based on an 'entry-exit' mechanism and on the inclusion of capacity ceilings taking into account the entire fleet recorded in continental Europe and capacity ceilings set for each of the fleet segments registered in the Outermost Regions (ORs).

For the Indian Ocean, there are currently four Member States concerned: Spain, France, Italy and Portugal; there are two ORs, the islands of Mayotte and La Réunion.

Table 2 shows the current provisional status of the capacity ceilings of the Member States concerned, for the fleet registered in continental Europe and for the fleet segments registered in the two outermost regions of the Indian Ocean.

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[5] Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC OJ
L 354 http://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX:32013R1380&rid=1
[6] Source: Fleet and application; information which is not official statistics of the European Commission.

Etat membre	Territoire	Segment	Plafonds de capacité	
			GT	kW
Espagne	Europe continentale	-	389,051	888,006
France	Europe continentale	-	178,124	769,423
	Île de la Réunion	Espèces démersales et pélagiques. Lht < 12 m	1,050	19,320
		Espèces démersales et pélagiques. Lht > 12 m	10,002	31,465
	Mayotte	Senneurs[a]	13,916	24,000
		Palangriers mécaniques. Lht < 23 m[a]	2,500	8,500
		Espèces démersales et pélagiques. Lht < 10 m[b]	pm	pm
Portugal	Europe continentale	-	94,054	313,468

[a] Conformément au plan de développement présenté à la CTOI le 07.01.2011

[b] Les plafonds de capacités de ce segment seront fixés au plus tard le 31.12.2025

Table 2. *Capacity ceilings (provisional sealing expressed as GT embossed limit and engine power in kW) laid down by European Union legislation for the flowers of the Member States of the Union registered in continental Europe and for the fleet segments registered in the European Union outermost Regions of the Indian Ocean, some of these units harvest Oceanic pelagic species in the IOTC Convention Area.[6]*

1.2. FISHING AREAS UNDER THE JURISDICTION OF CERTAIN INDIAN OCEAN COASTAL STATES

Access by European Union vessels to areas in the south-western Indian Ocean, in particular those located in waters under the jurisdiction of certain coastal States in the sub-region, is also governed by public agreements, known as the Sustainable Fisheries Partnership Agreement (SFPA), supplemented by implementing Protocols.

For 2022, active SFPAs are binding on the European Union to Seychelles and Mauritius. All the texts in force are available on the website of the European Commission's Directorate-General for Maritime Affairs and Fisheries (DG MARE)[7] and the information on the conditions of access laid down by the SFPAs linking the European Union to coastal states in the Indian Ocean since 2014 is set out in Table 3.

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[6] Source: Fleet and application; information which is not official statistics of the European Commission.
[7] https://oceans-and-fisheries.ec.europa.eu/fisheries/international-agreements/sustainable-fisheries-partnership-agreements-sfpas_fr

Food and Agriculture
Organization of the
United Nations

Indian Ocean Tuna Commission
Commission des Thons de l'Océan Indien
iotc ctoi

Third countries			2014	2015	2016	2017	2018	2019	2020	2021	2022
Seychelles	SFPA		02.11.2013 to 01.11.2019						24.02.2020 to 23.02.2026		
	Protocole		18.01.2014 to 17.01.2020						24.02.2020 to 23.02.2026		
	Maximum capacity	PS	40						40		
		LLS	6						8		
	Reference tonnage (t)		50,000						50,000		
Mtoritius	SFPA		Since 28.01.2014 (renewable)								
	Protocole		28.11.2014 to 27.01.2017			-	08.12.2017 to 07.12.2021				21.12.2022 to 20.12.2026
	Maximum capacity	PS	41			-	40				40
		LLS	45			-	45				45
	Reference tonnage (t)		5,500			-	4,000				5,500
Madagascar	SFPA		01.01.2013 to 31.12.2018					-	-	-	-
	Protocole		01.01.2013 to 31.12.2014	01.01.2015 to 31.12.2018				-	-	-	-
	Maximum capacity	PS	40	40				-	-	-	-
		LLS ≤ 100 GT	22	22				-	-	-	-
		LLS > 100 GT	34	32				-	-	-	-
	Reference tonnage (t)		15,000	15,750				-	-	-	-
Union des Comores	SFPA		01.01.2012 to 31.12.2018					-	-	-	-
	Protocole		01.01.2014 to 31.12.2016			-	-	-	-	-	-
	Maximum capacity	PS	42	42		-	-	-	-	-	-
		LLS	20	20		-	-	-	-	-	-
	Reference tonnage (t)		6,000	6,000		-	-	-	-	-	-
Mozambique	SFPA		01.01.2012 to 31.12.2016				Dormant agreement				
	Protocole		01.01.2012 to 31.01.2015	-		-	-	-	-	-	-
	Maximum capacity	PS	43	-	-	-	-	-	-	-	-
		LLS	32	-	-	-	-	-	-	-	-
	Reference tonnage (t)			-	-	-	-	-	-	-	-

Table 3. *Summary of information concerning the conditions of access to fishing areas covered by an active SFPA and an implementing protocol linking the European Union and the coastal states of the Indian Ocean since 2014*

The text of these SFPAs includes an exclusivity clause. This clause prohibits access by EU fishing vessels to the fishing zones covered by these SFPAs outside the categories provided for in the Protocols. Moreover, in the absence of an implementing Protocol, the SFPA is considered dormant and access to the fishing zone to which it relates is then prohibited for fishing vessels flying the flag of the European Union.

Finally, in order to take account of any claims that have not always been settled with regard to the delimitation of Exclusive Economic Zones, the protocols associated with SFPAs now include the specific geographical coordinates of the fishing areas to which vessels flying the flag of Member States of the European Union have access. The European Union and the flag Member States shall also advise owners of European Union fishing vessels not to develop fishing activities in areas which are the subject of unresolved disputes concerning the boundaries of Exclusive Economic Zones.

1.3. DESCRIPTION OF THE EUROPEAN UNION'S FISHING FLEET

The European Union fleet in the Indian Ocean comprises two main segments, an offshore segment and a coastal segment, developing different metiers.

For the offshore segment, three metiers in the IOTC Convention Area are carried out by EU fleets.

The first and most important offshore metiers, not so much in terms of the number of vessels involved but in terms of fishing capacity and production, is the purse seine segment targeting the three species of tropical

tuna: bigeye tuna (*Thunnus obesus*), skipjack tuna (*Katsuwonus pelamis*) and yellowfin tuna (*Thunnus albacares*). This segment is carried out by fishing vessels of between 60 m and more than 100 m flagged in Spain, Italy (continental Europe) and France (continental Europe and the Indian Ocean OR).

These vessels make use of landing and refuelling facilities in the ports of Victoria (Seychelles), Port-Louis (Mauritius) and Antsiranana (Madagascar). This fleet combines two fishing strategies, one based on the exploitation of free schools, the other based on the use of fishing aids, natural floating objects (e.g. logs) or artificial objects (Fish Aggregating Devices – FADs). The average area of activity over the last five years extends throughout the centre-west of the Indian Ocean, from the east African coast (45°E) to the west of the Maldives (70°E), from the north of Madagascar (10°S) to the horn of Africa (10°N) and to its extension in the north of the Indian Ocean.

The other two offshore metiers are surface longline vessels targeting swordfish (*Xiphias gladius*) or tuna-like species (tropical and temperate tuna).

The surface longline vessels targeting swordfish and certain species sharks, blue sharks (*Prionace glauca*) and shortfin mako sharks (*Isurus oxyrinchus*) are carried out by vessels flagged in Spain and Portugal, while the surface longline vessels targeting tuna is made up of vessels flagged in La Réunion, France.

The surface longline fleet targeting swordfish in association with sharks consists of units of 35 and 50 m historically fishing in the south-west Indian Ocean, as well as south of the Mozambique Channel.

The surface longline fleet targeting swordfish in association with tuna-like species consists of units between 10 and 15 m and units of more than 15 m, with the size, tonnage and power of the vessels affecting their range. The area of activity of these units is concentrated in the waters of La Réunion, Mauritius and to a lesser extent in the Mozambique Channel.

In addition to this offshore segment, there is a **coastal fishing segment** flagged exclusively in the French ORs of the islands of La Réunion and Mayotte.

The coastal segment registered in La Réunion is made up of units of less than 12 m, using hooks within 20 miles of the island of La Réunion during one-day trip. Some of these vessels are equipped with surface longlines and target swordfish. The other part includes units using trolling lines, handlines and vertical longlines, fishing on anchored FADs around the island of La Réunion.

The coastal segment registered in Mayotte consists in 2022 of 132 small-scale boats essentially of the 'Yamaha' type, approved for professional fishing by way of derogation. An effort is being made to modernise it. In addition to those, there is a further 300-400 small-scale boats not approved for professional

fishing but engaged in fishing with a similar strategy (same metiers, same target species, same fishing areas, slightly reduced activity). All these non-professional vessels carry out subsistence fisheries, although a proportion which is difficult to quantify is subject to informal local trade. Vessels targeting pelagic species are mostly engaged in trolling in rather large areas outside the lagoon, in the coastal zone and in the contiguous zone (until 24 miles from the coast). There are also practices of hand line fishing on anchored FADs. The targeted species mainly are skipjack (*Katsuwonus pelamis*), yellowfin tuna (*Thunnus albacares*) and bigeye tuna (*Thunnus obesus*). There are also regular landings of albacore tuna (*Thunnus alalunga*), other scombridae such as narrow-barred Spanish mackerel (*Scomberomorus commerson*) or wahoo (*Acanthocybium solandri*). Since 2012, this fleet has been followed by the establishment of the SIH (Halieutic Information System) by Mayotte's Marine Natural Park. Catch reporting obligations have been in force in Mayotte since 2013.

2. STRUCTURE OF THE EUROPEAN UNION FLEETS IN THE IOTC AREA OF COMPETENCE

2.1. THE EU'S OFFSHORE FISHING FLEET

2.1.1. TROPICAL PURSE SEINE VESSELS

The EU purse seine fleet targeting tropical tunas and having developed fishing activity in the Indian Ocean in 2022 consisted of 26 vessels, with a transport capacity of 34.584 m³ * d.

Year	Carrying capacity expressed in GT						Number of vessels	Carrying capacity
	50 < GT ≤ 400	400 < GT ≤ 600	600 < GT ≤ 800	800 < GT ≤ 1 200	1 200 < GT ≤ 2 000	GT > 2 000		
2013	0	0	0	7	16	4	27	35,218
2014	0	0	0	13	11	4	28	33,745
2015	0	0	0	12	12	6	30	35,191
2016	0	0	0	11	11	5	27	36,610
2017	0	0	0	11	11	5	27	36,035
2018	0	0	0	11	11	5	27	35,777
2019	0	0	0	11	11	6	28	37,262
2020	0	0	0	7	14	5	26	37,104
2021	0	0	0	8	16	3	27	34,810
2022	0	0	0	7	16	3	26	34,584

Table 4. Number of EU Purse Seiners, by the tonnage of the vessels, operating in the IOTC area of competence

This fleet was historically composed of vessels over 60 m and over 600 GT. However, since 2010, tropical seiners in the European Union who visit the waters of the Indian Ocean all have a tonnage of more than 800 GT.

In 2022, all purse seiners in the Indian Ocean received authorisations under SFPAs between the EU and coastal states.

2.1.2. OFFSHORE LONGLINE VESSELS TARGETING SWORDFISH IN ASSOCIATION WITH SHARKS

After an increase in 2013, the number of longliners targeting swordfish in association with sharks, mainly blue shark and to a lesser extent shortfin mako shark, has suffered a certain erosion.

In 2022, the active high sea fleet of EU longliners targeting swordfish in association with sharks was composed of 10 units of 35-50 m active in the IOTC Convention Area. They are exclusively vessels flying the Spanish and Portuguese flag.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Number of vessel	31	30	26	20	22	16	16	14	10	10

Table 5. *Evolution of the number of longliners of the European Union specialising in association with Sharks in the IOTC Convention Area*

2.1.3. OFFSHORE LONGLINE VESSELS TARGETING SWORDFISH IN ASSOCIATION WITH TUNA

In the recent past, up until 2009, the EU longline fleet targeting swordfish in association with tuna from the island of La Réunion was composed of 28 vessels over 10 m.

In 2022, 22 fishing units registered in La Réunion were active, 2 more vessels than in 2021, targeting large pelagic species (swordfish, tunas, marlins, dolphinfish and wahoo).

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Number of vessel	17	18	19	19	17	19	19	17	19	21

Table 6. *Evolution of the number of longliners of the European Union specialising in association with tunas registered in La Réunion operating in the IOTC Convention Area*

Some of these offshore longliners have developed fishing activities under SFPAs between the European Union and Coastal states in the South West Indian Ocean, mainly in the Mauritius fishing zone, to a lesser extent in Madagascar.

2.2. THE EU COASTAL FLEET

2.2.1. COASTAL FLEET REGISTERED ON THE ISLAND OF LA RÉUNION

The coastal fleet active and registered on the island of La Réunion consists of motorised units of less than 12 m. In 2022, the coastal fleet represented 86% of the number of active vessels in La Réunion. It consists of two segments:

- Coastal longliners targeting swordfish (surface longlines) of less than 12 m, with 22 active vessels, represent 15 % of the active coastal fleet.

- The 107 small-scale coastal fishing vessels (less than 12 m), with:

  - 44 low-powered boats (outboard engines of less than 20 KW) and less than 6 m in length (36 % of the total active coastal fleet).

  - 63 more powerful boats (50 to 200 KW) with a length of between 6 and 12 m. They represent 47 % of the total active coastal fleet.

More than 97 % of these vessels are engaged in line fishing (trolling and vertical longlines).

2022, as 2021, still confirms the trend over the last decade, namely a significant decrease in the number of coastal trolling boats (from 206 vessels in 2006 to 129 in 2022, i.e. a reduction of 37 %), accompanied by an increase in the number of small coastal longliners (from 11 vessels in 2004 to 22 in 2022, an increase of 100 %).

Year	Hook			Longline	Total coastal fisheries
	Barques (LOA < 6 m)	Vedettes (6 < LOA < 12 m)	Total coastal hook fisheries	Coastal longliners (LOA < 12m)	
2013	85	76	161	15	176
2014	71	68	139	19	158
2015	52	68	120	20	140
2016	61	70	131	22	153
2017	78	74	152	24	176
2018	60	71	131	21	152
2019	61	64	125	22	147
2020	62	62	124	20	144
2021	47	62	109	21	130
2022	44	63	107	22	129

Table 7. *Number of unit per segment operating with longline and hooks registered in La Réunion operating in the IOTC Convention Area*

2.2.2. COASTAL FLEET REGISTERED IN MAYOTTE

The coastal fleet of Mayotte includes small longliners of less than 12 m, 2 in 2022, compared to 6 active in 2014.

The bulk of the coastal artisanal fishing fleet of Mayotte consists of 87 poorly motorised boats without deck (20-40 CV, sometimes 2x40 CV for vessels fishing in distant beds) characterising the segment of the professional boat fleet.

Other barks and pirogues are registered as pleasure/recreational boats and cannot engage in a professional activity. On the other hand, since the strategies and techniques for fishing between professional boats and other non-professional artisanal boats are very similar, this makes it possible to apply the same monitoring methods and to have data on all Mahoran artisanal fisheries. Part of the fishermen onboard those boats target large pelagic resources in the vicinity of the coasts: skipjack tuna, yellowfin tuna, bigeye tuna, small tuna and istiophoride species. These species are mostly caught in a trolling fishery, but sometimes also in the handline fishery around FADs anchored around the island. But this practice is not necessarily exclusive and is often associated with reef fishing.

Year	Pirogues	Barques non-professionnelles	Barques professionnelles	Palangriers
2013	732	324	165	5
2014	696 *	396	137	6
2015	735	393	144	4
2016	729	369	145	3
2017	791	n/a	141	3
2018	794	n/a	141	3
2019	794	n/a	143	4
2020	762	n/a	140	4
2021	**	**	142	2
2022	**	**	132	2

* Problèmes pendant le recensement des pirogues en 2014 qui explique la diminution subite du nombre de pirogue par rapport aux Years antérieures et postérieures

** Aucun nouveau recensement n'a été effectué depuis 2018 car les moyens humains disponibles ne le permettaient pas. Cela fait partie des priorités du SIH pour 2023

Table 8. *Number of unit per segment operating with longline and Hooks register in Mayotte operating in the IOTC Convention Area*

3. CATCHES AND EFFORT OF THE EUROPEAN UNION FLEETS IN THE IOTC AREA OF COMPETENCE

3.1. THE EU'S OFFSHORE FISHING FLEET

3.1.1. TROPICAL SEINERS

The activity of the EU purse seine fleet targeting the three tropical tuna species in the IOTC Convention Area is based on two strategies, on a free school and on FADs, this second strategy now predominant.

The compiled datashow an increasing nominal effort between 2010 and 2016, reaching higher levels than in the previous period with a peak in 2014 with a cumulative of 7.900 days at sea. Since 2017, a clear shift in

effort can be observed, which has continued in 2022 reaching a historical minimum since 2010 to 4.853 days at sea (a 39 % reduction in fishing days compared to effort in 2014 and a 6 % reduction compared to 2021). This reduction is partly explained by the historically low effort recorded by the French purse seine fleets.

Year	Effort (days)		Catches (t)					
	Searching	Fishing = days at sea	YFT	SKJ	BET	ALB	Others	Total
2013	6,511	7,897	104,864	86,515	20,894	448	205	212,926
2014	6,640	7,941	91,405	86,541	13,628	430	156	192,160
2015	6,218	7,608	86,148	77,995	15,001	396	117	179,657
2016	6,553	7,327	86,682	107,545	12,860	253	205	207,544
2017	5,706	5,985	87,453	118,715	17,066	251	48	218,369
2018	5,756	6,518	80,172	186,611	33,863	73	1,330	293,908
2019	5,180	5,898	71,905	161,165	15,691	93	116	243,336
2020	4,332	5,310	69,966	117,655	16,143	106	332	200,925
2021	3,984	5,149	75,869	144,033	21,754	61	123	241,840
2022	3,641	4,853	68,596	130,651	20,127	28	479	219,881

Table 9. *Evolution of nominal effort (expressed as the number of days of fishing = days at sea and searching) and catches (expressed in tonnes live weight) of tropical EU Purse seiners in the IOTC Convention Area*

For the EU purse seine fleet as a whole, although sea fishing activity was lower than in 2016, the data still show a general increase in tropical tuna catches of 6 % compared to 2016. However, when compared to the catch data of 2021, the total tropical tuna catches dropped by 9 % (-10% for yellowfin tuna, -9% for skipjack tuna and -7% for bigeye tuna).

If 2021 showed a revival of catches with catch data close to the maximum levels reached in the last decade, the year 2022 is closer to the year 2017 in term of total catches, but with a catch composition quite different. In 2017, the composition showed 40% of yellowfin tuna, 54% of skipjack tuna and 8% of bigeye tuna, while 2022 catch composition is made up of 31% of yellowfin tuna, 59% of skipjack tuna and 9% of bigeye tuna. This can be explained by the catch limit adopted for yellowfin tunaand a subsequent adaption of the fishing strategy of the purse seine fleet to reduce its catches of yellowfin tuna.

In 2021, 26 350,029 tonnes were caught in fishing areas covered by SFPAs between the European Union and coastal states in the south-west Indian Ocean, representing some 11 % of the total catches made during that year by EU purse seiners.

3.1.2. OFFSHORE LONGLINERS TARGETING SWORDFISH IN ASSOCIATION WITH SHARKS

After the withdrawal of the United Kingdom from the European Union, the nominal effort measured in terms of the number of hooks set by all longliners in the European Union in 2020 was almost 30 % lower

than in 2019. Thus, in order to avoid a distorted picture of the state of the fleet, Table 10 presents the evolution of effort excluding the catches of United Kingdom from the historical series.

After increasing between 2011 and 2013, the nominal effort measured in number of hooks launched by all EU longliners targeting swordfish in association with sharks is steadily decreasing. The effort in 2019 was just over half the 2013 effort. The effort and catches in 2022 appear to be the lowest in the historical series, with an effort of 67 % down on 2013, a decrease of 32 % compared to 2019 and even decrease of 6 % compared to 2021.

This EU offshore longliner fleet in the IOTC Convention Area mainly targets swordfish and therefore has a high associated catch rate of sharks.

In 2022, out of a total catch of 5,474 t, catches of swordfish, the species supporting the fishing activity, reached 2.175 t, or 39 %, while sharks accounted for 58 % of total catches. Compared to 2021, if the total catches decreased by 6%, the catches of swordfish actually increased by 12%, while the catches of all the other species decreased. This represents the highest rate of swordfish among the total catches since 2018. However, it is still far from the composition of 2013 that showed a 69% of swordfish among the total catches.

In 2021, 152 t were caught in fishing areas covered by SFPAs between the European Union and coastal states in the south-west Indian Ocean, representing some 2.7 % of the total catches this year made in the Indian Ocean by these EU offshore longliners.

Years	Effort	Catches (t)						
	(10^6 hooks)	SWO	BSH	SMA	TUS	BIL	NEI	Total
Effort and catches for the EU **								
2013	7.821	6,137	1,575	841	163	61	107	8,884
2014	7.085	4,758	5,542	972	230	30	37	11,569
2015	5.924	4,875	4,951	666	308	60	90	10,950
2016	6.126	4,754	4,968	692	869	233	280	11,796
2017	5.197	4,337	4,299	750	405	150	243	10,184
2018	3.715	2,712	2,968	566	201	93	99	6,639
2019	3.801	2,726	3,358	539	194	108	79	7,004
2020	3.246	2,045	2,916	452	102	60	50	5,625
2021	2.733	1,950	2,867	502	127	52	35	5,533
2022	2.572	2,175	2,772	381	59	68	19	5,474
* Catches of the EU without the UK in the historical series								

Table 10. *Evolution of nominal effort (expressed as number of Hooks deployed) and catches (expressed in tonnes live weight) of EU offshore longliners in the IOTC Convention Area testing swordfish in association with sharks*

3.1.3. OFFSHORE LONGLINERS TARGETING SWORDFISH IN ASSOCIATION WITH TUNA

EU offshore longliners targeting swordfish in association with tuna, mainly yellowfin tuna, bigeye tuna and, to a lesser extent albacore, have shown a decreasing nominal effort from 2013 to 2018. In 2022, the effort was up by 5 % compared to the previous year but down by 12 % compared to 2019.

However, catches remained relatively stable between 2012 and 2016 (1.893 t), but below the level observed in the previous period (2005-2011 = 2.700 t), while on average they were reduced considerably (1.291 t) by around 32 % in 2017-2019 (-25 %). In 2022, catches increased by 7 % compared to the previous year and by 25 % compared to 2019. The catches of 2022 actually represent the new highest catches since 2017.

Year	Effort (10⁶ hooks)	Catchess (t)					
	(10^6 hooks)	SWO	YFT	ALB	BET	NEI	Total
2013	4.04	725	245	317	315	232	1,834
2014	3.57	793	298	306	356	275	2,028
2015	3.53	692	302	263	362	193	1,812
2016	4.00	771	322	232	343	217	1,885
2017	3.10	500	200	151	187	134	1,172
2018	3.30	533	253	193	154	149	1,282
2019	4.05	669	302	193	132	124	1,420
2020	3.69	771	339	208	149	145	1,613
2021	3.42	794	317	231	154	168	1,664
2022	3.61	844	275	400	118	139	1,776

Table 11. *Evolution of nominal effort (expressed as number of Hooks deployed) and catches (expressed in tonnes live weight) of EU offshore longliners in the IOTC Convention Area testing swordfish in association with tuna*

The specific catch composition for the main commercial species in 2022 is 48 % swordfish, 15 % yellow tuna, 7 % bigeye tuna and 23 % albacore.

In 2021, 53 t were caught in fishing areas covered by SFPAs between the European Union and coastal States in the south-west Indian Ocean, mainly the Mauritius fishing zone with some catches in Seychelles, i.e. around 3.2 % of the total catches this year made in the Indian Ocean by these EU offshore longliners.

3.2. THE EU COASTAL FLEET

3.2.1. COASTAL FLEET REGISTERED IN LA RÉUNION

3.2.1.1. COASTAL LONGLINERS

The nominal effort of small coastal longliners in the European Union registered in La Réunion has fallen structurally since 2015, with a maximum of the series in 2017. However, 2022 has an effort higher than 2021, 2020 and 2019 and is the first year since 2017 to show an increase of effort rather that a decrease.

The effort was estimated at 601.000 hooks launched in 2022 for catches of around 501.6 t, an increase in hooks of 32% compared to 2021.

Catches are usually dominated by swordfish (31 %), yellowfin tuna and bigeye tuna (28 %), and albacore (22 %). The proportion of albacore tuna among the total in 2022 is the highest of the historical series.

Year	Effort	Catches (t)					
	10(6) hooks	SWO	YFT	ALB	BET	NEI	Total
2015	0.662	145.1	102.7	75.2	29.2	76.1	428.3
2016	0.614	161.4	94.5	73.7	19.8	93.5	442.9
2017	0.733	116	61	53	12	63	305
2018	0.688	144	95	65	19	84	407
2019	0.521	159.9	85.3	55	14.6	61.9	376.7
2020	0.488	125.4	102.2	60.4	14.5	86.2	388.6
2021	0.454	120.4	110	90.1	22.1	100.4	443
2022	0.601	157.4	118.6	111.8	22.5	91.6	501.9

Table 12. *Evolution of nominal effort (expressed as number of Hooks deployed) and catches (expressed in tonnes live weight) of vessels registered in La Réunion operating with longline and hooks*

3.2.1.2. COASTAL FISHING TROLLING BOATS

The other units of the EU coastal fleet registered in La Réunion deployed a nominal effort estimated at approximately 5846 trips (daily exits) for production of approximately 468 tonnes in 2019; that is to say, a yield per trip 29 % higher than the average of the previous three years, with vessels falling by 14 % (125 vs. 145) and a reduction, compared with the average of the previous three years, of even more fishing days at sea (-49 %). For the year 2022, the catch amounts to a total of 274.1 t (fishing effort is not available). This represent the lower total catches in the historical series, explained by a very important drop in the catches of yellowfin tuna compared to 2021 (-51%). The catches consist of yellowfin tuna (41.8% of the total catches), dolphinfish (28.5%), wahoo (5.3) and billfish (11.9%).

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Year	Catches (t)							
	YFT	ALB	SKJ	BIL	DOL	WAH	NEI	Total
15	222.4	30.3	8.2	62.1	108.1	41.4	22	494.5
16	310.7	13.3	17.5	67	154.4	68.8	2.9	634.6
17	277.1	67.2	28.3	86.1	158.2	55.3	4.4	676.6
18	275.5	18.7	34.5	186.7	157.5	104.1	4.1	781.1
19	166.3	20.6	15.3	75.5	104.2	81.1	4.75	467.75
20	208.1	17.8	23.5	189.7	52.8	45.1	2.1	539.4
21	235.2	16.5	30.3	82.7	101.7	38	11.2	515.6
22	114.7	21	8.9	32.7	78.1	14.6		274.1

Table 13. *Evolution of nominal catches (expressed in tonnes live weight) of the small costal vessels registered in La Réunion*

3.2.2. COASTAL FLEET REGISTERED IN MAYOTTE

3.2.2.1. COASTAL LONGLINERS

Year	TUN	YFT	ALB	BET	BIL	BLM	BUM	SFA	SWO	DOL	Others	TOTAL
2015	20.7				1.7			1.5	16.3	1	0.5	41.7
2016	32.8				1.6			2.6	21.9	0.4	0.4	59.7
2018		6.8	2.3	7.9		0.5	0.2	1.2	19.6	0.7	0.1	39.3
2019		26.6	0.4	9.9		0.1	1.2	0.9	21.1	0.1	0.1	60.4
2020												
2021		9	0.1	0.9		0.3	0.1	0.4	6.4	0.1		17.3
2022		39.1	0.7	5.1		1.5		1.6	22.9	0.6		71.5

Table 14. *Evolution of catches (expressed in kilograms live weight) of EU longliners registered in Mayotte and targeting swordfish*

2022 represent a huge increase of catches compared to the previous year of 313% and also represent the highest catches of the time series.

Since 2014, a significant drop in effort and catches, following a period of continuous increase, has been observed or could be explained by a significant drop in the yields felt by crews, which led to the cessation of fishing activity by certain vessels in the middle of the 2015 season, which also occurred in 2016; the fishing fleet increased from 6 operational vessels in 2013-2014 to 3 fishing vessels in 2016-2018 and finally to 2 vessels since 2021.

3.2.2.2. COASTAL FISHING TROLLING BOATS

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The estimation data for this fleet are derived from the observations on landings under the Obsdeb programme. In 2022, the total catch is estimated at 281 tonnes, of which 52 % yellowfin tuna and 34 % skipjack tuna. Compared to 2021, the total catches decreased by 15%.

Year	Fishing trips	YFT	DOL	SWO	ALB	SKJ	BIL	BET	Autre	Total
2015	2,566	56.60	1.30	0.60	0.90	37.80	0.20	11.80	21.20	130.40
2016	2,654	38.50	2.90			82.70	61.70	4.10	56.90	246.80
2017	3,179	108.20	8.60	11.00		127.20	7.20	7.60	18.40	288.20
2018	2,894	50.30	2.70	1.50	0.60	146.90	0.20	0.30	22.90	225.40
2019	4,111	57.60	1.90	8.20	9.80	53.70			15.30	146.50
2020	2,673	57.90	2.30	1.40		61.40	0.10	28.20	41.00	192.30
2021	6,264	151.40	0.90	0.70	0.20	112.40	13.40	2.50	50.10	331.60
2022	5,772	145.30	1.20		0.30	95.50	15.00	0.20	24.10	281.60

Table 15. *Evolution of nominal catches (expressed in tonnes live weight) of the small costal vessels registered in Mayotte*

4. RECREATIONAL FISHERIES

There is currently no monitoring of recreational fisheries in La Réunion. Projects are under way with the South Indian Ocean Directorate to monitor this fishery. A survey carried out by IPSOS was carried out to estimate catch levels in relation to recreational fisheries.

5. ECOSYSTEMS AND BY-CATCHES

5.1. SHARKS

Blue shark and shortfin mako sharks are not retained by European purse seiners. On the other hand, they are sometimes targetted by French longliners in the Indian Ocean and systematically by Spanish and Portuguese longliners whose catches are traded.

Sharks retained (in tonnes, Spain and Portugal)		
	BSH	MAK
2016	4,967	691
2017	4,299	750
2018	2,968	566
2019	3,357	539
2020	2,916	452
2021	2,867	502
2022	2,772	381

Sharks retained (in number, France only)		
	BSH	MAK
2016	0	23
2017	3	28
2018	233	9
2019	106	12
2020	185	7
2021	360	9
2022	306	6

Table 16. *Sharks (expressed in tonnes live weight) sold by the Spanish and Portuguese fleets*

Table 17. *Sharks (expressed in numbers) retained by the French fleet*

All EU Member States have a track record of released or discarded species. Observations of sharks and rays released or discarded from European fleets are available in the Annexes.

5.1.1. NPOA-SHARKS

A Community Action Plan for the Conservation and Management of Sharks was adopted on 5 February 2009 and is currently still in force.[8]

The purpose of the Community Action Plan is to contribute to that general objective by ensuring the rebuilding of many depleted stocks fished by the Community fleet within and outside Community waters. The Action Plan outlines what is already in place and what is still needed to do to ensure a comprehensive and coherent legislative policy and legislative framework for the conservation and management of sharks within and outside Community waters.

The scope of the Action Plan covers directed commercial, by-catch commercial, directed recreational, and by-catch recreational fishing of any chondrichthyans within Community waters. It also includes any fisheries covered by current and potential agreements and partnerships between the European Community and third countries, as well as fisheries in the high seas and fisheries covered by RFMOs managing or issuing non-binding recommendations outside Community waters.

The Action Plan pursues the following three specific objectives:

- to broaden the knowledge both on shark fisheries and on shark species and their role in the ecosystem;

- to ensure that directed fisheries for shark are sustainable and that by-catches of shark resulting from other fisheries are properly regulated;

- to encourage a coherent approach between the internal and external Community policies for sharks.

5.1.2. SHARKS FINNING REGULATION

The legislation related to shark finning is laid down in Council Regulation (EC) No 1185/2003 of 26 June 2003 on the removal of fins of sharks on board vessels, as amended by Regulation (EU) No 605/2013. It entered into force in September 2003.

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[8] Communication FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on a Community Action Plan for the Conservation and Management of Sharks, COM (2009) 40 final, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A52009DC0040

The Regulation prohibits the practice of shark finning and to retain on board, tranship and land fins separated from the carcass from the vessel. It shall also be prohibited to purchase, offer for sale or sell shark fins which have been removed on board, retained on board, transhipped or landed.

The Regulation allows shark fins to be partially sliced and folded against the carcass in order to facilitate storage on board, but they are not removed from the carcass before being landed.

An annual report on practices is mandatory for all Member States fishing for sharks. This EU regulation is mandatory for all European ships that are subject to additional inspections on board and in port.

5.1.3. BLUE SHARK

All vessels have electronic logbooks and the main catches of sharks are recorded and reported annually. Blue shark and in a lesser extent mako shark are the main shark species caught.

The electronic reporting system (ERS) and electronic logbooks are mandatory for all European vessels operating in the IOTC area, in accordance with Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy.

Blue shark has no special rules concerning the reporting of its catches and catches of this species must be reported by ERS as for the rest of the species.

Blue sharks are generally not retained by purse seiners but are an important commercial catch for offshore longliners targeting swordfish and certain shark species, carried out by vessels flagged in Spain and Portugal.

5.2. SEABIRDS

The Spanish and Portuguese longline fleets shall use the mitigation measures of Resolution 12/06 to limit catches of seabirds. However, the French longline fishery based in La Réunion and Mayotte is not subject to this measure as it operates above 25°S.

Observer programmes at sea allow the recording and reporting of information on seabird catches. No seabirds were caught by any of the European fleets in 2022.

5.3. MARINE TURTLES

IOTC Resolution 12/04 on the conservation of sea turtles is implemented by all relevant European fishing fleets. Turtles are handled in accordance with recommended practices and systematically released into the sea. Historical data are available in the annexes.

Marine turtles			
2022		Number of individuals released alive	Number of individuals discarded dead
Caretta caretta	TTL	21	3
Chelonia mydas	TUG	7	
Dermochelys coriacea	DKK	5	
Eretmochelys imbricata	TTH	1	
Lepidochelys olivacea	LKV	8	2
Testudinata	TTX	1	1
Nei		1	

Table 18. *Turtles (expressed in number of individuals) released by species by the European fleet in the IOTC Area of Competence in 2021*

In the case of the La Réunion longline fleet, when turtles are injured or have swallowed the hook and the hook cannot be removed using the dedicated extraction kit (distributed to all fishermen), the turtles are brought ashore and handed over to the Kelonia Care Centre.

Observer programmes at sea on both fisheries allow the retrieval of information on catches of sea turtles, and it is this data source that is used for the provision of annual data to IOTC. Turtle release data can be found in forms 1DI and ST09.

5.4. OTHER ECOLOGICALLY RELATED SPECIES

IOTC Resolution 13/04 on the conservation of marine mammals is implemented at European level.

For purse seiners, encircling whales and other cetaceans is prohibited, but very few interactions occur when they could not be spotted before. No interaction with cetaceans is reported in 2021.

For longliners, interactions with cetaceans (catches on the line) are quite rare and cetaceans are always released alive. One interaction with cetaceans was reported in 2022, which was released alive.

As for whales, Resolution 13/05 on whale sharks prohibits encircling a whale shark. However, whale sharks are sometimes found in purse seine nets when these individuals could not be detected before, and they are systematically released alive following the Good Release Practice Guide developed under the MADE project in 2012 and validated by IOTC. There were 12 interaction with a whale shark in 2022, all released alive.

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

The European Union has a binding regulatory framework applicable to all Member States and to all its fleets involved in fishing for highly migratory species in their various areas of activity. This framework takes into

account IOTC resolutions and provides, in particular, for the processing of data carried over to logbooks and the crossing of such data with other sources of information, landing declarations, sales notes, VMS positioning data of vessels and observer programme data, for example[9]. The monitoring of coastal segments, when the fishing logbooks is not mandatory for the smaller vessels, is carried out via the processing of fishing records or by sampling. The collection of data for the purpose of scientific analysis is the subject of specific legislations defining the framework for this data collection[10].

6.1. LOGSHEET DATA COLLECTION AND VERIFICATION

The effort and catch datasets of the EU offshore fleets result from a comprehensive treatment of the information reported in the logbooks by vessel masters, including estimates of catches retained on board, as well as landing notes and sales notes. This data may be supplemented by information collected by on-board observers or by the result of sampling at landing, where related programmes are implemented and reports are available.

6.1.1. OFFSHORE PURSE SEINE VESSELS TARGETING TROPICAL TUNAS

In the case of purse seiners, logbook data, including catch estimates, shall be systematically crossed with the satellite positioning data of fishing vessels (VMS data), landing notes, sales note information and information recorded by on-board observers in their reports such as sampling at landing at the port of Victoria (Seychelles). Due to the outbreak of covid, these sampling had to be stopped in 2020 but resumed in 2021.

The processing and consolidation of these data for EU purse seiners has traditionally been carried out for scientific purposes on the basis of procedures shared between the fisheries research institutes of the flag

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[9] Council Regulation (EC) No 1224/2009 of 20 November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy, amending Regulations (EC) No 847/96, (EC) No 2371/2002, (EC) No 811/2004, (EC) No 768/2005, (EC) No 2115/2005, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007, (EC) No 676/2007, (EC) No 1098/2007, (EC) No 1300/2008, (EC) No 1342/2008 and repealing Regulations (EEC) No 2847/93, (EC) No 1627/94 and (EC) No 1966/2006, OJ L 341, 22.12.2009, p. 1.

[10] Council Regulation (EC) No 2017/1004 of 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice concerning the common fisheries policy and repealing Council Regulation (EC) No 199/2008 (Recast). OJ L 157, 20.6.2017, p. 1

Commission Delegated Decision (EU) 2021/1167 of 27 April 2021 establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors from 2022

Commission Implementing Decision (EU) 2021/1168 of 27 April 2021 establishing the list of mandatory research surveys at sea and thresholds as part of the multiannual Union programme for the collection and management of data in the fisheries and aquaculture sectors from 2022

Regulation (EU) 2022/2343 of the European Parliament and of the Council of 23 November 2022 laying down management, conservation and control measures applicable in the Indian Ocean Tuna Commission (IOTC) Area of Competence, amending Council Regulations (EC) No 1936/2001, (EC) No 1984/2003 and (EC) No 520/2007

States, in particular the French Institute for Research for Development (IRD) for France, the Institut Espagnol d'Océanographie (IEO) and AZTI-Tecnalia for Spain.

These procedures, described in detail in the French national report and the outcome of these processing operations, are also shared with several institutions of the coastal states with which the EU is bound by an SFPA, in particular with the Seychelles Fishing Authority (SFA, Seychelles) and the Albion Fisheries Research Centre (AFRC, Mauritius). The SFA also applies the same processing and consolidation procedures to data collected for seiners flying the Seychelles flag.

In addition, the European Union is promoting closer exchanges between scientists and statisticians from its Member States and those of coastal States, in particular those of the South-West Indian Ocean. To this end, a preparatory meeting was organised at the beginning of 2016, with the support of the Indian Ocean Commission (IOC), at sub-regional level, involving scientists and statisticians from Mozambique, Comoros, Madagascar, Seychelles, Mauritius, Tanzania and Kenya. This technical meeting made it possible, in particular, to prepare the annual meeting, held in spring 2016, bringing together the scientific institutes of the European Union and the partner States under the SFPAs on the Atlantic coast of Africa (Mauritania, Senegal, Cape Verde, Côte d'Ivoire, Gabon) and the south-west Indian Ocean (Seychelles and Mauritius). The main purpose of these meetings is to discuss and validate data consolidation procedures, to share the computer software developed for their implementation and to process the data available to each of the institutions present and which concern seine occupations targeting tropical tuna.

It should be noted that, for the time being, the implementation of the procedures for processing and consolidating the data of the seiner flying the Italian flag, although taken into account in this report, still needs to be formalised between the Administration of the flag State and a national fisheries research institute.

Given the growing importance of real-time monitoring of national catch and quota consumption data allocated to vessels, the scientific system referred to above, which is not adequate for this purpose, will increasingly need to be accompanied by monitoring of catch data using the existing tools at the level of the Fisheries Control Regulation. Analyses are ongoing to assess the complementarity, synergies and inconsistencies that could result from the simultaneous use of both approaches.

6.1.2. OFFSHORE LONGLINE VESSEL TARGETING SWORDFISH

As regards longlines, the data collected through fishing logbooks (estimates of catches retained on board and landing notes) are processed directly by the national fisheries research institutes, the IEO for Spain, the

Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER) for France and the Portuguese Institute for the Sea and Atmospheres (IPMA) for Portugal.

Where observers have been taken onboard European offshore longliners, the information contained in the reports shall also be used by scientists to assess by-catches, incidental catches and discards.

On the other hand, no sampling at landing is carried out for offshore longliners targeting swordfish in association with sharks, the flag Member States concerned considering that the implementation of this type of programme is made difficult by the remoteness of the fishing zones and, above all, by the fact that vessels remain several months or even years away from their ports of attach, that catches being transhipped or landed in ports which are generally not those of the flag State.

At this stage, it appears that only the fleet of offshore longliners targeting swordfish in association with tuna and landing in La Réunion is sampled in port.

6.1.3. TREATMENT OF CATCH AND EFFORT DATA OF COASTAL FLEETS

Analysis of the activity and catches of the coastal fleets shall be carried out on the basis of analysis of fishing records, sales notes or surveys of landing sites.

The evaluation of effort and catch data is carried out by IFREMER and IRD in partnership with the Direction des Pêches Maritimes et de l'Aquaculture (DPMA) and, in the case of Mayotte, the Marine Natural Park managed by the Agence des Aires Marines Protégées (AMPP). The results obtained, which also include an estimate of the activity of the unofficial Mahoran fishing fleet, are integrated into the French Fisheries Information System (SIH).

6.2. VESSEL MONITORING SYSTEM

The European fleets fully implement IOTC Resolution 15/03 on VMS.

Since 30 June 1998, all vessels operating on the high seas of more than 24 metres had to be equipped with a VMS system in accordance with Council Regulation (EEC) No 2847/93 of 12 October 1993 establishing a control system applicable to the common fisheries policy.

Since then, and in accordance with Article 9 of Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy, all fishing vessels over 12 metres are equipped with a fully operational device allowing them to be automatically localised and identified by the Vessel Monitoring System, through the transmission of position data at regular intervals. Thus, the entire European fleet operating in the IOTC area, with a length of 12 metres or more, is equipped with VMS.

The following vessels are therefore equipped with VMS: the whole fleet of purse seiners, all longliners (offshore and coastal) larger than 12 metres.

The following vessels are not equipped with VMS: Mayotte longline fleet (less than 12 metres) and coastal fleet of Mayotte (small bark vessels, also less than 12 metres).

6.3. OBSERVER SCHEME

Programmes for the embarkation of observers onboard vessels flying the flag of Member States of the European Union must comply with the provisions of the IOTC Resolutions and the European Union Regulation governing the data collection framework. Onboard observer programmes, as part of data collection, are carried out in a coordinated manner between the research organisations (IRD, AZTI, IEO, IPMA) that implement the programmes or contribute to the training of observers. These activities shall also be coordinated and complementary to onboard observation activities carried out under the direct control of the national administrations for the management of fishing activities. In 2020, as a result of the pandemic, the onboard observer programme could not be fully implemented. In 2021, observers were deployed on the French, Spanish and Italian fleets, but no observers were deployed on Portuguese vessels. To be completed by data of 2022.

6.3.1. PURSE SEINE VESSELS TARGETING TROPICAL TUNAS

In addition, the producer organisations comprising the shipowners of the French (ORTHONGEL) and Spanish purse seiners (ANABAC and OPAGAC/AGAC) have developed, in collaboration with the Spanish (IEO and AZTI) and French (IRD) research institutes, voluntary observer programmes which can cover up to 100 % of certain fishing activities by onboard observers and electronic monitoring system.

For the Spanish fleet, a total of 65 trips (approximately a 44 % of the total trips performed by this fleet) and 1560 sets (a 39,7% of the total sets) on board 11 of the 14 Spanish tropical tuna purse seiners in the Indian Ocean have been carried out.

For the French fleet, as part of the EU data collection programme, approximately 17 % of fishing operations were monitored by observers on board, in addition to the 224 (10 %) fishing operations observed under the 'Common Unique and Permanent Observer' programme set up by the professional organisation ORTHONGEL. In 2022, 602 French fishing operations were observed, with a coverage rate of 27 %.

6.3.2. LONGLINE VESSELS TARGETING SWORDFISH IN ASSOCIATION WITH SHARKS

Scientific observation on board longliners has been affecting by the lack of observers on Portuguese vessels in 2022, due to administrative issues created during the pandemic. However, this issue has been solved and onboard observation has resumed normally in 2023 for all the segments of the EU fleet.

As for the Spanish offshore longliners, in 2022 a total of 19,559 hooks, 18 sets and 35 fishing days were observed by the IEO-CSIC (A Coruña) sampling program on board. In addition, the Program of the General Fisheries Secretariat in 2022 observed a total of 83,520 hooks of the Spanish surface longline fishery targeting swordfish in the Indian Ocean that means a total of 93 fishing days which corresponds to 95 sets. In total it represent a coverage of 5% of the fishing effort with 103,079 kooks observed.

6.3.3. LONGLINE VESSELS TARGETING SWORDFISH IN ASSOCIATION WITH TUNAS

The observer programme for offshore longliners registered in La Réunion and targeting swordfish in association with tuna species is based on the embarkation of observers onboard the largest vessels of the fleet and shall be complemented by self-sampling activities carried out by crews under the supervision of IRD scientists. Onboard observers and vessels masters involved in the self-sampling of the DCF (IRD – CITEB) programme shall collect information on the characteristics of fishing operations (date, position, rigging of the fishing gear), on catches, live release and dead discards (of any species), and on depredation. Onboard observers also participate in the collection of biometrics data (size) for the target species, thus complementing IFREMER's port data collection (Table 6b).

The coverage rate of fishing activity, measured as the number of hooks set up, and taking into account only the share corresponding to the data collected by on-board observers, thus reached 3.77 % in 2014, 3.37 % in 2015, 2.93 % in 2016, 3 % in 2017, in and 1.41 % in 2018. Including the result of crew self-sampling activities, these levels reached 13.66 % in 2014, 14.30 % in 2015, 14.84 % in 2016, 16.92 % in 2017 and 8.68 % in 2018. In 2021 on-board observers covered 3 % of the total fishing effort (in number of hooks deployed) and self-sampling 10.7 %, representing a total coverage of 14.7 %.

For the Mayotte longline fleet, the observer programme set up by the IRD in La Réunion was deployed in Mayotte in an experimental phase in 2015 and has been fully integrated into the data collection programme since 2017. This programme is governed by the Marine Natural Park, the data are entered using the Observe software developed by the IRD and banked into the IRD's Observe database. Since 2020, following the Covid crisis, such monitoring has not been possible. The future evolution of the fleet with units planned too small to accept an observer. A landing sampling programme is being discussed with the local operators.

6.4. PORT SAMPLING PROGRAMME

6.4.1. PURSE SEINE VESSELS TARGETING TROPICAL TUNAS

The specific catch composition of tropical purse seiners is estimated after correction of the fishing records on the basis of specific sampling within predefined strata according to the procedures described below. Sampling of landings has been regularly carried out since the beginning of the presence of purse seiners in the Indian Ocean, with a two-fold objective: on the one hand, estimate the demographic structure of catches of the main species and, on the other hand, correct the specific composition of landings with heterogeneous trade categories. It is carried out through the European DCF funds in close cooperation between European research and control institutes. The procedure currently being implemented is based on stratified sampling of all European seiners (Spain, France, Italy) and assimilated seiners (vessels with European interests flying a third country flag).

For the Spanish component, 263,607 individuals were identified and counted in 2022. Of which 119 522 were measured at landings. The number of sampling units in wells was 548 (1665 wells in total). Considering the number of landings performed by the EU-Spain purse seiner fleet was 142 in Victoria-Seychelles, the sampling effort covered by around 92% of the yearly unloading (132 landings).

For the French component, 109,037 individuals were identified and counted in 2021. Of which 49,462 were measured at landings.

6.4.2. LONGLINE VESSELS

There is no stable sampling programme in port for longliners targeting swordfish in association with sharks, which land outside European ports.

On the other hand, in the case of La Réunion offshore longliners, since 2009, all species landed have been measured.

In 2021, 2,465 individuals were measured at landings (for trips not covered by on-board observers) of which 892 swordfish (SWO), 962 albacore tuna (ALB), 208 yellow tunas (YFT) and 135 bigeye tuna for species dominant in landings.

For the time being, data on fish measurements collected by on-board observers could not be merged with those collected at landings. This will be the subject of further work.

6.4.3. THE EU COASTAL FLEET

6.4.3.1. COASTAL FLEET REGISTERED ON THE ISLAND OF LA RÉUNION

For species landed by La Réunion coastal longliners, in 2022, 213 fish were measured by surveyors, including 44 swordfish (SWO), 60 yellowfin tunas (YFT) and 46 bigeye tuna (BET) for the most abundant species.

As regards small-scale coastal fishing in La Réunion, SIH investigators present on platforms under this "Obsdeb" programme take advantage of this to measure large pelagic landings. In 2022, 676 individuals were measured at landings (for trips not covered by on-board observers) of which 262 dolphinfish (DOL), 55 wahoo (WAH) and 271 yellow tunas (YFT) for species dominant in landings.

6.4.3.2.   COASTAL FLEET REGISTERED IN MAYOTTE

Data on Mahoran longliners are obtained from the sales notes of the Mayotte fishing cooperative (COPEMAY) where these vessels landed all their catches until 2015. From 2015 onwards, these data were supplemented by the fishing records of vessels not landing their catches at the cooperative. The small number of vessels makes it possible to know precisely the number of trips and the catches landed. However, the names of the species caught remain at commercial level ('tuna', 'marlin'), so these data sources do not make it possible to identify catches at the species level.

The Mahoran coastal fleet is followed by the disembarkation observation programme (Obsdeb) developed by IFREMER and operated by the Marine Natural Park. In 2022, a sample of 891 trips was observed for 240vessels, including 53 professional fishing vessels.

6.5. UNLOADING/TRANSHIPMENT OF FLAG VESSELS

Purse seiners (t)		
2022	Landings	Transhipments
ALB	34.55	0.01
BET	19,411.00	15.64
SKJ	125,832.00	79.88
YFT	64,365.00	34.25

Table 19. *Landing and transhipment of the main species (in tonnes live weight) of European purse seiners in the IOTC Area of Competence in 2022*

Offshore longliners (t)		
2022	Landings	Transhipments
ALB	401.35	0.00
BET	179.83	0.01
BSH	1,916.96	1.04
SMA	264.71	0.23
SWO	2,405.06	1.28
YFT	318.10	0.03
BUM	75.6	0.00
DOL	28.57	0.00

Table 20. *Landing and transhipment of the main species (in tonnes live weight) of European longliners in the IOTC Area of Competence in 2022*

Coastal fisheries of La Réunion		
2022	Landings	Transhipments
ALB	139.00	0
DOL	97.80	0
BLM	17.90	0
BUM	76.80	0
SWO	158.70	0
YFT	118.60	0

Coastal fisheries of La Mayotte		
2022	Landings	Transhipments
ALB	1.10	0
DOT	11.10	0
SKJ	95.40	0
DOL	1.80	0
SWO	22.90	0
YFT	184.40	0

Table 21. *Landing and transhipment of the main species (in tonnes live weight) of the coastal fisheries of La Réunion in the IOTC Area of Competence in 2022*

Table 22. *Landing and transhipment of the main species (in tonnes live weight) of coastal fisheries of Mayotte in the IOTC Area of Competence in 2022*

The quantities landed and transhipped in the Indian Ocean ports are only an estimate and cannot be considered as equivalent data to the catch, as some quantities are counted as transhipments and landings. It should be noted that the French and Portuguese segments of the European fleet do not tranship at port, but only conduct landing operations. Furthermore, no European vessels are authorised to tranship at sea in the Indian Ocean.

6.6. ACTIONS TAKEN TO MONITOR CATCHES AND MANAGE FISHERIES FOR STRIPED MARLIN, BLACK MARLIN, BLUE MARLIN AND INDO-PACIFIC SAILFISH

With regard to the identification of species, observers on board and masters are provided with IOTC billfish identification cards, as well as other material such as that prepared by the National Institute.

With regard to data recording, all catches of all species, including marlins, shall be recorded and reported in the electronic logbooks. Billfish do not have special rules on the reporting of their catches and catches of this species must be reported through ERS as for the rest of the species.

In addition, all catches, including retained species, live and dead discards, shall be recorded in the observer programme and duly reported in electronic form to the IOTC Secretariat within the set deadlines. This includes all billfish species when caught.

Finally, trials for the development of abundance index of catch part per unit of effort are ongoing.

6.7. SAMPLING PLANS FOR MOBULID RAYS

Considering the lack of catches of mobulid rays by European fishing vessels, no sampling plans was designed.

7. NATIONAL RESEARCH PROGRAMMES

All EU Member States have national research institutes or regional research laboratories, in some cases supervised by the main universities in the country. Descriptions of the main research activities carried out by the EU Member States are set out in the Annexes.

As regards tropical tuna fisheries, some Member States also work in collaboration with the Research Institutes of Coastal States, in whose ports the fleets concerned land all or part of their catches.

The EU itself has also contributed to research by funding several major scientific projects to support the work programme of the IOTC Scientific Committee.

7.1. SUPPORT TO THE IMPLEMENTATION OF THE IOTC REGIONAL OBSERVER PROGRAMME

October 2018 – December 2022

Total amount: $805 682

This project supports the implementation of IOTC regional observer programmes in order to obtain large-scale, high-quality and independent data from fishing operations carried out in the IOTC Area of Competence. This information is essential for a better understanding of the fishery resources of the Indian Ocean and is particularly important when there are major knowledge gaps, in particular in the gillnet fleets, which account for a significant share of IOTC catches. By developing a training programme, new technologies, new standards and processes for observer coordinators and field observers, the project will address issues that prevent the collection, analysis and reporting of reliable observer data.

The results of this project improve the capacity of observers and national bodies to implement the regional observer programme and collect the information required by the IOTC with the aim of enhancing scientific information and management advice for IOTC fisheries.

Project activities:

- Development of training programmes for observer programme coordinators, including a manual observer coordinator, a training programme for observer coordinators, workshop training material and a set of models for the use and development of coordinators.

- Development of a training programme for field observers, including a comprehensive set of tools and materials needed to train observers at the level of competence agreed and agreed at regional level, including an observer manual, a revised set of data collection forms, an observer training programme, an observer resources guide, workshop training materials, course evaluation forms/tools.

- Training and support for the implementation of the regional observation programme in six IOTC member countries (Indonesia, Iran, Mauritius, Pakistan, Sri Lanka and Tanzania), including the

deployment of new training materials, tools and technologies necessary for the establishment of a permanent observation programme.

7.2. SUPPORT TO THE WORK PROGRAMME OF THE IOTC SCIENTIFIC COMMITTEE – ASPECTS OF IOTC SPECIES BIOLOGY

January 2018 – December 2021

Total amount: $499 885

This project contributes to improving scientific information on the biology of tropical tunas (bigeye tuna, yellowfin tuna and skipjack tuna) and swordfish – the four main target species caught in IOTC fisheries, in terms of tonnage and value. At present, some fundamental aspects of their biology are poorly understood, although they are among the most important species. In addition, the project will also investigate the biology of blue sharks, a species frequently caught in IOTC fisheries.

The results of the project provide up-to-date information on the parameters related to age, growth and reproduction of the four main target species, but also on blue shark biology in the Indian Ocean. This will make it possible to better assess stocks and improve the information on which fisheries management is based. Ultimately, this will strengthen the advice provided to the Commission on the management of these species.

Project activities:

- Improved estimates of the age, growth and reproduction of tropical tunas and swordfish using standard random sampling techniques, extraction of otoliths, gonads and other relevant parts of the body from catches at sea and on land for the preparation of sample analysis.

- Improved understanding of the age, growth and reproduction of blue sharks using standard sampling techniques, extraction of vertebrae, gonads and other relevant parts of the body from catches at sea and on land for sample preparation and analysis.

7.3. SUPPORT TO THE WORK PROGRAMME OF THE IOTC SCIENTIFIC COMMITTEE

December 2017 – March 2021

Total amount: $721 154

This project contributes to the improvement of scientific information on tuna and similar fisheries operating in the IOTC Area of Competence. Access to datasets is essential to improve the scientific evidence for sustainable fisheries management, but this type of information is currently limited due to the variable quality and amount of data available for analysis.

To addressthis, the project will conduct electronic monitoring trials and improve stock assessment methods, data quality and understanding of the biology and ecology of target species and by-catches. The main focus will be on areas where substantial improvements are needed, such as the lack of available catch data for tropical and temperate tuna, gillnet fleets, Nigerian tuna and by-catch species.

The results of the project will improve scientific knowledge on the ecosystems managed by IOTC with the aim of ensuring appropriate management of all species affected by IOTC fisheries.

Project activities:

- Estimates of abundance of target fisheries and by-catch.

- Development of a swordfish management procedure for Indian Ocean swordfish.

- Completion of a Tropical Tuna Label Modelling Project.

- Review of unreliable methods for assessing tuna stocks in the Indian Ocean.

- Analysis of the albacore growth curve and biological sampling of albacore in the Indian Ocean, and explore possibilities for a collaborative sampling programme for albacore in the Indian Ocean.

- Preparatory work for the ecological risk assessment for shark species in the Indian Ocean region.

- Review of longline and purse seine frequency data, report and make key recommendations based on the results of the review.

- Supports the implementation of IOTC regional observer standards and organise a Regional Observer Programme Standards Review Workshop.

- Testing of electronic monitoring systems on small longline vessels in Sri Lanka.

- Data compliance and support missions to improve compliance with IOTC Resolution 15/02 on statistical reporting requirements in Iran, Indonesia, Mauritius, Sri Lanka, Pakistan, Tanzania and Oman, and to provide assistance to strengthen the collection of national fisheries data.

- Translation and production of IOTC species identification cards.

- Evaluation of the effectiveness of marine turtle management measures.

- Development of a strategic plan for the IOTC Scientific Committee.

7.4. SUPPORT TO THE IOTC SCIENTIFIC AND COMPLIANCE COMMITTEE'S PROGRAMS OF WORK

Ongoing

Total amount: $800 000 in total, more than $400 000 for the scientific part of the project.

This project will support the work of the IOTC Scientific and Compliance Committees :1) improving scientific advice for the management of priority tuna, tuna-like and bycatch species caught in IOTC fisheries; 2) improving data for the management of tuna, tuna-like and bycatch species caught in IOTC fisheries; and 3) improve compliance with IOTC conservation and management measures. These three goals will be achieved through a series of activities that will contribute to the better understanding of tuna, tuna-like and bycatch species and the IOTC fisheries that interact with them as well as improving levels of compliance with existing IOTC conservation and management measures.

Relevant scientific project activities:

- Finalisation of management procedures for albacore, skipjack tuna and swordfish

- Peer reviewed of the yellowfin tuna stock assessment

- Feasibility study for a large-scale study to improved estimates of age, growth, reproduction and stock structure for sharks in the Indian Ocean

- Ecological risk assessment for cetaceans

- Improvements to data collection, reporting and management of Regional Observer Scheme data at national and regional levels

- Conduction of historical catch series for artisanal fleets

ANNEXES TO THE SUMMARY REPORT OF THE EUROPEAN UNION

ANNEX 1 EU-FRANCE: NATIONAL REPORT TO THE SCIENTIFIC COMMITTEE OF THE INDIAN OCEAN TUNA COMMISSION, 2022

ANNEX 2 EU-SPAIN NATIONAL REPORT TO THE SCIENTIFIC COMMITTEE OF THE INDIAN OCEAN TUNA COMMISSION, 2022

ANNEX 3 EU-PORTUGAL NATIONAL REPORT TO THE SCIENTIFIC COMMITTEE OF THE INDIAN OCEAN TUNA COMMISSION, 2022