Seychelles National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2024

Seychelles Fisheries Authority, Fishing Port, Victoria, Seychelles

INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

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 2024, final data for the 2023 calendar year must be provided to the Secretariat by 30 June 2024)	YES 30/06/2024
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 2024, preliminary data for the 2023 calendar year were provided to the IOTC Secretariat by 30 June 2024). **REMINDER:** Final longline data for the previous year are due to the IOTC Secretariat by 30 Dec of the current year [e.g., for a National Report submitted to the IOTC Secretariat in 2024, final data for the 2023 calendar year must be provided to the Secretariat by 30 December 2024).	YES 30/06/2024
If no, please indicate the reason(s) and intended actions:	

Executive Summary

In 2023, the Seychelles' fishing fleet experienced notable changes, particularly the industrial longline fleet, which was significantly reduced, with registered vessels dropping from 58 in 2022 to 34 in 2023. Despite this reduction, the total catch decreased by only 3% to 9,627 metric tons (MT), with a higher catch rate of 0.48 MT per 1,000 hooks, up from 0.36 MT in 2022. Meanwhile, the semi-industrial longline fleet expanded to 66 licensed vessels, the largest since the fishery began. This fleet achieved a 22% increase in total catch, reaching 2,536 MT, driven by a 29% rise in fishing effort.

The purse seine fleet reported an estimated total catch of 121,200 MT in 2023, maintaining stability compared to 120,642 MT in 2022. However, there was a marked increase in fishing effort, with 3,727 fishing days recorded, a 27% rise from the previous year. Skipjack tuna continued to dominate the catch composition, representing 66%, followed by yellowfin tuna (23%) and bigeye tuna (9%). A 9% reduction in yellowfin tuna catches was recorded for this fleet in 2023.

The Seychelles Fishing Authority has undergone significant legislative reforms, with the Seychelles Fisheries Authority Act 2024 coming into effect. The Act renamed the Authority to the Seychelles Fisheries Authority, in line with its expanded mandate, which includes fishing-related activities, particularly aquaculture and port management. Additionally, the Fisheries and Aquaculture Bill 2023, designed to address gaps in previous legislation and align with international standards such as UNCLOS and the IOTC, is in its final stages of revision for anticipated enactment in 2025.

Efforts to enhance data collection and monitoring also advanced. Observer coverage resumed to near-normal levels following covid-19 pandemic disruptions. Projects on Electronic Monitoring and Electronic Reporting are progressing well. These developments, coupled with Seychelles' commitment to implementing IOTC recommendations and Conservation and Management Measures (CMMs), underscore the nation's commitment for sustainable fisheries management and adaptation to emerging challenges.

Contents

1. BACKGROUND/GENERAL FISHERY INFORMATION

The Republic of Seychelles is an archipelago of around 115 islands scattered over an exclusive economic zone of 1.37 million km2 in the WIO. Typical of small island developing states, marine resources are of significant social, economic and cultural importance. Beyond tourism, the country has limited opportunities for land-based development, making the fishing industry a crucial driver of economic growth. Its economic significance stems from its roles in employment creation, production and food security, income generation, trade, foreign exchange earnings, and government revenue.

Since the mid-1980s, Seychelles has granted access to foreign-flagged vessels to fish for tuna and tuna-like species within its Exclusive Economic Zone (EEZ) through various access agreements. Seychelles-registered vessels began operations in 1997, initially as purse seiners, followed by the introduction of industrial longliners in 1999. A semi-industrial fresh tuna longline fleet also commenced operations in 1995. While artisanal and recreational fisheries do not primarily target tuna and tuna-like species, they do capture a small amount as bycatch. In contrast, sport fishing does target these species, albeit in very limited quantities.

The Seychelles Fisheries Authority (SFA), established in 1984 to develop the fishing industry sustainably, has undergone significant updates with the Seychelles Fisheries Authority Act 2024, which came into force on 29 July 2024. This Act renamed the Authority as the Seychelles Fisheries Authority to reflect its expanded mandate, incorporating fishing-related activities and aquaculture, and granted new powers to formalize port management agreements. Complementing this, the Seychelles Fisheries and Aquaculture Bill 2023 addresses gaps in the Fisheries Act 2014 by better aligning with international standards from UNCLOS, UNFSA, and the FAO, enhancing provisions for binding conservation measures under the IOTC, and revising fine levels. Initially gazetted in November 2023, the Bill is being refined for republication following feedback from the National Assembly

In fulfilling its mandate, the SFA has implemented data collection programs, primarily focusing on collecting catch and effort data through a logbook system, along with port sampling programs to gather data on transshipments, landings, size frequencies, and species composition.

Port Victoria serves as the home base for the Western Indian Ocean (WIO) purse seine fleet and the locally-based semi-industrial fresh tuna longline fleet, ensuring nearly 100% coverage of these fleets' activities. In contrast, distant-water industrial longline vessels rarely use Port Victoria for transshipments, making it challenging to collect comprehensive logbook data, transshipment and landing records, and size frequency data. However, with the introduction of new administrative procedures in 2023, these vessels are now required to call at Port Victoria at least twice a year, primarily for annual compliance inspections.

The artisanal fishery is monitored by enumerators stationed at various landing sites across the islands, with additional technicians assigned to collect catch and size data during major sport fishing competitions. Seychelles also participates in the regional Observer Scheme, which monitors transshipments at sea by industrial longline vessels onto carrier vessels, with independent observers onboard carrier vessels recording all transshipment activities. Additionally, Seychelles has implemented a human observer program for its purse seine fleet and a self-reporting program for size data on the industrial longline fleet.

The project to implement Electronic Monitoring System and Electronic Reporting system on its fleet targeting tuna and tuna-like species in the IOTC area of competence in order to enhance reporting and improve data quality is ongoing.

The Seychelles National Report summarizes the activities for its relevant fishing fleets operating within the IOTC area over the past five years. It also highlights research, data collection efforts, and actions taken in 2023 to implement IOTC Scientific Committee recommendations and Conservation and Management Measures (CMMs).

2. FLEET STRUCTURE

Table 1a presents the number of Seychelles purse seiners, supply vessels, and both industrial and semi-industrial longliners from 2019 to 2023. Over this period, the number of Seychelles-registered purse seiners remained constant at 13, while the number of supply vessels declined from six to three. In contrast, the number of Seychelles-registered longliners dropped from 59 vessels in 2019 to 34 in 2023. Meanwhile, there was an upward trend in the number of semi-industrial fresh tuna longline vessels, increasing from 36 vessels in 2019 to 66 in 2023. It should be noted, however, that only 37 of these semi-industrial fresh tuna longline vessels were authorized to operate beyond national jurisdiction and were thus listed on the IOTC Record of Authorized Vessels (RAV) in 2023.

Table 1a. Number of Seychelles registered vessels for the period 2019 – 2023

Year	Purse Seiners	Supply Vessels	Industrial Longliners	Semi-industrial Longliners
2019	13	6	57	36
2020	13	5	62	45
2021	13	4	64	41
2022	13	4	58	56
2023	13	3	34	66

Table 1b. Seychelles registered vessels by size (GT) as reported to IOTC in 2023

GT	Purse Seiners	Supply Vessels	Industrial Longliners	Semi-industrial Longliners
<50	-	-	-	37
51-100	-	-	-	-
101-500	-	3	27	-
501-1000	-	-	7	-
>1000	13	-	-	-

3. CATCH AND EFFORT (BY SPECIES AND FISHERY)

3.1. Purse Seine Fishery

Table 2a summarizes the total annual catches by species, fishing effort and catch rates for the Seychelles purse seine fleet reported over the 2019 to 2023 period. Over these five years, catches remained steady in 2019 and 2020, averaging to 112,426 MT. In 2021, the catch increased by 9% to 122,885 MT and has since then remained constant with the catches for the year 2023 estimated at, 121,200 MT (Table 2a and Figure 1a).

Fishing effort, measured in fishing days, rose by 10% in 2020 before gradually declining through 2022. In 2023, however, effort surged by 27%, reaching 3,727 fishing days, up from 2,934 in 2022 (Table 2a).

Historically, skipjack tuna has dominated the catches of Seychelles' purse seiners in the Western Indian Ocean (WIO), and this trend continued in 2023, with skipjack accounting for 66% of the total catch. Yellowfin and bigeye tuna comprised 23% and 9% of the catch, respectively. Compared to the previous year, yellowfin tuna catches decreased by 9%, from 30,978 MT to 28,329 MT in 2023, while catches of bigeye and skipjack tuna rose by 9% and 2%, respectively (Figure 1a). The catch rate declined from 38.54 MT per fishing day in 2019 to 34.84 MT per fishing day in 2020, then increased to 41.12 MT per fishing day in 2022. However, in 2023, the catch rate fell to 32.52 MT per fishing day, the lowest recorded during the review period.

It is important to note that since 2021, data processing has not used the T3 Software due to technical issues. Instead, data relies on logbook declarations extrapolated to estimate total landings and transshipments, without the species composition adjustments previously applied. Consequently, observed changes in species composition may be attributed to this new data processing method rather than actual shifts in fishing practices.

Table 2a. Annual catch (MT), fishing effort (Fishing days) and catch rates (MT/Fishing Day) estimated for Seychelles purse seine fishery operating in the IOTC area of competence, during the period 2019 -2023.

Year	Days Fished	Catch Rate	YFT	SKJ	BET	ALB	NEI	Total
2019	2,922	38.54	33,006	72,917	6,538	14	146	112,621
2020	3,221	34.84	30,502	75,486	5,893	8	342	112,231
2021	3,027	40.60	29,407	81,390	11,230	29	829	122,885
2022	2,934	41.12	30,978	78,250	10,074		1340	120,642
2023	3,727	32.52	28,329	79,792	10,972	14	2,093	121,200

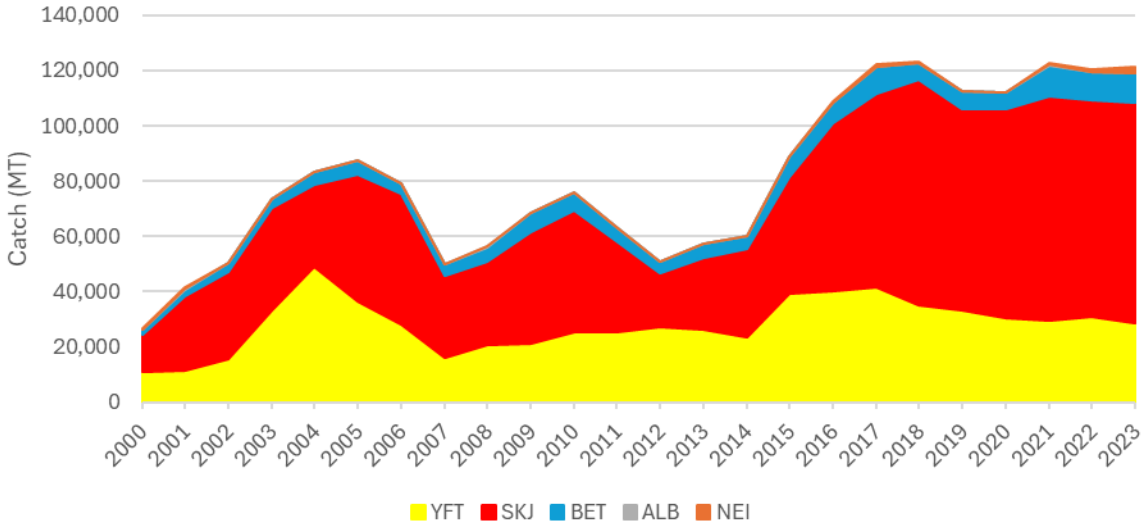


Figure 1a. Historical annual catch for the Seychelles' purse seine fishery for primary species, for the IOTC area of competence for the period 2000-2023

Figure 2a. Map of the distribution of fishing effort, by Seychelles' purse seine fishery in the IOTC area of competence (2023).

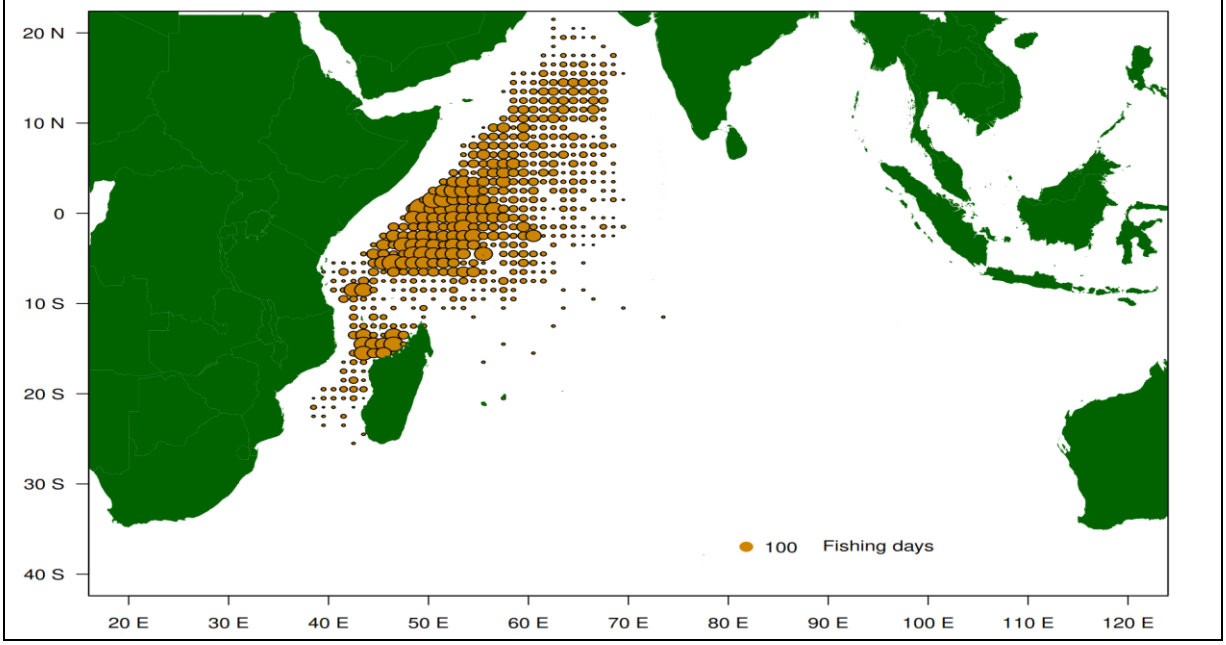


Figure 2b. Map of the distribution of fishing effort, by Seychelles' purse seine fishery in the IOTC area of competence (average, 2019–2023).

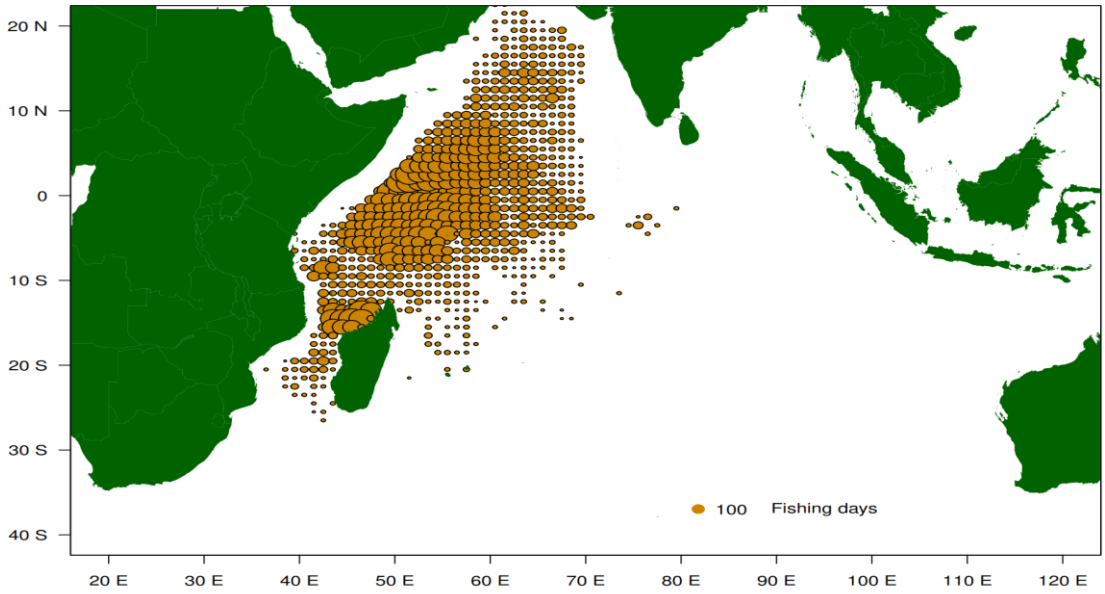


Figure 3a. Map of the distribution of catch, by Seychelles' purse seine fishery in the IOTC area of competence (2023).

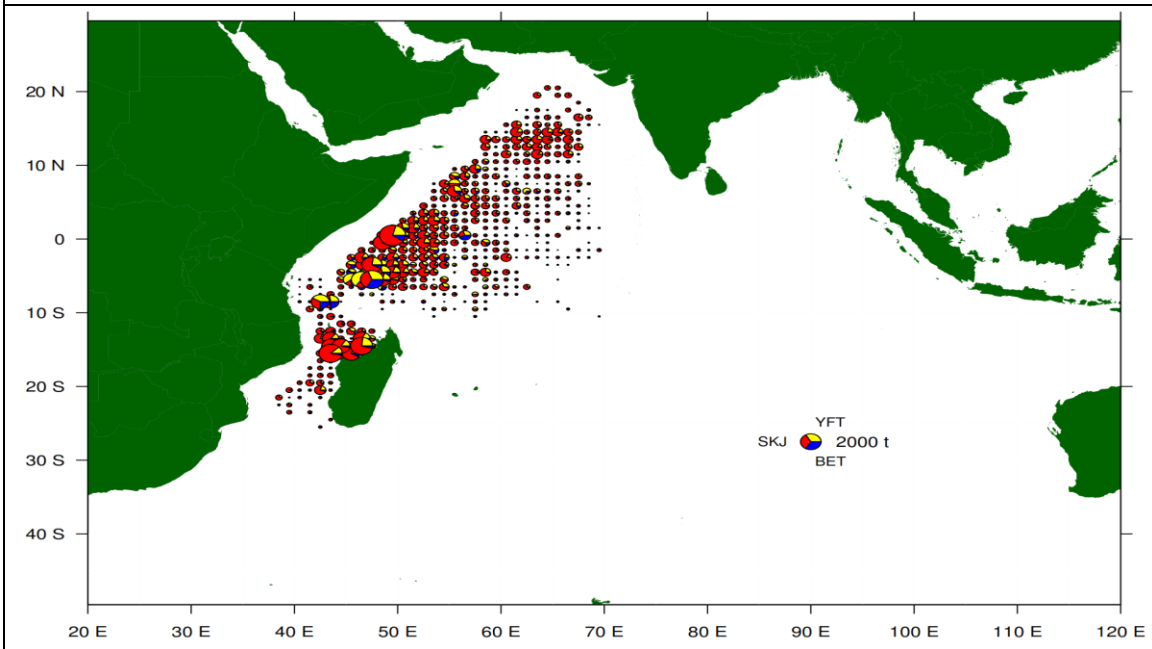
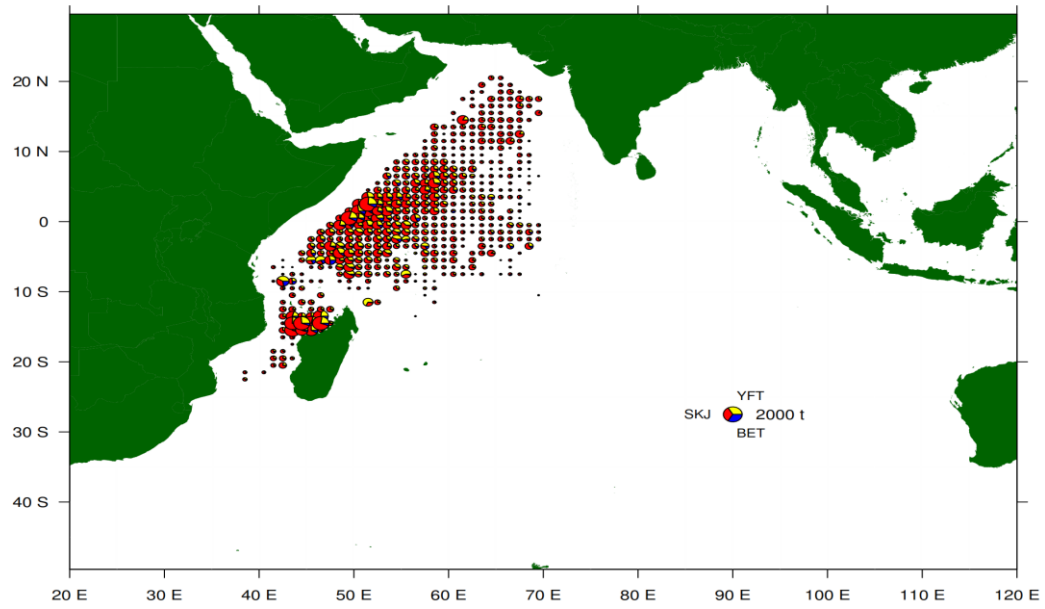


Figure 3b. Map of the distribution of catch, by Seychelles' purse seine fishery in the IOTC area of competence (average, 2019–2023).



3.2. Industrial Longline Fishery

Table 2b summarizes the annual catch by species, fishing effort, and catch rates reported by the Seychelles industrial longline fleet from 2019 to 2023. Fishing effort, measured by the number of hooks used, has declined steadily, dropping from 40.6 million hooks in 2020 to 27.8 million hooks in 2022. In 2023, this effort decreased further by 28%, reaching 20.1 million hooks.

The total catch has also shown a downward trend, falling from an estimated 22,866 MT in 2019 to 9,898 MT in 2022. In 2023, the Seychelles industrial longliners reported a total catch of approximately 9,627 MT, a slight 3% decrease compared to 2022. Catch rates for the Seychelles longline fleet have generally declined since 2019, dropping from 0.58 MT per 1,000 hooks in 2019 to 0.36 MT per 1,000 hooks in 2022. However, in 2023, the catch rate increased to 0.48 MT per 1,000 hooks.
It must be noted that there has been a significant decline in the number of registered industrial tuna longliners, from 64 in 2021 to 34 in 2023 (table 1.a).

Between 2019 and 2020, yellowfin tuna dominated the fleet's catch, however bigeye tuna has since become the dominant species. In 2023, bigeye tuna accounted for the largest share of the catch with an estimated 3,533 MT, representing 37% of the total catch. This was followed by yellowfin tuna at 34% and the NEI category (primarily oilfish, albacore, and sailfish) at 17%. While catches for most species declined in 2023 compared to the previous year, yellowfin tuna and the NEI category saw increases. Yellowfin tuna catch rose by 15%, from 2,894 MT in 2022 to 3,320 MT in 2023, whereas bigeye tuna catches decreased by 9%, from 3,882 MT to 3,533 MT. This may be attributed to the fact that the yellowfin quota allocated to the industrial longline fleet in 2023 was 3500 compared to 3000 in 2022.

Table 2b. Annual catch (MT), fishing effort (Fishing days) and catch rates (MT/1000 million hooks) estimated for the Seychelles industrial longline fishery operating in the IOTC area of competence, during the period 2019 -2023.

Year	Fishing Effort (million hooks)	Catch Rate (MT/1000 hooks)	YFT	BET	SWO	MAR	SHK	NEI	TOTAL
2019	39.15	0.58	8,978	5,265	2,090	753	1,293	4,486	22,866
2020	40.55	0.55	7,775	7,391	1,721	654	904	4,025	22,469
2021	39.86	0.36	3,064	5,826	1,100	408	578	3,550	14,526
2022	27.75	0.36	2,894	3,882	780	338	416	1,589	9,898
2023	20.10	0.48	3,320	3,533	588	258	292	1,637	9,627

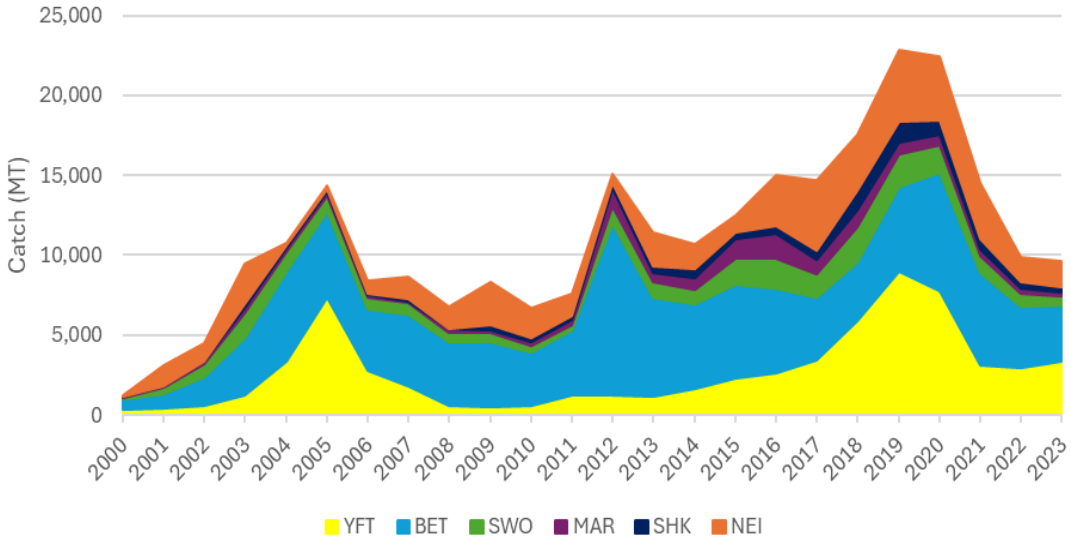


***Figure 1b**. Historical annual catch for the Seychelles' purse industrial longline fishery by primary species, for the IOTC area of competence for the period 2000-2023*

Figure 2C. Map of the distribution of fishing effort, by Seychelles' industrial longline fishery in the IOTC area of competence (year 2023)

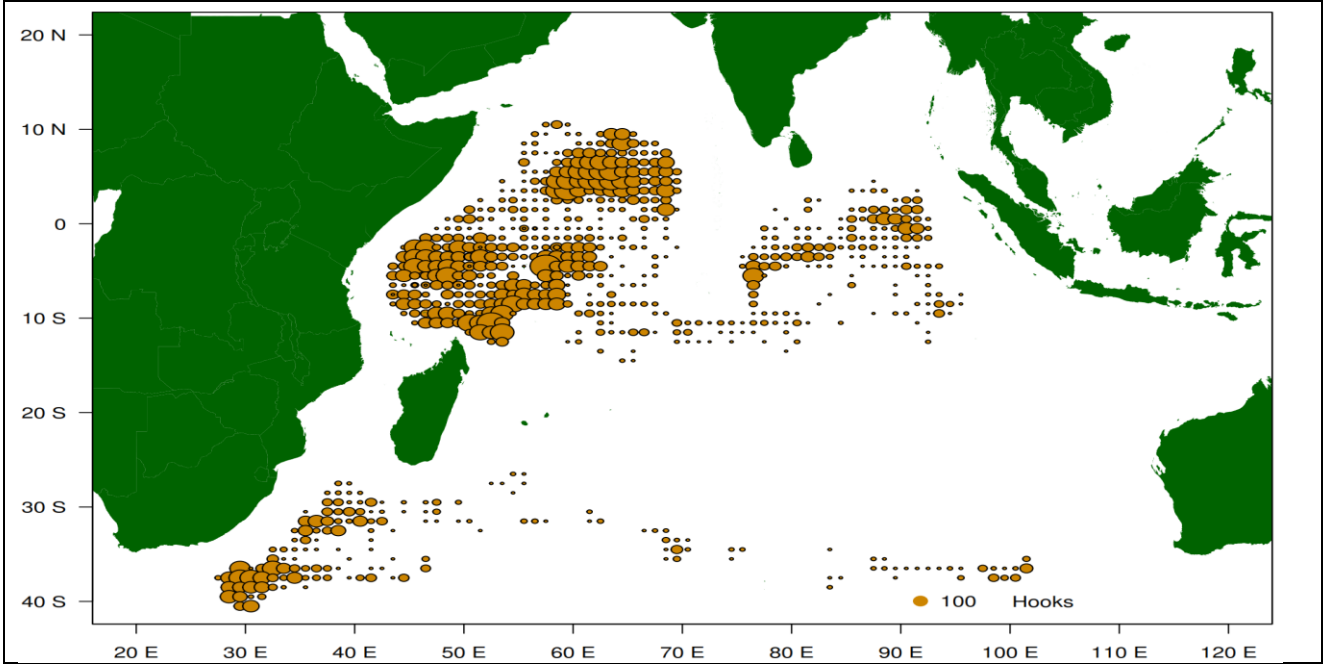


Figure 2d. Map of the distribution of fishing effort, by Seychelles' industrial longline fishery in the IOTC area of competence (average , 2019–2023).

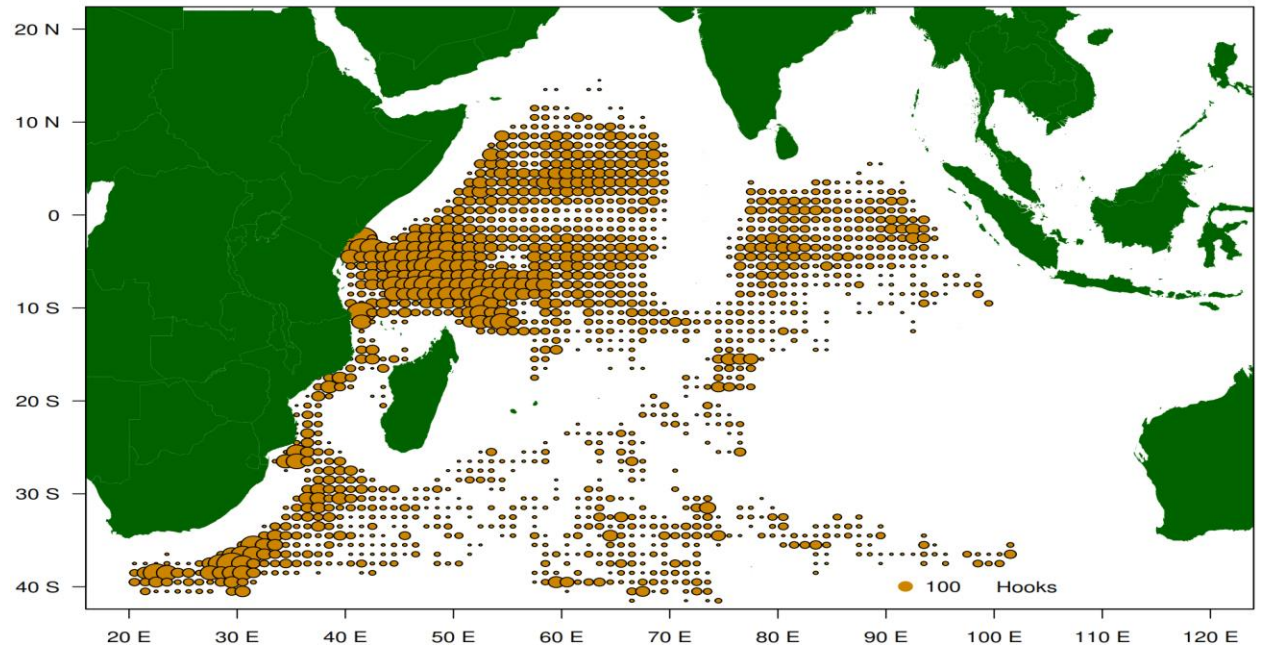


Figure 3c. Map of the distribution of catch, by Seychelles' industrial longline fishery in the IOTC area of competence (2023).

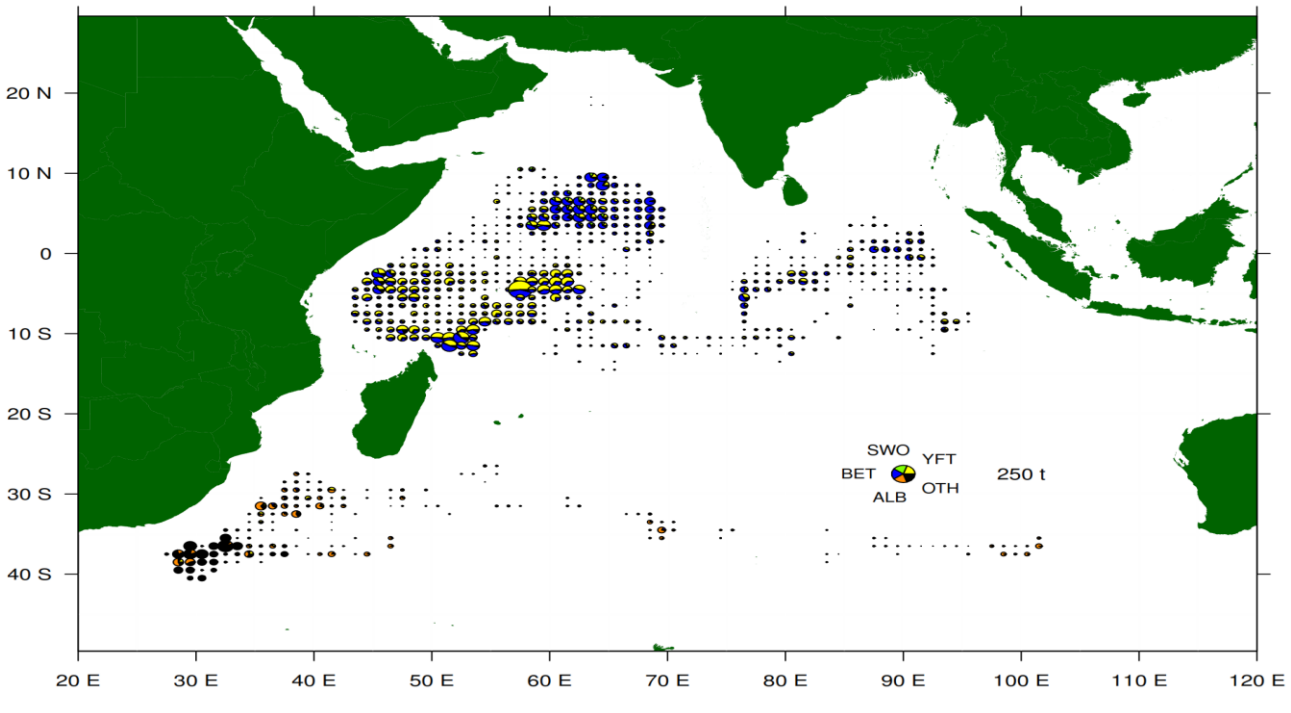
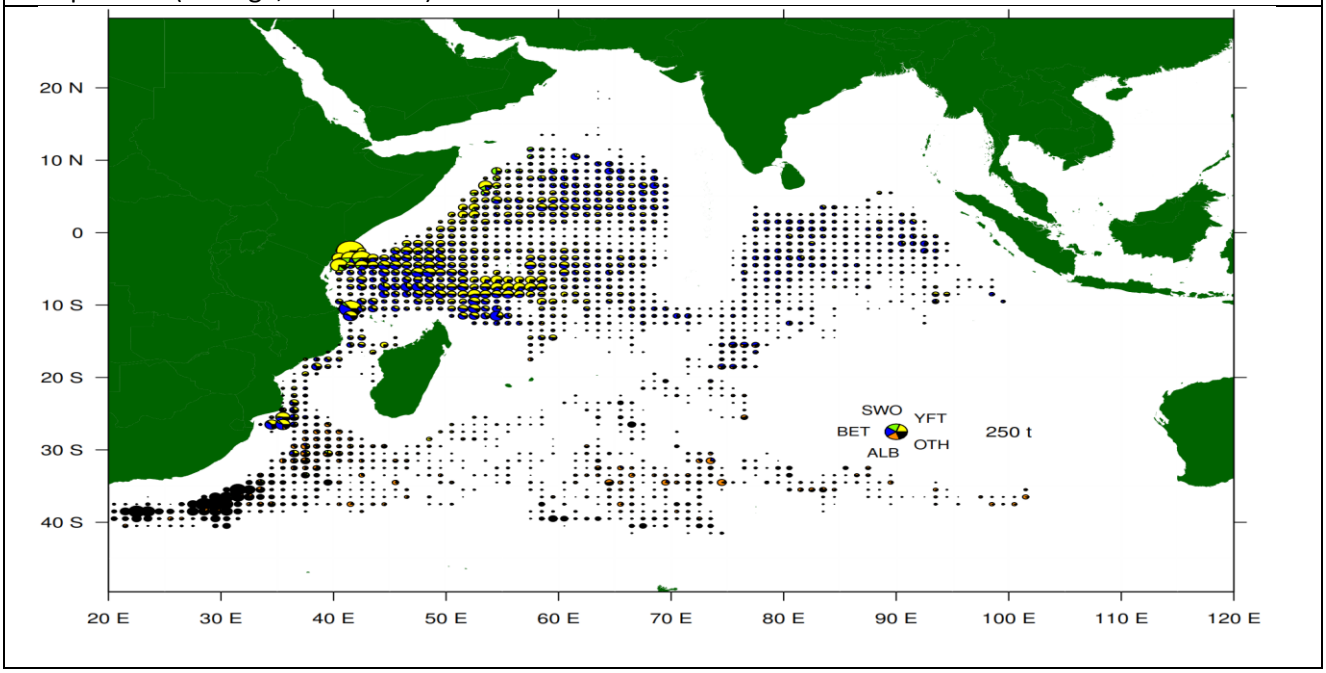


Figure 3d. Map of the distribution of catch, by Seychelles' industrial longline fishery in the IOTC area of competence (average, 2019–2023).



3.3. Semi-industrial (Small Scale) Fresh Tuna Longliners.

Table 2c summarizes the fishing activities of the Seychelles semi-industrial longline fleet from 2019 to 2023. In 2020, total catch declined by 26% to 1,485 MT due to the impacts of the covid-19 pandemic. Border closures limited export opportunities, prompting some vessels to shift their focus to targeting demersal species for the local market. Since then, catches in the semi-industrial longline fishery have shown a steady increase, reaching 2,536 MT in 2023, an increase of 22% compared to 2022 (Figure 1c).

A similar trend has been observed in fishing effort by the semi-industrial longliners, whereby, following a 20% reduction in number of hooks sets in 2020, it has been on an upward trend to reach a total of 4.96 million hooks in 2022 representing a significant increase of 95%. This remarkable increase in fishing effort is attributed to the increase in number of vessels licensed, which increased from 41 vessels in 2021 to 56 vessels in 2022. During year 2023, the fishing effort continue to increase to reach 6.39 million hooks set with 66 licensed fishing vessels.

A similar trend has been observed in the fishing effort of the semi-industrial longline fleet. Following a 20% reduction in the number of hooks set in 2020, fishing effort has since been on an increasing trend, reaching 4.96 million hooks in 2022, a significant 95% increase. This marked rise in fishing effort is largely due to the increase in the number of licensed vessels, which grew from 41 in 2021 to 56 in 2022. In 2023, fishing effort continued to increase, reaching 6.39 million hooks with 66 licensed vessels. From the year 2019 the catch rate estimated for the semi-industrial longline fleet, decreased from 0.79 MT/1000hooks to 0.40 MT/1000 hooks in the year 2023 (table 2c).

Since 2015, yellowfin tuna has been the dominant species caught by this fleet. This trend continued during 2023, whereby yellowfin tuna accounted for 94% of the total catch, followed by swordfish at 2%.

Table 2C. Annual catch(MT), fishing effort (Fishing days) and catch rates (MT/1000 million hooks) estimated for the semi-industrial longline fishery operating in the IOTC area of competence, during the period 2019 - 2023.

Year	Fishing Effort (million hooks)	Catch Rate (MT/1000 hooks)	YFT	BET	SWO	SFA	MAR	SHK	NEI	TOTAL
2019	2.55	0.79	1507	119	313	13	55	0	2	2,008
2020	2.03	0.73	1,277	55	135	3	7	0	7	1,485
2021	2.76	0.64	1,572	50	99	17	14	1	7	1,758
2022	4.96	0.42	1,920	20	72	14	28	10	9	2,073
2023	6.39	0.40	2,376	34	60	15	34	10	7	2,536

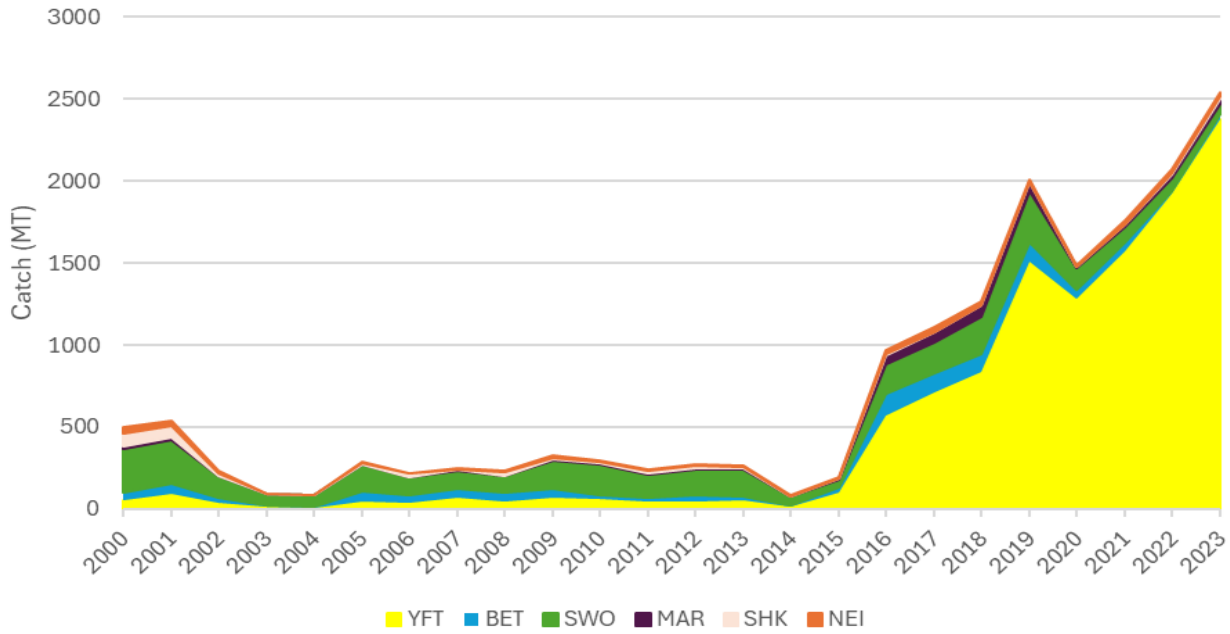


Figure 1c. Historical annual catch for the Seychelles' semi-industrial fishery by primary species, for the IOTC area of competence for the period 2000-2023

4. RECREATIONAL FISHERY.

There is an important recreational fisheries subsector active mostly on weekends and in the evenings. These recreational fishers utilize mostly handline fishing techniques, targeting demersal species such as groupers, snappers and lethrinids, and semi-demersal species such as carangids and sphyraenids. Tuna and tuna-like species are not targeted by the recreational fishery sector, however a limited quantity of such species is taken as bycatch.

At present, there are no data collection programs for the recreational and sport fishing sub-sectors. However, the development of a licensing framework for these fisheries is underway. Once finalized and implemented, it will introduce mandatory reporting requirements as part of the license conditions. This will significantly improve the collection of relevant data, enhancing the monitoring and management of these sub-sectors.

The Seychelles Fisheries Authority conducted a boat frame survey for the coastal fleet from August to October 2023. However, due to the unavailability of boat owners during this period, the survey for the recreational and sport fishery was extended to December 2023. The upcoming Boat Frame Survey report, which will be available in 2025, will provide the number of vessels currently involved in sport and recreational fisheries.

5. ECOSYSTEM AND BYCATCH ISSUES

The Seychelles Fisheries Authority in collaboration with stakeholder in the purse seining industry is implementing a FAD-Watch project to prevent and mitigate, at the maximum level possible the stranding and entanglement of drifting Fish Aggregating Devices (dFADs) in coral reefs, shallow water habitats and coastal zones of Seychelles. Four dFAD recovery cruises were conducted during 2023 and 2024 (up to November), where over 100 stranded/beached dFADs were recovered. The data collected is currently being analysed and a paper will be presented at the IOTC working party on FAD in 2025.

5.1. Sharks

The (Shark Finning) Regulation, 2006 place restrictions on the removal of fins of all species of shark on-board all fishing vessels, of a total length of 24 metres and above, licensed to fish in our EEZ, and onboard all Seychelles registered vessels of the same category, fishing within the Seychelles waters and beyond.

In accordance IOTC resolution 17/05; Seychelles prohibits the removal of shark fins from fresh shark on board its vessels as well as the landing, retention on-board, transhipment and carrying of shark fins which are not naturally attached to the fresh shark carcass until the first point of landing. Furthermore, for frozen shark, for safety purpose fins can be removed, however a ratio of not more that 5% in weight of shark fins to weight of shark carcasses without fins must be respected at all times on-board all Seychelles industrial longline fishing vessels greater than 24 meters in length, up to first point of landing. The implementation of those two requirements as well as other requirements related to sharks, is through the conditions of the Certificate of Authorisation. The domestication of IOTC Conservation and Management Measures is being addressed through the Fisheries and Aquaculture Bill 2023, which is anticipated to be enacted in 2025.

5.1.1. NPOA sharks

The Seychelles Fisheries Authority reviewed its National Plan of Action for the Conservation and Management of Sharks (NPOA) 2016–2020 and concluded that most work programs remain relevant. Consequently, the plan's timeline was extended to cover 2021–2025. A comprehensive revision is planned for 2025, after which a new NPOA will be submitted to the IOTC Secretariat.

5.1.2. Sharks Survey in the artisanal fishery

The Seychelles Fisheries Authority with the support of Seychelles Conservation and Climate Adaptation Trust (SeyCCAT), undertook an intensive 12-month survey of the artisanal catch on the island of Mahé to assess the occurrence of sharks and rays in the artisanal fishery and to understand shark catch composition for that fishery. This project builds on a 2013 survey supported by UNDP-GEF, which provided insights into potential trends of shark catches in the artisanal fishery over the past decade. The 2023 artisanal elasmobranch catch survey recorded 4,128 specimens in total, consisting of 17 species of shark, 1 species of guitarfish and 7 species of ray, (**table 2d. and table 8a.**). Comparing the 2023 shark catch data to 2013, the diversity was significantly lower in 2023.

Table 2d. Shark species recorded during artisanal fishery catch survey

Scientific name	English	Number	% of total
Carcharhinus albimarginatus	Silvertip shark	95	2.3
C. amblyrhynchos	Grey reef shark	1211	29.3
C. brevipinna	Spinner shark	68	1.6
C. falciformis	Silky shark	1	< 0.1
C. leucas	Bull shark	62	1.5
C. limbatus	Blacktip shark	650	15.7
C. melanopterus	Blacktip reef shark	6	0.1
C. plumbeus	Sandbar shark	3	0.1
C. sorrah	Spottail shark	829	20.1
Galeocerdo cuvier	Tiger shark	10	0.2
Hemipristis elongata	Snaggletooth shark	7	0.2
Loxodon macrorhinus	Sliteye shark	1	< 0.1
Negaprion acutidens	Sicklefin lemon shark	17	0.4
Sphyrna lewini	Scalloped hammerhead	977	23.7
S. mokarran	Great hammerhead	99	2.4
S. zygaena	Smooth hammerhead	1	< 0.1
Triaenodon obesus	Whitetip reefshark	11	0.3
	Total	**4048**	

5.1.2. Blue shark

Seychelles has revised the logbook for its industrial and semi-industrial longline fleet targeting tuna and tuna-like species in the IOTC area of competence to cater for recording catches and interactions with blue sharks. The relevant data are submitted to the IOTC secretariat as per the relevant timeline and are summarized by relevant fisheries in table 3a, 3b and table 4 below.

Table 3a: *Total number and weight (MT) of sharks, by species, retained by the Seychelles Industrial longline fleet in the IOTC area of competence (2019-2023).*

Year	Blue shark		Hammerhead sharks		Mako sharks		Porbeagle		Silky shark		Thresher sharks		Tiger shark		Total Catch	
	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT
2019	24,034	1,014	0	0	3,370	153	0	0	4,147	112	0	0	246	9	31,797	1,288
2020	16,482	707	8	0.12	2,539	108	0	0	2,931	89	0	0	1	0.02	21,961	904
2021	10,634	462	0	0	1,379	64	0	0	1,852	53	0	0	0	0	13,865	579
2022	7,601	343	0	0	798	39	1	0.04	1,404	33	0	0	0	0	9,804	415
2023	4,867	232	0	0	692	31	0	0	1,142	29	6	0.1	0	0	6,707	292

Table 3b: *Total number and weight of sharks, by species, retained by the Seychelles semi- Industrial Longline fleet in the IOTC area of competence (2019–2023).*

Year	Blue shark		Mako sharks		Oceanic whitetip Shark		Hammerhead sharks		Tiger sharks		Various Sharks NEI		Porbeagle		Total Catch	
	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT
2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2021	3	0.1	5	0.1	4	0	0	0	3	0.1	5	0.2	3	0.1	23	0.6
2022	92	4.2	30	0.7	0	0	2	0	0	0	128	4.7	0	0	252	9.6
2023	128	3.5	35	0.7	0	0	6	0.1	6	0.1	153	5.4	5	0.2	333	10.1

Table 4: *Total number of sharks, by species, released/discarded by the Seychelles Industrial Longline fleet in the IOTC area of competence (2022–2023).*

			Discarded Status			
Year	**Species Code**	**Scientific Name**	**Alive**	**Dead**	**Unknown**	**Grand Total**
2022	BSH	Blue shark	1259	1177		2,436
	MAK	Mako sharks	73	69		142
	THR	Thresher sharks nei	12	7		19
	SPN	Hammerhead sharks nei	2	2		4
	FAL	Silky shark	36	46		82
Total			**1,382**	**1301**		**2,683**
2023	BSH	Blue shark	765	561	**19**	1,345
	MAK	Mako sharks	27	33		60
	THR	Thresher sharks nei	42	5		47
	SPN	Hammerhead sharks nei	1			1
	FAL	Silky shark	90	62	**1**	153
	POR	Porbeagle		2		2
Total			**925**	**663**	**20**	**1,608**

5.2. Seabirds

In 2023, Seychelles through the Ministry of Fisheries and the Blue Economy (MOFBE) and the Seychelles Fisheries Authority (SFA), undertook an assessment of the population status of seabird species which are most vulnerable to the Seychelles longline fishery and propose measures for bycatch mitigation. This assessment is phase 1 of the process to develop a Seabird NPOA for Seychelles. The finding of this current assessment will be incorporated in the National Plan of Action for minimising incidental catch of seabirds in the Seychelles' longline fisheries which is expected to be completed in 2025.

Since logbook were revised in 2018 to cater for the recording of interaction of the Seychelles industrial longline fleet with seabirds, the Seychelles Fisheries Authority has been compiling data on seabirds' interaction which are summited to the IOTC secretariat annually. The information is summarised in table 5a. To complement data obtained from logbook, Seychelles is progressively implementing an EMS programme on all its tuna fishing vessels operating in the IOTC area of competence.

Longline fleets which operate South of 25°S employ current seabird mitigation measures such as tori lines, weighted branch lines, and bird scaring devices. This is a crucial component during compliance inspections to ensure adherence to seabird conservation measure. Table 5b summaries industrial longliners operation South of 25 °S in the Indian Ocean, showing significant reduction of activities in this area.

Table 5a. Total number of seabird, released/discarded by the Seychelles Industrial Longline fleet in the IOTC area of competence (2019–2023).

Year	Species	Alive	Dead	Unknown	Grand Total
2019	**Seabird NEI**	110	124		234
2020	**Seabird NEI**	228	108	1	337
2021	**Seabird NEI**	55	79		134
2022	**Seabird NEI**	83	26		109
2023	**Seabird NEI**	29	14		43

Table 5b: Number of longline fishing vessel operating south of 20 degrees south in the WIO and their corresponding fishing effort (2019 – 2023).

Year	Number of Vessels	Fishing Effort (Number of Hooks)
2019	23	10,181,135
2020	19	8,083,483
2021	24	7,796,082
2022	9	3,857,617
2023	7	3,234,285

5.3. Marine Turtles

Similarly to seabirds, the logbook revision undertaken in 2018, also catered for the recording of interaction of the Seychelles industrial longline fleet with marine turtles. The information is compiled and summited to the IOTC secretariat annually. The information is summarised in table 5c. For the purse seine fleet, data are captured via logbook and through human Observer and EM on some vessels. Observer data are not available

currently due to technical problems. We are working in collaboration with other research institutes to address those technical problems in early 2025.

Table 5c: Total number of marine turtle, released/discarded by the Seychelles Industrial Longline fleet in the IOTC area of competence (for the period 2022–2023)

Year	Species	Alive	Dead	Unknown	Grand Total
2019	**Marine Turtle**	90	10	1	101
2020	**Marine Turtle**	78	28		106
2021	**Marine Turtle**	57	11		68
2022	**Marine Turtle**	95	8		103
2023	**Marine Turtle**	24			24

5.4 Other ecologically related species (e.g., cetaceans, mobulid rays, whale sharks)

There was no reported interaction with whale shark and cetacean on logbook during 2023. There were a total 19 interaction recorded for mobuild rays.

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

6.1. LOGSHEET DATA COLLECTION AND VERIFICATION

A mandatory logbook system collecting catch and effort and other relevant data (such as bycatch, environmental data) exist for the following fisheries targeting tuna and tuna-like species.

I. Industrial longline: From early 80's to date 2 (averaging <70% annual coverage with 100% for
II. more recent years)
III. Industrial purse seine: 1984 to date (95 – 100% annual coverage)
IV. Semi-industrial longline: 1995 to date (95 – 100% coverage)

Logbooks are reviewed as and when required to cater for new obligations when they arise. Logbook data are validated with landing, transhipment, and VMS data when available. Scientific port sampling for size distribution and species composition exist for the Purse seine and semi-industrial longline fleet. The industrial longline fleet is covered via self-reporting (size distribution).

6.2. Observer scheme

Seychelles initiated its National Observer Programme in 2014, although at sea deployment only started in 2015. The initial phase consisted of capacity building for observers as well as for the coordination team. The NOP has a purely scientific objective. Two pieces of legislation mandate the implementation of national observer programme.

I. The Fisheries Act Revised Edition 2014: Part I – Preliminary; Paragraph 3 (Interpretations); Part V; enforcement measures, Sub-part 3;Other enforcement measures; Paragraph 56, (Establishment of Observer Programme).

II. The Fisheries Act Revised Edition 1991; Chapter 82 – Fisheries Regulations, Part II Fishing Vessels standard requirements; Paragraph 6, (Conditions of a Foreign Fishing Vessel Licence) Sub-paragraph (i).

Seychelles legislation establishes Seychelles Fisheries Authority as the authority responsible for the appointment and identification of Observers and Observer programme objectives.

Other mandates include RFMO's obligations, conditions under bilateral fishing agreements as well as international obligations.

During 2023, the Seychelles National Observer Programme resumed its normal operations following the interruptions brought about by the covid-19 pandemic. Deployments across Seychelles flagged purse seine vessels are going well with an overall coverage level of approximately 74%. The observer pool was slightly lower than the previous year, at 28 individuals as compared to 34 in 2022. There was a total of 103 trips of Seychelles flagged purse seine vessels which had an observer onboard and this figure accounts for 2992 days at sea. Observers covered an additional 16 trips onboard Seychelles-flagged supply vessels. In terms of the data records under the program, the lag between the database figures and the actual deployment figures for 2019-2023 is still visible. The SFA has made considerable progress in our efforts regarding compilation and dissemination of observer data. Having re-established access to the central database, the process of data extraction has begun. The authority is hopeful that this will be resolved and finalised in early 2025 and will ensure that all the relevant data is submitted to the IOTC Secretariat once successfully retrieved and validated.

Table 6a. Figures based on datasets in central database.

YEAR	TRIPS	DAYS AT SEA	AVERAGE NO. OF DAYS AT SEA	NO. OF OBSERVERS
2019	**94**	**2733**	**29.1**	**31**
2020	**44**	**1268**	**20**	**18**
2021	**44**	**1299**	**29.5**	**15**
2022	**99**	**2551**	**25.8**	**34**
2023	**103 (74%)**	**2992 (80%)**	**29**	**28**

Figure 4. Map showing the spatial distribution of observer coverage.

As highlighted above, technical difficulties with data extraction scripts are preventing the Seychelles Fisheries Authority from processing observer data and producing observer reports. However, the process to revise and update the script for compatibility with the new IOTC format has been initiated and is expected to be completed by early 2025. All outstanding data and reports will be submitted to the IOTC Secretariat at that time.

6.3. Port sampling programme

Port sampling is a routine and ongoing activity for the purse seine and semi-industrial longline fleet. On the other hand, the distant water industrial longline fleet does not land in Port Victoria. Hence there are currently no port sampling programmes for those vessels. However, a self-sampling programme is being implemented, whereby size frequency data are being recorded by the crew and transmitted to the Seychelles Fisheries Authority. Size Frequency data for all the fleet are submitted to the secretariat on annual basis and are summarized in table 7a, 7b, 7c and 7d according to the respective fishery.

Table 7a. *Number of vessel trips monitored, by species (Number) for the Seychelles Purse seine fleet. for the period 2019 to 2023*

Year	Number Trips	ALB	BET	FRI	KAW	BLM	SKJ	YFT	CNT
2019	73		9,222	3,026	10	4	136,642	45,332	
2020	22		3,058	434			42,924	11,213	
2021	55		5,550	2,196			111,644	29,999	
2022	84		6,403	2,905			122,845	40,156	
2023	112	35	6,540	5,525	34		104,102	32,324	3

Table 7b. *Number of individuals fish measured for Seychelles registered purse seiners for the period. 2019 to 2023*

Year	ALB	BET	FRI	KAW	BLM	SKJ	YFT	CNT
2019		9,214	3,026	10	4	34,642	45,174	
2020		3,051	434			10,950	11,207	
2021		5,550	2196			27,400	29,974	
2022		6,403	2,905			28,995	40,131	
2023	35	6,540	5,525	34		26,015	32,324	3

Table 7c. *Number of individuals measured for Seychelles semi-industrial longliners for the period 2019 to 2023*

Year	BET	SWO	YFT	Total
2019	30	103	290	423
2020	212	235	841	1288
2021	17	28	407	452
2022	85	242	3166	3493
2023	52	164	2,293	2,509

Table 7d*. Number of individuals measured for Seychelles industrial longliners for the period 2019 to 2023*

Year	ALB	BET	BLM	BSH	BUM	MLS	SWO	YFT
2019	25,544	52,424	184	8,094	251	797	16,068	75,493
2020	14,107	45,336	150	3,850	260	688	8,621	42,727
2021	18,356	58,652	2,431	4,716	227	557	9,771	35,311
2022	10,398	47,293	2,801	4,650	112	370	9,057	26,526
2023	3,007	31,087	1,244	1,878	45	423	5,230	29,451

6.4. Actions taken to monitor catches & manage fisheries for Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish

Seychelles logbooks for data collection for all relevant fleets targeting tuna and tuna-like species in the IOTC area of competence make provision for reporting of catches and interactions with Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish. The relevant data are submitted to the IOTC secretariat as per the relevant timeline.

6.5. Gillnet observer coverage and monitoring

The gillnet fishery is restricted to coastal waters and target small pelagic such as sardinella and mackerels. Coverage is done through enumerators on landing sites.

6.6. Sampling plans for mobulid rays

The 2023 artisanal elasmobranch catch survey conducted in 2023 as highlighted under section 5.1.2, recorded 6 species of ray and 1 guitarfish, summarized below in table 8a.

Table 8a. Ray species recorded during artisanal fishery catch survey

Scientific name	English	Number	% of total
Aetobatus ocellatus	Ocellated eagle ray	283	72.0
Aetomylaeus vespertilio	Ornate eagle ray	4	1.0
Mobula alfredi	Reef manta ray	1	0.3
Mobula kuhlii	Shortfin devil ray	22	5.6
Pateobatis fai	Pink whipray	2	0.5
Rhinoptera jayakari	Oman cownose ray	1	0.3
Rhynchobatus australiae	Bottlenose wedgefish	80	20.4
	Total	**393**	

It is important to note that Seychelles has long outstanding commitments under the Convention on Migratory Species and the Indian Ocean Tuna Commission to protect mobulid rays (i.e. *Mobula kuhlii* and *M. alfredi* reflected in the catch during the survey conducted in 2023 and *M. mobular* that has been recorded in previous years). This is being addressed via national legislation through the Wildlife and Animal Protection (Amendment) Act. 2024, and the Fisheries and Aquaculture 2023 Bill, schedule to be enacted in 2025.
The sampling plan for mobulid rays is part of the sampling protocol for the artisanal fishery. This is presented as Annex I.

7. NATIONAL RESEARCH PROGRAMS

Currently there are no national research programmes being implemented which are relevant to tuna and tuna-like species.

7.1. National research programs on blue shark

Currently there are no national research programs on blue shark.

7.2. National research programs on Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish

An ongoing tagging programme is being implemented by Sport Fishing Club on Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish.

7.3. National research programs on sharks

Currently there are no national research programs on shark.

7.4. National research programs on oceanic whitetip sharks

Currently there are no research project on oceanic whitetip sharks.

7.5. National research programs on marine turtles

Turtle monitoring programs were implemented, starting in the early 1970s, throughout the country and proved to be a highly effective conservation tool. Today there are almost 20 such programmes operating in the Seychelles under relevant authorities and NGOs. Essentially the same monitoring protocols have been employed at all sites, which makes the data collected comparable for scientific analysis. This is reported annually as per the Reporting of progress of implementation of the FAO Guideline to Reduce Sea Turtle Mortality in Fishing Operation and on the implementation of resolution 12/04 on marine turtles.

7.6. National research programs on thresher sharks

Currently there are no research project on thresher sharks.

Table 6. Summary table of national research programs, including dates.

At present there are no relevant national research programme.

Project title	Period	Countries involved	Budget total	Funding source	Objectives	Short description

8. IMPLEMENTATION OF SCIENTIFIC COMMITTEE RECOMMENDATIONS AND RESOLUTIONS OF THE IOTC RELEVANT TO THE SC.

Table 9. Scientific requirements contained in Resolutions of the Commission, adopted between 2012 and 2023.

Res. No.	Resolution	Scientific requirement	CPC progress
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	Under the current fisheries legislation, it is illegal to fish, catch or kill green and hawksbill turtles. Several marine turtle monitoring programmes are coordinated by a number of different non-governmental organisations to monitor turtle population in Seychelles. Data collected from observer programme on tuna purse seiners are currently being analysed. A new logbook catering for the reporting of interaction has been introduced for the longline fleet.
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence	Paragraphs 4–8	Relevant fleet operators have been notified of the requirements of this resolution and thresher shark are not permitted to be retained. Implemented as Terms and condition of Certificate of Authorization as the domestication process of IOTC CMM's progress.
13/04	On the conservation of cetaceans	Paragraphs 7– 9	Implemented through the Certificate of Authorisation. The Authority has informed vessels owners and operators of this resolution and prohibits intentionally setting a purse seine net around any cetacean in the IOTC area of competence. Moreover, vessels owners have been instructed on the best practice guidelines for the safe release and handling of cetaceans, developed by the IOTC Scientific Committee, in case of incidental encirclement. It is also incorporated as term and condition on the Certificate of Authorization.
13/05	On the conservation of whale sharks (*Rhincodon typus*)	Paragraphs 7– 9	The Authority has informed vessels owners and operators of this resolution and prohibits intentionally setting a purse seine net around whale shark in the IOTC area of competence. Moreover, they have been instructed on the best practice guidelines for the safe release and handling of whale shark, developed by the IOTC Scientific Committee. It is also incorporated as term and condition on the Certificate of Authorization.
13/06	On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries	Paragraph 5–6	Implemented through Certificate of Authorisation. Revision of logbook to cater for the reporting of interactions with oceanic whitetip sharks.

Res. No.	Resolution	Scientific requirement	CPC progress
15/01	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–10	Seychelles has been annually providing the IOTC catch, and effort data collected through mandatory logbook system on its purse seine, industrial longline and semi-industrial longline fleets. Catch data for coastal fishery are collected through a catch assessment survey at all landing sites and are also provided to the secretariat in the required formats
15/02	Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)	Paragraphs 1–7	Seychelles has been annually providing Nominal Catch data as well as size frequency data to the IOTC for its purse seine, industrial longline, semi-industrial longline fleets and coastal fleets.
17/05	On the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 6, 9, 11	Shark fins requirements are implemented through Certificate of Authorization and enforced through port inspections. Currently there are no ongoing research programmes
18/02	On management measures for the conservation of blue shark caught in association with IOTC fisheries	Paragraphs 2-5	Revised logbook does cater for the reporting of capture and other interactions. See table 4 for reported catches. Relevant data are also reported to the IOTC secretariat annually. Currently there are no ongoing research programmes
18/05	On management measures for the conservation of the Billfishes: Striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7 – 11	Revised logbook does cater for the reporting of capture and other interactions. See table 4 for reported catches. Relevant data are also reported to the IOTC secretariat annually.
18/07	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraphs 1, 4	All relevant data including report of zero catches are reported annualy as per the established timeline.
19/01	On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence (*If not provided under Res 21/01 below*)	Paragraph 22	NA
19/03	On the Conservation of Mobulid Rays Caught in Association with Fisheries in the IOTC Area of Competence	Paragraph 11	Revised logbook does cater for the reporting of capture. See table 4 for reported catches. Relevant data are also reported to the IOTC secretariat annually
21/01	On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence (*If not provided under Res 19/01 above*)	Paragraph 23	The IOTC Secretariat was notified of the quota allocation framework put in place for the relevant fleet.
22/04	On a regional observer scheme	Paragraph 12	Seychelles exceed minimum requirement for coverage of the purse seine fleet. Outstanding data for the Purse seine fleet will be submitted to the IOTC secretariat in early 2025. Seychelles is developing EM System for its industrial

Res. No.	Resolution	Scientific requirement	CPC progress
			longline fleet. Routine in port observations is conducted for the semi-industrial longline fleet
23/07	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	Requirement is implemented through Certificate of Authorisation. Relevant data are submitted to the Secretariat annually as per established timeline. Annual inspection are conducted to ensure that vessels which intends to operate in seabirds hotspot carry onboard the necessary mitigating devices and equipment. The process to develop and implement NPOA seabird has been initiated.

1. LITERATURE CITED

ANNEXE I

Coastal Fishery Data Collection Protocol

The artisanal fishery of the Seychelles is characterized by a wide variety of boats using different gears and catching various species within the Seychelles EEZ. The principal gears used by whalers and schooners are handlines, while the small boats use a multitude of gear combinations, including handlines, traps, encircling gill nets, beach seines and harpoons.

Small boats usually operate within 10 nm of the granitic islands, the 'inshore' area, and often in waters adjacent to the vessel mooring and landing sites used. Schooners and whalers target offshore banks and the outer islands, with catches often landed in Port Victoria, Providence Port, or the larger landing sites. Depending on the season and species targeted, whalers may also operate inshore and within or close to the strata where they are based.

All the artisanal fishing vessels target demersal resources such as Lutjanids (snappers), serranids (groupers), lethrinids (capitaines), Scombridae (notably the Indian mackerel), Siganidae (rabbitfish), Lethrinidae (emperors), Sphyraenidae (barracuda)and carangidaes (carangues). The catches supply the local market demand including hotels and restaurants and some species such as groupers and snappers are exported.

Data Collection

The artisanal fisheries are monitored by a Catch Assessment Survey (CAS) stratified geographically and by boat and gear type. The system is supplemented by data collection from companies that are involved in processing and export of catches from the artisanal fishery. It must be noted that currently the data does not include catches from Sport and recreational fishery.

The primary objective of the CAS is to collect catch, effort, and species composition data to enable timely monitoring and assessment of status and trends in the major artisanal fisheries. The main inner granitic islands of Mahé, Praslin and La Digue, where more than 99% of the population resides, are covered by the surveys. Area stratification is the same for all boat types, whereby the three main islands are further divided into seven strata in relation to the location of landing sites, as follows:

- Mahé (4 strata).
    - MNW – Mahé northwest from Baie Ternay to Glacis;
    - MNE – Mahé northeast from La Retraite to Petit Paris;
    - ME – Mahé east from Cascade to Anse Forban;
    - MW – Mahé west from Takamaka to Port Glaud;
- Praslin/La Digue (3 strata);
    - PNE – Praslin northeast from Anse Boudin to Consolation;
    - PNW – Praslin northwest from Anse Takamaka to Anse Lazio,
    - LD – La Digue Island.

Nested within these strata are a total of 39 landing sites. Landing sites are divided into primary and secondary levels depending on the number of boats and catch landed at the site. A wide variety of species are monitored by the CAS and are collected disaggregated by species.

Fisheries technicians complete 5 types of forms;

- Weekly record form: To collect information of all vessel's activities based at the site by vessel registration number, their activity, gear type and targeted species.
- Trip and Effort Form: Trip and effort information are collected through interviews of the fishermen and includes trip dates and time, effort, gear type and number, expenses, and geographical information,
- Catch sampling form: The Catch and Effort forms are completed for each boat sampled. The catch from each boat sampled is weighed and recorded by species. If the catch is landed in packets, a maximum of 5 packets per vessel must be weighed for each species-group and the total number of packets must be recorded. In the case of mixed packets, the weight corresponds to the dominant species-group in the packet. Where catches are landed as single units of fish, as many fish as possible must be weighed and recorded for each species-group, and the total number of fish is recorded by species. Samples must always be taken in a random manner. For any boat sampled, the technician must be present at the landing site so that the totality of the catch for the boat is estimate.
- Sales form: For sales information.
- Biological Sampling form: For length frequency data collection

The technicians work 6 days a week and are timetabled for 1 day off during the week on Sunday. A total of 39 sites are monitored each week, including 12 primary and 27 secondary sites where two secondary sites may be covered by a one technician during a day, whereas each technician covers a single primary site each day.

Data Processing & Data Management System

The collected data are captured in the Allegro database and is then processed to obtain the total estimated catch for the artisanal fishery. The data is first used to reconstruct the monthly activity calendar of each vessels using the vessel activity information recorded by the technicians on site and VMS data. All the vessels fishing trips, are then consolidated in the summary file which is then used for estimating total fishing effort and catches. Estimation of fishing effort and catches is calculated by means of data extrapolation. The samples catch and effort data are extrapolated to the total reconstructed fishing trips to obtain an estimate of total Catches, effort, and species composition for the artisanal Fishery by vessel type, landing sites, gear type and month.

All data are captured in the "System Halieutique Information" (SIH) and are verified and processed using the R programming language.