Seychelles National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2018

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INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

In accordance with IOTC Resolution 15/02, final scientific data for the previous year was 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 2018, final data for the 2017 calendar year must be provided to the Secretariat by 30 June 2018)	YES 30/06/2018
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 2018, preliminary data for the 2016 calendar year was provided to the IOTC Secretariat by 30 June 2018). **REMINDER:** Final longline data for the previous year is due to the IOTC Secretariat by 30 Dec of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2018, final data for the 2016 calendar year must be provided to the Secretariat by 30 December 2018).	YES 30/06/2018
If no, please indicate the reason(s) and intended actions:	

EXECUTIVE SUMMARY

The Seychelles National Report summarizes activities of the Seychelles' fishing fleet targeting tuna and tuna-like species in the WIO for the year 2017 in comparison with previous years. It also summarizes research, and data collection related activities as well as actions undertaken in 2017 to implement Scientific Committee recommendations and IOTC Conservation and Management Measures.

The Seychelles purse seine fleet increased from 8 vessels in 2012 to 13 vessels in 2017. The number of supply vessels also increased from 4 to 8 during the same period. In 2017 the nominal effort decreased by 821 days (20%) when compared to the previous year to a total of 3,271 days fished, whilst the overall catch increased by 13% from 108,613MT in 2016 to 122,202 MT in 2017. Catches of yellowfin tuna increased by 4% from (40,121 MT to 41,711 MT), whilst catches of skipjack and bigeye tuna also increased by 15% and 33% respectively. Catch rate increased from 26.55 Mt/Fishing days to 37.36 Mt/Fishing days.

Two more fishing vessels joined the Seychelles Industrial longline fleet in 2017 making a total of 48 vessels. The total catch reported by this fleet for 2017 was estimated at 10,243 MT representing a decrease of 32% in catches, as a consequence of a significant decrease (29%) in fishing effort. Catches were dominated by NEI category comprising of mostly 'oilfish' (30%). Bigeye tuna and yellowfin tuna, represented 27% and 23% respectively.

In 2017, the semi industrial fishery recorded the highest catch since the beginning of the fishery, with a total of 1,162 Mt, representing an increase of 18% over the previous year. The fishing effort also increased by 66% from 1.23 million hooks set in 2016 to 2.05 million hooks in 2017. However, catch rate decreased from 0.80 MT/1000 hooks to 0.57 MT/1000 hooks. Yellowfin catch increase by 26% from 585 MT to 740 MT for the period under review.

During 2017, SFA continued to implement various actions to improve the quantity and quality of data collected from its fleet targeting tuna and tuna-like species in the Indian Ocean. Actions include improved logbook for data capture, review and upgrade of data collection and management system, capacity building for field samplers and implementation of National Scientific Observer Programme. Current coverage level for the observer programme on the purse seine fleet is at 38% of all sets. Electronic Monitoring System are also being tested, particularly for industrial longliners, currently not being covered by human observers.

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 km^2 in the WIO. Typical of small-island developing states, marine resources are of significant social, economic and cultural importance. Apart from tourism, the country has limited opportunities for land-based development, and as a result, the fishing industry is a major contributor to the economic development of the country. The economic importance is derived from its role as a source of employment, contribution to production, food security and income generation, trade and foreign exchange generation and government revenue.

Since the mid 1980's the Seychelles have been granting access to foreign flagged vessels to fish for tuna and tuna like species inside of the Seychelles EEZ through various access agreements. Seychelles registered vessels, initially purse seiners, started operating in 1997, followed in 1999 with industrial longliners. A small scale local fresh tuna longline fleet also started operation in 1995.

The Seychelles Fishing Authority (SFA) was incorporated in August 1984, and since it was set up, the SFA has been implementing data collection programme, mainly to collect catch and effort information via logbook system, as well as port sampling programmes to collect data on transhipments, landings, size frequencies and species composition.

Port Victoria is the home base for the WIO purse seiners and the Seychelles small scale longline fleet, hence the activities of those fleet are covered almost 100%. On the other hand, distant water industrial longline vessels seldom use Port Victoria as their port of transhipment, making it difficult to obtain good logbook coverage, transhipment/ landings as well as size frequency data. The Seychelles is however participating in the regional Observer Scheme to monitor transhipment at sea. Furthermore at sea scientific observer programme on the purse seine fleet and self sampling programme on the industrial longline fleet is currently being implemented.

The Seychelles National Report summarizes activities of the Seychelles' industrial purse seine and longline (industrial and small scale longline) fleet in the WIO, reported over the past 5 years. It also summarizes research, and data collection related activities as well as actions undertaken in 2017 to implement Scientific Committee recommendations and IOTC resolution.

2. FLEET STRUCTURE

Table 1a. Shows the number of Seychelles registered purse seiners, supply vessels, industrial and semi-industrial longliners for the period 2013 to 2017. The number of Seychelles registered purse seiners increased from 7 vessels in 2013 to 13 vessels in 2015 and has remained the same in 2016 and 2017.. The number of supply vessel increased from 4 vessels to 8 vessels, from 2013 to 2017. The Seychelles registered longliners increased from 33 vessels to 48 vessels during the period 2013 to 2017. An increasing trend was also observed in the number of registered small scale (semi-industrial) longline vessels from 6 vessels in 2013 to31 vessels in 2017.

Table1a. Number of Seychelles registered vessel for the period 2013 to 2017

Year	Purse seiners	Supply vessels	Longliners	Semi-Industrial
2013	7	4	33	6
2014	11	6	38	9
2015	13	7	45	11
2016	13	9	46	30
2017	13	8	48	31

Table 1b.Seychelles registered vessels by size (GT) as reported to IOTC in 2017

GT	Purse seiners	Supply vessels	Longliners	Semi-Industrial
<50	-		-	25
51-100	-		-	6
101-500	-	8	29	-
501-1000	-		19	-
>1000	13		-	-

3. CATCH AND EFFORT

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 2013 to 2017 period. Trend analysis of the purse seine catches in Seychelles over the last 5 years shows that catches has been on an

increasing trend since 2013. In 2017, the catch increased by 13% from 108,613MT in 2016 to 122,202 MT in 2017 (Table 2a and Figure 1a)

The fishing effort in term of fishing days, has also been on an increasing trend since 2013. Fishing effort increase from 1,809 days fished in 2013 to reach a total of 4,092 days fished in 2016. However in 2017, the effort decreased by 821 days (20%), when compared to the previous year to reach a total of 3,271 days fished .

In 2017, skipjack was the dominant caught species, accounting for 57% of the total catch whilst yellowfin tuna made up 34% of the total catch of the Seychelles flagged purse seiners in WIO. Catches of yellowfin tuna increased by 4% from 40,121 MT in 2016 to 41,711 MT in 2017 , catches of skipjack tuna also increased by 15% from 60,991MT in 2016 to 69,994 MT in 2017 and catches of bigeye increased by 33% from 7,325 MT to 9,761 MT.

Catch rate has been on a decreasing trend since 2013. Between the period 2013 to 2016, the catch rate decreased from 31.69 Mt/Fishing days to 26.55 Mt/Fishing days. In 2017, the catch rate increased to reach 37.36 Mt/Fishing days.

Table 2a. Seychelles flag purse seine annual catch, fishing effort and catch rates reported between 2013 and 2017.

Year	Days Fished	Catch Rate	YFT	SKJ	BET	ALB	NEI	Total
2013	1,809	31.69	26,231	25,997	5,045	49	2	57,324
2014	2,109	28.57	23,463	32,104	4,636	45	7	60,255
2015	3,264	27.19	39,072	42,426	7,168	60	13	88,740
2016	4,092	26.55	40,121	60,991	7,325	110	65	108,613
2017	3,271	37.36	41,711	69,994	9,761	56	681	122,202

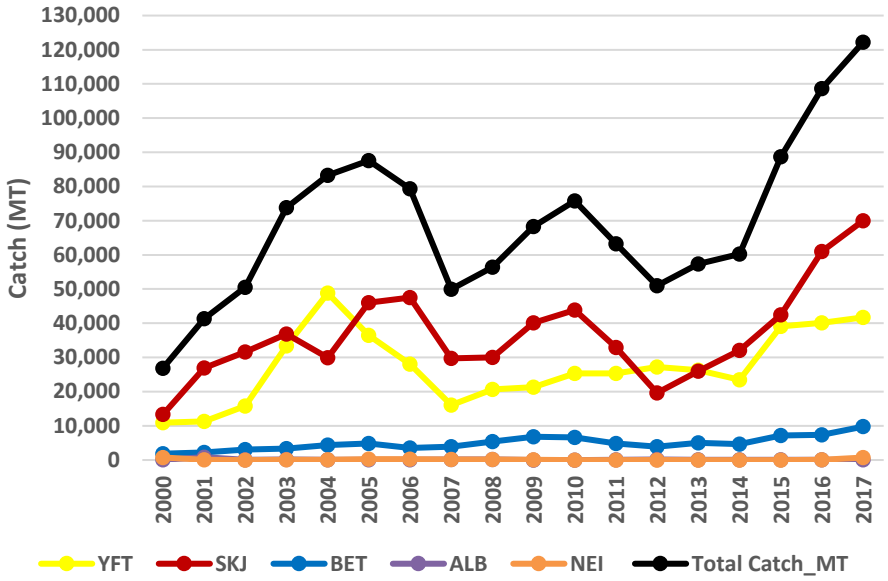
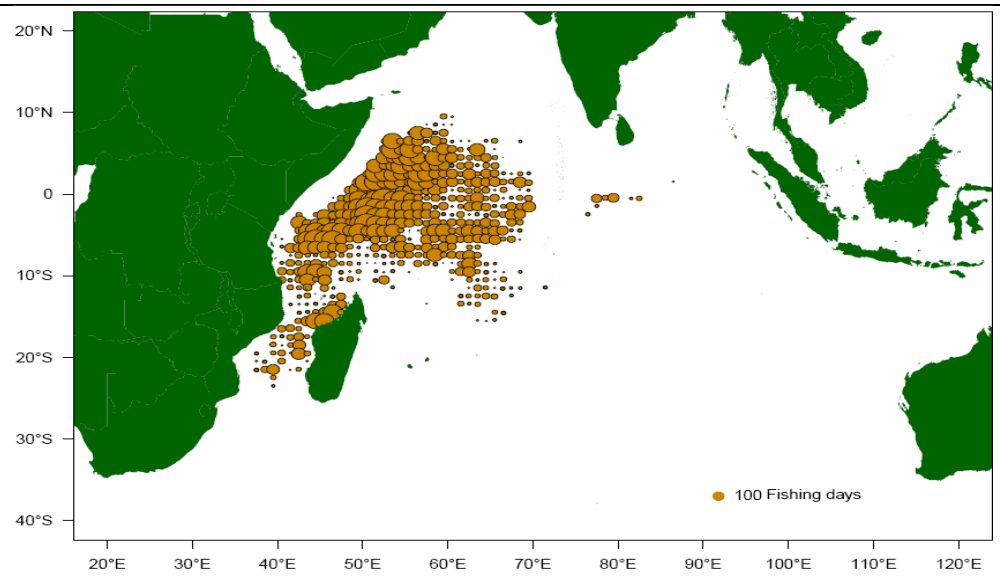


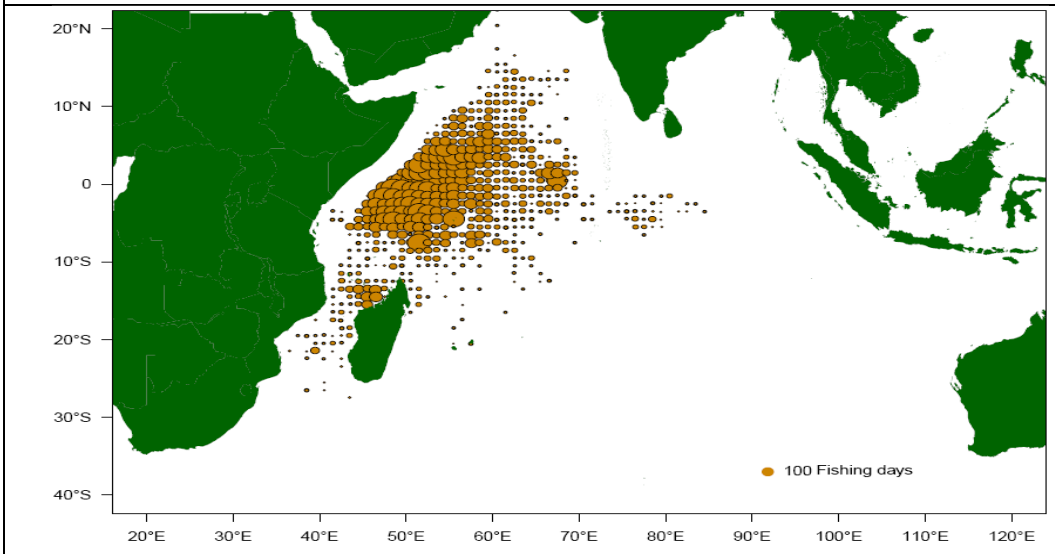
Figure 1a.Trends in annual catches by species for Seychelles' purse seine fleet reported for the period 2000-2017

Maps 3.1 *a(i), a(ii)* and *a(iii)* show the distribution of fishing effort by 1° square reported by Seychelles purse seine fleet for 2016, 2017 and for the previous 5 years (2013 – 2017) respectively.

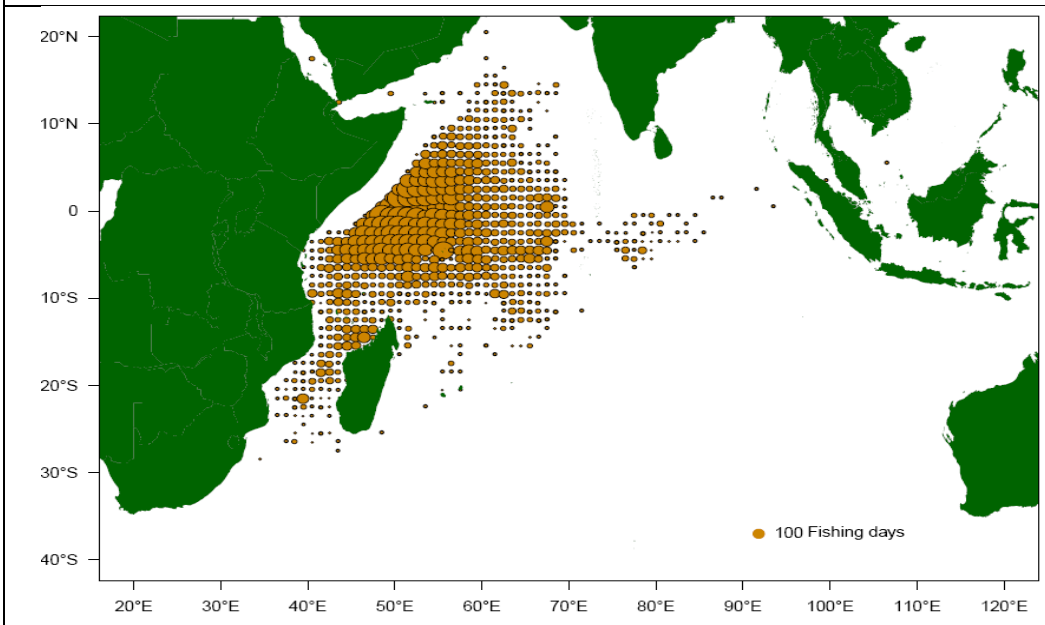
Map 3.1 a(i). Distribution of fishing effort (purse seine fleet) by 1º square, reported in 2016.



Map 3.1 a(ii). Distribution of fishing effort (purse seine fleet) by 1º square, reported in 2017.

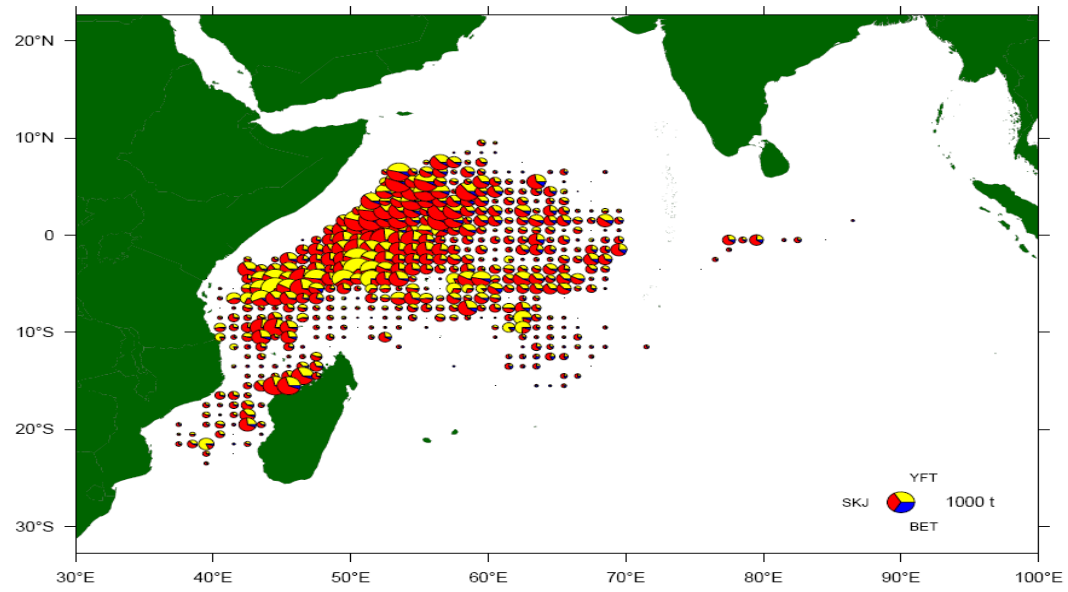


Map 3.1 a(iii). Distribution of fishing effort (purse seine fleet) by 1º square, previous 5 years (2013–2017).

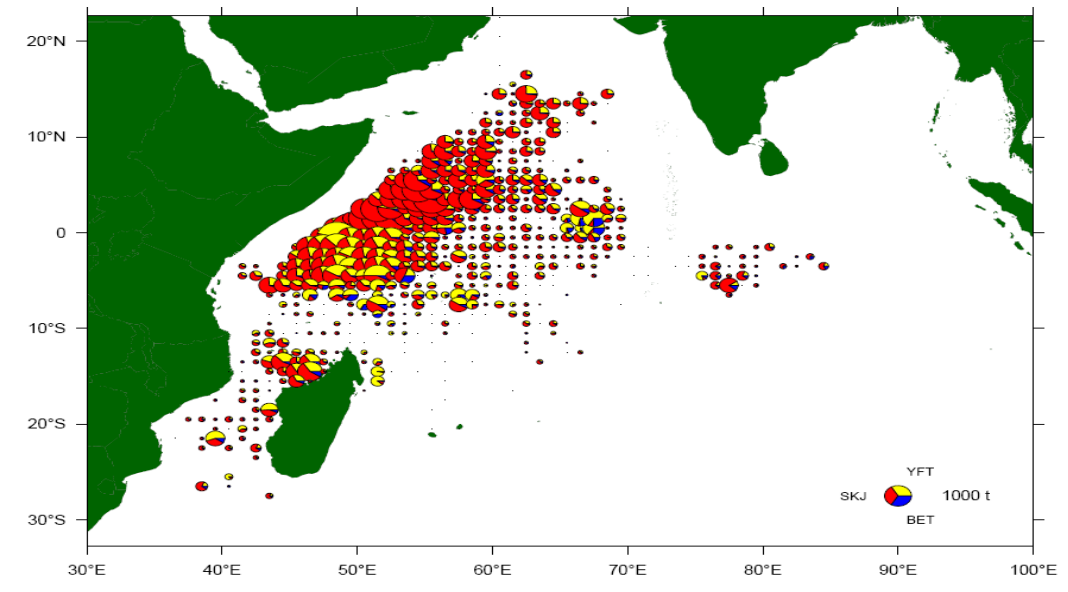


Maps 3.1 *b(i) , b(ii)* and *b(iii)* show the distribution of catches by 1º square reported by Seychelles purse seine fleet for 2016, 2017 and for the previous 5 years (2013 – 2017) respectively.

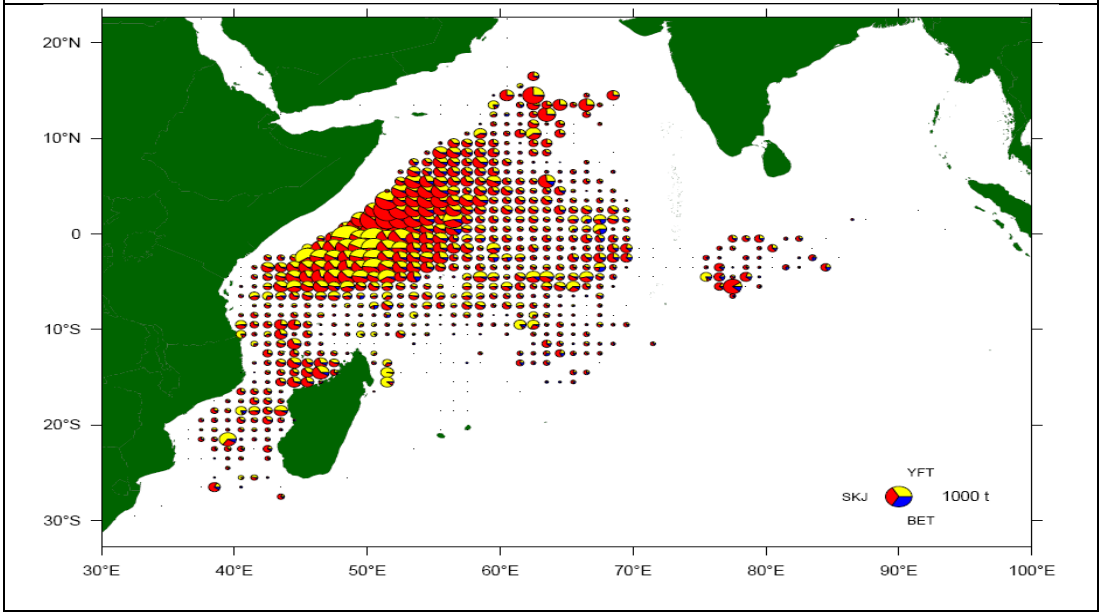
Map 3.1 b(i). Distribution of catch (purse seine fleet) by species by 1º square, reported in 2016.



Map 3.1 b(ii). Distribution of catch (purse seine fleet) by species by 1º square, reported in 2017.



Map 3.1 b(iii). Distribution of catch (purse seine fleet) by species by 1º square, previous 5 years (2013 – 2017).



3.2 Industrial Longline Fishery

Table 2b summarizes total yearly catch by species, fishing effort and catch rates reported by the Seychelles industrial longline fleet during period 2013 to 2017.

The reported fishing effort in terms of the number of hooks set decreased by 8 % from 2013 to 2014 and has since then been increasing steadily. In 2017, a slight increased of 2 % was recorded in the number of hooks set from 34.53 million hooks set in 2016 to 35.28 million hooks in 2017.

The total catch increased from 11,431MT in 2013 to 14,969 MT in 2016. For the year 2017, the Seychelles registered industrial longliners reported an estimated catch of 14,709 MT, representing a slight decrease of 2% in catches, when compared to the previous year.

In term of species composition, the NEI category replace bigeye tuna as the dominant species caught by this fleet in 2017 accounting for 30% of the total catch, followed by bigeye tuna and yellowfin , representing 27% and 23% respectively. The increase in catch of NEI category is mainly due to an increase in the catch of oil fish species (figure 2a). NEI consist of albacore, sailfish, skipjack, and oil fish. This category has been disaggregated in the new logbook to improve reporting. The reported catch of yellowfin tuna and shark increased by 30% and 23% respectively whilst catch of marlin, bigeye and swordfish decreased by 41%, 26% and 21% respectively when compared to the previous year.

Overall catch rate has seen a gradual decline since 2015 and was at 0.42MT/1000 hooks in 2017.

Year	Fishing Effort (million hooks)	Catch rate (Mt/1000 hooks)	YFT	BET	SWO	MAR	SHK	NEI	Total
2013	23.48	0.49	1,177	6,193	945	564	392	2,160	11,431
2014	21.59	0.50	1,643	5,260	965	687	583	1,551	10,689
2015	22.82	0.55	2,306	5,834	1,621	1,238	436	1,083	12,518
2016	34.53	0.43	2,627	5,248	1,859	1,544	492	3,199	14,969
2017	35.28	0.42	3,423	3,897	1,468	908	607	4,400	14,704

Table 2b. Annual catch, fishing effort and catch rates reported by Seychelles industrial longline fleet from the years 2013 - 2017

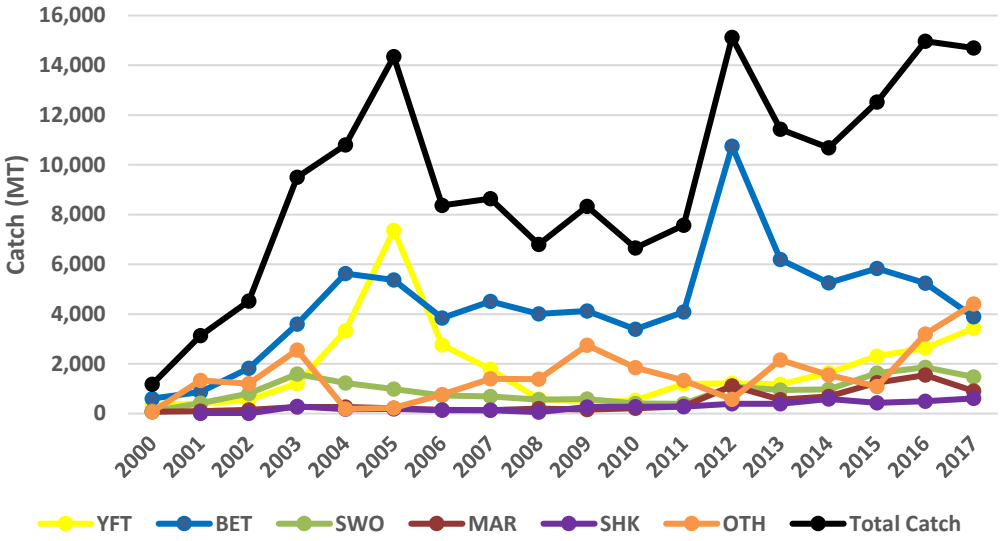
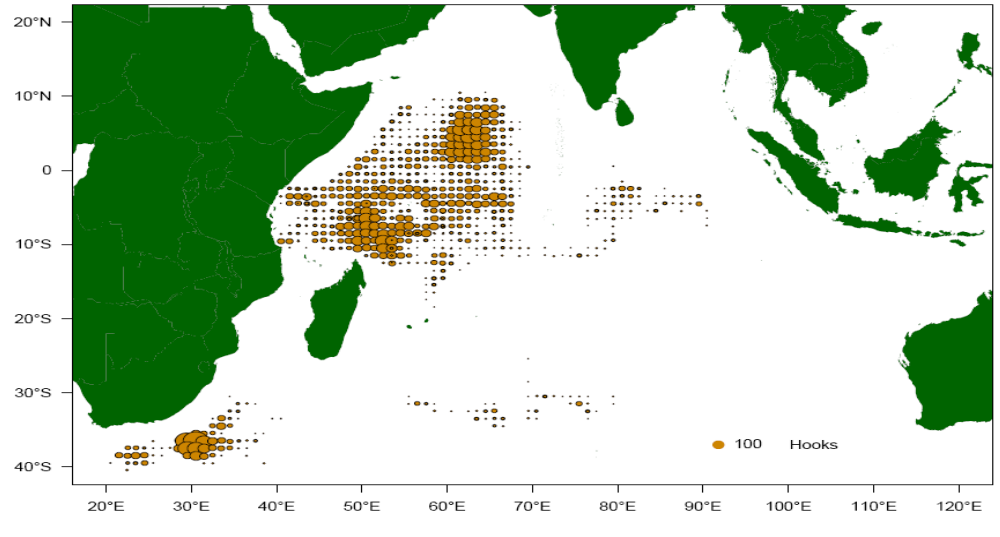


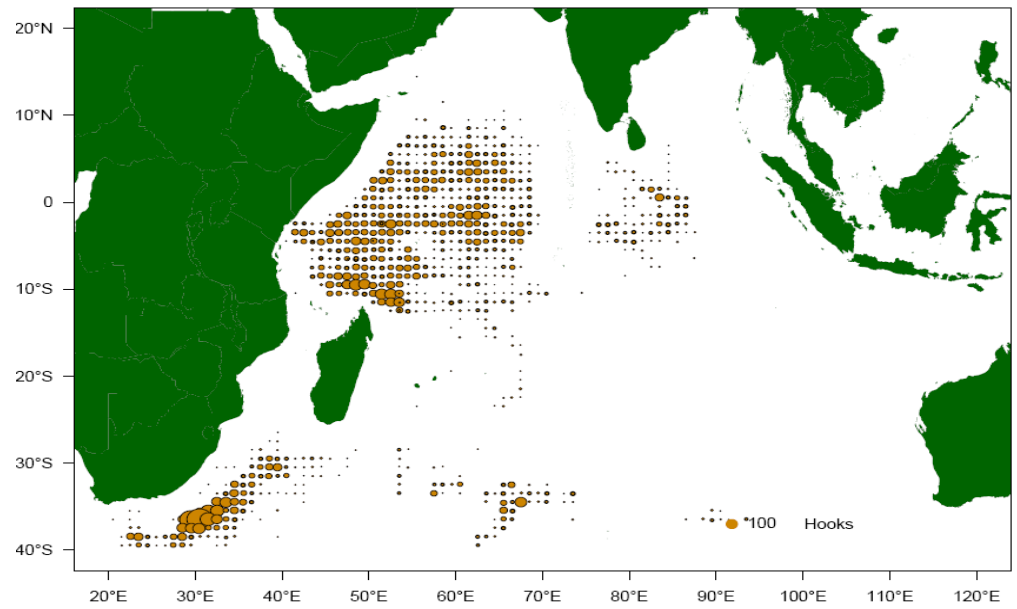
Figure 2a.Trends in annual catch by species reported by the Seychelles industrial longline fleet for period 2000-2017

Maps 3.2 a(i), a(ii) and a(iii) show the distribution of fishing effort by 1° square reported by Seychelles' industrial longline fleet for 2016, 2017 and the previous 5 years (2013 – 2017) respectively.

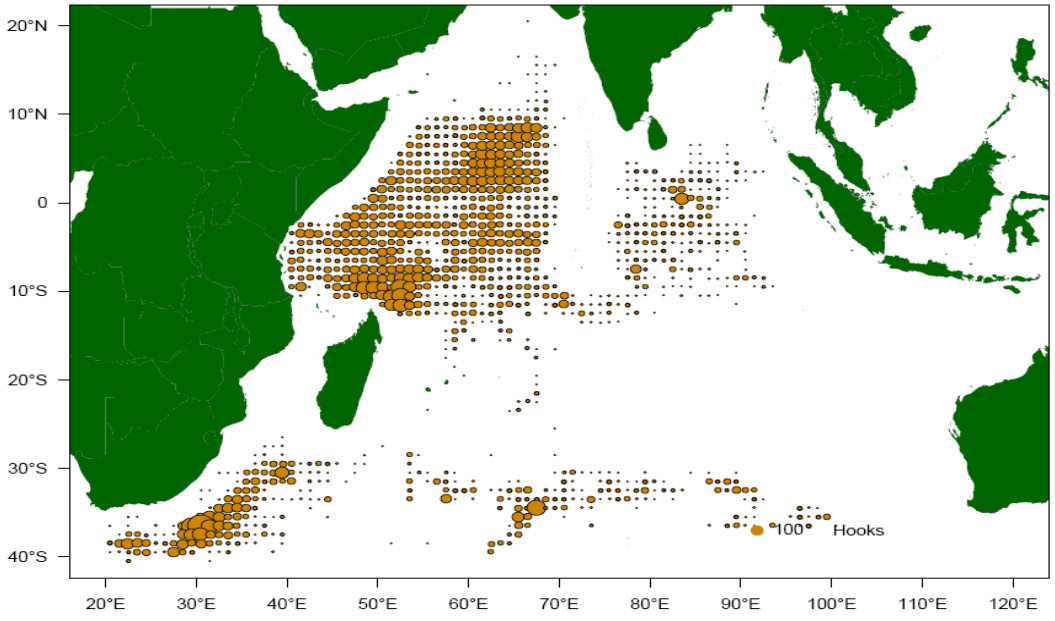
Map 3.2 a(i). Distribution of fishing effort (industrial LL fleet) by 1º square, reported in 2016.



Map 3.2 a(ii). Distribution of fishing effort (industrial LL fleet) by 1º square, reported in 2017.

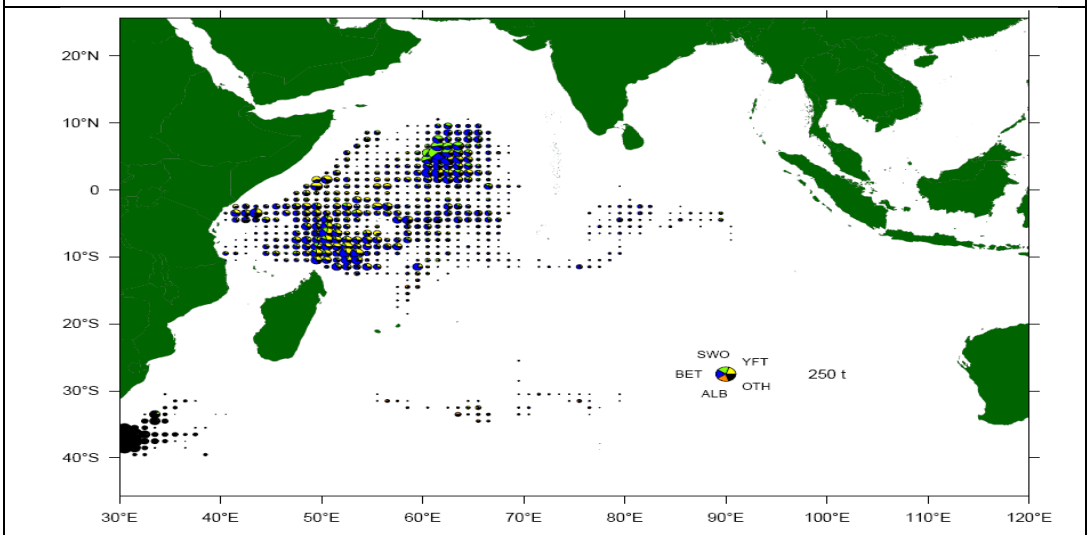


Map 3.2 a(iii). Distribution of fishing effort (industrial LL fleet) by 1º square, previous 5 years (2013 – 2017).

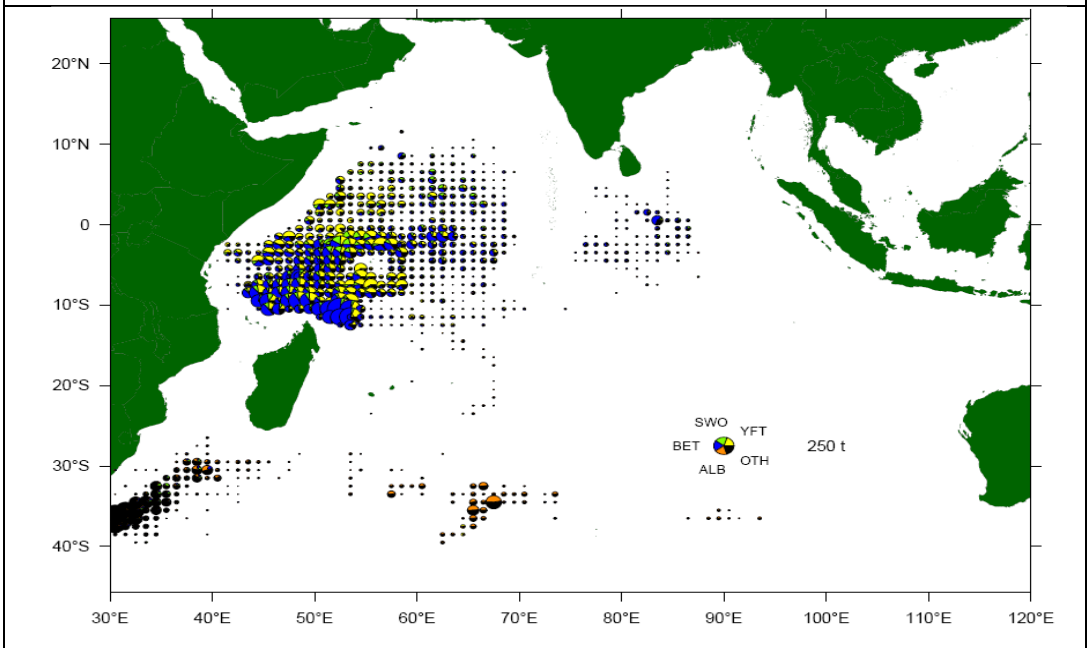


Map 3.2 b(i), b(ii) and b(iii) show the distribution of catches by species by 1º square reported by Seychelles' industrial longline fleet for 2016, 2017and the previous 5 years (2013 – 2017) respectively.

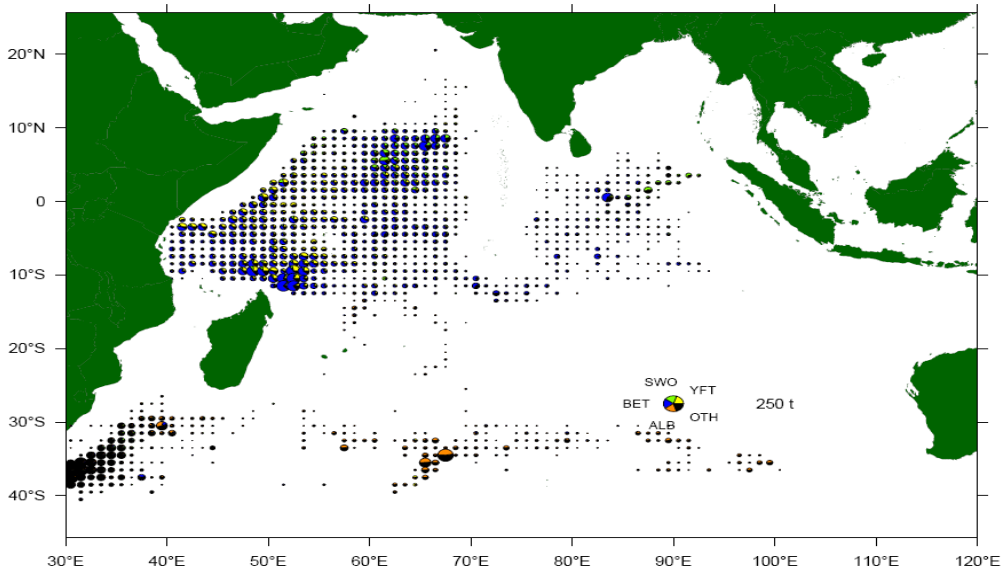
Map 3.2 b(i). Distribution of catch (industrial LL fleet) by species by 1º square, reported in 2016.



Map 3.2 b(ii). Distribution of catch (industrial LL fleet) by species by 1º square, reported in 2017.



Map 3.2 b(iii). Distribution of catch (industrial LL fleet) by species by 1º square, previous 5 years (2013 – 2017).



3.3 Semi Industrial Fishery

Table 2c summarizes the fishing activities of the locally based small scale (semi-industrial) longline fleet from 2013 to 2017. The fishing effort in terms of hooks set, has been on an increasing trend following a drop by 70% in 2014. In 2017, an increase of 66% was reported in the number of hooks set from 1.23 million hooks in 2016 to 2.05 million. The increase in the fishing effort is mainly due to the significant increase in the number of vessel joining this fishery in 2016. This upsurge in number of vessel is due to new fishing practices imparted by Sri Lankan fishermen to local fishermen resulting in higher catches of tuna which has encourage local investors to join the fishery.

Between 2013 and 2014 the fishery experienced a sharp decrease of 70% in total catch , from 262 MT to 82 MT. The sharp drop in fishing effort and catch was mainly attributed to problems encountered with export of swordfish on EU market due to its high level of mercury. This lead most semi industrial vessel to switch to targeting demersal species instead of tuna and tuna-like species. In 2015, the catch increase by 137%, to 195 MT, when compared to the previous year and has since then continues on an increasing trend. In 2017, the semi industrial fishery recorded the highest catch since the onset of this

fishery in 1996, with a reported catch of 1,162 MT, representing a 18% increase compared to the previous year catches.

The catch rate increased from 0.66 Mt/1000hooks in 2013 to 0.95 Mt/1000hooks in 2015, followed by a decreasing trend to reach 0.57Mt/1000hooks in 2017.

Swordfish dominated the catch composition accounting for an average of 62% of the total reported catch for the period 2013-2014. However, during the last three years, yellowfin tuna replaced swordfish as the dominant species caught in the semi-industrial longline fishery, where it accounted for 64% of the total catch followed by swordfish and bigeye tuna accounting for 18% and 10% of the total catch in 2017 respectively. Yellowfin tuna catches increased by 26% in 2017 when compared to 2016.

Table 2c.Catch, fishing effort and catch rates reported by the Semi Industrial longline fleet between 2013 and 2017.

Year	Effort (Hooks)	Catch rate (MT/1000 hooks)	YFT	BET	SWO	SFA	MAR	SHK	NEI	Total
2013	398,770	0.66	55	24	162	3	5	12	0	262
2014	118,973	0.69	15	5	58	1	1	2	0	82
2015	205,505	0.95	98	33	47	5	11	1	0	195
2016	1,234,642	0.80	585	136	188	21	53	2	2	987
2017	2,052,804	0.57	740	117	215	24	60	2	6	1,162

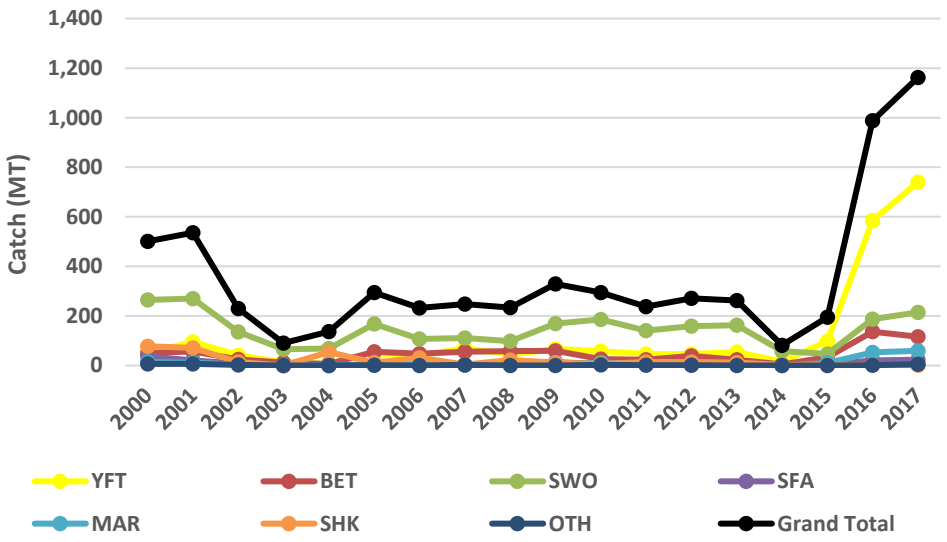


Figure 1c. Trends in annual catch by species reported by the Semi Industrial longline fleet between the period 2000 and 2017.

4. RECREATIONAL FISHERY

SFA undertook a comprehensive boat frame survey of the Seychelles domestic fleet, between August and November 2017. The survey was part of a larger project to develop a fishery–specific fishing fleet management and licensing system. The survey counted and recorded a total of 1,115 boats of which 742 were commercial fishing boats, 168 hire craft (sports fishing) and 116 recreational boats.

For the recreational fleet, these boats have no marking which makes it extremely difficult to identify ownership and assess whether or not they are engaged in any fishing activity. There are currently no regulations related to this part of the fleet. However based on the survey, it would seem that this sub-sector plays an important role in the economy and therefore should be subject to some form of management. In the absence of any legal registration requirements it would be largely impossible to gather significant data to understand their role in the domestic fisheries. The Fisheries Act (2014) makes provision for the Authority to grant fishing permit for all fisheries, sport fishing included, with the exception of the recreational sector.

The implementation of the licensing framework, will also include mandatory reporting of statistics from the various sub-sectors and form part of the implementation of the wider Mahe Plateau trap and line fishery management plan. The implementation of the management plan is expected to begin in 2019.

Currently there are limited coverage of the sport sector, targeting mainly sport fishing competitions. It is to be noted that Field Samplers have been trained (in 2018), in order to collect size frequency data of IOTC species within the domestic fishery. A pilot test is currently ongoing and full implementation is schedule to begin early 2019.

5. ECOSYSTEM AND BY CATCH ISSUES

5.1 Sharks

The Seychelles Fishing Authority reviewed its National Plan of Action for the Conservation and management of Sharks (NPOA) 2007-2011 and developed a new 5 years plan for the period 2016-2019.

The recruitment of a Project Coordinator to coordinate the efforts of key stakeholders, through the Shark – NPOA Steering Committee responsible to oversee the implementation of the Sharks NPOA 2016-2020, could not be completed during 2018 due

to administrative constrains. Those constrains have been addressed and the project coordinator is expected to start at the beginning of 2019. It is expected that the coordinator will facilitate the implementation of key actions planned under the Sharks NPOA 2016-2020

Fisheries (Shark Finning) - Regulations, 2006

These Regulations place restrictions on the removal of fins of all species of shark on board of foreign-owned or local fishing vessels of a total length of 24 metres and above, fishing within or outside the Seychelles Waters, except under and in accordance with an authorisation issued in respect of that vessel by SFA.

Fishing vessels issued with the authorisation are prohibited from discarding at sea the remnant parts of sharks after the removal of fins except for those parts that result from gutting and beheading. Furthermore, in accordance IOTC resolution 17/05 Clause 3 (b) a ratio of not more than 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.
There were no such authorisation issued in 2017 and sharks are taken as bycatch from the longline fisheries (local semi-industrial and industrial).

Table 3a: Total number and weight of sharks, by species, retained by the Seychelles Industrial Longline fleet in the IOTC area of competence (for the period 2013–2017).

	Blue shark		Mako sharks		Porbeagle		Hammerhead sharks		Thresher sharks		Oceanic whitetip shark		Various sharks NEI		Total N0		Total MT	
Year	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT		
2013	4,911	226	1,234	48	8						3	0	2,442	117	8,598	392		
2014	9,657	432	1,387	50	5				2	0		2	2,221	99	13,272	583		
2015	6,825	318	1,136	56								1	1,239	60	9,200	436		
2016	9,591	400	1,629	66	1		19	1	9	0	1	0	794	27	12,044	492		
2017	12,379	481	1,948	79	9						20	1	1,837	44	16,193	607		

Table 3b: Total number and weight of sharks, by species, retained by the Seychelles semi- industrial Longline fleet in the IOTC area of competence (for the period 2013–2017).

	Blue shark		Mako sharks		Oceanic whitetip shark		Hammerhead sharks		Tiger sharks		Various sharks NEI		Total N0	Total MT
Year	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT	N0	MT		
2013	211	8.9	27	1.4	24	1.8	6	0.2	4	0.0	3	0.0	275	12.2
2014	41	2.0	4	0.3	2	0.1			1	0.0	2	0.1	51	2.5
2015	16	0.7	1	0.1	2	0.1					165	0.0	184	0.8
2016	16	0.5	12	0.4	3	0.2	12	0.2	1	0.0	79	1.0	123	2.3
2017	1	0.0	3	0.1	1	0.0	10	0.2	7	0.1	98	1.6	121	2.0

Table 4: Total number of sharks, by species, released/discarded by the Seychelles Industrial Longline fleet in the IOTC area of competence (for the period 2013–2017).

Year	BSH	Discarded Status
2017	17	Unknown

5.2 Seabirds

In accordance to FAO IPOA-SEABIRDS, Seychelles has been collaborating with Birdlife South Africa to develop a National Plan of Action for Seabirds as well as analyse longline catch and effort data for operation conducted south of 25°S to estimate the seabirds mortality for the fleet. We experience some delays in completing both tasks in 2018, however the collaboration is still ongoing and will continue in 2019.

Seychelles registered industrial longliners continued to operate in seabird's hotspot zones, south of 25°S, in 2017. As can be seen from table 5, 21 vessels operated in the area in 2017, compared to only 10 in 2016, consequently the fishing effort increased significantly (74%) in that area.

During the third quarter of 2018, the fleet started to use the new logbook, which caters for the reporting of interactions with seabirds. The Authority is monitoring the returns closely to ensure compliance with reporting obligations.

Year	Number of Vessels	Fishing Effort
2013	7	3,424,816
2014	6	2,333,972
2015	4	1,610,334
2016	10	6,063,322
2017	21	10,574,114

Table 5: Seychelles Industrial Longliners operating south of 25°S in the IOTC area of competence (for the period 2013–2017).

5.3 Marine Turtles

Several marine turtle monitoring programmes are coordinated by a number of different non-governmental organisations (NGOs) such as Seychelles Island Foundation (SIF), Nature Seychelles, Global Vision International (GVI) and Marine Conservation Society of Seychelles (MCSS) to monitor marine turtle population in Seychelles.

Under the national fisheries legislation, it is illegal to catch, kill or retain green and hawksbill turtle. The Seychelles' fleets (purse seine, industrial longline and small scale longline) have not reported any interactions with marine turtles via logbook. The new logbook for the industrial longline fleet, which was introduced in 2018, makes provision for the reporting of such interactions. With the introduction of the new logbook, the Authority will monitor the reporting closely and advise the fleet accordingly.

For the purse seine fleet, interactions are recorded by scientific observers. Paper IOTC–2017–WPDCS13–29_Rev1, presented at the 2017 working party on data collection and statistic was the result of performance audit of the Seychelles Observer Programme. More thorough analysis of observer data could not be completed during 2018, however work is ongoing on past observer data sets to review all data collected and identify the quality and limits of each data set. A comprehensive analysis will be undertaken in 2019 and a report will be submitted to the 2019--WPEBy.

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

Analysis of observer data from the purse seine fleet as well as data collected from the new logbook for industrial longliners will provide an insight on interactions with other marine animals, such as whale sharks and marine mammals. This analysis will be undertaken in 2019 and a report will be submitted to the 2019--WPEBy.

6.0 NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS [Mandatory]

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 - (averaging <70% annual coverage with 90% for more recent years)
II. **Industrial purse seine:** 1984 to date (95 – 100% annual coverage)
III. **Small scale longline:** 1995 to date (95 – 100% coverage)

Logbooks are reviewed as and when required to cater for new obligations when they arise.

6.2. Vessel Monitoring System

Since 2003, one of the prerequisite for any Seychelles registered vessel to be authorized to target tuna and tuna-like species in the WIO is to have an operational Vessel Monitoring System. VMS reports are being automatically transmitted to the Fisheries Monitoring Centre (FMC) at SFA on an hourly basis. VMS information collected are use to validate logbook data. A programme to increase VMS coverage on vessels of less than 24 meters is ongoing. Other technologies such as AIS are also being given consideration.

6.3. Observer programme

The Seychelles Scientific Observer programme was initiated in late 2014 and has continued to this date. A total of 170 observer data sets were collected on 13 Seychelles purse seiners during 2014-2017. This represents about 4,491 days of observation at sea with more than 4,118 fishing sets observed, with a total catch of 122,509 MT of tuna and tuna-like species. Coverage in terms of the number of fishing set observed is currently at 38%. Seychelles is also deploying observers on other foreign purse seine fleet, operation in the WIO.

Table 6. Annual observer coverage for the Seychelles purse seine fleet (2014–2017).

Year	Trips	Days at sea	Sets	Catch (mt)
Purse seiners				
2014	7	173	132	3,153
2015	60	1,785	1,429	38,640
2016	39	1,150	1,177	30,798
2017	64	1,383	1,380	49,918

The focus for 2017 has been on data validation, including a performance audit which was completed in 2017 and the result presented at the 2017 IOTC Working Party on Data Collection and Statistics. More thorough analysis of observer data is schedule for 2019 and a paper will be prepared for the next WPEBy.

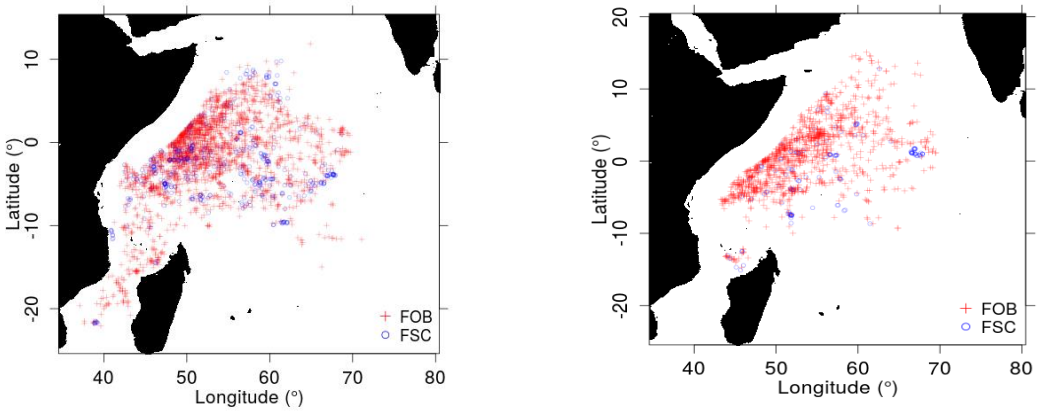


Fig. 1. Map showing spatial distribution of the fishing sets observed onboard Seychelles purse seiners during (left 2014-2016) and right 2017. FOB = School associated with drifting floating object; FSC = Free Swimming School.

In 2016, a pilot project on Electronic Monitoring System, supported by the FAO-ABNJ tuna programme, the Seychelles Government, OPAGAC and SATLINK was implemented on two Seychelles purse seiners. Overall EMS appear to be very promising to complement human observer programme, although some technical aspects still limit its operational use. Seychelles is in the process of undertaking another pilot project on two more purse seiners and on two industrial longliners. The MOU between the various parties have been concluded and installations of equipment is scheduled for 2019.

6.4 Port sampling programme

Port sampling is a routine activity for the purse seine, small scale longline and the local artisanal fleet, all with satisfactory coverage. On contrary 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 Fishing Authority. Collaborative work between SFA and the Secretariat to look at those size frequency data and their possible use in stock assessment will continue in 2019. Data for 2017 are yet to be captured for submission to IOTC due to human resource constraints.

Table 7a. Number of individuals measured for Seychelles registered purse seiners in 2017

Species	Number of species measured
Yellowfin	44,096
Skipjack	28,800
Bigeye	11,687
Albacore	1
Frigate	2860
Kawakawa	96

Table 7b. Number of individuals measured for Seychelles small scale longliners in 2017

Species	Number of species measured
Yellowfin	277
Swordfish	67
Bigeye	40

6.5 Unloading/Transhipment

Port Victoria is the major tuna transhipment port in the region. A total of 318,262MT of tuna was unloaded through port Victoria in 2017 compared to 328,298MT in 2016. In 2017, 84% of the total catch unloaded in Port Victoria or 260,060 MT of tuna unloaded in Port Victoria were transhipped onto refer or into containers for export whilst the remaining 16% or 51,203 MT of tuna were landed in Port Victoria for local processing or sale .

Table 7c. Landing and Transhipment Statistics of Purse Seiners in Port Victoria

Year	Landing	Transhipment	Total
2013	69,946	163,628	233,574
2014	60,555	183,798	244,353
2015	65,880	204,461	270,340
2016	65,500	262,798	328,298
2017	51,203	267,060	318,262

7.0 NATIONAL RESEARCH PROGRAMS

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

7.1 FAD MANAGEMENT PLAN

Seychelles is in the process of reviewing its DFAD management plan to be in line with development in the purse seine fishery, as well as with IOTC CMMs.

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

Table 8. Scientific requirements contained in Resolutions of the Commission, adopted between 2005 and 2018.

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 small scale longline fleets. Catch data for artisanal fishery 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 and small scale longline fleets. Sampling programme is to be extended during 2019 to capture tuna and tuna-like species taken as bycatch is the artisanal fishery.
18/05	On management measures for the conservation of the billfishes: striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7-9	Relevant fleet operators have been notified of the requirements of this resolution. Marlin are taken as bycatch in limited quantities. Obligations are also incorporated in condition on the Certificate of Authorization.The domestic sport fishing fleet are practicing Catch and release.
13/04	On the conservation of cetaceans	Paragraphs 7– 9	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 they 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. Obligations are also incorporated in condition on the Certificate of Authorization.
13/05	On the conservation of whale sharks (*Rhincodon typus*)	Paragraphs 7– 9	The Authority 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. Obligations are also incorporated in 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	The relevant fleet (s) has been notified of the requirement of IOTC resolution 13/06 and the need to comply and report interactions. Logbooks have been modified to report interaction including releases. Obligations are also incorporated in condition on the Certificate of Authorization.
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. Obligations are also incorporated in condition on the Certificate of Authorization.

Res. No.	Resolution	Scientific requirement	CPC progress
12/06	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	A new logbook which caters for the reporting of interactions by industrial longliners was introduced in July 2017. Furthermore, SFA's enforcement officers have been trained how to identify mitigation devices. Seychelles will continue collaboration with Birdlife South Africa to develop an NPOA for seabirds as well as work on operational data to estimate seabird mortality for portion of the fleet which are operating south of 5 degrees south in the IO
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 turtle and hawksbill turtle. 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 industrial longline fleet.
11/04	On a regional observer scheme	Paragraph 9	Seychelles exceed minimum requirement for coverage of the purse seine fleet. Data collected for this fleet is being analysed to be submitted to the secretariat. Seychelles is also investigating the possibility of expanding this programme onboard its industrial longline fleet, including the possibility of introducing EMS. In port observations are undertaken on the small scale longline fleet and domestic fisheries.
17/05	On the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 6, 9, 11	National rregulations place restrictions on the removal of fins of all species of shark on board of foreign-owned or local fishing vessels of a total length of 24 metres and above, fishing within or outside the Seychelles Waters. Where authorisation is granted, 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 onboard all Seychelles industrial longline fishing vessels greater that 24 meters in length, up to first point of landing.
18/02	On management measures for the conservation of blue shark caught in association with IOTC fisheries	Paragraphs 2-5	Relevant fleet operators have been notified of the requirements of this resolution and thresher shark are not permitted to be retained. Obligations are also incorporated in condition on the Certificate of Authorization.
18/07	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraphs 1, 4	

9.0 LITERATURE CITED

SEYCHELLES FISHING AUTHORITY (2016) Seychelles National Plan Of Action for the conservation and management of sharks,119 pp.

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