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# Seychelles National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2012

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## INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

| | |
|---|---|
| In accordance with IOTC Resolution 10/02, final scientific data for the previous year was provided to the Secretariat by 30 June of the current year, **for all fleets other than longline** [e.g. for a National report submitted to the Secretariat in 2012 final data for the 2011 calendar year must be provided to the Secretariat by 30 June 2012) | YES<br><br>27/06/2013 |
| In accordance with IOTC Resolution 10/02, provisional **longline data** for the previous year was provided to the Secretariat by 30 June of the current year [e.g. for a National report submitted to the Secretariat in 2012, preliminary data for the 2011 calendar year was provided to the Secretariat by 30 June 2012).<br><br>**REMINDER:** Final longline data for the previous year is due to the Secretariat by 30 Dec of the current year [e.g. for a National report submitted to the Secretariat in 2012, final data for the 2011 calendar year must be provided to the Secretariat by 30 December 2012). | YES<br><br>27/06/2013 |

# EXECUTIVE SUMMARY

The Seychelles National Report summarizes activities of the Seychelles' fishing fleet targeting tuna and tuna-like species in the WIO. It also summarizes research, and data collection related activities as well as actions undertaken in 2012 to implement Scientific Committee recommendations and IOTC resolutions.

For the past three years Seychelles purse seine fleet has consisted of eight purse seiners, whilst the number of supply vessels has been reduced from five to three. Overall nominal effort has been on a downward trend over the past 5 years, and in 2012 it dropped further by 213 days (9%) when compared to 2011. The total annual catch reported by the purse seine fleet decreased by 32% over the past two years, from 75,787 MT in 2010 to 50,938 MT in 2012. Catches of skipjack tuna declined over the past 2 years and in 2012, yellowfin tuna was the dominant species making up 53% of the total reported catch, with skipjack making up only 39%.

The total catch reported by the industrial longline fleet for 2012 is estimated at 12,164 MT, a significant increase of 60% over the 7,566 MT reported in 2011. Bigeye tuna has remained the dominant species caught by this fleet for the past seven years, accounting for an average of 55% of the total annual catch.

The semi industrial longline fleet reported a total catch of 271 MT in 2012, representing an increase of 13% over the 238 MT reported in 2011. With an increase in the number of active vessels, fishing effort increase by 15% and catch rates stabilized at around 0.82 MT/1000 hooks over the 2011/ 2012 period.

SFA is currently (2013) reviewing its data collection system for the domestic fishery, and is working in close collaboration with relevant stakeholders to develop and implement a more effective system that will cover all the important sectors including the sport fishing sector which target tuna and tuna-like species.

Seychelles deployed its first observer under the National Scientific Observer Programme in July 2013. To date 66 days of observation on the purse seine fleet have been completed.

# 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. The vast majority of the Seychellois population of 89,949 (NSB, 2013) resides on the three main granitic islands, namely Mahé, Praslin and La Digue, which are situated on submerged mid-oceanic shelf, the Mahé Plateau. Most coral atolls and the remaining islands are sparsely populated or uninhabited. 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.

The Seychelles Fishing Authority (SFA) was incorporated in August 1984, coinciding with the immense expansion of industrial fishing activities in the Western Indian Ocean, and its main role was to coordinate and manage the development of the fisheries sector.

Since the mid 1980's the Seychelles have been granting access to foreign flagged vessel 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 1991, followed in 1999 with industrial longliners. A small scale semi-industrial longline fleet also started operation in 1995.

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 purse seine and the semi-industrial longline fleet, in the Western Indian Ocean, 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 an at sea scientific observer programme is currently being implemented.

The Seychelles National Report summarizes activities of the Seychelles' industrial purse seine and longline (industrial and semi-industrial) 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 2012 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 2007 to 2012. The number of Seychelles registered purse seiners decreased from 10 vessels in 2007/08 to 8 for the last 3 years (2010 to 2012). The number of supply vessels has also been on the decline from 6 in 2007/08 to 3 in 2012.

The number of industrial longliners went down from 27 in 2007 to 21 in 2012. On the other hand the number of local semi-industrial vessels has increased from 4 in 2011 to 7 in 2011.

Table1a. Number of Seychelles registered vessel for the period 2007 to 2012

| Year | Purse seiners | Supply vessels | Longliners | Semi-Industrial |
|---|---|---|---|---|
| **2007** | 10 | 6 | 27 | 4 |
| **2008** | 10 | 6 | 26 | 7 |
| **2009** | 9 | 5 | 26 | 9 |
| **2010** | 8 | 5 | 26 | 9 |
| **2011** | 8 | 4 | 24 | 4 |
| **2012** | 8 | 3 | 21 | 7 |

Table 1b. Seychelles registered vessels by size (GT) as reported to IOTC in 2012

| GT | Purse seiners | Supply vessels | Longliners | Semi-Industrial |
|---|---|---|---|---|
| **<50** | - | | - | 4 |
| **51-100** | - | | - | 3 |
| **101-500** | - | 3 | 8 | - |
| **501-1000** | - | | 13 | - |
| **>1000** | 8 | | - | - |

# 3. CATCH AND EFFORT

## 3.1 Purse Seine Fishery

Table 2a shows the total annual catches by species, fishing effort and catch rates for the Seychelles purse seine fleet reported over the 2007 to 2012 period. The total annual catch was on an increasing trend between 2007 and 2010 (from 49,936MT to 75,787MT or 52% increase). However over the past 2 years (2011 and 2012) the catches have dropped by 32 %, to 50,938 MT. (Table 2a and Figure 1a)

The annual trend in fishing effort in term of fishing days has been on an overall downward trend over the past 5 years, partly due to the reduction in the number of purse seiners. In 2012 the nominal effort dropped further by 213 days (9%) when compared to the previous year.

For seven years (2005 – 20011) skipjack tuna accounted for an average of 54 % of the total annual catch, followed by yellowfin (average 36%). Catches of skipjack tuna had declined over

the past 2 years and in 2012, yellowfin tuna was the dominant species making up 53% of the reported catch, with skipjack making up only 39%. For the past 13 years, 2004 is the only other year whereby catches of yellowfin reported by the Seychelles' purse seine fleet was higher than catches of skipjack. Catches of big eye tuna have remained more or less stable at around 8%.

Catch rates have followed a similar trend to total annual catch with an increasing trend between 2007 and 2010 followed by declines in 2011 and 2012.

**Table 2a**. Seychelles flag purse seine annual catch, fishing effort and catch rates reported between 2007 and 2012.

| Year | Fishing Days | Catch Rate | YFT | SKJ | BET | ALB | NEI | Total |
|---|---|---|---|---|---|---|---|---|
| 2007 | 3156 | 15.82 | 16085 | 29727 | 3857 | 136 | 131 | 49936 |
| 2008 | 2698 | 20.89 | 20681 | 30036 | 5369 | 128 | 168 | 56382 |
| 2009 | 2432 | 28.10 | 21330 | 40156 | 6821 | 10 | 22 | 68339 |
| 2010 | 2323 | 32.63 | 25330 | 43828 | 6602 | 14 | 12 | 75787 |
| 2011 | 2347 | 26.94 | 25371 | 32962 | 4837 | 29 | 13 | 63212 |
| 2012 | 2133 | 23.88 | 27220 | 19641 | 3928 | 148 | 1 | 50938 |

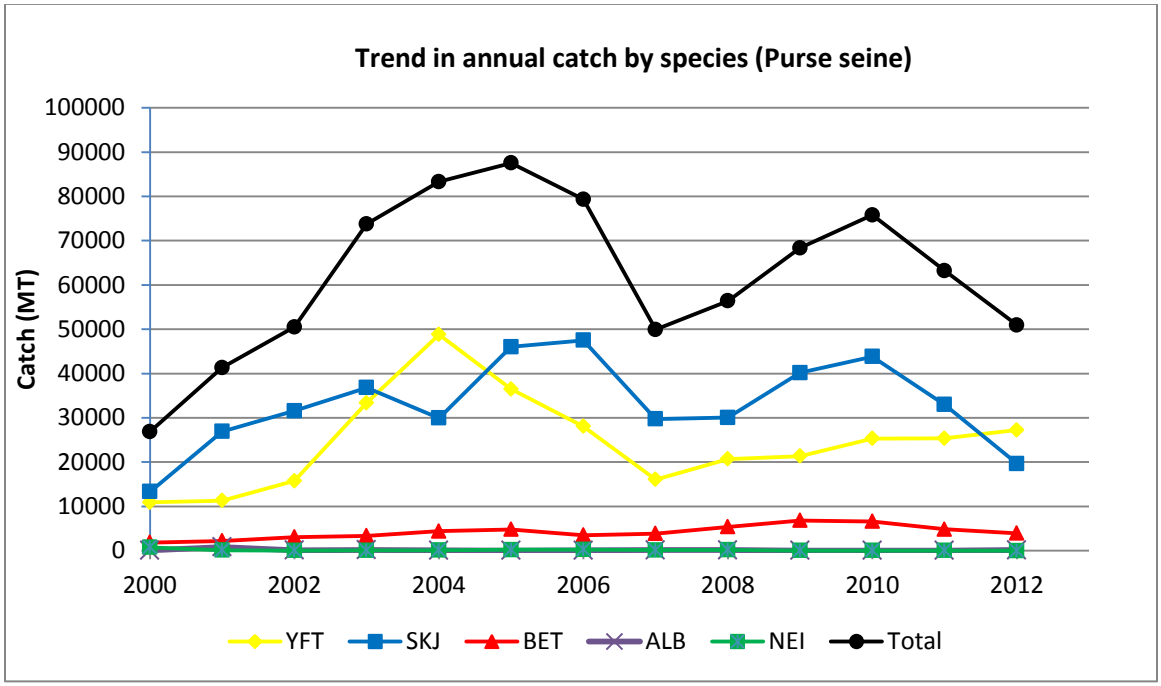
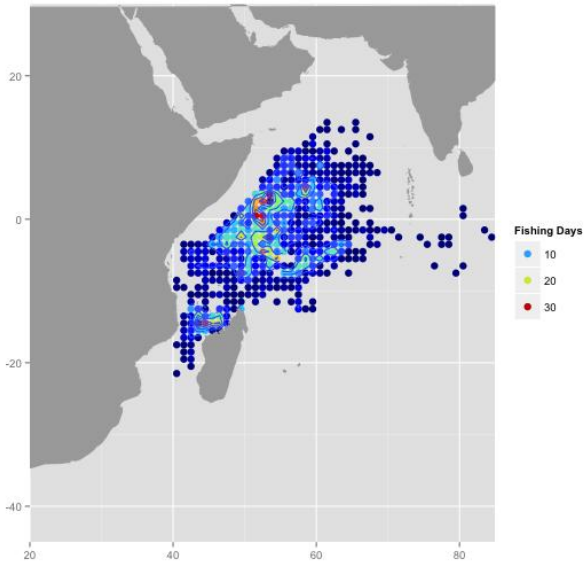


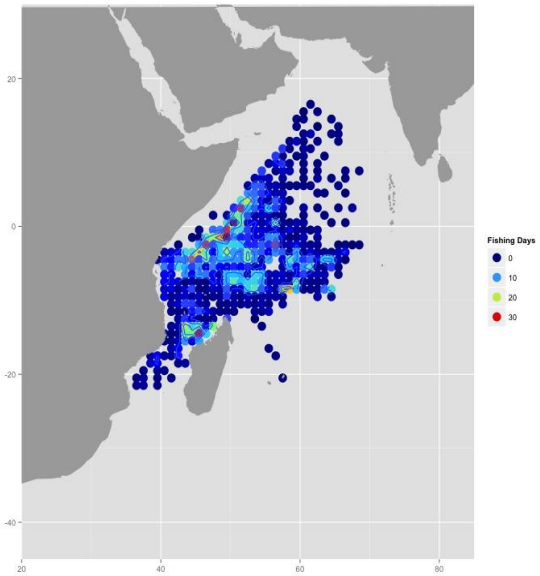

**Figure 1a**. Trends in annual catches by species for Seychelles' purse seine fleet reported for the period 2000-2011

Maps 3.1 *a( i), a(ii)* and *(iii)* shows the distribution of fishing effort by 1° square reported by Seychelles purse seine fleet for 2011, 2012 and for the previous 5 years (2007 – 2011) respectively.

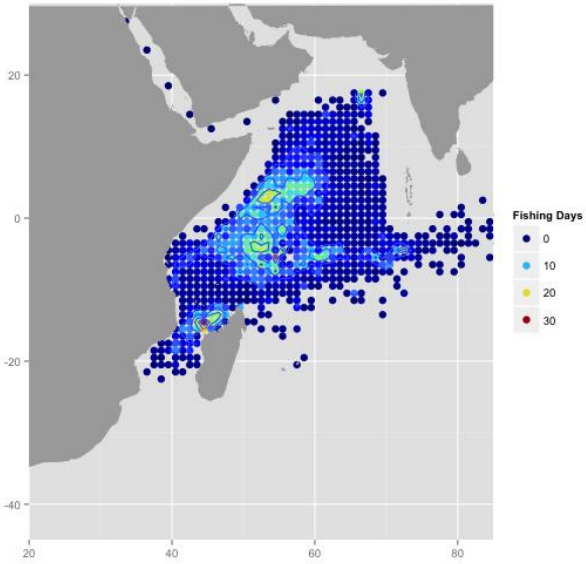
Map 3.1 a (i). Distribution of fishing effort (purse seine fleet) by 1° square, reported in 201l.




Map 3.1 a (ii). Distribution of fishing effort (purse seine fleet) by 1° square, reported in 2012.

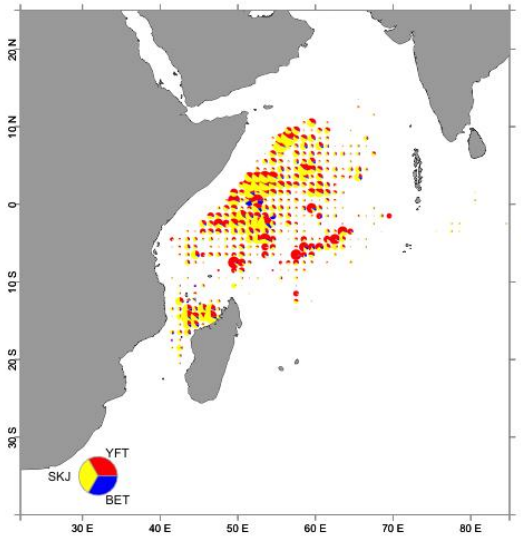


Map 3.1 a (iii). Distribution of fishing effort (purse seine fleet) by 1º square, previous 5 years (2007 – 2011).

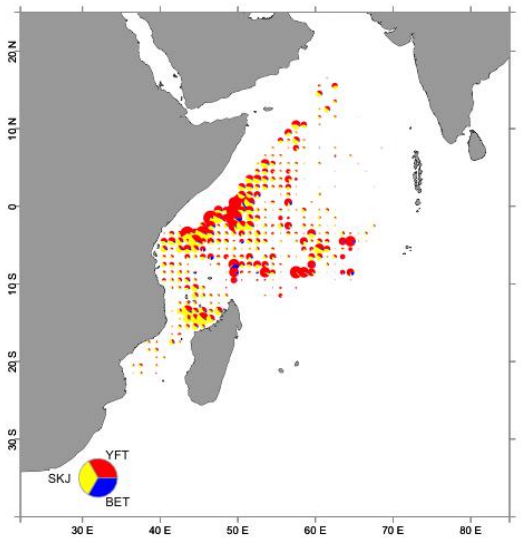



Maps 3.1 *b( i)* , *b(ii)* and *b(iii)* shows the distribution of catches by 1º square reported by Seychelles purse seine fleet for 2011, 2012 and the previous 5 years (2007 – 2011) respectively.

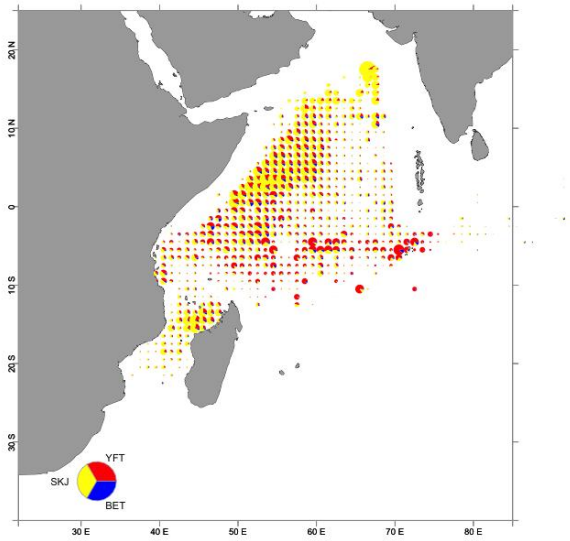
Map 3.1 b (i). Distribution of catch (purse seine fleet) by species by 1º square, reported in 2011.



Map 3.1 b (ii). Distribution of catch (purse seine fleet) by species by 1º square, reported in 2012




Map 3.1 b (iii). Distribution of catch (purse seine fleet) by species by 1º square, previous 5 years (2007 – 2011).



## 3.2 Industrial Longline Fishery

Table 2b shows the total yearly catch by species, fishing effort and catch rates reported by the Seychelles industrial longline fleet during period 2007 to 2012. The fishing effort in terms of the number of hooks set decreased from nearly 20 million hooks set in 2009 to around 16 million hooks in 2012. This reduction in fishing effort is partially due to the decrease in the number of industrial longliners. For the previous five years (2007 to 2011, the total annual catch reported by Seychelles industrial longline fleet have fluctuated between 7000 and 8000 MT. In 2012, the total catch increased significantly by 60% (4598 MT) to reach 12,164 MT. In term of species composition, bigeye tuna has remained the dominant species caught by this fleet for the past seven years, accounting for an average of 55% of the catch. Yellowfin tuna and swordfish accounted for 14% and 7% respectively. In 2012, the reported catch of bigeye tuna increases by more than 100% when compared to the previous year. Overall bigeye tuna made up 70% of the total catch reported in 2012 (figure 2a).

NEI consist of albacore, marlins, sailfish, sharks and unspecified species. Between 2007 and 2010 albacore and unspecified species made up and average of 7% and 17% respectively, of the total reported catch for this fleet. This has decrease over the last two years to an average of 3% albacore and 7% unspecified species.

Catch rates in terms of MT/1000 hooks set increased from an average of 0.44 MT/1000 hooks reported between 2007 and 2011 to 0.76 MT/1000 hooks in 2012.

**Table 2b.** Annual catch, fishing effort and catch rates reported by Seychelles industrial longline fleet from 2007 - 2012

| Year | Fishing Effort (million hooks) | Catch rate (Mt/1000 hooks) | Yellowfin | Big Eye | Sword fish | NEI | Total |
|---|---|---|---|---|---|---|---|
| 2007 | 18.87 | 0.46 | 1775 | 4511 | 690 | 1666 | 8642 |
| 2008 | 14.85 | 0.46 | 580 | 4009 | 559 | 1646 | 6795 |
| 2009 | 19.87 | 0.42 | 468 | 4117 | 581 | 3142 | 8323 |
| 2010 | 17.63 | 0.38 | 527 | 3384 | 409 | 2304 | 6658 |
| 2011 | 16.33 | 0.46 | 1184 | 4082 | 396 | 1872 | 7566 |
| 2012 | 15.99 | 0.76 | 980 | 8471 | 915 | 1751 | 12164 |

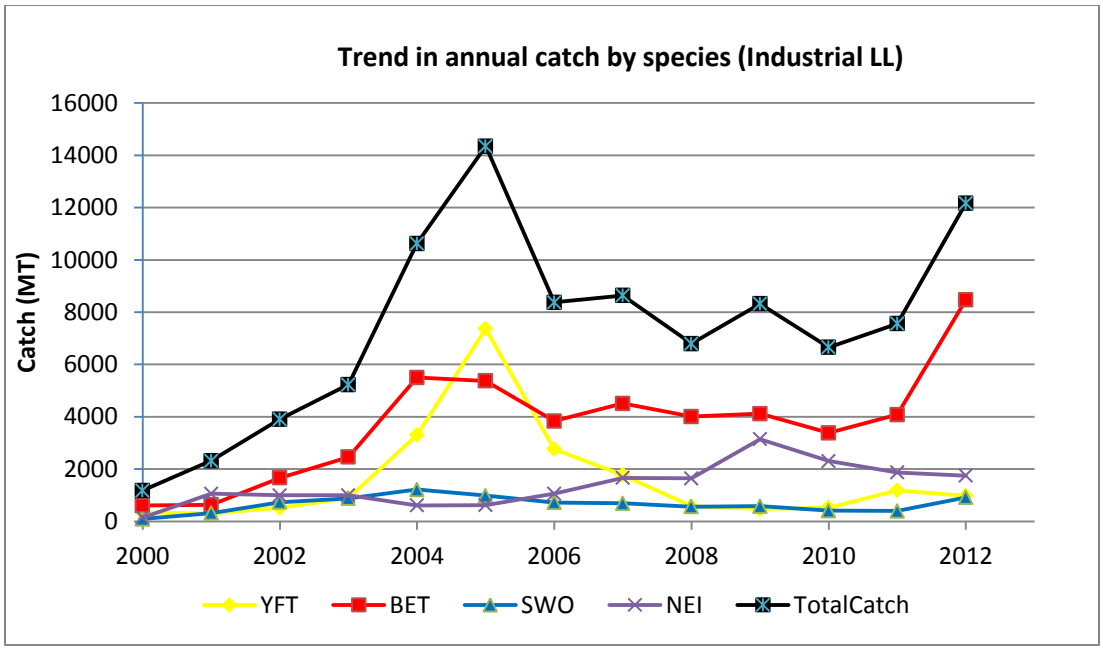
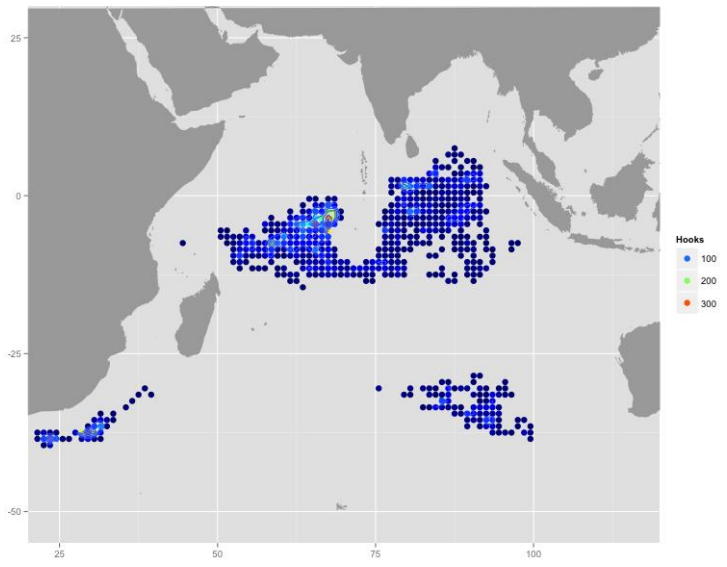


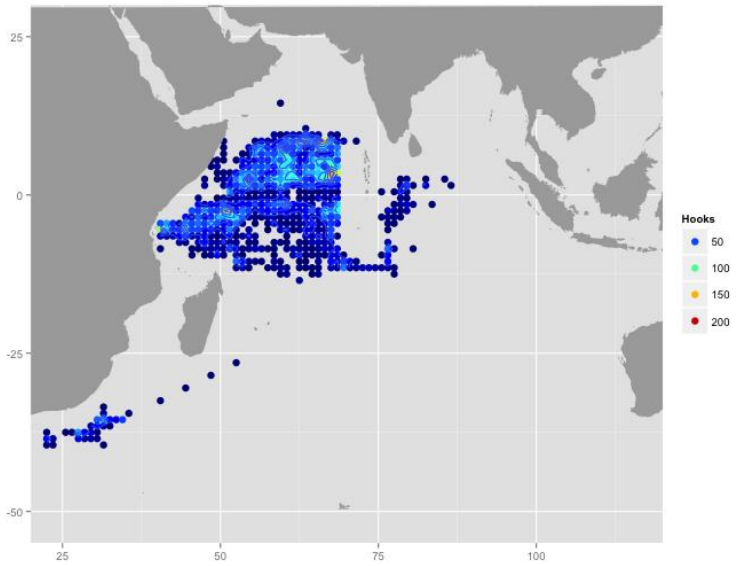

**Figure 2a**. Trends in annual catch by species reported by the Seychelles industrial longline fleet for period 2000-2012

Maps 3.2 a(i), a(ii) and a(iii) shows the distribution of fishing effort by 1° square reported by Seychelles' industrial longline fleet for 2011, 2012 and the previous 5 years (2007 – 2011) respectively. A clear shift of activities back towards the East African coast can be observed in 2012 when compared to the previous year.

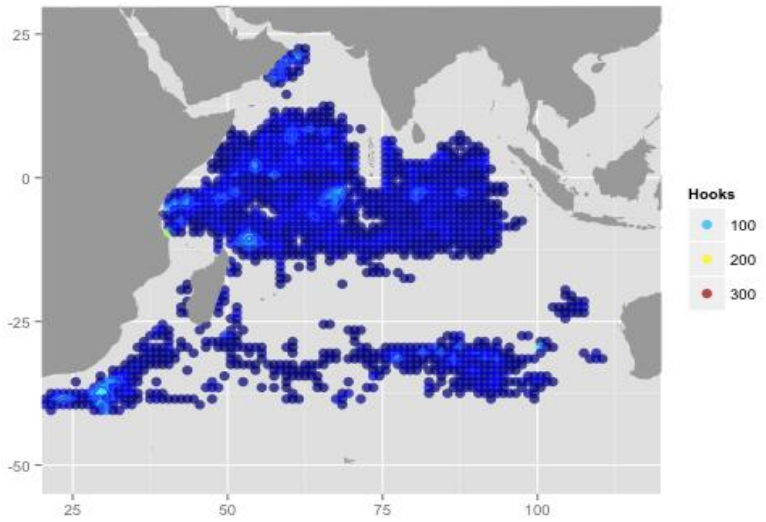
Map 3.2 a(i). Distribution of fishing effort (industrial LL fleet) by 1° square, reported in 2011.



Map 3.2 a(ii). Distribution of fishing effort (industrial LL fleet) by 1º square, reported in 2012.

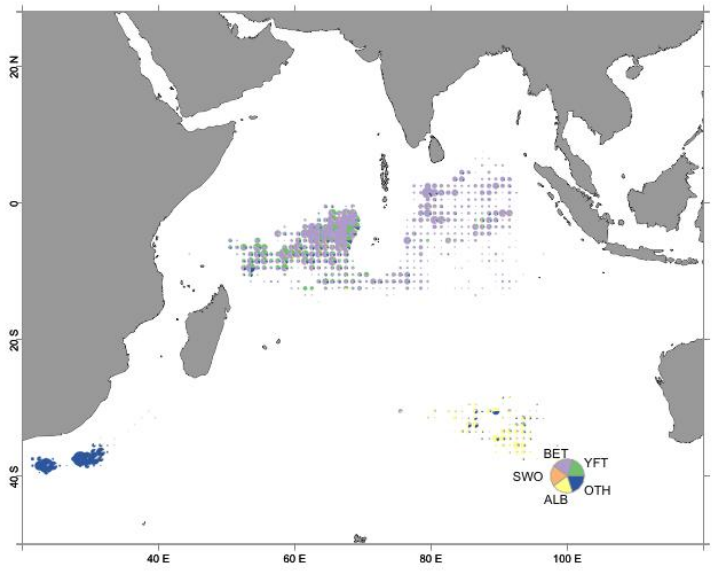



Map 3.2 a(iii). Distribution of fishing (industrial LL fleet) by 1º square, previous 5 years (2007 – 2011).

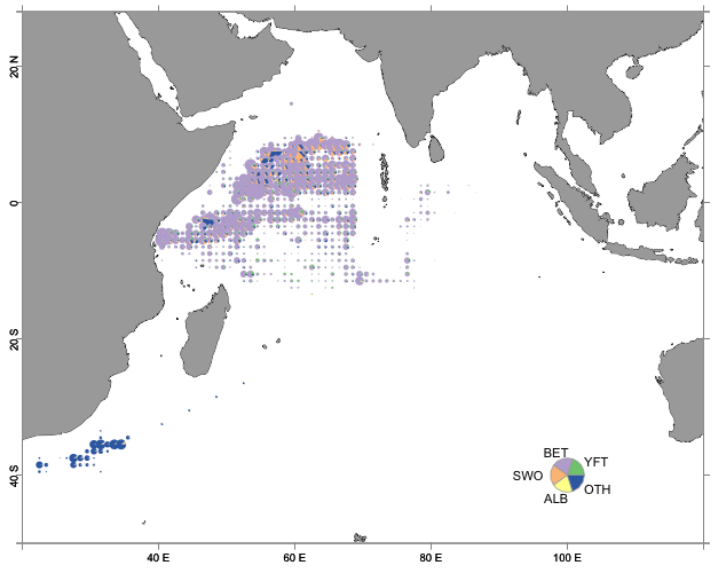


Map 3.2 b(i), b(ii) and b(iii) shows the distribution of catches by species by 1° square reported by Seychelles' industrial longline fleet for 2011, 2012 and the previous 5 years (2007 – 2011) respectively.

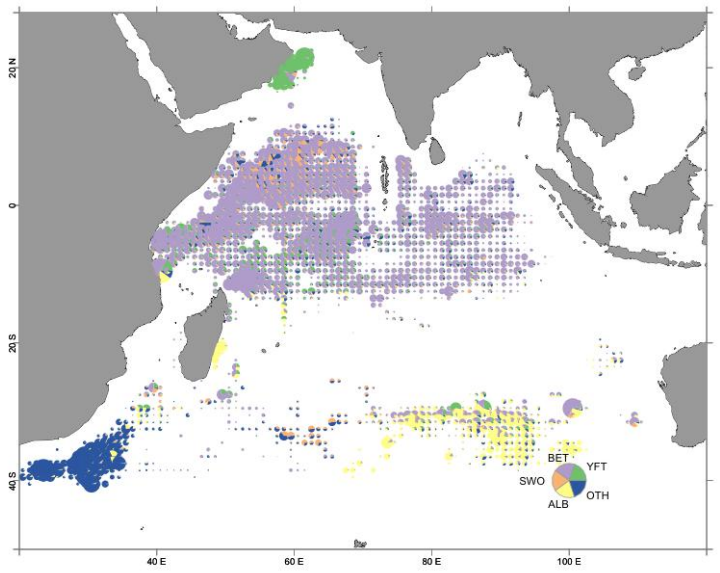
Map 3.2 b(i). Distribution of catch (industrial LL fleet) by species by 1° square, reported in 2011.




Map 3.2 b(ii). Distribution of catch (industrial LL fleet) by species by 1° square, reported in 2012.



Map 3.2 b(iii). Distribution of catch (industrial LL fleet) by species by 1º square, previous 5 years (2007 – 2011).




## 3.3 Semi Industrial Fishery

Table 2c. Summarizes the fishing activities of the semi-industrial longline fleet from 2007 to 2012. The fishing effort in term of number of hooks set increased from 192,271 hooks in 2007 to 506,334 hooks in 2010. A significant drop of 43% in the number of hooks set was then observed in 2011. However in 2012, with an increase in the number of active vessel, a 15% increase in fishing effort was reported. The total catch reported by the semi industrial longline fleet increased by 32% from 249MT in 2007 to 329 MT in 2009 and then decreased by 10% in 2010 to 295MT. In 2011, the total reported catch was estimated at 238MT, compared to 271MT in 2012 (13% increase). Except for 2007, swordfish has dominated the catch accounting for an average of 55% of the total reported catch. In 2012, swordfish accounted for 59% of the total catch, followed by yellowfin (17%) and bigeye tuna (14%).

Following a sharp decline over the 2008 – 2010 period, catch rate have stabilized to around 0.8 MT/1000 hooks over the past 2 years (2011 and 2012).

**Table 2c**. Catch, Fishing effort and catch rates reported by the Semi Industrial longline fleet between 2007 and 2012.

| Year | Effort (Hooks) | Catch rate (MT/1000 hooks) | SWO | YFT | BET | SFA | MAR | SHK | OTH | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | 192,271 | 1.29 | 111 | 70 | 55 | 3 | 2 | 5 | 3 | 249 |
| 2008 | 345,237 | 0.68 | 98 | 44 | 59 | 7 | 3 | 22 | 1 | 233 |
| 2009 | 481,668 | 0.68 | 170 | 68 | 59 | 15 | 5 | 12 | 1 | 329 |
| 2010 | 506,334 | 0.58 | 186 | 58 | 26 | 5 | 12 | 6 | 2 | 295 |
| 2011 | 287,938 | 0.83 | 141 | 46 | 23 | 5 | 7 | 15 | 1 | 238 |
| 2012 | 330,466 | 0.82 | 159 | 47 | 38 | 3 | 9 | 14 | 1 | 271 |

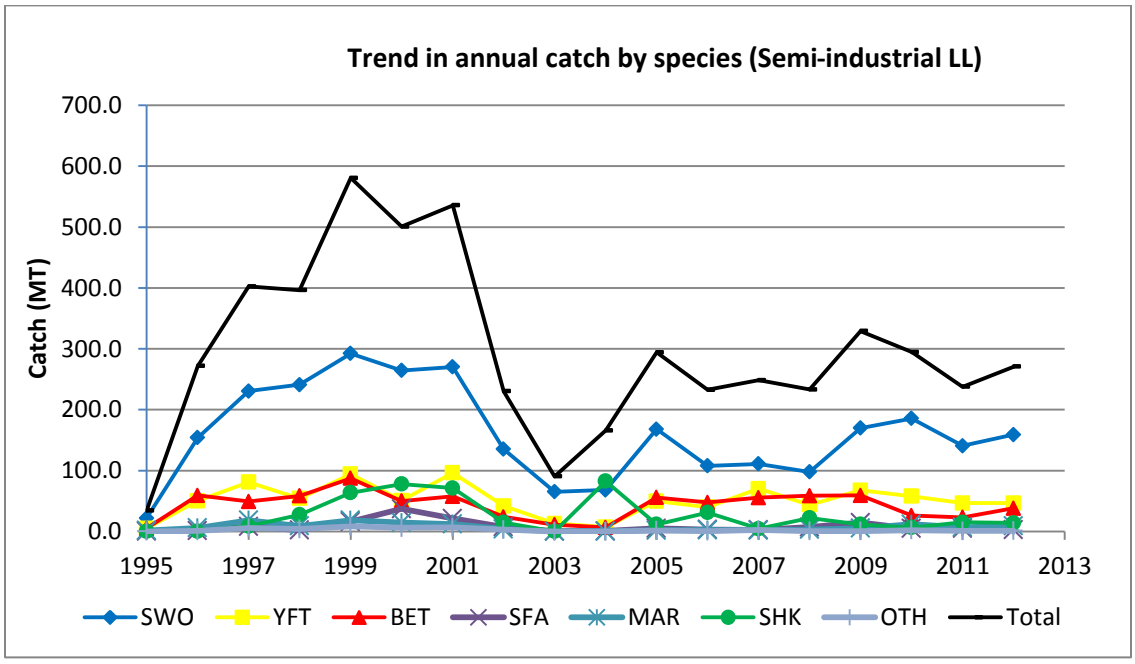



**Figure 1c**. Trends in annual catch by species reported by the Semi Industrial longline fleet between the period 1995and 2012.

# 4. RECREATIONAL FISHERY

A logbook system was introduced several years ago for the Seychelles Recreational Fishery. However returns were relatively low and subsequently drop to zero. The management of vessel involved in recreational fishing activities does not fall under the responsibility of the Seychelles Fishing Authority, making it difficult to implement a logbook system. SFA is currently (2013) reviewing its data collection system for the domestic fishery, and is working in close collaboration with relevant stakeholders to develop and implement a more effective system that will cover all the important sectors including the sport fishing sector which target tuna and tunalike species. This year we have initiated a sampling programme at major sport fishing tournaments.

SFA have also endorsed its first co-management plan with stakeholders in the artisanal dermarsal line and trap fishery. One of the action under this plan is the setting up of community based monitoring which also include data collection by fishers. This initiative could be extended to other sectors and would permit the collection of finer-scaled data.

# 5. ECOSYSTEM AND BY CATCH ISSUES

## Sharks

The Seychelles Shark NPOA, in accordance with FAO guidelines under its International Plan of Action (IPOA), was developed in April 2007 by the Seychelles Fishing Authority under the umbrella of the then Ministry of Environment and Natural Resources (MENRT). The NPOA is divided into 11 work programmes and 59 actions, each with different levels of priority. The majority of the Work Programme has been implemented; however, some areas still require urgent attention. The NPOA will be reviewed in 2014.

The NPOA identified the lack of species based information as an impediment to effective management of shark fishery in the Seychelles.

The

SFA in collaboration with various NGO's have implemented research programmes to address this issue. Throughout 2012 the SFA has worked with the Artisanal Shark Fishers Association (ASFA) to gather catch as well as size data of sharks at various landing sites. A digital database is being compiled. The catch data will improve the estimation of shark catches by the artisanal fishery sector. Furthermore the size data will be used to develop models which will allow species identification as well as size estimates based on measurement(s) taken from dressed carcases. This work is expected to be completed in 2013.

Another research project which started in 2010 used acoustic telemetry (acoustic receivers and tags) to study the distribution and migration of coastal sharks around the inner granitic islands. The initial strategy of the project was to tag several species such as

grey reef sharks (*Carcharhinus amblyrhynchos)*, tiger shark (*Galeocerdo cuvier*), bull sharks (*Carcharhinus leucas*) and hammerhead sharks (*Sphyrnidae* sp.) as to reflect the multispecies component of the shark community in these waters. As of August 2013 the target of 40 sharks has been attained. Most of the tagged sharks were in the average of 1m total length, with the biggest being a 3.6m tiger shark. The levels of detection of the tagged animals were not as high as it was anticipated. Data analysis is ongoing.

The project achieved much better results in examining the activity patterns and area use of juvenile sickle-fin lemon sharks, *Negaprion acutidens*, in a small marine protected area. 19 individuals were successfully tagged and preliminary data analysis revealed that juvenile sickle-fin lemon sharks show high fidelity to this particular marine protected area and were occupying the site for a period of several weeks up to up to 5 months before leaving. This suggests that the MPA is an important nursery site for this species. A publication on this work is in preparation.

## Seabirds

The Seychelles islands are nesting grounds for about 18 species of seabirds. To date, Seychelles does not have a NPOA on seabirds in place. Seychelles has a domestic semi industrial longline fleet (seven vessels active in 2012) and there have been no reports of interactions with seabirds. On the other hand, the industrial longline fleet has been advised to avoid sea birds hotspots and if they do fish south of 25°S to use the mitigation measures recommended by the IOTC resolution 12/06. Fishing activities of the Seychelles industrial longlines fleet have been declining in areas south of 25°S in recent years.

## Marine Turtle

Several marine turtle monitoring programmes are coordinated by a number of different non-governmental organisations (NGOs) (SIF, Nature Seychelles and MCSS) to monitor turtle population in Seychelles. Under the national fisheries legislation, it is illegal to catch, kill or retain green turtle and hawksbill turtle. The Seychelles fleet (purse seine, industrial longline and semi-industrail longline) have not reported any interactions with marine turtles via logbook. However data on interaction will be collected via our at sea observer programme current being implemented.

## Other Ecologically Related Species

Not Applicable

# 6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

## Logbook

A 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

- **Industrial longline:** From early 80's to 2012 (<70% annual coverage with 86% for more recent years)
- **Industrial purse seine:** 1984 to date (95 – 100% annual coverage)
- **Semi-industrial longline:** 1995 to date (95 – 100% coverage)

## 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 on an hourly basis. VMS information collected are use to validate logbook data.

## Scientific Observer Programme

During 2012 the Seychelles Fishing Authority made all the necessary preparation (training, purchased of equipments etc.) for the implementation of the National Scientific Observer Programme. However the first at sea deployment on a Seychelles Purse seines occurred in July 2013, followed by a second deployment in September – October. A total of 66 days of observation have been completed so far. The observer reports will be submitted to the IOTC secretariat. Training of more observers for expansion of the programme is anticipated in early 2014.

## Port sampling programme

Port sampling is an ongoing activity for the purse seine and semi-industrial longline fishery. 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 size frequency data are being recorded by the crew and transmited to the Seychelles Fishing Authority. Size data for the year 2011 were transmitted to the IOTC secretariat in June 2013.

## Unloading/Transhipment

Collection of transshipment and landing forms from fish processing companies for the purse seine fishery and the semi-industrial longline fishery is an ongoing activity with a 95 -100% coverage for each fleet. On the other hand the distant water industrial longliners does not land in port Victoria, making monitoring of transhipments/ landing difficult, However the Seychelles is

participating in the IOTC regional observer scheme to monitor transhipment at sea on freezer vessels.

# 7. NATIONAL RESEARCH PROGRAMS

The Seychelles Fishing Authority currently has no major research programme targeting tuna and tuna-like species but are collaborating with various partners (particularly IRD) on two projects, (EMOTIONS and IOT –CANAL).

**EMOTION**, (Estimation of Maternal effects On the sustainability of large pelagic populations) have two main objectives. The first objective is to estimate age and individual growth of the three main tropical tuna species using otolith reading. Growth models will also be developed using dataset of the Indian Ocean Tuna Tagging Programme (IOTTP). The second objective is to investigate the body condition, lipid and fatty acid dynamics during the reproduction cycle.

**IOT –CANAL** project aims is to find out why tropical tunas caught from March to June in the Mozambique Channel and processed by the Indian Ocean Tuna cannery (IOT) leads to meat with lower quality compare to tunas fished during the rest of the year.

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

| Res. No. | Resolution | Scientific requirement | CPC progress |
|---|---|---|---|
| 05/05 | Concerning the conservation of sharks caught in association with fisheries managed by IOTC | Paragraphs 1–12 | The NPOA will be reviewed in 2014 and an evaluation of its level of implementation is also expected. |
| 10/02 | Mandatory statistical requirements for IOTC members and cooperating non contracting parties | Paragraphs 1–7 | Seychelles has been regularly providing catch, effort, and size data for its purse seine, industrial and semi-industrial longline fleet. |
| 10/06 | On reducing the incidental bycatch of seabirds in longline fisheries. | Paragraphs 3–7 | No reports of interactions from the two longline fleets. However the Industrial longline fleet have been advised to avoid hotspots and to adopts mitigation measures recommended by the IOTC |
| 11/04 | On a regional observer scheme | Paragraph 9 | Implementation of the National Scientific Observer Programme has been initiated (mid 2013) on the purse seine fleet. 66 days (two fishing trips has been covered in 2013. |

| Res. No. | Resolution | Scientific requirement | CPC progress |
|---|---|---|---|
| | | | Observer reports to be transmitted to the secretariat. |
| 12/04 | On the conservation of marine turtles | Paragraphs 3, 4, 6–10 | No report of interactions from Seychelles' fleet in logbook. Data will be collected via the at sea observer programme |
| 12/09 | On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence | Paragraphs 4–8 | The Seychelles fleets, particularly longline, have been notified of their obligations under IOTC resolutions 12/09. Non retention as well as collection of data on interactions and live releases. |
| 13/03 | On the recording of catch and effort by fishing vessels in the IOTC area of competence | Paragraphs 1–9 | A logbook system exists for the industrial/semi-industrial fisheries targeting tuna and tuna-like species in accordance with IOTC standard. The data collection system for the domestic fishery is currently under review. |

# 9. LITERATURE CITED

SEYCHELLES FISHING AUTHORITY (2007) Seychelles national plan of action for the conservation and management of sharks, 59 pp**.**

National Bureau of Statistics, Statistical Bulletin, Population and vital statistics. No: 2 of 2013. August 2013.