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MAURITIUS National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2014

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Ministry of Fisheries, Mauritius

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 2014, final data for the 2013 calendar year must be provided to the Secretariat by 30 June 2014)	YES 30/06/2014
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 2014, preliminary data for the 2013 calendar year was provided to the Secretariat by 30 June 2014). **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 2014, final data for the 2013 calendar year must be provided to the Secretariat by 30 December 2014).	YES 30/06/2014 Final longline data for the year 2013 will be provided by 30 December 2014.
If no, please indicate the reason(s) and intended actions:	

Executive Summary

Mauritius is an important hub in this part of the Indian Ocean for tuna fishing vessels, particularly for longliners. In addition, Mauritius benefits from a large EEZ (1.9 Million km^2) and it attracts a considerable number of Asian and European fishing vessels which take up fishing licences. In 2013, 94 foreign longliners and 37 purse seiners were issued licences to fish for tuna and tuna-like species in the EEZ of Mauritius. During 2013, there was a total of 831 calls of .fishing vessels at Port Louis out of which 744 calls were for unloading and transhipment of tuna fishing vessels. 52,668 tonnes of tuna were transshipped. The Mauritian tuna longline fleet consisted of 3 semi-industrial longline fishing vessels less than 24 Metres in length. These vessels landed 68 tonnes of chilled fish with a total effort of 648,640 hooks. These vessels target swordfish (41.7%) but also landed by-catch comprising yellowfin (Thunnus albacares, 16.6%), bigeye (Thunnus obesus, 25.3%), albacore (Thunnus alalunga, 9.1 %) tunas, and billfishes (3%). No encounter with seabirds and marine turtles were noted. The fishing areas were spread between latitudes 16°S and 20°S and longitudes 56°E and 61°E. A small amount (0.68 tonne) of shortfin mako shark (Isurus oxyrhinchus) was landed by the longliners. However, 2624 tonnes of sharks consisting mainly of blue shark (Prionace glauca, 79%) followed by shortfin mako shark (16.9%) were landed for transhipment by foreign longliners during 2013. One Mauritius-flagged purse seiner started operations in the September 2013. The fishing areas were spread between latitudes 0^o to 8^o S and longitudes 35^{o}E and 69^{o}E. The total catch landed by the purse seiner was 855 tonnes with an effort of 77 sets. The majority of the catch comprised of skipjack tuna (55.7 %),followed by yellowfin tuna (41.2%) and bigeye tuna (3.2%)

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1. BACKGROUND/GENERAL FISHERY INFORMATION

The majority of tuna fishing vessels operating in the Mauritius EEZ are foreign-flagged vessels mainly from Asian and European countries. For the year 2013, the National fleet consisted of three semi-industrial surface longliners less than 24 metres in length and one purse seiner with a Gross Tonnage of 2650 tonnes.

The national longliners target mainly swordfish (41.7%), but their catch also comprise of other tunas and tuna-like species such as yellowfin (Thunnus albacares, 16.6%), bigeye (Thunnus obesus, 25.3%), albacore (Thunnus alalunga, 9.1 %) tunas, and billfishes (3%). The catch of these semi-industrial longliners are landed as chilled fish. These vessels landed 68 tonnes of chilled fish with a total effort of 648,640 hooks. The fishing areas were spread between latitudes 16°S and 20°S and longitudes 56°E and 61°E.

One Mauritius-flagged purse seiner started operations in 2013. Purse seine "Belle Rive" effected its first fishing trip in September 2013. It undertook three fishing campaigns in 2013 and landed a total of 855 tonnes with an effort of 77 sets. The fishing areas were spread between latitudes 0^o to 8^o S and longitudes 35^oE and 69^oE. The majority of the catch comprised of skipjack tuna (55.6 %), followed by yellowfin tuna (41.2%) and bigeye tuna (3.2%).

Tunas are also caught around anchored Fish Aggregating Devices (FADs), located offshore within a maximum of 12 nautical miles from the coast of Mauritius. About 375 artisanal fishermen are active in this fishery. This fishery was introduced in 1985 for the small-scale fishermen and by 2013 twenty-eight FADs were active around Mauritius. Landings from this fishery amounted to around 250 tonnes in 2013. During the peak summer season, from October to March, the species usually targeted is albacore tuna, but other tuna and tuna-like species, such as yellowfin, skipjack (*Katsuwonus pelamis*), the common dolphinfish (*Coryphaena hippurus*) and wahoo (*Acanthocybium solandri*) are harvested all year round. The main gears used in the FAD fishery are vertical longlining and trolling.

A recreational/sports fishery targeting mainly marlins (*Makaira* spp) and sailfish (*Istiophorus* spp) also exists. This is an important activity for the tourism industry and local recreational fishermen. The species caught in this fishery comprises mainly marlins (mainly *Makaira* spp), sailfish (*Istiophorus* spp) and tunas. International big game fishing competitions are held annually. The main fishing gear is trolling. The catch of this fishery is estimated to be about 350 tonnes and the fishery supplies the local market.

2. FLEET STRUCTURE

Presently, the national longline fleet consists only of vessels less than 24 metres in length targeting mainly swordfish. Some other tunas and tuna-like species are also obtained as by-catch. In 2013, three surface longline fishing vessels operated within the EEZ of Mauritius and 38 fishing campaigns were undertaken by these vessels for a total of 196 fishing days. In September 2013, a Mauritius-flagged purse seiner started operations. For the year under review, the purse seiner carried out 3 fishing trips for a total of 81 fishing days.

Table 1: Number of vessels operating in the IOTC area of competence, by gear type and size

Year	Gear	Number of vessels	Number of fishing days	GT	LOA (m)	Preservation Methods
2009	Surface longline	Nil	Nil	Nil	Nil	Chilled
	Surface longline	1	31	577	48	Frozen
2010	Surface longline	2	87	30.2-38.4	13.50-15.80	Chilled
	Surface longline	1	122	577	48	Frozen
2011	Surface longline	4	316	38.4-99.4	13.50-22.80	Chilled
	Surface longline	Nil	Nil	Nil	Nil	Frozen
2012	Surface longline	5	238	38.4-90.4	13.50-22.80	Chilled
2013	Surface longline	3	196	38.4-90.4	13.5-22	Chilled
	Purse seine	1	81	2660	89.4	Frozen

3. CATCH AND EFFORT (BY SPECIES AND GEAR)

In 2009 there was no landing of fish as vessels in the surface longline chilled-fish fishery did not operate during this year. However, in 2010 the surface longline fishery was re-initiated with 3 vessels (<24m) in operation and in 2013, 3 vessels (<24m) landed 67 973 kg of pelagic fish comprising mainly swordfish (target species) followed by yellowfin, bigeye and albacore tunas. These vessels operated in the Mauritius EEZ between latitudes 16°S and 20°S and longitudes 56°E and 61°E.

A Mauritian purse seiner (Belle Rive) started operating in September 2013. For the year under review, it landed a total of 855 tonnes fish. The catch consisted primarily of skipjack tuna (55.67%) followed by yellowfin tuna (41.17%) and bigeye tuna (3.6%). A total of 77 sets were recorded for the purse seine fishery. The total catch was obtained on log associated schools and 83.8% of the catch came from artificial FADs.

Table 2a. Annual catch (kg) of surface longline chilled fish fishery (vessels <24 m).

Species	2009	2010	2011	2012	2013
Yellowfin	Nil	7621	16476	5715	11265
Bigeye		460	10826	2960	17185
Albacore		4998	8415	5555	6215
Swordfish		17070	43999	17065	28320
Other billfishes		260	3531	1810	2053
Sharks		Nil	740	455	680
NEI		1925	5407	2561	2255
Effort (hooks)		58 500	252 480	182 300	150 560
Total		32334	89394	36121	67973

Table 2b. Annual catch (tonnes) of purse seine fishery

Species	2013
Yellowfin	352
Bigeye	27
Skipjack	476
Effort (No. of Fishing days)	46
Total	855

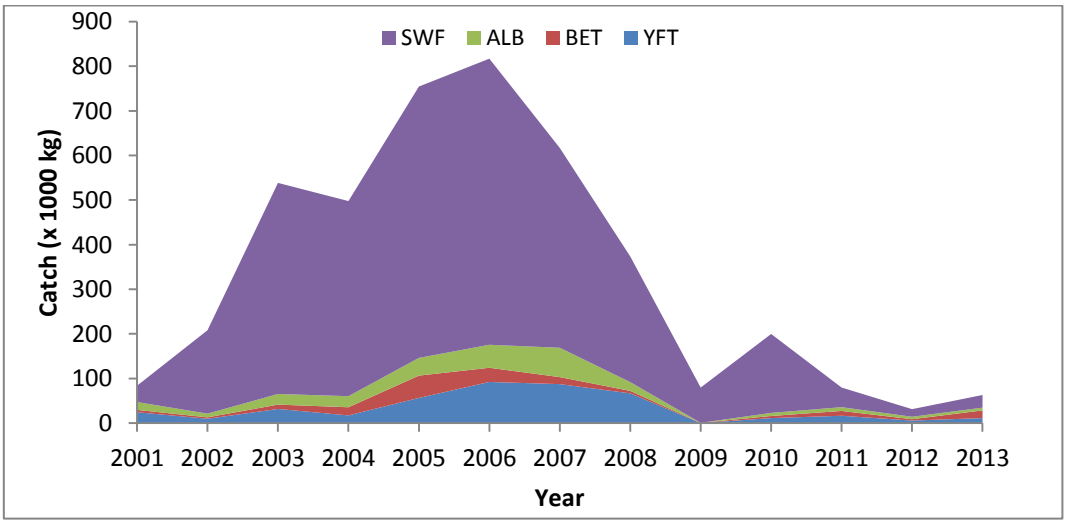

Figure 1. Historical annual catch for the national longline fleet and primary species, for the IOTC area of competence for the entire history of the fishery/fleet.

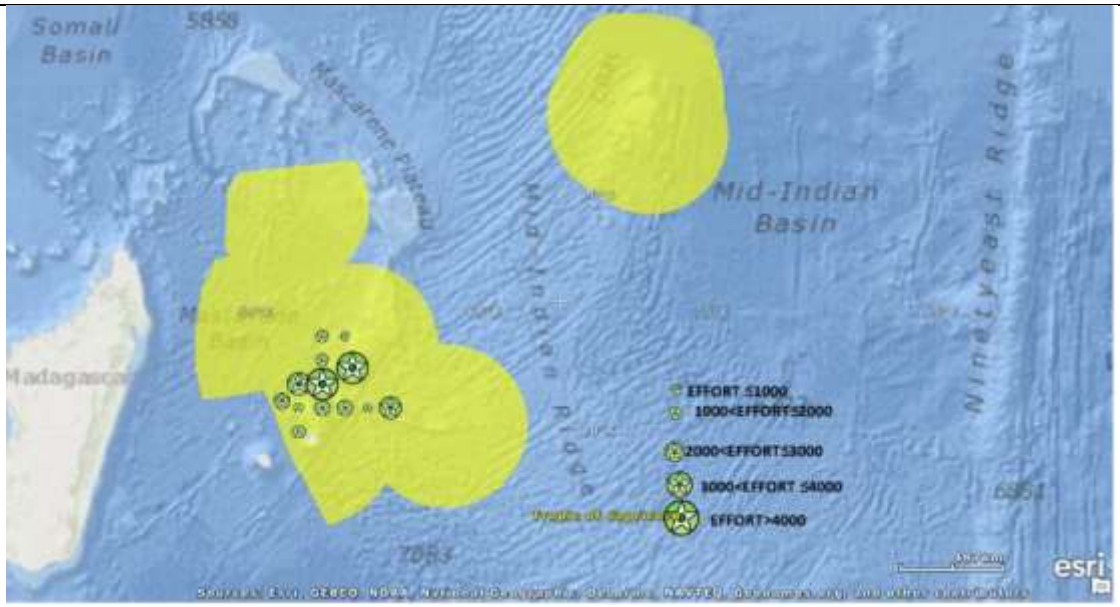

Figure 2a. Map of the distribution of fishing effort (number of hooks) for the national longline fleet in the IOTC area of competence (most recent year i.e. 2013)

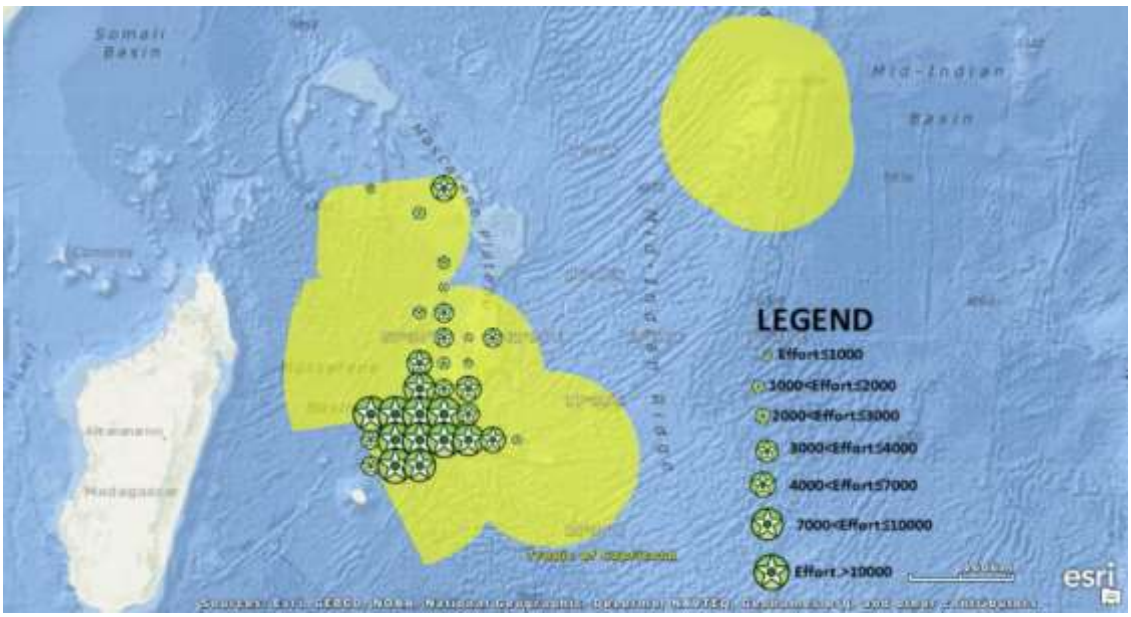

Figure 2b. Map of the distribution of fishing effort (number of hooks) for the national longline fleet in the IOTC area of competence (for the 4 previous years i.e. 2010–2013).

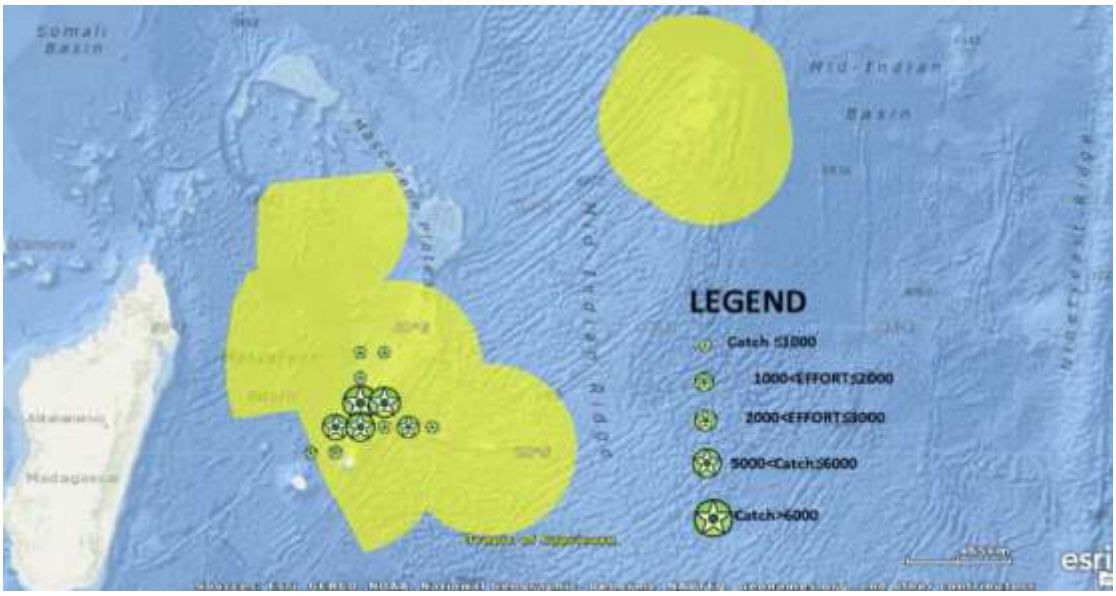

Figure 3a (i). Map of distribution of fishing catch (Swordfish – kgs), for the national longline fleet, in the IOTC area of competence (most recent year i.e. 2013).

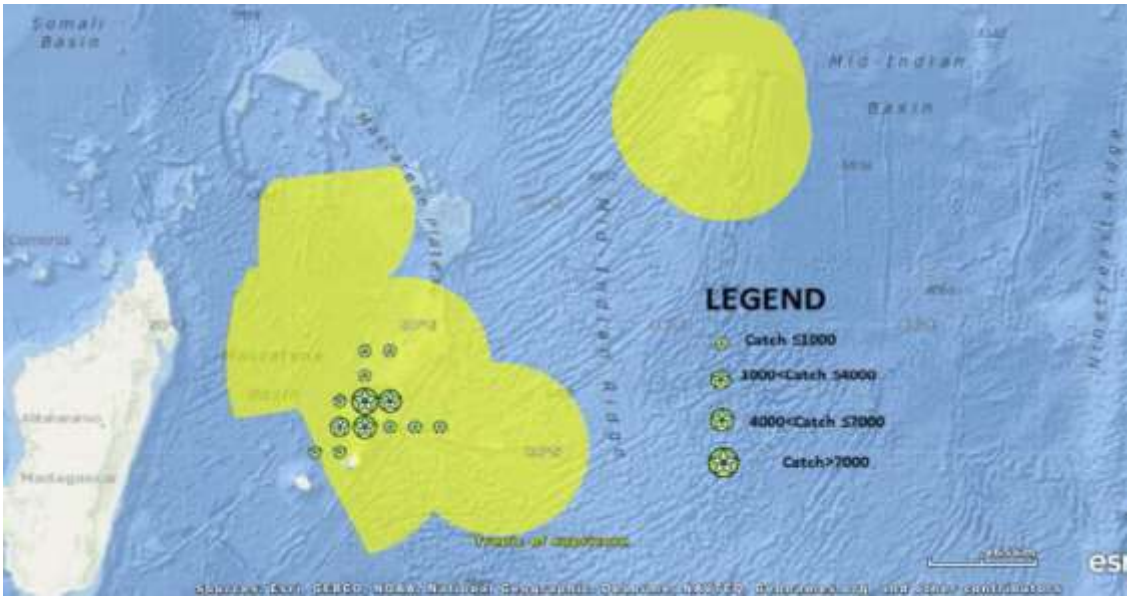

Figure 3a (ii). Map of distribution of fishing catch (Tunas - kgs), by species for the national longline fleet, in the IOTC area of competence (most recent year i.e. 2013).

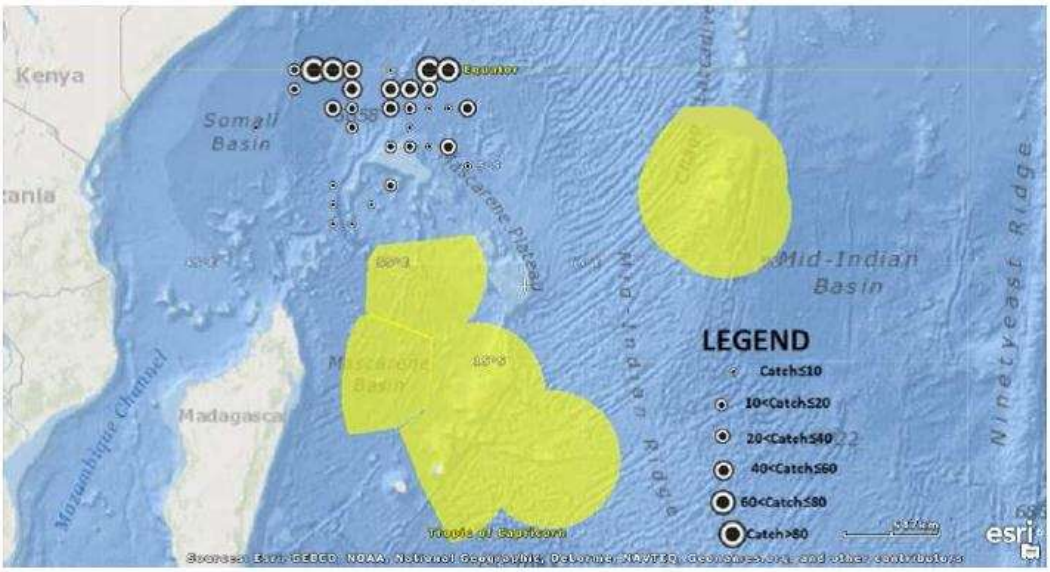

Figure 3a (iii). Map of distribution of fishing catch (tons) for the national purse seine fleet, in the IOTC area of competence (most recent year i.e. 2013)

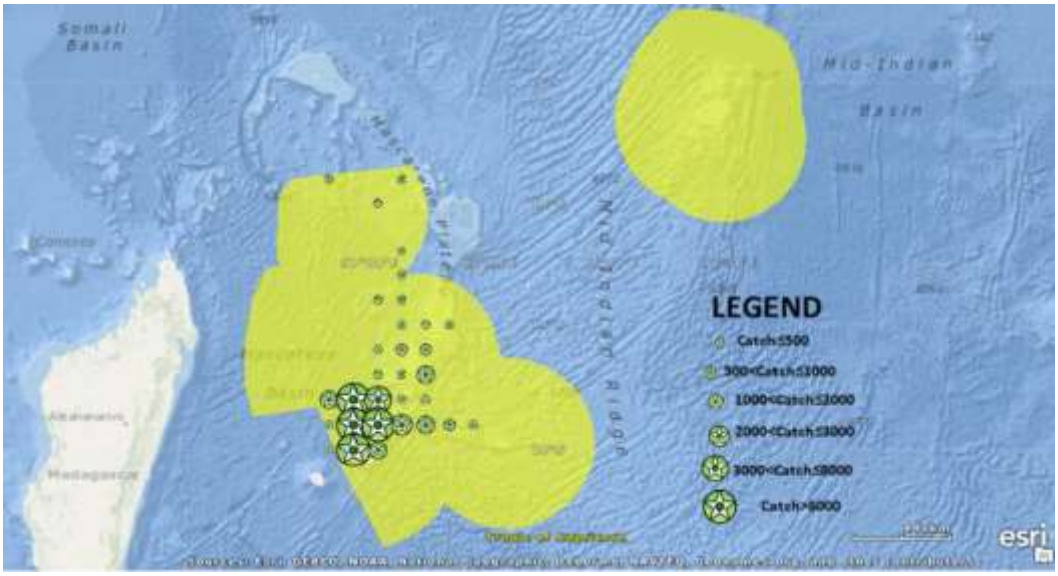

Figure 3b (i). Map of distribution of fishing catch (swordfish - kgs), by species for the national longline fleet, in the IOTC area of competence (for the 4 previous years i.e. 2010–2013).

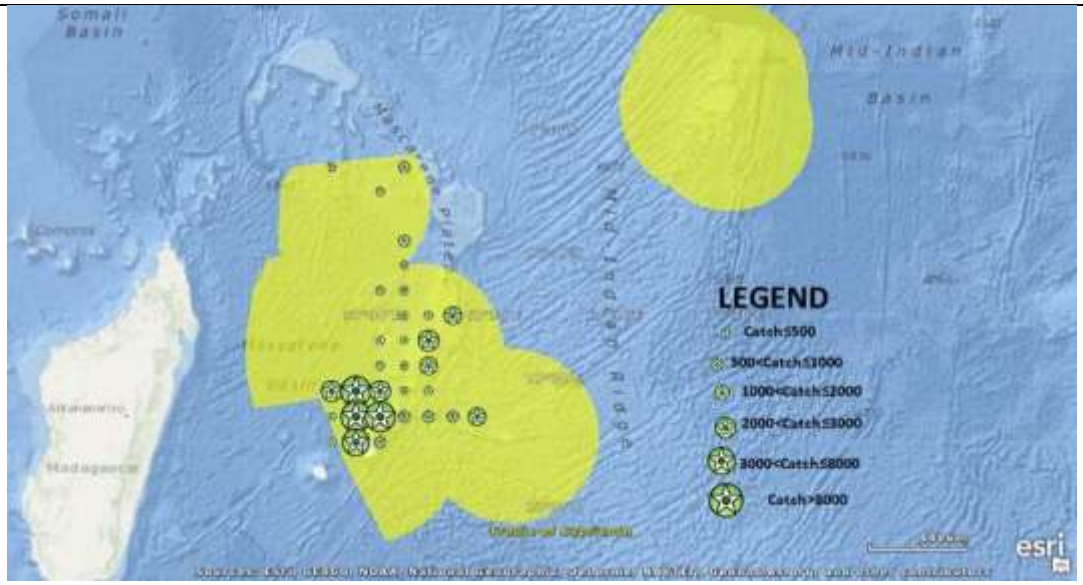

Figure 3b (ii). Map of distribution of fishing catch (tunas- kgs), by species for the national longline fleet, in the IOTC area of competence (for the 4 previous years i.e. 2010–2013).

4. RECREATIONAL FISHERY

The sports/recreational fishing is an important activity for the tourism industry and local recreational fishermen. International big game fishing competitions are held annually. Around 60 sports/recreational fishing boats are involved in this fishery. The main fishing gear is trolling and the fishery supplies the local market with an additional estimated amount of about 350 tonnes. The main species comprises marlins, sailfish, tuna, common dolphinfish and wahoo. A data collection system is presently being planned for the proper monitoring of the sports fishery.

5. ECOSYSTEM AND BYCATCH ISSUES

Mauritius is presently reviewing its Fisheries and Marine Resources Act 2007 to strengthen the clauses that ensure compliance with the international and regional instruments to which Mauritius is a party. In the present legislation, under Section 57 of the Fisheries and Marine Resources Act, there already exist provisions to ensure that all local and foreign fishing vessels fishing in its EEZ or calling to its port comply to the fisheries conservation and management measures under an international agreement to which Mauritius is a party.

5.1 Sharks

A small amount (0.68 tonnes) of shortfin mako shark (*Isurus oxyrhinchus*) was landed as by-catch by the national surface longline vessels in 2013. The landings of sharks by licensed foreign longliners targeting albacore tuna is not considerable with 4.1% of sharks landed out of the total catch. However, a greater amount of shark (25.2% of the total catch) was landed for transhipment by non-licensed foreign longliners which target swordfish. Mauritius contributes to the regional management and conservation of sharks through strategic instruments like: (i) not issuing national or foreign fishing licence to vessels targeting sharks in its EEZ and (ii) monitoring of vessels landing sharks as by-catch by fisheries protection officers of the Port State Control Unit who ensure that shark fins do not exceed 5% of the total body weight on board during their vessels inspection. Moreover the masters of the national longline vessels have been sensitized to retain all parts of the sharks caught. The NPOA on sharks is currently under preparation.

Table 3: Total number and weight of sharks, by species, retained by the national fleet in the IOTC area of competence for the year 2013.

Year	No. of sharks	Species	Weight (Kg)
2013	**17**	*Isurus oxyrhinchus*	**680**

In 2013, a total of 2624 tonnes of sharks was landed by foreign longliners at Port Louis. The main species of sharks landed from licensed and non-licensed vessels calling at Port Louis consisted of blue shark (*Prionace glauca)* (79%) and shortfin mako shark *(Isurus oxyrhinchus)* (16%).

Table 4: Total number of sharks, by species, released/discarded by the national fleet in the IOTC area of competence (for the most recent five years at a minimum, e.g. 2009–2013). Where available, include life status upon released/discard.

No release/discarded shark were reported by the national fleet.

5.2 Seabirds

The national longline fleet consisted of only 3 longline fishing vessels, less than 24 m, operating in the EEZ of Mauritius, between latitudes 16^0S and 20^0S and longitudes 56^0E and 61^0E while the purse seine fleet consisted of only one vessel which operated between latitudes 0 and 8^0S and longitudes 35^0 E and 69^0 E . No interaction with seabirds was recorded.

All foreign licensed vessels have been informed through their local agents to strictly adhere to the mitigation measures provided in Resolution 12/06 *On Reducing the incidental bycatch of seabirds in longline fisheries*.

5.3 Marine Turtles

The Fisheries and Marine Resources Act 2007 provides that: *no person shall land or cause to land, sell or have in his possession in Mauritius or in the maritime zones any marine turtle whether dead or alive, marine turtle eggs and stuffed marine turtle.*

Furthermore, in connection with the resolution on the reduction of impacts of the mortality of sea turtles by longline fleets, the local representatives of the fishing companies have been informed that the operators of longline vessels should carry line cutters and de-hookers in order to facilitate the appropriate handling and prompt release of marine turtles caught or entangled.

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

The Fisheries and Marine Resources Act 2007 provides that: *no person shall land or cause to land, sell or have in his possession in Mauritius or in the maritime zones any marine mammal.*

Table 5. Observed annual catches of species of special interest by species (seabirds, marine turtles and marine mammals) by gear for the national fleet, in the IOTC area of competence (for the most recent five years at a minimum, e.g. 2009–2013 or to the extent available).

No catch of seabirds, marine turtle and marine mammals have been recorded for the national fleet in the IOTC area of competence for the most recent five years.

No seabirds, marine turtle and marine mammals have been recorded during port inspection by the Port State Control Unit in 2013.

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

6.1. Logsheet data collection and verification (including date commenced and status of implementation)

Logbook collection, verification and processing were initiated in 2001 and are still being implemented. It is mandatory for all vessels that are licensed to fish in the waters of Mauritius to submit duly filled logbooks prior to obtaining authorization to unload and the licence conditions include penalties for failure to provide factual logbooks. Trip and catch/effort information obtained from logbooks are then verified and recorded for analytical purpose. The fishing positions in the logbooks are also verified using the vessel monitoring system (VMS) positions. Failure to provide factual logbook information may lead to forfeiture of logbook deposit fees paid and may also disqualify the applicant for future licences.

In 2013, a total of 177 logbooks were collected from foreign licensed vessels targeting mainly albacore tuna. The total catch landed by these vessels amounted to 6204 tonnes (with a total effort of 160 54 876 hooks) out of which 5261 tonnes were caught in the EEZ of Mauritius.

6.2. Vessel Monitoring System (including date commenced and status of implementation)

Since 2005, Mauritius has implemented a satellite-based vessel monitoring system for all non-artisanal vessels licensed to fish in its EEZ. The Fisheries Monitoring Center (FMC) regularly receives information such as geographical positions of vessels and their corresponding date and time. A set of regulations was prescribed to provide the legal framework to support the VMS. All licensed fishing vessels are required to be equipped with the VMS system and to report to the FMC every two hours on fishing positions, speed and directions. The VMS is linked to the National Coast Guard who also monitors the activities of the vessels.

6.3. Observer programme (including date commenced and status; number of observer, include percentage coverage by gear type)

Mauritius aims to cover at least 5% of the number of operations of the local purse- seiners.

Table 6. Annual observer coverage by operation, e.g. longline hooks, purse seine sets (for the most recent five years at a minimum, e.g. 2009–2013 or to the extent available).

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

6.4. Port sampling programme [including date commenced and status of implementation]

Length frequency data of the albacore tuna, yellowfin tuna, bigeye tuna and swordfish were obtained during regular sampling activities carried out on the catch of the national longline fleet. The fishery which targets swordfish also lands a substantial amount of by-catch comprising of tuna with bigeye tuna being the most predominant species landed (34%) followed by yellowfin tuna (17%) and albacore tuna (13%). The number of individuals measured, by species is given in table below.

Species	Number of individuals measured	Range (cm)
Swordfish	666	54-176
Yellowfin tuna	303	82-171
Albacore tuna	245	90-128
Bigeye tuna	614	82-166

Table 4. Number of individuals measured by species

6.4. 1 Unloading/Transhipment [including date commenced and status of implementation]

One transhipment was carried out by the Mauritian purse seiner Belle Rive in Victoria, Seychelles in October 2013. The species composition of the catch transshipped is given in table 4.

Species	Tonnes
Yellowfin	196
Skipjack	154
Bigeye	5
Total	355

Table 5: Species composition of catch transshipped by the national purse seine fleet.

Transshipment by foreign fishing vessels at Port Louis: A total of 52 668 tonnes of tuna and tuna-like species was transshipped at Port Louis by foreign tuna fishing vessels and carriers which effected 702 and 42 calls respectively. The foreign fishing vessels consisted of both licensed and non-licensed longliners and purse seiners. Fishing licenses are issued to both foreign longliners and purse seiners to fish in the EEZ of Mauritius. In 2013, 94 longliners and 37 purse seiners were issued licences to fish in our EEZ The species composition of the fish transshipped by both foreign licensed and non licensed vessels is shown in table 5. Albacore tuna constituted 33 % of the total catch. An increase in the volume of yellowfin and bigeye tuna transhipped was observed and this was due to transhipment effected by some European purse-seiners which target mostly these species.

Year	Albacore	Yellowfin	Bigeye	Skipjack	Swordfish	Bluefin	Marlin	Sailfish	Shark	Misc.	Total
2009	21 627	2 003	574	2 363	2 111	11	203	147	1 328	4 721	35 088
2010	23 908	5 929	2 173	2 839	1 494	410	380	90	2 432	4 068	43 723
2011	16 138	7 165	1 979	4 993	525	155	587	1 082	3 420	3 969	40 013
2012	15 671	8 045	3 345	2 397	2 368	532	1 623	395	2 318	3 527	40 221
2013	17457	9063	6490	2 668	4366	411	2270	526	2608	6811	52 668

Table 6: Species composition of catch transshipped by foreign longliners and purse seiners.

7. NATIONAL RESEARCH PROGRAMS

Table 8. Summary table of national research programs, including dates.
Example only

Project title	Period	Countries involved	Budget total	Funding source	Objectives	Short description
Programme régional de marquage de thons	2009–2013	EU – France and Spain		ED- DG FISH	Observer program: collection of bycatch data	

NIL

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 2005 and 2014.

Res. No.	Resolution	Scientific requirement	CPC progress
13/03	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–11	Catch and effort data are compiled from logbooks collected from foreign and national vessels licensed to fish in the EEZ of Mauritius and regularly submitted to IOTC
13/04	On the conservation of cetaceans	Paragraphs 7– 9	The Masters of the Mauritius-flagged vessels have been sensitised on the need to comply with resolution 13/04 especially on the steps to follow as per paragraph 3 of the resolution. There has been no report of any such event. Marine mammals are protected by law (Section 17 of the Fisheries and Marine Resources Act).
13/05	On the conservation of whale sharks (*Rhincodon typus*)	Paragraphs 7– 9	The Masters of the Mauritius-flagged vessels have sensitised on the need to comply with resolution 13/05 especially on the steps to follow as per paragraph 3 (b).There has been no report of any encounter with whale sharks
13/06	On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries	Paragraph 5–6	Fishers have been sensitised to record incidental catches of oceanic whitetip sharks. The NPOA Shark which is under preparation will address this issue.
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence	Paragraphs 4–8	Presence of thresher shark has not been observed onboard national and foreign vessels. Licensed fishing vessels have been requested to strictly abide with this resolution.
12/06	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	There is no interaction of seabirds by the national fishing vessels. Foreign licensed vessels are advised to apply seabird mitigation measures.
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	Marine turtles are protected by Law (Section 16 of the Fisheries and Marine Resources Act). Licensed fishing vessels have been notified about the mitigation measures proposed under this resolution.
11/04	On a regional observer scheme	Paragraph 9	Mauritius is planning to deploy observers onboard its registered purse seiner.
10/02	Mandatory statistical requirements for IOTC members and cooperating non contracting parties	Paragraphs 1–7	All statistical data for national and foreign longline fishing vessels are regularly submitted to IOTC. The provisional longline and purse seine data for 2013 was submitted on 29/06/2014 and final data was submitted on 05/11/14.
05/05	Concerning the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 1–12	No licences were issued to vessels targeting sharks. Shark caught as by-catch by foreign licensed vessels are authorised unloading subject to compliance with the 5% ratio of fins to total carcasses onboard.

9. LITERATURE CITED

1. National report 2012 (Mauritius)