



MAURITIUS National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2013

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Ministry of Fisheries, Mauritius

INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

<p>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 2013 final data for the 2012 calendar year must be provided to the Secretariat by 30 June 2013)</p>	<p>Not applicable as Mauritius has no fleet other than longline fishing boats</p>
<p>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 2013, preliminary data for the 2012 calendar year was provided to the Secretariat by 30 June 2013].</p> <p>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 2013, final data for the 2012 calendar year must be provided to the Secretariat by 30 December 2013].</p>	<p>YES</p> <p>29/06/2013</p>
<p>If no, please indicate the reason(s) and intended actions:</p>	

Executive Summary [Mandatory]

*Fisheries contribute to the national economy to the tune of 1.3% Gross Domestic Product, of which processed tuna for the export market is the main contributor. The majority of the tuna and tuna-like species fishing in the EEZ of Mauritius is carried out by distant water fishing fleets from Europe (purse seiners) and countries of the East and South East Asia (longliners). Tuna fishing longliners regularly call at the Port Louis harbour with an approximate of over 600 calls yearly for unloading and transshipment of tuna. During the year under report, 40 221 tonnes of tuna were transhipped through the Port Louis harbour and albacore tuna constituted more than 40% of the total catch. Five national fishing vessels, less than 24 meters in length, landed 36 tonnes of chilled fish with a total effort of 182,300 hooks. These vessels target swordfish (47.2%) but also land by-catch comprising yellowfin (*Thunnus albacares*, 15.8%), bigeye (*Thunnus obesus*, 8.2%) and albacore (*Thunnus alalunga*, 15.4 %) tunas, and billfishes (4%) while no encounter with seabirds and marine turtles were noted. The fishing areas were spread between latitudes 9°S and 26°S and longitudes 56°E and 62°E. A small amount (2.1 tonnes) of shortfin mako shark (*Isurus oxyrinchus*) is landed by the national vessels. However, 2318 tonnes of sharks consisting mainly of blue shark (*Prionace glauca*, 78%) followed by shortfin mako shark (16%) were landed in port by foreign longliners during 2012. The FAD fishery which consists of around 380 small-scale fishermen operating around the 27 anchored Fish Aggregating Devices set around the island landed 235 tonnes of fish with albacore being the major species (69.3%) followed by yellowfin (21.2%) and skipjack tunas (4.2%). One purse-seiner flying Mauritius flag was registered in October 2013 and observers will be deployed to monitor the national purse-seiner.*

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1. BACKGROUND/GENERAL FISHERY INFORMATION [MANDATORY]

Tuna fishing in the waters of Mauritius is practiced by foreign and national licensed fishing vessels from the semi-industrial chilled fish fishery. In 2012, the national fleet consisted of five surface longliners, less than 24 m in length, targeting swordfish (*Xiphias gladius* 47.2% of the total catch) but also landing a considerable amount of tunas comprising yellowfin (*Thunnus albacares*, 15.8%), bigeye (*Thunnus obesus*, 8.2%)

and albacore (*Thunnus alalunga*, 15.4 %) tunas, and billfishes (4%). The fishes caught are gutted and/or headed prior to be stored on ice onboard the vessels. A total of 36 tons of tunas and tuna-associated species were landed in 2012. These are destined for both local and foreign consumption. The fishing area of the national fleet is restricted to the EEZ of Mauritius, between latitudes 9°-26° S and longitudes 56°-62° E.

Tunas are also caught around anchored Fish Aggregating Devices (FADs), located offshore within a maximum of 12 nautical miles from the coast of Mauritius. This artisanal fishery was introduced in 1985 for the small-scale fishermen and by 2012 twenty-seven FADs were maintained active around Mauritius. About 380 fishermen using motorised boats were involved in this fishery and landings amounted to 235 tonnes in 2012. 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.

Moreover, the sports/recreational fishing 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 and the fishery supplies the local market with an additional estimated amount of about 350 tonnes.

2. FLEET STRUCTURE [MANDATORY]

The number of national fishing vessels was reduced from 8 vessels (2 >24m and 6 < 24m) in 2008 to only 1 in 2009 due to a restriction on the export of swordfish. In 2010, the fishing activity was re-launched with 3 vessels in operation and 4 vessels (<24m) in 2011. In 2012, five surface longline fishing vessels operated within the EEZ of Mauritius. 35 fishing campaigns were undertaken by these vessels constituting a total of 238 fishing days in 2012.

Table 1: Number of vessels operating in the IOTC area of competence from 2008 to 2012, by gear type and size

Year	Gear	Number of Vessels	Number of fishing days	GT	LOA (m)	Preservation Methods
2008	Surface longline	6	134	50.9-99.4	19.90-22.90	Chilled
	Surface longline	2	329	577-597	35.36-48.31	Frozen
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	13.5-22.8	Chilled
	Surface longline	Nil	Nil	Nil	Nil	Frozen

The FAD fishery consisted of some 180 fishing boats, 6-8 m in length, with outboard motor. The tunas caught are landed on the same fishing day at the 61 prescribed fish landing stations around the coast of the island of Mauritius.

3. CATCH AND EFFORT (BY SPECIES AND GEAR) [Mandatory]

In 2008, about 551 tonnes of fish were landed, both in the frozen and chilled state, by 8 surface longline fishing vessels in operation. In 2009 only 226 tonnes of frozen fish composing mainly of swordfish was

landed. Chilled fish was not landed as vessels in the chilled fish fishery did not operate during this year. However, in 2010 the chilled fish fishery was re-initiated with 3 vessels (<24m) in operation and in 2012, 5 vessels (<24m) landed 36 121 kg of pelagic fish comprising mainly swordfish followed by yellowfin, bigeye and albacore tunas. A small amount (2.1 tonnes) of shortfin mako shark (*Isurus oxyrinchus*) was landed by the national vessels in 2012.

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

Species	2008	2009	2010	2011	2012
Yellowfin	14 076	Nil	7 621	16 476	5 715
Bigeye	0		460	10 826	2 960
Albacore	14 570		4 998	8 415	5 555
Swordfish	8 858		17 070	43 999	17 065
Other billfish	163		260	3 531	1 445
Others	1529		1 925	6 147	3 381
Effort (hooks)	210 198		58 500	252 480	182 300
Total Catch	39 196		32 334	89 394	36 121

Table 2b: Annual catch (tonnes) of surface longline frozen fish fishery (vessels >24m)

Species	2008	2009	2010	2011	2012
Yellowfin	52.5	0.9	3.6	Nil	Nil
Bigeye	5.5	2.1	4.2		
Albacore	5	0.3	1.8		
Swordfish	273	180	161		
Other billfish	13	3.2	6		
Sharks	Nil	Nil	Nil		
NEI	163	39.8	129		
Effort (hooks)	465,678	40,338	208,563		
Total Catch	512	226.3	305.6		

Table 2c: Annual catch (kg) of the FAD fishery

Year	Albacore	Yellowfin	Skipjack	Common dolphinfish	Wahoo	Others (marlins, sailfish, sharks, Other tunas)	Effort (fisherman days)
2008	145 345	83 011	42 584	8 721	1 704	4 360	13 493
2009	230 006	45 327	10 460	28 848	2 262	816	10 040
2010	190754	116 590	15 542	4 350	585	740	18 305
2011	141 804	55 132	17 572	8 763	1 308	915	12 930
2012	162 101	49 691	9 851	6 422	1 976	1 092	16 115

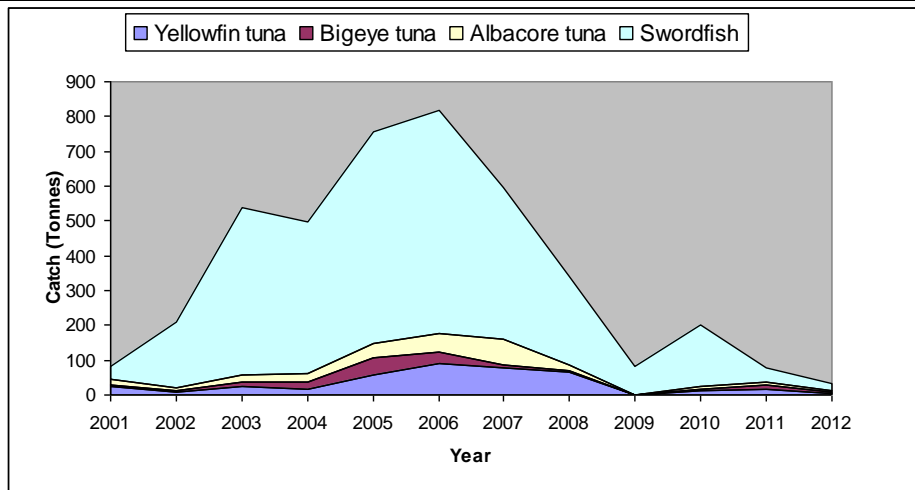


Figure 1. Historical annual catch for the national fleet, by gear and primary species, for the IOTC area of competence for the entire history of the fishery/fleet.



Figure 2a. Map of the distribution of fishing effort, by gear type for the national fleet in the IOTC area of competence (most recent year e.g. 2012).



Figure 2b. Map of the distribution of fishing effort, by gear type for the national fleet in the IOTC area of competence (average of the 5 previous years e.g. 2008–2012).

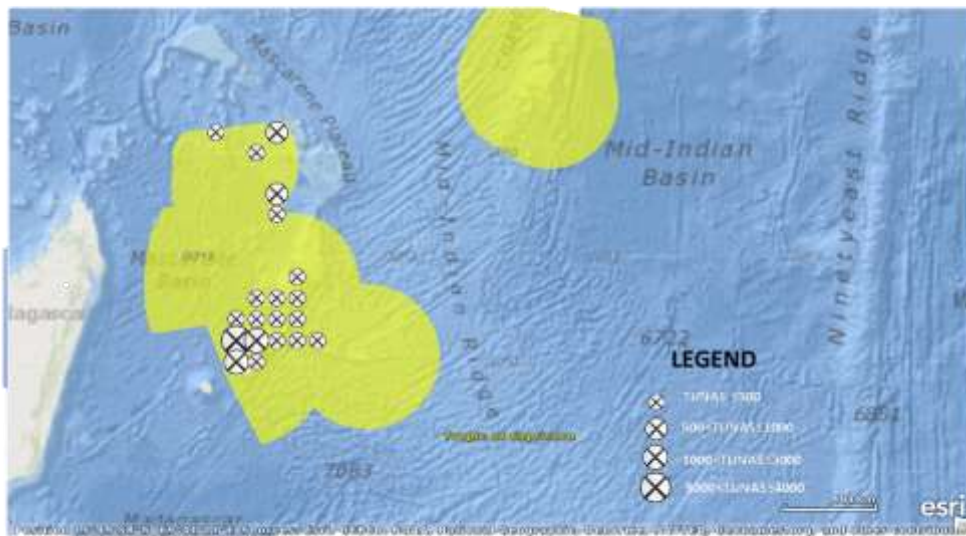


Figure 3a (i). Map of distribution of fishing catch (Tunas) for the national fleet, in the IOTC area of competence (most recent year e.g. 2012).

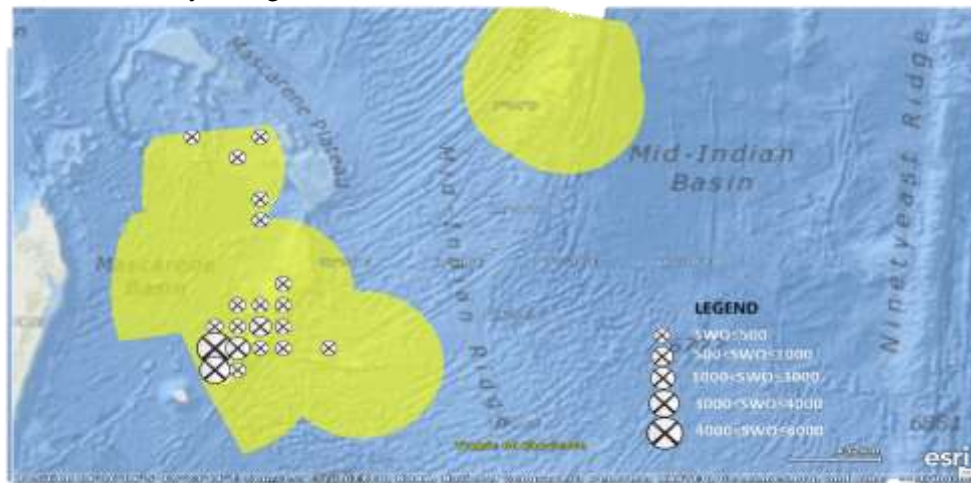


Figure 3a (ii). Map of distribution of fishing catch (Swordfish) for the national fleet, in the IOTC area of competence (most recent year e.g. 2012).

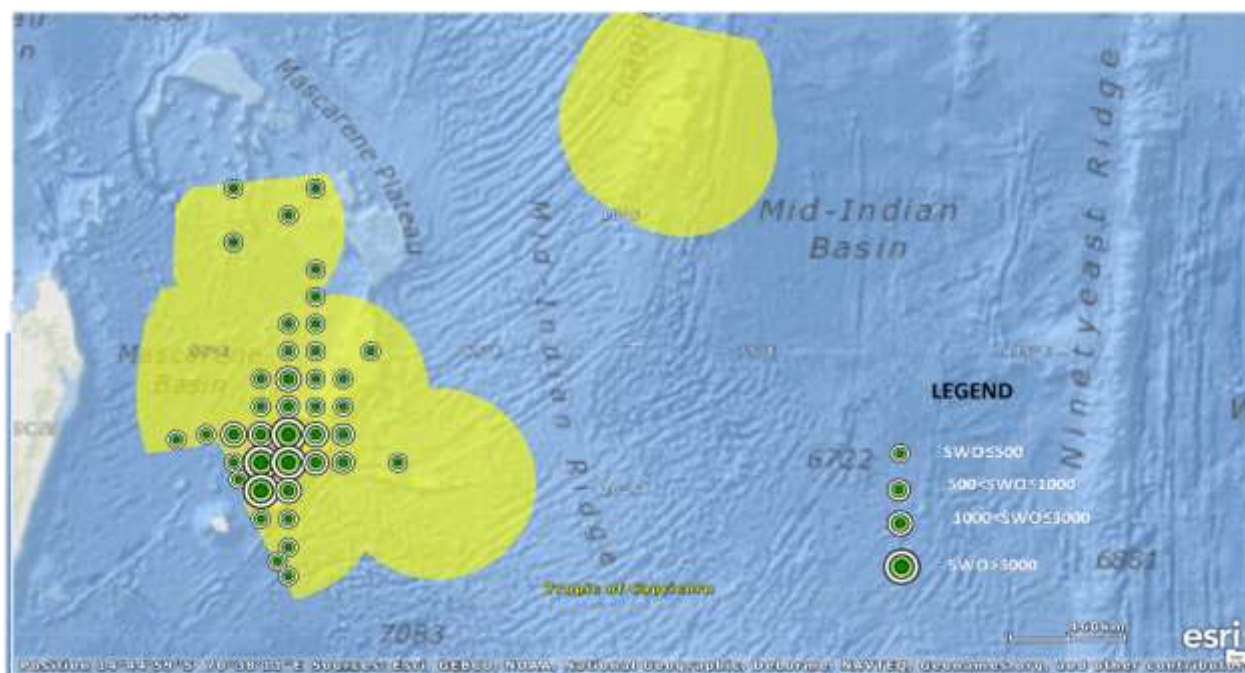


Figure 3b (i). Map of distribution of fishing catch (Tunas) for the national fleet, in the IOTC area of competence (average of the 5 previous years e.g. 2008–2012).

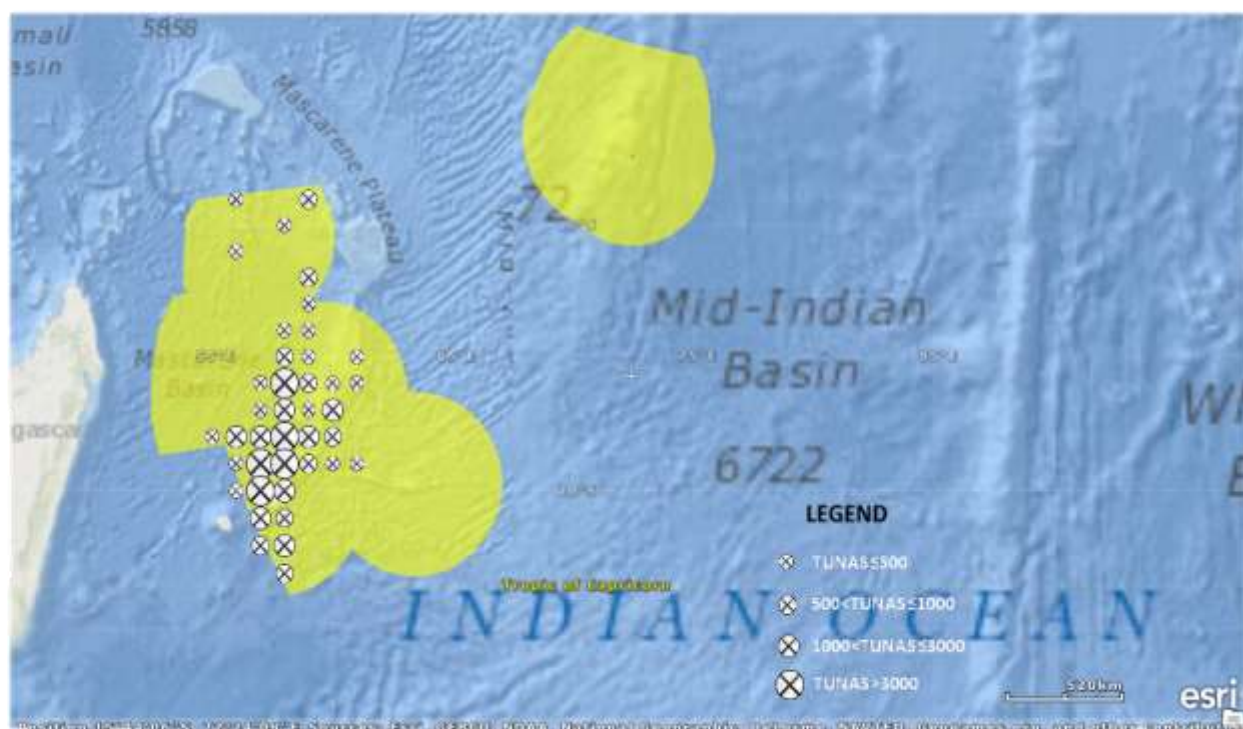


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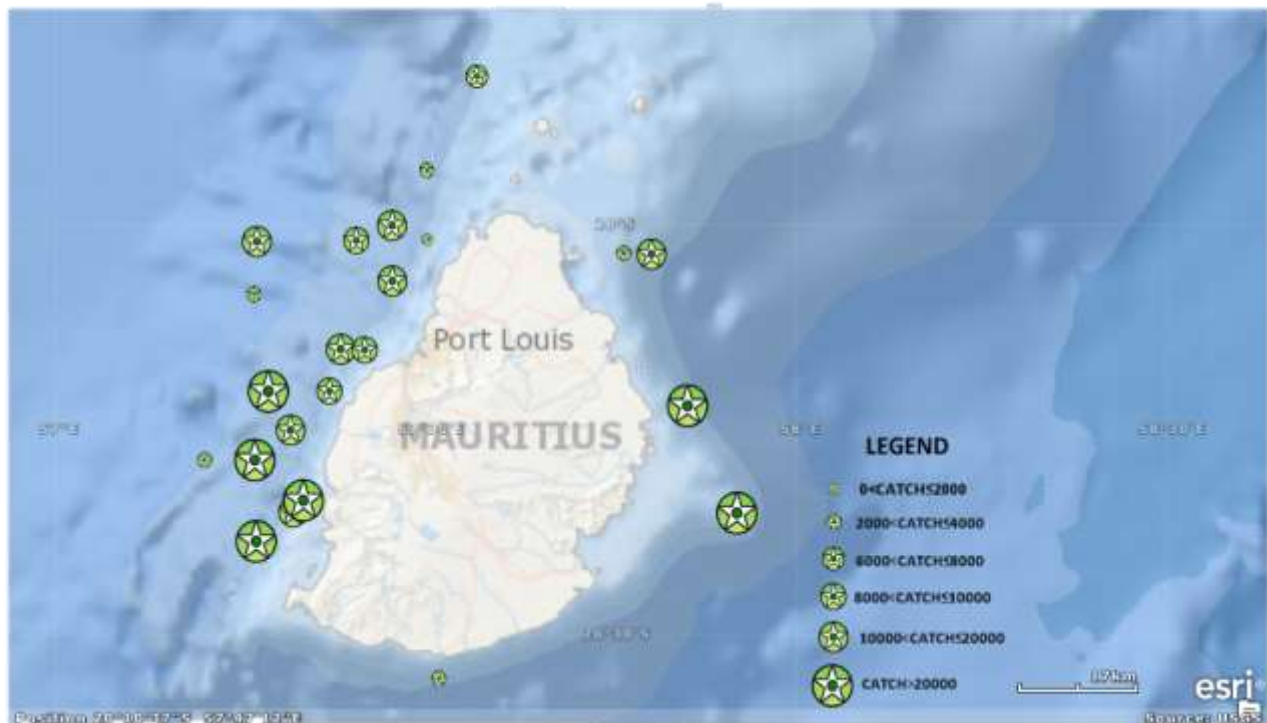


Figure 3c. Map of distribution of fishing catch of FAD fishery for the years 2008-2011

4. RECREATIONAL FISHERY [Mandatory]

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 [Mandatory]

The Fisheries and Marine Resources Act 2007 is presently being reviewed under the Bilateral Cooperation between Norway and Mauritius. The fisheries international and regional instrument to which Mauritius is a party will be taken into consideration in the new legislation. It will give the Ministry of Fisheries the flexibility required to address changing needs in a dynamic fisheries environment through regulations.

All fishing vessels are inspected by officers of the Port State Control Unit of the Ministry of Fisheries. The logbooks of the fishing vessels are verified and the officers ensure that each vessel has been complying with the conservation and management measures prior to authorising unloading.

5.1 Sharks [Mandatory]

Mauritius does not issue national or foreign fishing licence to vessels targeting sharks in its EEZ. However, foreign fishing vessels often land shark as by-catch. The catch of sharks landed by swordfish-targeting vessels was higher (24.3%-39.1%) as compared to tuna targeting vessels (7.9%-20.2%). As far as licensed vessels are concerned, the licence condition provides that these vessels are required to abide with international and regional fisheries conservation and management measures. The officers of the Port State Control Unit

ensure that shark fins do not exceed 5% of the total body weight onboard during their vessels inspection. Mauritius will work in consultation with the IOTC secretariat to prepare an NPOA on sharks.

Table 3: Total number and weight of sharks, by species, retained by the national fleet in the IOTC area of competence (for the most recent five years at a minimum, e.g. 2008–2012). [Mandatory]

In 2012, a total of 2 318 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 (78%) and shortfin mako shark (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. 2008–2012). Where available, include life status upon released/discard.

There has been no released or discards of sharks by the national fleet operating in the IOTC area of competence.

5.2 Seabirds [Mandatory]

The national fleet consisted of only 5 longline fishing vessels, less than 24 m, operating in the EEZ of Mauritius, between latitudes 9°S and 26°S and longitudes 56°E and 62°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 [Mandatory]

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 maritimes 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) [Desirable]

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. 2007–2011 or to the extent available).

No seabirds, marine turtle and marine mammals have been recorded during port inspection by the Port State Control Unit in 2012.

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. 2007–2011 or to the extent available). [Mandatory]

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS [Mandatory]

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

Licensed foreign and national vessels are authorized to fish in the waters of Mauritius. As per the licence condition all fish caught in the EEZ should be landed in its port and the Master of the vessel has to submit duly filled logbooks prior to obtaining authorisation to unload. This practice has been in place since 2001 and is still in force. The fishing positions in the logbook are then verified using the vessel monitoring system (VMS) positions. The catch data is also verified and recorded for statistical purpose.

In 2012, a total of 108 logbooks were collected from foreign licensed vessels targeting mainly albacore tuna. The total catch landed by these vessels amounted to 3 646 tonnes out of which 3 071 tonnes were exclusively caught in the EEZ of Mauritius.

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

Since 2005, Mauritius has adopted a satellite-based vessel monitoring system for all vessels operating 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 should be equipped with the VMS system and have 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.

In 2012, 188 local and foreign fishing vessels reported to the FMC.

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

Mauritius has not implemented the observer programme as only 5 national vessels, less than 24m, were operating in its EEZ in 2012. Six officers were trained as observers, three under the SWIOFP and the other three under the IOC-MCS project. Mauritius is planning to deploy observers onboard the newly registered local purse-seiner, Belle Rive. Under the observer programme, Mauritius aims to cover at least 5% of the number of operations of the local purse-seiner.

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. 2008–2012 or to the extent available). [Mandatory]

Figure 4. Map showing the spatial distribution of observer coverage. [Mandatory]

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

6.4.1 Sampling of catch of foreign licensed longliners (2012)

Length frequency data of the albacore tuna were obtained during regular sampling activities carried out on the catch of licensed longliners. A total of 2 298 albacore tuna was sampled in 2012. The length frequency distribution is shown in figure 4. The length varied from 74 to 129 cm. 81% of the catch comprised fish in the range of 95 to 115 cm.

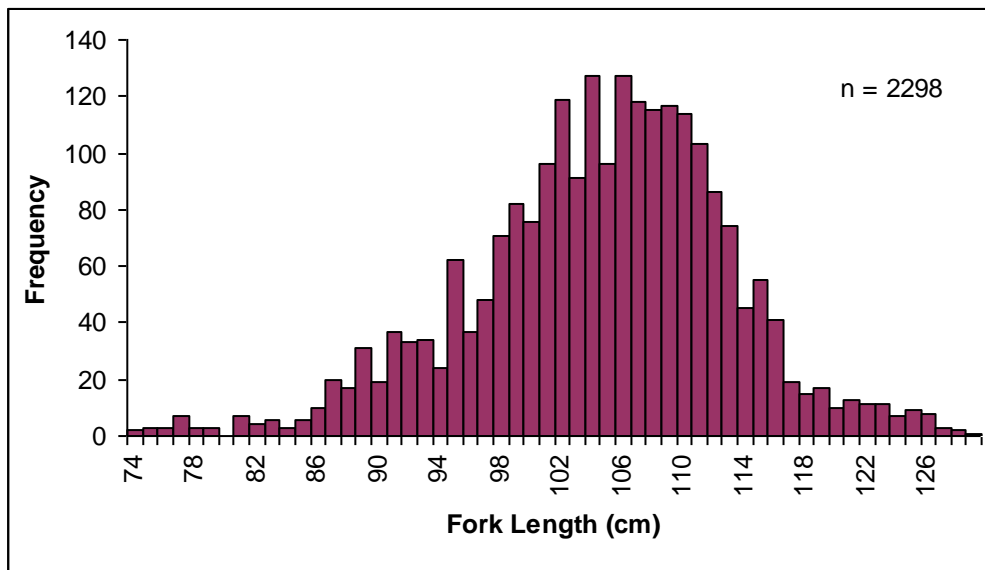


Figure 5: Number of individuals measured

6.5 Unloading/Transshipment [including date commenced and status of implementation] **[Mandatory]**

6.5.1 Transshipment by foreign tuna fishing vessels

A total of 40 221 tonnes of tuna and tuna-like species was transhipped at Port Louis by tuna fishing vessels and carriers which effected 594 and 46 calls respectively. The species composition of the fish transhipped is shown in table 7. Albacore tuna constituted 39 % of the total catch. An increase in the volume of yellowfin and bigeye tuna transhipped was observed and this was due to transshipment effected by some European purse-seiners which target mostly these species. The decrease in volume of skipjack tuna is mainly attributed to the fact that most fishing activities of purse seiners were carried out on free schools where the level of skipjack is low.

The quantity of fish per species that were transhipped from 2008 to 2012 is shown in table 7.

Table 7: Species composition of fish transhipped.

Year	Albacore	Yellowfin	Bigeye	Skipjack	Swordfish	Bluefin	Marlin	Sailfish	Shark	Misc.	Total
2008	11 375	1 479	596	133	3301	34	142	167	1 728	1 972	20927
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

7. NATIONAL RESEARCH PROGRAMS **[Desirable]**

No national research programme is presently in place.

8. IMPLEMENTATION OF SCIENTIFIC COMMITTEE RECOMMENDATIONS AND RESOLUTIONS OF THE IOTC RELEVANT TO THE SC. **[Mandatory]**

Table 9. Respond with progress made to recommendations of the SC and specific Resolutions relevant to the work of the Scientific Committee [to be updated annually to include most recent Conservation and Management Measures adopted by the Commission].

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	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. Mauritius will work in consultation with the IOTC secretariat to prepare an NPOA for sharks.
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 final longline data for 2012 was submitted on 29/06/2013
10/06	On reducing the incidental bycatch of seabirds in longline fisheries. Reminder: Resolution 12/06 will supersede Resolution 10/06 on 1 July 2014	Paragraphs 3–7	There is no interaction of seabirds by the national longline fishing vessels. Foreign licensed vessels are advised to apply seabird mitigation measures.
11/04	On a regional observer scheme	Paragraph 9	The regional observer programme was not implemented as only 5 vessels (<24m) operated in the EEZ in 2012. Mauritius is planning to deploy observers onboard the newly registered local purse seiner, Belle Rive.
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
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	Marine turtles are protected by Law. Licensed fishing vessels have been notified about the mitigation measures proposed under this resolution.
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.

9. LITERATURE CITED [Mandatory]

- Annual Report (2011) Ministry of Fisheries, Mauritius
- S.P Beeharry *et al.* (2013). *An overview of the bycatch landed by national and foreign tuna longliners in Mauritius for the period 2009 to 2012* (IOTC-2013WPEB09-32)