National Report on Tuna Fisheries in Mauritius

1. The fisheries sector in the Mauritian economy

Tuna fisheries is important in Mauritius as export in the fishing sector concerns mainly canned tuna which yielded around 8 billion rupees (186 million Euros) in 2008. Total fish traffic at Port Louis stood at about 230,000 tonnes during the same year. In all 568 calls of fishing vessels were registered in the port generating some 6 billion rupees (140 m Euros). During the same period value of local production including tuna fish amounted to an estimated 2 billion rupees (46 m Euros) Export of fish and fish products during 2003-2007 is shown in **Table I**. In terms of contribution to GDP, the fishery sector represents approximately one per cent of the total GDP.

Table 1: Import and export of fish and fish products and trade balance

Year	Import		Export		Balance
	Qty(t)	Value (MR)	Qty(t)	Value (MR)	Value (MR)
2003	62 323	2 560.1	48 719	3 178.4	618.3
2004	80 943	3 170.1	54 241	3 358.1	188.0
2005	104 830	4 265.7	67 249	4 842.1	580.9
2006	150 728	6 720.9	79 707	7 120.4	395.5
2007	129 085	7 068.0	86 170	8 170.8	1 104.8

MR – Million rupees

From the economic, nutritional and social stand points, fisheries is an important sector in Mauritius. Although local fish production does not suffice to cover market needs, fishing and fish processing activities provide direct employment to about twelve thousand people and is quite an import foreign exchange earner. The per capita consumption of fish was 23 kg in 2008.

2. The tuna fishery

The tuna fishery forms the basis of important local fish processing industries. Tuna transhipment is a valuable related activity since several decades. The sport fishery also lands an important quantity of pelagic fishes. An artisanal tuna fishery has also developed around fish aggregating devices placed around Mauritius.

2.1 Tuna catch by foreign licensed vessels

Since 1995, licences are issued to foreign longliners (mostly Asian) to operate in the Mauritian waters. The majority of these vessels tranship their catch at Port Louis. Licences are also issued to purse seiners to fish in Mauritian waters.

2.2 Monitoring of the catch of licensed longliners

Logbook returns were collected for licensed vessels. These vessels transhipped 7 966 tonnes. The catch included 1 364 tonnes caught by licensed European longliners and 476 tonnes caught by two Mauritian flagged vessels. A total of 110 logbooks was received, of which 91 were considered for processing; the remaining contained inconsistencies. The catches made in the Mauritian EEZ based on the correct returns amounted to 3 600 tonnes.
The species composition of the catch of the licensed foreign longliners is shown in table 2

Table 2: Species composition of the catch of licensed foreign longliners

Species	Scientific name	Catch (t)	%
Albacore	*Thunnus alalunga*	2024.4	25.4
Swordfish	*Xyphias gladius*	1273	16
Yellowfin	*Thunnus albacares*	1735	21.8
Bigeye	*Thunnus obesus*	1069.5	13.4
Sharks		668.6	8.4
Others		781.2	9.8
Other billfishes		222.4	2.8
Sailfish	*Istiophorus albicans*	115.4	1.4
Skipjack	*Katsuwonus pelamis*	76.5	1
	Total	**7966.0**	**100.0**

The major part of the catch was composed of albacore and yellowfin. Albacore was the target species of most of the Asian longliners. A high volume of yellowfin was also present particularly in the catches of Japanese longliners .

The fishing area of the licensed longliners was spread widely in the Western Indian Ocean between 09º N and 35º S and 40º E and 90º E.

Length frequency data of the albacore tuna were obtained during regular samplings carried out on the catches of the licensed longliners. A total of 3 685 albacore tuna was measured. The length varied from 74 to 126 cm. The major part of the catch comprised of fish in the range of 98 to 114 cm.

2.3 The local longline fishery

Two vessels operating under the Mauritian flag were engaged in the fishery in 2008. They undertook 4 fishing trips, unloading a total of 476 tonnes of fish. The species composition of the landings is shown in figure 1. Most of the catch was composed of swordfish (52%). The catch per unit effort was 1.03 kg per hook. The fishing area was spread between latitudes 24º S and 35º S and longitudes 32º E and 68º E.

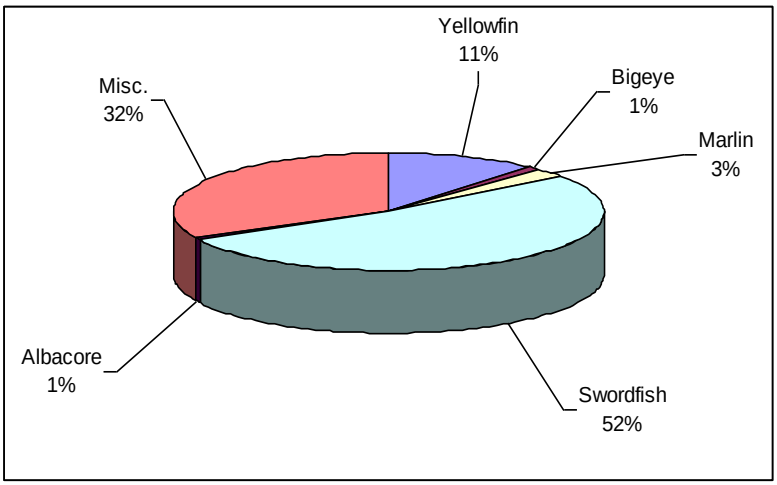

Figure 1 Catch composition of mauritian longliners

3. Semi-industrial pelagic chilled fish fishery

The semi-industrial pelagic chilled fish fishery targeting swordfish is being developed. During 2008 five fishing vessels (less than 24 meters) effected 23 trips and landed 41.37 tonnes of chilled fish. Most of the catch was composed of albacore and yellowfin (35.2% and 34% respectively). The fishing areas were spread around Mauritius, between latitudes 10^0S and 23^0S and longitudes 56^0E and 61^0E. The catch and species composition are shown in table 3 and figure 2

Table 3: Catch composition of the local swordfish fishing vessels (kg)

Year	Swordfish	Yellowfin	Bigeye	Albacore	Marlin	Shark	Sailfish	Misc.	Total
2002	26 248	5 288	2 152	7 242	1 162	220	-	4 108	**46 492**
2003	35 123	21 395	2 190	14 003	2 413	228	-	3 986	**79 338**
2004	51 844	12 597	4 412	19 864	2 236	538	-	5 876	**97 187**
2005	86 069	35 219	11 059	29 774	4 298	578	1 549	9 033	**177 581**
2006	74 157	102 632	15 444	40 840	6 508	1 212	1 590	4 873	**247 256**
2007	45 913	65 924	-	56 416	6 597	1 056	2 156	6 264	**184 326**
2008	8858	14076	-	14570	2183	67	163	1462	**41379**

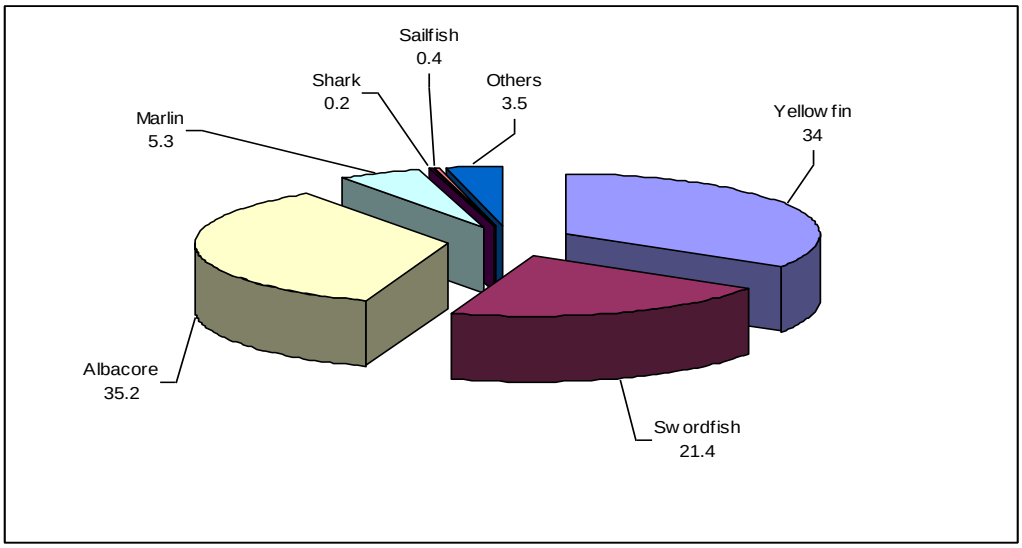

Figure 2: Species composition of the catch

The lengths of the swordfish were measured during the landings of the local vessels. . The length of the swordfish measured from the operculum to keel ranged between 43 to 172 cm with the majority between 69 and 120 cm. The length of the albacore tuna measured ranged from 95 to 124 cm.

4. Transhipment by tuna longliners

Since 1965, Port Louis continues to serve as an important transhipment base to longliners mainly from East Asian countries. Each year about 600 to 700 calls of these longliners are noted at Port Louis.

During 2008, a total of 20 250 tonnes of tuna and tuna-like species was transhipped at Port Louis by licensed and non-licensed longliners The species composition of the fish transhipped between 2004 and 2008 is shown in table 4. Albacore tuna constituted 54% of the total catch. The percentage of the three main species which were transhipped is shown in figure 3

Table 4: Species composition of fish transhipped (t)

Year	Albacore	Yellowfin	Bigeye	Skipjack	Swordfish	Bluefin	Marlin	Sailfish	Shark	Misc.	Total
2004	4 633	4 110	1 361	3	1 595	1	172	6	2 022	352	**14 255**
2005	4 947	3 887	1 413	-	3 357	-	318	35	2 473	1 237	**17 667**
2006	20306.5	1995.3	358.6	126.8	1934.5	229.6	242.5	130.6	1890.1	2017.1	**29 231**
2007	12 182	3 281.2	494.4	133.6	2 304.8	8.4	67.2	486.3	1881.1	3 110.2	**23 955**
2008	11060	1307	481	134	3297	8	140	168	1715	1940	**20 250**

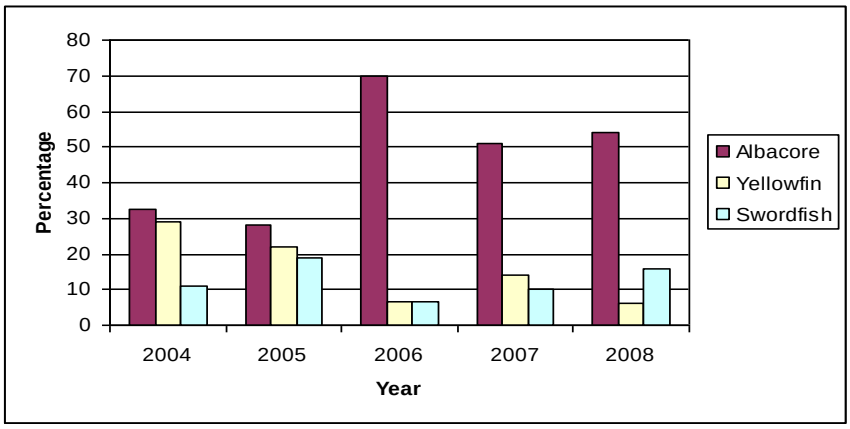

Figure 3: Percentage of the three main species transshipped by longliners

5. Fish aggregating device fishery

Fish aggregating devices (FADs) were introduced in 1985 to facilitate fishing for pelagic resources in the outer-reef waters of Mauritius and Rodrigues. Twenty- four FADs are maintained around Mauritius. About 300 fishermen are involved in this fishery and the catch has been estimated to be around 300 tonnes annually. The catch is composed of tuna, dolphin fishes, bill fishes and sharks. A data collection system has been put in place to collect data on the fishery and improve estimates of catches. Enumerators thus are posted at landing sites to collect catch and effort data on a daily basis from fishermen fishing around FADs.

6 Sports fishery

The sports fishery involves local recreational fishermen and tourists. It is an important activity for the tourism industry and various international big game fishing competitions are held every year in Mauritius. The sports fishery supplies the local market with an additional estimated amount of about 350 tonnes of fish which include marlins, tuna, dolphin fishes and sharks.

A system of data collection in the sector to get better estimates of catches has been put in place. The eight clubs/organisations involved directly in this activity have been requested to submit daily catch statistics and boat characteristics on a monthly basis. In this connection, data collection forms have been designed and distributed to the concerned organisations.

7. Tuna canning

Export of canned tuna constitutes about 90% of the total export value of fish and fish products from Mauritius.

Tuna canning operations started in 1972 with raw materials being imported from Madagascar and later from Maldives. Since 2000, a modern canning factory was constructed to replace the one in operation and upgrade processing facilities. The

factory is operated under a joint venture company. It has a processing capacity of 230 tonnes per day and a labour force of 2300.

Another processing plant is operating in the seafood sector since 2000. It has a workforce of nearly 2,500 employees. The processing plant can process up to 250 tonnes of tuna per day. At the start, it was only involved in processing loins but presently it is also exporting canned tuna to overseas markets. The factories satisfy all the requirements for export of processed tuna to the European markets.

8. Vessel Monitoring System

A total of 248 fishing vessels reported to the FMC and this figure comprises of 31 local and 217 foreign vessels. Table 5 shows a breakdown of the fishing vessels by nationality and transponder type (either Inmarsat or Argos).

Vessel	**Inmarsat**	**Argos**	**Total**
Local	**27**	**4**	**31**
Foreign			
Taiwanese	45	53	98
Japanese	0	18	18
Malaysian	13	1	14
Indonesian	8	0	8
Malagasy	3	0	3
Belize	4	1	5
Seychelles	0	5	5
Korean	0	1	1
China	0	2	2
Sub Total	**73**	**81**	**154**
Total	***100***	***85***	***185***
EU *			
French			37
Spanish			23
Portuguese			2
Italian			1
Total			**63**
Grand Total			**248**

**** The FMC has no information on the transponder that the EU fishing vessels have on board.***

The total number of data reports received by the FMC from fishing vessels with Inmarsat transponders on board for the period January to December 2008 amounted to 258 502.

9. Fishing Agreements and issue of licences

Mauritius has entered into a fishing agreement with the Federation of Japan Tuna Fisheries Cooperatives Associations. Under this agreement, fishing possibilities are provided to 50 Japanese longliners to operate in Mauritian EEZ.

Mauritius has also signed a fishing agreement with Seychelles in 1990, which, allows Mauritian tuna fishing vessels to fish in Seychelles waters and Seychellois vessels to fish in Mauritian waters.

Licences are also issued to foreign longliners and purse seiners outside fishing agreement for fishing in Mauritian waters.

During 2008, 102 licences were issued to foreign fishing vessels which included 81 longliners and 16 purse seiners.

10. National Plan Of Action to prevent, deter and eliminate IUU Fishing

A National Plan of Action to prevent, deter and eliminate IUU Fishing has been prepared and approved by the government. The plan addresses among others the responsibilities of Mauritius as a State, flag State, coastal State and port State. It also provides market related measures, supporting actions and the role of RFMOs to combat IUU fishing.

11. Collections and Processing of Statistical Data

Fishing logbooks are regularly distributed to local and licensed foreign vessels. Daily catch statistics are recorded by skippers on these fishing logbooks.

Landing statistics or trip data are collected from the owners of vessels or fishing companies representing vessels in Mauritius.

Length frequency sampling is conducted on the catches of licensed longliners during their landings. Length frequency data is also collected on the catches of the local swordfish fishing vessels.

All the data are computerized using the software “FINSS”. Processing of logbook data to produce catch in EZZ is now effected through “FINSS”.

12. Measures taken to implement recommendations of the Scientific Committee

12.1 Submission of statistics

Mauritius transmits to IOTC data regularly and these include:

(a) Catch and effort of the local and foreign fishing vessels
(b) Length frequency data of the catches of the swordfish fishing vessels;
(c) Length frequency data of the licensed foreign longliners transhipping at Port Louis
(d) Vessels characteristics for the vessel Registry
(e) Data on transhipment and on calling vessels

Catch and effort data of local and licensed foreign longliners are compiled and processed on 1^0 degree square.

12.2 Port sampling to collect length frequency data on longline catch

Regular samplings for the collection of length frequency data are carried out on the catches of licensed local and foreign longliners which target mainly tuna and swordfish. Species, fishing positions and length of fish are noted. These data are collected, compiled and transmitted to the IOTC.

12.3 Support for tagging programme

In Mauritius, so far 1157 tags have been recovered from the two processing plants namely Princes Tuna Canning Factory and Thon des Mascareignes Ltd and agents of vessels calling at Port- Louis. Agents and Freeport operators were sensitized for the importance of tag recoveries.

12.4 Vessel Monitoring System (VMS)

A VMS was established in 2005 to better monitor the activities of fishing vessels in the EEZ of Mauritius. Specific regulation has been prescribed so that all local and foreign licensed vessels have to report to the FMC every two hours on fishing positions, speed and directions.

The VMS data are also used to verify the fishing positions found in the logbooks

12.5 Data on Port Inspection

A Port Inspection Unit based at the port is operational since June 2004. Data are collected in line with FAO Model Scheme on Port State Measures. In this regard three types of forms have been designed. All vessels calling to the port have to inform the port authority 72 hours in advance and have to provide data on catch, vessel characteristics and purpose of call. On arrival of vessels, inspections are carried out. All vessels have to submit copies of registration certificate, licence details, list of crew, fishing positions (logbooks), catch details, vessel characteristics. IUU listed vessels are not authorized to land their catch at Port Louis. During 2008, in all 568 calls of foreign fishing vessels were registered.