ACRONYMS AND ABBREVIATIONS

1982 UN Convention	United Nations Convention on the Law of the Sea of 10 December 1982				
1993 FAO Compliance Agreement	1993 FAO Agreement to Promote Compliance with Internationa Conservation and Management Measures by Fishing Vessels on the High Seas				
1995 UN Fish Stocks Agreement	1995 United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks				
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora				
COFI	FAO Committee on Fisheries				
EEZ	Exclusive Economic Zone				
FADs	Fish Aggregating Devices				
FAO	Food and Agriculture Organisation of the United Nations				
IPOA-IUU	2001 FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing				
IMO	International Maritime Organization				

MCS Monitoring, Control and Surveillance

IOTC Indian Ocean Tuna Commission

CCAMLR Convention for the Conservation of Antartic Marine Living Resources

RFMO Regional Fisheries Management Organisation

AFRC Albion Fisheries Research Centre

FMC Fisheries Monitoring Centre

VMS Vessel Monitoring System

NPOA-IUU National Plan of Action to Prevent, Deter and Eliminate Illegal,

Unreported and Unregulated Fishing

IOTC-OFCF Indian Ocean Tuna Commission - Overseas Fisheries Cooperative

Foundation

SADC Southern African Development Community

COI Commission de l'Ocean Indien

SWIOFC Southwest Indian Ocean Fisheries Commission

SIOFA Southern Indian Ocean Fisheries Agreement

ABSTRACT

IUU fishing is considered as a major obstacle in the achievement of long-term sustainability of fisheries resources. This document focuses on all State responsibilities, flag state responsibilities, coastal state responsibilities, port state measures, market-related measures and the role of regional fisheries management organizations in order to combat IUU fishing.

EXECUTIVE SUMMARY

Illegal, Unreported and Unregulated (IUU) fishing is a global issue with many harmful environmental, economic and social impacts. The need for strengthened fisheries governance at national and regional levels has been increasingly recognized by the international community as one of the main requirements if IUU fishing is to be eliminated. In response to this, the FAO Committee on Fisheries at its 24th Session in 2001 adopted the International Plan of Action to combat IUU fishing (IPOA-IUU).

The National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, NPOA-IUU, has been developed in response to the call of the FAO Committee on Fisheries at the 24th Session in urging states to take steps to effectively implement the International Plan of Action.

Mauritius has on 08 May 2008 proclaimed its new Fisheries and Marine Resources Act 2007 which was passed in the National Assembly in November 2007. The Act incorporates principles contained in the 1993 FAO Compliance Agreement, the 1995 UN Fish Stocks Agreement and the 1995 FAO Code of Conduct for Responsible Fishing. To a large extent the NPOA-IUU describes measures already taken and a number of new measures which will act as additional tools to combat IUU fishing.

The Mauritius NPOA-IUU addresses, among others, the following:

- a) All State responsibilities;
- b) Flag State responsibilities including registration of vessels fishing boats and vessels, records of fishing boats and vessels and authorization to fish;
- c) Coastal States responsibilities;

- d) Port State Measures with emphasis on advance notification of vessels, denial of access, cooperation with other States and RFMOs and port inspections;
- e) Trade related measures such as catch documentation, transparency of markets and information dissemination;
- f) Conformity with measures taken by the Regional Fisheries Management Organisations which include party compliance and non-party compliance;
- g) Special requirements of developing States; and
- h) Several supporting action to enhance measures taken by Mauritius to combat IUU fishing.

NATIONAL PLAN OF ACTION TO PREVENT, DETER AND ELIMINATE ILLEGAL, UNREPORTED AND UNREGULATED FISHING

1. INTRODUCTION

1.1 Purpose

In accordance with the policy of the government to combat Illegal, Unreported and Unregulated (IUU) fishing, this document provides a National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated fishing (NPOA-IUU). It has been developed in line with the FAO International Plan of Action against IUU fishing (IPOA-IUU) to prevent, deter and eliminate IUU fishing adopted by the FAO Committee on Fisheries by consensus on 2 March 2001. It is also in response to several calls made in international fora for States, industry and other stakeholders to take steps to implement the IPOA-IUU.

1.2 <u>FAO International Plan of Action to Prevent, Deter and Eliminate Illegal,</u> Unreported and Unregulated Fishing

The International Plan of Action against IUU fishing is voluntary and has been elaborated within the framework of the 1995 Code of Conduct for Responsible Fisheries. The objective of the IPOA-IUU is to combat IUU fishing by providing all States with comprehensive, effective and transparent measures by which to act, including through appropriate regional fishery management organisations (RFMOs) or arrangements established in accordance with international law.

The IPOA-IUU called on States to develop and implement NPOAs-IUU by June 2004. The IPOA-IUU contains general measures targeted at all States as well as specific measures for flag states, coastal states and port states. It also contains ways to support the special requirements of developing countries to achieve the objectives of the IPOA-IUU, market related measures and measures to be taken through RFMOs. The IPOA-IUU incorporates the following strategies and principles:

- Participation and coordination: To be fully effective, the IPOA-IUU should be implemented by all States either directly, in cooperation with other States, indirectly through relevant RFMOs or through FAO and other appropriate international organizations. The participation of stakeholders in combating IUU fishing including industry, fishing communities and non-governmental organizations is encouraged.
- <u>Phased implementation</u>: Measures to prevent, deter and eliminate IUU fishing should be based on the earliest possible phased implementation of NPOAs-IUU together with regional and global action in accordance with the IPOA-IUU.
- Comprehensive and integrated approach: Measures to prevent, deter and eliminate IUU fishing should address factors affecting all capture fisheries. In taking such an approach, States should embrace measures building on the primary responsibility of the flag State and using all available jurisdiction in accordance with international law including port state measures, coastal State measures, market-related measures and measures to ensure that nationals do not support or engage in IUU fishing. States are encouraged to use all these measures, as appropriate, and to cooperate to ensure that measures are applied in an integrated manner. NPOAs-IUU should address all economic, social and environmental impacts of IUU fishing.
- <u>Conservation</u>: Measures to prevent, deter and eliminate IUU fishing should be consistent with the conservation and long-term sustainable use of fish stocks and the protection of the environment.
- <u>Transparency</u>: The IPOA-IUU should be implemented in a transparent manner in accordance with Article 6.13 of the 1995 FAO Code of Conduct for Responsible Fisheries.
- *Non-discrimination*: The IPOA-IUU should be applied without discrimination in form or in fact against any State or its fishing vessels.

1.3 Definition of Illegal, Unreported and Unregulated Fishing

The IPOA-IUU provides a clear definition of IUU fishing and the same definition is used in this NPOA-IUU:

a) <u>Illegal fishing refers to activities</u>:

- conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations;
- conducted by vessels flying the flag of States that are parties to a relevant RFMO but operate in contravention of the conservation and management measures adopted by that organization and by which the States are bound, or relevant provisions of the applicable international law; or
- in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant RFMO.

b) Unreported fishing refers to fishing activities:

- which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or
- undertaken in the area of competence of a relevant RFMO which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.

c) Unregulated fishing refers to fishing activities:

• in the area of application of a relevant RFMO that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or

• in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.

1.4 Why is IUU fishing a problem?

Illegal, Unreported and Unregulated (IUU) fishing undermines efforts to conserve and manage fish stocks in capture fisheries and leads to both short term and long term economic and social loss. This has negative impacts on food security and environmental protection.

Besides economic, social and environmental negative impacts, IUU fishers gain undue advantage over legitimate fishing. The IUU fishers act as 'free riders' who benefit unfairly from the sacrifice made by others who implement all management and conservation measures.

From available reports, there are clear indications that there are serious violations of human rights and abuses of labour laws on board IUU fishing vessels. To avoid detection IUU fishing vessels often operate at night without navigation lights thereby putting the lives of its crew and fishermen at risk especially in harsh and dangerous weather conditions. Basic rights of crewmembers and fishermen tend to be denied on these vessels. These include denial of proper living and working conditions, no insurance coverage and absence of safety standards and contractual arrangements.

The unreported nature of IUU fishing makes it particularly difficult to quantify. Available information nevertheless indicates that, for some important fisheries, IUU fishing accounts for up to 30 percent of total catches. Moreover, available information strongly suggests that, despite apparent improvement in some regional situations, the amount of IUU fishing worldwide is increasing, as IUU fishers seek to

avoid compliance with stricter fishing regulations that are being imposed to deal with downturns in a growing number of fish stocks. While some estimates suggest that IUU fishing may account for as much as one quarter of total catch in the world's oceans, fully reliable data on IUU fishing are by definition scarce.

IUU fishing is a global and multifaceted problem, which can only be efficiently and effectively tackled through international, regional and national efforts of all parties involved and affected by this phenomenon.

The IPOA-IUU calls upon states to develop national plans of action to further the objectives of the IPOA and give full effect to its provisions as an integral part of their fisheries management programmes and allocate adequate resources to implement measures to combat IUU fishing.

1.5 Challenges to Mauritius with respect to IUU fishing

Mauritius has a vast EEZ and the surveillance of this area is indeed a challenge. Apart from the demersal resources, which are found around the islands and on the oceanic banks, the resources of concern in most of the EEZ are the tunas.

Fisheries contribute significantly to the economic development of Mauritius. Fisheries related activities such as import and export of fish and fish products, processing, transshipment, warehousing and handling, repairs and dry-docking of fishing vessels contribute to the activities of the Seafood Hub sector. The highly migratory nature of tuna resources and variable distribution in both space and time renders surveillance even more difficult. Hence much effort needs to be exerted with respect to monitoring, control and surveillance of tuna resources to combat IUU fishing. The right balance must be struck between actual physical fisheries surveillance at sea and other means of monitoring and control of the fisheries through measures such as port inspection and VMS monitoring. Conservation and management measures including trade measures of RFMOs should be strictly implemented. Adequate resources would thus be needed by the Fisheries Division and the NCG to combat IUU fishing effectively.

2. COUNTRY DESCRIPTION

2.1 Geographical Location

Mauritius is located at latitude 20° 8'S and longitude 57° 31'E just north of the Tropic of Capricorn and about 2,000 km off the East Coast of Africa. It is of volcanic origin and has an area of 1,864 sq km. The island has a coastline of 177 km. Coral reefs surround most of the coast except for small breaks in the south and west. The State of Mauritius has an Exclusive Economic Zone of about 1.9 million km² around the islands of Mauritius, Rodrigues, Agalega, Cargados Caragos (St Brandon), Tromelin and the Chagos Archipelago. Fishing activities are carried out in the coastal waters of the islands and on the banks of the Nazareth, Saya de Malha and Chagos Archipelago and in oceanic waters. Mauritius has a population of 1.2 million people. Port Louis located in the north-west of the island is its port.

3. FISHERY PROFILE - FISHERIES INFORMATION AND STATISTICS

3.1 The Fisheries Sector in the Mauritian Economy

Export in the fishing sector, which concerns mainly canned tuna yielded around 8 billion rupees in 2007. Total fish traffic including transshipment, imports and exports at Port Louis stood at about 240,000 tonnes during the same year. In all 746 calls of fishing vessels were registered in the port generating some 6 billion rupees. During the same period the value of local fish production amounted to an estimated 1.0 billion rupees. The trade balance was positive and stood at 1,104.8 million rupees. Import and export of fish and fish products during the period from 2003 to 2007 is shown in **Table I**. In terms of contribution to GDP, the fishery sector represented approximately one per cent of the total GDP in 2007.

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

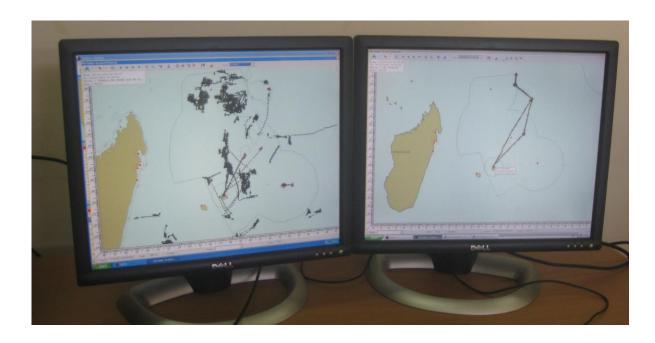
	Imp	ort	Ex	Balance		
Year	Qty(t) Value (MR)		Qty(t)	Value (MR)	Value (MR)	
2003	62 323	2 560.1	48 719	3 178.4	618.3	
2004	80 943	3 170.1	54 241	3 358.1	188.0	
2005	104 830	4 265.7	67 249	4 842.1	580.9	
2006	150 728	6 720.9	79 707	7 120.4	395.5	
2007	129 085	7 068.0	86 170	8 170.8	1 104.8	

MR - Million rupees

From the economic, nutritional and social stand points, fisheries is an important sector in Mauritius. Although local production does not suffice to cover market needs, fishing and fish processing activities provide direct employment to about twelve thousand people and are quite important foreign exchange earners. The per capita consumption of fish was 18 kg in 2007.

3.2 Vessel Monitoring System

Mauritius has set up a Vessel Monitoring System (VMS) at the Fisheries Monitoring Centre (FMC) situated at the Albion Fisheries Research Centre (AFRC) of the Ministry of Fisheries and Rodrigues since 2005. Specific regulations have been prescribed to provide the legal framework for the implementation of the VMS. All local fishing boats and vessels including carrier vessels and foreign licensed fishing boats and vessels have to abide by the VMS regulations under which they have to transmit VMS information every two hours to the FMC. Most of the vessels transmit VMS data directly to the FMC at AFRC while some transmit through their flag state FMCs.



VMS Workstations at the Fisheries Monitoring Centre, AFRC

The VMS can monitor the positions, speeds and directions of fishing vessels through satellite-based tracking systems. The satellites send data to the Land Earth Station (LES) at predetermined regular intervals. After processing, these data are transmitted to and stored in the database of the FMC at the AFRC. The network connected to the server comprises five workstations, out of which three are located at the FMC and the remaining two are placed at the National Coast Guard (NCG) Headquarters (Port Louis) and the NCG Maritime Air Squadron at the Sir Seewoosagur Ramgoolam airport at Plaisance.

3.3 Port State Control Unit

A Port State Control Unit is operational since June 2004 and offers a One Stop Shop Service to fishing boats and vessels. It is based in the port and is dedicated exclusively to the seafood industry and monitors activities of fishing vessels and facilitates administrative and operational clearances in respect of landings, fish transhipment, import/export of fish and fish products, sanitary control, health certification, customs and immigration clearances. Officers from different departments namely the Fisheries Division comprising the Fisheries Management Division and the Fisheries Protection Service, Customs Department, Veterinary

Services, Ministry of Health and Quality of Life and Passport and Immigration Office work in close collaboration and under the same roof. The personnel operating in the unit are as follows:

Ministry of Fisheries and Rodrigues	11 Officers (1 Scientific Officer, 1 Senior Technical Officer, 1 Technical Officer, 6 Fisheries Protection Officers, 1 Clerical Officer and 1 Receptionist/ Telephonist)
Ministry of Agro Industry and Food Security	4 Officers and One Consultant
Ministry of Health and Quality of Life	2 Health Inspectors
Custom and Excise Department	2 Officers
Passport and Immigration Officer	2 Officers



Fishing Vessels at Port Louis Fishing Port

The specific services provided by the unit are as follows:

- a) Issue of landing permits and monitoring of fishing vessels calling at Port Louis;
- b) Monitoring of transhipment;
- c) Monitoring of the quality of fish and fish products;
- d) Inspection of fish and fish products by the Veterinary and Health Services; and
- e) Issue of clearances by the Customs Department and the Passport and Immigration Office.
- f) Issue of export authorisation and health certificates.

3.4 Coastal Fishery

The coastal fishery in Mauritius and Rodrigues involves fishing in the lagoon and outer reef areas. This fishery is the main source of fresh fish supply to the local market. About 2,300 fishermen are involved in the coastal fishery in Mauritius using about 1,500 boats. The different types of gears used are hooks and lines, basket traps, large nets, gill nets and harpoons. The annual fish production is around 900 tonnes.

A team of enumerators covering 61 fish landing stations around the island collects catch and effort data of the artisanal fishery. A computer software, MAUCAS, (Mauritius Catch Assessment Survey), is used for data entry and processing.

The fish landing stations are grouped in three strata (North, East and West). Every week five stations are randomly selected from these strata and five enumerators are posted on each site to collect catch and effort data. These data are collected during selected hours on six days per week. Raising factors are used to estimate the catches and efforts for each stratum separately.

The catch and effort data of the artisanal fishery of Rodrigues are also collected and transmitted to AFRC regularly. About 2,000 registered fishermen are involved in the artisanal fishery and the total landing is about 1,400 tonnes annually.

3.5 Banks Fishery

The banks (St Brandon, Nazareth, Saya de Malha and Chagos Archipelago) located from 250 to 1,200 nautical miles to the north of Mauritius are exploited by Mauritian fishing vessels. Fish produced from the banks constitutes a major source of frozen fish to the population. The catch from the Nazareth, Saya de Malha and Chagos Archipelago banks is about 3,000 to 4,000 tonnes annually and comprises mainly of the *Lethrinus* species.

On the arrival of each fishing vessel at Port Louis, the skipper has to submit logbook and landing data to AFRC. Length frequency data are also collected during the landing of the catch.



Fishing Vessels at Port Louis

A licensing system was introduced in 1992 to manage the fishing activities on the banks. The licences are valid for one year. Furthermore, a quota system based on a Total Allowance Catch (TAC) is implemented since 1994. Each year about 8-9 vessels operate in this fishery as mother vessels. These vessels are of length varying from 40 to 60 meters. During a fishing trip, a mother vessel carries about 15 dories and around 90 fishermen, frigoboys and crew. Fishermen from the dories using hand lines carry out fishing on the banks. Three fishermen man each dory. At the end of a

fishing day, the catch is offloaded on the mother vessels where they are gutted, packed and stored in the wells by the frigoboys. A mother vessel on its return from a fishing campaign unloads about 100 to 150 tonnes of frozen fish.

A semi-industrial chilled fish fishery involving mainly boats less than 24 meters in length has also developed since 1995 exploiting the demersal resources on the Sudan, Hawkins, St. Brandon, Nazareth and Saya de Malha banks. The catch amounts to about 225 tonnes and includes mainly *Lethrinids* and snappers.

3.6 The tuna fishery

The tuna fishery in the region forms the basis of an important local fish processing industry. 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 and Rodrigues.

3.6.1 Purse seine fishery

A first Mauritian purse seiner, "Lady Sushil" was launched in 1979 and was joined by a second vessel, "Lady Sushil II" eight years later. A third purse seiner, "Cirné", started operations in 1991. Until 1997, the three vessels were operating for the local canning factory. However, due to financial problems and change in the administration of the factory, the vessels were sold off in 2000 and the factory has now to rely on imports of raw materials to meet its requirements.

3.6.2 Tuna catch by foreign licensed longliners

Since 1995, licences are issued to foreign longliners (mostly Asian) to operate in Mauritian waters. The majority of these vessels transship their catch at Port Louis. In 2007, a total of 141 licenses were issued to longliners from EC, Taiwan Province of China, South Korea, Japan, Indonesia, Belize and Malaysia.

During 2007, a total of 15,580 tonnes of tuna and related species was transshipped by the licensed longliners of which 4,268 tonnes were caught in the Mauritian EEZ. The remaining were caught in the high seas. The species composition of the catch is shown in **Table 2**.

Table 2: Species composition of the catch of licensed longliners in 2007

SN	Species	Scientific Names	Catch (t)	%
1	Albacore	Thunnus alalunga	2013.9	20.54
2	Swordfish	Xyphias gladius	2012.8	20.53
3	Yellowfin	Thunnus albacares	2262.0	23.07
4	Bigeye	Thunnus obesus	1421.9	14.50
5	Marlin	Makaira spp.	250.3	2.55
6	Shark	Various species	1083.1	11.05
7	Sailfish	Istiophorus platypterus	119.7	1.22
8	Skipjack	Katsuwonus pelamis	42.9	0.44
9	Bluefin	Thunnus maccoyii	7.4	0.08
10	Others	Various species	589.4	6.01
	T	9803.4	100.0	

3.6.3 The Mauritian tuna longline fishery

The Mauritian longline fishery started in 1970 when a longliner was operated by the local tuna canning factory. However, the vessel stopped operation soon after. Two small longliners started fishing in 1986. But their catches were low and they had to stop operations. There were two longliners of GRT 577 and 597 respectively, operating under the Mauritian flag in 2007. They fished in the Mauritian EEZ and high seas, catching 669 tonnes of tuna and related species.

3.6.4 Swordfish fishery

The swordfish fishery is an important fishery, which is being developed. Commercial fishing started in 1999. In 2007 there were six surface longliners (less than 24 m) which operated in the EEZ of Mauritius and caught about 100 tonnes of pelagic fish including swordfish.

3.6.5 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. The objective now is to maintain about 20 FADs 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, billfishes and sharks. Recently a data collection system has been put in place to collect data on the fishery and improve estimates of catches. In this context enumerators are posted at landing sites to collect catch and effort data on a daily basis from fishermen fishing around FADs.

3.6.6 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 since 2004. 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.

3.7 Tuna transshipment

Since 1965, Port Louis continues to serve as an important transshipment base to longliners mainly from Taiwan Province of China, Japan, South Korea, Indonesia, Belize, China, Seychelles, EC and Malaysia. Each year about 600 to 700 calls of these longliners are recorded at Port Louis. The catch of these longliners is composed mainly of albacore, which constitutes more than 75% of their total catch. The species composition of the catch from 2003 to 2007 is shown in **Table 3**.

Table 3: Species Composition of tuna transshipped at Port Louis (tonnes)

Year	Albacore	Yellowfin	Bigeye	Skipjack	Swordfish	Bluefin	Marlin	Sailfish	Shark	Misc	Total
2003	6,225.0	1,280.0	415.0	25.0	2,126.0	3.0	187.0	59.0	1,657.0	456.0	12,433.0
2004	4,633.0	4,110.0	1,361.0	3.0	1,595.0	1.0	172.0	6.0	2,022.0	352.0	14,255.0
2005	4,947.0	3,887.0	1,413.0	-	3,357.0	-	318.0	35.0	2,473.0	1,237.0	17,667.0
2006	20,306.5	1,995.3	358.6	126.8	1,934.5	229.6	242.5	130.6	1,890.1	2,017.1	29,231.6
2007	12,182.0	3,281.2	494.4	133.6	2,304.8	8.4	67.2	486.3	1,881.1	3,110.2	23,949.2

3.8 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. Since 2000, a modern canning factory was constructed to replace the one in operation and upgrade processing facilities. It has a processing capacity of 230 tonnes per day and a labour force of 2300. The raw materials are obtained mainly from European fishing vessels operating in the Indian Ocean.

Another processing plant is operating in the seafood sector since 2000. It has a workforce of nearly 2,000 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.

3.9 Fishing agreements and issue of foreign tuna fishing licences

A fishing agreement was signed in 1990 between the European Union and Mauritius to allow EU vessels to operate in Mauritian waters. Since then five protocols were signed. Under the last protocol signed in 2003, fishing possibilities were provided to 41 purse seiners, 49 surface longliners and handliners to a maximum of 25 GRT/month on an annual average. The protocol has expired and a new one is being negotiated.

A Fishing Agreement was signed between the Federation of Japan Tuna Fisheries Cooperative Association in 2000 under which ten Japanese longliners were authorized to fish in the EEZ of Mauritius. The agreement had been subsequently renewed every two years and presently under the agreement fishing opportunities are provided to 50 Japanese longliners.

Mauritius has signed a fishing agreement with Seychelles since 1990 which allowed Mauritian tuna fishing vessels to fish in Seychelles waters and a reciprocal fishing agreement was signed in 2007. Licences are also issued to foreign tuna longliners for fishing in Mauritian waters outside fishing agreements. Each year about 130 to 150 fishing licences are issued to these vessels.

3.10 Tuna research activities

The Albion Fisheries Research Centre has been collecting and processing catch/effort and length frequency data on tuna since 1985. A system of data collection and processing was set up at AFRC by the French Institut de Recherche et de Developpement (ex. ORSTOM) scientists in 1987. Mauritian technicians were trained to use the system to collect tuna data and perform necessary processing to produce various statistical reports. Originally the "Chaine Thon" programme was used to process data but now the programme "FINSS" is being used for data entry.



Albion Fisheries Research Centre

4. IMPLEMENTATION OF MEASURES TO PREVENT, DETER AND ELIMINATE IUU FISHING

4.1 All State Responsibilities

4.1.1 International instruments

Mauritius complies with relevant provisions of international law related to the conservation and management of marine living resources. In this context, it has ratified several international instruments as listed in **Table 4**:

Table 4: Instrument signed/ratified by Mauritius

Instrument	Status				
Agreement for the establishment of the Indian	Signed on 24 November 1994. Entered into				
Ocean Tuna Commission adopted in 1993	force on 27 March 1996				
1982 UN Convention on the Law of the Sea	Ratified, 1994				
Agreement for the implementation of					
Provisions of the United Nations Convention					
on the Law of the Sea of 10 December 1982	Ratified on 04 November 1994. Entered into				
relating to the Convention and Management of	force on 25 March 1997				
Straddling Fish Stocks and Highly Migratory					
Fish Stocks					
SADC Fisheries Protocol	Signed on 14August 2001				
Memorandum of Understanding on the					
Convention and Management of Marine	Signed on 13 September 2002				
Turtles and their habitats of the Indian Ocean					
South East Asia					
Agreement to Promote Compliance with	Deposit of Instrument of Acceptance on 27 March 2003				
International Conservation and Management					
Measures by Fishing Vessels on the High seas					
Convention for the Conservation of Antarctic	A member of the Convention on 02 October				
Marine Living Resources [CCAMLR]	2004				
South West Indian Ocean Fisheries					
Commission [SWIOFC] (for fisheries in	A member since 25 November 2004				
EEZs)					
Southern Indian Ocean Fisheries Agreement	Signed on 05 July 2007				
[SIOFA] for high seas fisheries	Signed on 03 July 2007				

Mauritius has taken a number of measures to combat IUU fishing in line with the 1995 FAO Code of Conduct for Responsible Fisheries and the IPOA-IUU.

The Maritime Zones Act makes provisions for the implementation of United Nations Convention on the Law of the Sea (UNCLOS) to have force of law in Mauritius.

Mauritius is signatory to the Agreement to Promote Compliance with Conservation and Management Measures by Fishing Vessels on the High Seas, 1993. The Agreement has provisions in relation to obligations to fishing operations by States, international organisations, fisheries management bodies, managers and charterers

of vessels. It is also party to the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (1995) which allows for cooperation among States in the rational exploitation and management of straddling fish stocks and highly migratory species.

Mauritius is party to international fisheries management organisations such as the Indian Ocean Tuna Commission (IOTC) and the Convention for the Conservation of the Antarctic Marine Living Resources (CCAMLR) and it implements their conservation and management measures relating to fish stocks falling under their purview. Mauritius is also a member of the South West Indian Ocean Fisheries Commission and has signed the Southern Indian Ocean Fisheries Agreement.

The Fisheries and Marine Resources Act, 2007 allows for the implementation of international fisheries conservation and management measures as adopted by RFMOs to which Mauritius is a party.

4.2 <u>National legislation</u>

The IPOA-IUU States that national legislation should address, in an effective manner, all aspects of IUU fishing.

a) Although the Fisheries and Marine Resources Act passed in 1998 was a step in the right direction and had such basic provisions for fish farming, licensing of fishing boats and vessels and registration of boats, its review had become more than imperative in view of the rapidly evolving fisheries management trends at the local and global levels.

- b) The provisions in the Fisheries and Marine Resources Act reflect rules of international law as provided for in the United Nations Convention on the Law of the Sea and agreed principles and measures embodied in international instruments such as the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, (the United Nations Fish Stocks Agreement), the Food and Agricultural Organisation Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, (the Compliance Agreement), the International Plan of Action on Illegal, Unreported and Unregulated Fishing (IPOA-IUU) and resolutions adopted by the Indian Ocean Tuna Commission and the Convention for the Conservation of the Antarctic Marine Living Resources (CCAMLR).
- c) The provisions in respect of Monitoring, Control and Surveillance (MCS) of fishing boats and vessels are strengthened by adding new sections relating, among others, to transshipment, registration of boats, entry and exit of fishing boats and vessels into and out of the EEZ, enforcement measures and increase in the levels of penalties.
- d) Transshipment of fish in the maritime zones is not authorised except in a port or other approved place and with the approval of the Permanent Secretary where he is satisfied that such transshipment is necessary and is conducted in accordance with appropriate management measures agreed upon by Mauritius subject to such terms and conditions as he may deem fit to impose. So far such approval has not been granted to any fishing vessel.
- e) All fishing boats less than 24m are now registered with the Fisheries Division instead of boats less than 20m as provided for under the former Fisheries and Marine Resources Act.

- f) Foreign fishing boats or vessels intending to enter into or exit from the maritime zones are required to notify the National Coast Guard and the Ministry at least 24 hours in advance of the time and position of entry into or exit from the maritime zones and to specify the quantities of fish on board accordingly.
- g) Fishery control officers are now able to enforce applicable international fishery conservation and management measures to boats and vessels, irrespective of their being licensed to fish in the Mauritius maritime zones. They can take appropriate measures such as the prohibition of landing or transhipment of the catch of a boat or vessel in a Mauritian port in case of infringement of the Fisheries and Marine Resources Act.
- h) Provisions have been made in the Act to: (i) distinguish between offences relating to small-scale fishing operations from those relating to fishing operations undertaken by large boats and vessels, (ii) ensure that all offences established under the Act are reflected in the offences and penalties scheme; and (iii) ensure the coherence of the penalty scale by grading penalties in relation to the seriousness of the offences.
- i) The penalties now range from Rs 50,000 to Rs 3,000,000 with two penalties charged in US dollars concerning foreign fishing boats and vessels, the higher penalty not exceeding 1,000,000 US dollars or 100 times the amount payable as licence fee for a period of 30 days whichever is higher.
- j) The concept of compounding as an "out of court settlement mechanism" is provided in the Act with the aim of speeding up the adjudicating process if the owner of a boat or vessel admits to the commission of the offence and agrees to pay such an amount of money which shall not exceed the maximum fine for the offence in the Act.

- k) Sections on "Photographic Evidence" and "Observation Devices" have been included in the Act to be in line with the IPOA-IUU which calls for evidentiary standards and admissibility in national legislation including as appropriate the use of electronic evidence and new technologies.
- I) All local and licensed foreign fishing vessels have to report through the Vessel Monitoring System, their positions, speed and course every two hours to the FMC at the Albion Fisheries Research Centre. Specific regulations have been prescribed in this regard.
- m) The Fisheries and Marine Resources Act also provides for enacting regulations specific to combat illegal, unreported and unregulated fishing activities.

4.3 State control over nationals

The IPOA calls on States, to the greatest extent possible, to take measures or cooperate to ensure that their nationals do not support or engage in IUU fishing and to cooperate to identify those nationals who are the operators or beneficial owners of IUU fishing vessels.

Mauritius maintains a register with details of the operators or beneficial owners of all fishing boats or vessels flying its flag. The details include, among others, identification marks assigned to the boat or vessel and names and addresses of owners and their nationality. This register will enable the Ministry to identify any national vessel owner involved in IUU fishing.

Details of the local vessels and their owners are also communicated to the IOTC on a yearly basis to allow the latter to constitute its record of authorised fishing vessels. Vessels listed on the IUU list of RFMOs to which Mauritius is a party are not authorised to have port access or transship at Port Louis. Only vessels in the IOTC Record of Vessels or Active List are authorised to transship at Port Louis.

Under Section 36 of the Fisheries and Marine Resources Act, any person operating a fishing boat or vessel in the EEZ of Mauritius or in the high seas should have, prior to it doing so, a fishing licence from the Ministry of Fisheries and Rodrigues.

The maintenance of the register which contains data regarding vessels and owners and the transmission of these data to RFMOs will be continued.

4.4 Vessels without nationality

The IPOA-IUU calls on States to take measures consistent with international law in relation to vessels without nationality on the high seas that are involved in IUU fishing.

Vessels are considered to be without nationality or Stateless when such vessels have two or more registrations and the flags are utilised simultaneously at the convenience of the operator.

Mauritius is a member of the International Maritime Organisation (IMO) and will support any initiative of that organisation to prevent vessels from becoming stateless. Any information received on vessels without nationality operating in the region will be communicated to the concerned RFMO and the International MCS Network for wider international dissemination.



Vessel sighted by NCG as operating without flag

4.5 Sanctions

The IPOA-IUU provides that sanctions for IUU fishing by vessels and nationals under its jurisdiction should be of sufficient severity to effectively prevent, deter and eliminate IUU fishing and to deprive offenders of the benefits accruing from such fisheries.

Legal prosecution and heavy penalties to deter fisheries-related offences are spelt out in the legislation. The Fisheries and Marine Resources Act provides for offences such as fishing without licences being payable in the currency of the licence fee and not exceeding 100 times the amount payable as licence fee for a period of 30 days or one million US dollars whichever is higher. Besides the fish on board, the vessel, the gears, or any article used to commit the offence can be forfeited.

With a view of expediting actions on some offences without burdening the court system, the Permanent Secretary, under Section 75 of the Fisheries and Marine Resources Act, may compound the offence if the owner or master of the boat or vessel

admits the commission of the offence and agrees in writing to pay such amount of money which shall not exceed the maximum fine specified for the offence in the Act. The Permanent Secretary may also release certain items seized in the commission of an offence provided the owner or person from whom the item was seized furnishes a security or other guarantee determined by a Judge in Chambers. Any IUU listed vessel is not authorised to unload or transship fish at Port Louis and its presence in the port is immediately communicated to the concerned RFMO.

4.6 Non-Cooperating States

The IPOA-IUU recommends that all possible steps should be taken, consistent with international law, to prevent, deter and eliminate the activities of non-cooperating States to a relevant RFMO that engage in IUU fishing.

Mauritius will continue to cooperate with all the RFMOs to which it is a party to prevent, deter, combat and eradicate the activities of non-cooperating States that engage in IUU fishing. This will include implementing denial of transhipment and other port facilities to their boats and vessels and imposing trade and other sanctions that may be adopted by the RFMO concerned.

4.7 Economic Incentives

The IPOA-IUU provides that States should avoid conferring economic support, including subsidies to companies, vessels or persons that are involved in IUU fishing.

Economic support will be withheld from companies, vessels and persons that are involved in IUU fishing. The measure will include denial of fiscal incentives and other facilities such as quota allocated or any other incentive granted to facilitate their activities.

4.8 Monitoring, Control and Surveillance (MCS)

The IPOA-IUU calls on all States to undertake comprehensive and effective MCS of fishing from its commencement, through the point of landing, to final destination.

The Fisheries and Marine Resources Act provides for, among others, licensing of local and foreign boats and vessels. Under Section 34(4) of the Act, the Minister shall refuse to issue a fishing licence to a boat or vessel if the latter has a history of non-compliance with international conservation or management measures except where there is sufficient evidence that the previous owner or master has no legal, beneficial or financial interest in or control of the fishing boat or fishing vessel. The Minister shall also refuse to license a boat or vessel if the latter does not comply with the requirements of a regional fisheries management organisation to which Mauritius is a party or has not complied with the measures adopted by that organisation.

Local boats or vessels are also required to be registered prior to the issue of fishing licences. Vessels less than 24 metres in length overall are registered under Section 42 of the Fisheries and Marine Resources Act 2007, while those above 24 metres are registered by the Shipping Division of the Ministry of Public Infrastructure, Land Transport and Shipping under the Merchant Shipping Act.



The NCG "Dornier" aircraft

Under Section (6) of the Fisheries and Marine Resources Act, the Permanent Secretary keeps a record of all local and foreign fishing boats or vessels above 12 metres in length overall for which licences have been issued. All the licences include terms and conditions of access, target species, areas of fishing, operational restrictions and reporting. All licensed boats and vessels are required to be VMS compliant and may be requested to carry observers.

All landings and transhipments of catches at the port are subjected to inspection by a team of trained fisheries inspectors. In this respect the inspectors verify the relevant documents and the quantities and species of fish landed. All vessels have to submit fishing positions, catch by species, vessel characteristics, copies of registration certificates and lists of crew and nationalities of vessels. In addition, licensed vessels have to submit copies of fishing logbooks which are cross-checked against VMS data.

The MCS system in Mauritius involves the Fisheries Management Division and the Fisheries Protection Service of the Ministry of Fisheries and Rodrigues, National Coast Guard, Mauritius Port Authority and the Ministry of Information and Communication Technology (Central Informatics System Division).

The surveillance of the maritime zones of Mauritius is under the purview of the National Coast Guard. The latter undertakes regular air and sea surveillance missions using the Dornier aircrafts and the patrol vessels, "Guardian", "Rescuer" and "Retriever". The Fisheries Protection Service controls illegal fishing in the lagoon mainly but also participates in joint surveillance activities in the maritime zones with the NCG besides assisting in the implementation of port state measures in the port.



The National Coast Guard patrol vessel

The Fisheries Division maintains contact with the regional fisheries management organisations such as the IOTC and CCAMLR with respect to the activities of foreign fishing vessels in the region. It also participates in the two EU-funded regional MCS projects, which are conducted under the aegis of the Commission de 1' Ocean Indien (COI). These two projects namely the MCS Pilot Project and the Regional Surveillance Project have provided training in port inspection, inspection at sea and in the VMS.

In order to better plan surveillance activities, the Fisheries Division has set up a Standing Committee. The committee is chaired by the Director of Fisheries and is attended by the representatives of the National Coast Guard, the head of the Fisheries Management Division and officers of the FMC, Licensing and Port State Control Units.

The Fisheries Division also has meetings with other departments and private sector operators whenever required. In such meetings relevant management measures are discussed and resolutions adopted by the RFMOs to which Mauritius is a party are explained to the stakeholders.

The consultations between the Fisheries Division, the Shipping Division of the Ministry of Public Infrastructure, Land Transport and Shipping, the NCG, the Meteorological Services, the Mauritius Ports Authority, the Mauritius Telecom and the fishing industry operators will be maintained and organised more regularly.



A foreign vessel caught fishing without a licence

The Standing Committee on Surveillance will continue its regular meetings with the prime objective to deter and combat IUU fishing activities in the Mauritian EEZ. Mauritian fisheries officers will participate in all regional training programmes in port and at sea inspections organised by the regional bodies. Training for observers on board vessels will also be conducted to ensure observer requirements are complied with.

The Mauritius Maritime Training Academy will be requested to include some modules relating to MCS in their Skipper's Training Course.

4.9 Cooperation between States

The IPOA-IUU calls on States to coordinate their activities and cooperate directly, and as appropriate through relevant RFMOS, in preventing, deterring and eliminating IUU fishing.

Mauritius is a member of the IOTC and is also party to the Convention of the CCAMLR. As such it implements all the resolutions and management and conservation measures of these regional organisations. Section (57) of the Fisheries and Marine Resources Act provides for implementation of any international fishery conservation and management measure.

Presently Mauritius is cooperating directly with the COI States in the surveillance of the maritime zones of these States under the Regional Surveillance Project which is conducted under the aegis of the COI.

Mauritius anticipates its full involvement in any future MCS programmes to be undertaken in its maritime zones or in the high sea areas by any RFMO to which it is a party.

4.10 Publicity

The IPOA-IUU calls on States to publicize widely, including through cooperation with other States, full details of IUU fishing and actions taken to eliminate it, in a manner consistent with any confidential requirements.

Mauritius uses the media to publicize IUU fishing incidents and resulting convictions as a means of deterring IUU fishing and supporting compliance with international conservation and management measures and the domestic fisheries legislation. Such incidents are also communicated to the concerned RFMO.

The measures will be continued and additionally the Ministry of Fisheries and Rodrigues will henceforth post such IUU incidents in its website http://fisheries.gov.mu

5. FLAG STATE RESPONSIBILITIES

5.1 Fishing Vessel Registration

The IPOA-IUU calls on States to ensure, including through appropriate fishing authorisation and vessel registration procedures, that their flag vessels and vessels under charter do not engage in or support IUU fishing.

Fishing boats or vessels that are to be registered in Mauritius should be owned by Mauritian nationals, the State of Mauritius, a statutory corporation in Mauritius, one or more persons who are citizens of Mauritius or a body corporate or company established under the laws of Mauritius and having a place of business in Mauritius.

The registration of vessels of 24 m or more in length is carried out under the Merchant Shipping Act. The vessels are required to be surveyed by approved surveyors who ascertain their tonnage, sea worthiness, safety and appropriate markings amongst others. Such surveys are also carried out at regular intervals of one year or at any such time as may be required by the Director of Shipping. Bareboat chartering or parallel registration for certain periods of time is allowed under certain conditions. Fishing boats less than 24 m are registered by the Fisheries Division under the Fisheries and Marine Resources Act. The boats are required to be surveyed by approved surveyors prior to registration.

The application for registration of a boat less than 24 m should be accompanied by –

- a) a document showing that the boat is owned by the applicant;
- b) a sea worthiness certificate issued by an approved surveyor;
- c) the name of the skipper and the certificate of his competency; and
- d) if the boat was previously registered, a document showing that it has been deleted from its previous registry.

The Permanent Secretary may refuse or cancel the registration of a boat, if, among others; the boat has been used in contravention of international fishery conservation and management measures.

Under the Fisheries and Marine Resources Act, a Mauritian fishing licence is not issued to a boat or vessel which has a history of non-compliance with international fishery conservation or management measures except where the ownership of the boat or vessel has subsequently changed and the owner provides sufficient evidence that the previous owner or master has no legal beneficial or financial interest in, or control of, the fishing boat or fishing vessel.

5.2 Record of fishing vessels

The IPOA-IUU calls on each flag to maintain a record of fishing vessels entitled to fly its flag. Each State's record of fishing vessels should include, for vessels authorised to fish on the high seas, all information set out in paragraph 1 and 2 of Article VI of the 1993 FAO Compliance Agreement, as well as the additional information specified in paragraph 42 of the IPOA-IUU.

Under Section (6) of the Fisheries and Marine Resources Act, the Permanent Secretary shall keep a record of fishing boats of 12 metres or more in length overall and local and foreign licensed vessels operating in the maritime zones and high seas.

The record shall include so far as is applicable:

- a) the name of fishing boat or vessel;
- b) the port and country of registration;
- c) any identification mark assigned to the boat or vessel;
- d) previous registration details;
- e) communication details;
- f) the Lloyds/IMO registration number;

- g) the international radio call sign;
- h) the length overall, draft and beam;
- i) the engine power;
- j) the net and gross registered tonnage;
- k) the type of refrigeration system;
- 1) the material of build;
- m) the boat or vessel type and fishing method and gears;
- n) the hold capacities in cubic metres;
- o) the date of build;
- p) the number of crew, including fishermen and persons commonly known as 'frigoboys';
- q) the name and address of the agent in Mauritius;
- r) the name, address and nationality of any natural or legal person with beneficial ownership of the fishing boat or fishing vessel;
- s) particulars of any previous offences committed by the use of the fishing boat or fishing vessel; and
- t) any other information as the Permanent Secretary may determine.

The information incorporates all the vessel information requirements set out in paragraphs 1 and 2 of Article VI of the 1993 FAO Compliance Agreement as well as the additional information suggested for inclusion specified in paragraph 42 of the IPOA-IUU.

Each year Mauritius transmits the above information on its local vessels above 24 metres and those less than 24 metres fishing for tuna but which operate outside its maritime zones to the IOTC. It also submits such data on foreign vessels licensed to fish in its EEZ to the IOTC.

5.3 Authorisation to Fish

The IPOA-IUU calls on States to ensure that no vessel is allowed to fish unless so authorised, in a manner consistent with international law for the high seas. A flag state should ensure that each of the vessels entitled to fly its flag fishing in waters outside its sovereignty or jurisdiction holds a valid authorisation to fish issued by that flag State. Where a coastal State issues authorisation to fish to a vessel, that coastal State should ensure that no fishing in its waters occurs without an authorisation to fish issued by the flag State of the vessel.

- a) Under Section (36) of the Fisheries and Marine Resources Act, no person shall use a Mauritian fishing boat or vessel for fishing or related activity within the maritime zones or high seas except under a licence which is issued under a set of conditions. The owner of any fishing boat or vessel shall, prior to starting to fish in the fishing zone of a foreign State, notify in writing the Permanent Secretary of that fact.
- b) Under the same section of the Act, the Minister shall not issue a licence unless he is satisfied, among other requirements, that the boat or vessel has no history of non-compliance with international fishery conservation and management measures except where the ownership has subsequently changed and there is sufficient evidence that the previous owner has no legal, beneficial or financial interest in the boat or vessel.
- c) Section 34 of the Fisheries and Marine Resources Act provides for the issue of fishing licences to foreign boats or vessels to operate in the maritime zones of Mauritius under a set of conditions which includes details of addresses of owners, periods of fishing, species authorised, VMS requirements, compliance with international fishery conservation and management measures, data submission requirements and payment of fees.

d) Under Section (35) of the Fisheries and Marine Resources Act a foreign fishing licence is issued when there is an agreement between the Government of Mauritius and the flag State of the boat or vessel or an economic integrated organisation to which a member State as a flag State has delegated power to negotiate a fishing agreement or a fishing association of which the owner or charterer of the boat or vessel is a member. However, in the absence of an agreement, the Minister may issue a licence to a foreign fishing boat or vessel if the applicant provides such financial or other guarantees as he may determine.

5.4 Measures to control transport and re-supply vessels

The IPOA-IUU calls on flag States to ensure their fishing, transport and support vessels do not support or engage in IUU fishing. The IPOA-IUU also calls on States to ensure that, to the greatest extent possible, all of their fishing, transport and support vessels involved in transhipment at sea have prior authorisation to tranship issued by the flag State, and report specified information to the national fisheries administration or other designated institution.

As per the Fisheries and Marine Resources Act, a fishing boat or vessel is defined as any boat or vessel used for fishing or related activities such as transhipping, storing, processing or transporting any fish or fish product, refuelling or supplying fishing boats or vessels or performing any other activity in support of fishing operations. Fishing or conducting any fishing related activity in the maritime zones of Mauritius is not authorised except under a licence issued by the Fisheries Division.

For Mauritian fishing boats or vessels, the licence may be revoked and the registration may be cancelled if there is evidence that the boat or vessel has taken part in activities contrary to international fishery conservation and management measures while for foreign licensed vessels, their licences are revoked and their flag States are informed accordingly.

Transshipment is not authorised in the maritime zones of Mauritius except in its port. However, the Permanent Secretary may authorise the owner or the master of a fishing vessel to transship fish and fish products at sea where he is satisfied that such transshipment is necessary or is conducted according to appropriate management measures agreed upon by Mauritius subject to such conditions as he may deem fit to impose.

6. COASTAL STATE RESPONSIBILITIES

In the exercise of sovereign rights of coastal States for exploring and exploiting, conserving and managing the living marine resources under their jurisdiction, the IPOA-IUU calls on coastal States to implement measures to prevent, deter and eliminate IUU fishing in waters under their jurisdiction. Measures which coastal States should consider are: effective MCS; cooperation and exchange of information with other States and RFMOs; ensuring that all fishing is authorised; ensuring all vessels are registered; logbook requirements; controls on transhipment/processing of fish; regulation of fishing access and avoiding licensing vessels with an IUU fishing history.

Mauritius is taking all necessary measures to combat IUU fishing in its waters through the use of strengthened MCS systems with particular emphasis on port state measures based on the FAO Model Scheme and supported by a Vessel Monitoring System which has been set up since 2005. It has also updated its legislation for the implementation of international fishery conservation and management measures, does not authorise at sea transhipment except with the approval of the Permanent Secretary and all fishing boats or vessels need to have compulsory markings. It also implements VMS reporting for local and foreign licensed fishing vessels, advance notification for calling to the port, entry and exit requirements from the maritime zones, submission of logbooks by fishing boats or vessels, exchange of data on inspections with RFMOs, penalties, sanctions and denial of transhipment facilities to IUU listed vessels or vessels not on the lists of RFMOs.

Mauritius also participates actively in the COI Regional Surveillance Project under which joint surveillance is carried out by inspectors in the waters of member states.

At national level, the Fisheries Division and the National Coast Guard hold regular meetings to take stock of surveillance activities and to plan future programmes. Joint air and sea patrols are undertaken by the officers of the two organisations.



The Mauritian Patrol vessel, "Guardian" escorting to Port-Louis a foreign fishing vessel caught fishing illegally in the Mauritian EEZ

A fishing licence is not issued to a boat or vessel which has a history of non-compliance with international fishery conservation and management measures except where there is evidence that there is a change of ownership of the fishing boat or vessel and the new owner provides sufficient evidence that the previous owner or master has no legal, beneficial or financial interest in, or control of, the fishing boat or vessel. Licences are issued under a set of terms and conditions which include VMS reporting, accommodation of observers if required, reporting requirements, specified fishing zones and fees.

Tuna fishing licences are issued to foreign vessels either under fishing agreements with their flag States or to any foreign flagged vessel, the flag State of which is party to the IOTC or whose vessel is in its active list. Applications for licences have to be made on approved forms giving details of vessel characteristics and copies of registration certificates, lists and nationalities of crew, ship station licence certificates and transponder details.

7. PORT STATE MEASURES

The IPOA-IUU calls on States to use port State measures in accordance with international law, to control port access by fishing vessels in order to prevent, deter and eliminate IUU fishing.

Mauritius implements port state measures based on the FAO Model Scheme. In this context all vessels intending to call at Port Louis have to transmit in advance information relating to vessel characteristics, nationality of crew, the purpose of the visit and catch on board. The names and characteristics of these vessels are screened against the IUU list of all relevant RFMOs. Any vessel found on any of these lists including those of the IOTC, is not authorised to unload or tranship at the port. These measures will be continued to prevent, deter and eliminate IUU fishing.

7.1 Advance notice of access

The IPOA-IUU calls on States to require vessels seeking access to their ports to seek prior permission to enter their ports and to provide reasonable advance notice of their entry into port, a copy of their authorisation to fish, and details of their fishing trip and quantities of fish on board, in order to ascertain whether the vessel may have engaged in or supported, IUU fishing.

As per Section 54 of the Fisheries and Marine Resources Act, the master of any foreign fishing boat or foreign fishing vessel or his agent shall, by letter, fax or email

at least 72 hours before entry into port, notify the Permanent Secretary and inform him of the purpose of its call into port, submit to him a copy of the vessel or boat authorisation to fish and information on vessel or characteristics and on the quantity of fish on board (refer to Form A – Appendix 1).

Section 51 of the Fisheries and Marine Resources Act provides that the master, owner or agent of a licensed Mauritian fishing boat or vessel shall inform the Permanent Secretary at least two days prior to the boat or vessel reaching the port by letter, fax or email of the expected time of arrival of the fishing boat or vessel.

The information received is used to ascertain whether the fishing boat or vessel was engaged in or supported IUU fishing.

7.2 Denial of access

The IPOA-IUU calls on each port State, where it has clear evidence that a vessel has engaged in IUU fishing activity, to prohibit the vessel from landing or transhipping fish in its port and to report the matter to the vessel's flag State.

Under Section 57(3) of the Fisheries and Marine Resources Act, where pursuant to an inspection of a fishing boat or vessel, there is reason to believe that the vessel was involved in any fishing activity in contravention of any international fishery conservation and management measure the boat or vessel may be prohibited to land or tranship its fish in a Mauritian port or an offshore terminal. The flag State will be notified accordingly along with evidentiary material.

Under this measure, several IUU vessels have been denied transhipment facilities in Mauritius and the concerned RFMO has been informed. This measure will be continued.

7.3 Authorised ports

The IPOA-IUU encourages States to publicize ports to which foreign flagged vessels may be permitted admission and to ensure that these ports have capacity to conduct inspections.

Mauritius has only one port of entry at Port Louis as defined under the Port Act. As per Section 57 of the Fisheries and Marine Resource Act all foreign fishing vessels calling to Mauritius (including those that are not licensed to fish) are thoroughly inspected at its arrival and during the unloading of its catch. The information collected are recorded in the Forms B and C (refer Appendix 2 and 3).



Inspectors filling Forms of the Port State Control Measures in line with the FAO Model Scheme onboard a fishing vessel

These inspections are carried out by a team of trained officers from the Fisheries Management Division, Fisheries Protection Service and Division of Veterinary Services of the Ministry of Fisheries and Rodrigues, Ministry of Health and Quality of Life, Passport and Immigration Office, Customs Department who are housed together in a One Stop Shop which is based at the port.

The officers at the One Stop Shop have been trained in port inspections under the MCS Pilot Project implemented by the COI, the CCAMLR Secretariat, the Australian Fisheries Management Authority and under the IOTC-OFCF Project.

The capacity of this unit will be shortly further enhanced by networking the different MCS activities of the Fisheries Management Division such as those of the Licensing Unit, VMS Unit, Tuna Statistical Unit and Port State Control Unit.

7.4 Evidence indicating IUU fishing

If, in the course of an inspection, a port State finds that there are reasonable grounds to suspect that a vessel has engaged in or supported IUU fishing, the IPOA-IUU calls on port States to immediately report the matter to the flag state of the vessel and, where appropriate, the RFMO. The Port State may take other action with the consent of, or upon the request of, the flag State.

Mauritius will continue its policy of zero-tolerance of IUU fishing. As provided, under Section 57 of the Fisheries and Marine Resources Act, any boat or vessel involved in IUU fishing will not be allowed to unload or transship its catch at Port Louis and its flag State and the concerned RFMO will be informed accordingly. Any person involved in any illegal import of fish contrary to the law of one or more states with which Mauritius has entered into an agreement on a reciprocal or multilateral basis for the management of fisheries, shall be prosecuted under Section 24 of the Act.

7.5 Cooperation with Port States and through RFMOs

The IPOA-IUU calls on States to cooperate, as appropriate, bilaterally, multilaterally and within relevant RFMOs, to develop compatible measures for port State control of fishing vessels. The IPOA-IUU also encourages States to consider developing, within relevant RFMOs, port State measures building on the presumption that fishing vessels entitled to fly the flag of States not parties to a RFMO and which have not agreed to cooperate with that RFMO, which are identified as being engaged in fishing activities in the area of that particular organisation, may be engaging in IUU fishing.

Mauritius will continue to cooperate with international organisations such as the IOTC, CCAMLR, SADC and COI to implement measures to combat IUU fishing. It will also take part actively in the second phase of the COI Regional Surveillance Project to conduct air and sea patrols in the EEZs of the member States. As recommended by FAO, it will continue to implement the FAO Model Scheme on Port State Measures. It will also implement all the resolutions of the RFMO of which it is a party.

8. INTERNATIONALLY AGREED MARKET RELATED MEASURES

As a party to the IOTC and CCAMLR Mauritius implements all the resolutions including those relating to port State measures and trade adopted by these organisations. In addition, it will cooperate with other organisations or party States in achieving the long-term sustainability of fish stocks in the region.

8.1 Trade related Measures

The IPOA-IUU encourages States to take steps, consistent with international law to prevent fish caught by vessels identified by the relevant RFMO to have been engaged in IUU fishing being traded or imported into their territories.

- Under Section 24 of the Fisheries and Marine Resources Act, it is an offence to land, import, export, transport, sell, receive, acquire or purchase any fish taken, possessed, transported or sold contrary to the law of one or more States with which Mauritius has entered into an agreement on a reciprocal or multilateral basis for the management of fisheries.
- Mauritius will continue to supply information collected during port inspections to the IOTC and CCAMLR. Under resolution 03/05, IOTC can identify and take non-discriminatory trade measures against any State or entity whose fishing vessels undermine constantly the conservation and management measures adopted by the Commission. Mauritius will eventually implement any such trade restriction against any State if adopted by the IOTC or CCAMLR.

8.1.1 Catch Documentation Schemes

The IPOA-IUU suggests that certification and documentation requirements should be standardised to the extent feasible and electronic schemes developed where possible, to ensure effectiveness, reduce opportunities for fraud and avoid unnecessary burden on trade.

Mauritius is MCS compliant and is already implementing the Catch Documentation Schemes of the IOTC and ICCAT for the trade of sword fish and big eye tuna. It is also implementing the electronic *Dissostichus* Catch Documentation Schemes of CCAMLR for import and export of patagonian toothfish. As a responsible State it will continue to implement these schemes and any new catch documentation or certification schemes of any international organisations of which it is a member. Mauritius will also enforce measures under the Catch Documentation Scheme of the EC Regulation against IUU fishing.

8.1.2 <u>Transparency of Markets</u>

The IPOA-IUU calls on States to take steps to improve transparency of their markets to allow traceability of fish or fish products.

Along with the development of seafood hub activities Mauritius is upgrading its inspection and certification capacity which include product traceability to meet requirements of importing countries. Under the EU Strengthening Fishery Production (SFP) Programme assistance is being provided to the Mauritian Competent Authority to enhance its capacity in inspection and certification of fish and fishery products for export.

Further technical assistance will be sought to improve the transparency of markets to allow the traceability of fish and fish products. It is envisaged to organise further meetings with the different stakeholders for raising awareness in this connection.

8.1.3 <u>Information Dissemination</u>

The IPOA-IUU calls on States to take measures to ensure that their importers, transhippers, buyers, consumers, equipment suppliers, bankers, insurers, other service suppliers and the public are aware of the detrimental effects of doing business with vessels identified as engaged in IUU fishing, and should consider measures to deter such business. Similarly, the IPOA-IUU calls on States to take measures to ensure that their fishers are aware of the detrimental effects of doing business with importers, transhippers, buyers, consumers, equipment suppliers, bankers, insurers and other service suppliers identified as doing business with vessels identified as engaged in IUU fishing.

During the drafting of the current Fisheries and Marine Resources Act which was proclaimed in May 2008, extensive consultations were held with all stakeholders including the operators, fishers, fishing companies, agents, NGOs, Government departments and different institutions. The Act is available to the general public on the Ministry's website. Meetings, seminars and workshops are also organised with the private sector to discuss fishery related issues which includes IUU fishing, Port State Control Measures, IOTC and CCAMLR resolutions, fisheries legislation, and traceability of fish and fish products. Once the NPOA is finalised, it will be widely distributed to all stakeholders. Information dissemination will be continued to make the different stakeholders and the public aware of the detrimental effects of doing business with vessels identified as engaged in IUU fishing and to consider measures to deter such business.

A condition will be added to import permit conditions to the effect that it will be an offence to import fish or fish products derived from IUU fishing.

9. REGIONAL FISHERIES MANAGEMENT ORGANISATIONS

9.1 Party compliance

The IPOA-IUU calls on States to ensure compliance with and enforcement of IUU fishing related policies and measures adopted by any RFMO by which they are bound. States should cooperate in the establishment of such organisations in regions where none currently exists.

Mauritius is a member of the IOTC which is responsible for the management of the tuna resources in the Indian Ocean. Each year the IOTC adopts a series of resolutions which are binding on all its members or Cooperating Parties. The implementation of resolutions of an RMFO to which Mauritius is a party has legal basis under the Fisheries and Marine Resources Act. As an active member of IOTC, Mauritius implements all the resolutions of the Commission effectively and expediently.

Mauritius is also party to the Convention of the CCAMLR. Although Mauritius is not directly involved in the exploitation of patagonian toothfish, it supports the initiatives of CCAMLR to manage these resources by implementing its schemes and resolutions relating to IUU fishing and catch documentation schemes.

Mauritius has also cooperated in the setting up of the SWIOFC and SIOFA. It is a member of SWIOFC and has signed the SIOFA. It will continue to cooperate with all the fisheries organisations to which it is a party and implement their management and conservation measures.

9.2 Non-party compliance

The IPOA-IUU calls on States to give effect to their duty to cooperate by agreeing to apply the conservation and management measures by RFMOs to which they are not members, or by adopting measures consistent with those conservation and management measures, and should ensure that vessels entitled to fly their flag do not undermine such measures.

Consistent with the 1995 UN Fish Stocks Agreement, Mauritius cooperates and acts consistently with management measures adopted by RFMOs to which it is not a party. In fact IUU listed vessels by any RFMO are not allowed to unload or tranship their catches at Port Louis. For example, transhipment facilities were denied to an ICCAT IUU listed vessel although Mauritius is not a member of ICCAT.

Under Section 36 (2) of the Fisheries and Marine Resources Act, the owner of a Mauritian fishing boat or vessel shall, prior to starting to fish in the waters of a foreign State, notify in writing the Permanent Secretary of the Fisheries Division of its intention to do so. This measure allows verification of whether the boat or vessel has the necessary authorisation to fish in the waters of the foreign State.

In a spirit of cooperation for the conservation and management of fishery resources Mauritius will continue to cooperate with any RFMO even if it is not a member of it.

9.3 Innovation

The IPOA-IUU encourages States, acting through relevant RFMOs, to take action to strengthen and develop innovative ways, in conformity with international law, to combat IUU fishing.

Mauritius is a member of the IOTC since 1996 and in collaboration with other members of the Commission, has contributed in the development and implementation of a number of fisheries management measures designed to prevent, deter and eliminate IUU fishing.

The prominent ones among the many innovations are the vessel registry and the catch documentation schemes. The vessel registry contains details of foreign vessels which are eligible to fish in the Indian Ocean. Information listed in the registry includes details of vessel owners, operators and VMS. Vessels which are not listed or which are in the IUU list of the Commission are not eligible for fishing in the Indian Ocean. The catch documentation scheme of the IOTC provides information on the trade of big eye tuna and swordfish. Its aim is to deter illegal fishing and provide traceability of the product.

Mauritius will continue to work in cooperation with the IOTC and other RFMOs to pursue new initiatives and strengthen existing measures to combat IUU fishing.

9.4 Inclusion of non-contracting parties

The IPOA-IUU encourages States, acting through relevant RFMOs, to encourage non-contracting parties with a real interest in the fishery concerned to join those organisations and to participate fully in their work. Where this is not possible, the RFMOs, should encourage and facilitate the participation and cooperation of non-contracting parties, in accordance with applicable international agreements and international law, in the conservation and management of the relevant fisheries resources and in the implementation of measures adopted by the relevant organisations. RFMOs should address the issue of access to the resource in order to foster cooperation and enhance sustainability in the fishery in accordance with international law.

Mauritius acknowledges that the effectiveness of RFMOs depends on securing the membership and participation of all States and entities fishing in a region or for species covered by an RFMO.

The IOTC makes p rovision under its agreement to allow cooperating non-contracting parties to participate in the work of the commission as observers and in the implementation of its management and conservation measures. Mauritius will continue to support such measures.

10. SPECIAL REQUIREMENTS OF DEVELOPING COUNTRIES

FAO encourages States, with the support of FAO and relevant international financial institutions and mechanisms, to cooperate in supporting training and capacity building and consider providing financial, technical and other assistance to developing countries, including in particular the least developed among them and small island developing States, so that they can more fully meet their commitments under the IPOA-IUU and obligations under international law. Such assistance should be directed in particular to help such States in the development and implementation of national plans of action.

FAO also encourages States, with the support of FAO and relevant international financial institutions and mechanisms, where appropriate, to cooperate to enable: review and revision of national legislation and regional regulatory frameworks; the improvement and harmonization of fisheries and related data collection; the strengthening of regional institutions; and the strengthening and enhancement of integrated MCS systems, including satellite monitoring systems.

This section of the IPOA-IUU which relates to participation in efforts to assist developing States in the implementation of the IPOA-IUU is not relevant to Mauritius as it calls upon donors to assist developing States like Mauritius in their efforts to address IUU fishing.

However, Mauritius acknowledges the support of the COI and the EC in the harmonisation and review of its legislation in order to strengthen its MCS system and technical assistance provided by the Australian Fisheries Management Authority, the

CCAMLR and IOTC to build capacity and implement their resolutions. It also appreciates the assistance provided by the EC in capacity building in fisheries inspection and in fisheries surveillance through the COI.

Mauritius also acknowledges the assistance provided by the Government of Norway in developing this NPOA-IUU.

11. SUPPORTING ACTIONS

The following action will further enhance and strengthen the measures adopted by Mauritius to prevent, deter and eliminate IUU fishing:

a) <u>International organisations</u>

Mauritius will continue to cooperate with RFMOs and implement their resolutions relating to IUU fishing.

b) <u>Cooperation with EC to combat IUU fishing</u>

Mauritius will cooperate with the EC to enforce measures adopted under the EC Regulation against IUU fishing.

c) National legislation

Mauritius has proclaimed its Fisheries and Marine Resources Act 2007 in May 2008. The Act provides for the implementation of international fishery conservation and management measures. Under Section 74 of the Act, regulations to strengthen MCS measures and registration and certification of boats of length less than 24 meters in length will be prescribed. The present VMS regulations will be reviewed.

d) <u>Vessels without nationality</u>

Any information received on vessels without nationality or listed in the IUU list of a RFMO will be transmitted to the concerned RFMO as well as the international MCS Network.

e) <u>Economic incentives</u>

Any support will be withdrawn from companies/vessels and persons involved in IUU fishing. Any person involved in landing, selling or having in his possession any fish which he knows or has reason to believe has been taken in contravention of any international fishery conservation and management measure will be prosecuted under Section 70(c) of the Fisheries and Marine Resources Act.

f) Monitoring, control and surveillance

In order to fulfil its MCS functions more effectively, the different aspects of MCS namely the VMS unit, Port State Control Unit, the Licensing Unit and the Tuna Statistical Unit will be linked into a network using a common computer software.

g) <u>Cooperation between States</u>

Mauritius will participate actively in the second phase of the COI Surveillance Project which will last from 2009 to 2011. The objective of the project is to carry out joint air and sea surveillance in the EEZs of member States of the COI. The Mauritian Dornier aircraft and the sea patrol vessel, "Guardian" will participate in the different missions to be organised under the project. Officers from the National Coast Guard and Fisheries Division will take part in the activities of the surveillance programme.

h) <u>Publicity</u>

The Fisheries Division will post on its website full details of action taken against IUU fishing vessels as an additional means of publicity.

i) Record of fishing vessels

Data relating to boats/vessels registered in Mauritius are transmitted to the IOTC and FAO on an annual basis. Any modification of the list submitted will be immediately communicated to these organisations. The transmission to IOTC of data pertaining to foreign fishing boats/vessels calling at Port Louis

will be continued. A report of VMS activities in Mauritius will also be communicated to the IOTC.

j) Port inspection data

Data collected on vessels calling at Port Louis are in line with the FAO Model Scheme. These data will be transmitted to IOTC or other organisations to which Mauritius is a party in the appropriate format having due regard to their confidentiality.

k) <u>Sighting at sea</u>

Any vessel sighted by the NCG or any Fisheries Control Officer to be involved in IUU fishing will be prosecuted under Fisheries and Marine Resources Act and its flag State and concerned RFMO will be informed accordingly.

l) Transparency of markets

Technical assistance will be sought to train staff to develop measures to improve the transparency of markets to allow traceability of fish and fish products.

m) <u>Internationally agreed market related measures</u>

Mauritius will continue its cooperation with all RFMOs to which it belongs to combat IUU fishing. This will include implementing trade and other sanctions that may be adopted by the RFMOs.

Form A

MINISTRY OF FISHERIES AND RODRIGUES

(FISHERIES DIVISION)

Form A: Application Form for Port Access for Foreign Fishing Vessels

Note: Data to be provided by agent 72 hours in advance by Foreign Fishing Vessels including support vessels, carrier vessels and any other vessels directly involved in fishing operation.

1.	Vessel Identification:				
	(a) Name of Vessel:				
	(b) External identification No :*				
	(c) International radio call sign:*				
	(d) Flag State:				
	(e) Name of vessel owner:				
	(f) Address of vessel owner:				
	(g) Type of VMS:				
	Argos:Yes/No				
	Inmarsat:Yes/No				
	(h) Previous-name:fromto				
	(i) Previous-flag:from				
2.	Purpose of access to port:				
	Transshipment:Yes/No				
	Bunkering:Yes/No				
	Provisions: Yes/No				
	Change of crew: Yes/No				
	Repairs:Yes/No				
	Any other activities:				
3.	Fishing authorization (fishing licences/permits)				
	(a) The vessel's authorization(s) to fish:				
	(b) State issuing the authorization:				
	* Attach specifications of flag state				
	(c) Duration of authorization: from:To				

	(d) Areas authorized for fishing
	(d) Species authorized:
	(e) Quota allocated (if any):
	(f) Fishing gear authorized :
4.	Trip Information:
	(a) Date trip started:
	(b) Date trip ended:
	(d) Fishing Areas:
	(e) Port(s) visited during trip with dates (if any)EntryExit
5.	Species Information
	(a) Fish species fish products on board:
	Fresh on ice/ frozen/not packed/frozen packed/other specify)
	(b) Areas of capture:
	(c) Product form:
	(d) Processed weight:
	(e) Equivalent live weight:conversion ratio:
6.	Name of Agent/Skipper:
7.	Date of Arrival:
8.	Date of Notification:

Signature of Agent or Skipper

Form B

MINISTRY OF FISHERIES AND RODRIGUES

(FISHERIES DIVISION)

Form B: Port State Inspection

1.	Inspection:
	(a) Name of Inspector:
	(b) Date of Inspection:
	(c) Port :
2.	Vessel Identification:
	(a) Name of Vessel:
	(b) Type of Vessel:
	(c) Flag State:
	(d) External Identification/IMO No.:
	(e) International Radio Call Sign:
	(I)
	(ii) Whether in line with FAO Standard: Yes or No
	(iii) Whether in line with Flag State specifications: Yes/No.
	(f) Comments on markings
	(g) MMSI – (Mauritius Mobile Service Identity) No:
	(h) Previous Name and Flag:
	(i) Previous Flag
	(j) Whether the Flag State Member of a RFMO:
	(i) Port of Registration:
	(k) Previous Port of Registration:
	(l) Name of Vessel Owner:
	(m) Address of Vessel Owner:
	(n) Name of Vessel Operator if different from Owner:
	Address of Vessel Operator if different from Owner:
	(o) Name of Master/Skipper:
	(p) Certificate of master/skipper

3.	Fis	hing a	authorisation/permit/licence:	
	(a)	Auth	orisation to fish Yes/No	
	(b)	If yes	3 -	
		(i)	State(s) issuing authorisation(s	s):
		(ii)	Areas authorised for fishing:	
		(iii)	Duration of authorisation:	FromTo
		(iv)	Species authorised to fish:	
		(v)	Gear authorised:	
	(c)	When	ther fish has been transhipped a	t high seas: Yes/No
		If yes	s –	
		(i)	Quantity transhipped:	
		(ii)	Species:	
		(iii)	Name of receiving vessel:	
		(iv)	Place/zone of transhipment:	
		(v)	Destination of fish:	
4.	Tri	p Info	rmation:	
			isited During Trip:l	
	Fis	hing A	Areas:	
			<u>Date</u>	Fishing Zone
		(i)		
		(ii)		
		(iii)		
		(iv)		
		(v)		
		(vi)		
		(vii)		
		(viii)		
		(ix)		
		(x)		
		(xi)		
		(xii)		
		(xiii)		

	willen onesj.	
8.	Whether Flag State and the Concerned RF which ones):	, ,
	state which Resolution):	
7.	Any breach of International Conservation	and Management Measure (if yes,
	state which provision):	
6.	Any breach of provision under the Fisher	ies and Marine Resources Act (if yes
	(a) Type of gear:(b) Whether the gear was authorised:	
5.	Gear Inspection:	
	(xiv)	

Form C

MINISTRY OF FISHERIES AND RODRIGUES (FISHERIES DIVISION)

Form C: Inspection on Landings/Transshipment of Fish

(b) I	Date Landing/transshi	pment started:			
(c) I	Date Landing/transshi	pment ended:	•••••		
Fish	Species:				
<u>P</u>	Product Form	Weight (tons)	Live Weight (tons)		
(a)					
(b)					
(c)					
(d)					
(e)					
(f)					
(g)					
(h)					
	nded destination of fisl ntity retained on board		:		
<u>P</u>	Product Form	Weight (tons)	Live Weight (tons)		
(a)			•••••		
(b)			•••••		
(c)			•••••		
(d)					
(e)					
(f)					
(g)					
(h)					