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Compliance and enforcement for the exclusive economic zone fisheries management in the United Republic of Tanzania

Christian Alphonce Nzowa

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WORLD MARITIME UNIVERSITY
Malmö, Sweden

COMPLIANCE AND ENFORCEMENT FOR THE EXCLUSIVE ECONOMIC ZONE
FISHERIES MANAGEMENT IN THE UNITED REPUBLIC OF TANZANIA

By

CHRISTIAN ALPHONCE NZOWA
Tanzania

A dissertation submitted to the World Maritime University in partial Fulfillment of the requirement for the award of the degree of

MASTER OF SCIENCE
In
MARITIME AFFAIRS

(OCEAN SUSTAINABILITY GOVERNANCE AND MANAGEMENT)
2018

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Declaration

I certify that all the material in the dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me. The content of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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Supervised by

Neil. A. Bellefontaine

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Acknowledgements

First and foremost, I would like to thank Almighty God for His endless bounties throughout my life and during the master degree course. My sincere thanks and gratitude are expressed to my supervisor Prof Professor Neil Bellefontaine for greatly assisting me to fulfill my wish to make this work possible. He has not only been a respectable supervisor but also he managed to shape my academic career for his valuable advice, comments, contribution, support and the writing process. I am indebted to Professor Larry Hildebrand, Professor Ronan Long, and Professor Mary Wisz for their assistance during my studies. I further would like to thank the NORAD for offering me the scholarship to pursue MSc in Maritime Affairs specialized Ocean Sustainability Governance and Management this esteemed International Maritime University.

I would like to thank the retired the Permanent Secretary responsible for Fisheries under the Ministry of Livestock and Fisheries, Dr. Yohana Luhunga Budeba for granting me study leave and continuously encouraging me in my studies. I also wish to thank the retired the Director General of the Deep Sea Fishing Authority (DSFA) Mr. Hosea Gonza Mbilinyi for nominating me to attend this course. I am also indebted to my fellow students from Tanzania (S18) Milwano Idrissa Maruzuku (Port Management - PM), Musa Daudi Mrindoko (Shipping Management and Logistics) and Joyce Salvatory Lubonera (Shipping Management and Logistics - SML) for their encouragement in various ways during the dissertation (Shukrani Sana wote).

Finally, I would like to take this opportunity to thank my family for their courage and support, in particular, my lovely wife, Upendo Bernard Mkusa for her tolerance and care of the family when I was away. Then to my beloved children, my sons Innocent Christian and Carsten Christian and my daughters, Carlin Christian and Carolyn Christian thanks for their prayers and little complain when I was away. I thank and love them deeply.

Last but not least special, thanks to my parents, Alphonse Moro Nzowa (Father) and Magreth Lusungamo Sinkonde (Mother) for their physical and spiritual support (prayers). I love them deeply. I am also thankful to my brothers Stanford and Gibson and sisters Odia and Lucy for their moral support and prayers. I thank you all.
Abstract

Title of the Dissertation: the compliance and enforcement for the Exclusive Economic Zone (EEZ) Fisheries Management in the United Republic of Tanzania

Degree: MSc

The Exclusive Economic Zone EEZ fisheries in Tanzania is important for food, employment, and income revenues. The EEZ fishery was operated by DWFNs fleets and the mode of fishing are purse seine and long line. The Management of the EEZ fishery is controlled by the Deep Sea Fishing Authority (DSFA) according to the DSFA Act 1998 and its amendments of 2007 and the Regulation 2009 and its amendment of 2016. In addition, the International legal regime such as UNCLOS 1982, FAO Compliance Agreement 1993, UNFSA 1995, IPOA - IUU fishing 2001, PSMA 2009. Regional level are IOTC and SWIOFC requirements.

This dissertation is advocating the compliance and enforcement of the EEZ fisheries Management in Tanzania because strong Fisheries Monitoring Center (FMC) which is responsible for MCS activities such as observer program, inspection program, aerial surveillance, joint sea patrols (boarding inspection), dockside inspection (pre license Inspection and landing inspection) Vessel Monitoring System Themis Web base System (VMS) and Automatic Identification System (AIS).

Despite the legal regime, MCS activities, still, this dissertation is advocating the non-compliance activities from DWFN fleets which are IUU fishing, overfishing, and destruction of marine habitats. This dissertation observed the gaps and weaknesses in the legal and policy framework, institutional capacity (MCS) and lack of offshore patrol vessel.

This dissertation concludes and recommendes that EEZ Acts and Regulations should be reviewed to be compatible with international and regional requirements regarding fisheries management, MCS and fisheries science. The URT should establish stronger legal penalties and fines regarding fishing crimes. Strengthen cooperation with regional fisheries bodies and WIO countries by sharing information regarding highly migratory species and IUU fishing within the EEZ of Tanzania.

KEYWORDS: EEZ (Exclusive Economic Zone), Compliance and Enforcement, IUU fishing and International fisheries legal regime
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List of Abbreviations

Cases

(EEZ) Exclusive Economic Zone................................................................. 1, 2
(URT) The United Republic of Tanzania ...................................................... 1
AIS Automatic Identification System ........................................................... 12
ANABAC Asociación Nacional de Armadores de Buques Atuneros Congeladores .... 38
ATF Authorization to fish ............................................................................ 21
CCAMLR Convention on the Conservation of Marine Living Resources ............. 16
CCSBT Commission for the Conservation of Southern Bluefin Tuna .................. 9
CCTV Closed Circuit Television .................................................................... 20
CDS Catch Documentation Schemes ................................................................ 15
CECAF Fishery Committee for the Eastern Central Atlantic............................... 10
CIFAA Committee on Inland Fisheries and Aquaculture of Africa .................... 10
CLS Collecte Localisation Satellites .............................................................. 59
CMM Conservation and Management Measures .............................................. 82
COPESECAALC Commission for Inland Fisheries and Aquaculture of Latin America and the Caribbean ................................................................. 10
DMI Dar es Salaam Maritime Institute ............................................................ 77
DONGWON Dong Won Fisheries Co., Ltd ....................................................... 39
DSFA Deep Sea Fishing Authority .................................................................. 3
DWFNs Distant Water Fishing Nations Fleets .................................................. 2
EIFAC European Inland Fisheries and Aquaculture Advisory Commission ......... 10
EU The European Union countries .................................................................. 67
FADS Fishing Aggregating Devices ................................................................. 21
FAO Food and Agriculture Organization ....................................................... 4
FMC Fisheries Monitoring Center .................................................................... 8
FNC Flag of Non-Compliance Vessel ............................................................... 3
FOC Flag of Convenience Vessel ..................................................................... 3
GDP Gross Domestic Product ......................................................................... 3
GPS Global Positioning System ...................................................................... 7
IATTC Inter-American Tropical Commission .................................................... 9
ICCAT International Commission for the Conservation of Atlantic Tunas ........... 9
ILO International Labour Organization ........................................................... 8
IMCS Network International Monitorng Control and Surveillance Network ........... 70
IMO International Maritime Organization ..................................................... 8
IMS Institute of Marine Sciences .................................................................... 78
INTERPOL International Criminal Police Organization .................................. 70
IOC Indian Ocean Commission ...................................................................... 2
IOTC Indian Tuna Commission ....................................................................... 2
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<td>ZMA</td>
<td>Zanzibar Maritime Authority</td>
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1  CHAPTER ONE: BACKGROUND INFORMATION

This chapter gives a brief overview of the background, research questions, significance, and organization of the study.

1.1  Background and Significance of the study

The United Republic of Tanzania (URT) is the largest country in East Africa, located between longitude 290 and 410 East and Latitude 10 and 120 South. URT has a Territorial Sea of 64,000 km2 and an Exclusive Economic Zone (EEZ) of 223,000 km2, which is about 24 percent of the land area. The country’s continental shelf is about 17,900 km2 in area, with a 1,400 km coastline. Tanzania is bordered along the coast to the north by Kenya and to the south along the coast by Mozambique. The islands of Zanzibar are separated from the coast by a 22-mile channel (Jiddawi & Öhman, 2002).

The URT is a Coastal State which ratified 1982, United Nations Convention on the Law of the Sea (UNCLOS) in 1985 and the 1993 Compliance Agreement in 1999. The Law of the Sea Convention or the Law of the Sea treaty defines “An Exclusive Economic Zone (EEZ) is a concept adopted at the Third United Nations Conference on the Law of the Sea (1982), whereby a coastal State assumes jurisdiction over the exploration and exploitation of marine resources in its adjacent section of the continental shelf, taken to be a band extending 200 miles from the shore,” on which the State Beyond the territorial sea, is the area where countries have the right to manage and control marine affairs and resources, such as fishing, mineral extraction, and oil drilling. This area of ocean, extend 200 nautical miles from a country's coast (Ibengwe & Sobo, 2016)

Subsequently, URT is amongst the coastal countries that are complying with International Laws, Agreements, treaties and the Regional Fisheries Management Organization (RFMO) Indian Ocean
Tuna Commission (IOTC) and their resolutions and recommendations. According to the IOTC report on compliance shows that the Tanzania level of compliance has increased from 4% the year 2011 to 63% the year 2016. Tanzania also, established a Deep Sea Fishing Regulations Act to be compatible with International law and other agreements which was sponsored by a World Bank Fisheries Project in 2017. Although Tanzania is not a member of the Indian Ocean Commission (IOC) it still cooperates with IOC countries on sharing information reports on the list of licensed vessels, infringements, inspections, observers, sighted vessels, vessels monitoring information through regional web-based regional information data exchange namely standardized real-time Fisheries Information System Hub (STARFISH). Not only have members of the Southern African Development Community (SADC) Countries signed an agreement on the establishment of the Monitoring Control and Surveillance (MCS) Center and combating and fighting Illegal Unreported and Unregulated Fishing within SADC Countries but also Tanzania is a member of the Southwest Indian Ocean Fisheries Commission (SWIOFC) for the establishment of Minimum Terms and Conditions (MTC) for fisheries access in the Western Indian Ocean (WIO) especially for Distant Water Fishing Nations (DWFNs) Fleets. This particular initiative has minimized noncompliance and has curbed IUU fishing in the region (Swan, 2004b). (Agnew et al., 2009).

![Figure 1.1 Tanzania Map Source GIS](image)

Figure 1.1 Tanzania Map Source GIS
1.2 The Research Problem

Despite the fact that the United Republic of Tanzania is blessed with an EEZ, which has boosted the economy of Tanzania from a growth of 2% of Gross Domestic Product (GDP) direct and indirect from EEZ fisheries. Subsequently, the country has experienced considerable negative economic impacts (loss revenues and port dues), social impacts (hunger, poverty, food insecurity, piracy and), environmental (pollution, depletion of stocks, habitats degradation) and other IUU activities (transshipment at sea, discharge of by-catch at Sea, under reporting of catch data).

However, initiatives from regional (SADC, IOTC, IOC Smart-fish and Fish I Africa) and national activities have been undertaken through regional cooperation and sharing information with the Indian Ocean Tuna Commission, Fish I Africa, and Maritime Rescue Coordination Center (MRCC). Yet the situation has not improved at all because of weak institution framework, lack of the MCS tools such as offshore patrol capacity, inadequate qualified and competent staff to address its EEZ fishery and maritime issues. In addition, the presence of loopholes, gaps and weaknesses of the legislation particularly vessel registration because of Flags of Non-Compliance (FNC) or Flags of Convenience (FOC), inadequate cooperation between Tanzania Port Authority - TPA (Dar es Salaam and Zanzibar with Fisheries Authorities), and poor cooperation between the Zanzibar Maritime Authority (ZMA), The Surface and marine Transport Regulatory Authority (SUMATRA) and the Fisheries Authorities.

1.3 Statement of Problem

It is the aim of this dissertation to determine if the Deep Sea Fishing Authority (DSFA) has the capacity to curb IUU fishing within the EEZ of Tanzania through compliance and enforcement activities including air patrol, boarding inspections, sea patrol, port inspections, Vessel Monitoring System (VMS), Fisheries Information System (Database) and Implementation of National legislation, Regional (IOTC Resolution) and International Legislations (UNCLOS and FAO).

1.4 Justification/ Rationale

The tuna and tuna-like fish species are migratory and are shared by the WIO States. Therefore, they require joint management measures and actions such as harmonization of policies and legislation, MCS strategies, joint surveillance, data collection, environmental monitoring, research on fisheries population dynamics, biodiversity, reproduction, genetics, fish stock
assessment, exchange of harvesting technologies, fish processing and marketing, information/data and socio-economic studies among others. In this context, Tanzania must ensure the EEZ fishery is safeguarded because of social economic activities such as income generation, port fees, servicing, refueling, dry docking, and the provision of food (protein). Currently, the marine fisheries provides 2% of GDP of the national and loses around 20 million USD from IUU fishing annually.

1.5 Objective of the dissertation

The aim of this dissertation is to study and analyses the effectiveness of monitoring, control, and surveillance (MCS) and implementation of the regional and international legal requirements for combating IUU fishing within the EEZ of Tanzania from distant water fishing nations and Tanzanian fleets with fishing tuna and tuna-like species that occur in its EEZ. Managing tuna stocks in Tanzania supports the implementation of the UN 2030 sustainable development goals SDGS, particularly SDG1 no of poverty, SDG 2 of zero hunger, SDG 3 of health avoiding malnutrition protein, SDG 8 of economic (employment and income) and SDG 14 of protection of resources for future generation through combating IUU fishing with the target to reduce IUU fishing by 2020.

1.6 Specific objectives

Tanzania must develop and incorporate the following objectives

- To ensure Tanzania vessel operators comply with regional and international legislation;
- To enforce UNCLOS III, Food and Agriculture Organization (FAO) compliance agreement (1993), UN Fish Stock Agreement (1995), FAO IPOA for IUU fishing (2001), FAO Port State Measure (2009), FAO Code of Conduct for Responsible Fisheries and Regional Fisheries Management Organization such as IOTC);
- To cooperate and share information with fisheries bodies, an initiative network such as Fish I Africa and International Non-governmental organizations (NGOs) such as World Wide Fund for Nature (WWF).

1.7 Significance of the Study

The significance of this dissertation is categorized into three- phases. First, it makes a significant contribution to the marine sectors particularly government institutions such as universities and colleges regarding a compliance and enforcement as tools for combating IUU fishing in the EEZ of the United Republic of Tanzania. Second, the conclusions and recommendations will advocate how URT should combat IUU fishing through cooperation and sharing information towards improving the management of EEZ the fishery. Third, the dissertation will analyze gaps and weakness of the national legal regime and determine the needs for reviewing Tanzanias fishery regulations to be compatible with
regional and international standards. In addition, the recommendation will help the URT to improve the current management practices for highly migratory species in the EEZ of Tanzania. These will necessitate a joint effort from different ministries responsible for fisheries, defense, port, maritime, revenue, foreign affairs and legal as well as judicial entities.

1.8 Hypotheses of the Research Proposal

The Research proposal is focused on two hypotheses:
(a) The commitment of the URT and other donors, to provide sufficient financial resources for the compliance and enforcement of the EEZ resources for effective MCS activities and implementation legislation after examining the level of compliance within IOTC and outcome from EEZ fisheries;
(b) the examination of the inadequacy of human resources loopholes and gaps in legislation and resources for equipment for of the EEZ.

1.9 Research Questions

The research comes with the following study questions:
- Does the URT have the MCS equipment (aircraft and offshore patrol vessels) to effectively ensure compliance and enforcement within its EEZ?;
- Does the URT have the competent and qualified personnel to conduct MCS activities?
- Does the URT have conservation and management plans to monitor distant water fishing nations and flagged vessels fishing in EEZ?;
- How often are EEZ fishing vessels monitored with aerial surveillance?
- How often are EEZ fishing vessels inspected at designated ports in Tanga, Zanzibar, Dar es Salaam and Mtwara? ;
- Are all the catches that are caught in the EEZ at sea accounted for (ie unreported transshipment at sea)?

1.10 Limitations of the Study Research Limitation

This dissertation will focus on the Exclusive Economic Zone (EEZ) of the United Republic of Tanzania and briefly on IUU Fishing in relation to enforcement and compliance within the South West Indian Ocean Region (SWIO) encompassing countries such as the Comoros, France, Kenya, Madagascar, the Maldives, Mauritius, Mozambique, the Seychelles, Somalia, South Africa, the United Repuplic of Tanzania and Yemen.
1.11 Dissertation Structure

The dissertation is structured into seven chapters. Chapter one presents an overview of the dissertation and highlights the extent of the IUU fishing in the EEZ of Tanzania. Chapter two provides a literature review and gives the theoretical background into issues related to compliance and enforcement activities. Chapter three provides an overview of the EEZ fisheries in Tanzania, starting with the resources potential of tunas, licensing, fisheries statistics, compliance and enforcement activities, management of Flag of Convenience (FOC) and the legal regime that governs EEZ fisheries. Chapter four expounds on the methodology used for the dissertation, while Chapter five offers Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis for the management of the EEZ fishery in Tanzania. Chapter six provides a discussion and finally Chapter articulates seven conclusions and recommendations and a way forward for Tanzania.
2 CHAPTER TWO: AN OVERVIEW OF THE COMPLIANCE AND ENFORCEMENT

This chapter explains an overview of the compliance and enforcement of the Economic Exclusive Zone (EEZ). It also explain the drivers, pressures, state, impact, and response for EEZ fisheries.

2.1 Introduction

The genesis of the deep sea fisheries using fishing gear hooks and a line developed in the early 1800s while trawler fishing for deep sea using factory freezer started in the mid-1950. With an extension of the maritime zones, starting in the 1970s, several fleets were included such as the fishing fleets (Large-Scale Tuna Longline vessel LSTV), large-scale freezing factory trawler, large-scale tuna purse seiners). Subsequently, the mid of 1990s technological of fleets has been increasing by equipped with modern navigation system and telecommunication system (Pauly, Watson, & Alder, 2005).

In addition, the power systems have changed from mechanical to digital with high speed from 11 knots to 25 knots. Fishing gear accessories have improved such as radio buoys embedded with Global Positioning System (GPS), satellite buoys and fishing searching equipment such as radar, fish finder, sonar and automatic plotters have been developed. The fleets were able to navigate from the High Sea to EEZ and vice versa to fish highly migratory species (tunas and tuna-like species) and straddling species (cod and herring) (Pauly et al., 2005).


The Exclusive Economic Zone (EEZ is an area beyond and adjacent to a coastal State’s territorial sea to a limit of 200 nautical miles from the baseline. Within this zone, the coastal State may exercise sovereign rights over exploration, exploitation, conservation, and management of natural resources and other economic activities, such as the production of wind or tidal power under Article(s) 56 of UNCLOS.

The legal regime for the fisheries under UNCLOS is articulated under Articles 61, 62, 63, 64,65,66,67 and 68 regarding fisheries management, Article 73(1) 220 (7), 226(1) (b) and (c) deal with enforcement of laws and regulations of the coastal State and compliance and Articles 91 & 94 regarding registration of vessel and flag state responsibilities (Doulman & Swan, 2012).
In this context, the UNCLOS (III) 1982 recognized the Monitoring, Control and Surveillance (MCS) activities under the Fisheries Monitoring Center (FMC) within the Coastal States. In addition, the UNCLOS (III) 1982 recognized the responsibilities of the flag States, port States and market State to curb non-compliance activities within their jurisdiction in line with other international conventions and treaties emanating form the United Nations specialized agencies responsible for fisheries (Tanaka, 2015).

Subsequently, states should comply with the IPOA on IUU, UN Fish Stocks Agreement, PSM for IUU and conform with multilateral agreements, or bilateral agreements, conventions, treaties from the UN specialized agencies like the International Maritime Organization (IMO) conventions (Safety of Life at Sea -SOLAS, Standards of Training, Certification and Watchkeeping for Seafarers -STCW, Prevention of Pollution from Ships –MARPOL73/78), the International Labour Organization (ILO), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Industrial Development Organization (UNIDO) respectively (Doulman & Swan, 2012).

In addition, the international agencies such the International Union for Conservation of Nature (IUCN), the United Nations Conference on Environment and Development (UNCED), the Regional Fisheries Management Organization (RFMOs) and International NGOs World Wild for Nature (WWF) are responsible for fisheries and fisheries related activities within national, regional and international arena. States should also implement the sustainable development goals which are a collection of 17 global goals set by the United Nations in 2015 for sustainable utilization for present and future generations (SGD14 life below water) (Erikstein & Swan, 2014).
2.2 Compliance and enforcement

Compliance is a process of a natural person to conform to specific rules such as a specification, laws, policies, regulations, guidelines, resolutions and standards set by sovereignty countries. Enforcement is a system or mechanism by the authorities to enforce the law by deterring, rehabilitation, restoration, punishment people who violate the rules and norms governing those authorities (Febi, 2018) Mbendo, (2011).

Fisheries compliance and enforcement are undertaken by competent authorities responsible for fisheries matters by ministries responsible for fisheries, regional fisheries management organizations (RFMOs) such as the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), the Inter-American Tropical Tuna Commission (IATTC), the International Commission for the Conservation of Atlantic Tunas (ICCAT), the Indian Ocean Tuna Commission (IOTC) and the Western and Central Pacific Fisheries Commission (WCPFC) (Febi, 2018).
Subsequently, the Regional Fishery Bodies (RFB) such as FAO Regional fisheries bodies under article VI includes Southwest Indian Ocean Fisheries Commission (SWIOFC), Western Central Atlantic Fishery Commission (WECAFC), European Inland Fisheries and Aquaculture Advisory Commission (EIFAAAC), Commission for Inland Fisheries and Aquaculture of Latin America and the Caribbean (COPESCAALC), Committee on Inland Fisheries and Aquaculture of Africa (CIFAA) and Fishery Committee for the Eastern Central Atlantic (CECAF). Fisheries compliance and enforcement are critically important towards maintaining fisheries stocks and sustainable utilization of the fish for present and future generations (Mbendo, J. R. 2011).

2.3 Compliance and Enforcement

In accordance with the UNCLOS (III) Articles 62, 63 and 64, as well as Article 73, 220 and 226, the roles of the Coastal state to undertake the MCS activities within their jurisdiction are stipulated. The Coastal States are obliging to develop the Minimum Terms and Conditions (MTC) and ensuring the Distant Water Fishing Nations (DWFNs) exploiting the EEZ species according to Total Allowable Catch (TAC) through Sustainable Fisheries Partnership Agreement (SFPA) and access fees (fishing license) (Flewelling, 2003a).

The fisheries stock which is found in an EEZ is highly migratory species including tuna and tuna-like species, marlins, swordfish and sharks, billfish which have traveled the long distance from more than one country to another (international boundaries). Other stocks are straddling stocks that occur between two EEZ and migrate within two areas. An example of straddling stocks include cod, pollock, and flounders (Churchill, 2012).
In this regard, compliance and enforcement for combating the straddling and highly migratory species are undertaken by national, regional and international cooperation and coordination. The international cooperation and coordination has been working due to the legal binding agreement and non-legal agreements including inter alia:

- The Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (1993 The FAO Compliance Agreement);
- Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (1995 UNFSA);
- The FAO Code of Conduct for Responsible Fishing, The International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing (2001 IPOA-IUU);
- The International Plan of Action for the Management of Fishing Capacity (IPOA-Capacity);
- The International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA Seabirds);
- The International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) and;
• The Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing was adopted in 2009 (Garibaldi, 2012).

2.4 States responsibilities with regard to compliance and enforcement

Under UNCLOS (III), 1982 it is stipulated that it is the sovereign right of the soastal states, slag states, and the port states and markets states to combat any noncompliance activities.

2.4.1 Coastal States responsibilities

the UNCLOS under Articles 63(1), 63(2) and 64(1) deal with the duty to cooperate in the conservation of fish stocks, articles 73(1), 73(2) and 73(3) deal with boarding, inspections, prompt release and imprisonment. The FAO UNFSA 1995, 2001IPOA, 2009 Port State Measure Agreement (PSMA) and the FAO Code of Conduct for Responsible Fishing and the UNCLOS all emphasize that the State should develop Fisheries Monitoring Centers (FMC) in order to undertake the MCS activities including offshore patrols, boarding and inspection, and air patrols, land inspections (dry-docking inspection)(Haughton, 2003).

These activities need competent and qualified staff who are responsible for tracking fishing vessel movements by Vessel Monitoring System (VMS), crosschecking fishing logbooks, documents and observing the fishing activities during fishing as well offloading the catch. In addition, the FCM should have a database for stored data including a lists of licensed fishing vessels, VMS, observer, Automatic Identification System (AIS) data, observer data and lists of infringements. Furthermore, the state should ensure the fisheries competent authority may share information with neighboring countries and participate in jointly sea patrols through regional cooperation.

A case study of joint sea patrols was supported with the Southern African Development Community (SADC) within Western Indian Ocean (WIO) region on 8 March 2008. The fishing vessel Tawariq 1, registered from Oman, was intercepted 180 nautical miles off the Tanzanian coast, and subsequently arrested by a South African Environmental Protection vessel EPV Sarah Bartmaan. Tawariq 1 was apprehended and seized in Tanzania. On 23 February 2012, the High Court of the United Republic of Tanzania delivered its guilty verdict in the case of the fishing vessel Tawariq 1; The Court ordered the vessel to be forfeited to the Government. The Captain of the fishing vessel, Mr. Hsu Chin Tai and the ship's agent Mr. Zhao (Wellem, 2009). The Captain Mr. Hanquing were found guilty of fishing without a license in the Tanzanian Exclusive Economic Zone (EEZ). They were sentenced to pay 1 billion Tanzanian shillings each (estimated 500,000 USD or go to jail for twenty years. The Captain was also fined a further of 20 billion Tanzanian shillings (estimated 8million ) for the offense with regard to pollution (Wellem, 2009).
In Mozambique on 23 June 2008, the FM received information about an unknown vessel *Antillas Reefer* was fishing in EEZ of Mozambique. The vessel was apprehended and arrested along with the fishing crew. According to the Mozambique fisheries legislation the vessel owner was requested to pay a fine of totalling 4.507 million USD for the infractions. However, the Spanish owners of the Namibian joint venture appealed the penalty to the Administrative Tribunal. The final ruling of the appeal by the Tribunal was announced in June 2010 and they requested the minister responsible for fisheries to confiscate the vessel *Antillas Reefer*, including the equipment onboard, fishing gears and also the fish product. The *Antillas Reefer* fishing vessel is currently being converted to an offshore fisheries patrol vessel.

In Liberia, the joint cooperation between the Ministry of Fisheries and interagency sector which include the Coastal Guard, Port Authority, Maritime Authority has arrested three trawlers fishing in the EEZ of Liberia without a valid fishing vessel license. The licenses found in the three vessels arrested had been forged by officers of the Ministry of Fisheries in collaboration with the fishing operators. In this regard, the Ministry has requested the arrested vessels to pay to total 7 million USD which were paid as fines (Interpol 2014, Le Gallic & Cox, 2006).

### 2.4.2 Flag States responsibilities

The genesis of the Flag state come from an evolution of the customary use of the flag as a sovereignty identification and symbol of the country where the ship is originated. This concept is relevant to a doctrine of freedom of the navigation and right of the Flag state to monitor all activities undertaken by flagged vessels. According to the UNCLOS 1982 Articles 87, 90, 91, 94(2) (a-b), 94(3) (a), 94(2) (b) regarding vessel fishing in High Sea, they must fly the flag of the nationality which is registered and comply with all national laws of the vessel. The flag country should ensure their vessels comply with the international law while fishing in the High Sea and requirements from the Regional Fisheries Management Organisation (RFMOs). In addition, the flag country should ensure their vessels have valid authorization to fish when fishing in the High Sea and have a valid fishing license when they fish in Coastal States EEZ.

Also, under Article 217 the responsibilities of a flag state pertain to enforcement and compliance of regulations that are stipulated in order to reduce pollution and its impact on the marine environment.

The 1993 FAO Compliance Agreement, the UN Fish Stock Agreement, Port State Measures and the FAO Code of Responsible Fisheries IPOA on IUU fishing work to ensure that a Flag State controls its vessels through MCS activities (AIS, VMS, Radar Sat). And that international cooperation is in order to combat noncompliance activities such as IUU fishing, pollution, discarding and other fishery crimes as well as human trafficking, smuggling of migrants, drug smuggling, maritime piracy, firearms trafficking and terrorism (Le Gallic & Cox, 2006).
Furthermore, flag states are obliged to authorize fishing vessels to fish beyond the national jurisdiction, maintain fisheries statistics, safety (IMO conventions) and security, comply with coastal states and management conservation and management measures from RFMOs.

According to the Indian Ocean Tuna Commission (IOTC), the Western Indian Ocean countries such as the Seychelles has the largest industrial fishing fleet with 88 purse seines, longliners or supply fishing vessels, Mauritius has 10 (1 purse seine, 7 longliners and 1 supply vessel), South Africa has 35 (longliners and pole and line), Mozambique has 12 long lines, Madagascar has 8 longliners and Kenya, 2 longliners and Maldives has 836 (pole and line) (IOTC 2018 Authorized vessels).

However, Tanzania has registered 13 vessels from 2009 to 2016, which were de registered because of noncompliance activities beyond national jurisdictions. A case study of flag state responsibilities was observed in Tanzanian waters in 2013 (VMS and AIS) the DWFNs registered in Taiwan namely Hua Kun 168 and Hsiang Fa 26 – were observed fishing without license and the Taiwan fishing authorities cooperated with Tanzania by sending all the requested information for the case (Agnew et al., 2009a).

2.4.3 Port State responsibilities

According to UNCLOS under Articles (s) 218 and 226 regard security and safety of foreign ships that berth at designated ports of sovereign countries. This is matching with the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing that was approved by the FAO Conference at its Thirty-sixth Session (Rome, 18-23 November 2009) under paragraph 1 of Article XIV of the FAO Constitution, through Resolution No 12/2009 dated 22 November 2009. The Agreement was registered with the Secretariat of the United Nations on 26 January 2017 under No. I-54133.

The PSMA entered into force on 5 June 2016 with 54 States and one member organization (EU) as of May 2018. This is legally binding for the members that signed the agreement (FAO 2018). Furthermore, the FAO Compliance Agreement, UN Fish Stock Agreement, FAO Code of Conduct for Responsible Fisheries and the Port State Measure Agreements, IPOA on IUU are working together in line with the IMO conventions such as SOLAS and MARPOL. In WIO countries including Kenya, Madagascar, Maldives, Mauritius, Mozambique, the Seychelles and South Africa which have signed a PSM Agreement for combating IUU fishing.

The legal power of this agreement is to deny port access to vessels that are suspected of illegal, unreported and unregulated (IUU) fishing or other fisheries crime activities. The port state is requested to deny offloading catch and onshore activities such as servicing, refueling, dry-docking and embarkation and disembarkation of the crews.

In a case study 2012, the South Korea purse seiner named Premier conducted Illegal fishing in the Liberian EEZ. The WIO countries such as Kenya, Mozambique, the Comoros, and
Tanzania were denied to fish within their EEZ by refusing to issue it a fishing license. The Seychelles also denied the vessel to offload a catch in Port Victoria as well Mauritius Port Louis in 2013 because of the cooperation and networking within the region (Agnew et al., 2009).

Subsequently, on 22 April 2013, the owners from South Korea’s Dongwon Industries decided to pay the government of Liberia 2 million US dollars in order to settle an infringement against the FV Premier and the tunas were offloaded in May 2013 in Colombo, Sri Lanka. (Fish Africa Sandy Davis July 2013).

Figure 2.4 An overview on how the PSM system work in combating an IUU fishing source FAO 2016

2.4.4 Market State responsibilities

According to the FAO IPOA, 2001 and EU regulation 1005/2008 a mechanism was formulated to control a fishing products imported into the EU Market from third countries. It was believed that IUU fishing was rampant such as in West Africa.

The management measure to control IUU fishing products has strengthened MCS staff to trace, cross-check import certificates, documentation and the labelling of products from their country of origin. Furthermore, the states should cooperate with fishing nations in formulating unilateral agreements or multilaterally through Region Fisheries Management Organizations (RFMOs). The states should ensure Catch Documentation Schemes (CDS) are implemented for both documentation and forensic technology to enhance traceability and compliance activities (Glassco, 2017).
2.5 Non-Compliance: The Problem of Illegal, Unreported and Unregulated Fishing (IUU fishing)

In this dissertation, the term noncompliance is defined as a lack of compliance by distant water fishing nations (DWFNs) to conform to national, regional and international legislation. For examples, this would include both IUU fishing and fisheries crimes.

2.5.1 Illegal, unreported and unregulated fishing

IUU fishing is a noncompliance activity which is affecting marine habitat such as coral reefs, sea grasses, mangroves as well as marine biodiversity. The results of these activities are depleting stocks, degrading ecosystems, as well as discarding of fisheries stock hence creating pollution within the marine ecosystem. This can occur within EEZs, by either domestic or foreign vessels, and on the high seas (Schmidt, 2005).

Subsequently, types of IUU fishing within WIO countries include (i) illegal fishing by foreign vessels without license, (ii) fishing with fake license or vessel registration, (iii) fishing by destructive gears (iv) fishing protected species and/or endangered species, (v) fishing without an observer on board, (vi) fishing without switch on active VMS, (vii) fishing with illegal gear contrary to RFMO resolutions and recommendations.

Drivers of IUU fishing are categorized between the small-scale fisheries and large-scale fisheries. In this context, the IUU fishing drivers within the Exclusive Economic Zone (EEZ) are capital, technology, market, institution, legal framework, political, subsidies, business, trade, governance, employment and food security. In this context, the impacts of the IUU fishing are categorized as follows; (i) economic perspective, (ii) social perspective, (iii) environmental and ecological perspective, and the (iv) political arena. The responses to combating IUU fishing depended on the legal framework, policy, and regulations from national, regional and international jurisdictions.

2.5.2 Definition of IUU fishing

The genesis of the term IUU fishing was derived from the RFMO, the Convention on the Conservation of Marine Living Resources (CCAMLR) during meetings held in 1997. The term IUU fishing was used to discuss noncompliance activities undertaken by Parties or non-Parties contrary to resolutions and recommendations of the Convention. This term is still active
utilized today from the national, regional and international perspectives. In this context, the FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU) describes IUU fishing as follows:

<table>
<thead>
<tr>
<th>Illegal fishing is defined as fishing (Paragraph 3.1 of IPOA-IUU Fishing) (MRAG, 2008)</th>
<th>Unreported fishing is defined as fishing activities (Paragraph 3.2 of the IPOA-IUU Fishing):</th>
<th>Unregulated fishing is defined as fishing (Paragraph 3.3 of the IPOA-IUU Fishing):</th>
</tr>
</thead>
<tbody>
<tr>
<td>“3.1.1 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; 3.1.2 conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organization 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 3.1.3 in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organization.”</td>
<td>3.2.1 Which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or 3.2.2 Undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization;</td>
<td>“3.3.1 in the area of application of a relevant regional fisheries management organization 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 3.3.2 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.”</td>
</tr>
</tbody>
</table>
2.5.3 Drivers of IUU

For the purpose of this dissertation, the drivers of IUU fishing are advocating the EEZ fisheries particular tuna and tuna-like species fisheries. The fleets have been used in tuna fisheries within the Indian Ocean EEZs are (i) industrial tuna purse seiners targeting tunas are from EU Japan, Iran, Thailand and the Seychelles (ii) industrial deep-freezing longliners targeting tunas, swordfish are from Taiwan, China, Japan, India, EU, and Seychelles, (iii) fresh tuna longliners targeting tropical tunas, or swordfish are from Indonesia, Malaysia, EU, and Seychelles, (iv) fresh tuna pole and line vessels are from the Maldives (MRAG, 2008). In this regard, the following are drives for IUU fishing globally

2.5.4 Governance

This results from weak governance which involves a lack of inter-agency cooperation between authorities responsible for combating IUU such Navy, Marine Police, Migration, Revenue/Customs, Port, Maritime, Foreigner Affairs and Environmental authorities. These authorities have priority according to their policies. Subsequently, this gap is creating an opportunity for IUU fleets that are fishing without a licenses and contrary to the regulations.

Corruption is categorized from different stages of fishing activities such as during application of fishing license or vessel registration. During application of fishing license, the owners/company may bribe the licensing officers or superior Officers to issue licenses without pre-license inspections and without due diligence from the Regional Fisheries Management
Organization (RFMO). Corruption is advocated on fishing vessel registration when maritime officers collide with owners or companies contrary to national law or international standards (IMO) regarding registration of foreign vessels as a flag of convenience (FOC) or flag of noncompliance (FNC) (MRAG, 2008).

The FOC vessels are risk fishing vessels which deployed fishing crew against the International Labor Convention (ILO) under Regulation to address working conditions in fishing (C.188). These flag of convenience (FOC) vessels operate without paying taxes and other related fees, the identity of owners is often hidden (anonymity) and the vessel can re-flag and change names several times after conducting IUU fishing.

The weakness of the legal framework and loopholes between the international law and coastal states laws result in small range fines and penalties contrary to violations from IUU fishing. In addition, the skills and knowledge of the fisheries officers to understand the LOS, maritime laws are minimal, hence collection of evidence and opening charges are affecting the fisheries case. The bureaucracy and political willing are among the drivers of IUU fishing within developing countries. The judges and magistrates among developing countries also interfere with IUU cases due to corruptions and loopholes of the legislation. This will motivate judges and IUU captain vessels and owners to obstruct the cases. In this regard, deterrence was inevitably reduced.

In the absence of severe penalties such as in Tanzania and the Philippines regarding coastal fisheries especially dynamite fishing led to decreasing deterrence from the captain, fishing crews, and owners. This resulted in overfishing, depletion of species and degradation of marine habitats such as coral reefs and seagrasses meadow.

For example, West African countries are notorious for “flag of convenience” with minimum enforcement of maritime regulations due to corruption and political will. In South Africa, the fisheries inspectors were sued regarding bribery during the inspection. The type of bribery was money and fish from the fishing vessel (Standing 2008; Sundstrom 2014). In Senegal, the officers and superior officers were alleged with corruption from the trawlers owners. The officers lost their jobs and some were replaced and changed the responsibilities. (Tsamenyi 2009; Havice 2010).

2.5.5 Institution Capacity

This is advocating IUU fishing because of the inadequate capacity of the MCS equipment, human resources, and technology. Inadequate competent and qualified fisheries observers can affect authorities to collect data and analysis. This can be stimulating foreign vessels to misreport by either under report or discard at sea as result of IUU fishing. Inadequate qualified fisheries inspectors can affect inspection activities such as interpretation of fishing logbooks, cross-checking documents, fishing gears, catch on-board, and VMS equipment if it is power...
is on or off. These are gaps which were identified on IUU fishing vessels during application of license (MRAG, 2008).

Inadequate modern surveillance technology such as Vessel Monitoring system (VMS), Radar, Synthetic Aperture Radar (SAR), Satellite and Automatic Identification System (AIS) exist. Inadequate patrol vessels and aircraft as well as vehicles can lead to IUU fishing to flourish because the EEZ fishery is conducted offshore from the land beyond 24nautical miles from the Territorial Sea. The Fisheries Monitoring Center is obliged to secure funds for procuring heavy and strong patrol vessels. In the WIO Regional Strong, patrol vessels are Sarah Baartman from South Africa, Osiris from La Reunion, and Atsatsa from Madagascar (Flewwelling, 2003b)

The Maldives, the Seychelles, Tanzania, and Mauritius have modern VMS system Themis Web base and Satellite image for tracking fishing vessels within the EEZ. In South Korea the FCM ensure all vessels are equipped with Closed Circuit Television (CCTV), Radar and modern camera for tracking fishing vessels within the EEZ. In Denmark, Argentina, the USA and New Zealand the CCTV was installed to an offshore fishing vessel in order to track (Pramod 2010 and Anno 2209).

2.5.6 Overcapacity

The overcapacity of fishing fleets is occurring because the population of the world is increasing. The people need food from seafood. For example, Southern Asians prefer seafood than other sources of protein. (OECD, 2005).

In addition, overcapacity of fishing fleets has been observed in recent years due to blue economy sector booming. Booming of the blue economy has stimulated the government to increase subsidising fishing gears and fishing vessels, decrease fuel price and increase demand for seafood’s in the world market. These increases the number of fleets in the ocean and automatically increase competition of resources. Increasing the competition of resources is stimulating fishing vessels to fish without complying with rules and regulations which result in IUU fishing.

Subsequently, cheap labor and low wages for fishing crews are increasing IUU. For example, longliners from China, Taiwan, Indonesia, and Malaysia have been employing cheap labor from Mongolia, Burma, Indonesia, Thailand and some from West Africa (Palma, Tsamenyi, & Edison, 2010a)

Furthermore, the expansion of port and fisheries development through the blue economy concept the government is funding fishers to develop a national fleet by purchasing fleets from China and Taiwan. The national fleets will compete with foreign vessels as a result of compliance among national fleets so foreign vessels will be reduced inevitably. The conflict of harvesting tunas resources has resulted in overfishing and depletion of the stocks. For
example, according to the RFMO IOTC database, fleets was increased from the 1990s to 2000s by increasing for EU purse seiners (IOTC 2018).

2.5.7 World Market

Tuna and tuna-like species are important for Japan and southern Asian countries as cultural food and products being used as oil and for medicinal purposes. The increase of population hotels and resorts globally has caused the price of tuna in world market increase. As a result, the number of fishing fleets increased in the EEZ and High Seas which led to depleting tuna resources. For example, financial losses from IUU fishing of Patagonian toothfish in the Antarctic between 1996 and 200 is estimated to USD 518 million (Miller, Munro, Sumaila, & Cheung, 2013 Palma et al., 2010).

2.5.8 Technology

The advanced technology in the fishery industry such as modern fishing vessels with fully equipped fish finder, sonar, radar sat, speed and large freezing capacity will increase catch and reduce the time of searching for fish. The presence of modern fishing aggregating devices (FADS) which are embedded with satellite GPS for purse seining and radio buoys for long lining will increase the fishing capacity in the short time with a lot of bycatch. This fishing method is active gears which deplete single species such as yellowfin tuna and bluefin tunas associated with small pelagic species. These small pelagic tunas are discarded at sea which is illegal.

2.6 Types of IUU fishing in EEZ

Noncompliance activities caused by foreign vessels in the EEZ of the coastal state are Illegal transshipment, bycatch discarding, under reporting and misreporting, fishing within the protected area, fishing within coastal waters, switch off Vessel monitoring system and fishing by using illegal gears which are not authorized by RFMOs. In addition, there are fishing vessels that enter and exit the EEZ without prior notification, refuse and deny to deploy an observers and fishing unauthorized fish contrary to fishing license and authorization to fish (Agnew et al., 2009).

2.7 Fisheries crimes

These are fisheries related activities that have been conducted by vessels owners, corporate entities, fishing captains, crew members, businessman, politicians and public officials. This happened during application of fishing licenses, authorization to fish (ATF), vessel registration, processing of export and import fish and fishery products and transshipment and seafood fraud. These are fisheries crimes which have been transpiring in fisheries sectors.
including document fraud, corruption, tax evasion and money laundering, violations of customs regulations, tax fraud, forced labor, and food labeling fraud.

Further, other illegal activities are human trafficking/smuggling of migrants, drug smuggling, maritime piracy, firearms trafficking or terrorism and the illegal transaction of fuel. In addition human right abuses such as child labor, substandard human living condition, working without social security, physical and mental abuse, 18-20 hours working days, health and safety violation, homicide and sexual abuse, no working agreement, and no payment salary are other crimes. These fishing related crimes are under controlled by transnational organized crime (TOC) which are UN conventions against transnational organized crime (Palermo Convention 200) and Maritime Labour Convention - ILO as well as the Cape Town Convention of fishing vessel conditions.

2.8 Impact of the IUU fishing in EEZ fisheries

EEZ fishing is operating by large-scale fishing vessels namely industrial tuna purse seiners, industrial deep-freezing longliners and trawlers. The gears are active and controlled by a witch. For example, purse seiner has a 3km long net, trawler has a 3km and longliners have 3000 hooks (basket). The capacity of the fishing holds are differed according to the type of vessels carrying capacity (tons) is 2258 tons for purse seiners and 800 tons for longliners. (IOTC 2018)

2.8.1 Ecological and environmental impacts

The large-scale tuna purse seiners have 1100 fishing aggregating devices (FADs) which are capable of catching more than 30 tons of schools tunas per haul per vessel. Therefore, there is an increase in numbers of FADs contrary to RFMOs resolutions and using illegal attractive devices such as light to attract more fish. In addition, the factory and freezing trawler for pelagic, bottom species twin rigged for double trawling has the capacity to store 2,500 tons of fish. Subsequently, the two fishing vessels when they fish contrary to RFMOs and Coastal State regulations will affect the stocks. The overfishing, habitats degradation, depletion of commercial and value species as well as pollution due to the discarding of bycatch will affect the stocks for future generations.

Subsequently, ICCAT is advocating that Mediterranean Bluefin tuna (Thunnus thynnus) are at high risk of extinction in the near future because of overfishing. In the North-western Atlantic the groundfish species, such as cod and haddock are declining due to overfishing. Furthermore, the overfishing and depletion of stocks can affect Sustainable Development Goals 1 no poverty (support fishing communities), Goal 2 zero hunger (food security), Goal 3 health and well-being (malnutrition lack of protein), Goal 14 life below water (e.g. combat IUU fishing) (Agnew et al. 2009 Pitcher et al. 2002)
2.8.2 Economic impact

The owners and / captains of IUU fishing vessels in collaboration with government officers through corruption can issue forged fishing licenses, underestimate a catch during export and import/ transshipment of fishery products, issuing an authorization to fish/ catch certificates contrary to law. In addition, the maritime authorities can register a fishing vessels under the flag of convenience (FOC) or flag noncompliance (FNC). Port authorities/ customers/ revenues officers in collaboration the owner of such vessels through bribery can deliberately underestimate catch during offloading and unloading. Furthermore, IUU fishing will affect world markets of fish products and hence the price of fish will increase due to depletion of the stock.

In this context the government gross domestic product (GDP) can drop from license fees, royalties, taxes, landing fees and port fees and lack of employment due to lack of multiplier effects such as servicing, refueling, dry-docking and onshore processing.

Additionally, the loss of GDP can affect Sustainable Development Goals 1 of no poverty (support fishing communities), Goal 2 of zero hunger (food security), Goal 3 of health and wellbeing (malnutrition lack of protein), and Goal 14 life below water (lack of fund for combat IUU). ((MRAG and CapFish 2008).

According to Agnew et al 2009 IUU fishing activities could result in losses of 10 to 23 billion United States dollar (USD) annually and 11 to 26 million tons globally. However, in Tanzania in 2001, the stop illegal fishing indicated that 20 million USD was lost because of the IUU. In addition, in west African sub-region IUU fishing losses were estimated at 3 million USD per boat which could be losing up to 1.3 USD annually. (Agnew et al., 2009).

The Indian ocean provides 19% of the global catch of tuna which is 1.7million and this is important for food, employment, and revenues within the coastal states. the tuna economy is estimated at 6 Billion USD whilst 84% of the catch IOTC species are from EEZ of the coastal state and 64% are from artisanal catches from the Maldives, Indonesia, India, Sri Laka Pakistan and Oman. The overcapacity of the fleets from 1950 the tuna catch was estimated at 600,000 but 2015 at 4.8 million tonnes of tuna. The capture fisheries are declining 91% according to FAO 2014 whilst the capture fisheries is 58.3 million tons. For example Indonesia has 17,000 islands and lose 4 Billion USD because of IUU.

In developing countries 9 billion USD a year is lost because of IUU out of which 1 billion are from African countries. Ghana lost 100million from IUU, Nigeria from 2003 to 2008 because of piracy lost 600 million USD, Guinea 27million from IUU fishing for shrimp, 8 million USD damsel fish and 49 million USD octopus.
2.8.3 Social impact

Overcapacity of fishing fleets and lack of good governance are advocating the IUU fishing vessels to encroach the EEZ of the Coastal State without permission. These vessels have harvested more catch tonnages than were agreed by states or RFMOs. The impact of this can affect availability of raw material to the canning process industry due to depletion of stocks and over-exploitation of the resources (Palma, Tsamenyi, & Anderson, 2010b).

In addition, this can affect food security and livelihood among the communities. The collapse in the Barents/Norwegian Sea of herring, capelin and cod fisheries is result of overfishing leading to decrease of food security, employment and income of the communities around Norway. This is the same as the collapse of the northern cod fishery on the Grand Banks of Newfoundland Canada in 1992 (Myers, Hutchings, & Barrowman, 1997).

Subsequently, social impacts can affect Sustainable Development Goals 1 of no poverty (support fishing communities), Goal 2 zero hunger (food security), Goal 3 health and well being (malnutrition lack of protein), Goal 8 decent work and economic growth (economic and employment) and Goal 16 of peace justice and strong institution (e.g. fishing area conflict MRAG (2005b).

2.9 Response monitoring control and surveillance for EEZ fishery

This management response is for combating IUU in the EEZ through legal policy and institutions framework. According to UNCLOS and the UN Fish Stocks Agreement, IPOA of IUU, Port State Measure as well as FAO Responsible Fishing all legal regimes are encouraging the management and conservation of highly migratory species and straddling stocks.

In accordance with UNCLOS Article 73 regarding enforcement of laws and regulations of the Coastal State and Article 63, para.2 of UNCLOS conservation of the stocks in the EEZ should be encouraged through cooperation.

In this regime, the coastal state should establish a Fisheries Monitoring Center (FMC) for MCS activities, licensing activities and fisheries statistics section. The MCS activities undertaken in EEZ are inspection of vessels and catch (dockside), observer programs, tracking fishing vessels (Vessel Monitoring System), at sea boarding and inspection (sea patrols) and aerial surveillance linkage with sea patrols (Agnew et al., 2009b).
2.9.1 Observer program

The MCS tools and element of the combating IUU fishing in EEZ is deploying an observer for ensuring DWFNs comply with national, regional and international requirements. The observer look at the fishing operation, gears and collection of scientific data and compliance data simultaneously. These tools could reduce the overfishing and pollution at sea through discarding bycatch. In addition, an observer collects fisheries statistics data on size frequency, fishing effort, and nominal catch in order to understand fish stock which is more heavily harvested in particular fishing season and areas.

In this regard, the result from an observers could be a sign and indicators for regulators to formulate policy, guidelines, and requirements for management of the highly migratory species. For example, WIO through Minimal Term and condition (MTC) for DWFNs under Southwest Indian Ocean Fisheries Commission (SWIOFC) is developing observer pools for regional activities. Subsequently, the Indian Ocean Tuna Commission IOTC under Resolution 10/04 deals with the Regional Observer Scheme (Koehler, 2013).

This scheme is mandatory to CPCs (Contracting Parties and Cooperating Non-Contracting Parties) to comply with a resolution from the national level to regional level by 5% of flagged vessel fishings beyond the EEZ of national jurisdiction (IOTC 2018).

2.9.2 Inspector program (Port State Measures and Port Inspection)

The FAO Port State to combat IUU fishing, IPOA IUU fishing and the FAO Code of Conduct for Responsible Fisheries in line with UNCLOS Article 73 regarding enforcement of laws and regulations of the Coastal State are advocating the Coastal State, Flag States, Port States and Market States to deploy a fisheries inspector program.

The States should ensure that fishing vessels are inspected prior to issuing a fishing license or authorization to fish. The pre-license inspection should minimize an infraction such as gear marking, vessel marking, safety and security of vessel, quality and health fishing holds. Although, the PSM IUU agreement is encouraging the signatory states have to train qualified and competent fisheries inspectors.

The port state control should ensure all documents are in place. The inspectors should ensure the dockside vessel have the followings documents (i) Valid vessel certificates of registration, (ii) Valid fishing license, (iii) Valid Authorization to fish – ATF, (iv) fishing book according to flag state and RFMOs standard, (v) Catch documentation scheme and trade information, (vi) transshipment authorization and (vii) transshipment information concerning donors vessels(Koehler, 2013).
In addition, they should verify fishing gear specification according to license conditions, marking of gears, VMS unit power and transponder is confirmed to National and Regional Fisheries Bodies. For example, the Indian Ocean Tuna Commission (IOTC) is formulating Standard Operation Procedures (SOP) for port inspection and boarding inspection of the fishing vessel under IOTC Resolution 16/11 on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing.

### 2.9.3 Catch Documentation Schemes (CDS)


Subsequently, catch documentation schemes (CDS) are international traceability schemes that verify a unit of legal catch for tracing back fishing products from the country of origin through paperwork (documentation) and fisheries forensic technology which are DNA based mechanisms. In this context, the market state should ensure import products documents are authentic by tracking a history of fishing vessels, fishing area as well as cross-checking offloaded/exported or re-exported information with the coastal state, port state and flag State (Ogden, 2008).

In addition to RFMOs such as CCAMLR for Patagonian toothfish, CCSBT for Southern Bluefin tuna and ICCAT for Atlantic Bluefin tuna as well as the EU, Chile and the USA trade measures should be operated at the national level. The EU measures go one step further by introducing a scheme of Identification(s) (“Green card”), (“Yellow”) and (“Red card”) respectively according to compliance level of the countries regarding IUU fighting (Marschke & Vandergeest, 2016).

For example, the Comoros, Saint Vincent, and the Grenadines were given a red card by the European Commission. Yellow cards nations are Kiribati, Liberia Saint Kitts & Nevis, Sierra Leone, Taiwan, Thailand, Trinidad and Tobago, Tuvalu and Vietnam. These countries have been requested to improve their fisheries governance and combatting of IUU fishing and subsequently they have been removed from the EC’s IUU and products from their vessel should be able to land at EU countries (Ogden, 2008).

However, the RFMOs apply CDS just to their species of interest, for example, tunas in the case of ICCAT and the IOTC. The EU measures also apply to fish originating from within exclusive economic zones as well as from the high seas. As the EU is the world’s largest importer of fish this could make a real impact, but there are several concerns (Bellmann, Tipping, & Sumaila, 2016):
2.9.4 Boarding and Inspection

The EEZ fisheries are operating with large-scale fishing vessels equipped with modern technologies such as radar and other modern telecommunication systems so the speed of the vessels range from 11 knots to 25 knots. In this context, the coastal states should undertake sea patrols by joint cooperation within national teams i.e., multi-agencies such as navy/coastguard, marine police, maritime officers and fisheries officers by using the high-speed vessels which are capable of overcoming the high tides and waves. They should also be equipped with small boats for boarding and security equipment such as firearms and powerfully radar to scan large areas and modern telecommunication system.

In addition, the coastal state should undertake joint sea patrols within a region. For example, WIO the joint sea patrols are conducted under Indian the Ocean Commission (IOC) under the Programme Régional de Surveillance Des Pêches (Regional Fisheries Monitoring Plan (PRSP) by using patrol vessels namely Atsatsa (Madagascar) and Osiris (La Reunion). Also, under regional initiative through the Southern African Development Community (SADC), a joint sea patrol was undertaken by using South African vessels namely Sarah Baartman (Molenaar, 2005).

In this perspective, boarding and inspection at sea were conducted within the EEZ of the Seychelles, Madagascar, Comoros, Tanzania, Kenya, La Reunion, Mozambique, and the result is as follows (i) the number of sea patrols (day) is 325 from 2007 to 2016, (ii) the number of observer mission (day) is 12303 from 2012 to 2016, (iii) the number of vessels inspected in port 1292 from 2007 to 2017, (iv) the number of vessels monitored by national VMS is 1134 from 2007 to 2016 and (v) the number of air patrol (hrs) is 906 from 2007 to 2016 (Tilney, Purves, & Nolan, 1999).

These surveillance activities are undertaken according to FAO under the IPOA-IUU fishing which stipulates that the state implement national and international boarding and inspection regimes in parallel with international law (paras 24.10 and 80.8) and UNCLOS Article 73(1) regarding boarding and inspection to combat IUU fishing activities in the EEZ. (http://www.commissionoceanindien.org/fileadmin/projets/smartfish/MR/PRSP-Conference.pdf)

2.9.5 Vessel Monitoring System

The International Conservation and Management Measures by Fishing Vessels on the High Seas (FAO Compliance Agreement) is mandated to monitor flagged vessels fishing beyond national jurisdiction. In addition, the UN Fish Stocks Agreement, IPOA of IUU and RFMOs requirements are encouraging coastal states to establish land-based national Fisheries Monitoring Center (FMC) that should procure and install vessel monitoring systems to receive
satellite tracking signals in terms of the positioning of the fishing vessel, speed, course, and dates on a 24 hours basis.

In addition, the importance of the VMS is reducing the cost of MCS activities such as aerial and sea patrols. This system can also be used for identification of an area for the potential fishing zone (PFZ) by receiving a Global Positioning System (GPS) information both latitude and longitude. This PFZ can support the development of marine protected areas for tuna stocks.

For example under the Indian Ocean Tuna Commission (IOTC) under Resolution 15/03 the Vessel Monitoring System (VMS) program ensures each contracting party and cooperating non-contracting party (CPC) should procure and install VMS for all vessels flying its flag 24 meters in length overall or above for those fishing in EEZ of other nations within the IOTC area of competence (Molenaar, 2005).
Figure 2.6 The Vessel Monitoring system source European Union 1995 -2016 the PEW Charitable Trust
3 CHAPTER THREE: AN OVERVIEW OF THE EEZ FISHERIES IN TANZANIA

This chapter explains an overview of the EEZ fisheries, potential resources, trend production, monitoring control and surveillance, infringements and sanctions, penalties, fines. It also explains the fisheries governance and management of the EEZ fishery.

3.1 Background information

The United Republic of Tanzania (URT) is the largest country in East Africa, located between longitude 29° and 41° East and Latitude 10° and 12° South. Its total area is 945,087 km² and this includes the islands of Mafia, Pemba, and Zanzibar. Water covers 59,050 km² of this area (figure). URT has a Territorial Sea of 64,000 km² and an Exclusive Economic Zone (EEZ) of 223,000 km², which is about 24 percent of the land area. The country’s continental shelf is about 17,900 km² in area, with a 1,400 km coastline (Mngulwi, 2003).
Figure 3.1 The Map of WIO Region Countries source SWIOFC 2014
3.2 EEZ fisheries resource and potential

The contribution of the marine fisheries sector to the GDP in URT is 2 percent, and this contribution currently is from an issuance of the licenses to the Distant Water Fishing Nations (DWFN) are fish in the EEZ for tuna and tuna-like species. The revenues from licenses to DWFNs are marginal when compared to the value of the resources being harvested. The global demand for tuna fisheries continues to escalate with production having reached an estimated 11 to 26 million tons because of the IUU fishing.

Tuna and tuna-like species are not in-exhaustive and subject to over-exploitation. The migratory nature of the fishery and increased fishing effort with the use of advanced technology requires a management framework based on sound science and effective MCS.

Migratory fisheries are relatively small sector within the national economy when compared to inland fisheries, and their contribution may remain modest when measured in terms of macroeconomic significance. Further, the expansion of the sector’s total activity is limited by the natural productive capacity of the migratory fisheries and living marine resources (Ibengwe & Sobo, 2016).

The Western Indian Ocean Region is characterized with Somali ocean currents which brought nutrients within Tanzania, Kenya, the Seychelles, and Madagascar. The migration of tuna and
tuna-like species is highly abundant in the EEZ of Tanzania during the period from June to December. This period is when DWFNs fleets are applying for a fishing license in Tanzania. Subsequently, the MCS activities have been done during the peak season of tuna because of reducing the cost of the surveillance and enforcement.

The number of industrial purse seiners was increased during this period to harvest skipjack and yellowfin tuna. According to IOTC the WIO skipjack, yellowfin and bigeye tuna are more abundant.

These phenomena are expressed in figure 3.3 which shows the Somali Ocean current under the Large Marine Ecosystem (LME) and another Figure 3.4 shows a migration pattern of the tuna and tuna-like species.
Figure 3.3 The Large Marine Ecosystem LME 66 Somali Ocean current source SWIOFC 2014
3.2.1 EEZ fisheries resource and potential Tuna and tuna-like species

Tuna is highly migratory species from the family Scombridae which are not a single species of fish, but rather several species. Scientists described the term “tuna and tuna-like fish” to refer to a total of 61 species, 14 of which are considered “true tuna.” whilst four species are of major commercial importance in the Indian Ocean such as skipjack *Katsuwonus pelamis*, yellowfin *Thunnus albacares*, bigeye *Thunnus obesus*, and albacore *Thunnus alalunga*. Although for tuna-like species, the most important tuna-like species in the Indian Ocean is swordfish *Xiphias gladius*.

In addition, of these five species only three species are quite different with respect to many biological and physical behavior on how they are captured, the amount presently captured, and the size of the populations and the end use of the product. For example skipjack tuna are captured free school or by FADs with industrial purse seiner, whilst bigeye tuna are captured mostly by industrial freezing longliners. Further, they have a great diversity in sizes ranging
from the smallest, the bullet tuna (maximum length: 50 cm and weight: 1.8 kg to the largest, the Atlantic Bluefin tuna (maximum length: 4.6 m and weight: 684 kg Majkowski, 2007).

3.2.2 Yellowfin YFT: Thunnus albacares)

These tuna are fast growing and mature at about 2 years of age and spawn prolifically. Yellowfin can grow to over 100 kg and the total length is 110 inches (280 cm) at 6 years or older. The sizes exploited in the Indian Ocean range from 30 cm to 180 cm fork length. Smaller fish (juveniles) form mixed schools with skipjack and juvenile bigeye tuna and are mainly limited to surface tropical waters, while larger fish are found in surface and sub-surface waters (Majkowski, 2007).

![Yellowfin Tuna](sources IOTC 2015)

In addition, the majority of the catch is harvested in the EEZ with a range of gear types, predominantly industrial purse seiner and industrial deep freezing longliner from the equatorial region (tropical and subtropical oceanic waters) where they are. However, for stock assessment purposes, yellowfin tuna are believed to constitute a single stock in the Indian Ocean. These are harvested for sushi/ sashimi makers in Japan and canning processing industries. (Christensen et al., 2009)

3.2.3 Bigeye tuna BET Thunnus obesus

The growth rate and maturity of the species are approximately grown up to about maximum length (fork length) and weight was 200 cm and 210 kg respectively within 3 - 4 years of age. The distribution of a species is located around 40°S and 20°N which makes them rare in the northwest of the Indian Ocean. In the water column they are harvested between around 300 m
to 500m deep (occasionally up to 1000 m) which makes them be less resilient to exploitation than skipjack and yellowfin.

Large fishes are caught mainly by longline and this longline-caught bigeye is the most valuable of the tropical tuna since the early 1950s. However, prior to 1970, they were only an incidental catch whilst, juvenile fish tends to form mixed schools with skipjack and yellowfin, which aggregate together in fish aggregating devices (FADS). These are harvested for the sushi/sashimi market in Japan and also the canning processing industries (Miyake, Guillotreau, Sun, & Ishimura, 2010).

Figure 3.6 Bigeye tuna (IOTC 2015)
3.2.4 Skipjack SKJ Katsuwoius pelamis

Skipjack tuna is a cosmopolitan species found in tropical and subtropical waters. Usually it forms large schools, often in association with other tunas of similar sizes, such as the juveniles of yellowfin and bigeye tuna with high reproductive rate potential (fecundity) and spawns opportunistically throughout the year in the entire inter-equatorial Indian Ocean (north of 20°S). Skipjack can live as long as 8-10 years, growing up to 1m long and weighing around 18kg. Skipjack tuna in the Indian Ocean are mainly caught by industrial purse seiners, gillnet and bait boat (or Maldives pole and line) and mostly harvested for canning industries (Miyake et al., 2010).

![Figure 3.7 Skipjack (IOTC 2015 species identification guide)](image)

3.3 Performance of the EEZ fishery in Tanzania since 2009 to July 2018

Fishing in the Tanzanian EEZ is regulated by the Deep Sea Fishing Authority (DSFA) by using, Deep Sea Fishing Authority Act No.1 of 1998 and its amendments of 2007 (Deep Sea Fishing Authority Act No. 4 of 2007). The implementation of these Acts is done through the Deep Sea Fishing Authority Regulations of 2009. The DSFA started in 2009, the operationalization of DSFA has improved the management of fisheries resources in the EEZ.

Subsequently, the Distant Water Fishing Nations (DWFNs) fleet from China, France, South Korea, Japan, Mauritius, Oman, Spain, the Seychelles, and Taiwan have been fishing in the EEZ of Tanzania since 2009. These fleets are from companies such as Asociación Nacional de Armadores de Buques Atuneros Congeladores - ANABAC (Spain), Organización de Productores Asociados de Grandes - OPAGAC (Spain), Organisation des producteurs de thon.
tropical congelé et surgelé -ORTHONGEL (France), Dong Won Fisheries Co., Ltd DONGWON (South Korea) and Simo & Zam shipping Agency China and Taiwan).

In addition, from the 2009/2010 to 2017/2018 financial year, the industrial purse seine fleets (P.S) have increased from 2009 and declined in the financial year 2016/2017 because of the amendment of regulations and license conditions (more information chapter 6). Regarding the industrial deep-freezing longliner fleets (L.L), these started in small numbers in 2009/2010 but 2011 until 2013 no fleets were fishing in EEZ of Tanzania because of Somali piracy. In 2014 to 2016 fleets increased and declined in July 2018 because of amendment of regulations and license conditions (see Chapter 6)

Table 1 Fishing license issued from 2009/2010 to 2017/2018 source DSFA July 2018

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Purse seiner</th>
<th>long liner</th>
<th>Total</th>
<th>Revenue (Tsh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009/2010</td>
<td>18</td>
<td>5</td>
<td>23</td>
<td>112,320,000</td>
</tr>
<tr>
<td>2010/2011</td>
<td>38</td>
<td>11</td>
<td>49</td>
<td>2249,889,408</td>
</tr>
<tr>
<td>2011/2012</td>
<td>39</td>
<td>0</td>
<td>39</td>
<td>2,067,407,420</td>
</tr>
<tr>
<td>2012/2013</td>
<td>38</td>
<td>0</td>
<td>38</td>
<td>2,164,012,200</td>
</tr>
<tr>
<td>2013/2014</td>
<td>41</td>
<td>36</td>
<td>77</td>
<td>3,030,578,100</td>
</tr>
<tr>
<td>2014/2015</td>
<td>47</td>
<td>48</td>
<td>95</td>
<td>3,631,055,750</td>
</tr>
<tr>
<td>2015/2016</td>
<td>46</td>
<td>50</td>
<td>96</td>
<td>6,404,255,920</td>
</tr>
<tr>
<td>2016/2017</td>
<td>1</td>
<td>27</td>
<td>28</td>
<td>968,591,643</td>
</tr>
<tr>
<td>2017/2018</td>
<td>0</td>
<td>24</td>
<td>24</td>
<td>1,473,651,200</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>201</td>
<td>469</td>
<td>19,851,872,233</td>
</tr>
</tbody>
</table>
Figure 3.8 Revenue trend from fishing license from 2009 to July 2018 in Tanzanian Shillings (Tsh)
Source DSFA 2018
Figure 3.9  The trend for licensed vessels for a purse seiners and long liners from 2009 to July 2018 source DSFA July 2008
Figure 3.10 The trend for licensed vessels for a purse seiners from 2009 to July 2018
Source DSFA July 2018
3.4 Production of P. S and L.L in the EEZ of Tanzania from 2009 to July 2018

In the URT EEZ, the main fish species caught include albacore, skipjack, yellowfin, bigeye, swordfish, blue marlin, black marlin, striped marlin, sailfish, and shark. The main fishing vessels are P.S and L.L. The reported catch data available is from 2010 to 2017. 2010 is the year that the DSFA became operational. There is a significant increase in reported catches since 2010, the main reasons being the recognition of DSFA as the main authority that regulates migratory fisheries in the URT, improvements in reported catch data, improved transparency and the increasing incompetence in the licensing, MCS and finance departments.

However, from 2017 to July 2018 catches were reduced because of amendment to regulations and license conditions (more information will be provided in Chapter 6).
<table>
<thead>
<tr>
<th>YEAR</th>
<th>SKIPJACK</th>
<th>YELLOWFIN</th>
<th>BIGEYE</th>
<th>SHARK</th>
<th>SWORDFISH</th>
<th>MARLIN</th>
<th>SAILFISH</th>
<th>BULLFISH</th>
<th>ALBACORE</th>
<th>OTHERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>1481</td>
<td>870</td>
<td>145</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>23,111.70</td>
</tr>
<tr>
<td>2011</td>
<td>394</td>
<td>138</td>
<td>22</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5,784.20</td>
</tr>
<tr>
<td>2012</td>
<td>3432</td>
<td>2137</td>
<td>789</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8,345.39</td>
</tr>
<tr>
<td>2013</td>
<td>0.5</td>
<td>67,194</td>
<td>417,679</td>
<td>16,949</td>
<td>33,707</td>
<td>101,247</td>
<td>10,217</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4,146.30</td>
</tr>
<tr>
<td>2014</td>
<td>4,146.30</td>
<td>4,676.40</td>
<td>3,213.70</td>
<td>76.8</td>
<td>92</td>
<td>0</td>
<td>41.2</td>
<td>58.1</td>
<td>0</td>
<td>42.9</td>
<td>5,173.7</td>
</tr>
<tr>
<td>2015</td>
<td>5,173.7</td>
<td>319.7</td>
<td>2,580.9</td>
<td>144.9</td>
<td>214</td>
<td>0</td>
<td>5.5</td>
<td>220.7</td>
<td>0</td>
<td>56</td>
<td>6,964.2</td>
</tr>
<tr>
<td>2016</td>
<td>8,465.9</td>
<td>7465.9</td>
<td>617.9</td>
<td>22.1</td>
<td>156</td>
<td>252</td>
<td>34.1</td>
<td>109.67</td>
<td>65</td>
<td>9,039.90</td>
<td></td>
</tr>
</tbody>
</table>

Subsequently, an analysis of the reported catches of albacore, skipjack, yellowfin, and bigeye indicates that albacore reported catches increased from 0 in 2010 to 109.32 mts; and skipjack reported catches increased from 1481 in 2010 to 8474.2 mts in 2016. Yellowfin reported catches increased from 870 in 2010 to 7465.9 mts in 2016, and Bigeye reported catches increased from 145 in 2010 to 947 mts in 2016. There are also reported catches of blue, black and striped marlin, sailfish and shark during the years 2015 and 2016. The total reported catch of tuna and tuna-like species in 2016 in the URT amounts to 707,012.60 tons.

There is a possibility of under-reporting and the catches may be even higher. There is no data on by-catch, the verification can only take place if the vessels come to a URT fishery harbor (more information will be provided in chapter 6).
Figure 3.12 Production year for skipjack tuna from 2010 to 2016 source DSFA 2016
Figure 3.13 Production year for Yellowfin tuna from 2010 to 2016 sources DSFA 2016
3.5 Compliance and enforcement activities in the EEZ of Tanzania

According to Deep Sea fishing Regulations 2009 and its amendment of the year 2016 number Reg. 31 regarding an establishment of Surveillance Unit and activities pertaining MCS under Regulations number(s) 28 regarding Vessel Monitoring System, Reg 33 regarding inspection, Reg 34 regarding Observer, Reg 36 Pre-license inspections, Reg 38 regarding boarding inspection.

In addition, the Deep Sea fishing Authority Act of 1998 and amendment of 2007 are advocating the compliance and enforcement to combat IUU fishing in the EEZ of Tanzania. Subsequently, an implementation of MCS activities are in line with UNCLOS (III) 1982, Compliance agreement 1993, FAO Code Conduct Article III, UN Fish Stocks agreement 1996,
FAO Port State Measure 2001 and Indian Ocean Tuna Commission (IOTC) Resolutions and Recommendations.

3.5.1 Inspection of the fishing vessel (Pre-license Inspection)

In accordance, a Deep Sea Fishing Authority 2009 and its amendment 2016 articulated the applicants for a fishing license must bring a vessel to the designated port of Tanzania or any port within WIO prior to issuing a license. The FMC conducts a pre-license inspection in collaboration with Port Authority and Maritime Authority. The applications documents are scrutinized and shared with IOTC and Fish I Africa in order to know the history of the vessels if it was conducted IUU fishing.

From 2013 to 2018 a total of 33 vessels were inspected at foreign ports eg Victoria Seychelles (purse seiners), Lois Mauritius Port (Long liners) and Mombasa Port (longliners) Kenya. In 2013 and 2018 a total 45 vessels were inspected in Zanzibar Port (longliners) (Tanzania) whilst were 8 vessels inspected in Dar es Salaam Port (purse seiner) Tanzania.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>INSPECTION FOREIGN PORT (SEYCHELLES, MAURITIUS, &amp; MOBASA)</th>
<th>INSPECTION ZANZIBAR PORT</th>
<th>INSPECTION DAR ES SALAAM PORT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/14</td>
<td>17</td>
<td>8</td>
<td>2</td>
<td>27</td>
</tr>
<tr>
<td>2014/15</td>
<td>4</td>
<td>7</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>2015/16</td>
<td>7</td>
<td>6</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>2016/17</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>2017/18</td>
<td>-</td>
<td>18</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>TOTAL</td>
<td>33</td>
<td>45</td>
<td>8</td>
<td>86</td>
</tr>
</tbody>
</table>
Figure 3.15 An inspection conducted during Pre license in foreign Ports (Seychelles, Mauritius, and Mombasa) source DSFA July 2018
Figure 3.16 An inspection conducted during Pre license in Zanzibar source DSFA July 2018
Figure 3.17 An inspection conducted during Pre license in Dar es Salaam port. Source DSFA July 2018

Figure 3.18 Purse seiner and long liner inspection gears, VMS transponder and VMS Switch 2016
Source DSFA 2016
3.5.2 **Air patrol**

In accordance with Deeps Sea Fishing Regulations 2009 and Amendments 2016, Reg (18) regarding Sovereignty over fishery resources, Reg (19) regarding principles of sustainable fishery management and Reg (28) regarding VMS the importance for FCM was stipulated to conduct MCS activities such as air patrol in order to combat IUU fishing in the EEZ of Tanzania.

Subsequently, air monitoring control and surveillance (MCS) covers the air and space equipment (aircraft, satellites) used in MCS activities. The flexibility, speed, and deterrence of air and satellite-based surveillance systems make these very popular tools for fisheries management. The air component provides for rapid collection and dissemination of a wide range of information, including fishing vessel identification and reported fisheries data. Air, satellite or VMS surveillance can often provide initial information regarding fishing activities; they can also serve as first indicators of potentially illegal activity and can thus trigger further MCS action.

In addition, air patrol is undertaking in collaboration with Tanzanian Navy, Marine Police, Zanzibar and Smuggling Unit (KMKM), and Fisheries Development Divisions of (Tanzania Mainland and Zanzibar) according to Reg (35) regarding Authorized officer to participate for surveillance activities to combat IUU fishing in the EEZ of Tanzania.

In this regard, a total of 392 hours was spent from 2013 to July 2018 and 86 vessels sighted and 10 IUU fishing vessels were sighted and fined (more information will be provide in Chapter 6)
Table 4 Results for air patrol conducted from 2013 to 2018 source DSFA July 2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Air patrol (hours)</th>
<th>Sighted Vessel (fishing vessels)</th>
<th>Sighted Illegal vessels</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/2014</td>
<td>36</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>2014/2015</td>
<td>28</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>2015/2016</td>
<td>60</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>2016/2017</td>
<td>112</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>2017/2018</td>
<td>156</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>392</strong></td>
<td><strong>86</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

Figure 3.19 Air patrol results from 2013 to 2018
Source DSFA July 2018
3.5.3 Sea patrol

According to the UN Fish Stock Agreement 1995, it recognized the cooperation of the State to protect highly migratory species and straddling through multilateral agreements or bilateral agreements.

The United Republic of Tanzania (URT) in collaboration with the Indian Ocean Commission IOC Smart fish Project Régional de Surveillance des Pêches (PRSP) and International organization PEW conducted joint sea patrol within the EEZ of Tanzania by participating officers from Kenya, Mozambique, Madagascar, the Seychelles and the Comoros from 2013 to June 2018. These joint missions were targeted IUU fishing vessel during the peak season of the tuna and tuna likes species from June to December within the EEZ of the above countries.

In this undertaking, a total of 3936 hours was spend to combat IUU within the EEZ of Tanzania from 2013 to July 2018 and 55 fishing vessels were inspected if they complied with national laws, UNCLOS and IOTC Resolution and recommendation of RFMO (IOTC). In addition, due to lack of offshore patrol vessels, the joint sea patrol was conducted by using Seychelles vessel (Then thy supporter), La Reunion (Osiris), Madagascar (Atsatsa) and Ocean Warrior from PEW and Fish I Africa.
<table>
<thead>
<tr>
<th>YEAR</th>
<th>HOURS</th>
<th>NAME OF PATROL VESSEL</th>
<th>FISHING VESSELS SIGHTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/2014</td>
<td>192</td>
<td>TENTHY SUPPORTER - SEYCHELLES</td>
<td>16</td>
</tr>
<tr>
<td>2014/2015</td>
<td>480</td>
<td>OSIRIS- REUNION</td>
<td>8</td>
</tr>
<tr>
<td>2015/2016</td>
<td>240</td>
<td>ATSANTS-MADAGADCSAR</td>
<td>14</td>
</tr>
<tr>
<td>2016/2017</td>
<td>144</td>
<td>ATSANTS-MADAGADCSAR</td>
<td>8</td>
</tr>
<tr>
<td>2017/2018</td>
<td>2880</td>
<td>OCEAN WORRIOR</td>
<td>9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3936</td>
<td></td>
<td>55</td>
</tr>
</tbody>
</table>

Figure 3.21 The result of the sea patrol from 2013 to July 2018 source DSFA July 2018

Figure 3.22 The Regional fisheries patrol vessels and boarding small vessels source Joint Sea patrol Tanzania and WIO countries from 2013 to 2017 source DSFA July 2018
3.5.4 Observer programs

In accordance with the DSFA Regulation 34(1) (2) explains an observer program to be implemented in line with the UN Fish Stock Agreement of 1995, Article 6 and 18 which outlines the measures for a flag state to provide records on fishing activities and catch through implementation of national, regional and subregional observer program. In this regard, from 2013 to 2017 a total of 5,905 hours was used to deploy Tanzania observers to three vessels Playa de Aritzatzu (purse seiner), Tuna Best and Tai Hong 1 (longliners). Subsequently, a total of catches 1,689 tonnes were reported. This observer program is advocating the authority in collaboration of the Ministry and 11 scientific observers who were trained at Cap Fish South Africa as right now 11 scientific observers are recognized by IOTC as Regional Observer.
Table 5 Number of Sea time (hours) and catches observed from 2013 to 2017 source DSFA2017

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SEA TIME</th>
<th>FISHING VESSEL</th>
<th>CATCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/2014</td>
<td>792</td>
<td>Playa de Aritzatzu (Purse seiner)</td>
<td>695</td>
</tr>
<tr>
<td>2014/2015</td>
<td>720</td>
<td>Playa de Aritzatzu (Purse Sei)</td>
<td>680</td>
</tr>
<tr>
<td>2015/2016</td>
<td>2,356</td>
<td>Tuna Best (Long liner)</td>
<td>189</td>
</tr>
<tr>
<td>2016/2017</td>
<td>2,040</td>
<td>Tai Hong I (long liner)</td>
<td>125</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>5,908</strong></td>
<td></td>
<td><strong>1,689</strong></td>
</tr>
</tbody>
</table>
Figure 3.24 DSFA 2014 Observer program source DSFA from 2014 to 2017 source DSFA 2017
3.5.5 Vessel monitoring system.

The DSFA Fisheries Monitoring Center is upgrading the meta fishery vessel monitoring system to Themis web system which is compatible with Regional VMS located at IOC Mauritius and SADC center MCS in Mozambique. This system is integrated (VMS) receiving data from multiple sources including Iridium SBD data, Inmarsat-C data, and Argos data. This system was upgraded by Collecte Localisation Satellites – CLS from France.

In addition, the (FMC) has plans to improve the systems by integrating system regarding MCS activities such as satellite AIS / AIS data, synthetic sperture radar images, oceanographic data, and electronic reporting system data.

Subsequently, 24 authorized officers from the Navy, Kikosi Maalum cha Kuzuia Magendo Zanzibar Anti –Smuggling Unit (KMKM), Marine Police, Maritime Security (MRCC), Fisheries Divisions (Mainland & Zanzibar) and DSFA were trained for Themis web system in order to combat IUU fishing within the EEZ of Tanzania.
Figure 3.25 Training on Themis Web base VMS  source DSFA 2017
Figure 3.26 Themis integration and cartography world map DSFA source DFSA2015
3.5.6 Management of Tanzania flags of convenience (FOC)

The FAO Compliance Agreement, 1993, which was signed by Tanzania on 17 February 1999 deals with monitoring of High Sea vessels fishing highly migratory species such as Tuna. This is in line with UNCLOS III which Tanzania ratified on 30 September 1985. In addition, the DSFA Act 1998 and its Regulations 2009 and its amendment 2016 similar to the Zanzibar Maritime Transport Act, No. 5 of 2006 (ZMA) have an open registry of a ship in Tanzania and register all vessels.

From 2010 to 2016 a total of 9 fishing vessels were de-registered from the list of the authorized vessels under IOTC because of noncompliance. These vessels initial were registered by Zanzibar Maritime Authority (ZMA) as Flag of convenience whilst the owners of the vessels are based in Taiwan and the operator in Zanzibar.

<table>
<thead>
<tr>
<th>IOTC Number</th>
<th>Vessel name</th>
<th>Registration number</th>
<th>Previous flag (if any)</th>
<th>International radio call sign (if any)</th>
<th>Vessel type</th>
<th>Length (LOA)</th>
<th>Gross tonnage (GT)</th>
<th>De registration year</th>
<th>Name of owner</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOTC00</td>
<td>VENUS</td>
<td>100107</td>
<td>Seychelles</td>
<td>5IM282</td>
<td>Longliner</td>
<td>49.68 M</td>
<td>493</td>
<td>2016</td>
<td>COASTAL MARITIME AGENCIES LTD</td>
<td>P.O.B.C ZANZI TANZA</td>
</tr>
<tr>
<td>IOTC00</td>
<td>MARIO NO 5</td>
<td>100121</td>
<td>Vanuatu</td>
<td>5IM454</td>
<td>Longliner</td>
<td>23.80 M</td>
<td>93.18</td>
<td>2014</td>
<td>GLOBAL MARINE SERVICES LTD</td>
<td>P.O.B.C ZANZI TANZA</td>
</tr>
<tr>
<td>IOTC00</td>
<td>MARIO NO 6</td>
<td>100122</td>
<td>Vanuatu</td>
<td>5IM455</td>
<td>Longliner</td>
<td>23.80 M</td>
<td>93.18</td>
<td>2014</td>
<td>GLOBAL MARINE SERVICES LTD</td>
<td>P.O.B.C ZANZI TANZA</td>
</tr>
<tr>
<td>IOTC00</td>
<td>MARIO NO 7</td>
<td>100123</td>
<td>Vanuatu</td>
<td>5IM456</td>
<td>Longliner</td>
<td>23.80 M</td>
<td>93.18</td>
<td>2014</td>
<td>GLOBAL MARINE SERVICES LTD</td>
<td>P.O.B.C ZANZI TANZA</td>
</tr>
<tr>
<td>IOTC00</td>
<td>MARIO NO 3</td>
<td>100124</td>
<td>Vanuatu</td>
<td>5IM457</td>
<td>Longliner</td>
<td>23.80 M</td>
<td>93.18</td>
<td>2014</td>
<td>GLOBAL MARINE SERVICES LTD</td>
<td>P.O.B.C ZANZI TANZA</td>
</tr>
<tr>
<td>IOTC01</td>
<td>TUNA BEST</td>
<td>100145</td>
<td>Indonesia</td>
<td>5IM473</td>
<td>Longliner</td>
<td>44.6 M</td>
<td>545</td>
<td>2016</td>
<td>GLOBAL MARINE SERVICES LTD</td>
<td>P.O.B.C ZANZI TANZA</td>
</tr>
<tr>
<td>IOTC01</td>
<td>KAR</td>
<td>100072</td>
<td>Panama</td>
<td>5IM203</td>
<td>Longliner</td>
<td>48.65</td>
<td>497</td>
<td>2016</td>
<td>COASTAL MARITIME</td>
<td>P.O.B.C ZANZI TANZA</td>
</tr>
<tr>
<td>IOTC01</td>
<td>WEN MING</td>
<td>100116</td>
<td>Indonesia</td>
<td>5IM425</td>
<td>Longliner</td>
<td>49.68</td>
<td>493</td>
<td>2013</td>
<td>COASTAL MARITIME</td>
<td>P.O.B.C ZANZI TANZA</td>
</tr>
<tr>
<td>IOTC01</td>
<td>LUCKY STAR</td>
<td>100189</td>
<td></td>
<td>5IM387</td>
<td>Longliner</td>
<td>43.94</td>
<td>241</td>
<td>2014</td>
<td>ABDIWAHAB MOHAMED ABDI</td>
<td>P.O.B.C ZANZI TANZA</td>
</tr>
</tbody>
</table>

Table 6 List of deregistration Tanzania fishing vessel (X flagged vessel) from 2017 DSFA 2017 source DSFA 2017
4  CHAPTER FOUR METHODOLOGY

This chapter is about the methodology of the dissertation which is an analysis of SWOT in Chapter five, qualitative (website and books) information and quantitative data secondary data from the Deep Sea Fishing Authority Tanzania.

4.1 Literature review

The current world population is an estimated 7.3 billion which is projected by 2030 to possibly rise to 8.5 billion. However, the United Nations Department of Economic and Social Affairs (UNDESA) estimates by the year 2030 world population will be 9.7 billion according to the UNDESA report of 2017 on world population prospects. This population growth is directly proportional to the food consumption of fish and fish products. According to FAO world fish utilization and apparent consumption for 2015 was an estimated 21 per kg per capita (Béné, & Williams2015).

In this context, the increase of the population can lead to an increase of overexploitation of fish resources from the aquatic system such as inland waters and marine waters. IUU fishing activities can be expected to increase by a doubling the number of fishing fleets while fishery resources will continue to decrease in stocks especially commercial values species such as tunas. Subsequently, the UNCLOS 1982, international specialize agency FAO has initiated tools for combating IUU in the EEZ by developing for example the FAO Code of Conduct Responsible for Fisheries, the UN Fish Stock Agreement of 1995, the FAO Compliance Agreement 1993, the IPOA for IUU fishing 2001 and more recently the FAO Port State Measures Agreement of 2009. All these legal tools are used to combat IUU fishing by ensuring Regional Fisheries Organizations (RFMOs) adopt these measures and that they are disseminated to the National level (Crist & Engelman 2017).

In addition, through the IPOA on IUU fishing the States should establish networking or cooperation with neighboring countries to safeguard any impact from IUU fishing within a region by conducting joint sea patrols and air patrols jointly as well as sharing information regarding the lists of licensing vessels and list of IUU vessels. All the above are from browsing through the internet, papers, books, and journals through google scholars as sources of information regarding the topic of the dissertation title Compliance and Enforcement for the Exclusive Economic Zone Fisheries Management in The United Republic of Tanzania.

4.2 Research study area

The United Republic of Tanzania (URT) is the largest country in East Africa, located between longitude 29° and 41° East and Latitude 1° and 12° South. URT has a Territorial Sea of 64,000 km2 and an Exclusive Economic Zone (EEZ) of 223,000 km2, which is about 24 percent of the land area. The country’s continental shelf is about 17,900 km2 in area, with a 1,400 km coastline. Tanzania is bordered along the coast to the north by Kenya and to the south along
the coast by Mozambique. The islands of Zanzibar are separated from them by a 22-mile channel. Figure outlines the coastal areas of Tanzania and Zanzibar (Lunogelo 2018). This study focused on EEZ fishery of the United Republic of Tanzania Figure 4.1(1) where highly migratory species tuna and tuna-like species are found.

![Figure 4.1 Tanzanian Exclusive Economic Zone (EEZ) map source QGIS August 2018](image)

### 4.3 History of the EEZ fisheries in Tanzania

Prior to the establishment of the Deep Sea Fishing Authority in 2010, the management of deep-sea fisheries resources was under the ministries responsible for fisheries matters in Mainland Tanzania and Zanzibar. The Deep Sea Fishing Authority is a governmental institution which was formed by an Act of Parliament, the Deep Sea Fishing Authority Act Cap. 388, Deep Sea Fishing Authority Act No. 17 of 2007 (Amendment) and Deep Sea Fishing Authority Regulations of 2009. The main objective of establishing the Authority was to ensure that deep sea fishing activities which include areas beyond the twelve (12) nautical miles of the Exclusive Economic Zone of the United Republic of Tanzania are managed by one government institution namely the Deep Sea Fishing Authority (DSFA) (Katikiro & Minja, 2017).

### 4.4 Secondary data collection and Analysis

The data sources which is from the Deep Sea Fishing Authority (DFSA) collected reported catches from industrial purse seiners and industrial deep-freezing long liners through daily internet information from the fleets. This data were analyzed by officers within the Fisheries
Monitoring Center (FMC) and was presented in Chapter 3. In addition, information was extracted from articles such as global IUU fishing, compliance and enforcement for DWFNs, MCS tools for the EEZ fisheries. Tuna fishery management, overfishing of highly migratory species, Tuna RFMOs compliance activities, Fish I Africa, FAO fisheries, INTERPOL fisheries crime among others were also used (Lunogelo 2018).
5 CHAPTER FIVE SWOT ANALYSIS

This chapter is based on a SWOT analysis tool to combat IUU fishing in the EEZ of Tanzania. This tool will help decision makers to rectify the weakness and threats whilst strengthening the Deep Sea Fishing Authority and opportunities from various donors in order to increase the level of compliance at both the national and regional levels (Lunogelo 2018)

5.1 SWOT analysis

This is an analyzing tool that within an organization or industry examines and identifies any internal gaps and external gaps. These gaps can stimulate an organization to formulate better solutions and mechanisms for combating IUU Fishing in the EEZ of Tanzania. SWOT is describing internal strengths and weaknesses as well as external opportunities and threats (Helms & Nixon, 2010). See Appendix 9.1 to 9.3
6  CHAPTER 6: DISCUSSION

This chapter discusses an overview of the EEZ fishery in Tanzania from 2009 to July 2018

6.1  Fishing license

The fishing license was issued by two departments of the fisheries in Tanzania Mainland and Zanzibar from the 1980s until 2009. After the United Republic of Tanzania recognized the loopholes regarding the management of the EEZ resources it established the Deep Sea Fishing Authority (DSFA) in 2009. Since 2009 to date the DSFA has been issuing fishing licenses for DWFNs and Tanzanian flagged vessels.

The number of fishing licenses issued is 469 which is Tanzania’s Shillings 19,851,872,233 of which 268 is purse seine and 201 is longliner from 2009 to July 2018. The licenses varied according to the years they were issued. For example from 2011 to 2013 only purse seiners were licensed because Tanzania experienced Somali piracy and long liner liners were refused to fish in EEZ of Tanzania. In 2014 after piracy attacks decreased the number of longliners was increased from 0 in 2011 to 36 in 2014, however, the number of purse seiners remained stable with 41 vessels.

In 2015 the Government amended the Deep Sea Fishing Authority Regulation of 2009 to 2016 which aimed to increase revenues from EEZ fishery and to ensure all catch is mandatory to be landed in Tanzanian ports. This condition was challenged by the owners (The European Union countries -EU) of the purse seiners by claiming that, the vessels had already had Agreement of Sustainable Fisheries Partnership Agreement (SFPA) with the Seychelles, Madagascar, and Mauritius to land all the catch within their port such Victoria Port, Mahajanga Port, and Louis Port. This situation reduced the number of purse seiners from 46 in 2015 to 1 vessel in 2016 and finally 0 vessels in 2018.

Although, this condition of increasing fishing license and strengthening the license condition the number of longliners from 50 vessels in 2016 was reduced to 27 and finally 24 vessels in July 2018. The owner of the longliners complied with some of the conditions such as deploying observers and landing of catches in Zanzibar Port and Dar es Salaam Port a total 31,056 of the tuna and tuna-like species were landed in Tanzania.

The 31 tonnes were distributed in the local market and were sold in hotels and resorts as well as home users. The advantage of the vessels calling to ports in Tanzania are increasing revenues through multiplier effects such as refueling, food purchasing, port fees as well as jobs for Tanzanians during offloading and distribution of the catches.
6.2 Fisheries Statistics

The catch report from DWFNs fleet from 2010 to 2016 was 707,012.6 tonnes of tunas whereby the skipjack tuna was reported 23,111 tones, 85,851 tonnes of yellowfin tuna, 425,377.5 of bigeye tuna. In addition, the shark was reported 17,153 tonnes, 34,149 tonnes of swordfish, 101,272 tonnes of marlin, 10,948.5 tonnes of sailfish, 108 tonnes of albacore and 9,039.9 tonnes of others species as bycatch.

However, these data are not reflecting a real data from the fishing ground because of lack of fishing observer in all vessels. Only three vessels have deployed an observer from 2010 to 2016. The Government has decided to amend the license conditions because of getting a reliable data from DWFNs fleets. The reported data are submitted in DSFA through email on a daily basis through the fishing logbook of Tanzania. The Government has also ensured that all vessel can land their catches in Tanzania ports in order to verify the reported catch through an email and landing catches if they tally with and if they were reported accordingly to DSFA requirements.

6.3 MCS activities

During the enforcement activities 10 fishing vessels namely Koyu No.3, Hwa Kun No 168, Poseidon, Shyang Chyang No. 889, Hsiang Far No. 18, Hsiang Far No. 26, Indian Star, Chung Ying No 777, Winner 808, and Shuenn Perng No. 202 were fishing in EEZ of Tanzania without a valid license. These fishing vessels were observed in 2012 through air patrol and after arresting all vessels they found forged fishing licenses.

The case of these vessels is instituted in the Tanzania Police for investigation and the officer from the authority has been arrested and suspended from the job by issuing fake licenses. The operator of these vessels is Global Marine Services and Coastal Maritime Services of Zanzibar. They were all together with officers arrested by Anticorruption Authority regarding the forged licenses.

In 2016, 8 fishing vessels were sighted through the air patrol surveillance and these vessels were fishing without switching on the VMS, did not report catches and some of them misreported without including the amount of bycatches harvested in the EEZ of Tanzania. The vessels are from the ANABAC and ORTHONGEL companies and the vessels were Elai Elai, Donne, Izaro, Jai Alai, Txori Toki, Bernice, Dolomieu, Belle Rive. All these vessels were fined a total amount of the USD 500,000 and they paid accordingly to the Act.

In addition, the fishing vessels F/V Shang JYI in 2016 was sighted by air surveillance fishing in Tanzania without a license. The vessel was registered in the Kenya Maritime Authority. The Government of Tanzania fined a total of USD 300,000 to fish without license and the case has been reported to the Police in Tanzania.
Subsequently, the DFSA has revoked the Authorization to Fish (ATF) for 10 Tanzanian flagged vessels which did not comply with Tanzanian Regulations. The vessels were *Tuna Best, Ikar, Venus, Mario3, Mario 6, Mario 7, Mario 11, Wen Ming, Lucky Star, Santos* all these vessels are flagged as the flag of convenience in Tanzania.

7 CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

Based on the previous chapters, the Author provides the conclusion and recommendations to be implemented by the Government of Tanzania regarding the EEZ fisheries.

7.1 Conclusion

The management of the tuna fishery is a holistic mechanism which deals with managing people activities in relation to fishing activities. This psychological behavior of the people to comply or not when the system is introducing heavy penalties and fines as well jail system, is a situation that will change peoples behavior through a concept of deterrence among the resources users.

In Tanzania, the Regulations of 2009 was amended in 2016 and strengthened the conditions of fishing licenses as well as procedures for application for the fishing licenses. The results are observed that from 2016 to 2018 the number of fishing vessels is reduced by 50% for longliners whilst the number of purse seiners was reduced 99% (see Chapter three an overview of Tuna fishery of Tanzania). These reduction occurred when regulations and conditions of licenses were changed to direct the owners or captain to land all bycatch to be landed in Tanzania.

In addition, all fishing vessels should be inspected in Tanzania ports or any designated port according to Regulations 10 of the Deep Sea fishing Authority (DSFA). Thirty (30)% of the fishing crew must be Tanzanian and deploy an observer for all periods when fishing in EEZ of Tanzania. However, fishing vessels intending to fly the Tanzanian flag should comply with the Maritime Authority Act and the Deep Sea Fishing Authority Act which advocate that, the (owner) of the vessel must be Tanzanian or 90% share must be Tanzania. Also, the operators of the flagged vessels must have power of attorney to be reliable for any infringements of fishing vessels fishing in Tanzania waters.

These new fishing license conditions will affect the number of licenses and catches of tunas which were caught in the EEZ of Tanzania. Subsequently, the presence of a vessel monitoring system, trained observers and inspectors, undertaking sea, air, and land (dockside) patrols as well as sharing information regarding IUU fishing within regions will increase the level of Tanzania in the Indian Ocean Tuna Commission (IOTC) with a compliance rate from 0% in 2010, 7% in 2011, 4% in 2012, 45% in 2013, 60% in 2014, 56% in 2015, 63% in 2016 and 54% in 2017 according to the IOTC report number IOTC-2018-CoC15-11.
Furthermore, Tanzania has established the MCS Committee which consists of several agencies (police, wildlife, forestry, minerals, custom, revenue and fisheries. These sectors deal with combating illegal activities related with natural resources which to some extent deal with fisheries matters especially in territorial waters. Tanzania amended the Deep Sea fishing Act of 2007 to be compatible with UNCLOS 1982 and regional requirement from RFMOs and fisheries bodies such as SWIOFC and IOTC through a fund from SWIOFISH project under the World Bank.

The WWF Tanzania in collaboration with the Ministry Reesponsible for Fisheries has developed a tuna strategy which is in line with UN Fish Stock Agreement 1995 and FAO Code of Conduct Responsible fisheries. The WWF in collaboration with the Ministry is funding the FAO PSM process under national level in order for Tanzania to sign the Port State Measure like other countries within WIO.

### 7.2 Recommendations

The Author recommends that, the Government of the United Republic of Tanzania should do the following:-

- Engage in the EEZ fishery rather than DWFNs. The engagement of Tanzania should reduce FOC and Flag of Non-Compliance vessel fishing in Tanzania waters;
- The Authority responsible for fisheries should develop sustainable fishing fleet that will reduce the fishing effort of DWFNs in Tanzanian waters thereby reducing overfishing;
- Strengthen cooperation with regional fisheries bodies and WIO countries by sharing information regarding highly migratory species and IUU fishing within the EEZ of Tanzania. In addition, Tanzania should seek support from the IMO, FAO, the International MCS Network, The International Criminal Police Organization (INTERPOL), IOC-UNESCO, UNEP, UNDOC, World Trade Organization (WTO) among others;
- Strengthen relationships with “IUU Regional Network” such as Fish I Africa, The International Monitoring Control and Surveillance Network (IMCS Network) RFMO, RFB and LME bodies regarding sharing data and information pertaining to IUU fishing;
- Improving fisheries research should ensure the scientific data collection from all fishing vessels prior to exiting the EEZ by the scientific observers;
- The Deep Sea Fishing Authority should expand enforcement staffs undertaking MCS activities;
- The Deep Sea Authority should procure a large patrol vessel which is equipped with undertaking a multi tasking role of patrols and research;
- Collaboration with WIO countries should work to strengthen the agreement of joint sea patrols and aerial surveillance in order to provide more cost efficient MCS activities;
• The Maritime Authority Act should be harmonized with the Deep Sea Fishing Act regarding registration of fishing vessels;

• The Deep Sea Fishing Authority should move forward to ratify the international conventions such as STCW and the PSMA, UN Fish Stock Agreement among others;

• The Deep Sea Fishing Authority should ensure the cooperation with Port Authorities and maritime Authorities in order to reduce conflicts regarding the jurisdiction of the vessels during an inspection of the vessels and offloading of the catch;

• Take measure to strengthen the fish information system and database regarding fisheries statistics;

• Ensure the capacity building of enforcement officers fisheries inspector, observers, fisheries legislation, fisheries science and sustainable selective fishing gear technology;

• Continue to interact with Non-NGOS such as Greenpeace, Fish I Africa, and WWF on combating IUU fishing;

• Strengthen FMC capacity and resources as well deployment of the international MCS expert to train Tanzanian fisheries officers regarding international fishery;

• Ensure that its maritime institutes and Authorities develop programs and courses focusing on how to deter IUU fishing by large-scale vessels;

• Expand sensitization and awareness campaigns to advocate drivers and impacts of IUU fishing to influence politicians, business, people, traders, religion and community leaders;

• Ensure that financial institutions understand the problem of the EEZ fisheries and the need to invest in developing national fleets which can displace non-compliant vessels and flag of convenience vessels;

• Reviewing and develop MCS strategies and protocols that are compatible with international and regional requirements regarding combating IUU fishing;

• Developing a National Plan of Action by the adoption of a global registration of fishing vessels by using a Unique Vessel Identifier (UVI) system through IMO. The Fisheries Authorities in collaboration with Maritime Authorities should develop this system and a protocol or MOU; and

• Establish stronger legal penalties and fines regarding fishing crimes in collaboration through the ministry responsible for the home affairs, foreign affairs and justice.
8 REFERENCES


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Febi, B. M. (2018). The role of western and central pacific fisheries commission toward the conservation and management of highly migratory fish in Indonesia.


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Caribbean.


### APPENDIX

#### 9.1 SWOT analysis for Air patrol components (Technical, Human Resources, Budget, Law).

<table>
<thead>
<tr>
<th></th>
<th>Strength</th>
<th>Weaknesses</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Trained authorized staffs from Fisheries departments and authorities, Navy, Marine Police and Anti-smuggling unit from Zanzibar (KMKM).</td>
<td>Inadequate an experienced and competent staffs.</td>
<td>Donors fund from WWF Tanzania and IOC PRSP smart Fish Mauritius.</td>
<td>Accident of IUU fishing vessels in the EEZ of Tanzania.</td>
</tr>
<tr>
<td>2.</td>
<td>Modern Vessel Monitoring system (Themis Web system) for tracking vessel.</td>
<td>Lack of craft for conducting air surveillance owned by Fisheries Departments.</td>
<td>Availability of Joint air patrols with neighboring countries through SWIOFish Project under World Bank.</td>
<td>Lack of political willing regarding fair patrol and benefits.</td>
</tr>
<tr>
<td>3.</td>
<td>Strong cooperation with Maritime Authorities (Maritime Rescue Coordination Center – MRCC) in Dar es Salaam for tracking vessel by AIS system.</td>
<td>Inadequate fund for undertaking air surveillance.</td>
<td>Member of IOTC, SADC and SWIOFC bodies provides training and assistance on identify risk IUU vessels.</td>
<td>Availability of Flag of convenience (FOC) vessel in the EEZ which may change Call Sign.</td>
</tr>
<tr>
<td>4.</td>
<td>Availability of twin-engine craft and an experienced pilot from the TANWING Aviation company.</td>
<td>Lack of professional photographers.</td>
<td>Availability of networking with Fish I Africa, PEW, IOTC and Interpol which provides the tracking for Leakage information because involved multi-sector during planning and execution of air patrols.</td>
<td></td>
</tr>
</tbody>
</table>
## 9.2 The SWOT analysis for land patrol components/ dockside inspections (Technical, Human Resources, Budget, Law)

<table>
<thead>
<tr>
<th>N a</th>
<th>Strength</th>
<th>Weakness</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Trained Fisheries Inspectors and observers by IOTC Compliance Section and FAO PSM team several times.</td>
<td>In adequate staffs for undertaking Inspection because of number vessels and designated ports.</td>
<td>Donors fund from WWF Tanzania and IOC PRSP smart Fish Mauritius.</td>
<td>Accident of IUU fishing vessels in the EEZ of Tanzania.</td>
</tr>
<tr>
<td>2.</td>
<td>Availability of inspection equipment and boarding equipment as well as a uniform for inspectors.</td>
<td>Lack strong vessel patrol vessel for boarding and inspection offshore.</td>
<td>Availability of Joint inspections according to Maputo declaration for DWFNs by funding with SADC.</td>
<td>Lack of political willing regarding pre-inspection of the vessel because they just want a revenues no matter presumably IUU vessel.</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>3.</td>
<td>Availability of five designated ports for inspections such as Tanga, Zanzibar, Dar es Salaam, Lindi and Mtwara.</td>
<td>Inadequate fund for undertaking for inspection and deployment of observer.</td>
<td>Cooperation from flag state and IOTC regarding the history of fishing vessels such as Taiwan and EU vessel prior to inspection activities.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inadequate cooperation and coordination from Zanzibar Maritime Authority (ZMA) regarding vessels registration resulting vessels are registered as Flag of convenience (FOC) without pre-inspection.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Availability of Amendment of conditions of license and laws regarding pre-license inspections.</td>
<td>Lack of skills persons for collecting evidence and handling exhibit during an inspection of IUU vessel.</td>
<td>Availability of networking with Fish I Africa, PEW, IOTC and Interpol which provides the tracking for transshipment and presumably IUU vessels prior to inspecting fishing vessels.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lack of communication with vessel agents and operator on time for preparing an inspection.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Availability of modern equipment for port inspection such as video camera, GPS, binoculars, satellite phones, radio calls and boarding boats when the vessel is outer anchor in the port.</td>
<td>Low penalties and fines regarding IUU fishing infringements.</td>
<td>WWF and World bank assist Tanzania on processing on FAO PSM regarding signing and activities by undertaking stakeholder meetings.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Availability of bureaucratic system in Port Authorities regarding fishing vessel because their priority for them merchants vessels.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Availability of Standard Operation Procedures (SOPs for MCS) formulated by Per Erick Berg MCS experts from Fish I Africa.</td>
<td>Gaps on deep Sea fishing Legislation regarding with international laws and Regional requirements IOTC Resolutions.</td>
<td>Availability of Dar es Salaam Maritime Institute (DMI) which provide assistance on Inspection of</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lack of fishing port which can stimulate the vessels calling port in designated ports in Tanzania for inspection or landing catches.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Availability of Tuna Strategy and Minimum Terms Conditions for DWFNs through Maputo declaration by three countries Tanzania, Kenya, and Mozambique.</td>
<td>Lack of political willing on inspection of vessels.</td>
<td>Availability of Institute of Marine Sciences (IMS) under University of Dar es Salaam and Tanzania Fisheries Research Institute (TAFIRI) assists inspectors to know the names and species of marine fish during species identifications.</td>
<td>Lack of handling equipment for offloading catches in Dar es Salaam and Zanzibar port this stimulate vessels to offload at se through illegal transshipment at EEZ.</td>
</tr>
</tbody>
</table>

| | Good cooperation with migration, health, custom, maritime authority, port authority regarding Inspection at Port by concepts PSM through sharing information on vessel particulars and among others. | Lack of cooperation and bureaucratic system within Port Authorities regarding fishing vessels. | Tanzania is a member of IMO and responsible to comply with SOLAS and STCW convention regarding the minimum standard for inspection of a vessel at port. | Lack of supporting policies such as fuel price and port fees to attract owners of the fishing vessels to land catches in Tanzania. |
9.3 The Sea patrol, observer and boarding components/ dockside inspections (Technical, Human Resources, Budget, Law)

<table>
<thead>
<tr>
<th>Na.</th>
<th>Strength</th>
<th>Weakness</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Trained Fisheries Inspectors and observers by IOTC Compliance Section and IOC PRSP smart fish under EU project regarding boarding at sea.</td>
<td>Inadequate number staffs for undertaking Inspection sea patrols.</td>
<td>Donors fund from WWF Tanzania and IOC PRSP smart Fish Mauritius.</td>
<td>Accident of IUU fishing vessels in the EEZ of Tanzania.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Availability of boarding equipment such as safety clothes and species identification guide from IOTC.</td>
<td>Lack strong vessel patrol vessel for boarding and inspection offshore</td>
<td>Availability of Joint sea operation by using Madagascar (Atsatsa), La Reunion (Osiris) and South Africa (Sarah Bartman)</td>
<td>Lack of political willing regarding Sea because of the cost for undertaking an activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Qualified and competence fisheries scientist observers and inspectors for boarding at sea trained by Cap Fish South Africa.</td>
<td>Inadequate fund for undertaking for sea and deployment of observer.</td>
<td>Cooperation from flag state and IOTC regarding history of fishing vessels such as Taiwan and EU vessel when vessels arrested by Tanzania.</td>
<td>Inadequate cooperation with ministry of finance regarding financial status on supporting Fisheries department to undertake Sea patrol.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Availability of vessel monitoring system for tracking vessel and Automatic identification system AIS for tracking vessel while fishing in the</td>
<td>Inadequate skills on UNCLOS and Regional requirement and knowledge on collection of</td>
<td>Availability of networking with Fish I Africa, PEW, IOTC and Interpol which</td>
<td>Availability of Flag of convenience vessels (FOA) which advocating</td>
</tr>
<tr>
<td></td>
<td><strong>EEZ of Tanzania this can help to reduce fuel cost for sea patrol for searching IUU vessel or presumably IUU vessels.</strong></td>
<td><strong>Evidence and handling exhibits after arrested and seized IUU fishing.</strong></td>
<td><strong>Provides the tracking for transshipment and presumably IUU vessels prior to boarding vessels.</strong></td>
<td><strong>IUU fishing vessels.</strong></td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Availability of modern equipment for sea patrol such as video camera, GPS, binoculars, satellite phones, Radio calls for boarding.</strong></td>
<td><strong>Low penalties and fines regarding IUU fishing infringements.</strong></td>
<td><strong>WWF and World bank under SWIOFish project assist Tanzania on processing on implementation on UNCLOS (1982), FAO PSM (2009), IPO on IUU fishing(2001), Un fish stock agreements (UNFSA 1995) and FAO compliance agreement (1993).</strong></td>
<td><strong>Availability of bureaucratic system in Judically Authorities regarding fishing vessel and fisheries case and Availability of corruption among the staffs in government institutes.</strong></td>
</tr>
<tr>
<td>6.</td>
<td><strong>Availability of Standard Operation Procedures (SOPs for MCS) formulated by Per Erick Berg MCS experts from Fish I Africa In compatible of National regulations and laws in relation to UNCLOS and Regional requirements IOTC Resolutions.</strong></td>
<td><strong>Lack of fishing port which can stimulate the vessels calling port in designated ports in Tanzania for inspection or landing catches.</strong></td>
<td><strong>Availability of the Dar es Salaam Maritime Institute (DMI), MRCC Maritime centre which provide assistance on sea patrol.</strong></td>
<td><strong>Lack of political willing on sea patrol.</strong></td>
</tr>
<tr>
<td>7.</td>
<td><strong>Availability of Tuna Strategy and Minimum Terms Conditions for</strong></td>
<td><strong>Lack of political willing on sea patrol</strong></td>
<td><strong>Availability of Institute of Marine</strong></td>
<td><strong>Lack commitment from other</strong></td>
</tr>
</tbody>
</table>
DWFNs through Maputo declaration by three countries Tanzania, Kenya, and Mozambique.

Sciences (IMS) under University of Dar es Salaam and Tanzania Fisheries Research Institute (TAFIRI) assists inspectors to know the names and species of marine fish during species identifications.

ministries responsible for environments regarding protection of marine environments and IUU fishing.

| 8. | Skilled and trained fisheries inspectors to arrest and apprehended culprits this skills and knowledge were trained during MCS SADC and IOC smart fish by marcel by Marcel Kroese and Jude Talma IOC, SmartFish project under EU. | Lack of cooperation and bureaucratic system within Magistrate and Courts regarding fishing issues | Tanzania is a member of IMO and responsible to comply with SOLAS, MARPOL, and STCW convention regarding the minimum standard for inspection of a vessel at Sea. | Leakage of information from others stakeholders dealing with sea patrol planning due to corruption and bribery. |
9.4 Governance Regime for Migratory Fisheries in Tanzania

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>provides the governing framework for fishing in the EEZ as follows</td>
<td>There are a number of regional entities and conventions that build on international framework and provide guidance for the optimum utilization of migratory fisheries in the EEZ. They include the IOTC, ICCAT, SWIOFC, the Nairobi Convention and the Maputo Declaration. IOTC has four key functions and responsibilities which are: (a) to keep under review the conditions and trends of the stocks and to gather, analyze and disseminate scientific information, reported catch and effort statistics; (b) to encourage, recommend, and coordinate research and development activities in respect of the stocks; (c) to adopt – on the basis of scientific evidence – Conservation and Management Measures (CMM) and to promote the objective of their optimum utilization; and (d) to keep under review the economic and social aspects of the migratory fisheries based in particular, the interests of developing coastal States.</td>
<td>Although non-binding, the World Bank promotes a regional approach for efficiency in governance of migratory fisheries in the EEZ, recognizing: (a) the public good nature of migratory species; (b) the need to reduce the impact of each country’s decision on other countries’ activities; (c) the competition between large national investments, such as ports, fishing fleets, or processing plants at the national level; (d) need to avoid conflicts and suboptimal sector investments; (e) to promote equitable distribution of wealth; and (f) the benefits from regional level MCS and research. While such an approach may be the most optimal and efficient, challenges include: (i) the commitment and willingness of the countries to coordinate; (ii) different levels of</td>
<td>The Territorial Sea and Exclusive Economic Zone Act of 1989 provides for the establishment of a territorial sea of 12 miles and the exclusive economic zone of 200 nautical miles. The Act is the first legislation that aims to implement the provisions of UNCLOS. The Act provides that no exploitation of resources in the EEZ should take place without an agreement with the Government of the United Republic. The Act excludes citizens of the URT from this provision, allowing such nationals to fish from a vessel registered in the United Republic of Tanzania. The Fisheries Act (Act No. 22 of 2003) and Regulations aim to develop and promote the sustainable use of fish stocks and aquatic</td>
</tr>
</tbody>
</table>

“The EEZ is an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this Part, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention. In the EEZ, the coastal State has: (a) sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources; (b) the production of energy from the water, currents and winds; (c) protection and preservation of the marine environment; and (d) other rights and duties provided for in this Convention. (UNCLOS, Part V)(Tanaka, 2015)

Article 61 of UNCLOS states the following: “coastal States shall determine the allowable catch of the living resources in its exclusive economic zone and taking into account the best scientific evidence available to ensure the conservation and management of living resources...
in the exclusive economic zone. States are further expected to maintain and restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors”.

Article 64 of UNCLOS requires that management of highly migratory species should be through close cooperation between the coastal State and DWFNs. Thus, DWFNs pay for the access to tunas in the EEZs. The Coastal States may negotiate quotas or the number of licenses under fishery agreement as has been done in the Pacific as well as in the Seychelles, Mauritius, Morocco, and Senegal. This can effectively be carried out once the stock assessment is concluded. URT became a member of IOTC in 2007 (Rogers et al., 2009).

capacity within implementing agencies; (iii) political economy issues within the region; (iv) vested interests in the countries and in the industry; and (v) the extent to which research, knowledge, and lessons are shared (Erceg, 2006; Rogers et al., 2009).

resources inland and in territorial waters off the coastline. The overall goal of the National Fisheries Policy is to promote conservation, development and sustainable management of migratory fisheries resources for the benefit of present and future generations. The Zanzibar fisheries policy aims to improve the fisheries governance framework for sustainable and responsible development and management of the fisheries sector of Zanzibar. Fisheries activities beyond the territorial waters up to the outer limits of the URT’s EEZ are governed by the DSFA Act, 1998 and the Regulations made thereunder.

The DSFA Act (1998) and its amendments of 2007, along with DSFA Regulations (2009) provide the mandate for the DSFA for overall management and
development of fisheries resources in the URT EEZ. According to the Act, the Authority aims to: (a) promote, regulate and control fishing in the EEZ; (b) regulate the licensing of persons and ships intending to fish in the EEZ; (c) initiate, implement and ascertain the enforcement of policies on deep sea fishing vessels; (d) formulate and coordinate programs for scientific research in respect of fishing; (e) formulate fisheries policies; (f) negotiate and enter into any fishing or other contract, agreement with any government, international organization or other institution in pursuance of the provisions of this Act; (g) undertake any other act in furtherance of the purposes and provisions of this Act.

DSFA Regulations incorporate sustainable fishery management principles, including (a) the precautionary
principle; (b) the polluter pays principle; (c) the principle of ecosystem integrity; (d) the principle of international cooperation in the management of fishery resources; and (e) the principle of public participation.

9.5 Advance request for entry in port form

<table>
<thead>
<tr>
<th>ADVANCE REQUEST FOR ENTRY IN PORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Intended port of call  □ (Enter port name) □ (Enter port name) □ Other</td>
</tr>
<tr>
<td>2 Port State  (Enter port State name)</td>
</tr>
<tr>
<td>3 Estimated date and time of arrival  <em><strong><strong><strong>/</strong></strong></strong></em>/_______  H____m</td>
</tr>
<tr>
<td>4 Purpose(s)  □ Landing □ Transshipping □ Packaging □ Processing of fish □ Refueling □ Resupplying □ Maintenance □ Drydocking □ Force majeure</td>
</tr>
<tr>
<td>5 Port and date of last port call  <em><strong><strong><strong>/</strong></strong></strong></em>/_______</td>
</tr>
<tr>
<td>6 Name of the vessel</td>
</tr>
<tr>
<td>7 Flag State</td>
</tr>
<tr>
<td>8 Type of vessel</td>
</tr>
<tr>
<td>9 IRCS</td>
</tr>
<tr>
<td>10 Vessel contact information</td>
</tr>
<tr>
<td>11 Vessel owner(s)</td>
</tr>
<tr>
<td>12 Certificate of registry ID</td>
</tr>
<tr>
<td>13 IMO ID</td>
</tr>
<tr>
<td>14 External ID</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>16 VMS</td>
</tr>
<tr>
<td>17 Vessel dimensions</td>
</tr>
<tr>
<td>18 Vessel master name and nationality</td>
</tr>
</tbody>
</table>

19 Relevant fishing authorization(s)

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Issued by</th>
<th>Validity</th>
<th>Fishing area(s)</th>
<th>Species</th>
<th>Gear</th>
</tr>
</thead>
</table>

20 Relevant transshipment authorization(s)

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Issued by</th>
<th>Validity</th>
</tr>
</thead>
</table>

21 Transshipment information concerning donor vessels

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Name</th>
<th>Flag State</th>
<th>ID number</th>
<th>Species</th>
<th>Product form</th>
<th>Catch area</th>
<th>Quantity</th>
</tr>
</thead>
</table>

22 Total catch onboard

<table>
<thead>
<tr>
<th>Species</th>
<th>Product form</th>
<th>Catch area</th>
<th>Quantity</th>
</tr>
</thead>
</table>

23 Catch to be offloaded

<table>
<thead>
<tr>
<th>Species</th>
<th>Product form</th>
<th>Catch area</th>
<th>Quantity</th>
</tr>
</thead>
</table>

Source: DSFA - MCS STANDARD OPERATING PROCEDURES (SOPs) 2015
NOTIFICATION TO FISHING VESSEL FOLLOWING A REQUEST TO ENTER PORT

<table>
<thead>
<tr>
<th>FROM:</th>
<th>TO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port State Name</td>
<td></td>
</tr>
<tr>
<td>Competent authority</td>
<td></td>
</tr>
</tbody>
</table>

Vessel representative

INFORMATION ON FISHING VESSEL REQUESTING ENTRY IN PORT

<table>
<thead>
<tr>
<th>AREP Received</th>
<th>Port of call</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Estimated date and time of arrival</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em><strong><strong><strong>/</strong></strong></strong></em>/_________ H____mn</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of vessel</th>
<th>Flag of vessel</th>
<th>IRCS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IOTC Number</th>
<th>Certificate of registry ID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PORT STATE DECISION

The following decision has been taken with regards to the request you have submitted to enter the port of

□ Port entry authorised.

□ Port entry authorised - Use of port facilities denied until completion of port inspection and written clearance received by competent authority.

□ Port entry denied for the following reasons:

□ Fishing vessel on IUU list.
- Fishing vessel not authorised by flag State.
- Fishing vessel not on the positive of the RFMO: __________________
- Other: ____________________________________________________________

<table>
<thead>
<tr>
<th>Name of officer</th>
<th>Date and signature</th>
<th>Official stamp</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Transmitted to:**

- Customs: 
  ____________________________
- Immigration: 
  ____________________________
- Other Port Authority: 
  ____________________________
- Others: 
  ____________________________

- Flag State: 
  ____________________________
- Coastal State: 
  ____________________________
- RFO/RFMO: 
  ____________________________
## 9.7 Pre Inspection form

<table>
<thead>
<tr>
<th>PORT INSPECTION REPORT FORM</th>
<th>1. Inspection report no</th>
<th>2. Port State</th>
</tr>
</thead>
</table>

### 3. Inspecting authority

### 4. Name and ID of principal inspector

### 5. Port of inspection

### 6. Commencement of inspection

### 7. Completion of inspection

### 8. Advance notification received

### 9. Purpose(s)

- Landing
- Transshipping
- Packaging
- Refueling
- Resupplying
- Maintenance
- Drydocking
- Others

### 10. Last port call

<table>
<thead>
<tr>
<th>Port name</th>
<th>State</th>
<th>Date</th>
</tr>
</thead>
</table>

### 11. Vessel name

### 12. Flag State

### 13. Type of vessel

### 14. IRCS

### 15. Certificate of Registry ID

### 16. IMO ship ID

### 17. External ID

### 18. Port of Registry

### 19. Name, address & contact of the vessel owner(s)

### 20. Name, address & contact of the beneficial owner(s) (if different from vessel owner)

### 21. Name, address & contact of the operator(s) (if different from vessel owner)

### 22. Vessel master name and nationality

### 23. Fishing master name and nationality

### 24. Vessel agent

### 25. VMS

<table>
<thead>
<tr>
<th>National</th>
<th>RFMOs</th>
</tr>
</thead>
</table>

Type:
- Argos
- Inmarsat
- Iridium
- Others

### 26. Status in IOTC, including any IUU vessel listing
<table>
<thead>
<tr>
<th>Vessel identifier</th>
<th>RFMO</th>
<th>Flag State status</th>
<th>Vessel on authorized list</th>
<th>Vessel on IUU list</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Y □ N □</td>
<td>Y □ N □</td>
</tr>
</tbody>
</table>

27. Relevant fishing authorization(s)

<table>
<thead>
<tr>
<th>Vessel identifier</th>
<th>Issued by</th>
<th>Validity</th>
<th>Fishing area(s)</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28. Relevant transshipment authorization(s)

<table>
<thead>
<tr>
<th>Vessel identifier</th>
<th>Issued by</th>
<th>Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

29. Transshipment information concerning donor vessels

<table>
<thead>
<tr>
<th>Vessel name</th>
<th>Flag State</th>
<th>ID no</th>
<th>Species</th>
<th>Product form</th>
<th>Catch area(s)</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

30. Evaluation of offloaded catch (quantity)

<table>
<thead>
<tr>
<th>Species</th>
<th>Product form</th>
<th>Catch area(s)</th>
<th>Quantity declared</th>
<th>Quantity offloaded</th>
<th>Difference between quantity declared and quantity determined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

31. Catch retained onboard (quantity)

<table>
<thead>
<tr>
<th>Species</th>
<th>Product form</th>
<th>Catch area(s)</th>
<th>Quantity declared</th>
<th>Quantity retained</th>
<th>Difference between quantity declared and quantity determined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

32. Examination of logbook(s) and other documentation

<table>
<thead>
<tr>
<th></th>
<th>Y □ N □</th>
<th>Comments</th>
</tr>
</thead>
</table>

33. Compliance with applicable catch documentation scheme(s)

<table>
<thead>
<tr>
<th></th>
<th>Y □ N □</th>
<th>Comments</th>
</tr>
</thead>
</table>

34. Compliance with applicable trade information scheme(s)

<table>
<thead>
<tr>
<th></th>
<th>Y □ N □</th>
<th>Comments</th>
</tr>
</thead>
</table>

35. Type of gear used

36. Gear examined in accordance with paragraph e) of Annex 2

<table>
<thead>
<tr>
<th></th>
<th>Y □ N □</th>
<th>Comments</th>
</tr>
</thead>
</table>

37. Findings by inspector(s)
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>38.</td>
<td>Apparent infringement(s) noted including reference to relevant legal instrument(s)</td>
</tr>
<tr>
<td>39.</td>
<td>Comments by the master</td>
</tr>
<tr>
<td>40.</td>
<td>Action taken</td>
</tr>
</tbody>
</table>

**DATE AND SIGNATURE OF THE FISHERIES INSPECTOR(S)**

**DATE AND SIGNATURE OF THE CAPTAIN**

*Source DSFA - MCS STANDARD OPERATING PROCEDURES (SOPs) 2015*
## 9.8 Offloading monitoring form

### General information

<table>
<thead>
<tr>
<th>3. Inspector Name and ID</th>
<th>4. Inspecting Authority</th>
<th>5. Port of inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Vessel Name</td>
<td>7. Vessel Type</td>
<td></td>
</tr>
<tr>
<td>8. IOTC Number</td>
<td>9. IRCS</td>
<td></td>
</tr>
<tr>
<td>10. Documents Received (✓)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Summary of operations

<table>
<thead>
<tr>
<th>Commencement</th>
<th>Completion</th>
<th>13 Total interruption time (hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Time</td>
<td>Date</td>
</tr>
<tr>
<td>11. Operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Observed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. Percentage offloading monitored (Total Hours Offloaded divided by Hours Monitored)

### Destination details

<table>
<thead>
<tr>
<th>15. Onshore</th>
<th>Total quantity</th>
<th>16. Carrier vessel</th>
<th>Total quantity</th>
</tr>
</thead>
</table>

### Summary of products offloaded

|-------------|-------------|--------------------|---------------------|

---

### OFFLOADING MONITORING FORM B

<table>
<thead>
<tr>
<th>1. Inspection report no</th>
<th>2. Form No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Source: DSFA - MCS STANDARD OPERATING PROCEDURES (SOPs) 2015

9.9 Tanzania Transhipment declaration

<table>
<thead>
<tr>
<th>Carrier Vessel</th>
<th>Fishing Vessel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the Vessel and Radio Call Sign:</td>
<td>Name of the Vessel and Radio Call Sign:</td>
</tr>
<tr>
<td>Flag:</td>
<td>Flag:</td>
</tr>
<tr>
<td>Flag State license number:</td>
<td>Flag State license number:</td>
</tr>
<tr>
<td>National Register Number, if available:</td>
<td>National Register Number, if available:</td>
</tr>
<tr>
<td>IOTC Register Number, if available:</td>
<td>IOTC Register Number, if available:</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day</th>
<th>Month</th>
<th>Hour</th>
<th>Year</th>
<th>Agent’s name:</th>
<th>Master’s name of LSTV:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Master’s name of Carrier:</td>
<td></td>
</tr>
</tbody>
</table>

| Departure | | | | from | |
|-----------|------------------------------------------------|
|           | |

| Return | | | | to | |
|--------|------------------------------------------------|
|        | |

Transhipment: | | | |

Signature:

Indicate the weight in kilograms or the unit used (e.g. box, basket) and the landed weight in kilograms of this unit: | kilograms

### LOCATION OF TRANSHIPMENT

<table>
<thead>
<tr>
<th>Species</th>
<th>Port</th>
<th>Sea</th>
<th>Type of product</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Whole</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

If transhipment effected at sea, DSFA Observer Name and Signature:

Source: DSFA - MCS STANDARD OPERATING PROCEDURES (SOPs) 2015
### 9.10 Tanzania Fishing Logbook

<table>
<thead>
<tr>
<th>Date</th>
<th>Start Time</th>
<th>End Time</th>
<th>Location</th>
<th>Weather</th>
<th>Catch</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source DSFA - MCS STANDARD OPERATING PROCEDURES (SOPs) 2015*