



**AFRICAN UNION**

# **STATUS OF FISHERIES OBSERVER PROGRAMMES IN EASTERN AFRICA AND A FRAMEWORK FOR A SEA-BASED REGIONAL FISHERIES OBSERVER PROGRAMME**



**AFRICAN UNION  
INTERAFRICAN BUREAU  
FOR ANIMAL RESOURCES**





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EASTERN AFRICA AND  
A FRAMEWORK FOR A SEA-BASED REGIONAL FISHERIES  
OBSERVER PROGRAMME**

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## *List of abbreviations and acronyms*

AFRC	Albion Fisheries Research Centre
ATF	Authorisation to Fish
AU	African Union
ABNJ	Areas Beyond National Jurisdiction
BCC	Benguela Current Commission
CAS	Catch Assessment Survey
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Convention for the Conservation of Southern Bluefin Tuna
CMM	Conservation or Management Measures
CNCP	Cooperating Non-Contracting Parties
CPC	Contracting Parties and Cooperating non-contracting parties
CPR	Cardio-Pulmonary Resuscitation
DSFA	Deep Sea Fishing Authority
DWFN	Distant Water Fishing Nations
EEZ	Exclusive Economic Zone
ENS	Electronic Navigational Systems
ETP	Endangered, Threatened and Protected
EU	European Union
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organisation
FiTEC	Fisheries Training and Extension Centre
FCO	Fisheries Control Officer
FMA	Fisheries Management Authorities
FMC	Fisheries Monitoring Centre
GMDSS	Global Marine Distress and Safety Systems
IBAR	Interafrican Bureau for Animal Resources
ICCAT	International Commission for the Conservation of Atlantic Tunas
IFREMER	French Institute for Exploitation of the Sea
IMS	Institute of Marine Science
IOC	Indian Ocean Commission
IOTC	Indian Ocean Tuna Commission
IRD	Institut de Recherche pour le Développement
IUU	Illegal, Unreported and Unregulated
KMFRI	Kenya Marine and Fisheries Research Institute
LMMA	Locally Managed Marine Area
MAEP	Ministry of Agriculture and Fisheries
MCS	Monitoring, Control and Surveillance
MLF	Ministry of Livestock and Fisheries
MLFD	Ministry of Livestock and Fisheries Development
MSC	Marine Stewardship Council
NGO	Non-Governmental Organisation
NOP	National Observer Program
PFRS	Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa
RFMOs	Regional Fisheries Management Organisations

SDF	State Department of Fisheries
SFA	Seychelles Fishing Authority
STCW95	Standards of Training, Certification and Watch keeping for Seafarers
SWIOFC	Southwest Indian Ocean Fisheries Commission
SWIOFish	South West Indian Ocean Fisheries Governance and Shared Growth Project
SWIOFP	Southwest Indian Ocean Fisheries Project
TAAF	French Southern and Antarctic Lands
TAC	Total Allowable Catch
TAFIRI	Tanzania Fisheries Research Institute
UNDP	United Nations Development Programme guidelines
UNFSA	Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks
VMS	Vessel Monitoring System

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## 1. Introduction

The Policy framework and reform strategy for fisheries and aquaculture (PFRS) placed emphasis on the conservation and sustainable use of fisheries resources as enhancing regional cooperation in the management of the fisheries sector. This policy area aimed at establishing national and regional governance and institutional arrangements that ensure increased contribution of sectors to socio-economic development of African Union member States. The Pan African fisheries Policy framework also underscored capacity building of African Union member states for effective participation for increased benefits from High Seas fisheries. The 2014 Joint Ministerial Conference of agriculture, rural development, fisheries and aquaculture urged Member States to enhance cooperation for information sharing, data collection, analysis and dissemination at national and regional levels for fisheries management and aquaculture development.

The acquisition of information on fisheries is critical for their management. The main elements of a good fisheries management system would include an effective monitoring system, particularly any system that is sea-based. Sea-based monitoring systems are the “eyes” of the fishery. For example, sea-based monitoring can support scientific data collection (biological), identify types of fishing gear used, determine catch and effort independently and many other aspects (e.g. fishing positions, compliance issues) of the at-sea operation that help managers and scientists to better understand the fishery.

Monitoring systems for fisheries can also be split between those that aim to ensure compliance with regulations (such as Vessel Monitoring Systems or VMS) and those that aim only to collect information, such as sea-based observers (data collectors). Often the mandates of such systems overlap and independent observers are relied upon to monitor fishery performance and compliance with permit conditions. These mandates can apply at both a national level (within a country’s Economic Fishing Zone or EEZ) and a regional level extending beyond areas of national jurisdiction (or ABNJ). At a regional level specific Regional Fisheries Management Organisations (RFMOs) may also require independent data collection by observers and member states of these organisations are obligated to carry both a national and international observer such as in the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

The intent of this work is to identify the status of observer programmes in Africa and to identify the gaps in the current national and regional programmes (if any). It aims to provide guidance on the development and/or improvement of the current observers programmes both at national and regional levels.

The work has a further secondary objective in that it aims to use Observer programmes to strengthen the Monitoring, Control and Surveillance (MCS) systems in African fisheries in order to combat Illegal, Unreported and Unregulated (IUU) fishing activities. IUU can lead to loss of revenue and overfishing and in many cases destroying the livelihoods of fishing communities. National MCS systems that are both robust and adaptable and that are cohesive with regional and international MCS are essential towards stopping IUU fishing.

There are a number of global responses in action to IUU fishing, the most entrenched and overarching being the 1982 United Nations Convention on the Law of the Sea (UNCLOS), with 166 signatories

worldwide. Amongst other things the Convention describes the rights and responsibilities of coastal states and fishing nations utilising the living resources of the sea. Pertaining to MCS and fisheries observers and in particular to nationals of foreign states fishing in the waters of coastal states, Article 62, section 4 says:

Nationals of other States fishing in the exclusive economic zone shall comply with the conservation measures and with the other terms and conditions established in the laws and regulations of the coastal State. These laws and regulations shall be consistent with this Convention and may relate, inter alia, to the following:

- a. licensing of fishermen, fishing vessels and equipment, including payment of fees and other forms of remuneration, which, in the case of developing coastal States, may consist of adequate compensation in the field of financing, equipment and technology relating to the fishing industry;
- b. determining the species which may be caught, and fixing quotas of catch, whether in relation to particular stocks or groups of stocks or catch per vessel over a period of time or to the catch by nationals of any State during a specified period;
- c. regulating seasons and areas of fishing, the types, sizes and amount of gear, and the types, sizes and number of fishing vessels that may be used;
- d. fixing the age and size of fish and other species that may be caught;
- e. specifying information required of fishing vessels, including catch and effort statistics and vessel position reports;
- f. requiring, under the authorization and control of the coastal State, the conduct of specified fisheries research programmes and regulating the conduct of such research, including the sampling of catches, disposition of samples and reporting of associated scientific data; and
- g. the placing of observers or trainees on board such vessels by the coastal State;
- h. the landing of all or any part of the catch by such vessels in the ports of the coastal State.

All the States in the southern and eastern regions of Africa are signatory to the UNCLOS but translation of those guidelines into National legislation is often inadequate or implementation and enforcement of National legislation is ineffective or non-existent.

At continental, there is the policy framework and reform strategy for fisheries and aquaculture in Africa that was endorsed by African Heads of States and Governments as a blue print for the development of the fisheries and aquaculture sector in Africa in June 2014. This continental fisheries policy document has a key policy area for the conservation and sustainable use of fisheries resources. Amongst others, this policy area therefore aims at ensuring that effective and sustainable regional Monitoring, Control and Surveillance (MCS) systems are operating in all regions of the continent.

Ensuring conservation and sustainable use requires an appropriate statutory/regulatory framework that is clearly understood, enforceable and supported by resource users and others. This can be achieved by:

- a. developing and strengthening the institutional framework for MCS for both marine and inland fisheries for combating IUU fishing. This should be underlined by evaluation of national and regional needs for MCS in AU MS and Regions
- b. improving regional cooperation and collaboration for sustainable fisheries management
- c. developing and sharing registers of authorized fishing and illegal fishing vessels

- d. enhancing capacities and establishing mechanisms including cost-effective and sustainable financial arrangements for efficient and effective regional cooperation in MCS and enforcement
- e. developing and agreeing on minimum terms and conditions of fisheries access and adopting a common harmonized and coordinated approach with regards to granting access to resources to third parties and national fleet within the region.

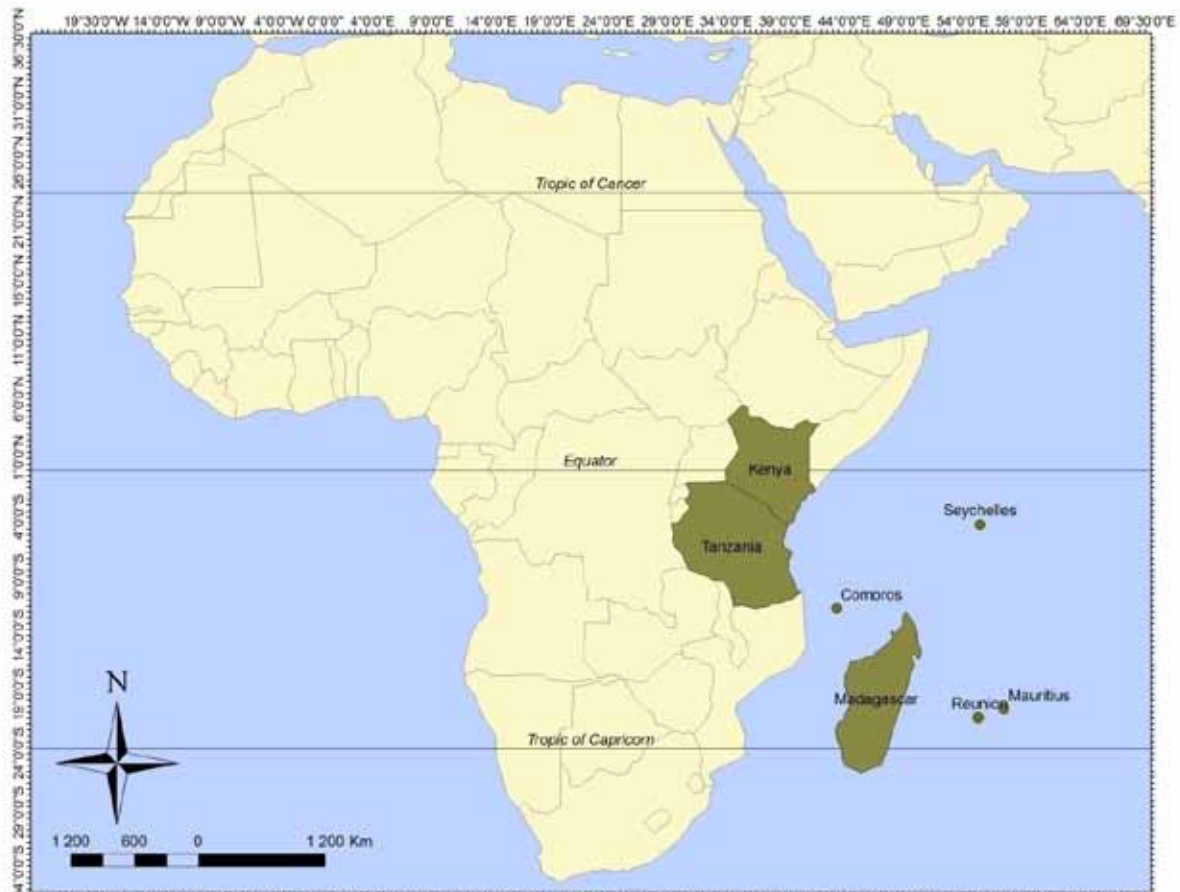
Although some African countries have acquired the capacity for electronic VMS, many still rely on the conventional methods of monitoring and observing fishing activities. A structured fisheries observer programme covering all licensed vessels enhanced by well-trained observers (data collectors) would not only complement existing MCS systems but would also increase accurate reporting of, for example, fishing positions, illegal fish transfer, daily catches and species composition, which are all vital for sustainable management of fishing practices.

Another major drawback in combating IUU fishing is the lack of a sophisticated and comprehensible national fishing vessel register, which is regularly updated and shared between member states of the African Union (AU). Vessel registers that include information such as the history and characteristics of the vessel are powerful tracking tools used to monitor illegal fishing activities. To be effective in tracking IUU fishing as well as collecting data for the management of fisheries, synergy between systems, coastal and island states and RFMOs is essential.

This report therefore focuses on describing the status of observer programmes specifically in seven eastern African states; Kenya, Madagascar, Mauritius, the Union of the Comoros, the United Republic of Tanzania and Seychelles (Figure 1) and aims to demonstrate the need for synergy and a consolidated framework for observers and vessel registers to enhance the capacity for these states to collect fisheries data and help deter IUU fishing.

## 2. Objective

The overall objective for this work is give an over an overview of current sttaus of fisheries observer programmes in Eastern African coastal and Island States (Comoros, Kenya, Madagascar, Mauritius, Seychelles and Tanzania) and to to develop a framework for sustainable regional fisheries observer programme.



**Figure 1:** Location of the Eastern region and the countries of interest; Comoros, Kenya, Madagascar, Mauritius, La Réunion (France), Seychelles and Tanzania.

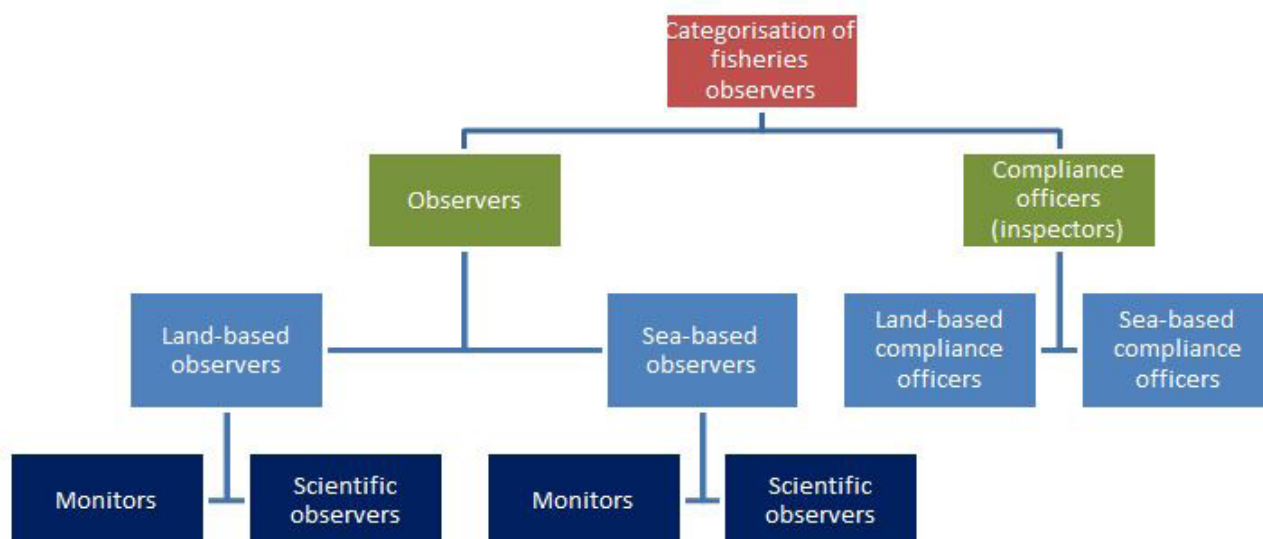
### 3. Methodology

This work is “desktop based” using online recourses and consultations through correspondences with specified member countries and relevant regional organisations. A questionnaire (translated into French) was sent via email to relevant fisheries authorities responsible for fisheries observer programmes. Most of the information has been received although in some instances no responses or data were received. Capacity needs and development will be assessed using the model framework of United Nations Development Programme guidelines (UNDP, 1997).

#### 3.1 Categorisation and Definitions of Observers

The review identifies fisheries observers into four categories Figure 2:

- sea-based observers (monitors or scientific observers);
- sea-based compliance officers (inspectors);
- land-based observers (monitors or scientific observers);
- land-based compliance officers (inspectors).



**Figure 2:** Organogram of the categorisation of observers (scientific and/or monitors) and compliance officers.

There are some fundamental differences in the legislative mandate in the appointment of compliance officers/inspectors and observers (monitors and scientific observers), and differences in the training, responsibilities and tasks onboard a vessel at sea or on land. This project will review the national and regional fisheries observer programmes in each of the countries in the eastern region in terms of this categorisation (Figure 2).

Observers are further categorised into monitors and scientific observers. Both contribute to fisheries management however; the primary difference between them is that a monitors' main responsibility is to record catch and effort information. A scientific observer also records catch and effort information but in addition, conducts scientific biological sampling of the catch. For example, catch composition of species, length-frequency, weight, sex, maturity stage, stomach content and the collection of otoliths.

### ***Sea-based observers***

Sea-based observers are deployed onboard vessels to collect fisheries information at sea. Additional tasks often include monitoring and reporting on the environmental impacts of the fishery on other marine fauna such as seabird, marine mammals and, Endangered, Threatened and Protected (ETP) species. While an observer may report on compliance issues they have **no legal mandate to advise or enforce these**.

### ***Sea-based compliance officers (inspectors)***

Compliance officers operating at sea are appointed by the countries fisheries authorities and generally have a legal mandate to enforce the fisheries laws of the country. Sea-based compliance officers may be deployed onto vessels for the duration of the trip to monitor fishing activities directly and report on adherence to compliance measures stipulated in licence conditions issued by the State. Alternatively, compliance officers may operate independently from a patrol vessel and board and inspect fishing vessels at sea. At-sea inspection can include monitoring gear and catch onboard.

Inspectors are also referred to as Fishery Control Officers (FCO) and are not therefore defined as Observers herein. Inspectors have the authority to take legal action against a vessel acting in contravention to fishing methods, gear used or landed catches, in terms of its fishing permit conditions issued to it by its flag state. When justified, inspectors may have the power to arrest a vessel at sea and have it return to port.

### ***Land-based observers***

Land-based observers are generally stationed or may travel to ports or landing sites where either commercial or artisanal vessels off-load their catch. The observer's tasks would include recording the fishing methods used and the catch composition of the landed catch and collect biological information for all or some selected species. In some commercial ports the fisheries authorities may establish research laboratories to collect and record more specific scientific data from the catches landed in the port.

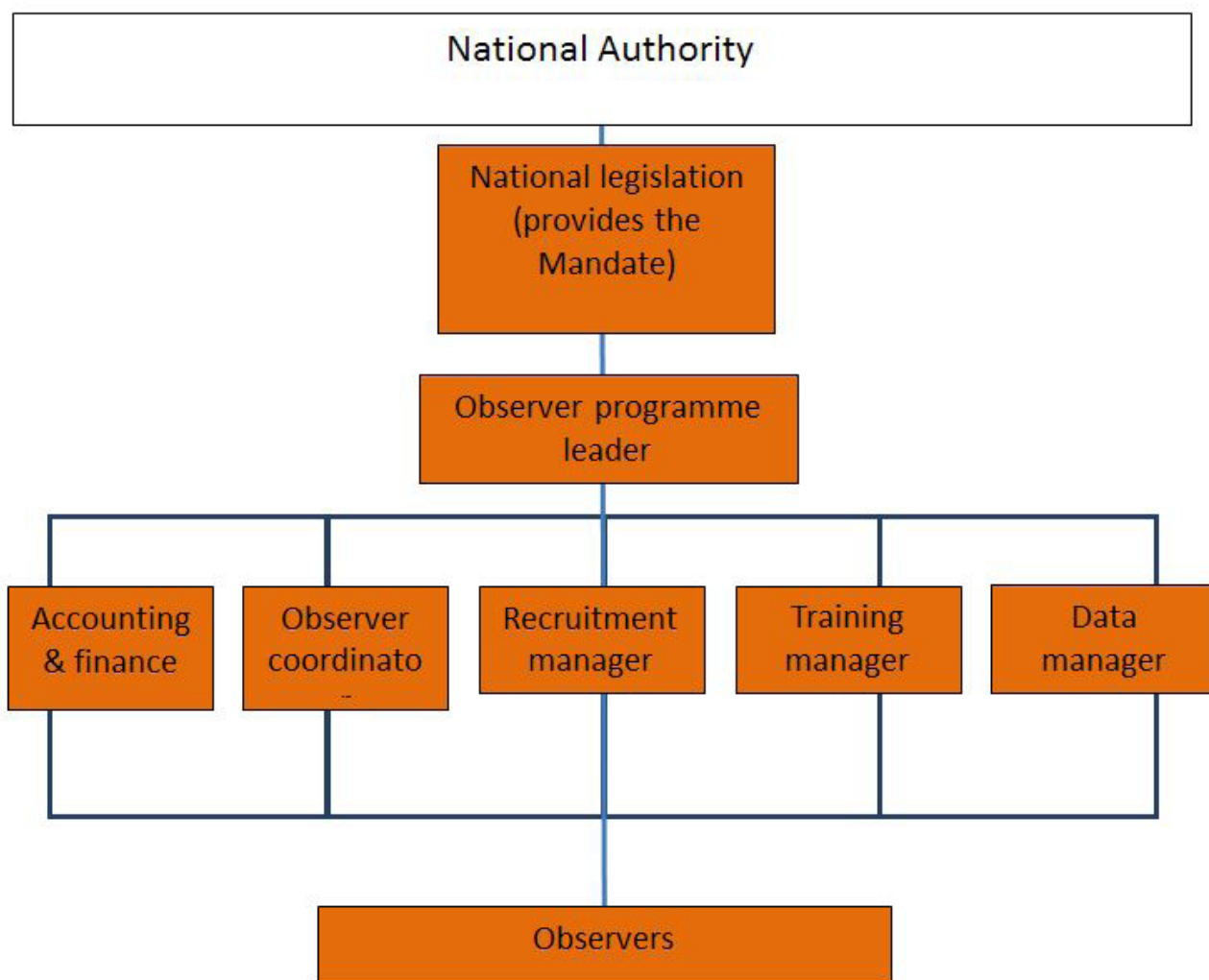
### ***Land-based compliance officers (inspectors)***

Compliance officers are stationed or travel to ports or landing sites where either commercial or artisanal vessels off-load their catch. Their tasks are primarily monitoring whether the gear and landed catches conform to the legislated requirements of the fisheries. Should they find that a vessel or its crew do not conform to any of these requirements they have the authority to prosecute offenders.

For the purposes of this review we focus only on "observers". We exclude as far as practical FCOs, and fisheries inspectors and only include these categories where functions might be also be defined as data collectors.

## **3.2. Quantifying Capacity Needs**

A well-structured institutional framework is the cornerstone for the development and implementation of a successful national scientific observer program. The organogram below depicts the levels of management required to co-ordinate and execute an effective, albeit generic, scientific sampling program.



**Figure 3:** Organogram for a generic national observer program.

It is recommended that there be a dedicated department/unit for the National Observer Programme (NOP). At each tier of management shown above would be an individual responsible for that sector of the NOP. In some cases where a country's fisheries operate on a small scale then a single individual could fulfil the requirements of more than one managerial position. Conversely where fisheries are extensive there could then be more than one Observer Coordinator, for example a manager for each of the fisheries sectors. The number of observers required is dependent on information needs, also on the number of vessels and types of fisheries for which data is required. In each of the Eastern African countries subject to this review there is a difference in the nature, extent and value of fisheries which impacts the desired capacity needs for both management and observers in each specific country.

There are therefore no specific rules regarding national observer coverage levels. There are however requirements to satisfy RFMO membership. Three RFMOs in the Eastern and Southern African region have stipulated observer coverage requirements, they are:

1. IOTC – 5% of all domestic vessels fishing effort targeting tuna and tuna-like species;
2. CCAMLR – 100% of all registered vessels exploiting marine resources in the CCAMLR area of competence (includes Kerguelen and Crozet Islands); and
3. CCSBT – 10% of all fishing effort that targets southern bluefin tuna.

**Note:** For the Southwest Indian Ocean Fishery Commission (SWIOFC) no specific Observer coverage levels have been specified.

The IOTC has emphasized the need to improve the catch and effort data for tuna caught domestically in order to better understand tuna dynamics and also to improve the total mortality estimates. IOTC coastal states data are somewhat lacking caused by the informal characteristics of their artisanal fisheries. Observations of artisanal fisheries can be problematic due to the variety and nature of vessels and gears employed, at-sea observations are, in most cases, not feasible and therefore higher sampling levels on shore at landing sites would be required. In absence of satisfactory catch history a country accumulates “poor performance”, which has implications for members’ quota allocations from RFMOs. In many instances, coastal states (who are members of an RFMO) may have licensed foreign flag vessels in lieu of licensing their own vessels and which in most circumstances, have accumulated catch performance that accrues to the flag state rather than the licensing country. Had observers been deployed on these vessels, catch and effort data related to fishing inside a country’s waters (within the EEZ) could have been verified and claims for performance to the licensing authority justified.

Historical performance aside, coastal states currently licensing foreign flag vessels might deem that for these vessels at least, 100% Observer coverage is needed. This would be the preferred option, in which case 10 licensed vessels would require at least 10 Observers if they fished concurrently (the most likely scenario). If they fished irregularly then fewer observers would be needed. Coverage of domestic fleets should be higher than those stipulated by the RFMOs in order to obtain statistically significant sampling levels (5% would be the minimum). Once again it must be noted that coverage levels are dependent upon information needs. The monitoring of artisanal fisheries through the implementation of Frame and Catch Assessment Surveys (CAS), carried out annually or biannually, is the norm in most Eastern African coastal states. Frame Surveys provide a snapshot of the amount of fishing effort. Catch Assessment Surveys compliment frame surveys by measuring the catch of a set percentage of the fishery and then extrapolating the sample to the whole fishery to estimate total catch. If a country is seeking to formalise a fishery through licensing and develop a management plan then the sample size for the CAS would probably need to be increased, e.g. from 10% to 50% if statistical variability is to be minimised and more rigorous estimates of total catch calculated. If a fishery is seeking the certification of an eco-label for example, such as the Marine Stewardship Council (MSC), then sampling and observation of that fishery, be it artisanal or industrial, would then also need to be intensified in an attempt to obtain defensible catch and effort estimates (100% coverage would be the optimal level).

In order for an individual country to determine its capacity levels with respect to the number of observers required per fishery then it will need, for example, information on the following as a minimum:

1. total permitted or actual catch by fishery sector and species;
2. Any input (effort) or output controls such as Total Allowable Catch (TAC);
3. Actual number of vessels; or
4. the number of landing sites or fishing ports

Table 1 illustrates examples of fisheries and the number of observers that might be required to monitor them in order to achieve either minimum or maximum coverage. Each example would need to take into consideration the fundamental fishery characteristics as indicated in 1-4 above.



In addition to the basic fishery catch and effort many other factors might influence observer coverage levels and observer capacity needs. In particular, seasonal fisheries present logistic problems to observer deployments, as do large industrial fisheries that might operate for 365 days a year, 24 hours a day (probably requiring 2 observers on a vessel).

As a general rule, sea-going individuals (observers) are unlikely to be able to work for more than 50-75% of a year equating to between 180 to 280 days a year at sea. Land based observers could be deployed in the field for longer periods as their job descriptions would equate more to a typical employee with normal leave and working conditions.

Armed with the above then, any given country or fishery has the ability to calculate observer capacity if the fishing effort levels or catches are known. The desired coverage for each fishery is however still largely dictated by management objectives and provided that observed maximum sea day capability is not exceeded, once the number of observers is decided then, by working backwards, the number of observer managers can be determined.

The methodology used to determine the capacity needs of individual countries for this review will not calculate the number of observers required for each fishery in those countries. Capacity evaluations will first look at the current monitoring programs active and the respective coverage of each fishery and then at institutional arrangements within each country. The capacity needs of any country therefore should not be randomly selected but are based on the specific number and types of fisheries within that country, the management objectives of those fisheries, the institutional frameworks already in place (if any), and the existing commitments that those countries might have to RFMOs.

**Table 1:** Examples of fisheries and the number of observers required to monitor them in order to achieve either minimum (5%) or maximum (100%) coverage. Examples are derived from fisheries descriptors, 1. Total catch previous year, 2. Total allowable catch, 3. Number of vessels and 4. Number of landing sites.

Fishery	Observer type	Total catch previous year	Observer average weight sampled per day	Observer average work days per year	Number of observers needed to achieve 5% coverage	Number of observers needed to achieve 20% coverage	Number of observers needed to achieve 50% coverage	Number of observers needed to achieve 100% coverage		
Small-scale commercial	Land-based	1000 tons	100 kg	280	2	7	18	36		
Fishery	Observer type	Total allowable catch current year	Observer average weight sampled per day	Observer average work days per year	Number of observers needed to achieve 5% coverage	Number of observers needed to achieve 20% coverage	Number of observers needed to achieve 50% coverage	Number of observers needed to achieve 100% coverage		
Semi-Industrial	Land-based	5000 tons	200 kg	280	4	13	45	89		
Fishery	Observer type	Number of vessels	Average trip duration	Number of trips per year	Total days at sea	On-board observer average sea days per year	Number of observers needed to achieve 5% coverage	Number of observers needed to achieve 20% coverage	Number of observers needed to achieve 50% coverage	Number of observers needed to achieve 100% coverage
Industrial Tuna	At-sea	50	90 days	4	18000	180 - 200	5	20 - 18	50 - 45	100 - 90
Fishery	Observer type	Number of landing sites	Average number of days landings occur	Total days fish landed per year	On-shore manager/observer average work days per year	Number of sites per manager	Number of observers per site	Number of managers/observers needed to achieve:	Managers	Observers
Artisanal	Land-based	30	360	10800	280	3	2	5% coverage	2	12
								10% coverage	4	24
								50% coverage	19	114
								100% coverage	39	234

## **4. Review of the national fisheries observer programmes for the Union of the Comoros, Kenya, Madagascar, Mauritius, , Seychelles and the United Republic of Tanzania.**

### **4.1. Union of the Comoros**

The Comoros Archipelago is situated in the Mozambique Channel between Madagascar and the East African coast. It comprises four islands of volcanic origin, of which one, Mayotte, is under French administration. Techniques used by the fishermen are traps, trolling, lines for small pelagics, nets, spear guns, seining and hand lines. Artisanal fishermen represent an important human resource and some 8,000 operate along the coasts. The artisanal fishery is practised using traditional boats (galawa) and motorised fibre-glass boats. The motorised boats, with engines and fibre-glass shell, were introduced to allow fishermen access to open water migratory species such as tuna, and thus to reduce pressure on the reef fisheries.

#### *4.1.1. Legislation and legal frameworks*

The Comoros Code of Fishing an Aquaculture Decree No15 – 050/PR (2015), revises the previous Comorian fisheries legislation regarding fisheries observers. Section 6, Articles 63-69, covers observer deployment and the responsibilities of vessel owners and observers.

#### *4.1.2. National institutional arrangements*

The management of marine and coastal resources is not the responsibility of any sole institution. The Fisheries Administration (FA) is under the supervision of the Vice-President in charge of Production, Environment, Energy and Handicrafts. The General Directorate of Fisheries Resources (GDFR) deals with fisheries planning and regulation. The Centre for Fisheries Monitoring and Control is in charge of monitoring, control and surveillance operations.

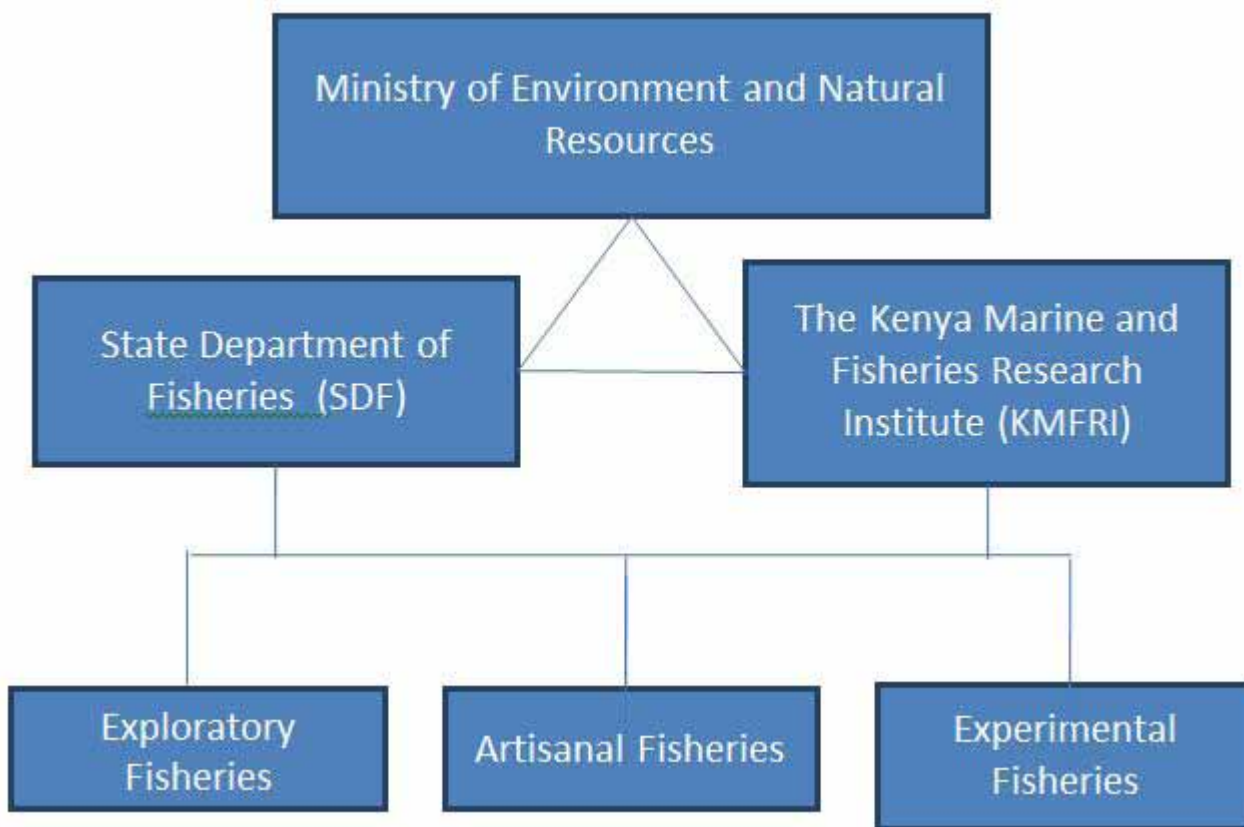
The National Observer Program of the Fisheries of the Comoros is responsible for the implementation of the National Observer Program (NOP), this is currently underway and seeks to achieve 100% scientific observer coverage of landings at fishing villages and at sea on-board national vessels, for the national tuna longline fishery.

Different agencies are involved with related issues such as environment, fisheries and scientific research. Various national and international institutions play a significant part in the management of the environment. International organisations play a role in this sector through institutional support to the Directorate of Environment and Directorate of Fisheries.

#### *4.1.3. Land and sea-based observer programmes*

Within the Comorian artisanal fishery there is currently no NOP in place but efforts are being made to implement a scientific observer program for the national tuna longline sector to achieve 100% observer coverage on-land and at sea.

The Comoros and the European Union have an established and renewable fisheries partnership agreement. The protocol covers the period from the start of 2014 to the end of 2016. The agreement requires EU vessels to employ a minimum number of Comorian staff and includes an exclusivity clause on the species to be fished.



**Figure 4:** National Institutions responsible for the management of fisheries in the Union of the Comoros.

#### 4.1.4. RFMO Commitments

The Comoros are a member of the Indian Ocean Tuna Commission (IOTC) and thus are obliged to observe 5% of the fishing effort in tuna and tuna-like species related fisheries within their EEZ. There are no nationally flagged industrial tuna fishing vessels  $\geq 24$  m in the Comoros, there are however Distant Water Fishing Nations (DWFNs) that target those species which are under management of the IOTC. Currently the Comorian fisheries observer program is achieving this target (Table 2).

EU commercial fishing vessels that are registered in countries which are Members of the IOTC are obliged to meet the minimum observer coverage requirements as stipulated by the IOTC. Observers on board EU vessels are the responsibility of the vessel flag State. EU vessels fishing in the Comoros EEZ are flagged in Spain, France and Portugal. The DWFNs of The Republic of Korea, the Chinese Taipei and Japan are Members of the IOTC and are obliged to meet the same minimum requirements for observer coverage.

#### 4.1.5. Capacity needs

Currently the Union of the Comoros monitors foreign purse seine vessels targeting tuna and tuna-like species, additionally a NOP is being implemented to monitor the national longline fishery (Table 2). The institutions responsible for monitoring, control, surveillance and observer programs are shown in Figure 4.

The majority of fisheries in the Comoros are either subsistence or artisanal or small-scale commercial fisheries. Monitoring would require land-based observations of landings at fishing villages. The number of observer managers and observers required to achieve the desired coverage of artisanal fisheries is dependent on the number of fish landing sites or fishing villages.

The Comoros licenses foreign industrial purse seine and longline tuna fleets. The minimum required coverage of those fleets, as stipulated by the IOTC, is 5%. Table 2 indicates that the current coverage of foreign tuna fleets is at 10% and therefore the Comoros is meeting the membership commitment of the IOTC.

**Table 2:** Current and proposed scientific observer coverage of fisheries operating in the EEZ of the Union of the Comoros.

Fishery Sector	Effort Indicator (Number of vessels/traps/fisherman)	Sea-based Scientific Observer		Land-based Scientific Observer		Sea-based Monitor		Land-based Monitor		Sea-based Compliance Officer		Land-based Compliance Officer	
		Number of observer trips	% cover of fishery	Number of stations sampled	% cover of fishery	Number of observer trips	% cover of fishery	Number of stations sampled	% cover of fishery	Number of days in 2015	% cover of fishery	Number of days in 2015	% cover of fishery
Tuna longline (national)	3300 motor boats from 6m to 9m and 10 longliners 18m and more than 4,000 fishermen	Being implemented	100%	all villages fisheries	100	Daily	100	All villages fisheries	100	Daily	100	Being implemented	100
Tuna purse seine (foreign flag)	40 vessels	7	10%										

## 4.2. Kenya

The Kenyan coastline is 640 km long and forms part of the western boundary of the Indian Ocean. Marine fishing in Kenyan waters is primarily undertaken by artisanal fisherman using small craft and most commonly exploiting shallow inshore reefs with gillnets, seine nets, hook and line and traps. A small industrial shrimp fishery operates in Kenyan territorial waters while distant water fishing nations target tuna and tuna-like species using industrial purse seine or longline vessels.

### 4.2.1. Legislation and legal frameworks

The Fisheries Act (Chapter 378 of the Laws of Kenya) provides for the development, management, exploitation, utilisation (registration and licensing), enforcement, conservation and general provisions of fisheries. Under the Act, the Fisheries Department, in collaboration with other appropriate agencies and other government departments shall promote the development of traditional and industrial fisheries, fish culture and related industries; and may impose measures necessary for the proper management of any fishery. Part V of the Fisheries Act, Section 18, describes the Power of officers. Authorized Officers are defined as “a fisheries officer, a police officer of or above the rank of inspector, an officer of the Kenya Navy or other armed force or a person appointed by the Minister, by notice in the Gazette, to be an authorized officer for the purpose of this act.” The Fisheries Act however does not provide legislation for the development of either land or sea based scientific observation programs. Regulation 44 of the Fisheries (Foreign Fishing Craft) Regulations, 1991, does not describe the duties of an Observer but does provide for the embarkation and disembarkation, costs, communications and assistance of an Observer on-board foreign fishing vessels.

### 4.2.2. National institutional arrangements

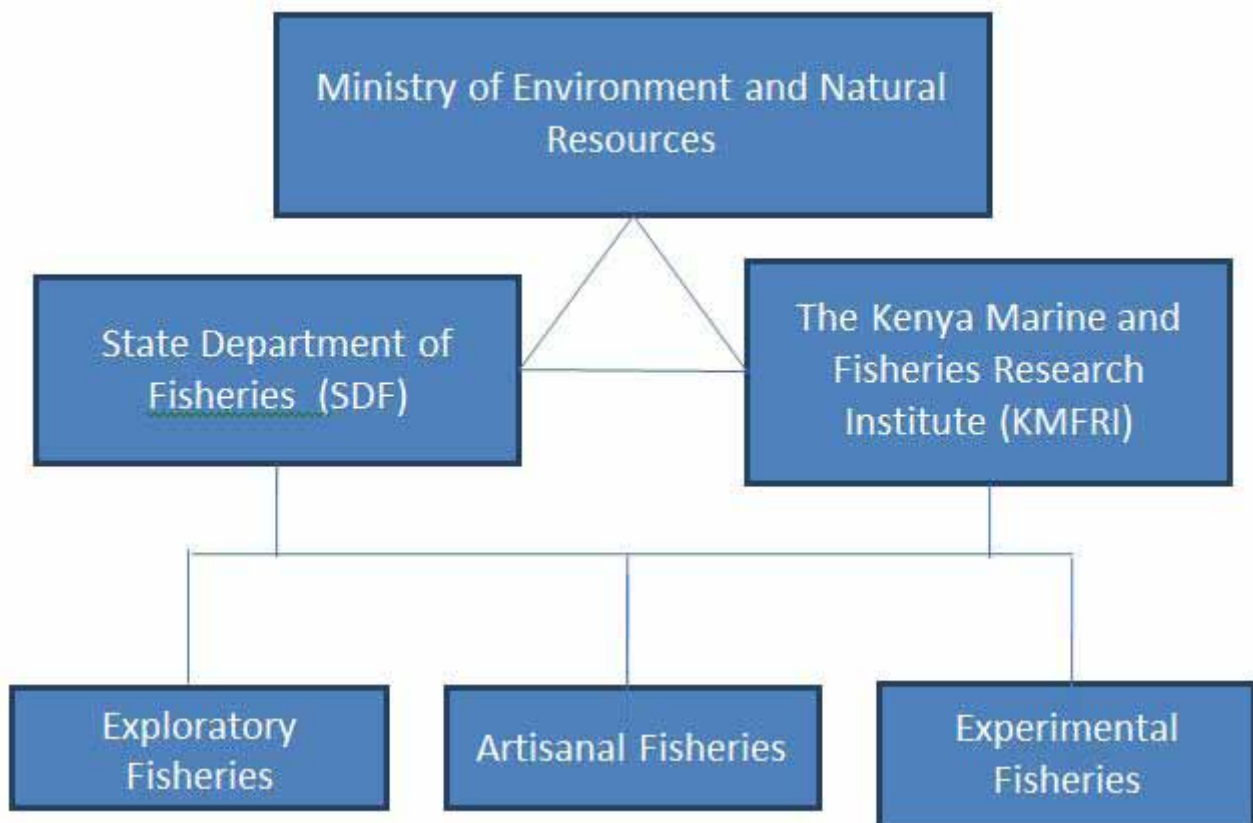
The State Department of Fisheries (SDF) is responsible for development, management, exploitation and conservation of fisheries. This is done through providing extension and training services, conducting of research and surveys; promotion of co-operation among fishermen, promotion of arrangement for orderly marketing of fish; providing infrastructure facilities and stocking waters with fish and supplying fish for stocking. The Department is also responsible for licensing fishing vessels, fish processors and fish dealers.

The Kenya Marine and Fisheries Research Institute (KMFRI) was created in 1979 and is mandated to undertake research in:

- marine and freshwater fisheries
- aquatic biology including environmental and ecological studies
- marine research including chemistry and physical oceanography

The Institute is divided into two divisions, Coastal and Marine Areas and Inland divisions. Each division is headed by a Deputy Director. KMFRI research activities are grouped into six programmes: Fisheries; Aquaculture; Environmental and Ecological Research; Natural Products; Socioeconomic; and Information and Data Management.

Fisheries management is also supported by the Beach Management Units (BMUs) legislation which defers responsibility for fisheries management and monitoring to the both the district and community level.



**Figure 5:** National Institutions responsible for the management of fisheries in Kenya.

#### 4.2.3. Land and sea-based observer programmes

The observer program, run jointly by the SDF and KMFRI, focuses mainly on shrimp trawl vessels and deep-water snapper-targeting vessels. Both fisheries are exploratory and therefore require effective management plans to prevent overexploitation of the stocks. The observers are provided by the SDF Mombasa office and made up of both permanent staff and interns. There are currently 11 interns who participate in both trawler and deep-water snapper observation (in collaboration with KMFRI). Observers are usually at sea for two weeks and the data they collect is recorded using the South West Indian Ocean Fisheries Project (SWIOFP) data collection forms. Funding for this at-sea data collection by trained observers is currently supported by the Kenya Coastal Development Project (KCDP).

The trawl fishery can be separated into industrial and artisanal sectors. As a consequence of previous overexploitation within the industrial prawn trawl fishery it was closed. SDF managers have now cautiously reopened the fishery. There are currently three trawl vessels in the fishery with another two expected to join. Vessels are issued experimental licenses and sampling has been intensified by carrying scientific observers on board vessels for the full duration of the trip. The Industrial fishery

is active from 1st April to 31st October each year. The data collected includes age based and length frequency sampling, biological sampling (feeding, reproduction etc.) and bycatch monitoring amongst others. Data is used to review the current prawn trawling management plan.

The deep-water snapper fishery has been active as an experimental fishery for the past two years and currently has no management plan in place. Deepwater snapper are a slow growing fish that are susceptible to overfishing and thus observation of the fishery is vital to prevent the newly exploited stocks from collapsing. The experimental fishery has been monitored for the past two seasons and data collected indicates that the deep-water snapper in the region are larger than any others worldwide as up until recently they have been under no fishing pressure. Experimental droplines are used to target the snapper.

Rights based management of artisanal fisheries in Kenya is a relatively new development. The fisheries to which rights based management could potentially be applied are the small pelagic (ring-net) fishery and the lobster fishery. The aim of the process is to manage the newly defined fisheries through licenses and quota allocations. In the case of lobster the primary incentive to sustainably manage the fishery is certification by the eco-label of the Marine Stewardship Council (MSC).

Currently observations of beach seines is done on a needs only basis. The objective of the land-based observers is to record the level of discards of un-marketable fish. The data then compliments existing catch-at-size data for the beach seine fishery. Additionally observers in this fishery map location of catches and the entire fishing ground, this element of mapping is also applied to the ring-net fishery.

The SDF is responsible for carrying out marine artisanal fisheries frame surveys. The objective of the surveys is to collect, analyse and document critical data on the present fishing effort, landing site facilities, services and infrastructure developments in order to provide a sound basis for fisheries development planning and management decision making. Surveys have been carried out biannually since 2004 (save for 2010), the most recent survey results have been published for 2014.

KMFRI field data samplers at fish landing ports started to collect fisheries data on the artisanal fishing boats through a catch assessment survey from the June 2013. An on-board observer scheme for the artisanal fishery has not been introduced due to the current authorised vessels being too small to accommodate observers.

#### 4.2.4. RFMO Commitments

Kenya is developing an observer programme with respect to their obligations under the IOTC and the recently completed South West Indian Ocean Fisheries Project (SWIOFP). Five observers have been trained by SWIOFP. Kenya has had no vessels listed in the IOTC active vessel registry since 2010. In the 2013-2014 fishing season some 48 vessels were licensed by the Kenyan authorities (no current update for 2015-16).

#### 4.2.5. Capacity needs

Currently Kenya monitors the experimental shrimp trawl fishery in which 3 vessels are licensed to operate. Scientific observer coverage currently approximates 17% of fishing effort.

The majority of fisheries in Kenya are either subsistence or artisanal or small-scale commercial fisheries. The SDF carries out Frame Surveys biannually (ref. 2014 Frame survey) to achieve a complete census of crafts, gears, and fishers operating at the coast and all landing site facilities and services. Complementing this is Catch Assessment Surveys (CAS) that measure the catch of a set percentage of the fishery. The desired coverage for each fishery is dependant on management objectives. The percentage of the fishery measured by CAS can be increased to achieve higher observer coverage, this would require the employment of more SDF and KMFRI managers and observers to monitor all coastal fish landing sites.

Historically DWFNs have been licensed by Kenya (no updates provided for 2015) with only one tuna vessel believed to be operating under Kenya flag in 2013 (Japp, pers comm.) While Kenya therefore has no current observer deployments in the tuna fleets it nevertheless, as a full IOTC member remains obligated to provide 5% observer coverage should vessels flagged by Kenya fish in their EEZ.

**Table 3:** Current scientific observer and compliance officer coverage of fisheries operating in the EEZ of Kenya.

Fishery Sector	Effort Indicator	Sea-based Scientific Observer		Sea-based Compliance Officer		Land-based Compliance Officer	
		Number of observer trips	% cover of fishery	Number of days in 2015	% cover of fishery	Number of days in 2015	% cover of fishery
Shrimp Trawl	3 vessels	17	15%	210	100%	15	100%

### 4.3. Madagascar

Madagascar's territory is comprised of one main island, two smaller but dependent islands, as well as some 300 islets of volcanic or coralline origin. The coastline is approximately 5600 km long and the area of the EEZ is 1 140 000 km<sup>2</sup>. The fisheries of Madagascar are characterised by two distinct sectors;

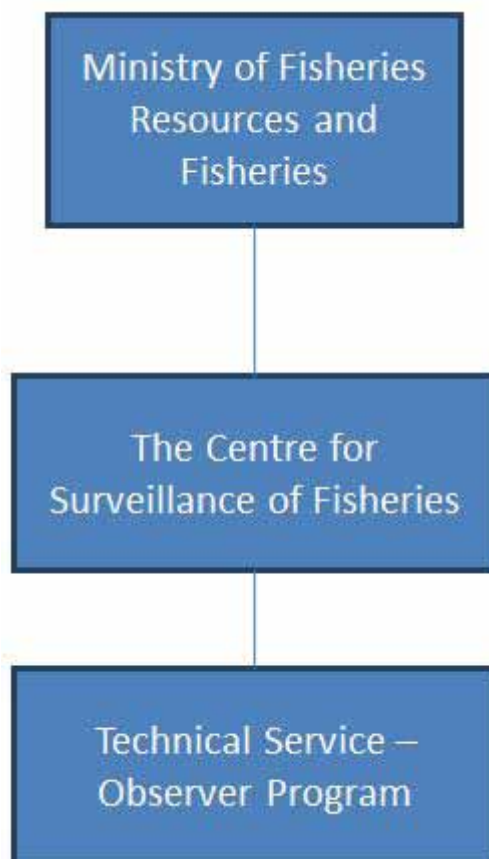
1. The industrial fishing industry
  - a. National industry targeting shrimp, demersal fish and large pelagics
  - b. Foreign industry targeting highly migratory species
2. The artisanal marine fisheries
  - a. Traditional fishing practiced on foot or from non-motorised canoes
  - b. Artisanal fishing using powerboats with inboard or outboard motors less than 50 hp

#### 4.3.1. Legislation and legal frameworks

Article 24, 3 (d) of Decree No. 94-112, establishing the general organisation of Maritime Fishing (1994), makes provisions for "The presence of Malagasy inspectors or observers on board vessels sailing under foreign flags during all or part of the time they are present in the maritime waters under national jurisdiction." Regulatory controls over private licences, issued to individual vessels or fleets, are the basis on which negotiations with all private licence holders are conducted. The Protocole d'Accord entre le Ministère de la Pêche et des Ressources Halieutiques et la Société sur la Conduite d'une Pêche Commerciale des Thons dans la ZEE Malgache (Cas des Navires Thonidés des Sociétés Étrangères battant pavillon étranger). The document Appendix 3 describes "Observer boarding and conditions/duties of the observer and vessel captain." Madagascar and the European Union (EU) have a legal framework in place for the observation of fishing activities, of EU registered vessels, through the renewal of the agreement on the Protocol setting out the fishing opportunities and the financial contribution provided for in the Fisheries Partnership Agreement between the Republic of Madagascar and the European Community (Annex, Chapter IV, Section 5 – Observers). The Japan-Madagascar Agreement renewed annually.

#### 4.3.2. National institutional arrangements

The Ministry of Agriculture and Fisheries (MAEP) is responsible for the management of fisheries resources through the Ministry of Fisheries Resources and Fisheries. The Centre for Surveillance of Fisheries manages the enforcement and surveillance of each fishery separately. The Centre for Surveillance provides the technical service of observer programs for national and foreign-flagged fisheries operating within Madagascar's EEZ.



**Figure 6:** National institutions responsible for the monitoring of fishing activities in Madagascar.

#### 4.3.3. Land and sea-based observer programmes

The Fisheries Monitoring Centre consists mainly of staff in special uniform, Ministry of Fisheries agents and authorised police officers. The Observer Program was established in 1999 after the Fisheries Monitoring Centre was created. A first wave of observers was recruited in 1999, followed by a second wave in 2001.

Four types of Monitoring, Control and Surveillance are applied by the Centre, they are:

- Aerial surveillance;
- Maritime surveillance;
- Terrestrial surveillance; and
- At-sea observations.

Annual observer coverage at sea is shown in Table 4. Longline vessel catches are monitored in port and species length frequencies are recorded during offloading of the catch. Scientific observers are placed on-board of national and foreign vessels.



The reef octopus artisanal fishery has, for the last eight years, been co-managed by local communities and the United Kingdom-based Non-Governmental Organisation (NGO), Blue Ventures. The initiative is based on temporary closure of a portion of each local communities allocated octopus fishery ground. Data collection and capture involves upwards of 30 local villagers and scholars trained to collect and verify data. The bulk of the initiative lies with the local communities while Blue Ventures facilitates regular meetings and data analysis. The successful application of periodic octopus fishery closure sites has given momentum to the technique of Locally Managed Marine Areas (LMMAs) and has the full support of the Ministry of Fisheries and Marine Resources.

#### 4.3.4. RFMO Commitments

As a member of the IOTC, Madagascar is obliged to observe 5% of the fishing effort of its national industrial tuna longline fleet, in which there were 10 vessels in 2015. Annual observer coverage amounted to 7 observer trips equating to 70% coverage of the fishery. Madagascar satisfied its national commitment to the IOTC by observing 70% of its tuna directed fishing effort and by observing 28% of foreign flagged purse seine vessel fishing effort. There are however no observers deployed onboard of foreign longline vessels targeting large pelagics within the Madagascar EEZ, there is major effort (122 vessels) in this sector and the Madagascar National Observer Programme will need to increase its capacity in order to effectively monitor this fishery.

#### 4.3.5. Capacity needs

Currently Madagascar monitors a variety of national and foreign fishing sectors that operate within its EEZ (Table 4). There are however a large number of artisanal and small-scale commercial fisheries active in Madagascar. Frame and catch assessment surveys would be best suited to enumerate catch and effort in those fisheries as most are based out of local fishing villages.

Co-management projects such as the one co-ordinated by Blue Ventures are an effective and inclusive way of monitoring specific target fisheries, in this case the artisanal/small-scale commercial octopus fishery. The establishment of LMMAs is an opportunity to educate and empower local fishing communities without negatively impacting their dependency on coastal in shore marine resources.

**Table 4:** Annual scientific observer coverage of fisheries operating in the EEZ of Madagascar

Sector	Effort Indicator (Number of vessels)	Sea-based Scientific Observer	
		Number of observer trips	% cover of fishery
Tuna longline (national)	10	7	70%
Tuna longline (foreign flag)	122	0	0%
Tuna purse seine (foreign flag)	40	11	28%
Bottom trawl (shrimp)	44	44	100%
Longline (toothfish, shark, etc)	12	8	67%
Collection of <i>Penaeus monodon</i>	9	9	100%

## 4.4. Mauritius

Mauritius is a small volcanic island located at latitude 20° South and longitude 57° East. The EEZ is approximately 1.9 million km<sup>2</sup>. The principle fisheries are the island-based artisanal fishery, the foreign industrial tuna fishery of the western Indian Ocean and the deep sea Mauritian trawl industry.

#### 4.4.1. Legislation and legal frameworks

The basic legal instrument for the management of fisheries in the waters of Mauritius is the Fisheries and Marine resources Act of 1998 (FMRA). The Act provides for the management, conservation and protection of fisheries and marine resources, and protection of the marine ecosystem in the waters of Mauritius.

The Fisheries & Marine Resources Act 2007 provides for “fisheries control officers” that includes:

- a. A police officer;
- b. An officer of the Customs Department of the Mauritius Revenue Authority;
- c. A forest officer;
- d. An authorised officer under the Food Act;
- e. A veterinary officer; or
- f. An authorised officer of the Ministry responsible for commerce.

There is no legislation in place to develop a NOP.

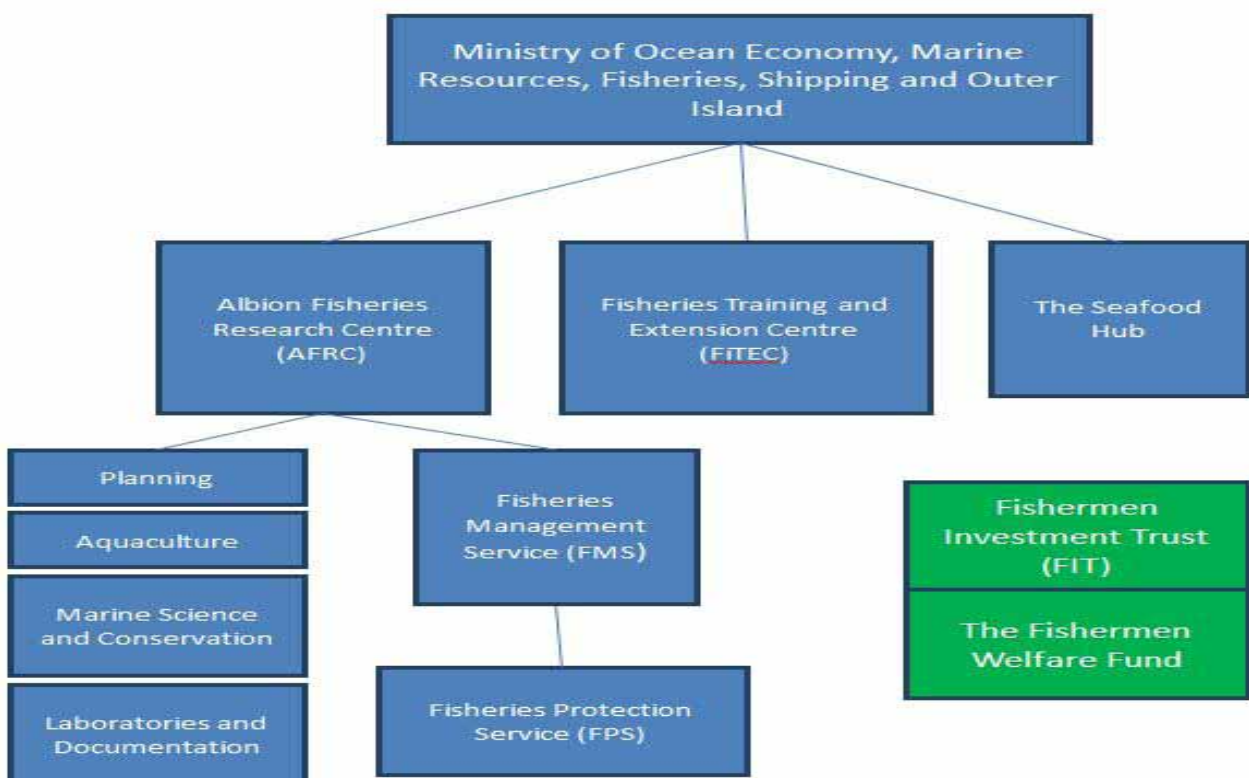
#### 4.4.2. National institutional arrangements

The Republic of Mauritius Ministry of Fisheries has operated through the Albion Fisheries Research Centre (AFRC) since 1982. The basic objectives of the AFRC pertaining to observer programs are to:

- a. Carry out research and studies needed for the sustainable development and management of marine living resources;
- b. Carry out collaborative research and management as regard regional and international fisheries and marine living resources.

The Fisheries Management Service (FMS) is responsible for monitoring of fisheries and enforcing the Fisheries and Marine Resources Act through the Fisheries Protection Service.

The Fisheries Training and Extension Centre (FiTEC) was set up through a grant by the Government of Japan and started its activities towards the end of 2014. Through its training activities FiTEC aims at empowering fishermen towards a better livelihood. It encourages fishermen to venture into more profitable fishing sectors, for example using Fish Aggregating Devices (FADs).



**Figure 7:** National institutional arrangements pertaining to fisheries observer programs in Mauritius.

#### 4.4.3. Land and sea-based observer programmes

The Fisheries Management Division is responsible for sample survey programs for the collection of fisheries data from fish landing stations. The data is used to update records of fishery statistics for estimation of fish landed and further analysed to estimate the fishing effort and catch per fisherman per day from the lagoon and off-lagoon areas. Monthly statistical bulletins reporting fish catches, fees from permits and license and aquaculture are produced by the statistics unit within the AFRC.

Fish landing data for the offshore demersal fisheries are collected through vessel logbooks.

Sampling programmes are undertaken to collect length and weight data for the estimation of population parameters such as growth rate, mortality rate and recruitment pattern.

#### 4.4.4. RFMO Commitments

The observer programme to monitor tuna fishing vessels as required by Resolution 11/04 of the IOTC was not implemented in 2014. However, deployment of observers onboard national purse seiners was initiated from February 2015 and a total of 5 purse seine trips have been covered under the observer programme accounting for coverage of 8.5% of the fishing effort.

#### 4.4.5. Capacity needs

National Mauritian fisheries are relatively well established compared with other East African countries. Semi-industrial fisheries targeting tuna and tuna-like species, snapper, grouper and other fish as well as octopus, lobster and shrimp are prominent. Current coverage of fisheries takes place solely at landing stations or in port and is the responsibility of the AFRC and FMS inspectors.

Currently the scientific observer program in place to monitor national and foreign fleets targeting tuna and tuna-like species is in place only for the national purse seine fishery (Table 5). Mauritius has the personnel and capabilities to collect catch return data through port and landing site sampling programs, thus the next step would be to train those personnel currently working as land-based enumerators and compliance officers to become scientific observers observing operations at sea.

**Table 5:** Sea-based scientific observer coverage of fisheries operating in the EEZ of Mauritius.

Fishery Sector	Number of vessels	Sea-based Scientific Observer	
		Number of observer trips	% cover of fishery
Tuna purse seine ( national)	2	5	8.5

#### **4.5. Seychelles**

The Republic of Seychelles comprises 115 islands between 4° and 11° south of the equator off the East African coast. The total coastline is 599 km long and the area of the EEZ is 1 374 000 km<sup>2</sup>. The artisanal fishery is operated solely by Seychellois fishers using small boats confined to coastal areas. Main gear types include nets, traps and handlines. The industrial tuna fishery is operated by foreign flagged purse seine vessels.

##### *4.5.1. Legislation and legal frameworks*

The Seychelles Fisheries Act No.20 of 2014 repealed the original Fisheries Act of 1986. It accommodates for the establishment of an observer programme in Part V Enforcement Measures, Sub-Part 3 Other enforcement measures, Section 56. Section 48 details the powers of authorised fishery officers (or compliance officers as referred to in this report) in Seychelles waters and beyond, and on land. Through the Seychelles Fishing Authority (Establishment) Act, Act 10 of 1984, the Seychelles Fishing Authority (SFA) was formed. The SFA is a parastatal organisation which functions as the executive arm of Government for fisheries and related matters.

##### *4.5.2. National institutional arrangements*

The sustainable management of marine resources in Seychelles is the responsibility of the SFA as stipulated in the Fisheries Act 1986 and subsequently the Fisheries Act of 2014. The SFA is responsible for the preparation, implementation and review of management plans for the long-term sustainability and optimal utilization of marine resources.

The Secretariat is the over-arching body that facilitates project management, information services, human resources and administration, development and assessment and aquaculture. Additionally the Secretariat seeks funding for infrastructure development projects and maintenance of the fishing industry. Major donors to the SFA include the Japan International Cooperation Agency (JICA), the Overseas Fisheries Cooperation Fund (OFCF) and the European Union (EU).

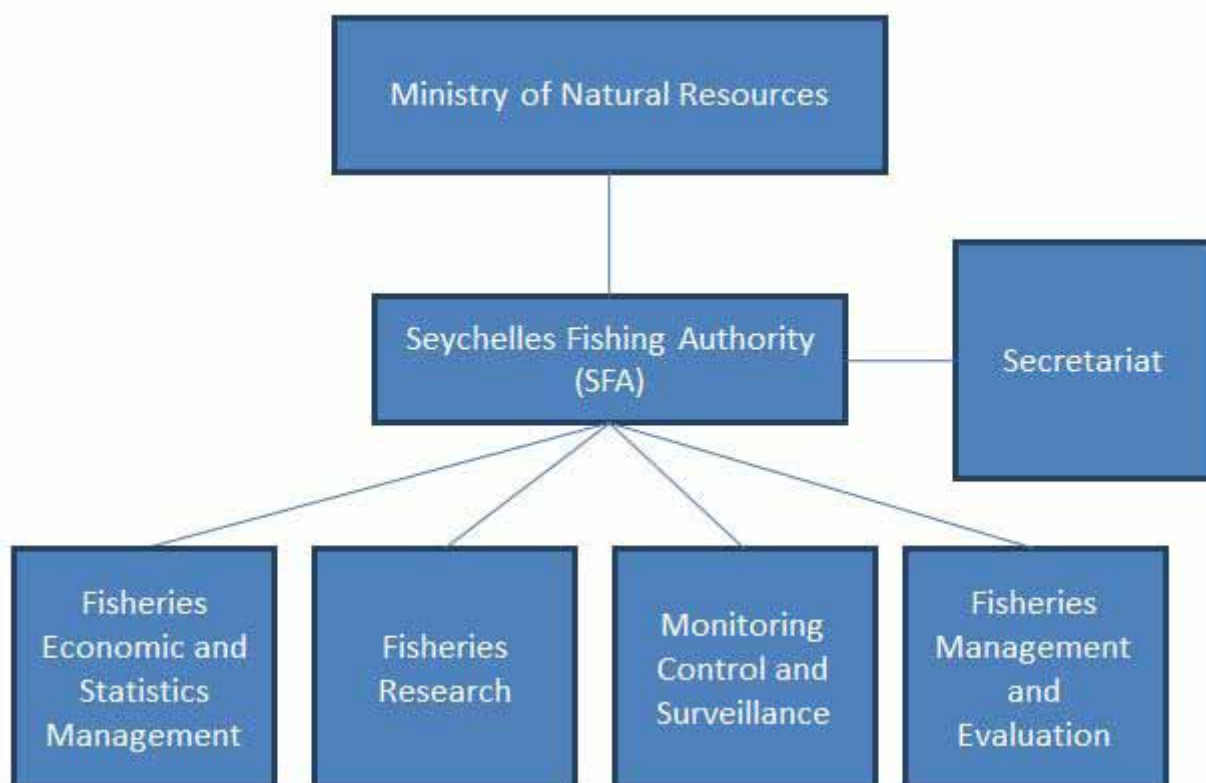
The Fisheries Research division is responsible for lab-based scientific research as well as collaborative training with educational institutions.

Fisheries Management is guided by the Fisheries Act whereby licensing of vessels is the most used regulatory measure, for almost all fisheries. The Monitoring Control and Surveillance division of the SFA is separated into the Fisheries Monitoring Centre (FMC) and the Fisheries Control Unit. The FMC deals with compliance of all fishing vessels reporting requirements, Vessel Monitoring Systems (VMS) and validation of statistical documents for ICCAT, IOTC, EU and Non-EU catch certificates. The Fisheries Control Unit is responsible for the processing of fishing licences.

The Fisheries Management Division is, inter alia, in charge of developing and implementing fisheries management plans as well as ensuring that regulations, measures and international obligations are met and adhered to with respect to fishing activities.

##### *4.5.3. Land and sea-based observer programmes*

Actions implemented by the Seychelles to improve quantity and quality of data collection include an improved logbook, a review and upgrade of data collection and management systems and implementation of a National Scientific Observer Programme.



**Figure 9:** National institutions responsible for the management of fisheries in the Seychelles.

In 2014 a total of 45 observers were trained under the National Observer Programme by SFA. Training of more observers for expansion of the programme is anticipated. SFA is currently reviewing its data collection system for the domestic fishery, and is working in close collaboration with relevant stakeholders to develop and implement a more effective system that will cover all the important sectors including the sport fishing sector which target tuna and tuna-like species.

The logbook system of collecting catch and effort data exists for the Industrial longline, industrial purse seine and semi-industrial longline fisheries where annual coverage is in the region of 90%, 95-100% and 95-100% for each fishery respectively.

SFA have also endorsed its first co-management plan with stakeholders in the artisanal demersal line and trap fishery. One of the actions under this plan is the setting up of community based monitoring which also includes data collection by fishers. This initiative could be extended to other sectors and would permit the collection of finer-scaled data.

Finally the SFA is working in collaboration with IFREMER to develop a new data collection system for the artisanal fishery. The process is still on-going with coverage statistics pending.

#### 4.5.4. RFMO Commitments

Seychelles is a member of the Indian Ocean Tuna Commission (IOTC) and is obligated to monitor 5% of the fishing effort of commercial vessels, both foreign flagged and national, that target tuna and tuna-like species. At sea deployment of observers on industrial tuna purse seiners under the framework of the Seychelles National Scientific Observer Programme continued in 2014. A total of 18 deployments were completed on Seychelles Purse seiners in 2014 covering a total of 744 observation days.

#### 4.5.5. Capacity needs

Seychelles is developing an observer programme. Four observers have been trained through SWIOFP and three through the IOC.

**Table 7:** Land-based coverage of fisheries operating in the EEZ Seychelles (WIOFish Database<sup>1</sup> 2013).

Fishery Sector	Effort Indicator	Land-based Monitor		Land-based Fisheries Officer	
		Number of landing sites sampled	% cover of fishery	Number of landing sites sampled	% cover of catch returns/logbooks
Artisanal lobster	15 vessels	15 daily	100%	15 daily	100%
Artisanal sea cucumber	24 boats			24 daily	100%
Artisanal ray harpoons	?			52 daily	100%
Artisanal hook & line	?	4 daily	2%	52 daily	100%
Artisanal schooner dropline/handline	?			52 daily	100%
Semi-industrial shark longline	1 vessel			1 vessel	100%
Semi-industrial swordfish & tuna longline	6 vessels			6 vessels	100%
Industrial purse seine	?			?	100%
Artisanal octopus shore gathering	?			52 daily	100%
Artisanal beach seine	?			52 daily	100%
Artisanal lobster traps	60 fishers	15 daily	100%	15 vessels	100%

#### 4.6. United Republic of Tanzania

The United Republic of Tanzania (URT) has over 1450 km of coastline that includes the coasts of two Zanzibar islands (Unguja and Pemba) as well as Tanzania mainland. Marine fisheries are predominantly artisanal and concentrated in internal waters within territorial limits where dominant gears used are gill nets, hand lines and traps. Historically a small dedicated shrimp trawl fishery was active in the Rufiji delta area although that fishery has since been closed (shrimp are still targeted by artisanal fishers). Tuna and tuna-like species are targeted in the EEZ by industrial foreign flagged purse seine and longline vessels.

Tanzania national fisheries are dominated by artisanal fleets which are characterized by multi-species catch and involve the use of multi-gear and multi-cultural fisheries. Fishing activity takes place within 6 nm from shore predominantly on reef areas. A small number of boats are involved in the fisheries of tuna, bill fish and sharks, using manually handled drift gill nets, hooks and lines. There are three commercial Tanzania flagged longline vessels that have been operating in the EEZ of contracting parties to the IOTC as well as the high seas under IOTC area of competence.

##### 4.6.1. Legislation and legal frameworks

The basic legal instrument for the management of fisheries in Tanzania mainland is The Fisheries Act No. 22 of 2003 and the 2004 National Integrated Coastal Environment Management Strategy for Mainland Tanzania. In Zanzibar it is the Fisheries Act of 2010. Both countries however collaborate on matters of fisheries management although they do also work in isolation, particularly related to areas outside of internal and territorial waters i.e. to the EEZ. Common governance of the EEZ functions through Deep Sea Fishing Authority (DSFA) which facilitates the management and licensing of DWFN and activities beyond territorial seas. The DSFA is underpinned by the Deep Sea Fishing Authority Act No 1 of 1998, its Amendments of 2007 (Act No. 4 of 2007).

<sup>1</sup>Statistics used here are from the Western Indian Ocean Fisheries Database. A catalogue of small-scale fisheries. [www.WIOFish.org](http://www.WIOFish.org). At the time of drafting this report the information requested had not been received.

As in other coastal states, fisheries management is also supported by organised fishing communities or Beach Management Units (BMUs) which develops fisheries co-management and defers responsibility for monitoring to the both the district and community level.

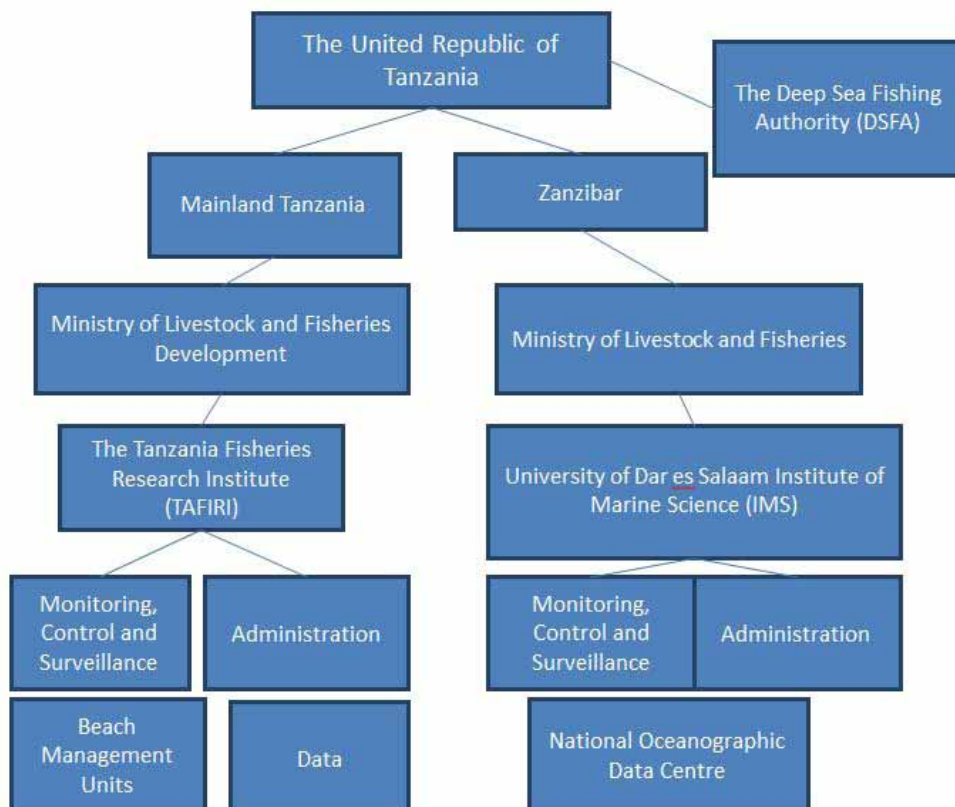
Both countries undertake research which would include the deployment of trained observers by the Tanzania Fisheries Research Institute (TAFIRI) and the University of Dar es Salaam (Institute of Marine Sciences – Zanzibar).

#### 4.6.2. National institutional arrangements

The Ministry of Livestock and Fisheries Development (MLFD) represents Mainland Tanzania while the Ministry of Livestock and Fisheries (MLF) represents Zanzibar separately. Each of the Ministries operates through a parastatal research institution, in the case of Mainland Tanzania that is the Tanzania Fisheries Research Institute (TAFIRI), for Zanzibar it is the Institute of Marine Science (IMS) at the University of Dar es Salaam.

The Deep Sea Fishing Authority (DSFA) is responsible for the licensing of foreign flagged tuna fishing vessels operating within both the Mainland Tanzanian and Zanzibar islands EEZ. The DSFA has the legal instruments in place required to formulate and coordinate programmes for scientific research in terms of fishing and also to initiate, implement and ascertain the enforcement policies on deep sea fishing vessels.

Management measures depend on the type of fishery, in the case of the territorial waters shrimp fishery there is a procedure for Government fisheries personnel to act as observers on board fishing vessels, the objective is to monitor fishing activities.



**Figure 10:** National institutions responsible for monitoring fisheries in the United Republic of Tanzania.

#### 4.6.3. Land and sea-based observer programmes

There are no explicitly defined “observer” programmes in the URT. However there are established sampling programmes which might equate to “Observer sampling” and numerous ongoing projects that require sampling of fisheries. In the context of this report however we can only surmise that there is an ad hoc sampling programme which has the potential for expansion into a broader scale NOP.

MLFD and MLF for example undertake Frame Surveys of Tanzania and Zanzibar independently to determine the characteristics of the marine fishery by approximating the magnitude and distribution of fish landing sites, facilities available at landing sites, numbers fishers, types of fishing crafts, modes of propulsion of fishing crafts, and types and size of fishing gears. The frame survey also refers to a fisheries census which is mainly the fishing effort obtained by complete total enumeration. TAFIRI and IMS are both contracted to MLFD and MLF respectively to support with the implementation of frame surveys and conduct analysis of the data.

Beach Management Units (BMUs) are recognised by the Fisheries Act of 2003 as part of co-management measures for sustainable management of marine resources along the coast and at landing sites.

Currently existing programmes relating to tuna and tuna like species are from universities and individual researchers from research institutes. Most of these programmes focus on identification and mapping of potential fishing grounds for tuna and tuna like species within the EEZ, the target being to reduce fishing pressure on shallow water habitats.

Most recently however the Ministry of Livestock and Fisheries Development have received support from the World Bank to support the development and implementation of the South West Indian Ocean Fisheries Governance and Shared Growth Project known as the SWIOFish Project. The Project objective is to improve the management effectiveness of selected priority fisheries (including tuna and tuna like species) at regional, national and community level and includes provision for the training and support of Observers.

#### 4.6.4. RFMO Commitments

One of the components of the SWIOFish Project is the development of an effective at-sea scientific observer program. The observer programme is yet to be implemented, however, the Ministry has received funds from SWIOFish. Part of the fund will be used to train and deploy observers from 2015. These observers would be deployed at different levels, with focus initially on the DSFA and the tuna observers on URT-licensed vessels.

#### 4.6.5. Capacity Needs

The current coverage of commercial fisheries active in the United Republic of Tanzania is shown in Table 7. In addition to this TAFIRI and IMS undertake Frame Surveys to enumerate all artisanal crafts, gears, and fishers operating at the coast and all landing site facilities and services supporting them.

The majority of fisheries operating from mainland Tanzania and from Zanzibar are artisanal or subsistence fisheries, therefore to increase coverage of those fisheries there is a need to increase the frequency of Catch Assessments Surveys in order to obtain improved catch estimates of all species.



With respect to Tanzania's commitment to the IOTC, there is a lack of scientific observation on board foreign flagged fishing fleets targeting tuna and tuna-like species and the minimum of 5% coverage required by the IOTC is not being met. The DSFA, TAFIRI and IMS would be required to train sea-going observers in order to monitor the activities of those foreign fleets. The number of observers required to achieve the 5% minimum coverage is dependent on the number of licensed vessels operating in the Tanzanian EEZ.

**Table 8:** Current observer, monitor and compliance officer coverage of commercial fisheries operating in the EEZ of the United Republic of Tanzania.

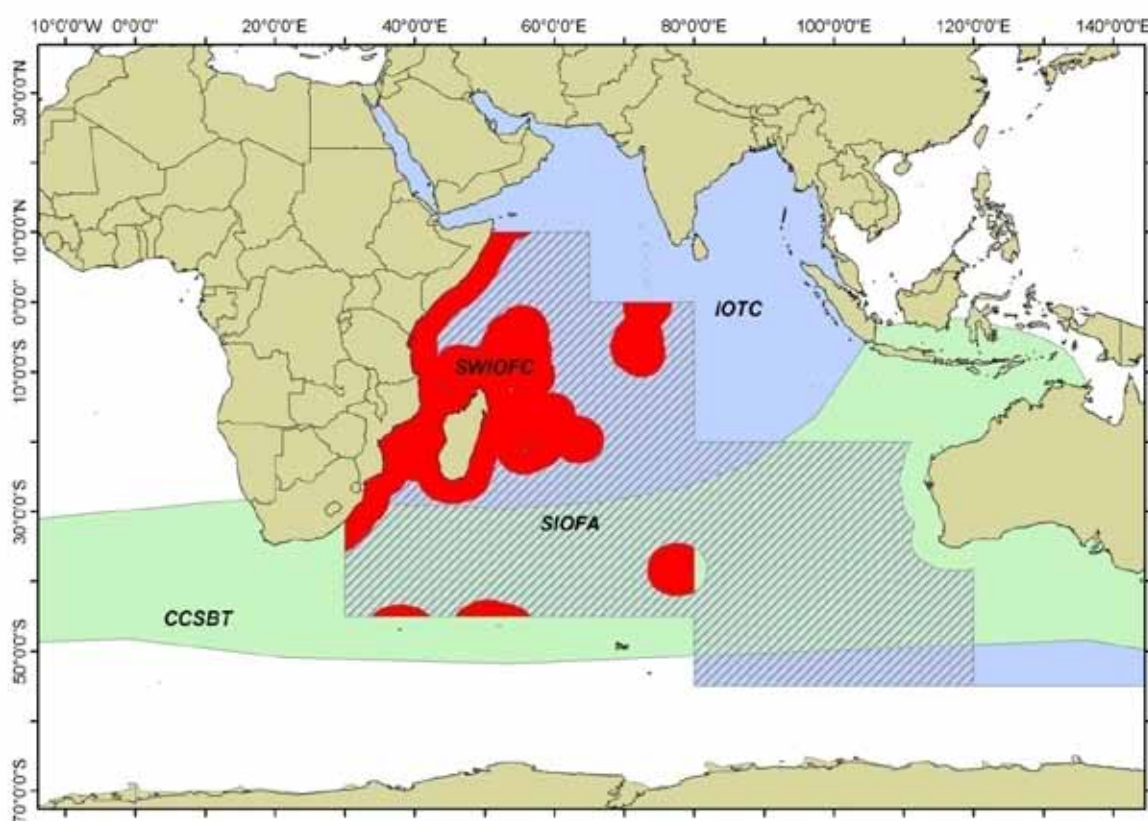
Fishery Sector	Sea-based Scientific Observer		Sea-based Monitor		Land-based Monitor		Sea-based Compliance Officer		Land-based Compliance Officer	
	Number of observer trips	% cover of fishery	Number of observer trips	% cover of fishery	Number of stations sampled	% cover of fishery	Number of days in 2015	% cover of fishery	Number of days in 2015	% cover of fishery
Tuna longline (foreign flag)	0	0	0	0	0	0	40	0	0	0
Tuna purse seine (foreign flag)	2	5%	2	5%	0	0	40	0	5% of the licensed tuna purse fishing vessel are inspected before issuing licence.	5%
Midwater trawl (small pelagics, mackerel etc.)	0	0	0	0	2 Landing sites per district	20%	0	0	0	0
Purse seine (eg. Ring net)	0	0	0	0	2 Landing sites per district	20%	0	0	0	0

## 5. Review of Regional Fisheries Observer Programs in the Eastern Region

### 5.1. Introduction

Areas Beyond National Jurisdiction (ABNJ) are mostly managed by Regional Fisheries Management Organisations (RFMOs) or international commissions, whose objectives are the management and conservation of shared fish stocks within their region. Also RFMOs might be coastal states with shared resources and which have common management objectives. In the Indian Ocean region this would include the South West Indian Ocean Fisheries Commission (SWIOFC) and the South Indian Ocean Fisheries Agreement (SIOFA). Other regional bodies might also have fisheries portfolios such as the Southern African Development Community (SADC) and the Indian Ocean Community (IOC).

In such organisations, members can be either full members (Contracting Parties) or partial members with an interest only but not full voting rights (Cooperating non-Contracting Parties or CPCs). These regional bodies typically have Conservation or Management Measures (CMMs) in place requiring vessels to accommodate scientific fisheries observers. RFMOs that have regional observer programs and play a role in the countries belonging to the eastern region of Africa include the IOTC, the SWIOFC, SIOFA and the CCSBT, their respective areas of jurisdiction are shown in Figure 11.



**Figure 11:** Regional Fisheries Management Organisations (RFMOs) and commissions in the Eastern African Region.

### 5.2. The Indian Ocean Tuna Commission (IOTC)

The IOTC is an intergovernmental organisation established under Article XIV of the Food and Agriculture Organisations (FAO) Constitution and is located in the FAO framework. Conceived in 1993 the treaty -The Agreement for the Establishment of the Indian Ocean Tuna Commission -entered into force on 27 March 1996. There are currently 32 members of the IOTC and 5 Cooperating Non-Contracting Parties (CNCP). Members from the Eastern region of Africa include Madagascar,

Mauritius, Seychelles, Tanzania, Kenya, Reunion (France) and the Comoros. The Commissions' role is to promote cooperation among its Members to ensure the conservation and optimum utilisation of tuna and tuna-like species in the Indian Ocean while simultaneously encouraging the development of fisheries based on those stocks.

Part of the IOTC Conservation or Management Measures (CMMs) is the co-ordination of a regional scientific observer program. At each session of the Commission, Members may adopt CMMs for the management of tuna and tuna-like species under the IOTC mandate, as well as for the fisheries targeting them. Decisions made by the Commission are passed in the form of Resolutions or Recommendations. Resolutions are binding to Commission Members whilst Recommendations are not binding on the Members.

The IOTC recommended that a regional scientific observer programme to enhance data collection (also for non-target species) and ensure a unified approach be established. The primary objective was for the "building on the experience of other RFMOs and that regional standards on data collection, data exchange and training should be developed". The IOTC therefore adopted the following Resolution:

Resolution 11/04 (superseding Res.09/04 and Res. 10/04) – On a Regional Observer Scheme is the current and active CMM applicable to the IOTC area of competence and its Members and provides a framework for putting in place a national scientific observer program. The Regional Observers Scheme commenced July 1st 2010, and is based on national implementation. The objective of the observer scheme is to collect verified catch data and other scientific data related to the fisheries for tuna and tuna-like species in the IOTC area of competence. Observer programmes can be used for quantifying species composition of target species, by catch, by-products and dead discards, collecting tag returns, etc. The Secretariat coordinated the preparation of standards for data requirements, training and forms, however implementation by CPCs has been limited to date. The IOTC recognises the implementation of a regional scientific observer program as a high priority and defines its current state of implementation as partially completed.

Resolution 11/04 defines an Observer as,

*“a person who collects information on board fishing vessels”.*

Notably, the Resolution differentiates between an Observer and a Field Officer, defining the latter as:

*“a person who collects information on land during the unloading of fishing vessels”.*

Under the Observer scheme, the IOTC requires that:

At least 5 % of the number of operations/sets for each gear type by the fleet of each CPC while fishing in the IOTC area of competence, for vessels of 24 meters overall length and over, and for vessels under 24 meters if they fish outside their Exclusive Economic Zone (EEZ) shall be covered by this observer scheme. For vessels under 24 meters if they fish outside their EEZ, the above mentioned coverage should be achieved progressively by January 2013.

#### Cooperating Parties to the IOTC:

- a. Have the primary responsibility to obtain qualified observers. Each CPC may choose to use either deployed national or non-national of the flag State of the vessel on which they are deployed;
- b. Endeavour that the minimum level of coverage is met and that the observed vessels are a representative sample of the gear types active in their fleet;
- c. Take all necessary measures to ensure that observers are able to carry out their duties in a competent and safe manner;
- d. Endeavour to ensure that the observers alternate vessels between their assignments. Observers are not to perform duties, other than those described in paragraph 10 and 11 below
- e. Ensure that the vessel on which an observer is placed shall provide suitable food and lodging during the observer's deployment at the same level as the officers, where possible. Vessel masters shall ensure that all necessary cooperation is extended to observers in order for them to carry out their duties safely including providing access, as required, to the retained catch, and catch which is intended to be discarded.

#### An observer shall, inter alia:

- a. record and report fishing activities, verify positions of the vessel;
- b. observe and estimate catches as far as possible with a view to identifying catch composition and monitoring discards, by-catches and size frequency;
- c. record the gear type, mesh size and attachments employed by the master;
- d. collect information to enable the cross-checking of entries made to the logbooks (species composition and quantities, live and processed weight and location, where available); and
- e. carry out such other scientific work as requested by the IOTC Scientific Committee.

Field samplers shall monitor catches at the landing place with a view to estimating catch-at-size by type of boat, gear and species, or carry out such scientific work as requested by the IOTC Scientific Committee.

The IOTC has an effective management framework in place to implement and coordinate a regional observer program. The program is still dependant on contracting nations to train and deploy observers and this is a shortfall in developing nations that do not have the capacity to monitor fishing activities in their EEZ. Attempts have been made to train national observers to regional standards, these are somewhat ineffective in the face of insubstantial management and coordination at a national level.

Through IOTC Resolution 12/05 On Establishing a Programme for Transshipment by Large-Scale Fishing Vessels the IOTC supervises the execution of a Regional Observer Program to monitor transshipments at sea with the aim of preventing laundering of fish at sea. Supervision by the Compliance Section of the IOTC includes approving the training programme for the observers, approving the recruitment of observers, approving the deployment of observers and reports produced by the observers. Execution of the program is outsourced by the IOTC to the Consortium of Marine Resources Assessment Group and Capricorn Fisheries who are responsible for the training and provision of qualified observers, managing the logistics for the deployment of observers and their repatriation at the end of the deployment and maintaining the IOTC regional observer programme database.

All transshipments at sea are banned within the IOTC area of jurisdiction (Figure 10), excepting those that are carried out by authorised carrier vessels (as per submission of carrier vessel lists by CPCs). The costs of the programme are financed by the flag CPCs of the large scale fishing vessels wanting to engage in transshipments at sea. According to the IOTC Report from 2013 (IOTC-2013-COC10-04aE]) a total of 45 observer deployments were approved during which 801 transshipment operations were observed. A total of 43,339 tonnes of fish were transhipped and differentiated by species weights transhipped. Overall tunas and billfishes accounted for 91.8% of all species transhipped. No data has been reported for 2014 or 2015 as yet.

The difference between this program and the Regional Observer Scheme is that the IOTC, a single management unit, is in charge of supervision and implementation, whereas in the Regional scheme it is the responsibility of CPCs to establish monitoring programmes for fishing vessels operating in their waters of under their flag.

### **5.3. The Commission for the Conservation of Southern Bluefin Tuna (CCSBT)**

The CCSBT manages the stock of southern bluefin tuna throughout its distribution through intergovernmental cooperation (Figure 10). The Convention was established on 20 May 1994 succeeding an earlier management arrangement between Australia, Japan and New Zealand. Joining those three nations as members were Indonesia, the Fishing Entity of Taiwan, Republic of Korea and the European Union and most recently (2016), South Africa. Co-operating Non-Members with an interest in the fishery are South Africa (up to end of 2015) and the Philippines. Through appropriate management, the Commission seeks to maintain optimum utilisation of southern bluefin tuna as well as its conservation.

The CCSBT has adopted a Scientific Research Program (SRP) with an overall objective of improving the quality of the data and information used as input to the stock assessment for Southern Bluefin Tuna (SBT), contributing to the development of reliable indices to monitor future trends in SBT stock size and identifying directions for further scientific research.

At CCSBT7 in April 2001 the Commission adopted the report of the Fifth Meeting of Scientific Committee, which recommended a SRP incorporating a Scientific Observer Program as one of four priority elements. The Observer Program endorsed by the Commission comprised the following features:

- a. an observer coverage of 10% for catch and effort as a target level;
- b. the level of observer coverage for estimation of tag reporting rates will depend on the scale of the tagging program subsequently agreed by the Commission and the tag recapture rate;
- c. standards for training of observers, operation of observer programs and the data to be collected including the forms to be used will be prepared;
- d. data collected would become part of the CCSBT database as subsequently agreed in CCSBT protocols;
- e. member countries will be responsible for operation of observers in high seas and domestic EEZ fisheries on their flag vessels;
- f. all fleet components should be observed and target levels of observer coverage should be the same for all fleet components;
- g. an exchange of observers between countries on a regular basis should be encouraged to maintain consistency and increase mutual trust in the results of the observer program; and

h. recruitment of some observers from non-member nations would be encouraged

#### **5.4. The South West Indian Ocean Fisheries Commission (SWIOFC)**

The SWIOFC cooperated in the guidance and coordination of the South West Indian Ocean Fisheries Project (SWIOFP), a regional fisheries research project that focused on commercial fisheries resources that are shared between member countries. The program ran from 2008 to 2013 and included nine west Indian Ocean countries (Comoros, France, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa and Tanzania). France is included in SWIOFP because of its islands in the region (i.e. Reunion and scattered islands in the Mozambique Channel).

The rationale of SWIOFP was that enhanced knowledge of the offshore marine environment would assist its member countries to implement a regional strategy for managing shared fish stocks and conserving biodiversity. To achieve its objectives the SWIOFP required “at sea” data collection collected by:

- Research ships;
- Wet-leased (chartered) fishing vessels; and
- **Fisheries Observers** placed on board commercial fishing vessels

An output of the SWIOFP was a comprehensive Observer training programme that included formats for:

- Observer logistics co-ordinator work guidelines;
- an Observer Manual, briefing and debriefing protocols;
- Memorandum of Understanding (between specific institution and vessel owner) for carrying Observers; and
- a data collection guide combined with data forms and sampling protocols.

Following on from the SWIOFP was the strengthening of the SWIOFC and the relocation of the organisation to Maputo in late 2015. SWIOFC then also took on the responsibility of the regional component of the new national and regional fisheries project “The South West Indian Ocean Fisheries Governance and Shared Growth Program (SWIOFish-I Program)”. This new regional project, which in its first 5 years includes Tanzania, Mozambique, Madagascar and Comoros incorporates elements related to the development of fisheries observer capacity in these countries and the SWIO as a whole.

#### **5.5. The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)**

The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) was established on 7 April 1982 in response to concerns that the exploitation of Antarctic marine resources were largely unregulated and unsustainable. There are 25 Member states that have ratified The Convention on the Conservation of Antarctic Living Marine Resources (CAML, 1982), the only Member from Eastern region of Africa is Reunion (France/TAAF).

The CCAMLR Scheme of International Scientific Observation (SISO), adopted in 1992 under Article XXIV of the Convention describes the Commissions requirements for a regional observer program. Information from the observer program is a fundamental part of the CCAMLR management approach. The scheme provides independent scientific data that are crucial input data for the assessment of target and by-catch fish species. It also allows the implementation and effectiveness of management

measures to reduce incidental mortality associated with fisheries to be monitored. Fisheries in the CCAMLR region take place in areas where few national research surveys are undertaken and therefore the data from the scheme are also invaluable in understanding the ecosystem of the Southern Ocean.

In order to assist CCAMLR Members and their observers in planning observation programs and recording data, the CCAMLR Secretariat, in consultation with the Scientific Committee and its working groups, developed the Scientific Observers Manual 2011. The manual contains a number of guidelines for scientific observations and reference materials.

100% of fishing vessels within the CCAMLR area of competence are required to have a scientific observer on-board. Although CCAMLR is beyond the scope of this report, some Indian Ocean countries are members of CCAMLR (France and South Africa, Mauritius is an acceding State) and must comply with the Observer protocol developed by CCAMLR. In the case of France (Reunion) and South Africa, observers are deployed on all vessels fishing under these flags in the CCAMLR convention area. CCAMLR has a highly developed Observer programme that in many ways has laid the foundation for other RFMOs. Further, some east African coastal countries have in the past allowed CCAMLR vessels fishing in CCAMLR (either legally or illegally) to land catch in their ports.

#### **5.6. Southern African Development Community (SADC)**

SADC boasts membership of East and West African coastal states as well as east African island nations. The Protocol on Fisheries (2006) describes the roles and responsibilities of member states with respect to inland and marine fishery resources. Although SADC does not provide instruction for the development and implementation of national or regional observer programs it does recommend that its members agree on management plans for shared resources that may include the following components:

- harmonised, or integrated systems to monitor resources and their exploitation, joint fish stock assessment programmes, agreed scientific methodologies for determination of the state of stocks and preparation of best scientific advice on sustainable levels of exploitation;
- agreed management measures and specification of means for implementing and enforcing such measures;
- principles, policies, and means for allocation of shared resources; and
- means for fostering joint venture enterprises.

The above objectives mimic those of the majority of regional bodies that have developed observer programs to monitor fishing activities.

A SADC driven initiative to develop a regional fisheries observer program has the potential to be effective in standardising procedures, data gathering and sharing, training and management and international collaboration in the southern, eastern and western regions of Africa.

#### **5.7. South Indian Ocean Fisheries Agreement (SIOFA)**

SIOFA is an instrument applicable to the High Seas of the South West Indian Ocean that entered into force on 21 June 2012. Signatories and participants to the Agreement are Australia, Comoros, EU, France, Kenya, Madagascar, Mauritius, Mozambique, New Zealand and Seychelles. Countries acceding to the Agreement are Cook Islands, Japan and the Republic of Korea. The Agreement recognises the

need to collect data concerning fishing activities involving non-tuna species in the high seas of the Southern Indian Ocean to assess effort and stock levels. Although there is no specific Article within the Agreement that refers to scientific observation or observers there is included as Appendix 3 the Resolution on Data Collection Concerning the High Seas. The data requirements centre on fishing vessel information, and catch data. The catch data is reported as weight per species caught.

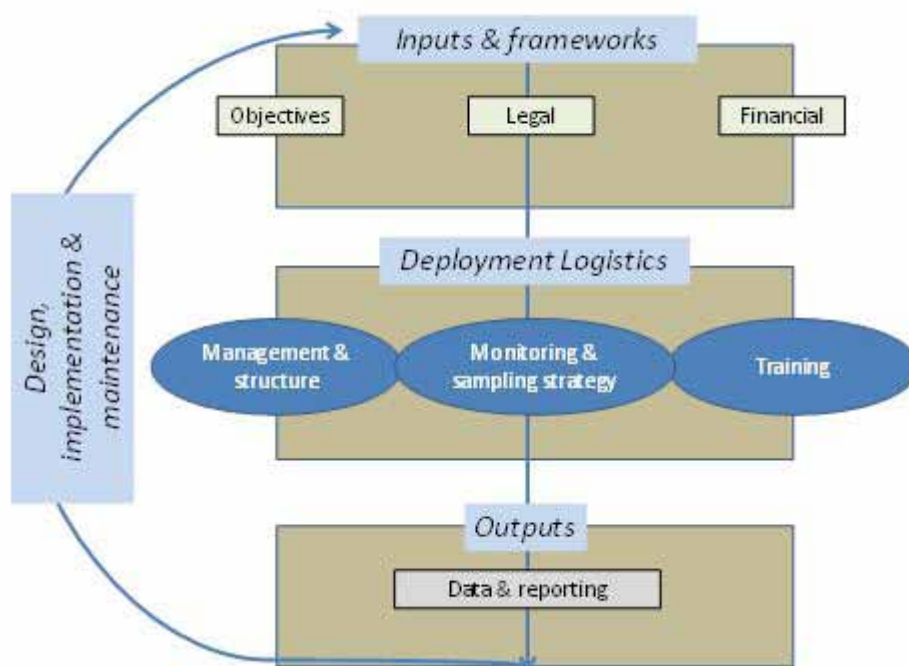


## 6. Framework for establishing a sea-based regional fisheries observer programme

A regional fisheries observer programme will have benefits for the regional and national organisations involved but benefits will also accrue to the observers, the vessel owners and the Fisheries Management Authorities (FMAs), in terms of shared training and management costs, dual use of observers and easier movement of vessels between nationally and regionally managed waters. Furthermore a well-trained and structured regional fisheries observer programme covering all licensed vessels would not only complement existing MCS systems but would also increase accurate reporting of, for example, fishing positions, illegal fish transfer, daily catches and species composition, which are all vital for sustainable management of fishing practices. An on-going example of a regional observer programme is the Indian Ocean Tuna Commission (IOTC) initiative to monitor transshipments by large scale fishing vessels.

It should be noted that even though observer data can be collected onboard fishing vessels or at landing sites/ports, processing plants or market places, this framework only focuses on the work of sea-based observers and the regional programme that supports them. The principles and practices however could also apply to other observer programmes. Figure 12 shows a generic framework for establishing a regional sea-based fisheries observer programme. There are three main components;

1. The inputs : Objectives, legal framework and financial
2. The logistics : Structure, training, monitoring and sampling
3. The outputs : Data and reporting



**Figure 12:** Generic framework for establishing a sea-based observer programme (FOA 2003) Figure 12: Generic framework for establishing a sea-based observer programme (FOA 2003)

### 6.1. Objectives for a regional observer programme

Observer programmes are generally implemented to collect data for both scientific and compliance purposes, which in turn serve wider fisheries management objectives. It is therefore important to establish clear objectives before implementing an observer programme. These may include objectives

for scientific information (total catch and effort including bycatch, discards and high grading, biological sampling of catches [e.g. diet, spawning condition, fish length, condition etc.]) and/or compliance information (observation of fisheries laws, regulations and plans, permit controls and validation of vessel logbooks). Both scientific and compliance information are needed for sustainable fisheries management. For example determining fishing season, open and closed areas, production estimates, conversion factors, marketable and non-marketable catches, improved communication with fishers, gear improvements, and estimates of pollution levels.

In addition UNCLOS Articles 61, 62, 63 and 64 specify that signatories have an obligation to utilise and conserve living resources as well as provide observers and specify fisheries research programmes and guidelines. In particular this relates to the UN Fish Stocks agreement (A/CONF.164/37, 1995) on highly migratory species and also on stocks of a transboundary nature. Coastal and Island states have obligations to monitor fisheries, collect relevant data for their management and also to prevent and deter illegal fishing (IUU). These would be the key rationale for developing a regional observer programme (ROP).

## **6.2. Legal framework**

“Fisheries law” comprises of legislation, regulations, administration and international agreements, all of which can be shaped by a government into a set of instruments for implementing fisheries policy. The main purpose of fisheries legislation is to provide a legal basis for the management of a fishery, thus creating a legal framework governing exploitation and other aspects such as compliance and fishing rights.

The most common legal instruments that provide legislation for placing an observer onboard a vessel at a national level include; the Act, the Regulations, conditions for vessel licensing and any special requirements for access (e.g. bilateral access agreements). In the case of regionally managed fisheries there are agreements in place for the acceptance of observers on vessels fishing within specified areas of jurisdiction. This is usually in the form of a convention with associated arrangements and/or agreements dealing with fundamentals such as nationality of observers, qualifications, roles, responsibilities, duties, reporting systems and financial agreements. Guidelines for regional organisation are given in the UN Fish Stocks Agreement (UNFSA) (A/CONF.164/37, 1995).

The placement of observers in terms of national and/or international programmes therefore requires a “legal mandate”. The mandate provides the legal obligation for a vessel to accommodate an observer when requested and outlines the conditions for these deployments. An observer coordinator can therefore request a vessel to accommodate an observer in accordance with this mandate. It should also be kept in mind that all signatories to UNCLOS have also agreed to carry observers as prescribed in Article 62 – that is a vessel not carrying the flag of the coastal state when fishing inside the EEZ of the coastal state may be obligated under the permit conditions specified by the coastal state, to carry observers. The carrying observers would need supporting international legal instruments such as:

- UNCLOS
- UN Fish Stocks Agreement (1995)
- Recognised conventions and RFMO
- National Legislation
- Bilateral agreements
- Etc.

It is therefore imperative that national legislation is consistent with International law and the countries commitment to instruments to which they are signatories. In the East African and South West Indian Ocean context most coastal and island states are signatories to UNCLOS, have ratified the UN Fish Stocks agreement and have in place at different levels, legislation that relates to the use of Observers. We stress again that scientific observers are primarily data collectors and generally have no direct compliance role. Countries in the region can nevertheless make the carrying of Observers obligatory when issuing permits for vessels carrying their flag and fishing on the high seas (outside of EEZs and not under RFMO management).

At a National level, appropriate legislation is essential for the establishment of any observer programme. As for a coordinated regional observer programme, national legislation provides the mandate and authority to place Observers on vessels or at field stations as needed. If this is not entrenched in the fisheries-related legislation then there can be no legal requirement for a vessels operator to take the risk of carrying an Observer. Legislation protects both the Observer and the client (vessel operator). In some cases Observer requirements are loosely stated in the pertinent legislation, this might allow for flexibility in conditions related to observer deployments. On the other hand poorly defined legislation in this regard can result in rejection of an observer when boarding a vessel and offers no protection in terms of duties and conditions of the observer.

National legislation required to implement a national observer program needs to stipulate at the very least the following:

- appointment and identification of observers;
- duties of observers;
- funding mechanisms or responsibility for payment of observer costs;
- notice of intention to place observers;
- responsibility of fishing vessel operator related to observer deployment;
- minimum conditions for observers on board vessels or at land-based locations;
- the protection of and duties to authorized persons (fisheries inspectors or observers)
  - Protection of authorized persons from liability
  - Duties to authorized persons
- Specify the penalties in place for contravening or failing to meet specified requirements in the legislation.

The licensing conditions and situations influencing observer deployments and coordination are determined by the nationality of the vessel and the area of operation. Three basic scenarios exist:

- a. National flagged vessels operating within their Exclusive Economic Zone (EEZ). These deployments often involve smaller vessels in the artisanal fishery that operate closer inshore. Trips may be short, one-day to a week depending on how the product is processed and preserved.
- b. National flagged vessels operating within the EEZ and on the high seas. A vessel operating on the high seas is expected to conform to the licence conditions imposed by the flagged state, as well as the conditions of the RFMO for the area. Vessels in these fisheries are often larger and undertake trips of several months.
- c. Foreign flagged vessels with permits issued to them by a country, allowing them to operate within their EEZ. These vessels may operate on both the high seas and within the countries EEZ. Depending on the size of the vessel and the sector in which they operate, trips can last up to several months.

### **6.3. Financial requirements**

An important financial consideration for Observer programmes is the user pays principle. In some cases costs for a NOP may be paid for by the state and funded indirectly through a special levy (tax) system on the fishing industry. Alternatively Observer service providers have financial models that may be dependent on cost recovery and a profit margin i.e. running as a business. This is probably the best model as it involves competition between service providers whereas state-funded programmes have less rigorous and competitive budgeting. In some cases NGOs might fund an Observer programme or alternately an industrial body (fishing association) might collectively fund a programme.

The most important aspect then of financing an Observer programme is that it is self-sustaining – many programmes are short-term and end because of inadequate financing. This is a waste as the capacity developed is lost and not easily recovered. Our advice then is that any Observer programme should take a long-term view and ensure that the business model is adequate.

At the start of a new observer programme therefore a financial analysis and business plan is essential. First the start-up costs need to be estimated and then the predicted annual operational costs. These costs will depend on many factors, including the type of management system being used and the scope and extent of the programme. For example, if the programme is implemented through a regional fisheries authority many of the potential costs may be hidden in the general budget for the organisation, including office accommodation, telephone bills and personal administration. Alternatively if a private or semi-private organisation administers the observer programme, all costs ranging for observer equipment, training, technology, insurance and salaries etc. need to be assessed, planned for and monitored.

### **6.4. Institutional Arrangements and Management**

Institutional arrangements and management structures required for observer programmes will vary from country to country as well as in a regional context. Regionally different models might be applied and these will need to be, as far as possible, consistent with the systems used by participating countries but also with any RFMOs in the region.

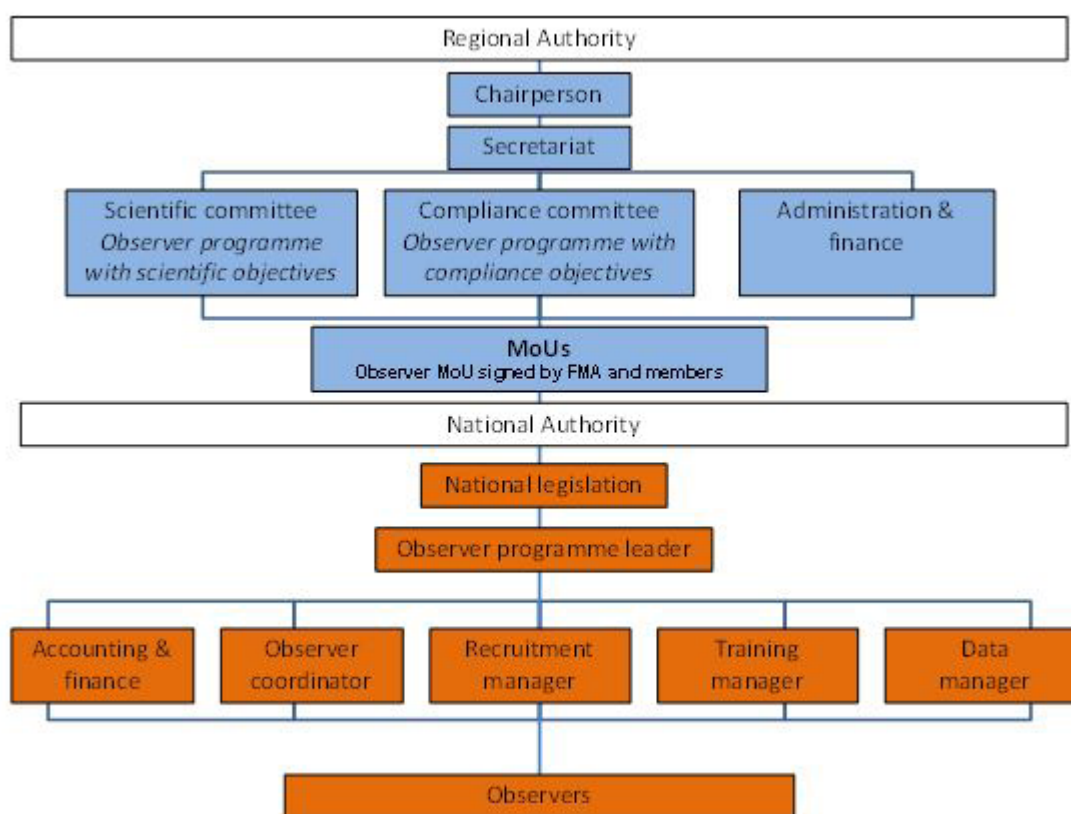
There are several different management systems and structures that a regional organisation might adopt. These could be:

- a. management staff and observers are all employed by the regional organisation and they function as an integrated part of that organisation;
- b. management staff are employed by the regional organisation and function as an integrated part of that organisation but observers are contracted to the programme either as individuals or outsourced to a professional Observers service organisation;
- c. each participating country agrees on standards and protocols for observer deployments, training, observer payments, sharing of data etc as well as deployment levels. A common data base is shared and countries collaborate to manage observers particularly with logistics. There is no central regional office although parties might agree on a location for sharing and communicating observer data and logistics.

No one system is inherently superior but there are advantages and disadvantages. Therefore when considering observer management system options and structures it is important to keep in mind the programme objectives.

Figure 13 shows a management structure for a typical regional fisheries observer programme that includes a national level for domestic deployments. Management structures are determined by aspects such as the mandate, the number of staff and the staff classification and experience. Due to these factors, some staff members perform different tasks related to several departments. In the example shown in Figure 13, the chairperson and secretariat facilitates the work carried out by the regional organisation. The compliance committee monitors the observer programme with compliance objectives in accordance with conservation and management measures. The administration and finance advises on administrative and financial matters, in particular the operational budget for the current year and the provisional budget for the ensuing year. The scientific committee manages the observer programme with scientific objectives and provides advice on the status of stocks and the management actions necessary to ensure sustainability of the fishery.

At the national level, the programme is usually headed by a national programme leader that runs the entire programme.



**Figure 13:** Example of a management structure for a regional observer programme also showing a national level management structure

### 6.5. Management and maintenance of the programme

Observer programme managers will always need to assure stakeholders that the programme remains sustainable. This will require a dynamic and flexible approach to allow the programme to adapt to challenging circumstances. This flexibility combined with correspondence, planning, target setting, annual review and feedback will help facilitate this process.

## **6.6. Monitoring and sampling strategies**

Observer programmes are mostly designed to collect randomised data (without sampling bias) and summary information for fisheries management. Sampling strategies are based on the overall objective of the programme and vary from fishery to fishery, and for each observer programme. However, in preparing a sampling strategy for a given fishery there are several stages that should be considered;

- an evaluation of the baseline information available for each fishery;
- an assessment of whether 100% monitoring or only sub-sampling is appropriate for the fishery;
- an assessment of the operational requirements for the fisher(ies) and the programme as a whole;
- a strategic design in relation to vessels, fishing events and catch to be monitored based on the known characteristics of the fisheries under consideration;
- an implementation of a pilot study to validate sampling design and methods; and
- a feedback mechanism between the observer programme and the fisheries authority to ensure data satisfies the objectives.

## **6.7. Observer Deployment logistics**

Typically the deployment of Observers requires a briefing meeting to agree on amongst other things data collection and logistics. Observer deployments are also followed by a “debriefing” and submission of reports.

### **Briefing meeting**

A detailed briefing protocol and equipment checklist is essential for all deployments to prevent important items or issues being overlooked. Forgetting essential sampling equipment, such as scales or measuring boards can have a significant detrimental effect on the observer’s performance at sea. The briefing process should start well in advance of the expected deployment date to allow for the preparation of gear and to make travel arrangements where necessary.

The briefing meeting should include:

- Details of the trip logistics and travel arrangements (flights)
- Checking travel documents (i.e. passport, safety certificates)
- Details of the vessel and where possible the names of the Captain and Fishing Masters
- Overview of the program, including its mandate and objectives
- Detailed sampling instructions
- Gear check lists
- Reporting protocols
- Health and safety procedures

### **Debriefing**

The debriefing of the observer is the last logistical process of an observer’s deployment. Similar to the process of preparing the observer for the trip and facilitating their embarkation, the debriefing follows a process that includes:

- Administration for disembarkation and notification
- Gear return
- Review of preliminary report
- Data check
- Submission of the Trip Report

Note that briefing and debriefing of Observers can often include not only Observers but also vessel operators, state authorities and any other interested and affected parties that might have a direct interest in the work to be carried out.

### **6.8. Data/reporting outputs**

Members of regional fisheries organisations have annual reporting obligations. These primarily incorporate catch and effort data and the submission of scientific reports. Such reports would also consolidate information collected by Observers and also verify observer deployment commitments.

Scientific and compliance data are therefore standard outputs of any observer programme. Sea-based data collection on commercial vessels allows for “dependent” data collection and verification of commercial activity. This is in contrast to “independent” data collection undertaken by non-commercial vessels (research surveys). Scientific data (catch weight, species composition, sex and maturity, number and length, water temperature) are collected to provide information useful for the scientific aspects of fisheries management e.g. total catch, CPUE, species, age and oceanographic condition, and which normally provide data for stock assessments that would not normally be available from research.

Compliance activities rely on the appropriate legislation being in place to establish the role and function of a compliance observer (inspector) and from which a strategy for observer activities can be developed. Compliance activities include for example the monitoring and validation of:

- skipper logbooks
- discarding and high grading information
- prohibited species and incidental catch
- undersized and spawning species
- the fishing areas and season restrictions
- fishing gear
- processed fish
- document checks
- sightings of other vessels
- transshipment at sea

At the end of a trip the observer normally has to write a detailed trip report. The cruise report is usually written in a prescribed format. The overall objects of these reports are to provide a summary of the observer’s activity and the data collected during the trip. The report also provides an opportunity to report information that is not routinely captured on the data forms of electronic logs. Observers can also explain data that has been captured that may be queried due to specific conditions, or the situation at the time.

### **6.9. Training and Recruitment**

Without specially designed training an observer programme will suffer from unprofessional behaviour, poor data quality and lack of respect from the industry and other sections of the fisheries management authority. Training must therefore be considered the key element in establishing an observer programme and should be standardised between all participating countries.

## **Recruitment**

The recruitment of potential candidates for observer training is recognised as a critical step for successful training, ensuring optimum pass rates and long-term retention of observers. Observer screening requires a formal administrative process but, as observers have a high degree of responsibility and independence at sea, occupying important “positions of trust”, background checks, interviews, and verification of references are critically important in the recruitment process.

Only individuals with a specific skills set and relative work experience should be invited to apply for observer positions. These should include:

- minimum academic qualification of a school leaving certificate;
- proven literacy competence;
- proven mathematical competence to undertake statistical calculation of catch compositions and catch determination;
- ability to communicate in the language of the area;
- police clearance certificate (not always required);
- applicants must not have participated in any activity that would:
  - cause a reasonable person to question the impartiality or objectivity with which the Observer Program is administered;
  - significantly impair the observer’s ability to perform his/her duties; and
  - adversely affect the efficient accomplishment of the Program’s objectives.

The following skills would be advantageous prior to the recruitment process. During the observers training however these skills should also be developed before the new recruit is deployed:

- basic marine species identification;
- basic knowledge of fish biology (length measurements, anatomy, sexing, maturity staging, otolith extraction, collection of stomach samples, collection of genetic material, etc);
- basic understanding of the need for random samples and the ability to correctly conduct random sub-sampling of catches;
- familiarity with, and the interpretation of information provided by the ship-board electronic equipment where pertinent;
- basic nautical knowledge;
- awareness of shipboard protocol;
- ethics with respect to validity and accuracy of data recorded and reported;
- seabird identification;
- good record keeping and specimen labelling;
- log keeping and basic report writing;
- ability to estimate total catch;
- familiarity with pertinent legislation
- familiarity with permit conditions;
- good inter-personnel and communication; and
- basic computer literacy.

Each candidate would first be interviewed and then be required to complete pre-recruitment assessment tests as part of the selection process. If successful, a police clearance certificate and a reference check should be conducted. The candidates’ referees should be questioned about their work habits, ability to adapt and improvise, ability to work alone and complete work in a timely



manner, physical fitness, capacity to live in potentially hostile environments, and their ability to maintain standards of conduct.

Declarations are required from the candidate indicating that they do not have direct financial interest with a rights holder or in the observed fishery that they will be monitoring, including, but not limited to, vessels or shore-side facilities involved in the catching or processing of the products of the fishery, companies selling supplies or services to those vessels or shore-side facilities, or companies purchasing raw or processed products from these vessels or shore-side facilities. The interests of a spouse or minor child of the observer should also be considered.

### **Training**

A regional observer programme will only be possible if all observers meet the same level of competency standards (minimum requirement and training), share the same data collection objectives (compliance and scientific) and benefit from similar management action (briefing, work and sampling protocols, debriefing and reporting). Please refer also to “Manual of Observer Duties” for a breakdown of key tasks undertaken by Observers .

The key aspect for building up of a team of observers is a standardized training curriculum. This action will also facilitate the harmonizing of national observer programmes across regions.

A standardised or generic training curriculum is split into two main components;

1. in-house training, which is conducted by the intuition(s) managing/supporting the observer programme; and
2. out-sourced training, which is conducted by specialised organisations/consultants.

In addition, observers are encouraged to improve their qualifications with additional vocational training.

### **Generic in-house training**

The in-house training has two training phases. The first phase is the theoretical and practical training. The second phase (or refresh training phase) follows when observers have gained experience in all the fishing sectors, and revises the initial theoretical instruction and takes into consideration this practical experience that the observers had gained. The theoretical phase includes content such as basic knowledge of vessel terminology, fishing techniques and fishing gear covered. An introduction into navigation and meteorology is included to facilitate capturing positional data and recording environmental interactions. At the completion of the first phase of their training the trainee is expected to be able to recognise and understand the function of the fishing gear being deployed in the primary fishing sectors. They must be able to identify the main species caught for each sector and be able to sample for catch composition and length frequency and be able to record the information on the relevant data sheets. The training course also includes a module on professional communication and conflict resolution to guide the observer when faced with possible conflict situations. This is emphasised with practical role-play in the class setting.

There should be a practical component to the training, which covers species identification and determining catch composition from wet fish samples. The practical setting up, zeroing and reading a spring and electronic scales and correct method of measuring and recording length frequencies is

included. Understanding and the correct method of completing data sheets is important part of this training.

Practical training tasks and assignments in the first phase of training include:

- species identification;
- determining catch composition from statistical sampling;
- the use of sampling equipment. Measuring boards and scales;
- recording information onto data sheets.

The first phase also covers observer administration for deployment and protocols and health and safety aspects pertaining to daily work onboard a vessel. It includes a broad overview of the fisheries and the observer requirements for each of these. Technically it provides generic instruction on sampling techniques, species identification, data capture and reporting. Health and safety is a critical component of observer training and will be included in this section.

This phase of training usually takes five to ten days to complete. Theoretical subjects are covered by lectures using visual aids (presentations, video and photographic learning aids) are also used effectively to train observers in the basics of the sector (gear, area of operation, value etc.) and for basic fisheries science biology and calculations (such as how to determine catch composition). The practical workshop sessions are used for the practical components such as sampling techniques and data entry. A more detailed outline of the training programme is available in Appendix 2.

The second phase of generic training follows when observers have gained practical sea experience. Experience by the company in observer training has shown that at this stage new observers can understand better both the theoretical and practical implications of working at sea. This training revises the initial theoretical instruction and takes into consideration the practical knowledge they have gained. It also allows for including new material and places emphasis on accurate data collection methods, additional biological sampling strategies and species identification for different sectors.

Regular assessment of candidates and observers is conducted during and after training courses. Trip briefing and debriefing after the first trip is an essential part of the on-going training process. This provides the means to identify strengths and weaknesses in each observer, and if additional training is required on any one or more components. Candidates are assessed at the end of the initial training course through a theoretical examination and practical exercises and have to demonstrate a specified level of competence in all of the main outcomes to receive certification.

Once trained, observers are expected to attend regular briefings and on-going training workshops to keep them up-to-date with revisions in sampling and data collection requirements and any changes to sectors' permit conditions. In addition, observers should improve their qualifications with additional vocational training.

### **Out-sourced training**

Out-sourced training is divided into two categories:

1. Compulsory safety training to meet national and international health and safety requirements
2. Recommended training that will assist the observer both in the event of emergencies and in the professional execution of their duties.

These training components are outsourced to accredited organisations conforming to “The International Convention on Standards of Training, Certification and Watch-keeping for Seafarers (STCW95).

Subjects that are outsourced are;

- Personal Survival Techniques (PST);
- Practical First Aid;
- Marine Fire Fighting; and
- Global Marine Distress and Safety Systems (GMDSS).

Personal Survival Techniques (PST) and Basic Sea Survival, Familiarization and Personal Safety and Social Responsibility Training (STCW95 A-VI/I-1; A-VI/I-4 & A-VI/I) are compulsory training requirements for observers to be allowed to embark onto a vessel, and prepare them to react to emergency situations where there is an imminent danger to flooding, fire or having to abandon the vessel at sea. This training includes instruction on:

- introduction to safety and survival at sea;
- emergency situations;
- survival craft and rescue boats;
- personal life saving appliances;
- evacuation and survival at sea; and
- helicopter rescue.

It is recommended that observers operating on the high seas also complete a first aid course to “level one” that includes a competency certificate in First Aid and CPR training, (STCW95 compliant).

Optional training components that will augment the professionalism of the observer include:

- Fire Fighting; -This course is intended to give all candidates basic knowledge of fire safety, fire prevention and an understanding of the hazards of fire. Candidates will understand the need for prompt, safe and correct action to be taken on the outbreak of a fire including the use of basic breathing apparatus and the use of extinguishers on live fires;
- Radio Telephone Communication Certificate; this course provides the observer with certificate for operating the basic radio equipment found onboard all South African vessels. It covers emergency radio procedures and radio protocol
- Electronic Navigational Systems (ENS); this course provides a comprehensive understanding of all electronic navigation systems that an observer is likely to encounter onboard. It will provide the knowledge to record accurate positional information in different circumstances.
- Training in Global Maritime Distress and Safety System (GMDSS), provides the communication support needed to implement search and rescue in emergency situations and will assist the observer in the operational aspects of the advanced satellite communication systems that are now compulsory on all vessels operating on the high seas. This training assists in the sending and receiving communications while onboard and can overcome communication issues when language differences exist.

#### **6.10. Remuneration systems and Contracting**

A remuneration system for an observer programme is normally based on an “observer day”. A full observer day is defined as the days that the observer is present on board the fishing vessel starting

from a point of departure (port or point from which they leave home base) and thereafter arriving at port and discharge. Travel days, stand-by days and report writing days are at the discretion of the organisation. In some cases observers are paid full rates “door to door” while other organisations might only charge full rates once the observer is on the vessel and all standby and travel days might for example be charged at 50% of the agreed sea-day rates.

The administration process should include the following:

- Observer contracts of employment and salaries
- Insurance and liability cover
- Managing leave and time-off
- Logistics
- Observer well-being
- Medical fitness
- Drug and alcohol testing
- Updating of basic requirements and certificates

### ***Contracts of Employment and Salaries***

Observers should be offered contracts of employment that can be either a fixed salary or an ad hoc contract for each trip working on an observer day rate. These contracts should typically specify:

- Salaries and observer day rates,
- Compliance to labour regulations with respect to leave and taxes,
- The observer’s job description,
- Disciplinary action for non-performance,
- Conditions for the deployment and the maintaining observer protocols,
- Observer confidentiality and
- Personal accident and injury insurance.

### ***Insurance***

During the time that observers are on contract, they should be insured for personal accident and injury in the workplace. International fishing is considered as one of the occupations with the highest risk to personal accident and injury. Due to these high risks and costs of the insurance and possible high claims, it is advisable to get professional legal advice when drawing up these clauses in a contract.

### ***Observer Leave***

Observers on fixed salaries have prescribed leave for time worked. In some cases it may be necessary to include additional leave based on time spent at sea. While at sea, observers are effectively working a full seven days a week. During this time, they are unable to manage many aspects of their personal life. Following an extended trip, it is common practice to allocate additional leave to the observer based on the number of days spent at sea, before expecting them to continue with their daily land based work routine. For example: “one-day-off for every seven sea-days”.

Observers that work on ad hoc contracts usually have breaks where they are off-contract, which is effectively their own time. Observer logistics coordinators must avoid using ad hoc observers on consecutive long assignments without giving them sufficient time off between trips. Observers working on this basis often accept the work, regardless of the interval between trips as they are dependant solely on the income from their days at sea. However, continuous time at sea, under

the strenuous working conditions, can have a detrimental physiological effect which can influence both the quality of their work and their impartiality. This is especially the case if they are deployed onboard the same vessel on consecutive trips. It may be necessary to come to an agreement with the observers to determine a minimum break between trips.

## **Appendix 1. Pertinent Comoros legislation relating to Observers**

The Comoros Code of Fishing and Aquaculture, Decree No15 – 050/PR (2015)

### **Section 6: Observers**

**ARTICLE 63:**The national authority responsible for supervising and monitoring fisheries may require boarding an observer on board any fishing vessel authorized to fish in Comorian maritime waters or outside those waters for local fishing vessels.

**ARTICLE 64:**The conditions of the observer boarding are defined by common agreement between the shipowner or his representative and the national authority responsible for the control and monitoring of fisheries.

**ARTICLE 65:** In the case the observer is embarked in a foreign country the observer's travelling expenses are borne by the shipowner.

**ARTICLE 66:**The observer's tasks:

- a. observe the fishing vessel activities;
- b. to verify whether the vessel complies with the fisheries regulations in force;
- c. to verify the ship's position when it engages in fishing operations;
- d. check data for reporting catches;
- e. to verify the catch percentages and estimate the quantity of discards of marketable species;
- f. to note the fishing gear used and the mesh;
- g. to perform scientific work at the request of the central government department responsible for fisheries; and
- h. do any other task that may be requested by the national authority responsible for the control and surveillance of fisheries.

**ARTICLE 67:**The Shipowners shall, at his own expense, provide the accommodation and food for the observer in the conditions accorded to officers.

**ARTICLE 68:**The owner or master of the vessel shall take all measures to allow the observer to carry out its mission in particular it:

- a. a. provides access to him:
  - means of communication needed for the discharge of his duties
  - materials, equipment and instruments related directly to fishing activities, including fishing log and the navigation log
  - parts of the ship that are used for weighing, storing or processing fish
- b. allows it to:
  - take and keep photographs of the fishing operations, including gear, equipment and documents
  - take, measure and keep samples or whole individuals of any species of fish on board
- c. ensure the physical safety and welfare of observer during performance of his duties

**ARTICLE 69:** During his stay on board the vessel the observer shall:

- a. take all appropriate steps to ensure that the conditions of his boarding and presence on the ship do not interrupt or hamper fishing operations

- b. respect the material and equipment that are on board and the confidentiality of all data related to the vessel's fishing activities and any documents belonging to the vessel.

**Law No. 6-A/04 on Aquatic Biological Resources (new Fishing Act).**

**Chapter IV. Section II. Article 138 - Observers**

1. Vessels licensed to fish under the Agreement shall take on board observers, preferably accredited at regional level and designated by the Comorian authorities responsible for fisheries, on the terms set out below.
  - 1.1. At the request of the Ministry responsible for fisheries in the Union of the Comoros, tuna vessels shall take on board an observer appointed by the Ministry to check catches made in Comorian waters.
    - 1.2. The competent authority of the Union of the Comoros shall draw up a list of vessels designated to take an observer on board and a list of the appointed observers. These lists shall be kept up to date. They shall be forwarded to the EU as soon as they have been drawn up and every three months thereafter where they have been updated.
    - 1.3. The competent authority of the Union of the Comoros shall inform the vessel owners concerned, or their agents, of the name of the observer appointed to be taken on board the vessel at the time the licence is issued, or no later than 15 days before the observer's planned embarkation date, also indicating the time the observer will spend on board the vessel.
  2. The conditions under which an observer is taken on board shall be agreed between the vessel owner or their agents and the Comorian authorities.
  3. The observer shall embark in a port chosen by the vessel owner. The vessel owners concerned shall notify the competent authorities ten days in advance of the date and port selected for taking the observers on board.
  4. Where observers are taken on board in a foreign country, their travel costs shall be borne by the vessel owner. Should a vessel with an observer on board leave the Union of the Comoros's fishing zone, all measures must be taken to ensure the observer's return to the Union of the Comoros as soon as possible at the expense of the vessel owner. EN 21.12.2013 Official Journal of the European Union L 349/13
  5. If the observer is not present at the time and place agreed or within the twelve hours following the time agreed, the vessel owner shall be automatically absolved of their obligation to take the observer on board.
  6. An observer shall be treated on board as an officer. He or she shall carry out the following tasks:
    - observe the vessels' fishing activities;
    - verify the position of vessels engaged in fishing operations;
    - note the fishing gear used;
    - verify the data recorded in the logbook for catches taken in the Union of the Comoros's fishing zone;
    - verify the percentages of by-catches and estimate the quantity of discards of species of marketable fin-fish, crustaceans and cephalopods;
    - report fishing data by radio, including the quantity of catches and by-catches on board.
  7. The master shall do everything in his/her power to ensure the physical safety and welfare of the observer during the performance of his/her duties.

8. The observer shall be offered every facility needed to carry out their duties. The master shall give him/her access to the means of communication needed for the discharge of their duties, to documents directly concerned with the vessel's fishing activities, including in particular the logbook and the navigation log, and to those parts of the vessel necessary to facilitate the exercise of their tasks.
9. While on board, the observer shall:
  - take all appropriate steps to ensure that the conditions of their boarding and presence on the vessel neither interrupt nor hamper fishing operations;
  - respect the material and equipment on board and the confidentiality of all documents belonging to the vessel.
10. At the end of the observation period and before leaving the vessel, the observer shall draw up an activity report to be transmitted to the competent authorities in the Union of the Comoros, with a copy to the EU Delegation in Mauritius. He/she shall sign it in the presence of the master, who may add or cause to be added to it any observations considered relevant, followed by the master's signature. A copy of the report shall be given to the master of the vessel when the observer is put ashore.
11. The observer shall be provided with board and lodging at the vessel owner's expense in the same conditions as the officers, within the confines of the structure of the vessel.
12. The salary and the social security contributions of the observer shall be borne by the competent authorities of the Union of the Comoros.
13. Law No. 6-A/04 on Aquatic Biological Resources

## **Chapter VII control and inspection**

### **Inspection at sea**

Inspections at sea of EU fishing vessels holding a licence to fish in the Union of the Comoros's fishing zone shall be carried out by inspectors of the Union of the Comoros who are clearly identified as being assigned to carry out fishing checks.

Before going on board, the authorised inspectors shall inform the EU vessel of their decision to carry out an inspection. The inspection shall be carried out by fisheries inspectors, who must provide proof of their inspection warrant and identity and rank as inspectors before carrying out the inspection.

The authorised inspectors shall stay on board the EU vessel only for the time necessary to carry out the tasks related to the inspection. They shall carry out the inspection in such a way as to minimise the impact on the vessel, its fishing activity and cargo.

At the end of each inspection, the authorised inspectors shall draw up an inspection report. The master of the EU vessel shall have the right to include their comments in the inspection report. The inspection report shall be signed by the inspector drawing up the report and by the master of the EU vessel.

The signature of the inspection report by the master shall be without prejudice to the vessel owner's right of defence in respect of an infringement procedure. If the master refuses to sign this document, he or she shall specify the reasons for doing so in writing and the inspector shall write 'refusal to sign' on it.



The authorised inspectors shall give the master of the EU vessel a copy of the inspection report before leaving the vessel.

In cases of infringement, a copy of the infringement notification shall also be sent to the EU as provided for in chapter VIII.

### ***Inspection in port***

The inspection of EU vessels landing or transshipping their catch in a Comorian port shall be carried out by inspectors of the Union of the Comoros who are clearly identified as being assigned to carry out fishing checks

Inspectors must provide proof of their inspection warrant and identity and rank as inspectors before carrying out the inspection. The Comorian inspectors shall stay on board the EU vessel only for the time necessary to carry out the tasks related to the inspection and shall conduct the inspection in such a way as to minimise the impact on the vessel, the landing or transshipment operation and the cargo.

At the end of each inspection, the Comorian inspectors shall draw up an inspection report. The master of the EU vessel shall have the right to include their comments in the inspection report. The inspection report shall be signed by the inspector drawing up the report and by the master of the EU vessel.

The signature of the inspection report by the master shall be without prejudice to the vessel owner's right of defence in respect of an infringement procedure. If the master refuses to sign this document, he or she shall specify the reasons for doing so in writing and the inspector shall write 'refusal to sign' on it.

The Comorian inspector shall give the master of the EU vessel a copy of the inspection report at the end of the inspection.

In cases of infringement, a copy of the infringement notification shall also be sent to the EU as provided for in chapter VIII.

## **Appendix 2. Pertinent Kenyan legislation relating to Observers**

### **The Fisheries Act (Chapter 378 of the Laws of Kenya)**

#### Part V. Section 18 – Powers of Officers

1. (1) For the purpose of enforcing this Act and any regulations made thereunder, any authorized officer may, without a warrant —
  - a. stop and board any fishing vessel in Kenya fishery waters, and any local vessel outside such waters, and he may inspect such vessel, its cargo, supplies, fishing gear and equipment;
  - b. stop and inspect any vehicle or vessel transporting fish;
  - c. require to be produced, examine and take copies of any licence, log or other document required under this Act or regulations made thereunder;
  - d. require to be produced and examine any fish, net or any other fishing gear; or
  - e. impound any fish to be taken as samples and issue a receipt in the prescribed form.
2. An authorized officer may, if he believes that an offence has been committed under this Act or regulations made thereunder, without a warrant —
  - a. enter any premises which he has reason to believe have been used in the commission of the offence, or in respect of which the offence has been committed;
  - b. arrest any person whom he has reason to believe has committed the offence; or
  - c. seize any fish, fishing gear, vessel, vehicle or other article which he has reason to believe has been used in the commission of the offence, or in respect of which the offence has been committed.
3. Any person arrested under this section shall be brought before a court as soon as reasonably practicable.
4. A fisheries officer who seizes anything under this section shall, at the time of the seizure, issue to the person in whose custody or possession it then is a written receipt for the thing seized.
5. Anything seized under this section where practicable, be brought before a court, and except where otherwise provided by this Act, shall be dealt with according to the Criminal Procedure Code (Cap. 75).
6. Where any fish or other article seized under this section is of a perishable nature, an authorized officer may dispose of it by sale or otherwise and any proceeds shall be held in place of the article disposed of.
7. Any local fishing vessel or vehicle or fishing gear seized under this section may upon application to the court and subject to the deposit in court of adequate bond or other security for the reasonable value thereof, be released to the person entitled thereto.

### **Fisheries (Foreign Fishing Craft) Regulations, 1991.**

Part V – Miscellaneous Provisions

Regulation 44. Observers

1. For the purpose of collecting scientific data and carrying out such other management and enforcement activities as he may authorize, the Director may assign an observer to any foreign fishing craft and the owner and master of any vessel to which such an observer is assigned shall —
  - a. cause the vessel to proceed to such places and at such times as may be designated by the Director for the purpose of embarking and disembarking the observer;

- b. provide, at no cost to the observer or the Government of Kenya, accommodation and food for the observer aboard the fishing craft, which are equivalent to those provided to the officers of the fishing craft;
- c. allow the observer to use the craft's communications equipment and personnel as necessary for the transmission and receipt of messages; and
- d. provide all other reasonable assistance to enable the observer to carry out his duties.

### **Appendix 3. Pertinent Madagascan legislation relating to Observers**

Decree No. 94-112, establishing the general organisation of Maritime Fishing (1994).  
Article 24, 3 (d).

The above-mentioned agreements may also make provision for:

The presence of Malagasy inspectors or observers on board vessels sailing under foreign flags during all or part of the time they are present in the maritime waters under national jurisdiction;

#### **Chapter IV, Section 5 – Observers**

##### **1. Observation of fishing activities**

1.1. Both Parties recognise the importance of fulfilling the obligations under relevant IOTC Resolutions as regards the Scientific Observer Programme.

1.2. For the purposes of complying with these obligations, the provisions applicable to observers are as follows:

1.2.1. At the request of the Malagasy authorities, the European Union fishing vessels authorised to fish in the Malagasy fishing zone shall take on board observers representing 10 % of the total number of vessels authorised to fish, per fishing category as referred to in Chapter I.

1.2.2. The observers shall be responsible for ensuring the application of the provisions provided for in the IOTC resolutions referred to in point 1.1 or any other need to collect scientific information identified by the relevant Malagasy national institute or by the joint scientific working group.

1.2.3. Observers shall be appointed by the competent authorities of Madagascar.

1.3. Vessels with a tonnage equal to or less than 100 GT shall be exempt from the provisions laid down in this section.

##### **Designated vessels and observers**

2.1. At the time of the issuing of the fishing authorisations, Madagascar shall publish and, if necessary, update a list of the vessels selected to take an observer on board in accordance with the objectives referred to in point 1.2.2 above.

2.2. Madagascar shall electronically forward this list to the EU immediately after its issuing or updating. If one of the vessels selected is short of space and if this shortage is duly documented as being due to safety requirements, particularly relating to acts of piracy, the European Union and Madagascar shall amend the list of vessels selected in order to reflect this situation, while ensuring that the objective referred to paragraph 1.2.1. can be met.

2.3. Once the list of vessels selected to take an observer on board has been finalised, Madagascar shall inform the vessel owners or their agents of the vessels which must allow an observer to embark when operating in the fishing zone of Madagascar.

2.4. Once the embarkation date has been agreed between the Malagasy authorities and the vessel owner selected as referred to in point 7.2 of this section, Madagascar shall inform the EU and the vessel owner, or its agent, of the name and details of the observers appointed.

2.5. Madagascar shall immediately inform the EU and the European Union vessel owners concerned, or their representative, of any change to the designated vessels and observers in accordance with points 2.1 and 2.3 of this section.

2.6 Madagascar and the EU shall make every effort, in collaboration with the other coastal States of the South-West Indian Ocean, to develop a concerted regional implementation of the observer programme, inter alia at the initiative of the IOTC.

2.7 A European Union fishing vessel designated to take on board an observer in accordance with point 2.1 shall be exempt from complying with this obligation if an observer is already on board and continues to be on board throughout the planned duration, provided that the observer:

- is recognised by means of a regional observer programme to which Madagascar and the EU are Parties; or
- was taken on board as a result of obligations equivalent to those referred to in point 1.2.2 of this section and provided for in other Sustainable Fisheries Partnership Agreements between the European Union and other coastal States in the South-West Indian Ocean;
- is in a position to meet the objectives contained in paragraphs 1.2.1 and 8 of this section and can transmit to the Malagasy FMC his observations at the time that the vessel is present in Madagascar's fishing zone.

2.8. The observers shall not spend more time on board the vessel than is necessary to carry out their duties.

### ***Financial contribution by the vessel owners***

3.1. Without prejudice to an observer programme agreed at regional level, as referred to in point 2.6 of this section and in respect of any observer appointed by Madagascar to be taken on board a European Union fishing vessel, the vessel owner shall contribute the sum of EUR 20 for each day that the observer is on board. This sum shall be paid by the vessel owners to the Observers Programme administered by the FMC of Madagascar.

3.2. All costs of mobilisation and demobilisation between the port of embarkation or disembarkation and the habitual residence of the Malagasy observer to Madagascar shall be borne by the vessel owner.

### ***Observer's salary***

The salary and social contributions for the observer shall be borne by the authorities of Madagascar.

### ***Embarkation conditions***

5.1. The embarkation conditions for the observer, in particular the duration of presence on board, shall be defined by mutual agreement between the vessel owner or its local agent and Madagascar.

5.2. Observers shall be treated on board as officers. However, receiving the observer on board shall take into account the technical structure of the vessel.

5.3. The vessel owner shall bear the costs of providing accommodation and food for the observer on board.

5.4. The master shall take all the measures for which he is responsible to guarantee the physical safety and general wellbeing of the observer.

5.5. The observer shall be offered every facility needed to carry out their duties. The master of the vessel shall provide observers with access to means of communication and any documents on board, and to documents relating to the fishing activities of the vessel, in particular the fishing logbook, freeze log and navigation log, and the parts of the vessel directly linked to their duties.

### **Observer's obligations**

Whilst they are on board observers shall:

- take all appropriate measures so as not to interrupt or hinder fishing operations;
- respect on-board property and equipment;
- respect the confidential nature of any document belonging to the vessel.

### **Embarkation and landing of observers**

7.1. The observer shall embark in a port chosen by the vessel owner.

7.2. The vessel owner or its representative shall notify Madagascar, with a notice period of 10 days before embarkation, of the date, time and port of embarkation of the observer. If the observer is embarked in a foreign country, his travel and transit expenses (including as regards accommodation and food) in order to reach the port of embarkation shall be borne by the vessel owner.

7.3. If the observer does not arrive to embark within 12 hours of the date and time set, the vessel owner shall be automatically discharged from his obligation to allow the observer to embark. They shall be free to leave the port and start fishing operations.

7.4. If the observer is not disembarked in a Malagasy port, the vessel owner shall bear the costs of their travel and transit expenses (including as regards accommodation and food) in order to reach their habitual residence in Madagascar.

7.5. If the vessel does not arrive at the agreed time at a previously agreed port to receive an observer, the owner shall pay the costs relating to the observer's inability to board while waiting at the port (accommodation, food).

7.6. If the vessel does not arrive, Madagascar may suspend the fishing authorisation of the vessel concerned and apply the penalties provided for under the Malagasy legislation in force, except in case of force majeure notified to the Madagascar FMC. In the latter case, the vessel owner shall agree, with the Malagasy authorities, a new date for the observer's embarkation and the vessel may not engage in fishing activities in the fishing zone of Madagascar until the observer has been taken on board. Madagascar shall immediately inform the EU and the vessel owner of the measures taken

pursuant to this point.

### **Observer's obligations**

8.1. The observer shall carry out the following duties:

8.1.1. Collating all information relating to the vessel's fishing activities, in particular as regards:

- the fishing gears used.
- the position of the vessel during fishing operations;
- the volumes or, where appropriate, the number of fish caught for each target species and each associated species, as well as the number of accidental catches and by-catches;
- an estimated number of catches retained on board and discards;

8.1.2. Conducting the biological sampling provided for in scientific programmes.

8.2. The observers shall, on a daily basis, communicate observations by radio, fax or e-mail while the vessel is operating in Madagascar's fishing zone, including the quantity of catches and by-catches on board and any other duties as required by the Malagasy FMC.

### **9. Observer's report**

9.1. Before leaving the vessel, the observer shall submit a report of his observations to the master of the vessel. The master of the vessel shall have the right to make comments in the observer's report. The report shall be signed by the observer and the master, who will receive a copy of the report. If the master refuses to sign the observer's report, he shall write in the inspection report the reasons of his refusal with the mention 'refusal to sign'.

9.2. The observer shall send his report to the Malagasy FMC, which shall send a copy of it to the EU within 15 working days of the disembarkation of the observer.

## **Appendix 4. Pertinent Mauritian legislation relating to Observers**

### **The Fisheries & Marine Resources Act 2007**

#### **61. Duties of fishery control officers**

A fishery control officer shall, while in the exercise of his powers under this Act, produce on request such means of identification as determined by the Permanent Secretary for the purposes of enforcing this Act.

“fishery control officer” means a Fisheries Officer and includes –

- a. a police officer;
- b. an officer of the Customs Department of the Mauritius Revenue Authority;
- c. a forest officer;
- d. an authorised officer under the Food Act;
- e. a veterinary officer; or
- f. an authorised officer of the Ministry responsible for commerce;

#### **74. Regulations**

- I. The Minister may make regulations for the purposes of this Act, and in particular for the purpose of –  
providing for the placing of observers on board any fishing boat or fishing vessel licensed under this Act to fish or carry out any related activity in the maritime zones or beyond as the case may be and prescribing rules relating to observers;



## **Appendix 5. Pertinent Seychelles legislation relating to Observers**

### **Seychelles Fisheries Act 24 of 2014** PART V - ENFORCEMENT MEASURES

#### Sub-Part I Powers of Authorised fishery officers in Seychelles waters and beyond, and on land

48.

1. The Minister may appoint in writing an officer or other employee of the Authority or any other persons as the Minister thinks proper, to be authorised fishery officers for the purposes of this Act, on such terms as may be determined by the Minister.
2. Without prejudice to subsection (1), the following persons shall be deemed to be authorised fishery officers for the purposes of this Act –
  - a. public service officers requested by the Minister to assist authorised fishery officers in the performance of their functions;
  - b. members of the Defence Forces, the Seychelles Police or the National Drugs Enforcement Agency requested by the Minister either generally or in specific matters, or Authority in case of urgency; or
  - c. any other person as the Minister may consider necessary.
3. An authorised fishery officer shall, while in the exercise of his or her powers under this Act, produce on request such means of identification as determined by the Authority for the purposes of enforcing this Act.
4. An authorised fishery officer may, in the exercise of his or her powers under this Act or any regulation made thereunder use or employ such force as may be reasonably necessary.
5. An authorised fishery officer appointed under this section may, when exercising any powers or performing any functions under this Act or any regulations made thereunder, be assisted by persons referred to in subsection (2).
6. A person referred to in subsection (2)(b) may take with him or her any equipment or materials including firearms or other weapons to assist the authorised fishery officer in the exercise of his or her powers. or the performance of his or her functions under this Act.
7. An authorised fishery officer may arrest a person whom he or she has reasonable grounds to believe to have committed an offence under this Act.
8. The Minister may, without assigning a reason, revoke in writing the appointment of an authorised fishery officer, whereupon his or her appointment shall be immediately terminated.
9. A person whose appointment as an authorised fishery officer has been revoked under subsection (8), shall return to the Minister or such other person as the Minister shall designate, his or her appointment and all other documents and items in his or her possession solely referable to his or her having been an authorised fishery officer.

49.

1. For the purposes of enforcing this Act and any regulations made thereunder, an authorised fishery officer may stop, board, search and inspect-
  - a. any fishing vessel in Seychelles or Seychelles waters; or
  - b. on the high seas –
    - a joint venture fishing vessel, a local fishing vessel or a Seychelles fishing vessel; or
    - a fishing vessel flying the flag of a State party to a bilateral or an international agreement

to which Seychelles is a party and which provides for such stopping, boarding; searching, seizure and detention of such fishing vessel.

2. An authorised fishery officer may, in the exercise of his or her powers under subsection (1) -
  - a. if the fishing vessel is underway, order it to be stopped or . manoeuvred as directed for the purposes of identification or of allowing him or her to go on board it;
  - b. require the master to facilitate the boarding of the fishing vessel by all appropriate means;
  - c. go on board the fishing vessel and take with him or her other persons as he or she may require to assist him or her in the exercise of his or her powers;
  - d. require the master or any member of the crew of the fishing vessel to produce the certificate of registry, licences, authorisations, logbooks or other records relating to the fishing vessel and examine and take extracts from or copies of them;
  - e. require the master to produce for examination records of crew or any member thereof or any person on board the vessel;
  - f. request and take the name and address of any person on board the vessel;
  - g. muster the crew of the vessel;
  - h. require the owner, master or any member of the crew of the fishing vessel to produce for examination any fishing gear or equipment on board the vessel and any fishing gear used from the vessel and for that purpose order the owner, master or any member of the crew of the vessel to bring on board any fishing gear that may be in use;
  - i. require the master of the vessel to appear before him or her and give any explanation concerning the vessel and any fishing gear or equipment on it or concerning the vessel's fishing activities and the certificates, licences, permits, authorisations., logbooks, or other records relating to it and any crew or any person on board it;
  - j. search the fishing vessel including' any package, hold, tank, container or other craft on board;
  - k. inspect any vessel monitoring device, vessel tracking device, communication equipment, fish locating or monitoring equipment, positioning equipment and any other equipment on board the vessel;
  - l. require the owner, master or a member of the crew of the vessel to demonstrate the operation of any of the device or equipment referred to under paragraph (k) for the purposes of verifying whether that device or equipment is or has been operated properly, has not been tampered with or otherwise modified Or interfered with and is protected against improper use;
  - m. take samples of any fish or fish products found on board; or
  - n. make any search, examination or enquiry which he or she shall consider necessary to find out whether any provision of this Act or any regulations made thereunder have been contravened.

56.

1. An observer programme shall be established by the Authority for the purpose of collecting and reporting reliable and accurate information on the activities of fishing vessels.
2. The Authority may appoint a person to be an observer for the purposes of the observer programme under subsection (1).
3. An observer may be appointed in accordance with such manner and on such terms and conditions as may be prescribed or as contained in a fishing agreement under section 12.

## **Appendix 6. Pertinent Tanzanian legislation relating to Observers**

### **The Fisheries Act No. 22 of 2003**

Part II - Administration, Section 5, Registration, licensing, enforcement officers and Inspectors

1. There shall be appointed such officers to ensure efficient effective and economical management and supervision of fisheries in accordance with the provisions of this Act.
2. Officers appointed under this section shall be allocated or delegated such functions and shall be located in such offices or institutions as the Director shall consider appropriate for the proper management of fisheries.
3. There shall be a central registry of fishing vessels registered in accordance with the provisions of this Act.
4. For the purpose of this section the Director, shall be the Registrar of fishing vessels.
5. Subject to the provisions of subsection (2), the Director shall appoint the following-
  - a. vessel registration and licensing officers;
  - b. enforcement officers; and
  - c. fish inspectors.
6. Officers appointed under this section shall carry identification cards and be answerable to the Director.
7. The Minister may by notice published in the Gazette, designate any person to be an authorized officer for the purpose of all or any provisions of this Act.
8. The Director shall by notice published in the Gazette, and subject to such qualifications or exceptions as may be prescribed therein delegate to such public officer, local authority, the exercise or performance of any of the functions conferred or imposed on him by this Act.
9. Nothing in this section shall be taken to prevent any local authority from appointing such qualified officers as it considers necessary to enable it to discharge such functions as are vested in it or allocated to it by and under this Act.
10. Any local authority officers appointed to discharge functions under this Act shall have regard to any directives and circulars issue by the Director.
11. Notwithstanding the provisions of subsection (5), the names of officers appointed under this subsection shall be published in the Gazette.

### **The Fisheries Act of 2010**

Part V – Conservation Measures, Section 23, Powers of authorized officers.

1. For the purpose of enforcing this Act, any authorized officer may, without a warrant:-
  - a. stop and board any vessel in the internal waters, territorial waters or Exclusive Economic Zone of Zanzibar, and he may inspect such vessel, its cargo, supplies, fishing gear and equipment;
  - b. stop and inspect any vehicle or vessel transporting fish, fish product, aquatic flora or product of aquatic flora;
  - c. require to be produced; examine and take copies of any licence, log or other documents required under this Act or regulations made thereunder;
  - d. require to be produced; and examine any fish, fish product, aquatic flora or product of aquatic flora, net or other fishing gear;
  - e. take sample of any fish, fish product, aquatic flora or product of aquatic flora.

2. Any authorized officer, where he has reasonable grounds to believe that an offence has been committed against this Act or regulations made thereunder, may, without a warrant:-
  - a. enter any premises which are not being used exclusively as a dwelling place, in which he has reason to believe that any fish, fish product, aquatic flora or product of aquatic flora, fishing gear or other article used in the commission of the offence or in respect of which the offence has been committed is kept;
  - b. arrest any person who has committed the offence;
  - c. seize any fish, fish product, aquatic flora or product of aquatic flora, fishing gear, vessel, vehicle or other article used in the commission of the offence or in respect of which the offence has been committed.
3. A receipt shall be given for any article or thing seized under the preceding subsection (2) of this section and the grounds for such seizure shall be stated in such receipt.
4. Any authorised officer shall, in his personal capacity, not be liable in civil or criminal proceedings in respect to any act or omission done in good faith in the performance of his functions under this Act.

Deep Sea Fishing Authority Act No 1 of 1998, its Amendments of 2007 (Act No. 4 of 2007)

## ***PART II - Establishment of the deep, sea fishing authority***

### **Section 4**

1. The functions of the Deep Sea Fishing Authority shall be:
  - a. to regulate the licensing of persons and ships intending to fish in the Exclusive Economic Zone;
  - b. to initiate, implement and ascertain the enforcement policies on deep sea fishing vessels;
  - c. to formulate and coordinate programmes for scientific research in respect of fishing;

## ***PART III – Management of the Deep Sea Fishing Authority***

### **Section 3**

1. The Director General shall be the Chief executive officer of the Authority and shall be responsible to the Executive Committee and to the Minister for the keeping and maintenance of records of:
  - a. vessels licensed to carry out fishing activities in the Exclusive Economic Zone of the United Republic,
  - b. catches of fish by vessels licensed to carry out fishing activities,
  - c. illegal practices and defaulters Of rules and regulations made under this Act.



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