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**INTERAFRICAN BUREAU
FOR ANIMAL RESOURCES**



STATUS OF THE FISHERIES MONITORING, CONTROL AND SURVEILLANCE SYSTEMS IN NORTH AFRICA

***Strengthening National and Regional Capacities for
Combating Illegal, Unreported and Unregulated Fishing***

AUGUST 2016

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TABLE OF CONTENTS

ACKNOWLEDGMENTS	iv
ACRONYMS AND ABBREVIATIONS	v
EXECUTIVE SUMMARY	vii
I INTRODUCTION	I
1.1. <i>The Concept of Monitoring, Control and Surveillance</i>	2
1.2. <i>MCS Components and Tools</i>	2
1.3. <i>Importance of Addressing IUU Fishing in the North African Members States</i>	6
1.4. <i>Analysis of regional best practices, success stories and lessons learnt in MCS and the fighting against IUU fishing</i>	7
1.5. <i>Approach and summary of the methodology adopted</i>	8
2 INTERNATIONAL LEGAL FRAMEWORK ON MCS AND FIGHT AGAINST IUU FISHING	10
2.1. <i>Further Organizational Consideration for MCS enforcement</i>	10
2.2. <i>The Concept of IUU fishing</i>	12
2.3. <i>Main International Fisheries Instruments and MCS and IUU fishing Legal Framework</i>	13
2.4. <i>International Cooperation on MCS and to Combat IUU Fishing</i>	17
3 REGIONAL FRAMEWORK ON MONITORING CONTROL AND SURVEILLANCE	19
3.1. <i>Fisheries related organizations</i>	19
3.2. <i>Policy Framework and Reform Strategy for fisheries and aquaculture in Africa</i>	22
3.3. <i>Analysis of regional MCS Capability to combat IUU fishing for GFCM</i>	24
3.4. <i>Other Regional Institutions</i>	28
4 NATIONAL FRAMEWORKS ON MCS AND COMBATING IUU FISHING	30
4.1. <i>Brief introduction of the marine capture fisheries in the sub-region</i>	30
4.2. <i>Trends in national and regional MCS frameworks challenges</i>	44
5 FINDINGS AND RECOMMENDATIONS	52
5.1. <i>SWOT Analysis</i>	52
5.2. <i>Findings and recommendations per specific objective</i>	53
6 ANNEXES	56
Annex I. REFERENCES	56
Annex II. GFCM ROAD MAP TO FIGHT IUU FISHING IN THE MEDITERRANEAN SEA	61
Annex III. SWOT ANALYSIS	64

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ACRONYMS AND ABBREVIATIONS

AIM 2050	Africa's Integrated Maritime Strategy
AIS	Automatic Identification System
AU(C)	African Union (Commission)
AU - IBAR	African Union – Inter-African Bureau for Animal Resources
CAADP	Comprehensive Africa Agriculture Development Programme
CAGIP	Center for the Administration and Management of Fisheries Information
CAMA	Conference of African Ministers of Agriculture
CAMFA	Conference of African Ministers of Fisheries and Aquaculture
CARFS	Comprehensive African Fisheries Reform Strategy
CCAMLR	Commission for the Conservation of Antarctic Living Resources
CCRF	Code of Conduct for Responsible Fisheries
CEMZA	Combined Exclusive Maritime Zone of Africa
CENSAD	Communauté des États sahélo-sahariens
COC	GFCM Committee of Compliance
COFI - FAO	Committee on Fisheries - FAO
DREA	Department for Rural Economy and Agriculture
EEZ	Exclusive Economic Zone
EU	European Union
FAO UN	Food and Agriculture Organization of the United Nations
FAO Code	FAO Code of conduct for responsible fisheries
FAO IPOA- IUU 2001	International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
FOC	Flag of Convenience (FOC)
GFCM	General Fisheries Commission for the Mediterranean
GDP	Gross Domestic Product
GPS	Global Positioning System
HQ	Headquarter
ICCAT	International Commission for the Conservation of Atlantic Tunas (ICCAT)
ILO	International Labour Organization
IUU fishing	Illegal, Unreported and Unregulated fishing
MoA	Ministry of Agriculture
MCS	Monitoring, Control and Surveillance
NPOA - IUU	National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
PAF	Partnership for African Fisheries
PAFPF	Pan-African Fisheries Policy Framework
PSMA 2009	FAO Port State Measures Agreement
REOs	Regional Economic Organizations
RFMOs	Regional Fisheries Management Organizations
ToR	Terms of Reference
UMA	Union Maghreb Arab
UNCLOS 1982	United Nations Convention on the Law of the Sea
UNFSA 1995	United Nations Fish Stocks Agreement
US D	United States Dollars
UVI	Unique Vessel Identifier

VDS Vessel Detection Systems
VMS Vessel Monitoring System

EXECUTIVE SUMMARY

The Final Technical Report reviews the current status of Monitoring, Control and Surveillance (MCS) and IUU fishing in the AU Northern African region (Algeria, Egypt, Libya and Tunisia), as a baseline document, information and knowledge for the African Union (AU) Northern Africa member States, in support of their efforts in the development and implementation of an effective MCS system in the region and combat Illegal Unreported and Unregulated (IUU) fishing.

Fish is the most important source (36 %) of animal protein in Africa, broken down as follows: marine fish, 21 %, inland water fish, 11 % and aquaculture 5 %. The per capita medium average fish consumption for the African countries, in 2010 was 9.1kg/year, less than half of the global average (18.4kg/year)¹.

A recent FAO study² states that in Africa the fisheries and aquaculture sector employs about 12.3 million people. Half of the 12.3 million people employed in the whole fisheries sector are fishermen, 4.9 million (42.4 %) are processors and 0.9 million (7.5 %) work in fish farming. More than half of the fishermen (55 %) are employed in inland fisheries, whereas the largest share of processors (42 %) works in marine artisanal fisheries, followed by 30 % in inland fisheries and 28 % in industrial fisheries. Many small-scale ('artisanal') fisheries involve high food/livelihood dependency on fishing, and often represent employment of last resort, particularly in weak and post conflict states. The total annual fisheries production is estimated to be about 8 million metric tons, which represents about 5 % of world fisheries production, and contributes at least 10 billion USD to African economies every year.

IUU fishing is a global phenomenon having severe environmental and socio-economic impacts. It is estimated that 20% of all catches in the world are from IUU fishing. Developing countries pay the highest price for these illegal activities.

The implementation of MCS to combat IUU fishing has its legal basis in international nonbinding instruments such as the United Nations Convention on the Law of the Sea, UN Fish Stocks Agreement, FAO Compliance Agreement, the FAO Code of Conduct for Responsible Fisheries and the International Plans of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU), and the FAO Port State Measures Agreement and ancillary instruments. These instruments provide the adoption of a number of MCS measures and tools all along the production and supply and value chain.

The fisheries in Africa is characterized by weak MCS systems and potential IUU fishing activities, contributing to create overfishing problems and resulting in a loss of revenues, food security and other social benefits for the concerned populations.

To improve the capacity of sustainable management and better share benefits of the management of fisheries resources in Africa, the African Union has developed a Policy Framework and Strategy³ for Reform of Fisheries and Aquaculture, adopted by the 23rd summit of African Heads of States and Governments in Malabo, Equatorial Guinea, in June 2014.³

To contribute to the implementation of the AU Policy Framework and Strategy of Reform, the African Union has received support from the European Union to implement a project on '**Strengthening institutional capacity to improve the governance of the fisheries and aquaculture sector in Africa**'.

¹ Source: FAO, 1981. Report on an expert consultation on MCS for fisheries management. Rome, FAO.

² Source: AUC-NEPAD, 2014. The Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa. African Union, AU-IBAR.

³ Source: De Graaf, G., Garibaldi, L., 2014. The value of African fisheries. FAO Fisheries and Aquaculture Circular. No. 1093. FAO, Rome.

The Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa I., at point 4.1. (Conduct fisheries within enforceable regulatory frameworks), states the need for African member States to ensure conservation and sustainable use of fisheries resources, that requires an appropriate statutory/regulatory framework, clearly understood, enforceable and supported by resource users and others, to be achieved inter alia by:

- developing and strengthening the institutional framework for MCS for both marine and inland fisheries for combating IUU fishing.
- improving regional cooperation and collaboration for sustainable fisheries management.

In line with the mandate of African Union, it has been considered for the review of four Northern Mediterranean coastal African members States, namely: Algeria, Egypt, Libya and Tunisia.

In 2012, the capture fisheries production represented 83% of total fish production in Africa. The contribution of captured fishes from the Northern Africa Region (including Morocco and Sudan) in the same year amounted to 22% of the total continental captured fish production².

The Technical Report reviews the current status of MCS and IUU fishing in the Northern Africa region marine resources

The analysis is based mainly on a desktop review and analysis of documents and reports, such as international fisheries instruments and regional organizations and national Authorities reports, and regional Northern African State fisheries. The findings were presented to stakeholder's consultative meeting in Cairo, Egypt, August 2016, that also provided some inputs that enriched the report.

To fill data gap, a remote survey with questionnaires on the status of implementation of MCS and combat IUU fishing has been transmitted to the national fisheries related Authorities and regional fisheries bodies; however, unfortunately, answers were absent.

To collect further updated data and information and cross-check data, at regional and National level, the consultant attended a meeting in Rome at the General Fisheries Commission for the Mediterranean (GFCM) headquarter with GFCM's technical officers.

The analysis of individual capacity for MCS and the Recommendations highlighted are therefore primarily based on available data, mainly from the desk study of GFCM related meetings reports and inputs from the Stakeholders' workshop held in Cairo, Egypt, August 2016..

Objective:

The overall objective of the consultancy is to develop a baseline document on the current state of Fisheries Monitoring, Control and Surveillance systems in North Africa region.

The pillars of this Report include the general overview of the framework of MCS and IUU fishing as developed by GFCM, the status of implementation of these frameworks and effort at combating IUU fishing in the in North Africa coastal countries (Algeria, Egypt, Libya and Tunisia). Recommendations and proposals are made for further development of MCS at national and regional levels, elements of the road map to fight IUU fishing in the Mediterranean sea (Annex II) are given, a SWOT analysis (partially available in the findings and in Annex III). References collected and consulted are in Annex I.

An outline of the chapters is given below:

- Chapter 1 of the Technical Report looks into the concept of MCS and the importance of the system in combating IUU fishing. General recommendations are provided.
- Chapter 2 of the Technical Report analyses the international legal framework (and other relevant instruments) on MCS and IUU fishing. General recommendations are provided.
- Chapter 3 of the Technical Report analyses the regional framework on MCS and efforts at combatting IUU fishing with focus on North African countries. General recommendations are provided.
- Chapter 4 of the Technical Report is on the assessment of national legal framework and state of the art of MCS and combatting IUU fishing for each of the North African member countries. General recommendations are provided.
- In chapter 5 the Technical Report provides findings, general and specific recommendations to support North African countries efforts to strengthen regional and sub-regional cooperation for developing effective MCS systems and combatting IUU fishing

On the basis of the findings in chapter 4 and others, it is recommended to the North African countries (Algeria, Egypt, Libya and Tunisia) to:

- Give priority to sustainable fisheries management in their policies; reinforce the governance of the sector, drafting policies and strategies for the sustainable and equitable fisheries management and co-management and develop multi-annual development plans.
- Draft a sub-regional (or national) MCS multi-year strategy and national plan of Action (NPOA).
- Assess the needs and up-to-date the legal frameworks, compliance with International legal instruments and tools and finalize the accession to the international related agreements (e.g. FAO Port states measure Agreement, FAO Flag state, FAO Voluntary Guidelines for small-scale fisheries, pan Africa Policy framework and Reform Strategy for fisheries and aquaculture Africa etc.), harmonizing them at international and sub-regional (within the 4 countries) levels.
- Support and strengthen the GFCM center and centralized VMS system and other MCS tools and conduct an identification/feasibility study to assess the costs of introduction of transponders (VMS or other MCS tools) to be able to interact with the centralized system for MCS and alert on IUU fishing, as well as search and rescue at sea (Fisheries Monitoring Operations (FMOs) at country level is not recommended due to the high costs involved).
- Assess the capacities of human resources (Administrations and small-scale fisheries associations) and strengthen them through dedicated training of trainers, exchange visits and awareness campaigns.
- Conduct pilot projects, including joint international inspection scheme and observer programmes, for enhancing capacity of enforcement of observers, inspectors and small-scale fishermen at sub-regional (4 countries) and GFCM level.
- Develop tools (including manuals), such as the joint international inspection scheme and observer programmes for GFCM Members, including at sub-regional level (4 countries).
- Improve traceability mechanisms and certification schemes and take measures to prevent and eliminate the trade in IUU products.

The following, are important findings and recommendations specific to the objective of this review :

Objective 1: Assess the capacity for MCS in the AU member States and their effectiveness, strengthen and weakness.

Findings: Despite some progress, the capacity for MCS of the North African countries members is far from being effective. In particular, it has to be noted inter alia the lack of bi-lateral cooperation and information sharing among the countries, the lack of appropriate policies and strategies, low capacity to manage the systems, low financial resources and the lack of involvement of the small-scale fisheries sector in the

sustainable and equitable management of fisheries resources. A sub-regional legal framework assessment and harmonization (namely for infringements and penalties (administrative and penal) is recommended.

Objective 2: Identify difficulties and challenges related to capacity building for fisheries MCS by the Member States.

Findings: The lack of capacities in relevant MCS training.

Objective 3: Make thorough examination of fisheries Observer Programs in AU countries.

Findings: None of the countries has ratified the international FAO agreements on flag state and port state measures. In the concerned countries, there are only ICCAT observers on the few tuna fishing vessels in accordance with ICCAT recommendation and where they exist, they are not well trained inspectors. Lack of manual for observers and inspectors at national or regional level is also a challenge.

Objective 4: Assess the status of fishing vessels registers and analyze the obstacles to the establishment and/or non-operationalization of vessel registers (domestic and regional). Fishing Vessel registers are essential tools for effective MCS.

Findings: Vessel registers and licences for vessels and fishermen are operational at regional and country level. It has to be noted however data sharing is not effective.

Objective 5: Examine the legal framework for MCS and identify the causes of weakness and/or lack of enforcement of laws and regulations in force in the AU countries for an effective deterrent against infractions in the industrial and artisanal fisheries.

Findings: It to be noted for all the countries legal frameworks are compliant with GFCM main management tools, where agreed, but in all the countries the legal framework is outdated (namely in Libya) and lacking in common vision and harmonization at international, regional and sub-regional level. The absence or the lack of national policies and/or strategies should be underlined.

Objective 6: Review regional arrangements, if any, for MCS cooperation, their effectiveness, strengthen and weaknesses.

Regional arrangements are updated; they are in force or about to enter into force (e.g. MCS centre, technical assistance, MOU, etc.). Participation in regional forums and meetings of the concerned countries is appreciable. A SWOT analysis is provided in the findings and in Annex III. The lack of human and financial resources, capacities as well of a common sub-regional strategy and lack of awareness and participation of small-scale fishermen associations should be noted.

Objective 7: Assessing/identifying challenges and constraints for regional cooperation in the fight against IUU fishing.

Findings: Any NPOA or adherence to FAO IPOA should be registered at country level. Due to the lack of permission of foreign fishing vessels and capacity to control, the reported cases of infringements by the members states are based on locally registered fishing vessels and penalties are different from country to country. The lack of participation and co-management with small-scale fisheries affects the fight against IUU fishing in fisheries characterized by a great presence of small-scale fishing.

Objective 8: Propose a framework for establishment of regional agreement for MCS, e.g. MCS Centre.

Findings: A pilot study for the establishment of MCS centre is taking place at GFCM level. It is suggested that North African member countries express their willingness to adhere to the centralized system (with

confidentiality rules), reducing costs of the establishment of national FMC and utilizing the systems of alert for IUU fishing and search and rescue related purposes.

Objective 9: Analyze the results obtained in the context of other national or regional past or current projects in the fighting against IUU fishing for the best practices, success stories and lessons learned.

Findings: FAO and GFCM have developed programmes for data collection and a pilot study in Lebanon, which can be replicated in the North African member countries.

Objective 10: Make proposals for effective and sustainable Monitoring capacity of fisheries in AU Member States.

On the basis of the SWOT analysis (Annex III) and findings and In line with the GFCM road map to fight IUU fishing in the Mediterranean Sea (see Annex II), the following recommendations are made to the North African member states (Algeria, Egypt, Libya and Tunisia)::

- Give priority to fisheries and sustainable co-management in their policies. Strengthen the governance of the sector, drafting policies and strategies for the sustainable and equitable fisheries management and co-management and develop multi-annual development plans.
- Draft a sub-regional (or national) MCS multi-year strategy and NPOA.
- Assess the needs and update the legal frameworks, complying with International legal instruments and tools and finalize the adherence to the international related agreements (e.g. FAO Port state, FAO Flag state, FAO guidelines for small-scale fisheries, Pan Africa Policy Framework and Reform Strategy for fisheries and aquaculture in Africa etc.), harmonizing them at international and sub-regional (4 countries) levels.
- Support and strengthen the GFCM center and centralized VMS system and other MCS tools and conduct an identification/feasibility study to assess the costs of introduction of transponders (VMS or other MCS tools) to be able to interact with the centralized system for MCS and alert on IUU fishing, as well as search and rescue at sea (FMOs at country level is not recommended for the high costs).
- Assess the capacities of human resources (Administrations and small-scale fisheries associations) and strengthen them with dedicated training of trainers, exchange visits and awareness campaigns.
- Conduct pilot projects, including joint international inspection scheme and observer programmes, for enhancing the capacity of observers, inspectors and small-scale fishermen at sub-regional (4 countries) and GFCM level.
- Develop tools (including manuals), such as the joint international inspection scheme and observer programmes to GFCM Members, including at sub-regional level (4 countries).
- Improve traceability mechanisms and certification schemes and take measures to prevent deter and eliminate the trade in IUU products.

Objective 11: Make proposals for a framework for establishing regional collaboration for establishing or strengthening regional MCS centre.

On the basis of the SWOT analysis (Annex III) and findings and In line with the GFCM road map to fight IUU fishing in the Mediterranean Sea (see Annex II), it is suggested and recommended to the North African member states (Algeria, Egypt, Libya and Tunisia) to:

- Establish and strengthen the GFCM centralized VMS system and continue in providing technical assistance and transfer of technology in the domain of MCS.
- Adapt tools (including manuals), such as the joint international inspection scheme and observer programmes to GFCM Members, including at sub-regional level.
- Improve traceability mechanisms and take measures to prevent deter and eliminate the trade in IUU products.

I INTRODUCTION

According to FAO 'The State of World Fisheries and Aquaculture Report' 2014¹ the availability of fish from Africa's fisheries could be increased by: (i) rebuilding overfished or depleted stocks and ensuring that small-scale fishers receive sufficient resources; (ii) reducing post-harvest losses; and (iii) ensuring a sufficient portion of small pelagic fish is made available for human consumption. As regards to (i), good management is needed to ensure recovery of overexploited and depleted stocks. Globally, good management has been estimated to boost availability of fish from marine capture fisheries by about 20 percent. Applying this percentage to Africa's fisheries, another 1.1 million tonnes of fish might become available. In this respect, governments should carefully consider allocation of rights and ensure that the small-scale sector, both marine and freshwater, has secure access to resources. In addition in relation to point (ii), it is estimated that 25 percent of the fish caught or landed in Africa never reaches consumers' mouths. Including fish that are lost through post-harvest loss, an estimated 35 percent of total landings does not benefit the consumer.

Fish is the most important source (36 %) of animal protein in Africa, broken down as follows: marine fish, 21 %, inland water fish, 11 % and aquaculture 5 %. The per capita medium average fish consumption for the African countries, in 2010 was 9.1kg/year, less than half of the global average (18.4kg/year)².

The recent FAO study³ has estimated that in the continent the fisheries and aquaculture sector employs about 12.3 million people. Half of the 12.3 million people employed in the whole fisheries sector are fishermen, 4.9 million (42.4 %) are processors and 0.9 million (7.5 %) work in fish farming. More than half of the fishermen (55 %) are employed in inland fisheries whereas the largest share of processors (42 %) works in marine artisanal fisheries followed by 30 % in inland fisheries and 28 % in industrial fisheries. Many small-scale ('artisanal') fisheries involve high food/livelihood dependency on fishing, and often represent employment of last resort particularly in weak and post conflict states. Fish exports from Africa constitute about 19 % of total agricultural volumes but notably 5 % of total value. The current total annual fisheries production is estimated to be about 10 million metric tons, which represents only about 6 % of world fisheries production, and contributes at least 10 billion USD to African economies every year in trade.

The principal cause of decline of the capture fisheries is attributed largely to prevalence of irresponsible fishing practices in the respective EEZ (Exclusive Economic Zone) of the African Union (AU) member states underpinned by ineffective fisheries management regimes.

Developing countries pay the highest price for these illegal activities due to weak governance systems, lack of knowledge and capacity to manage their waters and fishing vessels. As a result, coastal developing countries have their marine resources plundered by IUU operators which often come from other countries.

The fisheries in Africa is widely characterized by weak MCS systems and wide spread IUU fishing activities, that causes overfishing, with a resultant loss of revenue and other social benefits for the citizens of the continent. IUU fishing is a global threat having severe environmental and socio-economic impacts. It is estimated that 20% of all catches in the world stem from IUU fishing, jeopardizing stock and marine biodiversity. In Africa, the situation is exacerbated by ineffective observer programmes for monitoring fishing activities of licensed vessels, poor logistics for offshore fisheries surveillance, weak systems for vessel registration and licensing, lack of regional collaboration for the MCS systems. These weaknesses have considerably affected the capacity of the Africa continent to fully realize the socio-economic benefits

¹ Source: FAO, 1981. Report on an expert consultation on MCS for fisheries management. Rome, FAO.

² Source: AUC-NEPAD, 2014. The Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa. African Union, AU-IBAR.

³ Source: De Graaf, G., Garibaldi, L., 2014. The value of African fisheries. FAO Fisheries and Aquaculture Circular. No. 1093. FAO, Rome.

associated with rational exploitation of its aquatic natural resources. The growing negative impact of IUU fishing in EEZs of Africa resulting in an annual loss estimated between 2 and 5 billion USD (potential wealth) I.

1.1. The Concept of Monitoring, Control and Surveillance

A Monitoring Control and Surveillance (MCS) Conference of Experts organized by FAO in 1981 developed a widely accepted definition of MCS⁴ as:

- *Monitoring* - the continuous requirement for the measurement of fishing effort characteristics and resource yields.
- *Control* - the regulatory conditions under which the exploitation of the resource may be conducted.
- *Surveillance* - the degree and types of observations required to maintain compliance with the regulatory controls imposed on fishing activities.

1.2. MCS Components and Tools

MCS is one of the key fisheries management tools that can be applied to reduce the levels of IUU fishing. In its most simplistic form, MCS is an implementation mechanism that fisheries managers use to implement fisheries policies and management plans. In the past, MCS was widely viewed as an enforcement or compliance activity with which to ensure that agreed fishery control measures were adhered to and enforced. However, in more recent years, MCS is increasingly being viewed as an integral component of fisheries management processes that not only encompasses the traditional views of enforcement, but also incorporates the establishment of data collection systems, the enactment of legislative instruments, and the implementation of management plans through participatory techniques and strategies.

Data collection and monitoring are not only required to monitor the efficacy on MCS interventions. Stocks data that may be collected during the MCS activities may need to be passed on to the scientists for stock assessment purposes. This may include both biological data (e.g. size frequency data) and data outlining the estimated levels of compliance - the results of which are then feedback to the fisheries managers to assess the level of success of management frameworks, and if necessary, make appropriate changes.

As the management planning process is dynamic, adaptive, and needs to address a great diversity of issues that are often fishery specific, there are no specific rules or formulae that can be applied to the MCS planning component, and how MCS processes should integrate with the proposed management measures.

MCS has three spatial components: land, sea, and air. The land component of an MCS system serves as the base of operations and the coordinating centre for all MCS activities from which governments can regulate the deployment of resources to best address changing situations. It is the sector responsible for port inspections and the monitoring of transshipments and trade in fish products to ensure compliance with fisheries legislation. The sea component includes MCS activities undertaken in marine areas under the jurisdiction of a State and may also cover high seas areas. The technology involved in the sea component of MCS includes radar, sonar, and vessel platforms. The air component of MCS is usually the first level of response to a coastal State or region of concern and covers the air and space equipment such as aircrafts and satellites used in MCS activities. The flexibility, speed and deterrence of air surveillance make it a very useful and cost-effective tool for fisheries management. Different States and regions would have different application and combination of the land, sea, and air components of their MCS systems, based on cost, commitment, organizational structure, and fisheries management issues and priorities⁵.

⁴ Source: AUC-NEPAD, 2014. The Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa. African Union, AU-IBAR.

⁵ Source: FAO, 1981. Report on an expert consultation on MCS for fisheries management. Rome, FAO.

Key tools for MCS as the executive arm of fisheries management include I:

- a. an appropriate participatory management plan developed with stakeholder input;
- b. enforceable legislation and control mechanisms (licences etc.);
- c. data collection systems – dockside monitoring, observers, sea and port inspections, etc.;
- d. supporting communications system;
- e. patrol vessels capable of extended operating to remain at sea with the fishing fleets;
- f. aircraft available for rapid deployment to efficiently search large areas;
- g. use, where appropriate, of new technology (VMS, satellite, video, infra-red tracking, etc.);
- h. linked, land-based monitoring;
- i. support of the industry and fishers;
- j. bilateral, subregional and regional cooperation with other MCS components; and
- k. professional staff.

Developing participatory or co-management partnerships with the fishing industry, the fishermen and their communities, organizations, cooperatives, associations, unions, and fishermen companies is increasingly being recognized as an important component for developing effective MCS policy, strategies and implementation frameworks. Failure to align fishermen with MCS priorities, and strategies often results in strategies focusing too heavily on enforcement; this might then lead to possible results in a “heavy-handed” approach that in itself often results in management efforts becoming frustrated. A participatory approach in which communities and organizations are included in the planning design and implementation of the MCS strategies instils legitimacy into the process and the regulatory frameworks developed, and often results in improved fishermen compliance. Partnerships with the fishermen, their representatives and organizations, can be developed to provide cost effective monitoring of the fish stocks, and significantly improve the monitoring component of the MCS programme.

Law is central to MCS as it defines the roles, responsibilities and powers which States and fisheries management organizations have in the management of their fisheries resources. They also assign powers of enforcement to government officials and provide the rules and regulations by which fishermen must abide, as well as the judicial process for non-compliance. International law regulates the relationships between States, while National or Domestic law regulates the relationships between people within a State.

Data gathering activities undertaken before fishing include census data collection (Section 5.1), and this can be complemented by data collected during annual licensing processes. This will enable data on fishermen demographics and vessels and gear type used in each fishery to be regularly updated. Spot checks at the port can be used to check and gather data on gear, horse power, crew number, safety equipment, and basic seaworthiness amongst others. The simplest approach to gathering data during fishing is through the use of log book data. Types of data recorded in the log books include catch, effort, gear and location data, as well as environmental parameters. This information is highly valuable to fisheries managers, inexpensive to obtain and can be used aboard any ship. Major limitations regarding logbook data are that the quality of the reported data is dependent on the types of management measures imposed on the fishery (catch controls may influence reported catch data), the periodicity of the control measures, and fishermen’ perceptions of how important the logbook data is to manage the fishery.

Patrol vessels can be used during fishing to collect legally acceptable evidence of legal and illegal fishing activities. The personnel aboard these types of vessels can verify gear types, catch, logbook entries, discards and dumping. Patrol vessels are considered to be the most important tool in managing offshore and foreign fleets. However vessels are costly to operate, and can only cover relatively small areas. Patrol aircraft

(planes and helicopters) can gather accurate vessel location and identification data over large fishing zones, and over short periods of time. This information is useful for the accurate deployment of compliance vessels. They can also gather information on the location of schools of fish and large marine mammals, and gather data on reef habitat integrity. However, patrols aircraft cannot verify gear or catch, and are relatively expensive to deploy.

Observer programmes, whereby a fisheries official is on-board a fishing vessel throughout the fishing activity, can be used to obtain species specific biological data, by-catch, discard and dumping data, and fishermen independent time, date and position information. Observer programmes are a relatively low cost option for obtaining good quality data on a fishery, and act as a deterrent to illegal activities whilst the observer is onboard the fishing vessel. Limitations associated with observer programmes include that the observers require significant training, and that this option is only really suitable for larger vessels as the observers need to be accommodated on the boat.

Automatic Identification System (AIS), The International Maritime Organization (IMO) originally required transmission of AIS messages to prevent collisions. An AIS message, including location, identification, flag and cargo, is receivable by sensors on land or in the air, and today there is also frequent coverage using space-based AIS. There has been an issue with veracity of AIS data because of spoofing of AIS signals, which could be accidental due to maintenance issues but could also indicate deceptive operations. Another issue is monitoring high-density areas.

Vessel Detection Systems (VDS)- A Vessel Monitoring Systems (VMS) is a system in which an on-board transponder relays position, date, speed and directional information to (shore-based) fishing authorities in real time, can be used to assist with area control, border control, and provide accurate locations for patrol vessels to intercept vessels. They can be used to indicate the trans-shipment of fish and the transfer of fuel between vessels. These systems are highly effective for large vessels. However they only work on vessels that have been fitted with the VMS equipment. They also produce large quantities of data that must be analyzed, and are relatively expensive to install on smaller vessels. While gathering evidence of an IUU fishing offence remains a difficult task, electronic data has in recent times gained greater acceptance as reliable evidence in court proceedings. Satellite imagery provides accurate spatial information on the location of fishing vessels across large areas, and when used in conjunction with VMS data, can assist in the detection of illegal fishing activities. However it is an expensive technique to use if used frequently, and it is difficult to identify individual vessels from the images. All European Union vessels above 15 metres in length are fitted with a Vessel Monitoring System (VMS). Similar systems are operational or being brought into operation in other fishing areas and by other fishing nations. The system relies on satellite navigation and communication technologies. A “blue box” installed on board the vessel transmits the GPS-derived vessel position by satellite to the Fisheries Monitoring Centre (FMC) in the flag state which then communicates the information to the state or regional fisheries body in whose waters the vessel is fishing. The period between transmissions varies but is normally between one and two hours. The vessel can also be “polled” by the FMC. This allows the authorities to determine the position of all vessels fitted with VMS within a certain area at a certain time. The system enables the fishermen to demonstrate their compliance with regulations on days at sea, closed areas or closed seasons. The Vessel Detection System relies on polar orbiting satellites carrying Synthetic Aperture Radar (SAR) instruments which can detect vessels at sea under most conditions – day and night and through cloud. At present there are two main satellites carrying such instruments – the European Space Agency’s Envisat and the Canadian Radarsat. Each of these is able to provide an image of any point on the earth every two to three days – more as we move away from the equator. The sensor can operate in a number of modes – from wide area and low detail to smaller area

and higher detail. There are a number of steps in the process: (1) image acquisition, (2) SAR processing (converting raw signal into array of pixels), (3) vessel detection, (4) matching with VMS signals. Times of less than half an hour have been achieved for the whole processing chain. The studies indicate that the system can detect nearly all vessels subject to VMS under most weather conditions. Swaths of 300 km in open ocean and 50-100 km in coastal regions have been found to offer the best compromise between resolution and coverage. Matching VDS with VMS without ambiguity is possible if the VMS signal is within ten minutes of the satellite overpass. However, the system works best if all the VMS-equipped vessels within the image frame are “polled”. The main cost item is the cost of the images. This price is linked to the annual volume of purchases. The costs to the authorities amount to € 700-1500 per image. But it is expected that the price will go down in the near future when more satellites become available. The system is not designed to replace aircraft patrols but to complement them. The overview provided by VDS deters non-compliance and provides a baseline capability for identifying instances of non-compliance. The aircraft, with its closing-in capability, is used only when needed to collect evidence of illegal activity.

Beach patrols can be used to monitor fishing activities through the checking of licenses, bag limits, size limits and gear restrictions. It is also possible to conduct surveys with the fishermen while undertaking patrols which can provide a wealth of information on the near shore and shore artisanal and recreational fisheries and their participants. In some cases, beach patrols may be limited as certain areas cannot be reached by vehicle. Furthermore, their visibility can be a disadvantage as illegal fishermen may see the patrol and take evasive action.

The cellular phones are devices of high interest to people designing low-cost systems and are considered the best field solution for many artisanal fishermen. Advantageous features of smart phones include mobility, durability, wireless capability, and programmatic support for automatic tracking and transmission as well as manual data collection. Disadvantages of smart phones are that power typically lasts a maximum of 24 hours and automatic transmission capability is dependent on cell coverage, although data collected locally can be stored for later transmission. In addition, there is open-source software compatible with smart phones, which includes support for ecological / biological monitoring, as well as operational support and other needs of fishermen.

Landing points offer an opportunity to fisheries authorities to ensure that fishermen are complying with the input and output controls that have been put in place for a particular fishery. At the point of landing, fisheries officers can inspect catches, obtain log book information and undertake weighing and measuring of the catch per species. The major limitation with collecting data at landing points is that no data on locations, gear types used, fish trans-shipments, discards, by-catch, or dumping, can be obtained or verified.

Post landing data sources include data collected from wholesalers, national and export markets and transport companies. Data from these sources can be used to check that the volume of product is similar to that reported at landing. This also provides market information and price data. The limitation of post landing data is that it is often difficult to trace from where the fishery products originated.

MCS programmes should be operated by a lead organization that assumes overall responsibility for all implementation and coordination of activities. One of the key initial actions to be undertaken by the lead organization is the establishment of a coordinating committee that ensures representation of all participating organizations, and provides a mechanism to set priorities and deploy resources. In most instances, the National Fisheries Department would assume the lead role – as they are mandated to manage the living resources and fishing activities occurring within the territorial waters. Effective MCS systems depend on

acquiring quality personnel, and training them to the levels required to perform their duties effectively. All organizations participating in the MCS system must have sufficient resources and expertise to fulfil the roles assigned to them under each of the MCS components outlined in the operational plan.

In this regard, it is important that these additional departments also have sufficient resources and trained manpower to effectively implement the MCS plans. The level of expertise that is required by MCS staff ranges from basic literacy, interpersonal skills and general knowledge of the fishery, to higher level expertise such as those required for management, data analysis, and addressing policy and legal aspects. These latter components usually require higher level skills that are obtained through tertiary education.

Capacity building and training is an essential component to any MCS system, and should be viewed as a continuous process. Training programmes have to take into consideration staff turnover rates, personnel development, and additional training that may be required for new equipment or procedures that are incorporated into the MCS system.

1.3. Importance of Addressing IUU Fishing in the North African Members States

In 2012, the capture fisheries production represented 83% of total fish production in Africa. The contribution of captured fishes from the Northern Africa Region (including Morocco and Sudan) in the same year amounted to 22% of the total continental captured fish production⁶.

The following tables show the breakdown of fishing vessels by fishing-practice and number of registered fishermen by fishing-practice for the selected countries for the year 2008⁷.

Vessels group 2008 Country	TWL and DRG	PS	PLV	ART	PST	Country Total
Algeria	487	1.039		2,908	7	4.441
Egypt	1.095	238		1.791		3.124
Libya	140	165		4.695	29	5.029
Tunisia	399	360	227	10.316	24	11.326

Source: FAO Aquaculture and Fisheries profiles by country; national statistics and author's data (rounded totals; TRWL: trawlers and dredgers; PS: small-pelagic seiners; PLV: polyvalent vessels longer than 12 m; ART: small-scale artisanal fishing vessels; PST : tuna seiners; MAD: tunny nets).

Number of registered fishermen by fishing practice Country	TWL and DRG	PS	PLV	ART	PST	Country Total
Algeria	4.480	20.780		13.480	112	38.500
Egypt	8.760	4.760		4.478		18.000
Libya	560	1.320		5.313	464	7.660
Tunisia	5.426	5.508	1.249	36.106	384	48.670

Source: Aquaculture and Fisheries profiles by country; national statistics and author's data Key: TRWL: trawlers and dredgers; PS: small-pelagic seiners; PLV: polyvalent vessels longer than 12 m; ART: small-scale artisanal fishing; PST: tuna seiners.

According to FAO (2015), in the Mediterranean and the Black Sea, where the fishing fleet is composed of about 90 000 vessels in total, the small-scale segment (defined as vessel below 12 m in length overall, and represents more than 80 percent of the entire fleet (source: GFCM data).

Finally, the low fish consumption in the selected countries should be underlined (exempt for Egypt and Tunisia), The yearly consumption in kg per capita in 2007 was 7 kg/year for Algeria, 17kg/year for Egypt, 10 kg/year for Libya and 13 kg/year for Tunisia, sensibly lower than the Mediterranean one (18.6 Kg per capita/year).

⁶ Source: AU-IBAR, 2013. Regional assessment of fisheries issues, challenges and opportunities for North African region. Towards the formulation of the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa. AU-IBAR Regional Evaluation reports, December 2013.

⁷ Source: Sacchi, J., 2011. Analysis of economic activities in the Mediterranean: Fishery and aquaculture sectors", Plan Bleu, Valbonne.

1.4. Analysis of regional best practices, success stories and lessons learnt in MCS and the fighting against IUU fishing

Despite no specific studies (some undergoing) and analysis of MCS and IUU fishing are available for the North African countries, the following are reported FAO efforts on monitoring, data collection and analysis, as well as best practices from a pilot project for monitoring, control and surveillance in Lebanon I.

At Mediterranean level, the FAO Mediterranean projects I0 act in support of the Mediterranean countries in achieving sustainable fisheries management in the region through collaboration in each Mediterranean subregion on data collection. The FAO Mediterranean projects maintain a high level of coordination and cooperation with the GFCM, facilitate the cooperation of the participating countries, provide scientific contributions for discussion, and support participation of national experts in GFCM activities.

The following projects have been formulated and operated following the sub-regional implementation strategy by the GFCM.

ADRIAMED (Adriatic)

AdriaMed “Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea” is an FAO Regional Project and it is funded by the Italian Ministry of Agriculture, Food and Forestry Policies (MiPAAF).

COPEMED (Western and Central Mediterranean)

Advice, Technical Support and Establishment of Cooperation Networks to Facilitate Coordination to Support Fisheries Management in the Western and Central Mediterranean.

MEDSUDMED (Central Mediterranean)

MedSudMed “Assessment and Monitoring of the Fishery Resources and the Ecosystems in the Straits of Sicily” is a regional project with four participating countries (Italy, Libyan Arab Jamahiriya, Malta and Tunisia), executed by the Food and Agriculture Organization of the United Nations (FAO) and funded by the Italian Ministry of Agriculture Food and Forestry Policies (MiPAAF).

MEDFISIS (GFCM Area)

Mediterranean Fishery Statistics and Information System

Other similar projects in the pipeline are COPEMED II and EASTMED (Eastern Mediterranean), together with a number of specific projects in the field of aquaculture, including the completion of the revitalization programme for SIPAM (Information System for the Promotion of Aquaculture in the Mediterranean countries).

FAO CopeMed project created a regional small-scale fisheries database, ArtfiMed, including the first inventory of the SSF communities. CopeMed II developed a series of methodologies and a monitoring system of artisanal fisheries in two sites in Morocco and Tunisia, which ended up with the creation of a database. In Tunisia, the project supported the Fisheries Department on the implementation of a new small-scale fisheries statistical system (système statistique sur la pêche artisanale en Tunis, SSPAT). Socio-economic data are being supported in the countries.

In line with the preparatory phase of the FAO project TCP/ALG/3301 a socio-economic and statistical observatory is being developed in Algeria for the monitoring of fisheries. Once this technical cooperation

project (TCP) is achieved, Algeria has asked to ensure the continuity of this project in order to develop a web-based application and to generalize this operation, which is now coordinated by the FAO sub-regional office in Tunis.

The FAO EastMed Project Coordinator presented all sub-regional activities related to data collection carried out by the project. In particular, she referred to the data collection scheme implemented in Egypt which consisted of catch, effort, biological sampling and socioeconomic variables. The smooth process of the data collection had been achieved by a series of training courses, software provision and a couple of follow-up missions. The outcome of the scheme was the contribution of Egypt to the WG on stock assessment and the submission of statistics to feed the Task I requirements..

FAO MedSudMed programme described four main areas of action to support countries as: i) capacity development (Fishery research institutions), ii) standardization of data collection at sea (including protocol processing and analysis; iii) data collection on the field (surveys at sea) and iv), data analysis (at national level and sub-regional level). Some examples of activities carried out and involvement with countries were also presented.

Finally, The CIHEAM-PESCA LIBANO Project⁸ and the Lebanese Ministry of Agriculture (MoA) in collaboration and support of the General Fisheries Commission for the Mediterranean (GFCM) had carried out a case study on the use and feasibility of Vessel Monitoring System (VMS) in Lebanon between June and October 2013.

The conclusions of the study have taken in consideration the short coastline, number and typology of Lebanese vessels, reduced public budget and staff devoted to fisheries. The entire system provided by CLS appears oversized in terms of cost-effectiveness and applied technologies. In particular the cost of the beacons is unaffordable for fishermen and out of any reasonable range for the Lebanese government. The beacon also requires a constant, active intervention of the fishermen that have to bring them along and switch on the device when at sea, and take them away and switch off when back to the port.

1.5. Approach and summary of the methodology adopted

The overall objective of the consultancy is to develop a baseline document on the current state of Monitoring, control and surveillance systems of fisheries in North African region. To successfully achieve these objectives in a limited period of time, the proposed methodology to be used has foreseen a desktop review, in-field and remote consultations with relevant institutions and stakeholders and report writing.

The individual consultant has adopted a consultative, participatory and transparent approach with internal and external stakeholders.

There are typically two types of data that can be collected: primary (fresh) data (collected e.g. through interviews, field visits, direct observations, etc.) and secondary data (extracted from existing documents). The analysis is based on a desktop review and analysis of documents and reports, such as international fisheries instruments and regional organizations and national Authorities reports, and regional Northern African State fisheries.

⁸ Source: CIHEAM, 2013. First pilot study on the use of Vessel Monitoring System (VMS) for the Lebanese artisanal fishing fleet. In collaboration and support of the General Fisheries Commission for the Mediterranean (GFCM). With the support of the company Collecte Localisation Satellites (CLS). Project funded by Italian Ministry of Foreign Affairs, International Development Cooperation. Bari, CIHEAM.

To fill data gap, a remote survey with questionnaires on the status of implementation of MCS and combat IUU fishing has been transmitted to the national fisheries related Authorities and regional fisheries bodies.

The questionnaires, identified, proposed and approved by the AU-IBAR technical personnel has been annexed to the draft Inception Technical Report and transmitted to the key respondents, together with a letter of presentation of AU-IBAR. However, unfortunately, responses were poor.

To collect further updated data and information and cross-check data, at regional and National level, the consultant attended a meeting in Rome at the General Fisheries Commission for the Mediterranean (GFCM) headquarter with GFCM's technical officers. The Consultant was also invited by AU-IBAR to present the report to the stakeholders from North Africa during a training workshop on MCS in Cairo, Egypt, August 2016. The Stakeholders, comprising mainly directors of fisheries, MCS experts and Naval personnel, personnel from the judiciary in the respective North Africa countries, made substantial inputs that enriched the report.

The analysis of individual capacity for MCS and the Recommendations highlighted are therefore primarily based on available data, mainly from the desk study of GFCM related meetings reports and further member countries compliance dedicated analysis and studies.

The organization of the report is as follows:

Chapter 1 of the Technical Report looks into the concept of MCS and the importance of the system in combating IUU fishing. General recommendations are available.

Chapter 2 of the Technical Report analyses the international legal framework (and other relevant instruments) on MCS and IUU fishing. General recommendations are available.

Chapter 3 of the Technical Report analyses the regional framework on MCS and combatting IUU fishing focused on AU Northern African countries. General recommendations are available.

Chapter 4 of the Technical Report on the assessment of national legal framework and state of the art of MCS and combatting IUU fishing for the AU Northern African member countries. General recommendations are available.

Finally, in chapter 5 the Technical Report provides findings, general and specific recommendations to support North African countries efforts to strengthen regional and sub-regional cooperation and in developing effective MCS systems for combatting IUU fishing.

General Recommendations for chapter 1

- Reaffirm the priority IUU fishing issues in the North African sub-region, including possible incidents of fisheries crime.
- Identify specific fisheries and coastal and marine areas which are susceptible to IUU fishing in the North of Africa.
- Identify available MCS tools and assets in each of the North African states, which may be used to address priority IUU fishing issues.
- Nominate or establish a repository of relevant studies, documents and other materials relating to fisheries in general, IUU fishing and MCS which will be readily available to the North African States.

2 INTERNATIONAL LEGAL FRAMEWORK ON MCS AND FIGHT AGAINST IUU FISHING

Illegal, unreported and unregulated (IUU) fishing occurs virtually in all capture fisheries, whether they are conducted within areas under national jurisdiction or on the high seas.

2.1. Further Organizational Consideration for MCS enforcement

Flewwelling, P., Cullinan, C., Balton, D., Sautter, R.P., and Reynolds, J.E., in 2002¹ Indicated that as MCS system is developed, various government agencies not directly concerned with fisheries (e.g. environment authorities, national defence, coast guard, customs and immigration) are likely to seek input into matters such as determining priorities, allocating resources and the sharing of information.

Experience has shown that establishing an effective inter-agency co-ordinating mechanism for all national maritime agencies can increase efficiency by reducing duplication of effort and jurisdictional conflicts and by facilitating exchange of information required for operations.

MCS surveillance resources can be expensive. In the past, split operational “command and control” has been unsuccessful in both military and civilian operations due to differing mandates and priorities (e.g. fisheries patrols turn into drug enforcement or customs patrols). The need for one lead agency or a recognized and formal inter-agency mechanism has been suggested. An alternative approach could be an alternating chair for the co-ordinating committee or the inter-agency mechanism adopted to maximize efficiency in operational MCS activities. Whatever strategy is selected, the lead role and authority for coastal and oceans fisheries and environment management, whichever strategy is selected, should be formalized in legislation.

Monitoring

The monitoring component of MCS should receive, integrate and verify information from the licensing unit, sea-going units (sightings and inspections), observers, VMS and satellite imagery, radar, port inspection, regular dockside monitoring of landings, logbooks, production logbooks, and air sightings for vessel identification, activity and location. The system can also include data on fishing patterns, fishers and community profiles with respect to socioeconomic factors, dependency and earnings from fishing and any other fisheries information. These data can be used to verify licensing conditions and to assess catch and effort for resource assessment and fisheries management planning.

The accumulation of data will require a significant storage and analysis capability. Although this can be done manually, the system will be more responsive and effective if it is computerized. When planning the data management system, it is important to consider that the system must be capable of allowing immediate access to information required for operational purposes and MCS planning. On the other hand, it must be capable of storing certain data for long periods of time, particularly data to be used for long-term stock assessment and monitoring, and management planning. These two aspects of data management must be considered during the data system development exercise.

Control

The control component of MCS will require appropriate and enforceable legislation to implement the approved, participatory fisheries management plans.

¹ Source: Flewwelling, P., Cullinan, C., Balton, D., Sautter, R.P., and Reynolds, J.E., in 2002 (Recent trends in monitoring, control and surveillance systems for capture fisheries. FAO Fisheries Technical Paper. No. 415. Rome, GFCM)

Legislation can also provide for the devolution of authority, establish mechanisms to involve stakeholders in decision-making and increase the transparency of the management system. In order for the control component of the MCS system to function effectively, the fisheries administration should have access to a team of suitably qualified and experienced lawyers to draft appropriate legislation in support of management plans, to provide ongoing advice on legal issues that may arise with regard to the implementation of management measures, and to prosecute offences under fisheries legislation. The expertise of the team of lawyers should cover both relevant international law as well as national laws related to fisheries management. The effectiveness of the control system will be substantially increased if all personnel involved in enforcing the legislation are appropriately trained. This training should include advice from members of the judiciary or lawyers with extensive court experience regarding the presentation of evidence.

Surveillance

The surveillance component of MCS will require fisheries personnel who not only collect data for the monitoring aspect of MCS during their surveillance duties, but can also communicate with and educate stakeholders involved in participatory conservation activities.

These personnel must have the appropriate equipment and facilities, operating funds and training both to encourage voluntary compliance and to enforce laws where necessary. Surveillance is usually the largest and most expensive component to fund. For international MCS activities, UNCLOS requires that all surveillance ships or aircraft must be “clearly marked and identifiable as being on government service” and authorized to that effect. This requirement is often addressed through large, highly visible, government markings on all surveillance vessels and aircraft. This is supplemented on sea-going vessels by a fisheries flag that also denotes that the vessel or aircraft is on fisheries duties.

The design and use of the flag is usually clearly stated in fisheries legislation. All fisheries vessels, regardless of size, should fly this flag while on fisheries duties to facilitate identification of assets, especially when the Government charters vessels for surveillance activities. A State may find it more cost-effective to share the equipment for fisheries surveillance with other enforcement agencies involved in other oceans-related MCS operations.

A State should consider the equipment necessary to implement the MCS operational plan at an early stage.

A central policy on equipment standards, training and overall coordination capability should be adopted.

There is clearly a need for a computerized data system, networked with the coastal and inland area field offices for data collection and surveillance. Communication systems and transport in the form of land, sea, and possibly, air patrol platforms are an integral part of most MCS programs. In addition, where appropriate, provision should be made for the use of satellite technology and other safety equipment for surveillance operations. Appropriately trained directors, supervisors, and field personnel are an absolutely essential requirement for an effective MCS system. The central headquarters then works with the “devolved” fisheries authorities and field offices to train staff, assist in overall coordination, and support of monitoring operations.

Staffing

The requirements for MCS include personnel to address each of the components of monitoring, control and surveillance. The numbers of these personnel will vary with the MCS scheme in place, but the basic

requirements would remain fairly constant. These personnel need varied levels of expertise. For example, the data collectors need literacy and good interpersonal skills with knowledge of the fishery and its policies and procedures. These individuals are often at the technician level. Observers for offshore vessels also fall into this category. An observer scheme is only appropriate if capable, honest and dedicated personnel are available, preferably with offshore sea experience.

Observer program is necessary to ensure safe working conditions and a minimum of interference with the observer's duties.

The ability to analyse the data collected for fisheries management decisions and operational deployment requires a higher level of knowledge and competence, both academic and practical. Computer skills are a requirement for these individuals.

The control component requires individuals with a comprehensive working knowledge of fisheries and the law. This will include fisheries managers responsible for drafting fishery management plans, as well as the licensing staff and assigned technicians. These individuals should be capable of working with lawyers assigned from the Ministry of Justice or equivalent, in order to design enforceable laws and also to advise on internal decisions regarding MCS operations.

Finally, there is the need for surveillance personnel, including those qualified to operate small and large patrol vessels. Fisheries Officers will be needed for offshore, coastal, river and lake patrols, as well as management of the offices and liaison with the fishers. A recruitment process should be initiated that surveys all sectors of the population for qualified candidates.

The personnel needed for air surveillance are usually seconded from the military to minimize training requirements and the purchase of aircraft. Support personnel will also be required from local administrative staffing pools. Maintenance personnel for specialized equipment must be appropriately qualified. Proper training for all these personnel is vital. For example, observers require very focused and specialized training to ensure that they understand their role and can complete accurate reports. In selecting fisheries officers, a State must keep in mind that these people are no longer involved in just enforcement operations. The officer must be able to handle multiple tasks as a development officer, a communicator and educator for voluntary compliance and transparency in MCS, and as an enforcement officer.

2.2. The Concept of IUU fishing

In March 2001, the FAO, adopted a text called the International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU)¹. The IPOA-IUU is a voluntary instrument listing a host of measures that countries and RFBs should adopt, depending on the nature of their fisheries, in order to eliminate IUU fishing.

The Plan² defines IUU fishing as follows:

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

² Source: FAO, 2001. IPOA-IUU - International Plan of Action to prevent, deter and eliminate illegal, unreported and unregulated fishing. Rome, FAO.

Unreported fishing refers to fishing activities which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.

Unregulated fishing refers to fishing activities in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law. Notwithstanding certain unregulated fishing may take place in a manner which is not in violation of applicable international law, and may not require the application of measures envisaged under the International Plan of Action (IPOA).

Among the others, at regional level States should ensure compliance with and enforcement of policies and measures having a bearing on IUU fishing which are adopted by any relevant regional fisheries management organization and by which they are bound. States should cooperate in the establishment of such organizations in regions where none currently exist. States, acting through relevant regional fisheries management organizations, should take action to strengthen and develop innovative ways, in conformity with international law, to prevent, deter, and eliminate IUU fishing I.

States, acting through relevant regional fisheries management organizations, should compile and make available on a timely basis, and at least on an annual basis, to other regional fisheries management organizations and to FAO, information relevant to the prevention, deterrence and elimination of IUU fishing, including: estimates of the extent, magnitude and character of IUU activities in the area of competence of the regional fisheries management organization; details of measures taken to deter, prevent and eliminate IUU fishing; records of vessels authorized to fish, as appropriate; and records of vessels engaged in IUU fishing.

States should develop and implement, as soon as possible but not later than three years after the adoption of the IPOA, national plans of action to further achieve the objectives of the IPOA and give full effect to its provisions as an integral part of their fisheries management programs and budgets.

The UN (2013) with the Resolution adopted by the General Assembly on 9 December 2013 n. 68/71 on Sustainable fisheries I, at point V (73) “Calls upon States, in accordance with international law, to strengthen implementation of or, where they do not exist, adopt comprehensive monitoring, control and surveillance measures and compliance and enforcement schemes individually and within those regional fisheries management organizations or arrangements in which they participate, in order to provide an appropriate framework for promoting compliance with agreed conservation and management measures, and further urges enhanced coordination among all relevant States and regional fisheries management organizations and arrangements in these efforts”.

2.3. Main International Fisheries Instruments and MCS and IUU fishing Legal Framework

Since the early 1980, United Nations has developed a considerable number of legal (binding and non binding) instruments for the sustainable management of fisheries resources and for enforcing MCS and the fight against IUU fishing.

In particular, Monitoring Control and Surveillance (MCS) and IUU fishing are pillars of a number of international agreements; for example, UNCLOS 1982 (the United Nations Convention on the Law of the Sea), FAO Compliance Agreement 1993, the UN Fish Stocks Agreement 1995, the FAO IPOA-IUU 2001 (International Plan of Action to Prevent, Deter and Eliminate IUU Fishing), as well as other relevant international agreements.

Following are summarized the main international legal requirements and tools (see References in Annex I) for managing sustainable fisheries, enforce MCS and combating against IUU fishing:

UNCLOS 1982

The United Nations Convention on the Law of the Sea provides the fundamental legal framework within which international arrangements and agreements applying to the oceans and seas are based. It came into force in November 1994 and provides universally agreed limits for the territorial sea, the contiguous zone, the exclusive economic zone and the continental shelf, and establishes a comprehensive legal regime for these areas. The UNCLOS further outlines the rights and duties of coastal, port and flag states with respect to these areas, and provides a framework for conservation and utilization of the living marine resources. In terms of fisheries management, the Convention divides the oceans into two basic areas: 1) Areas under the jurisdiction of coastal States in which the coastal State has exclusive authority to manage their fisheries. 2) The high seas, in which all States have qualified resource rights. States are required to conserve and manage the living marine resources in the areas that are within their jurisdiction, and in those areas over which they exercise sovereign rights (Source: UNCLOS, 1982).

FAO Compliance Agreement (1995)

The FAO Compliance Agreement is designed to strengthen the provisions of UNCLOS, and in particular those that relate to high seas fishing. The Agreement therefore has two overarching objectives: to require all States whose vessels fish on the high seas to take a range of steps to ensure that their vessels do not undermine fish conservation and management measures; and to increase the transparency of high seas fishing operations through the collection and dissemination of data. Bearing these objectives in mind, the main obligations of a country accepting the Compliance Agreement is to exercise its responsibility over vessels flying its flag, establish a record of fishing vessels, and to provide the information required under the Agreement with respect to those vessels. The principal benefits to participants arise from the availability of information regarding vessels authorized to fish on the high seas, and an enhanced ability to identify those vessels fishing without permission. In terms of the responsibilities that member states have in terms of MCS. (Source: FAO Compliance Agreement, 1995)

UN Fish Stocks Agreement (1995)

The UN Fish Stocks Agreement (UNFSA) came into force on 11th December 2001. The agreement is designed to implement the provisions of UNCLOS that relate to the conservation and management of straddling fish stocks and highly migratory species. In terms of the agreement, “straddling” fish stocks are those resources whose natural ranges straddle the line dividing areas under the fisheries jurisdiction of one or more coastal States (EEZ) and the adjacent high seas areas. “Highly migratory” fish stocks are those stocks that migrate extensively across the high seas and through areas under the fisheries jurisdiction of coastal States (e.g. tuna resources in the Western Indian Ocean). The agreement places Regional Fisheries Management Organizations (RFMOs) in a central position in terms of stock management, and designates them as the primary mechanism through which States

should cooperate to achieve enhanced resource conservation and management (Source: UN Fish Stocks Agreement, 1995).

FAO Code of Conduct for Responsible Fisheries (CCRF)

The FAO Code of Conduct for Responsible Fisheries (CCRF) prescribes principles and standards for the conservation and management of fisheries, fishing operations, fish trade and processing, fisheries research and the integration of fisheries into coastal zone management and aquaculture. While the code is not legally binding, certain parts of the code are based on international law, including UNCLOS, and contain provisions that may be or have already been given binding effect by means of other obligatory legal instruments. The code is designed as a component of a suite of international agreements. In terms of MCS, these include the FAO Compliance Agreement, the UN Fish Stocks Agreement and the IPOA-IUU. Implementation of the Code is primarily the responsibility of States (Source: FAO Code of Conduct for Responsible Fisheries, 1995)

The FAO International Plan of Action for IUU fishing (IPOA-IUU – FAO, 2001)

The International Plan of Action for IUU fishing (Source: FAO IPOA-IUU, 2001) is a voluntary instrument that was developed within the framework of the Code of Conduct for Responsible Fisheries. The objective of the IPOA is to provide States with a “toolbox” of comprehensive, effective and transparent measures with which to reduce or eliminate IUU fishing. The IPOA-IUU calls upon all States to develop and adopt National Plans of Action (NPOAs) to combat IUU fishing. As a “toolbox,” the IPOA-IUU attempts to embrace all existing measures that have been shown to be useful in combating IUU fishing, and while many of these tools are already in use by some States, acting alone or in cooperation with other States, including through regional fisheries management organizations (RFMOs), it is recognized that not all tools work in all situations (Source: FAO, 2001. IPOA-IUU - International Plan of Action to prevent, deter and eliminate illegal, unreported and unregulated fishing. Rome, FAO).

UN Resolution on sustainable fisheries (2008)

In September 2008, the General Assembly of the United Nations adopted the Resolution 62/177 on sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments. In particular, at point IV (37 – 39) emphasized once again that illegal, unreported and unregulated fishing continues to have serious and major implications for the conservation and management of ocean resources, and renewed its call upon States to comply fully with all existing obligations and to combat such fishing and urgently to take all necessary steps to implement the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing of the Food and Agriculture Organization of the United Nations and urges States to exercise effective control over their nationals, including beneficial owners, and vessels flying their flag, in order to prevent and deter them from engaging in illegal, unreported and unregulated fishing activities or supporting vessels engaging in illegal, unreported and unregulated fishing activities, including those vessels listed by regional fisheries management organizations or arrangements as engaged in those activities, and to facilitate mutual assistance to ensure that such actions can be investigated and proper sanctions imposed and also urges States to take effective measures, at the national, regional and global levels (Source: UN, 2008).

FAO Port State Measures Agreement (2009)

The issue of port State control was originally raised in 1982 in Article 218 of the United Nations Convention on the Law of the Sea (UNCLOS), provision was related exclusively to pollution. A decade later, an international conference on fishing produced the Declaration of Cancun. Its paragraphs on protection of oceans mention using port State controls for sustainable use of marine resources and as part of international cooperation. This helped influence UN General Assembly Resolution 47/192, which is the basis of the 1995 UNFSA. The UNFSA contains an article on port States (“Measures taken by a port State”) that requires port States to immediately notify flag States whenever there are reasonable grounds to suspect IUU fishing. Eighty parties have ratified the UNFSA, which entered into force in December 2001 (Source: FAO, 2015).

FAO Voluntary Guidelines for Flag State Performance

On the recommendation of the Committee on Fisheries (COFI) at its 28 session in 2009, FAO convened the Technical Consultation on Flag State Performance at FAO Headquarters, Rome, Italy, from 2 to 6 May 2011, and resumed from 5 to 9 March 2012 and from 4 to 8 February 2013. The Technical Consultation, adopted “Voluntary Guidelines for Flag State Performance” to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing through the effective implementation of flag State responsibilities. The agreed Guidelines are wide-ranging and address the purpose and principles, the scope of application, performance assessment criteria, cooperation between flag States and coastal States, a procedure for carrying out an assessment, encouraging compliance and deterring non-compliance by flag States, cooperation with and assistance to developing States with a view to capacity development (Source: FAO COFI, 2014)

FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (2015)

The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines) is the first internationally agreed instrument dedicated entirely to the immensely important - but until now often neglected – small-scale fisheries sector. Notably in the SSF Guidelines at point 5.16 FAO suggests that States should ensure the establishment of monitoring, control and surveillance (MCS) systems or promote the application of existing ones applicable to and suitable for small-scale fisheries. They should provide support to such systems, involving small-scale fisheries actors as appropriate and promoting participatory arrangements within the context of management.

ILO “The Work in Fishing Convention” and “The Work in Fishing Recommendation”

On 14 June 2007, during the 96th Session of the International Labour Conference at Geneva, the Work in Fishing Convention 2007 (C 188) was formally adopted. By adopting “The Work in Fishing Convention” and “The Work in Fishing Recommendation”, 2007, the ILO has brought together and updated its previous conventions and recommendations on the rights of fish workers. The new provisions are meant to address the changes which have taken place in the fishing industry and in the labour market in the past 50 years, including IUU fishing.

The pan African policy framework and reform strategy for fisheries and aquaculture 2014

There are also Regional Instruments in Africa which support the development of MCS in African member states and at regional or subregional levels for effective combat of IUU fishing. The pan African policy framework and reform strategy for fisheries and aquaculture has a major policy pillar on enhancing conservation and use of fisheries resources. One of the strategic outcomes is to

ensure effective and sustainable national and regional Monitoring, Control and Surveillance systems in place to ensure that sustainable benefits are realized.

The pan African policy document also has policy pillar on strengthening Africa participation in High Seas fisheries.

2.4. International Cooperation on MCS and to Combat IUU Fishing

2.4.1. International MCS Network

The International Monitoring, Control, and Surveillance (IMCS) Network was established as a voluntary organization in 2001 to provide a mechanism for fisheries law enforcement professionals to share information and experiences to improve the effectiveness of fisheries related MCS activities through enhanced cooperation, coordination, information collection and exchange among national organizations and institutions responsible for MCS. The IMCS Network operates informally and encourages participation from fisheries managers, investigators, lawyers, foreign service officers, and forensics specialists. A number of relevant studies, documents, and links on IUU fishing and MCS are available at the IMCS website³.

2.4.2. European Union

Several regulations form the legal framework, which the European Union attempts to communicate to third parties and stakeholders in cooperation with FAO and other organizations. Some of the basic principles of the EU IUU Policy are transparency and non-discrimination, with the ultimate goal of eliminating illegal products from the market⁴.

In the practical experience of the European Union, there are three fundamental operational tools that enable application of international law and laws of States, which is the objective of the policy. The best-known tool is the catch certification system. All fishery products intended to be sold in the European Union must be accompanied by a catch certificate validated by the flag State. Flag States are already obligated to verify that fishing is carried out within quotas under UNCLOS. Vessels must also verify that fishing is abided by measures and regulations of coastal States.

The second fundamental tool in the experience of the European Union is the mutual assistance programme, which is not as well-known as catch certification. Several secured mailboxes receive IUU information from NGOs, third-party States and member States, which the team evaluates. After analysis, they communicate with the coastal State, the flag State and anyone else with responsibility or competence to act. They have sent 100 alerts and investigated more than 200 cases since 2010. Fines and fees in the sum of EUR9 million were collected in 2011 and 2012, and many imports have been rejected.

The third practical tool is non-cooperating countries lists. This last pillar of the EU IUU Policy is known by the publication of the results, but not as well as it should be. The objective of the European Union (Member Organization) in establishing links to third-party States is not to close its borders to those States but to cooperate with them. Confidential dialogues begin when invoices or receipts have been altered or other suspicious activity occurs or when countries export a large quantity to the European Union (Member Organization). Inspectors visit their plants and sometimes discover conditions about which the authorities were unaware, or they find gaps in the system. In 2013, eight yellow cards were issued for States to be improved, with only three of these listed for possible market closure.

³ Source: www.imcsnet.org

⁴ Source: FAO. 2015. Report of the Fourth Global Fisheries Enforcement Training Workshop, San José, Costa Rica, 17–21 February 2014. FAO Fisheries and Aquaculture Report No. 1078. FAO, Rome.

2.4.3. Interpol

The INTERPOL Fisheries Crime Working Group⁵ deals with many of the same issues as the International MCS Network, which poses opportunities for collaboration. Project Scale and INTERPOL's Fisheries Crime Working Group are extensions of work it has been doing on other international crime, including database maintenance, data exchange and its notice system, under which it releases colour-coded notices. These are not international arrest warrants, but, rather, red notices are published at the requests of member countries seeking information or extradition.

Through Project Scale, INTERPOL is trying to make detecting, suppressing and combating fisheries crime a global effort. It has four objectives, the first of which is to raise awareness of fisheries crimes and their consequences. Its second objective is to establish national environmental security task forces (NESTs) to ensure institutionalized cooperation between national law enforcement agencies and international partners. The theory underlying NESTs is that countries will bring together stakeholders so that they can have open and frank discussions about available resources. INTERPOL can also conduct data analysis and assist countries that are just launching enforcement by providing advice on where to start and how to set priorities.

General Recommendations for chapter 2

- Encourage North African nations to accede and implement relevant international fisheries agreements.
- Develop and/or review national plans of action to prevent, deter and eliminate IUU fishing in order to ensure that identified priority issues are addressed
- Review legislation and/or develop specific regulations to implement MCS tools such as fishing vessel registration and licensing, record of fishing vessels, vessel monitoring system, observer program, boarding and inspection, port State measures, and catch certification

⁵ Source: FAO. 2015. Report of the Fourth Global Fisheries Enforcement Training Workshop, San José, Costa Rica, 17–21 February 2014. FAO Fisheries and Aquaculture Report No. 1078. FAO, Rome.

3 REGIONAL FRAMEWORK ON MONITORING CONTROL AND SURVEILLANCE

The African Union as already mentioned at paragraph 1 has developed a Policy Framework and Reform Strategy for Fisheries and Aquaculture, which was adopted by 23rd summit of African Heads of States and Governments in Malabo, Equatorial Guinea, in June 2014.

The development of MCS tools, as well as cooperation among countries has been emphasized strongly in international instruments discussed in chapter 2.

The effective sustainable management of shared fisheries resources calls for actions to be undertaken at the regional and sub-regional levels.

A number of regional organizations and institutions provide the context and basis for the development and implementation of coordinated MCS measures among the North African coastal States (Algeria, Egypt, Libya and Tunisia), including the existing International organizations (FAO, The International Commission for the Conservation of Atlantic Tunas), Regional Fisheries Bodies (RFBs), notably the General Fisheries Commission for the Mediterranean) and Regional Economic Organizations (REOs), notably Union du Maghreb Arab (UMA) and CENSAD.

The role of these organizations and institutions in implementation MCS regulations and combat IUU fishing is discussed below.

3.1. Fisheries related organizations

MCS cooperation is basic for effective fisheries management to be achieved, notably for shared stocks.

Bilateral, sub-regional, regional and International cooperation on MCS may include fisheries data sharing, harmonization of legislation, implementation of flag and port State control agreements, and combined measures to address IUU fishing.

Regional or subregional cooperation entails a number of additional responsibilities for States. These responsibilities include the security of sensitive data, how differences between participating States will be resolved in order to present a unified regional position, and how to take into account differences in economic situations of member States when devising cost sharing arrangements to support the implementation of a regional MCS system. Despite challenges, there are examples of regional organizations which have successfully dealt with issues related to the implementation of MCS measures.

Based on the IPOA-IUU1, in order to successfully combat IUU fishing, States, acting through relevant RFMOs may adopt a number of measures:

- strengthen institutional frameworks with a view to enhancing their capacity to address IUU fishing;
- develop compliance measures in conformity with international law;
- develop and implement comprehensive arrangements for mandatory reporting;
- cooperate in exchanging information on vessels engaged in or supporting IUU fishing;
- maintain records of vessels fishing in the area of competence of a relevant regional fisheries management organization, including both those authorized to fish and those engaged in or supporting IUU fishing;
- develop methods of compiling and using trade information to monitor IUU fishing;

- develop MCS, including real time catch and vessel monitoring systems, other new technologies, monitoring of landings, port control, and inspections and regulation of transshipment, as appropriate;
- develop within a RFMO, where appropriate, boarding and inspection regimes consistent with international law, recognizing the rights and obligations of masters and inspection officers;
- develop observer programs;
- where appropriate, market-related measures in accordance with the IPOA;
- define circumstances in which vessels will be presumed to have engaged in or to have supported IUU fishing;
- develop education and public awareness programmes;
- develop action plans; and
- where agreed by their members, examine chartering arrangements, if there is concern that these may result in IUU fishing (para 80).

3.1.1. *The General Fisheries Commission for the Mediterranean (GFCM)*

The Agreement for the Establishment of the General Fisheries Commission for the Mediterranean¹ was adopted under Article XIV of the FAO Constitution in 1949 and entered into force on 20 February 1952. It was amended four times (1963, 1972, 1997 and 2014). The GFCM's Rules of Procedure and Financial Regulations, were amended in 2015.

The purpose of the General Fisheries Commission for the Mediterranean of the FAO is to ensure the conservation and sustainable use, at the biological, social, economic and environmental level, of living marine resources, as well as the sustainable development of aquaculture in its area of application.

The GFCM is structured into a Bureau (composed by a Chairperson and two Vice-Chairpersons) and a Secretariat. The Commission operates during the inter-sessional period by means of its four committees, namely the Scientific Advisory Committee on Fisheries (SAC), the Scientific Advisory Committee on Aquaculture (CAQ), the Compliance Committee (CoC), the Committee of Administration and Finance (CAF) and an ad hoc mechanism for the Black Sea (i.e. Working Group on the Black Sea).

In giving effect to the objective of the GFCM Agreement, the Commission shall inter alia²: adopt recommendations on conservation and management measures aimed at ensuring the long-term sustainability of fishing activities, in order to preserve the marine living resources, the economic and social viability of fisheries and aquaculture; in adopting such recommendations, the Commission shall give particular attention to measures to prevent overfishing and minimize discards. The Commission shall also pay particular attention to the potential impacts on small-scale fisheries and local communities; formulate appropriate measures based on the best scientific advice available, taking into account relevant environmental, economic and social factors; apply the precautionary approach in accordance with the 1995 Agreement and the Code of Conduct for Responsible Fisheries; foster, as appropriate, a sub-regional approach to fisheries management and aquaculture development in order to better address the specificities of the Mediterranean and the Black Sea; take the appropriate measures to ensure compliance with its recommendations to deter and eradicate illegal, unreported and unregulated fishing activities.

The Commission has inter alia the following functions and responsibilities: regularly review and assess the state of living marine resources; formulate and recommend appropriate binding measures, including: for the conservation and management of living marine resources found in the area of application; to minimize impacts of fishing activities on living marine resources and their ecosystems; to adopt multiannual

¹ Source: www.gfcm.org

² Source: FAO, 2001. IPOA-IUU - International Plan of Action to prevent, deter and eliminate illegal, unreported and unregulated fishing. Rome, FAO.

management plans to be applied in all the relevant sub-regions based on an ecosystem approach to fisheries in order to guarantee the maintenance of stocks above levels of maximum sustainable yield and that are consistent with actions already taken at the national level; to establish fisheries restricted areas for the protection of vulnerable marine ecosystems; to ensure the collection, submission, verification, storing, and dissemination of data and information; to take action to prevent, deter, and eliminate illegal, unreported and unregulated fishing, including mechanisms for effective monitoring, control and surveillance; to resolve situations of non-compliance, including through an appropriate system of measures; regularly review the socioeconomic aspects of the fishing industry, including by obtaining and evaluating economic and other data and information relevant to the work of the Commission; promote the development of institutional capacity and human resources, particularly through education, training, and vocational activities in areas of competence of the Commission; enhance communication and consultation with civil society concerned with aquaculture and fishing; encourage, recommend, coordinate as well as undertake research and development activities, including cooperative projects in the areas of fisheries and the protection of living marine resources.

The GFCM holds its regular session annually. Extraordinary sessions of the Commission may be convened at the request of the Commission, or of the Bureau, or of a Contracting Party with the approval of a majority of the Contracting Parties.

The GFCM decisions are varied in nature and can be classified as follows: Recommendations on Conservation and Management (“REC.CM-GFCM”), Recommendations on Monitoring, Control and Surveillance (“REC.MCS”), and Recommendations on Data and Information Reporting (“REC.DIR”).

Following are listed GFCM Recommendations and Resolutions³.

Conservation and management measures

Rec. GFCM/22/1997/1 on the limitation of the use of driftnets in the Mediterranean.

Rec. GFCM/27/2002/1 on the management of selected demersal and small pelagic species.

Rec. GFCM/2005/1 on the management of certain fisheries exploiting demersal and Deepwater pelagic.

Rec. GFCM/30/2006/2 on the establishment of a closed season for the dolphin-fish fisheries based on fishing aggregation devices (FADs).

Rec. GFCM/30/2006/3 on the establishment of fisheries restrictive areas in order to protect the deep sea sensitive habitats.

Rec. GFCM/33/2009/1 on the management of demersal fisheries.

Rec. GFCM/33/2009/1 on the establishment of a Fisheries Restricted Area in the Gulf of Lions to protect spawning aggregations and deep sea sensitive habitats.

Rec. GFCM/33/2009/2 on a minimum mesh size in the cod-end of demersal trawls nets.

Rec. GFCM/34/2010/2 on the management of fishing capacity.

Monitoring, control and surveillance

Rec. GFCM/2008/1 on a regional scheme on port states measures to combat illegal unreported and unregulated fishing in the GFCM.

REC.DIR-GFCM/33/2009/5 On the establishment of the GFCM regional fleet register

REC.MCS-GFCM/33/2009/8 on the establishment of a list of vessels presumed to have carried out IUU fishing in the GFCM area repealing recommendation GFCM/30/2006/4

Rec. GFCM/33/2009/6 concerning the establishment of a GFCM record of vessels over 15 meters authorized to operate in the GFCM area amending the Recommendation GFCM/2005/2.

Rec. GFCM/33/2009/7 concerning the minimum standards for the establishment of a Vessel

³ Source: www.gfcm.org

Monitoring System (VMS) in the GFCM area.

Rec. GFCM/33/2009/8 on the establishment of a list of vessels presumed to have carried out IUU fishing in the GFCM area, amending Recommendation GFCM 2006/4.

Rec. GFCM/34/2010/1 concerning the establishment of a GFCM Logbook.

Rec. GFCM/35/2011/1 concerning the establishment of a GFCM Logbook, amending Recommendation GFCM/34/2010/1.

Res. GFCM/35/2011/1 on the submission of combined data on fishing vessels.

Res. GFCM/35/2011/2 on data confidentiality policy and procedures, amending Resolution GFCM/30/2006/1.

Res. GFCM/37/2013/2 on Guidelines on the management of fishing capacity in the GFCM area.

Res. GFCM/38/2014/1 on Guidelines on VMS and related control systems in the GFCM area of competence.

GFCM area of competence - High seas, National waters FAO fishing areas 200 nautical miles.

North African Members: Algeria, Egypt, Libya and Tunisia.

3.1.2. The International Commission for the Conservation of Atlantic Tunas (ICCAT)

The International Commission for the Conservation of Atlantic Tunas⁴ is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and adjacent seas. The organization was established at a Conference of Plenipotentiaries, which prepared and adopted the International Convention for the Conservation of Atlantic Tunas signed in Rio de Janeiro, Brazil, in 1966. After a ratification process, the Convention entered formally into force in 1969.

The statistical information requested strictly for scientific purposes covers tuna, tuna-like species and shark catches caught in the ICCAT Convention area. These are:

- Fleet characterization
- Task I Nominal Catches
- Task II Catch & Effort
- Task II size samples
- Task II catch-at-size

ICCAT area of competence - High seas, National waters, Atlantic and adjacent seas.

AU Northern African Members: Algeria, Egypt, Libya and Tunisia.

3.2. Policy Framework and Reform Strategy for fisheries and aquaculture in Africa

The process of formulation of the Policy Framework and Reform Strategy for African fisheries and aquaculture started in earnest in 2012 following immediately the Executive Council Decisions (Doc. EX.CL/627(XVIII)) by the African Heads of States and Governments that adopted the Recommendations of the First Conference of Ministers of Fisheries and Aquaculture (CAMFA)⁵.

Africa has diverse fish resources with immense potential and opportunities for contributing significantly to the socio-economic growth of Africa and improving livelihoods of its citizens. It is for this reason that the Comprehensive Africa Agriculture Development Programme (CAADP) was adjusted to include the Companion Document on Fisheries. In 2005, Abuja, Nigeria, during the AU/NEPAD Fish For All Summit, the

⁴ Source: www.gfcm.org

⁵ Source: AUC-NEPAD, 2014. The Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa. African Union, AU-IBAR.

African Heads of State and Governments (HSG) endorsed the New Partnership for Africa's Development (NEPAD) Action Plan for the Development of African Fisheries and Aquaculture. Prior to the Abuja Summit, and during their February 2004 Sirte Summit, the Heads of State and Government, endorsed the Sirte Declaration which mandated the AU Commission to promote the development of fisheries resources, improve facilities to promote post-harvest management, including fisheries management in the Exclusive Economic Zones and regional cooperation in fisheries management. Further to this, during the Abuja Food Security Summit in December 2006, the HSG endeavoured to protect fish as one of the strategic commodities and affirmed their commitment to attain self-sufficiency in fish by 2015. The major milestone in the development of African fish sector came in September 2010, when the first Conference of African Ministers of Fisheries and Aquaculture (CAMFA) was held in Banjul, The Gambia. The CAMFA was subsequently endorsed by the 18th Session of the AU Assembly of Heads of State, in 2011, as the policy organ responsible for fisheries and aquaculture, within the Conference of African Ministers of Agriculture (CAMA).

The African Union Policy Framework and Strategy for Reform of Fisheries and Aquaculture I was adopted by 23rd summit of African Heads of States and Governments in Malabo, Equatorial Guinea, in June 2014.

Notably at point 4.1.4.3 (Conduct fisheries within enforceable regulatory frameworks), the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa underlines the need to ensure conservation and sustainable use requires an appropriate statutory/regulatory framework that is clearly understood, enforceable and supported by resource users and others, to be achieved by 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; improving regional cooperation and collaboration for sustainable fisheries management; developing and sharing registers of authorized fishing and illegal fishing vessels; enhancing capacities and establishing mechanisms including cost-effective and sustainable financial arrangements for efficient and effective regional cooperation in MCS and enforcement and 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.

Furthermore, the AIM (2050 Africa's Integrated Maritime Strategy)⁶, building on the NEPAD's 2005 Abuja Declaration on sustainable fisheries and aquaculture in Africa, the 2010 Conference of African Ministers of Fisheries and Aquaculture (CAMFA) as well as on the UN Conservation and Fish stocks management agreements, Strategy incorporates and implements a Common Fisheries Policy for the conservation, management and exploitation of fish stocks in accordance with the ecosystems and precautionary approach for the whole Combined Exclusive Maritime Zone of Africa (CEMZA), when established.

In order to further deter IUU fishing activities, sanctions "of sufficient gravity as to deprive the offenders of the benefits accruing from their illegal activities" shall be put in place as per the 2005 Rome Declaration on IUU Fishing, which might include seizure of assets and prosecution, with the toughest stand for compensation. All Member States are encouraged to report any IUU fishing activity to the AU for supplementary stringent dissuasive actions through all available channels deemed appropriate. The effective implementation of the universal duty to cooperate in the conservation of marine living resources is required. This needs coordinated action by AU Member States, RECs and Regional Fisheries Management Organizations (RFMOs) to ensure that the provisions of Articles 62, 63, 64, 117 and 118 of the UNCLOS are promoted and essentially met.

⁶ Source: AU, 2012. 2050 AFRICA'S INTEGRATED MARITIME STRATEGY (2050 AIM STRATEGY). African Union.

AU Member States are urged to endeavour to deter IUU fishing activities. Recommended measures include: (i) Effective licensing and control of vessels allowed to fish by Flag States; (ii) Real-time positional reporting by licensed vessels via Vessel Monitoring Systems (VMS); (iii) Surveillance and interception of irresponsible fishing by on-water patrols; (iv) Implementation of technical regulations for the safety of non-convention fishing vessels; and (v) Promotion of effective Flag State implementation in a broader context through the enforcement of RFMO measures, such as ‘white’ or ‘black lists’ to identify ‘bad actors’.

The AU Maritime strategy, states the RECs are requested to present proposals to develop a common strategy that will warrant 24/7 patrolling of the seas. This calls for effective communications and rapid response capabilities, fast vessels, Maritime Patrol Aircraft (MPA), Unmanned Aerial Vehicles (UAVs) and helicopters for surveillance and deterrence actions.

The Pan-African Strategy on the Improvement of Fisheries and Aquaculture Data Collection, Analysis and Dissemination⁷ was prepared by The NEPAD Planning and Coordinating Agency and the FAO, through the NEPAD-FAO Fish Programme (NFFP), and the African Union Inter-African Bureau for Animal Resources (AU-IBAR) in collaboration with AU Member States, Regional Economic Communities (RECs), Regional Fishery Bodies (RFBs), Basin Commissions (BC), the AU Commission (Statistics Division), and the African Development Bank (AfDB).

3.3. Analysis of regional MCS Capability to combat IUU fishing for GFCM

Since 2007, the GFCMI has standardized its data gathering processes for statistics on the activities and yields of member-state fishing fleets⁹. The main objective is to have joint management of the fishing effort by Operational Units, which also gives a clearer idea of the spatial distribution of actual fleet activity and their catches. Although it is in operation, this database is not currently comprehensive. The quality of the records depends on the ability of each country to ensure regular monitoring of its fleet. This monitoring should be improved by the gradual roll-out of a GFCM (electronic) log-book and Vessel Monitoring System (VMS) for all vessels over 12 m in length. Information on vessels is structured using a different breakdown than that used by the EC, one that is more suitable for the polyvalence of Mediterranean fleets.

During the 39th Session (Rome, Italy, February 2005), the Commission adopted the General Guidelines for a GFCM Control and Enforcement Scheme² whose aim was to bring a high degree of compliance with relevant conservation measures, legal certainty and security for the vessel concerned.

In 2007, the GFCM created the Compliance Committee (CoC)¹ in order “to review compliance with conservation and management measures (...)” as well as “the implementation of measures on monitoring, control, surveillance, and enforcement adopted by the Commission (...).” However, the minimal reporting by many Members on the status of implementation of GFCM decisions, prior to the 34th Session (Athens, Greece, April 2010), did not allow for the GFCM Secretariat to conduct a thorough analysis of their effectiveness.

The LaMed Project (Component 1)⁸ has been launched to meet this objective, with also the aim to assess strengths, weaknesses, gaps and constraints for regional cooperation. Emphasis has been put on the enforcement of the relevant GFCM Recommendations by Members⁶. The desired output from this whole project is to elaborate a reference publication for policy-makers, administrators and fisheries managers.

⁷ Source: www.gfcm.org

⁸ Source. FAO General Fisheries Commission for the Mediterranean, 2015. Report of the thirty-ninth session. Milan, Italy, 25–29 May 2015. GFCM Report. No. 39. Milan, Italy. 2015.

GFCM has focused, over the last few years, on developing and strengthening the Monitoring, Control and Surveillance (MCS) frameworks, including for deep-sea fisheries in international waters. In particular, the Resolution on Control and Enforcement Scheme (RESGFCM/29/2005/2) provides guidelines on Flag State duties, obligations of Contracting Parties and Cooperating non-Contracting Parties, compliance and enforcement (e.g. High Seas inspections and observer programmes). Since the adoption of this Resolution, the GFCM has adopted a series of Recommendations related to the procedures and criteria for the acceptance of entities as Cooperating non-Contracting Parties, and a Regional Scheme on Port State measures to combat Illegal, Unreported and Unregulated (IUU) fishing.

In terms of fishing capacity, the levels of the overall fishing capacity in the GFCM area are to be determined based on a Regional Plan of Action considering the national and regional fishing capacity management plans and scientific advice (REC.MCS-GFCM/34/2010/2). Through the CoC, the Commission requests the Members and/or Cooperating non-Members to take remedial actions to address the acts or omissions.

The Commission has, since its foundation, taken into due consideration the legal issues related to the conservation of resources and management measures aimed at ensuring the sustainable utilization of fishery resources. In particular, many recommendations regard specifically the development and establishment by the States of the appropriate institutional legal framework defining access to the fisheries resources and fishing grounds as well as the implementation of management measures and the activities on Monitoring, Control and Surveillance.

During the Working Group on Vessel Monitoring Systems (VMS) and related control systems in the GFCM area of application was held on 20–21 April 2015, in Marrakech, Morocco I, the GFCM Secretariat delivered a presentation on the pilot study for a centralized control system, being carried out in light of the decision by the Commission at its thirty-eighth session (FAO headquarters, May 2014) and in accordance with the roadmap in the guidelines of Resolution GFCM/2014/38/1. It was recalled that the pilot study was being conducted to test the feasibility of the centralized control system which would have to pursue several objectives in addition to those relating to MCS, such as scientific added value, integration of data processing subsystems and development of complementary effort information, catch information, by-catch reports and environmental indicators. The GFCM Secretariat detailed, in particular, the technical aspects of the pilot study which had enabled the establishment of a virtual hardware infrastructure featuring: a) the ability to deploy servers with up to 16 cores and 116 GB of RAM; b) an ISO 27001 certified data storage service for servers backups and uncompressed historical datasets able to hold up to 200 TeraBytes; c) service levels up to 99.95% for virtual servers, 99.99% of connectivity uptime for database engines and 99.95% for virtual networks; d) inbuilt disaster recovery mechanisms for databases, allowing transaction log backups to take place every 5 minutes and differential database backups to be triggered every hour. Considerations were also made regarding the cost estimations for the IT infrastructure and concerned services, benefiting from recurrent UN-wide negotiations with the provider. In total, it was estimated that the cost of a centralized GFCM control system would amount to roughly 35.000 UDS per year (virtual hardware infrastructure). In addition, the costs of proper VMS software to be added, possibly through a cooperation agreement with an external provided, would have to be factored in. These costs could be approximately 10 000 USD, according to a very preliminary estimation.

As the centralized GFCM control system would have to be responsive to the needs of both GFCM Members with and without an FMC, the pilot study now required the specification of different data requirements. The next step would be to lay down data workflows envisaged through the study from national FMCs, on the one side, and specifics on direct transmission from onboard devices absent FMCs,

on the other. In the first case, it was proposed to adopt the North Atlantic Format to allow data transfer from FMCs, in line with similar procedures in place in other RFMOs.

This would also allow for the use of FAO recognized standards for vessel type (ISSCFV), fishing gears (ISSCFG) and species (ISSCAAP). In the second case, it was stressed that the submission from GFCM Members without FMCs, that had potentially adopted an assorted variety of other devices, would require formats to be harmonized in the data flow. For this purpose, the best approach would be the one-off formulation of a common transmission format to be used by onboard devices to transmit data.

GFCM Members in the future would be expected to request, through future tenders on the purchase of devices, that the harmonized data flow used at the regional level be mandatorily used by the providers. Otherwise, any direct transmission from onboard devices would be impossible.

The “Working Group on VMS and related control systems in the GFCM Area” of the CoC held in Tunis, Tunisia, on 1-2 October 2013⁹ has inter alia highlighted common problems and solutions to all GFCM member countries stressing that: a recurring problem of national VMS systems was considered to be the sharing of data among GFCM Members as questions such as what parameters should be used, how to save budgetary resources, etc., would be entailed. The Working Group agreed that inspectors in particular needed as many data as possible to properly plan and to perform their duties and prevent IUU products from reaching the market. Standardization would also be needed at one point and confidentiality should be linked to the security of the transmission of data. A common language should be used to lower costs and facilitate the sharing of data. However, it was pointed out that in some cases the problem was not the lack of resources but rather that of political stability which would prevent the establishment of VMS. Another issue which drew the attention of the working group was that of the depletion of the fish stocks in the Mediterranean Sea. In this connection, the goal to sustainably manage fisheries was recalled and the potential of VMS to play a multifaceted role was stressed (i.e. the data collected could help significantly in determining fishing patterns and the dynamics of fish populations). Considering the predominance of small-scale fisheries in the Mediterranean Sea, control systems would have to envisage tracking requirements tailored to the real need and the specificities of the region and the sub-regions through an adaptive approach. Whereas conventional VMS would remain the solution of choice for vessels beyond 15 m for the time being, other vessels could be monitored thanks to non-conventional means. For small-scale fisheries GPRS and AIS could represent viable solutions as they were cost effective. As a matter of fact, all vessels which were already under the obligation of having transponders using similar channels of communication according to their national legislations should be monitored at regional level. Clarifications were sought as to whether the possible establishment of a GFCM centralized VMS system would interfere with that of national fishing monitoring centers. It was clarified that not only such a centralized system would not encroach upon the sovereignty of GFCM Members to have their control systems at national level, but that a GFCM centralized VMS system could lend significant support to GFCM Members by facilitating the sharing of technology and technical assistance. Furthermore, until the day certain GFCM Members will be devoid of a national fishing monitoring center, a GFCM centralized VMS system could make up for this structural deficiency and ensure the exchange of relevant data. It was suggested that technical brochures in English, French and Arabic should be prepared by the GFCM Secretariat to raise awareness at regional level on several aspects linked to VMS, including with a view to directly involving the fishermen in MCS.

⁹ Source: FAO General Fisheries Commission for the Mediterranean, 2015. GFCM Working Group on Vessel Monitoring Systems (VMS) and related control systems in the GFCM area of application was held on 20–21 April 2015, in Marrakech, Morocco. Rome, GFCM.

The mentioned Working Group agreed inter alia on the following recommendations:

- The GFCM Secretariat should continue to develop, through the ongoing pilot study, a centralized control system which will harmonize a format for data transmission from FMCs to the centralized control system (for Contracting Parties having a FMC), possibly based on the NAF, including through an appropriate survey; implement a common data transmission format for direct transmission to the centralized control system (for Contracting Parties not having a FMC); integrate VMS, AIS and other data sources with other relevant fisheries data collected through means such as ERS and e-logbooks, as well as with scientific features in support of management; complete the VMS software platform for the centralized control system, including customization of this platform, as supported by Contracting Parties and relevant technology partners; launch the data transmission to the centralized control system testing phase.
- The centralized control system should be hosted at the GFCM Secretariat and will consist of an infrastructure including a virtual hardware and a customized VMS software;
- Confidentiality standards and requirements relating to the transmission, storage and use of data should be fully consistent with the GFCM legal framework;
- Technical issues and best practices relating to the implementation and management of FMCs, such as IT infrastructure, integration of data, sharing of information, etc., should be discussed at expert level in the next meeting of this working group (to be convened in 2017).

Capacity building and training will remain a top priority, with particular reference to MCS. Combating IUU fishing activities in a number of GFCM Members is made exceedingly difficult by capacity gaps at present. Recently, the EU, in order to make as effective as possible its recent regulations relating to IUU fishing, has landed significant assistance to third countries, including through regional seminars and multilateral and bilateral meetings. DG MARE has been collaborating with DG DEVCO actions to assist developing countries and has launched several capacity building programs. Regardless, if one of the main goals of the EU is to give widespread legitimacy to its ground-breaking legal instruments, and have third countries cooperating in the fight against IUU fishing, a major effort should be done to make that possible in the Mediterranean Sea. There is possibly no better playground than the Mediterranean Sea to test the feasibility of modern anti-IUU policies for many reasons. And arguably, there is no better organization than an FAO commission to steer countries with different backgrounds and levels of capacity toward reaching a common end.

The Commission has addressed issues relating to IUU fishing in a number of occasions over the past decade, always in conformity with the FAO International Plan of Action to Prevent, Deter and Eliminate IUU fishing (IPOA-IUU), the very instrument where the above definition was put forth. Accordingly, the Commission has adopted a step-by-step approach whereby the various dimensions of the issue have been taken into account in a holistic manner. In 2004, when the first workshop on IUU fishing for the Mediterranean was convened, together with the FAO, it was suggested that the establishment of positive and negative lists of vessels could have represented a first step in the fight against IUU fishing. Also, the creation of a special working group on IUU fishing was advocated. This working group would have ensured follow up on relevant paragraphs in the 2003 Ministerial Declaration of Venice but it never came into existence. Regardless, the Commission has continued to tackle IUU fishing and several recommendations have been adopted to that end (e.g. on port State measures, on VMS, on compliance with GFCM recommendations, etc.). Besides, the GFCM has participated in the consultations that led to the adoption of the “2009 FAO Agreement on Port State Measures” and the “2013 FAO Voluntary Guidelines for Flag State Performance” and worked in close collaboration with the FAO in matters linked to IUU fishing.

The GFCM has drafted a road map to fight IUU fishing in the Mediterranean Sea available in Annex II.

Finally, the GFCM Working group on illegal, unreported and unregulated (IUU) fishing in the GFCM area of application held on 22-24 April 2015 in Marrakech, Morocco adopted inter alia the following conclusions:

- Training and vocational activities in all fields linked to the fight against IUU fishing should be promoted further by the GFCM at the regional, sub-regional and national level, including with relevant partners.
- A proper common methodology to assess IUU fishing should be developed, in cooperation with FAO and relevant partners, with a view to focus on filling data gaps and improving time series for stock assessments.
- A regional system of traceability to discourage the trade in IUU products should be developed.

3.4. Other Regional Institutions

Following a brief description of the two main regional economic organizations in Sahel sub-region.

3.4.1. Union Magrheb Arab (UMA)

Established in 1989, l'UMA is a regional economic community, in order to organize a Magrheb economic space and common policies in all domains.

Last summit of the head of government is dated 1994.

By the establishment, l'UMA is encountering diplomatic problems, due the debate between Algeria and Morocco on Western Sahara.

North African Member countries: Algeria, Libya and Tunisia.

3.4.2. Cen-Sad (Communauté des États sahélo-sahariens)

Established the 4 February 1988, the Community of the Sahelien – Saharian States (Cen-Sad) has the objective to improve the economic cooperation within the sahelian sub-region.

Established for Qaddafi, has had few activities between 2011 and 2013, when the extraordinary summit of the State of governments was held.

North African member countries: Libya, Tunisia.

General Recommendations for chapter 3

Encourage the implementation of relevant provisions of 2014 policy framework and reform strategy for fisheries and aquaculture in Africa.

Determine sub-regional priorities in combatting IUU fishing and MCS implementation.

Develop specific sub-regional strategic actions on fisheries consistent with the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa.

Strengthen sub-regional cooperation on MCS amongst North African States by: establishing formal arrangements and protocols between regional fisheries bodies and arrangements with policy and management functions (i.e. GFCM, ICCAT) as well as enforce the centralized GFCM control system and the GFCM road map, which will facilitate exchange of information on IUU fishing and data obtained from MCS tools.

Develop joint initiatives between regional fisheries bodies and arrangements and RECs involving North African States by exchanging information that will achieve common fisheries objectives.

Adopting policy measures to encourage cooperation against fisheries crime.
Adopting lessons learnt from successful fisheries programs, at the sub-regional level.
Engaging in MCS activities with other States of the region.

Conducting regional training on both the legal and practical aspects of Vessel Monitoring System and Observer Program to facilitate cooperation among legal and technical personnel.

Ensure that any formal arrangement that will be developed within the North African subregion have provisions that will enable wider cooperation with other African sub-regions.

Assess how the planned GFCM Regional Fisheries MCS Coordination Centre can facilitate MCS cooperation in the North of Africa.

Develop functional bilateral cooperation in fisheries in shared areas and maritime zones pending maritime boundary delimitation agreements.

Incorporate provisions of fisheries partnership agreement and other bilateral cooperation arrangements in national and local legislation.

4 NATIONAL FRAMEWORKS ON MCS AND COMBATING IUU FISHING

4.1. Brief introduction of the marine capture fisheries in the sub-region

Following a summary analysis of the MCS frameworks to combat IUU fishing for Algeria, Egypt, Libya and Tunisia is available.

4.1.1. Algeria

Fisheries Governance¹

The competent authority for fisheries and aquaculture matters is the Ministry for Fisheries and Fishing Resources. Its remits cover all the activities related to the protection, preservation, promotion, management of the national fisheries and aquaculture resources; the activities related to the promotion and development of aquaculture; the Minister for Fisheries establishes, in collaboration with the Minister responsible for water resources, the policy for the use and promotion of water resources used by aquaculture. The Decree No. 03-439 of 2003, implementing the Law relating to Fisheries and Aquaculture, sets the conditions for the elaboration and approbation of the national scheme for the development of fisheries and aquaculture activities. The national scheme establishes the objectives of the sector regarding the sustainable development of fisheries and aquaculture activities and their implementation, by improving food safety, the marketing conditions of the products, the increase of production, the stimulation of employment, the preservation of biological resources and the promotion of investment and exportation. In that respect, in 2007, the Government adopted the scheme for the development of fisheries and aquaculture activities to the horizon of 2025. The scheme contains two components: one dealing with fisheries and one dealing specifically with aquaculture. The Law relating to Fisheries and Aquaculture promotes the development of fisheries and aquaculture activities and provides for state support through a national framework. In that respect, the state institutes:

- A national chamber of fisheries and aquaculture.
- A national consultative council for fisheries and aquaculture.
- A national research centre of fisheries and aquaculture.

The National Center for the Documentation of Fisheries and Aquaculture pour la Pêche et l'Aquaculture has been established to fill the gap in fisheries research, with three departments: Living resources department (fisheries and aquaculture), socio-economic studies department et technical department.

The Algerian small-scale fleet is mainly composed of vessels less than 12 m long and gross tonnage from 01 to 10 tons boat. The main range of sizes varies from 3 to 9 m with power ranging from 5 to 40 hp and a crew of 2 to 8 fishers based on the gear used. These vessels spend from 2 to 16 hours at sea and they use different gear according to the seasons. Artisanal fisheries are carrying out along the continental shelf and in the coastal areas. The total number of sites practicing the SSF identified by CopeMed is approximately 64 with 32 ports, 23 beaches and 9 natural sites; there were identified a total of 1646 active boats providing direct employment to 4 012 fishers. The most frequently used gear includes various types of gillnets, trammel nets, longlines and hand lines. Some small purse seiners also exist, as well as vessels specialized in the catch of certain target species like swordfish.

Legal framework²

The fishing right of the country nationals is subjected to obtain an authorization to fish or to obtain a licence.

¹ Source ÖZTÜRK, B., 2013. Nature and extent of Illegal, Unreported and Unregulated (IUU) fishing in Mediterranean sea. Appendix D. Background paper for the GFCM Workshop on IUU Fishing in the Mediterranean Sea" held on 3-4 October 2013 in Tunis, Tunisia.

² Source: GFCM Database on National Fisheries Legislations.

The Algerian legislation is applicable to all physics or moral persons, fishing in the territorial waters under the national jurisdiction and outstanding and to all the fishing vessels registered in Algeria.

Complying with the national regulation, an authorization to fish is due for the commercial and continental fisheries and for recreational as well as for diving fisheries (Décret exécutif n° 03-481 fixant les conditions et les modalités d'exercice de la pêche, Art. 13).

The request for the authorization has to be addressed to the Director of Fisheries and Resources of the local districts (wilayas), locally competent authority. Following a formal control, the Fisheries Director can give a yearly (renewable) authorization to fish.

The fishing licence (Décret exécutif n° 03-481 fixant les conditions et les modalités d'exercice de la pêche, Art. 15) has to be requested for the scientific fishery (a biological cycle duration), experimental fishing campaigns (1 campaign) and commercial fishery with fishing vessels. The requests have to be addressed to the Ministry of Fisheries. The tuna fishery is subjected to an authorization too (Arrêté du 4 Joumada El Oula 1431 correspondant au 19 avril 2010] ; Arrêté du 7 Joumada El Oula 1434 correspondant au 19 mars 2013 modifiant et complétant l'arrêté du 4 Joumada El Oula 1431 correspondant au 19 avril 2010 instituant des quotas de pêche au thon rouge pour les navires battant pavillon national exerçant E.J.N.).

The fishing licence can't be transferred. The request for authorizations and licences can be refused.

The coral fishery as well as marine algae and sponges collection can be exercised with a concession authorized by the Fisheries authority after the payment of a loan (Loi n° 01-11, Art. 36-37 amendé considérablement avec la loi Loi n° 15-08 du 12 Joumada Ethania 1436 correspondant au 2 avril 2015 relative à la pêche et l'aquaculture, art. 9.).

Main legal framework

Loi n° 15-08 du 12 Joumada Ethania 1436 correspondant au 2 avril 2015 modifiant et complétant la loi n° 01-11 du 11 Rabie Ethani 1422 correspondant au 3 juillet 2001 relative à la pêche et à l'aquaculture.

Loi n° 01-11 relative a la pêche et a l'aquaculture, juillet 2001.

Décret exécutif n° 08-118 modifiant et complétant le décret exécutif n° 04-86 fixant les tailles minimales marchandes des ressources biologiques.

Arrêté du 12 juillet 2004 modifiant et complétant l'arrêté du 24 avril 2004 fixant les limitations d'utilisation des chaluts pélagiques, semi-pélagiques et de fond dans le temps et dans l'espace.

Décret exécutif n° 03-481 du 19 Chaoual 1424 correspondant au 13 décembre 2003 fixant les conditions et les modalités d'exercice de la pêche.

Arreté du 4 Joumada El Oula 1431 correspondant au 19 avril 2010 instituant des quotas de pêche au thon rouge Arreté du 4 Joumada El Oula 1431 correspondant au 19 avril 2010 instituant des quotas de pêche au thon rouge.

Conservation and control measures

The maritime fisheries is exclusively limited to the 3 following fishing zones and for fishing vessels equipped for fishing:

- From the shore and inside six marine nautical miles;
- From six marine nautical miles to the limit of 20 miles;
- Outside the 20 marine nautical miles.

The Fisheries inside three nautical miles is forbidden for pelagic, semi-pelagic and demersal fishing vessels during day and night every year from the 1st of May to the 31 of August and forbidden all over the year for less than 40 m depth or 50 m depths in same identified areas or forbidden for all depths in other indicated areas of the decrees.

Tuna fisheries is forbidden during the following periods:

Fishing vessels with oaks and an AOL hors 24 meters, from the 1 of June to 31 of December

Encircling nets, from 15 of May to 15 of June.

Sword-fish fishery is forbidden every year in national jurisdictional waters from 1 of October to 30 of November.

The minimum commercial sizes of biological resources are fixed by the Décret exécutif n° 04-86 fixant les tailles minimales marchandes des ressources biologiques, mars 2004.

In the case of non-selective fisheries a rate of immature or forbidden to fishery species are tolerated under the 20% of the total catch (Décret exécutif n° 03-481 fixant les conditions et les modalités d'exercice de la pêche, Art. 46).

Fishing methods

Exempting scientific fishery, the utilization of the some fishing methods is forbidden, such as inter alia fishing with electricity, fishing with toxics or corrosives substances; fishing with bombs, fixed nets longer than de 2,5 km, floating fixed nets with mesh size less than 130 millimetres, demersal nets with mesh sizes less than 40 millimetres, pelagic and semi-pelagic nets with a mesh sizes less than 40 millimetres, shrimps fisheries nets with a mesh sizes less than 40 millimetres, devices for reducing the mesh size of part of the nets under authorized dimensions.

The authorized fishing methods nets for the fisheries are regulated by the Décret exécutif n° 03-481 fixant les conditions et les modalités d'exercice de la pêche, Art. 41, 42 and 43.

The utilization of a cover for the sac is strictly forbidden for the pelagic, semi-pelagic and demersal shrimp fishery

The small pelagic fishing vessels are authorized to use lights (not more than a lamp for fishing boat).

The product of the recreational fisheries is destined to the auto-consumption. It is forbidden to expose to sell or sell or exchanged (Décret exécutif n° 03-481 fixant les conditions et les modalités d'exercice de la pêche, Art. 61-63).

The diving fisheries is the object of specific dispositions (Décret exécutif n° 03-481 fixant les conditions et les modalités d'exercice de la pêche, Art. 65-71).

Fishing vessels

Reporting obligations

The captains of fishing vessels authorized to operate in the national jurisdictional waters are obliged to have a daily fishing book to be validated and transmitted monthly to the territorial competent Authority (Décret exécutif n° 03-481 fixant les conditions et les modalités d'exercice de la pêche, Art. 26).

The format of the book journal contains information on:

- Fishing duration;
- Fishing tackles;
- Fishing zones;
- Crew number;
- type and quantity of the catches.

The Décret exécutif n° 04-187 has for object to indicate fishing tackles whose importation, fabrication, ownership and selling is forbidden.

Landing obligations

When not authorized by the Fisheries authorities, all the fishing products had to be landed in Algerian fishing ports. These products are landed at the presence of a local fisheries authority representative charged to collect weight and number of species landed. The transshipment of fishing product at the sea is forbidden exempt in duly justified and verified cases by the coast guard (Loi n° 01-11, Art. 57, 58).

Observers

The owners of a scientific or prospection fishing licence are obliged to embark at their expenses scientific observers and/or controllers designated by the administration/fishery authority (Décret exécutif n° 03-481 fixant les conditions et les modalités d'exercice de la pêche, Art. 52, 57). The captains of authorized fishing vessels must communicate their nautical positions to the maritime competent authority (Décret exécutif n° 03-481 fixant les conditions et les modalités d'exercice de la pêche, Art. 55, 60). Red Tuna fishing operations are controlled and surveyed on every fishing boat by two observer's representing respectively the fisheries authority and the national coast guard service. (Arrêté du 4 Joumada El Oula 1431, Art. 8). In addition complying with international agreements, the fishing vessels than more than 24 meters OLA must embark an observer of ICCAT (Arrêté du 4 Joumada El Oula 1431, Art. 9).

Vessel Monitoring System (VMS)

Complaint with Algerian regulation (Loi n° 15-08 du 12 Joumada Ethania 1436 correspondant au 2 avril 2015 modifiant et complétant la loi n° 01-11 du 11 Rabie Ethani 1422 correspondant au 3 juillet 2001 relative à la pêche et à l'aquaculture) fishing vessels must have an identification signal device. Every lacking of this rule is considered an infraction and is subjected to sanctions. A decree indicating conditions and modalities to install signal devices on-board of the fishing vessels is ongoing to be elaborated. The small-scale fishermen are not equipped by localization devices and have to communicate in the fishing book (section small-scale fishery), the name and approx. position of coastal areas where they are fishing. The fishermen operating from the coast are subjected to the fishing book obligation. All captains of tuna fishing vessels are obliged to communicate electronically or by other means to the local charged competent administration and to the national services of the coast guard a weekly report of the quantities, date,

latitude and longitude of the catches (Arrêté du 4 Joumada El Oula 1431 correspondant au 19 avril 2010]; Arrêté du 23 Joumada Ethania 1433 correspondant au 15 mai 2012). The captain of the tuna fishing boats hors 24 m OLA must report daily, date and localization of the catches, to the local fishery competent authority and to national service of the coast guard (Arrêté du 4 Joumada El Oula 1431 correspondant au 19 avril 2010]; Arrêté du 23 Joumada Ethania 1433 correspondant au 15 mai 2012).

Sanctions

The following agents are habilitated to search and to verify infractions to the legal framework:

Les agents suivants sont habilités à rechercher et à constater les infractions aux dispositions législatives et réglementaires en vigueur:

- Fishery inspectors;
- Judiciary police officials;
- Commanders of the navy;
- Agents of the coast guard service.

They are entitled to use the public force to prosecute and verify infractions and to confiscate fishing tackles and materials and fishing products prohibited (Loi n° 01-11 du mars 2001, Art. 62, 64). The conditions to recruit the fishery inspectors are detailed in the decree (Décret exécutif n° 08-181).

Sanctions (administrative)

Is possible to suspend an authorization/licence when are not respected their dispositions, when it has been refused to communicate information or to present documents during a control. The immediate suspension is due is the fishing vessels is sold or if the data to obtain an authorization or licence has been modified and not still answer to the conditions for releasing the authorization or licence or if the fishing vessels not satisfy the technical conditions for safety and navigation security (Décret exécutif n° 03-481, Art. 23, 24).

Sanctions (penal)

A penal sanction is due complying with the gravity of the infraction (Loi n° 01-11, Art. 74 à 102). E.g.:

- Is punished with a condemnation from 3 to 6 months of prison and to the payment from 200 000 to 500 000 DA, everyone utilize fishing tackles other than the ones authorized (Art. 78);
- Is punished to pay from 10 000 to 20 000 DA, everyone utilize trolling nets (Art. 84);
- Is punished to pay from 50 000 to 100 000 DA everyone refuses to be subjected to the inspection and control visits by habilitated agents or deliberately gives wrong data and information on fishing activities (Art. 87).

If someone that is already been condemned for a fishery violation in the precedent two years is subject to another infraction is considered recidivist and the sanctions is doubled (Art. 92, al. 1). Occurring the second recidivism, it is possible to be definitely retired the professional licence of fisherman (Art. 93). All foreign fishing vessels having fished without authorization in national jurisdictional waters is confiscated and brought in an Algerian port under the authority of the Algerian agent verbalizing since a definitive pronouncement of the judicial competent authority (Art. 94). The captain of the fishing boats are the persons responsible for the navigation and can be punished to pay from 3 000 000 à 5 000 000 DA, and in addition to be confiscated of the fishing tackles and the product on board and to be destroyed the illegal fishing tackles (Art. 98).

Principal Legal Measures on Monitoring, Control and Surveillance

Fishing book

Arrêté du 18 Rabie El Aouel 1427 correspondant au 16 avril 2006 fixant le journal de pêche.

Arrêté du 17 Ramadhan 1427 correspondant au 10 octobre 2006 fixant le contenu du livret professionnel de pêcheur, ses caractéristiques techniques ainsi que les conditions et modalités de son établissement et de sa délivrance.

Landing

Arrêté 12 juin 2005 relatif au permis et à l'autorisation de pêche

VMS

Loi n° 15-08 du 12 Joumada Ethania 1436 correspondant au 2 avril 2015 modifiant et complétant la loi n° 01-11 du 11 Rabie Ethani 1422 correspondant au 3 juillet 2001 relative à la pêche et à l'aquaculture.

IUU fishing

Décret exécutif n° 03-481 du 19 Chaoual 1424 correspondant au 13 décembre 2003 fixant les conditions et les modalités d'exercice de la pêche.

Inspections

The following laws are related to methods of organization and functioning of the local commissions of inspections of fishing boats, conditions and modalities of control and inspections of on-board observers on fishing boats fishing great pelagic species.

Arrêté du 07 mai 2003 fixant les modalités d'organisation et de fonctionnement des commissions locales d'inspection des navires-

Arrêté interministériel du 22 mars 2007 précisant les conditions et les modalités d'intervention des contrôleurs à bord des navires étrangers pratiquant la pêche des grands migrateurs halieutiques dans les eaux sous juridiction nationale.

4.1.2. Egypt

Fisheries Governance³

The General Authority for Fish Resources Development (GAFRD) was established by the presidential decree 190/1983 as a part of the Ministry of Agriculture and Land Reclamation. With the exception of Lake Nasser, GAFRD is responsible for the development and management of fishery resources including aquaculture as designated by law 124 of 1983 with the responsibility of issuing fishing licences, supervising fishery cooperatives, collecting fry from collecting stations, re-distributing them in inland lakes (like Qarun and Rayaana), produce statistical information on fish production, consumption and trade. In addition, it provides technical support to private farms whenever needed and manages fisheries and aquaculture in accordance with the Law 124 of 1983. The National Institute for Oceanography and Fisheries (NIOF) is the leading research institution for the study of marine ecology, hydrology, biology, fishing effort and fish stocks.

The Egyptian General Cooperatives Union for Fisheries Resources is a non-governmental organization bringing together roughly 100 local cooperatives, each one counting up to 100 members under the umbrella of the General Authority for Fish Resources Development (GAFRD). It was created in 1959 and encompasses four subunions whose main objective is to protect the interests of the Egyptian fishers. The union deals with many social and technical aspects and has a great importance in the sector of

³ Source ÖZTÜRK, B., 2013. Nature and extent of Illegal, Unreported and Unregulated (IUU) fishing in Mediterranean sea. Appendix D . Background paper for the GFCM Workshop on IUU Fishing in the Mediterranean Sea" held on 3-4 October 2013 in Tunis, Tunisia.

financing the building of fishing boats. The union plays also an important role in the management of the fisheries, encouraging the fishers to apply regulations. It regularly publishes an informative newsletter, including scientific information regarding the sector. The union is a member of the GAFRD board and also cooperates with the Egyptian social fund project for the realization of small and medium projects in support to the decision-making process in the fishery sector. The Co-operative Union runs an insurance scheme through which fishermen are sheltered from economic loss in case of accidents or loss of vessels.

The total number of Egyptian registered fishing vessels operating at sea including the Mediterranean and Red Sea is 6 480 fishing boats; 4 089 of these vessels are equipped with inboard engines, with more than 50 up to 1 000 hp, using different fishing gear such as trawl, purse-seine, long-lines, trammel and gill nets. While the number of trawlers and purse seiners has been stable in the last five years, the number of long liners has doubled. It is very likely that most of the 1 379 sail boats operate mainly in the lagoons and in other costal semi-closed water bodies. The small-scale fishing vessels vary between 7 to 15 m in length and are powered by small outboard or inboard engines from 8 to 150 hp. The fishing trip usually takes from 1 to 5 days and the number of crew employed ranges from 2 to 8 fishers per vessel. The main fishing gear includes hand lines, longlines, gillnets and trammels nets. They target both demersal and pelagic species depending on the fishing season. Egyptian fisheries have seen a drastic change in the last decades, with a considerable expansion of the trawl fishery. Egyptian Mediterranean capture fisheries are important for local coastal communities, providing employment opportunities (about 32000 fishers and about 150000 indirect beneficiaries were estimated in 2009). Official reported landing sites from west to east include: Salum and Mersa Matruh (Matruh province) Al Max, Al Anfoushy, Mena Sharki and Abu Qir (Alexandria province) Meadea and Rashid (Behera province) Borge Al Burollus and ElJezera ElKhadra (Kafr Al Sheakh province) Al Borge (Dumyat province) Port Said (Port Said province) and El Arish (North Sinai province). In addition, there are several other small landing sites.

Legal framework⁴

Access regime to fisheries resources

The maritime delimitations of Egypt are regulated by the Decree of 1951 on Territorial Waters of the United Arab Republic of Egypt and also the Declaration concerning the exercise by Egypt of its rights in the Exclusive Economic Zone.

The General Authority for Fish Resources Development (GAFRD) was established by the presidential decree number 190 for year 1983. GAFRD is the only responsible governmental authority for the fisheries sector in Egypt.

Administrative authorizations and licenses

National vessels must obtain a license, valid one year, issued by the GAFRD, upon payment of fees, whose amount varies according to the vessel capacity, the fishing gears used and the size of the crew. Additionally, in case of motorized fishing vessels, its seaworthiness must be certified by the Department of Harbours and Lighthouses and a marine competency certificate must be issued to the master of the vessel.

Among the mention to be included in the license are inter alia: the capacity of the vessel, the maximum size of the crew, the authorized area and method. Daily or periodically exit/enter permit at ports are also mandatory. They are issued by the coast guards and “responsible fisheries office” at ports.

Fishermen must obtain a license card prior engaging in fishing activities, also valid for one year. It must mention name and place of residence, area of operation and method of fishing.

⁴ Source: GFCM Database on National Fisheries Legislations.

Vessels conducting scientific research are exempted from licensing requirement. Vessels belonging to cooperative associations or companies of the public sector may benefit from reduced fees. Exemptions may also apply where it is established that a vessel is unsound, if a fisherman is incapable of fishing for at least a month, or in respect of fishing activities in remote or unexploited fishing areas that are damaged as a result of disasters.

Foreign fishing vessels are not allowed to fish nor be present in the territorial waters of Egypt, unless for research purposes, authorized by the Minister of Agriculture and upon payment of the prescribed fees.

Main fisheries laws and regulations

Ministerial Decree No.666 of 2008 amending Resolution No. 130 of 2007 on the fishing in the Mediterranean Sea

Resolution No. 1566 of 2007 prohibiting fishing and exportation of sea squid

Resolution No. 130 of 2007 on the fishing in the Mediterranean Sea

Law No. 124 of 1983 regarding fishing, aquaculture and fish farms regulations

Conservation and control measures

The Law n°102-83 on Natural Protected Areas of the 1983 provides the legislative framework for establishing and managing protected areas. Moreover, it is prohibited to fish from 1st May to 30th June of each year (breeding period for most species). However, this period can be reduced, by the fisheries management authorities, taking into consideration social conditions.

Although minimum sizes should be specified in decrees issued by the Minister of Agriculture, no official species' minimum sizes have been regulated (inspectors in landing areas determine illegal fishing sizes according to their experience).

The Law n°102-83 on Natural Protected Areas provides the legislative framework for the designation of Natural protected areas. These are delineated by a decree of the Prime Minister upon recommendation of the Egyptian Environmental Affairs Agency (art. 1). The following activities are forbidden in protected areas: catching, transporting, killing and disturbing wildlife; damaging or removing any living organism, natural feature and resource such as shells, corals, rocks and soil for any purpose; damaging or removing plants from protected areas; Permanently prohibited species: marine mammals, sharks, dolphins, sea turtles and sea birds, fish sea squid. In particular, for sea turtles by-catch the GAFRD has adopted, issued, and circulated a restricted decision that prohibits any fishing for sea turtle. In addition, if there is any accidental by catch of sea turtle it should be returned alive to the sea and reported to the concerned management office at the ports including the date and the location of this accidental fishing following the Law 4/1994 renewed in 2004 and the decree n. 444/2012.

Article 3 of Chapter 1 of the Fishing Law 1983 states that it is not permitted to change type of gear used and not allow to increase the engine power. Article 9 provides that the permission of the boat nets or machinery or unauthorized tools or prohibited fishing as it is not permissible for any person possessing these machines and tools to enter fishing locations or near them.

Fishing vessels

Register

The General Authority for Fish Resources Development GAFRD (through its hierarchal system) is responsible for the register all fishing units in a registration book describe fishing units (length, horse

power, fishing gears and fishermen names) for each fishing unit.

Reporting obligations

All fishing boats fishing are obliged to use a fishing book and are not allowed to leave or enter into the ports, without the see going book. The Egyptian going book is the same as a logbook and contains all data except location (Law No. 124 of 1983 regarding fishing, aquaculture and fish farms regulations).

Any vessel must be marked on its sides by the GAFRD with a serial number and a sign indicating the class of the vessel and the area in which it may be used for fishing. Markings must be kept clearly visible and can be altered only with the authorization of the GAFRD (article 2 and 3 of the Act No. 124 of 1983 on Fishing, Aquatic Life and Aquaculture).

Coast guards are authorized to seize prohibited or non-regulatory fishing gear and fish caught in the commission of an offense

Landing obligations

The main fishing ports along the Mediterranean are Matrouh, Anfoshi, Maadaia, Rahied, Boruls, Damietta, Port Said and Aresh. There are also many small landing sites that are used mainly by sail boats.

Sanctions

Egyptian legislation prescribes a wide range of fines and penalties, depending on the severity of the offense, namely administrative and penal, such as described in the following page.

Administrative

Fishing licences may be withdrawn for a period of 6 months in case of fishing activity in a prohibited area or using prohibited method. In the event of a repeated infringement, the licence may be definitively withdrawn.

Penal

In case of fishing without a valid licence: imprisonment for no more than 3 months and/or fine not exceeding 50 pounds, seizure of the vessel and apparatus, payment of twice the amount of annual fees prescribed for the period during which the vessel was operated without a license. Masters of foreign vessel may be fined from 5000 EGP to 10 000 EGP (in addition to the seizure of the vessel until final payment). In case of violation of closed seasons: 2 months fishing ban, up to 6 months in case of repeated offence, in addition to the seizure of vessel and equipment. In case of non-compliance with legal minimum sizes: imprisonment for 3 months, up to 6 months and/or a payment of a fine not less than 100 pounds (in case of repeated offence: penalty doubled, seizure of the gears and catches). In case of falsification, suppression, concealment of vessel markings: fine from 10-20 pounds, doubled in case of repeated offence, subject to settlement.

Principal Legal Measures on Monitoring, Control and Surveillance

Logbook

Law No. 124 of 1983 regarding fishing, aquaculture and fish farms regulations

Landing of catch

Data reporting (Art. 22 of Act No. 124 of 1983)

Vessel Monitoring System (VMS)

There is not a specific legislation in this domain

Illegal, Unreported, and Unregulated fishing (IUU)

There is not a specific legislation in this domain

Inspections

Technical inspection (Art. 30 of Act No. 124 of 1983).

4.1.3. Libya

Fisheries Governance⁵

To be noted that according to the actual in-country political situation, Libya is characterized by the presence of two Governments (Tobruk, recognized internationally and Tripoli). Recently, the UN negotiations have reached an agreement for a government of national unity, not still ratified by the parties and the data are subject to possibly a revision and update.

The central authority for the fisheries sector is the Secretariat of Marine Wealth (SMW), a powerful administration that grouped all the administration and technical functions required to manage and develop the fisheries industry. The fisheries research is under the responsibility of the Marine Biology Research Centre (MBRC) located on the coast at Tajura (near Tripoli). Twenty-four marine fishery cooperatives (jamiyas) have been established at major fishing centers along the coast with the aim of providing supplies of essential gear and spare parts to the artisanal sector. Membership in local jamiyas is open to all fishers who have valid boat licenses issued by the fishery authorities.

The Libyan fleet is mainly composed of artisanal vessels (92.5 percent). Most of the catch is taken by small-scale boats working with trammel nets and gillnets or longlines and handlines and by the lampara fleet fishing for small pelagics. These crafts call to roughly 150 landing sites, including beaches, anchorages and harbours. Small-scale units include roughly 4 695 vessels. Approximately two-thirds of the smaller crafts are motorized, usually with outboard engines in the 10–35 HP range. The larger units are decked vessels and are all fitted with inboard engines.

Types of small-scale fishing boats in Libya: Batah: 7–8 m flat-bottomed boat used to fish gillnets and pots (octopus) in shallow lagoon waters; propelled by outboard engine for commuting then with a pole during work. Gaik: double-ended boats of 4–6 m, derived from traditional craft that were propelled by oars, now often adapted for outboard engine propulsion; more common in the western part of the country. Flouka: small fishing craft of varied sizes ranging from 2 to 7 m; shapes are diverse but generally with a flat transom and no deck; powered by outboard engines. Mator: generally greater than 5–6 m in length running up to 18 m or more, with deck and roof for the smallest units, wheel house, fish hold, and net hauler for the largest shape and design similar to units found in Tunisia, Greece and Egypt. Lampara: usually 12–13 m with deck, inboard engine, a small roof and a purse seine winch, associated with one to three Dghaissas carrying kerosene or butane gas lights to catch small pelagic fish using light attraction at night, some units may convert to net and/or line fishing during the off season, only present in the western part of Libya. Dghaissa: 7–8 m, without deck and engine; serves as light boat in association with the lampara.

⁵ Source ÖZTÜRK, B., 2013. Nature and extent of Illegal, Unreported and Unregulated (IUU) fishing in Mediterranean sea. Appendix D . Background paper for the GFCM Workshop on IUU Fishing in the Mediterranean Sea” held on 3-4 October 2013 in Tunis, Tunisia.

Legal framework⁶

Main fisheries laws and regulations

Resolution No. 7 of 1992 issuing the Implementing Regulation under Law No. 23 of 1991 on fisheries cooperatives

Law No. 14 of 1989 regulating the exploitation of marine resources

Law No. 7 of 1982 on the protection of the environment

Regulating Fishing Law No. 8 of 1962

4.1.4. Tunisia

Fisheries Governance⁷

Under the authority of the Ministry of Agriculture, Environment and Water resources and the secretariat of water resources and fisheries, the General Directorate of fisheries and aquaculture is inter alia charged to elaborate strategies and development plans of fisheries and aquaculture and specific programmes for conservation and sustainable management of aquatic resources and participate in the elaboration of research programmes, training and awareness campaigns. In Tunisia, 60 percent of small-scale fishers in Ghannouch are affiliated to the Union Tunisienne de l'Agriculture et de la Peche (UTAP), a syndicate whose purpose is to defend the interests of its affiliates, to supervise them and to solve the problems among various fishing sectors.

Small-scale fisheries in Tunisia, is the most important sector in terms of employment, value of production and contribution to the exportation. The small-scale sector employs about 33 500 fishers and 5 000 seasonal workers which represent around 75 percent of direct employees in the fisheries sector. Small-scale fisheries produce about 28000 tonnes of high value products (27 percent of the quantities fished in Tunisia) and contribute to 40 percent of the value of total production at the National level. There are around 10500 small-scale boats (93 percent of the total fleet in Tunisia) with size ranging from 5 to 15 m. Most part of the fleet (57 percent) is not motorie (rowing boats and sailboats). There are many fishing techniques and gear used, but most of them are passive gear (gill nets, lines, traps and pots, traditional fixed fisheries charfia). However some traditional active gear is used, such as small beach seines (tilla, damask or sautade, hlig and kiss). It is important to note the existence of several specific fisheries, assimilated to small-scale fisheries. These are the lobster fishery, which is practiced mainly with trammel nets, the coral and sponge fisheries, and the clam fishery, mainly practiced by women, without vessels.

Legal framework⁸

Fisheries

The construction of all vessels hors 0.5 tons is subjected by a previous authorization, exempt the units destined to be exported (Loi n°94-13, Art. 6; Arrêté du Ministre de l'agriculture du 10 août 1999). The competent Authority in fisheries matters (Ministry of Agriculture) has suspended the authorizations to fish in the areas fully exploited (Arrêté du Ministre de l'agriculture du 28 septembre 1995, Art. 5) and it has been introduced a biological rest regime of three months renewable (Loi n°2009-17) in same maritime zones menaced of intensive exploitation or of diminishing of marine living resources. A compensation scheme has been introduced for fishing units having stopped their activities in these fishing areas. The compensation is introduced for the decision of the local competent governor after the decision of regional commission in charge of vantages foreseen at the article 7 du décret n° 94-427 du 14 février 1994.

⁶ Source: GFCM Database on National Fisheries Legislations.

⁷ Source ÖZTÜRK, B., 2013. Nature and extent of Illegal, Unreported and Unregulated (IUU) fishing in Mediterranean sea. Appendix D . Background paper for the GFCM Workshop on IUU Fishing in the Mediterranean Sea” held on 3-4 October 2013 in Tunis, Tunisia.

⁸ Source: GFCM Database on National Fisheries Legislations.

Administrative authorizations and licences

National fishing vessels has to obtain a fishing authorization (Loi n°94-13 relative à l'exercice de la pêche, Art. 5), indicating validity period, fishing method authorized and where suitable fishing area and fishing port.

According to the Décret n°95-252, authorizations to fish requests has to addressed to the general Directorate of fisheries and aquaculture or to the local competent offices of the regional commission for the agriculture development, together with the following documents:

- Agreement of the police for the authorization to fish with fishing vessels,
- copy of the professional card for the fishermen fishing bivalves on-shore,
- copy of the national identity card for the fishermen

The authorization to fish is valid one year from the date of its concession after the payment of the dues (Décret n°95-252) according the fishing methods utilized.

Additionally to the regular authorization, the legislation foreseen specials authorizations for the following fishing methods and activities:

- shrimps fishery in the Gabés Gulf (demersal fishing units) (Arrêté du Ministre de l'agriculture du 28 septembre 1995,Art.38);
- pelagic and demersal trawling fishing in the Tunis Gulf (Arrêté du Ministre de l'agriculture du 28 septembre 1995,Art.27).

Fishing from the shore, collection of marine vegetables exempt algues vivantes, pulps inter alia don't need authorization.

Foreign fishing vessels are not authorized to fish in Tunisian waters exempt for research, training and vulgarization (Loi n°94-13,Art. 3 al. 2).The conditions of nationality are indicated in the disposition of the Loi n°1997-34.All fishing vessels built and armed (including that one trawling fishing products) has to satisfy conditions included in the Décret n°2007-2631 , to be entitled of security permission.

Fixed fishing devices need equally to obtain a previous authorization, delimitating dimensions, installations, conditions and payment due by the beneficiary.This fishing authorization is reserved to the nationals.The beneficiary is entitled to establish installations, fishing materials and equipment within one year from the date of obtaining the authorization (Loi n°94-13,Art. 23-26).

Main fisheries laws and regulations

Loi n° 2013-34 du 21 septembre 2013, complétant la loi n° 94-13 du 31 janvier 1994 relative à l'exercice de la pêche

Décret n° 2007-2631 portant les règles générales auxquelles doivent satisfaire les navires de pêche pour la délivrance des titres de sécurité

Loi n° 2009-48 portant promulgation du Code des ports maritimes

Loi n°2009-49 relative aux aires marines et côtières protégées

Décret n° 2010-1766 fixant les modalités d'intervention du fonds de financement du repos biologique dans le secteur de la pêche

Loi n° 94-13 relative à l'exercice de la pêche

Conservation and control measures

Spatial and temporal restrictions

All fishing activities are forbidden inside the perimeter of 1,5 marine miles (Arrêté du Ministre de l'agriculture du 28 septembre 1995, Art. 25) around Zembra et Zembretta islands and La Galite and Le Galiton islands.

The trawling fisheries (demersal and pelagic) are forbidden (Arrêté du Ministre de l'agriculture du 28 septembre 1995, Art. 25):

- inside the area comprised between the shore and 3 nautical miles;
- in the areas with less than 50 m depth around Kuriat island et des Bans de Korba, Nabeul et Maamour;
- South of the parallel of RasKapoudia in depths less than 50 m exempting dispositions reserved to the shrimps fishery.

Some fishing campaigns can be conducted according to the following regulations (Arrêté du Ministre de l'agriculture du 20 septembre 1994, Arrêté du Ministre de l'agriculture du 28 septembre 1995).

Minimum size

It is forbidden to fish (Arrêté du Ministre de l'agriculture du 28 septembre 1995):

- Fishes less than 11 cm length, measured from the beginning of the mouth to beginning of the caudal fin, exempting indicated other species.
- The following aquatic species according to the following minimum weight and dimensions: swordfish 100 cm length measured from the beginning of lower part of the mouth to the end of the shorter ray of the caudal fin, red tuna less than 30 kg and other species according to indicated dimensions.

Protected species

Protected species are indicated Arrêté du Ministre de l'agriculture du 28 septembre 1995, Art. 9.

Establishment of a quota for the red tuna (Arrêté du ministre de l'agriculture, des ressources hydrauliques et de la pêche du 13 avril 2010).

Fishing devices and methods

- Minimum mesh size of fixed nets must measure 30 mm
- Minimum mesh sizes for the sac even demersal than pelagic must measure 20 mm
- In the triple fixed net dimensions of the meshes of the lateral nets must be at the least three times the ones of the internal net.
- Mesh size of the nets forming body and chambers of the FAD must measure between 150 and 200 mm
- Mesh sizes of the dead chamber of the FAD must measure between 40 et 50 mm
- Mesh sizes of the first series trawling nets must measure 20 mm de côté.
- Mesh sizes of the pelagic trawling nets must measure more than 20 mm (Arrêté du Ministre de l'agriculture du 28 septembre 1995, Art. 12, 13 et 14)-
- Encircling nets used for small pelagic fishes must measure at least 12 mm
- Encircling nets used in tuna and other great pelagic species must have mesh sizes more than 50 mm length
- Fixed and floating nets are forbidden by the 1 January 2002 (Arrêté du Ministre de l'agriculture du 10 août 1999 modifiant l'arrêté du 28 septembre 1995)-

Destructive fishing devices are forbidden.

The introduction of new fishing techniques is subjected to a trial period and the establishment of a convention with the National Institute of Marine Sciences and Technologies (Institut National des Sciences

et Technologies de la Mer (INSTM).

Register

Fishermen register is managed on a regional basis. The changes of fishing boats by the fishermen are registered by the regional fisheries districts (No existing centralized register). The registration of fishing vessels in Tunisia is delegated to the Office de la Marine Marchande et des Ports (OMMP), who is in charge of the technical visits to release the security check and navigation permission. In addition, a general fisheries census during the years 2003/2004 has allowed establishing a data base for the fishing vessels, despite not update at the central level.

Obligation to declare

Since 2010, new fishing regulation has been foreseen for demersal and pelagic trawling fishing vessels and for some segments of the coastal fishing fleet with LOA more than 15 meters.

Sanctions

Powers of the research and of the inspectors is detailed in the articles 27 and 31 of the Law (Loi n°94-13). They contain in particular the materials forbidden for fishing purposes, and the aquatic species caught in infraction of the legislative dispositions. In addition to the administrative sanctions (e.g. vessels stop, suspension of the fishing authorization), penal sanctions are foreseen according to the gravity of the infraction (Loi n°94-13, Art. 33 à 40):

- is punished from a month to a year imprisonment and to pay from 200 dinars to 10.000 dinars who fish without authorization;
- is punished with a two years imprisonment and to pay from 1000 dinars to 100.000 dinars for any who utilizes forbidden fishing methods or fishing in a forbidden area or during forbidden periods or utilizing fishing devices not complying with the rules;
- is punished to pay from 100 dinars to 2.000 dinars for any one who does not comply with the orders and signals of the agents.

In case of double infractions, the punishments are doubled. In case of all the infractions, the competent authority (Ministère de l'Agriculture) can decide to temporarily or permanently recede the authorization. At the same time can temporarily recede to the master the authorization and all the professional documents making able to exercise the fisherman's profession.

Principal Legal Measures on Monitoring, Control and Surveillance

Fishing book

Loi n°94-13 du 13 Janvier 1994, relative à l'exercice de la pêche.

Landing

Loi n° 2013-34 du 21 septembre 2013, complétant la loi n° 94-13 du 31 janvier 1994 relative à l'exercice de la pêche

Loi n°2010-21 du 26 avril 2010

Note circulaire de Mr. le Ministre de l'Agriculture et des Ressources Hydrauliques n°5 du 12 Janvier 2010
pêche

VMS

Loi n°2013-34 du 21 septembre 2013 complétant la Loi n°94-13 du 31 janvier 1994, relative à L'exercice de la pêche

IUU fishing

Articles 3 et 4 de la loi 94-13 du 13 janvier 1994

Inspections

Article 28 de la loi 94-13 du 13 janvier 1994.

4.2. Trends in national and regional MCS frameworks challenges

Following a summary overview of the state of the art and trends of MCS, combat IUU fishing and compliance with GFCM recommendations for the North African countries are available.

The following table I summarizes the status of compliance and implementation of the GFCM decisions for the GFCM member countries, concerning MCS and IUU fishing (annexed to the report, Source: GFCM, 2016. "Inter-sessional meeting of the Compliance Committee" held on 19-20 January 2016 at the FAO HQ, Rome, Italy).

	ONE-SHOT REPORTING				ANNUAL REPORTING (2015)				
	Port State measure	VMS	IUU	Vessels small pelagic stocks GSA's 17-18	Vessel records (ref. year 2014) by 31st March	Task 1 (ref. year 2013) by 31st May	Dolphin fish (ref. year 2014) by 31st May	Red Coral (ref. year 2014) by 31st January	Aquaculture (ref. year 2014) by 31st June
	Albania	NO	OK	NO	NO	NO	NO	NO	n/a
Algeria	n/a	OK	OK	n/a	OK	OK	n/a	n/a	OK
Bulgaria	OK	OK	OK	n/a	OK	OK	n/a	n/a	OK
Croatia	OK	OK	OK	OK	OK	OK	n/a	OK	OK
Cyprus	OK	OK	OK	n/a	OK	OK	n/a	n/a	OK
Egypt	n/a	OK	OK	n/a	OK	OK	n/a	n/a	NO
France	OK	OK	OK	n/a	OK	OK	n/a	OK	NO
Greece	OK	OK	OK	n/a	OK	OK	n/a	OK	OK
Israel	n/a	NO	OK	n/a	NO	NO	n/a	n/a	NO
Italy	OK	OK	OK	OK	OK	OK	OK	OK	NO
Japan	n/a	n/a	OK	n/a	OK	n/a	n/a	n/a	n/a
Lebanon	OK	OK	OK	n/a	OK	NO	n/a	n/a	NO
Libya	OK	OK	OK	n/a	OK	OK	OK	n/a	n/a
Malta	OK	OK	OK	n/a	OK	OK	OK	n/a	OK
Monaco	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Montenegro	OK	OK	OK	OK	OK	OK	n/a	n/a	OK
Morocco	OK	OK	OK	n/a	OK	OK	n/a	n/a	OK
Romania	OK	OK	OK	n/a	OK	OK	n/a	n/a	OK
Slovenia	n/a	OK	OK	OK	OK	OK	n/a	n/a	OK
Spain	OK	OK	OK	n/a	OK	OK	OK	OK	OK
Tunisia	OK	OK	OK	n/a	OK (>15m only)	NO	OK	OK	OK
Turkey	n/a	OK	OK	n/a	OK	OK	n/a	n/a	OK
Georgia	NO	NO	OK	n/a	OK (>15m only)	OK	n/a	n/a	n/a
Ukraine	n/a	OK	OK	n/a	OK	OK	n/a	n/a	OK
	88%	91%	96%	80%	91%	82%	83%	100%	70%

The data in the following pages, other than the ones cited, has been collected from the COC Working Group on Vessel Monitoring Systems (VMS) and related control systems in the GFCM area of application, held on 20–21 April 2015, in Marrakech, Morocco, the COC Working Group on VMS and related control systems in the GFCM Area, held in Tunis, Tunisia, on 1-2 October 2013, for Libya, the GFCM "Inter-sessional meeting of the Compliance Committee" held on 19-20 January 2016, with regard to VMS and the Compliance Committee (CoC), Working group on illegal, unreported and unregulated (IUU) fishing in the GFCM area, held in Maroc in 2015 (sse Annex I, references).

4.2.1. Algeria⁹

Algeria is member of GFCM from the 11 of December 1987. The country is member of the UNCLOS 1982 (11 June 1996), but is not member of the UN Fish Stocks 1995 or the FAO Compliance as well as of Port State measures agreements.

No observer programmes are registered to be in place, other the ones of ICCAT on tuna and tuna-like species fishing vessels.

The National Frontier Service controls all types of fishing activities within the territorial sea and protected areas as of 2008. Different sets of information are also collected by the Ministry of Fisheries and Fishing Resources at the national level and a number of fishery regulations are currently under consideration. With regard to regulations already in place, most of IUU fishing activities take place during the reproductive period of various species, usually between 1 May and 31 August and at the time of the closing season for swordfish, namely between 1 October and 30 November. These activities are mostly carried out both within and beyond Algerian territorial waters. In the latter case, vessels over 26 m are more likely to commit infringements. There is however no systematic study on IUU fishing in Algeria although sanctions have been laid down in several legal instruments. Algeria coastguard is responsible for overseeing the implementation of these instruments and to take the necessary steps and actions against persons engaged in IUU fishing. They avail themselves, among others, of VMS, which is supposed to be used by trawlers over 12 m in the near future, as well as observers on board for blue-fin tuna and control at landing ports. Fishermen are requested to keep records in their logbooks. A great public awareness campaign is needed to make the fight against IUU fishing more effective and for fishermen to understand why new regulations are enacted by Algeria (e.g. there is a new fisheries management programme which interdicts the construction of new fishing vessels as trawlers and purse seiners). Fisheries research should also be conducted for gathering additional data in support of sustainable fisheries while technical enforcement and legal measures should be regarded as means to achieve better fisheries management.

A set of 12 land stations had been installed along the coast, receiving VHF signals from over 1000 fishing vessels equipped with transponders. These transponders were composed by an inbuilt global positioning system (GPS) device and a transmission component submitting the vessel unique identification number, its position, speed, catches as well as instant messages from onboard crew. The information was relayed through a TCP/IP network to the Center for Reception, Transmission, Treatment and Analysis, where automatic data checks were being performed to detect potential infringements in light of the national regulations, including those transposing GFCM recommendations. In addition, the center could remotely access the onboard devices to detect tampering attempts and, as a result, instantly acquire the last positions of the concerned vessels or apply changes to transmission settings. However, some technical issues in the implementation of the national system were experienced, including the limited range covered by the VHF (30-50 nmi, depending on weather conditions). Accordingly, Algeria may need the assistance of the GFCM and would be in favor of a centralized GFCM control system which would complement and enhance the national one.

Algeria had requested technical assistance to the GFCM to ensure the national control system conform to regional requirements defined by the GFCM. The GFCM Secretariat noted the good status of the submission of data and information. Moreover, in light of a request for technical assistance by Algeria, the opportunity to strengthen data collection at the national level was welcome.

⁹ Source ÖZTÜRK, B., 2013. Nature and extent of Illegal, Unreported and Unregulated (IUU) fishing in Mediterranean sea. Appendix D. Background paper for the GFCM Workshop on IUU Fishing in the Mediterranean Sea" held on 3-4 October 2013 in Tunis, Tunisia).

A great public awareness campaign is needed to make the fight against IUU fishing more effective and for fishermen to understand why new regulations are enacted by Algeria (e.g. there is a new fisheries management programme which interdicts the construction of new fishing vessels as trawlers and purse seiners). Fisheries research should also be conducted for gathering additional data in support of sustainable fisheries while technical enforcement and legal measures should be regarded as means to achieve better fisheries management.

Algeria, focused on the various measures adopted at the national level to fight IUU fishing, where was declared that there weren't any cases of IUU fishing in Algerian waters involving vessels flying a flag other than the Algerian one but she gave information about violations to fisheries legislation between 2010 and 2014 and infringements by locals which were penalized through sanctions and fines, as foreseen by the Algerian legislation. The Algerian legislation provided effective measures for good controls for fisheries, in particular through various forms of catch certification and logbooks. Furthermore, she pointed out that the principal problems in Algeria were the management and the control of the ports, as these responsibilities were divided among different national institutions, and that the national inspectors were not adequately trained on the minimum international requirements of inspection. During the discussions, details were asked about the kind of infringements detected in Algeria, which also included the use of prohibited fishing gears. It was also clarified that some infringements were associated with the fishing activities by the fishers in that each fisher had a specific authorization which specified the areas, the sector and the season. Oftentimes, the fishers did not fully comply with the requirements in the authorizations. However, a recent amendment to the national legislation aggravated penalties for fishing without authorization.

The possibility to further amend the national legislation in the future with a view to, among others, allowing foreign fishing vessels to enter and use Algerian ports was being considered. For the time being, these vessels are prohibited from calling on Algerian ports. The need for technical assistance by Algeria was underlined, particularly for the training of national inspectors. Such training should build upon the recent one organized jointly by the GFCM and EFCA (March 2015, Spain) and which had proved of great benefit to participants.

The status of implementation of GFCM recommendations was improving. Thanks to commitment of Algeria, including regular exchange of communications with the GFCM Secretariat, the majority of GFCM recommendations were fully implemented, while all others were partially implemented. The delegate of Algeria reiterated their will to comply with all GFCM recommendations, also clarifying that Recommendations GFCM/36/2012/1 and GFCM/35/2011/2 on red coral were fully implemented, however the fishing season had not yet been opened and therefore data collection and transmission had yet to occur. With regard to VMS, the delegate from Algeria informed the CoC that Algeria had requested technical assistance to the GFCM to ensure the national control system conformed to regional requirements defined by the GFCM. The GFCM Secretariat noted the good status of the submission of data and information. Moreover, in light of a request for technical assistance by Algeria, the opportunity to strengthen data collection at the national level was welcome (GFCM "Inter-sessional meeting of the Compliance Committee" held on 19-20 January 2016 at the FAO HQs, Rome, Italy).

4.2.2. Egypt¹⁰

Egypt is member of the GFCM as for February 19th 1951. The country is a party to the UN Law of the Sea Convention (26 August 1983) and also to the FAO Compliance Agreement of 1993 (14 August 2001). Egypt has not ratified the FAO Port State Measures Agreement of 2009 and the UN Fish Stock Agreement of 1995.

¹⁰ Source ÖZTÜRK, B., 2013. Nature and extent of Illegal, Unreported and Unregulated (IUU) fishing in Mediterranean sea. Appendix D. Background paper for the GFCM Workshop on IUU Fishing in the Mediterranean Sea" held on 3-4 October 2013 in Tunis, Tunisia).

No observer programmes are registered to be in place, other the ones of ICCAT on tuna and tuna-like species fishing vessels.

Albeit not yet fully implemented, VMS system is expected to be installed by the end of 2015, according to financial and technical means. One fishing vessel, involved in Blue-fin tuna fisheries, already using the system, in cooperation with another country.

Egypt anticipated the installation of 750 devices on board of commercial fishing vessels operating in the Mediterranean Sea. At present, an assessment was being conducted at the national level to identify the most suitable equipment for the subset of the Egyptian fleet that would be required to install the devices. It was recalled that the work underway in Egypt was also building upon a pilot study carried out in 2012 and 2013 with the support of the GFCM Secretariat. This pilot study resulted after the country sought the technical assistance of the GFCM in order to develop its own control system, including the possible establishment of a FMC. As one of the building blocks of this system Egypt was considering an existing traffic control software that had been developed to monitor the circulation of automobiles in major Egyptian cities. The pilot study carried out with the GFCM discovered that this software could not be easily adapted to MCS proper and some basic functions typical of a FMC would have to be integrated from scratch. It was hoped that Egypt, as one of the GFCM Members still devoid of an FMC, could benefit from the centralized GFCM control system and, through the provision of technical assistance by the GFCM, could therefore proceed with its national strategy.

In Egypt IUU fishing cases have been consistently reported for the last 5 years. IUU fishing occurs usually from June to October in the territorial sea as well as in waters adjacent to it. Main fishing gears involved in IUU fishing are trawlers and purse seiners, usually boats over 20 m in length. The main target species is shrimp and there is no record for discarded fish. Ghost fishing is not monitored. Revenues of the IUU products are not estimated and there is no on-going study for IUU fishing. There are legal measures in place against IUU fishing cases, such as suspending licenses for a period of six months (the first time) and revoking the license (the second time). Records about fines and detained vessels are available. Coastguards or fisheries authorities are well-informed on IUU fishing activities and there are observers in the fishing ports and on-board for blue-fin tuna fisheries. Exacerbating sanctions, increasing awareness among fishing associations, better surveillance at sea and using VMS, could be promising solutions to mitigate IUU fishing in the Mediterranean Sea I.

The status of implementation of GFCM recommendations was improving and many recommendations were implemented, with the exception of the recommendation GFCM/35/2011/1 on the establishment of a GFCM Logbook, which was partially implemented and the recommendation GFCM/33/2009/7 on VMS, which was in the process of being implemented. The delegate from Egypt expressed Egypt's intention to submit all required information so as to ensure cooperation and compliance. It was explained that important steps were being taken with regard to VMS in particular and implementation was expected to be completed by the end of the year.

Coastguards or fisheries authorities are well-informed on IUU fishing activities and there are observers in the fishing ports and on-board for blue-fin tuna fisheries. Exacerbating sanctions, increasing awareness among fishing associations, better surveillance at sea and using VMS, could be promising solutions to mitigate IUU fishing in the Mediterranean Sea.

The status of submission of data and information from Egypt was improving. The GFCM Secretariat acknowledged that Egypt was working on its aquaculture data and that the receipt of data was expected shortly, resulting in eventual full compliance by Egypt. To this end, the GFCM Secretariat would make sure to sort out some technical problems that hampered Egypt from transmitting the data on aquaculture.

4.2.3. *Libya*¹¹

Libya is a member of the GFCM since the 13th May 1963. The country is party to the UN Law of the Sea Convention and the UN Fish Stock Agreement of 1995. Libya has not even ratified the FAO Compliance Agreement of 1993 and also the FAO Port State Measures Agreement of 2009.

Libyan General Authority for Marine Wealth stressed that Libya was devoted to the sustainable exploitation of living marine resources in the waters under its national jurisdiction as well as in the GFCM Area for the benefit of present and future generations. He acknowledged that to further this endeavour cooperation among GFCM Members would have to be reinforced with a view to equally implementing all the recommendations in force and to exchanging relevant information on fishing activities. Concerning the national VMS system, Libya, through its fishery authorities, was doing its best to implement GFCM recommendations. A plan had been already envisaged for the implementation in 2014 of the VMS system on all vessels above 15 m. As for vessels less than 15 m, the plan advocated the use of VHF. In both cases other MCS tools, such as inspection of the fishing gears and catch in ports and at sea, had been also foreseen.

There are IUU fishing activities in waters under national jurisdiction, mostly by Libyan flagged vessels, since the 1990's. Trawlers target demersal species while tuna long-liners (40-60 m) catch pelagic species. There are legal measures to reduce IUU fishing in Libya and these measures, as stipulated in applicable laws and executive regulations. Controls are enforced by coastguard and usually they ensure surveillance over the coasts. In addition, information on IUU fishing is provided by fishermen and commercial ships to the common central operation center of the marine ports. MCS for tuna fishing fleet is available for Libyan vessels equipped with VMS system. In spite of the legislation which regulates fishing activities though, IUU fishing has been increasing in Libya due to weakness of facilities of coastguard, insufficient awareness of the regulations by fishermen and shortage in personnel training. Issues to be further addressed in Libya include implementation of laws and other regulations, installation of monitoring and controlling systems for the fishing fleet, support to the coastguard with more patrol vessels, completion of infrastructure (ports and harbors) and identification of areas where IUU fishing is operated.

Cooperation with all GFCM Members to prevent IUU fishing is urgently needed.

Libya showed significant progress in implementing GFCM recommendations. The GFCM Secretariat noted ongoing efforts to ensure improvement in implementation of GFCM recommendations, including the routine transmission of data and information. Technical assistance is requested to address shortcomings.

The GFCM Secretariat noted that all requested data and information from Libya had been satisfactorily received and gratitude was expressed for the important efforts made by the Libyan colleagues.

Difficulties in fulfilling all items of the recommendation GFCM/33/2009/3 and issues in extending VMS to non-tuna fishing activity were noted. Technical assistance was requested to address shortcomings. Despite the legislation which regulates fishing activities though, IUU fishing has been increasing in Libya due to weakness of facilities of coastguard, insufficient awareness of the regulations by fishermen and

¹¹ Source ÖZTÜRK, B., 2013. Nature and extent of Illegal, Unreported and Unregulated (IUU) fishing in Mediterranean sea. Appendix D. Background paper for the GFCM Workshop on IUU Fishing in the Mediterranean Sea" held on 3-4 October 2013 in Tunis, Tunisia).

shortage in personnel training. Issues to be further addressed in Libya include implementation of laws and other regulations, installation of monitoring and controlling systems for the fishing fleet, support to the coastguard with more patrol vessels, completion of infrastructure (ports and harbors) and identification of areas where IUU fishing is operated. Cooperation with all GFCM Members to prevent IUU fishing is urgently needed.

4.2.4. Tunisia¹²

Tunisia is member of the GFCM as of 22 June 1954. The country is member of the International Convention on the Law of the Seas of 1982 (24 April 1985), but has not ratified the FAO Compliance Agreement of 1993 as well as the FAO Port State Measures Agreement of 2009 and the UN Fish Stock Agreement of 1995.

MCS operations are jointly done following Authorities:

- The Navy (Armée de Mer (AM))
- National Service of coastal surveillance (Service National de Surveillance Côtière (SNSC))
- National Maritime Guard (Garde Nationale Maritime (GNM))
- Tunisian custom (Douane Tunisienne (DT))
- Commercial maritime fleet and ports office (Office de la Marine Marchande et des Ports (OMMP))
- National environmental protection agency (Agence Nationale de Protection de l'Environnement (ANPE))
- Littoral protection and management agency (Agence de Protection de l'Aménagement de Littoral (APAL))
- Ports and fishing facilities agency (Agence des Ports et des Installations de Pêche (APIP))
- General Directorate of fisheries and aquaculture (Direction Générale de la pêche et de l'Aquaculture (DGPA))

A satellite surveillance system is in place since 2008 to follow the activities of 54 tuna fishing vessels.

It is foreseen for extension to the other fishing units by 2012 and this in compliance with CGPM 33/2009/7 recommendation. Tunisia has agreed to the EU cooperating parties in the fight against IUU fishing (Règlement CE n° 1005-2008) I.

The Tunisia national VMS system, which was initially piloted in 2006–2008 for vessels targeting tuna is now scheduled for progressive implementation across the entire fleet over 15 m. In parallel, the Center for the Administration and Management of Fisheries Information (CAGIP) had been endowed with a secure network, allowing improved coordination with the national centers for interventions at sea. Customized onboard devices, named U3C and leveraging Inmarsat-C and 3G/GPRS connectivity, has been conceived and tested to allow for the storage and transmission of VMS and catch data along. These devices also allow for the storage and transmission of information collected through several sensors that support the crew in case of distress at sea, protect the unit from tampering attempts and promptly report any tampering attempts directly to the CAGIP. The unit also includes a backup battery with a capacity of up to one week in the case of a loss of power. Mr. Bouzid made particular emphasis on the role of the CAGIP, where systems have been established to handle data relating to the fleet register, historical information on effort (e.g. catches, fuel consumption, infringements), onboard crew, zones forbidden to fishing activities, ports and the transmission of data to ICCAT and, eventually, to the centralized GFCM control system. In the ensuing discussions, it was specified that 62 Tunisian fishing vessels had already been equipped with VMS

¹² Source ÖZTÜRK, B., 2013. Nature and extent of Illegal, Unreported and Unregulated (IUU) fishing in Mediterranean sea. Appendix D. Background paper for the GFCM Workshop on IUU Fishing in the Mediterranean Sea" held on 3-4 October 2013 in Tunis, Tunisia).

but some 900 would follow suit. Tunisia was committed to broadening the control of its fleet but, at the same time, it was also eager to promote a multidisciplinary approach whereby control would not be solely pursued at the national level. In this regard, the importance of integrating scientific features was stressed, as well as the need for a centralized GFCM control system. This system would indeed pave the way for the integration of important features supporting better scientific analysis and, in turn, enable GFCM Members to take advantage of data collected in many different ways.

Tunisian and foreign vessels have been reported in recent years to have engaged in IUU fishing in the Gulf of Gabes, mainly in summer with small boats for benthic species. There is a 1994 law in Tunisia related to IUU fishing which has been consistently applied ever since. Coastguards receive training on IUU. There is also a boat observation system for blue-fin tuna and landing control at fishing ports. The impact of IUU fishing is detrimental in many ways, such as depleting the resources, diminishing income of fishermen and reducing biodiversity. This is a global problem and needs international plans of action against IUU fishing, management of the resources, promoting artificial reefs and new fishing management methods, among others. Technical support to the Tunisian government with capacity building for fishermen and stakeholders is also needed.

Tunisia is in the process of improving its monitoring system for red coral and that data had been submitted on fishing vessels smaller than 15 meters and work was being carried out now for those vessels larger than 15 meters. Technical support to the Tunisian government with capacity building for fishermen and stakeholders is also needed.

In the legal framework of Tunisia there was not a specific legislation on IUU vessel lists. In general, however, the legal framework was complete enough to combat IUU fishing. It is reported some preliminary information about IUU fishing in Tunisia and indicated that this information fell under the purview of the Tunisian Directorate General of Fisheries and Aquaculture. Tunisia needs technical assistance to implement the VMS system as well as in support of the national vessel record. Tunisia was also considering a possible amendment to its national legislation in order to allow foreign fishing vessels to enter the national ports.

Tunisia has recently signed in 2016 a Memorandum of Understanding with GFCM for technical assistance in data collection training (extended to the Libyan experts in Tunisian territory for security reasons).

Positive progress was noted in the status of implementation of GFCM recommendations in Tunisia. The GFCM Secretariat acknowledged the good cooperation and communication with the fisheries department in Tunisia. In this regard, reference was made to the Tunisian high-level visit to the GFCM and the completed signing of a letter of agreement. The delegate from Tunisia informed the CoC that Tunisia was in the process of improving its monitoring system for red coral and that data had been submitted on fishing vessels smaller than 15 meters and work was being carried out now for those vessels larger than 15 meters.

The GFCM Secretariat noted that requested data and information from Tunisia had been satisfactorily received.

General Recommendations for chapter 4

It is suggested and recommended to AU-IBAR to continue to support their efforts to the North African member countries (Algeria, Egypt, Libya and Tunisia) to:

- Give priority to sustainable fisheries management in their policies. Reinforce the governance of the sector, drafting policies and strategies for the sustainable and equitable fisheries management

and co-management and develop multi-annual development plans.

- Draft a sub-regional (or national) MCS multi-year strategy and NPOA.
- Assess the needs and up-to-date the legal frameworks, complying with International legal instruments and tools and finalize the adherence to the international related agreements (e.g. FAO Port state, FAO Flag state, FAO guidelines for small-scale fisheries, etc.), harmonizing them at international and sub-regional (4 countries) levels.
- Support and strengthen the GFCM center and centralized VMS system and other MCS tools and conduct an identification/feasibility study to assess the costs of introduction of transponders (VMS or other MCS tools) to be able to interact with the centralized system for MCS and alert on IUU fishing, as well as search and rescue at sea (FMOs at country level is not recommended for the high costs).
- Assess the capacities of human resources (Administrations and small-scale fisheries associations) and enforce them with dedicated training of trainers, exchange visits and awareness campaigns.
- Conduct pilot projects, including joint international inspection scheme and observer programmes, for the enforcement of observers, inspectors and small-scale fishermen at sub-regional (4 countries) and GFCM level.
- Develop tools (including manuals), such as the joint international inspection scheme and observer programmes to GFCM Members, including at sub-regional level (4 countries).
- Improve traceability mechanisms and certification schemes and take measures to prevent deter and eliminate the trade in IUU products.

5 FINDINGS AND RECOMMENDATIONS

5.1 SWOT ANALYSIS

A tentative SWOT analysis of the fisheries in the selected countries and in the Region was undertaken. A SWOT analysis, despite subjective and incomplete in this case, due the lack of feed-back from the concerned countries and based on the analysis of available data at regional, national level and without a direct survey in the countries for data triangulation, is a standard strategic planning method, and involves the identification of the most important internal factors: Strengths (factors that provide stakeholders with an advantage) and Weaknesses (factors that are disadvantageous), and external factors: Opportunities (factors that provide the chance for improvements) and Threats (elements that can cause trouble) identified.

Following are summarized the main point of strength, weakness, opportunity and threat for MCS implementation in the selected countries (the complete SWOT analysis is available in Annex III) :

Strengths:

- National legislations in many cases are compliant with GFCM main tools.
- Political will to enforce MCS (VMS) and combat IUU fishing.
- Updated, adequate and active regional cooperation.

Weaknesses:

- Absence of national MCS strategies and planning (e.g. MCS strategy and NPOA-IUU).
- Outdated fisheries laws and lacking in harmonization among the countries and at regional and international level.
- Few or lack of bilateral cooperation among the countries.
- Limited MCS infrastructure (human, financial, material resources).
- Low priority of fisheries and MCS.
- Extent and costs of IUU fishing unknown.
- Weak data collection/analysis/ dissemination/ sharing on all aspects of MCS

Opportunities:

- Draft national Fisheries Policy and strategies to facilitate common action.
- Draft a common sub-regional MCS strategy and national NPOA-IUU fishing.
- International and regional organizations offer assistance for compliance with MCS and IUU fishing.
- RFMO plan to provide an MCS center for data collection and alert system at countries with FMC or not and states ask it and technical assistance and training.
- International fisheries agreements provide a blueprint for MCS action at flag, coastal, and port State levels.

Threats:

- Weak observers and inspectors programs in place and operating (exempt ICCAT).
- Fleet greatly comprised by small-scale fisheries.
- In-country technical assistance and capacity building poorly developed.
- Lack of awareness raising
- No catch certification schemes in place (exempt Tunisia as declared during a workshop).
- Non-existence of manuals for observers and inspectors at national and regional level.
- Due the lack in surveillance of the vessels, no alert system for fighting IUU fishing and search and rescue is available at regional level.

5.2. Findings and recommendations per specific objective

As evidenced in chapter 4, following the general recommendations for the North African member states and AU-IBAR.

It is recommended to the North African member countries (Algeria, Egypt, Libya and Tunisia) and to AU-IBAR to continue to support their efforts to:

- Give priority to sustainable fisheries management in their policies. Reinforce the governance of the sector, drafting policies and strategies for the sustainable and equitable fisheries management and co-management and develop multi-annual development plans.
- Draft a sub-regional (or national) MCS multi-year strategy and NPOA.
- Assess the needs and up-to-date the legal frameworks, complying with International legal instruments and tools and finalize the adhesion to the international related agreements (e.g. FAO Port state, FAO Flag state, FAO guidelines for small-scale fisheries, etc.), harmonizing them at international and sub-regional (4 countries) levels.
- Support and strengthen the GFCM center and centralized VMS system and other MCS tools and conduct an identification/feasibility study to assess the costs of introduction of transponders (VMS or other MCS tools) to be able to interact with the centralized system for MCS and alert on IUU fishing, as well as search and rescue at sea (FMOs at country level is not recommended for the high costs).
- Assess the capacities of human resources (Administrations and small-scale fisheries associations) and enforce them with dedicated training of trainers, exchange visits and awareness campaigns.
- Conduct pilot projects, including joint international inspection scheme and observer programmes, for the enforcement of observers, inspectors and small-scale fishermen at sub-regional (4 countries) and GFCM level.
- Develop tools (including manuals), such as the joint international inspection scheme and observer programmes to GFCM Members, including at sub-regional level (4 countries).
- Improve traceability mechanisms and certification schemes and take measures to prevent deter and eliminate the trade in IUU products.

Following a summary of the main findings and recommendations per overall objective:

Objective 1: Assess the capacity for MCS in the AU member States and their effectiveness, strengthen and weakness.

Findings: Despite increasing, the capacity for MCS of the AU Northern African countries members of the African Union is far to be effective and points of strength and weakness are available. In particular, it has to be noted inter alia the lack of bi-lateral cooperation and sharing among the countries, the lack of policies and strategies, low capacity of manage the systems, low financial resources and the lack of involvement of the small-scale fisheries sector in the sustainable and equitable management of fisheries resources. A sub-regional legal framework assessment and harmonization (namely for infringements and penalties (administrative and penal) has to be suggested.

Objective 2: Identify difficulties and challenges related to capacity building for Monitoring fisheries Member States of the AU.

Findings: The lack of capacities in MCS as well as the request of technical assistance and training to GFCM is a main threat underlined during the regional workshops by all the analyzed countries.

Objective 3: Make thorough examination of fisheries Observers Programs in AU countries.

Findings: No one of the countries has ratified the international FAO agreements on flag state and port state measures. In the concerned countries, there are only ICCAT observers on the few tuna fishing vessels in

accordance with ICCAT recommendation and where existing, not well trained inspectors, according to the requests of enforcement to the GFCM of the concerned members countries, that despite very useful is punctual and on request and not considered in a sub-regional context, common approach and vision. No manual for observers and inspectors are available.

Objective 4: Assess the status of vessels registers and analyze the obstacles to the establishment and/or non-operationalization of vessel registers (domestic and regional) as essential element for effective MCS.

Findings: Vessels registers and licences for vessels and fishermen are operating at regional and country level, despite it has to be noted some lack and retard in data sharing during the GFCM compliance meetings.

Objective 5: Examine the legal framework for MCS and identify the causes of weakness and/or lack of enforcement of laws and regulations in force in the AU countries for an effective deterrent against infractions in the industrial and artisanal fisheries.

Findings: As to be noted for all the countries legal frameworks are complaint with GFCM main management tools, where agreed, but in all the countries the legal framework is out to dated (namely in Libya) and lacking of a common vision and harmonization at international, regional and sub-regional level. The absence or the lacking of national policies and/or strategies has to be underlined.

Objective 6: Review regional arrangements, if any, for MCS cooperation, their effectiveness, strengthen and weaknesses.

Regional arrangements are updated and in force or in entry to force (e.g. MCS centre, technical assistance, MOU, etc.), participation in regional fora and meeting of the concerned countries authorities is appreciable and the interest of concerned countries has to be noted. A SWOT analysis is available in the findings and in Annex III. The compliance is undergoing and of course not still effective. The lack of human and financial resources, capacities as well of a common sub-regional strategy and lack of awareness and participation of small-scale fishermen associations has to be underlined.

Objective 7: Assessing/identifying challenges and constraints for regional cooperation in the fight against IUU fishing.

Findings: No NPOA and adherence to FAO IPOA can be registered at country level. Due the lack of permission of foreign fishing vessels and of control capacity the cases reported of infringements by the member states are local and penalties are differentiated by country. The lack of participation and co-management with small-scale fisheries affects the fight against IUU fishing in fisheries characterized by a great presence of small-scale fishing.

Objective 8: Propose a framework for establishment of regional agreement for MCS, e.g. MCS Centre.

Findings: A pilot study for the establishment MCS centre is undergoing at GFCM level, it suggested that AU Northern African member countries adhere as expressed the will to adhere to the centralized system (with confidentiality rules), reducing costs of the establishment of national FMC and utilizing the systems of alert for IUU fishing and search and rescue related purposes, as well.

Objective 9: Analyze the results obtained in the context of other national or regional past or current projects in the fighting against IUU fishing for the best practices, success stories and lessons learned.

Findings: FAO and GFCM have developed programmes for data collection and a pilot study in Lebanon, that

can be reproduced in the North African member countries.

Objective 10: Make proposals for effective and sustainable Monitoring capacity of fisheries in AU Member States.

Specific Recommendation: on the basis of the SWOT analysis (Annex III) and findings and In line with the GFCM road map to fight IUU fishing in the Mediterranean Sea (see Annex II), is suggested and recommended to the AU Northern African member states (Algeria, Egypt, Libya and Tunisia) to:

- Give priority to fisheries and sustainable co-management in their policies. Reinforce the governance of the sector, drafting policies and strategies for the sustainable and equitable fisheries management and co-management and develop multi-annual development plans.
- Draft a sub-regional (or national) MCS multi-year strategy and NPOA.
- Assess the needs and up-to-date the legal frameworks, complying with International legal instruments and tools and finalize the adherence to the international related agreements (e.g. FAO Port state, FAO Flag state, FAO guidelines for small-scale fisheries, etc.), harmonizing them at international and sub-regional (4 countries) levels.
- Support and strengthen the GFCM center and centralized VMS system and other MCS tools and conduct an identification/feasibility study to assess the costs of introduction of transponders (VMS or other MCS tools) to be able to interact with the centralized system for MCS and alert on IUU fishing, as well as search and rescue at sea (FMOs at country level is not recommended for the high costs).
- Assess the capacities of human resources (Administrations and small-scale fisheries associations) and enforce them with dedicated training of trainers, exchange visits and awareness campaigns.
- Conduct pilot projects, including joint international inspection scheme and observer programmes, for the enforcement of observers, inspectors and small-scale fishermen at sub-regional (4 countries) and GFCM level.
- Develop tools (including manuals), such as the joint international inspection scheme and observer programmes to GFCM Members, including at sub-regional level (4 countries).
- Improve traceability mechanisms and certification schemes and take measures to prevent deter and eliminate the trade in IUU products.

Objective 11: Make proposals for a framework for establishing regional collaboration for establishing or strengthening regional MCS centre”.

Specific recommendation: on the basis of the SWOT analysis (Annex III) and findings and In line with the GFCM road map to fight IUU fishing in the Mediterranean Sea (see Annex II), is suggested and recommended to the AU Northern African member states (Algeria, Egypt, Libya and Tunisia) to:

- Establish and strengthen the GFCM centralized VMS system and continue in providing technical assistance and transfer of technology in the domain of MCS.
- Adapt tools (including manuals), such as the joint international inspection scheme and observer programmes to GFCM Members, including at sub-regional level.
- Improve traceability mechanisms and take measures to prevent deter and eliminate the trade in IUU products.

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Annex II. GFCM ROAD MAP TO FIGHT IUU FISHING IN THE MEDITERRANEAN SEA

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE MEDITERRANEAN SEA	OBJECTIVES/METHODOLOGY
Institutional Aspects at regional and sub-regional level	Set up a working group of the Compliance Committee on IUU fishing and MCS	With a view of constantly collecting, updating and analyzing information on the nature and the extent of IUU fishing and on available means to fight it, an ad hoc forum in the GFCM should be devoted to address these issues
	Strengthen mechanisms to facilitate sharing of knowledge and cooperation among Mediterranean riparian States, including through the GFCM and other existing relevant organizations	The GFCM should create a repository of information on the nature and the extent of IUU fishing in the Mediterranean Sea. Members should commit to make relevant information available and to cooperate within the remit of the GFCM
	Establish a network of entities and institutions that could contribute to share knowledge and improve cooperation	Relevant institutions and entities should be identified. The GFCM could establish a platform, including via electronic means, to facilitate exchange of information in the network
	Assess the presence of non GFCM Members in the area of competence of the Commission	All efforts should be done to ensure that non GFCM Members known to fish in the area of competence of the Commission are invited to either become Members or Cooperating non Contracting Parties
Legal Aspects	Assist, develop and harmonize the legislations of GFCM Members taking into account their specific needs in the fight against IUU fishing	The GFCM should try to align the legal frameworks of its Members using common benchmarks and acknowledging the different priorities and needs existing at sub-regional level
	Ensure the timely submission of information relating to IUU fishing to the GFCM Secretariat, according to recommendations in force	GFCM Members should comply with requirements under relevant GFCM recommendations requesting information on IUU fishing (e.g. GFCM recommendation 2008/32/1, GFCM recommendation 2009/33/8)
	Elaborate a regional plan of action to prevent, deter and eliminate IUU activities based on by scientific and socio-economic data	GFCM Members should make proposals to set up a plan of action as a main element to fight IUU fishing activities. This should be done by involving stakeholders, fishermen associations and relevant civil society organizations
Scientific Research Aspects	Develop and agree on standard methodologies to evaluate IUU catches and trade of fishing products in support of scientific advice	GFCM Members should develop studies addressing main targeted species. A collection of these studies would be necessary as a basis for the work to be done
	Strengthen national statistical systems of Mediterranean riparian States, including through the elaboration of common formats for reporting and evaluation of data on IUU fishing	In order to improve efficiency in the fight against IUU fishing, GFCM Members should consider to shift towards the use of common formats for reporting of data
Technical Aspects	Elaborate a catalogue of fishing gears and their technical characteristics mainly used in the Mediterranean Sea for IUU fishing purposes	Available information should be collected by the GFCM through Mediterranean riparian States with a view to enable the marking of fishing gears

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE MEDITERRANEAN SEA	OBJECTIVES/METHODOLOGY
	Carry out surveys on the use of illegal fishing gears in the GFCM Area	Particular attention should be given in the studies to the trading of these gears between GFCM Members
	Eradicate illegal by catch, discards and ghost fishing	Illegal practices causing by catch, discards and ghost fishing should be identified and phased out and selectivity of fishing gear encouraged
	Mitigate the impacts of IUU fishing on cetaceans, seabirds and turtles	In view of mitigating the impacts of IUU fishing on cetaceans in the Mediterranean Sea, projects should be launched together with ACCOBAMS
	Harmonize the following instruments of management in the Mediterranean Sea, including at sub-regional level and wherever is possible: fishing seasons, fishing areas, minimum length size of target species and specifications for mesh size	Under the guidance of the Scientific Advisory Committee, Mediterranean Sea riparian States should provide advice to the Commission so that it can formulate and adopt recommendations on the basis of relevant technical elements
Socio-economic and Education Aspects	Awareness campaigns for the protection of Mediterranean Sea fisheries against IUU fishing	The establishment of a network of entities and institutions would be instrumental to the undertaking of this action
	Facilitate the involvement of professional associations and fishermen in the fight against IUU fishing, including through co-management and participatory approaches, in order to foster ownership of measures taken	The lack of participation of professional associations and fishermen should be regarded as a weakness in the fight against IUU fishing and the conservation of the Mediterranean ecosystems and the sustainable use of their resources could benefit from their direct involvement
	Promote research by means of collecting and analyzing socio-economic data with a view to evaluate their relevance in connection with IUU fishing in the Mediterranean Sea, taking stock of the work of the FAO Regional Projects as well as of that of universities and relevant programmes	In light of the socio-economic dimension of IUU fishing in the Mediterranean Sea, all relevant data should be collected and analyzed to better understand the root causes of the problem
MCS related Aspects	Improve traceability mechanisms and take measures to prevent deter and eliminate the trade in IUU products	A deterrent system to fight IUU fishing would have to ensure that controls are performed from the net to the plate. Work done by the FAO and the GFCM could be taken into account as well as the requirements by EU regulations. Market related measures should be developed, extending beyond the IPOA IUU of the FAO
	Adapt tools such as the joint international inspection scheme and observer programmes to GFCM Members, including at sub-regional level	Coordination among controlling organs operating at regional level (e.g. coast guard, border guards, financial police and fisheries inspectors) would have to be pursued, including through existing networks of coast guards
	Carry out joint training of fisheries inspectors and other enforcement authorities	The GFCM could organize training sessions with the cooperation of the EU (i.e. the European Fisheries Control Agency), if possible

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE MEDITERRANEAN SEA	OBJECTIVES/METHODOLOGY
	Establish a GFCM centralized VMS system and continue providing technical assistance and transfer of technology in the domain of MCS	A GFCM centralized VMS system would significantly facilitate not only the transfer of technology but also the sharing of knowledge among GFCM Members. Without substituting national fishing monitoring centers, it would endow GFCM Members devoid of this center with a much needed MCS tool

(Source: Annex. Elements for a roadmap to fight IUU fishing in the Mediterranean Sea drafted during the “GFCM Workshop on IUU Fishing in the Mediterranean Sea”).

Annex III. SWOT ANALYSIS

Strengths	Weaknesses
<ul style="list-style-type: none"> • Fisheries Authorities and related Authorities exists in many countries • National legislation compliant in many cases is compliant with GFCM main tools • Political will to enforce MCS (VMS) and combat IUU fishing • Registration/licensing systems in place (fishers and vessels) in many countries • Significant socio-economic benefits and development potential • Updated, adequate and active regional cooperation 	<ul style="list-style-type: none"> • Absence of national policies and strategies • Absence of national MCS strategies and planning (MCS strategy and NPOA-IUU) • Absence or lack in approved Fisheries Management Plans (FMPs) • Dated back fisheries laws and lack in harmonization among the countries and at regional and international level • Few cooperation among the countries • Weak flag and port State controls • Inadequate bi-lateral coordination • Insufficient harmonized fisheries management arrangements = facilitation of IUU • Limited MCS infrastructure (human, financial, material resources). • Low priority of MCS • Extent and costs of IUU fishing unknown • Weak data collection/analysis/ dissemination/ sharing on all aspects of MCS
Opportunities	Threats
<ul style="list-style-type: none"> • Draft national Fisheries Policy and strategies to facilitate common action • Draft a common sub-regional MCS strategy and national NPOA-IUU fishing • International and regional organizations offer assistance for complying with MCS and IUU fishing • IPOA-IUU provides blueprint for national MCS planning • RFMO plan to provide an MCS center for data collection and alert system at countries with FMC or not and states ask it and technical assistance and training • International fisheries agreements provide a blueprint for MCS action at flag, coastal, and port State levels • States intends to open their ports to foreign vessels 	<ul style="list-style-type: none"> • Weak MCS arrangements in neighbouring countries • Weak observers and inspectors programs in place and operating (exempt ICCAT) • Fleet great composed by small-scale fisheries • Low participation of small-scale fishermen and associations to the sustainable and equitable management and co-management of the resources • Lack of cooperation and sharing among the countries • In-country technical assistance and capacity building poorly developed • Some countries (like Egypt) manage their VMS despite not fully developed with the navy. • Lack of awareness raising • No catch certification schemes in place (exempt Tunisia as declared during a workshop) • Inexistence of manuals for observers and inspectors • Due the lack in control of the vessels, no alter system for fighting on IUU fishing is available at regional level



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