



**GENERAL FISHERIES COMMISSION FOR
THE MEDITERRANEAN
COMMISSION GÉNÉRALE DES PÊCHES
POUR LA MÉDITERRANÉE**



GFCM Workshop on IUU Fishing in the Mediterranean Sea

Tunis, Tunisia, 3-4 October 2013

OPENING AND ARRANGEMENTS OF THE MEETING

1. The “GFCM Workshop on IUU Fishing in the Mediterranean Sea” was held on 3-4 October 2013 in Tunis, Tunisia. The Workshop was attended by 42 experts from GFCM Members, relevant organizations and entities. The list of Participants is provided in Appendix B of this report.
2. Mr Bayram Ozturk, Moderator of the Workshop, called the meeting to order and reminded participants that a workshop germane to the subject matter had been already convened for the Black Sea (Istanbul, Turkey, February 2013). As in the case of the Black Sea, the moderator advocated zero tolerance for IUU fishing in the Mediterranean Sea and called upon all actors involved to cooperate in coming to grips with this scourge.
3. Mr Hachemi Missaoui, from the Tunisian Directorate General of Fisheries and Aquaculture, welcomed participants and expressed his deep concern for the critical situation of Mediterranean stocks. He declared that IUU fishing was directly related to the problem of how best to ensure sustainably managed stocks and that concerted action had to be taken.

**ADOPTION OF THE AGENDA AND INTRODUCTION OF PARTICIPANTS
AND MEETING’S OBJECTIVES**

4. After the participants had introduced themselves, the GFCM Secretariat recalled that the main objective of the meeting was to identify relevant elements for a roadmap to fight IUU fishing in the Mediterranean Sea. The agenda of the Workshop was subsequently introduced and adopted without amendments (Appendix A).

**GENERAL OVERVIEW ON ILLEGAL, UNREPORTED AND UNREGULATED
(IUU) FISHING IN THE MEDITERRANEAN SEA¹**

5. The Moderator delivered a presentation on the extent and the nature of IUU fishing in the Mediterranean Sea. At the outset, he explained that the contents of his presentation elaborated upon the replies to a questionnaire which had been circulated to GFCM Members ahead of the meeting (Appendix C). Furthermore, a vast array of information had been used to

¹ All presentations delivered at the Workshop are available on-line at this link:
<http://151.1.154.86/GfcmWebSite/SAC/2013/IUU/docs.html>

investigate most recurring problems associated with IUU fishing in the Mediterranean Sea. The combined analysis of collected materials led Mr Ozturk to conclude that the environmental, social and economic dimensions of IUU fishing in the Mediterranean Sea gave the problem a unique trait. Although some comparisons could still be made with other areas of the world, in particular the Black Sea, the specificities of the GFCM Area presented unparalleled characteristics. Among others, the moderator noted the “internal nature” of IUU fishing (i.e. the predominance of IUU activities by GFCM Members versus non Members), the paucity of IUU data, the zonation of the Mediterranean Sea and the share of fish caught in small-scale fisheries. The findings of its analysis are reproduced in Appendix D.

6. Subsequently, clarifications were sought with regard to linkages between IUU fishing and environmental issues such as marine protected areas, ghost fisheries, by-catch and discard. Reference was made to the need for an integrated maritime approach capable of encompassing all aspects of IUU fishing in response to violations of applicable international, regional and national rules. In this respect, it was specified that the definition of IUU fishing, as originally put forth in Article 3 of the “FAO International Plan of Action against Illegal, Unreported and Unregulated Fishing”, had been transposed into the bodies of law of many GFCM Members, in either their national regulations or through relevant GFCM recommendations or both. However, as it was noted that stamping out IUU fishing altogether could be an unrealistic goal, participants referred to the need for each GFCM Member to seriously commit to do its best to counter IUU fishing.

7. Ms Gail Lugten, from the FAO Fisheries Department, spoke to participants on initiatives by the Organization aimed at eradicating IUU fishing. She made particular reference to the 2009 “FAO Agreement on Port State Measures” and to the 2013 “FAO Voluntary Guidelines for Flag State Performance” and underlined the trade dimension of the problem. In addition, Ms Lugten reviewed some other initiatives taken in different fora, including the EU Regulation 2008/1005 on IUU fishing, the INTERPOL based “ProjectScale” and the request by the International Law of the Sea Tribunal for advice in connection with an advisory opinion lodged by the Sub-Regional Fisheries Commission. She listed IUU fishing on top of current issues of importance for all regional fisheries bodies. Emphasis was laid on the fact that much was still uncertain about the incidence and location of IUU fishing worldwide and that capacity building was fundamental to achieve a level playing field.

8. Ms Mimoza Cobani, from the Albanian Fishery Directorate of the Ministry of Environment, noted that some progress had been made in Albania from a legal point of view by the adoption of new instruments addressing IUU fishing. However, this development was weakened by a lack of institutional homogeneity because authority over fisheries remained quite fragmented at the national level. Despite the good willingness of her country to develop effective mechanisms to improve cooperation in the fight against IUU fishing, the existing gaps greatly undermined ongoing efforts. In the view of Ms Cobani this problem might lead to a negative socio-economic impact in future years and cause severe repercussions in the Albanian fishery sector.

9. Ms Meriem Assameur, from the Algerian Ministry of Fisheries and Marine Resources, also focused on the various measures adopted at the national level to fight IUU fishing. As with Albania, data on the extent of IUU fishing was not available, with the exception of those infringements which were constantly punished through sanctions and fines foreseen by the Algerian legislation. A database had been established to collect all infringements detected since 2008 at the national level. Ms Assameur pointed out that the list included fishing in

protected areas, fishing undersized specimens, fishing during closed seasons and fishing using prohibited gears.

10. Ms Miljana Gruja, from the Croatian Marine Resources Management Department, specified that in the case of Croatia the fishing fleet mostly operated in territorial waters and that no vessels flying the flag of another country had been observed therein. As a result, the fishing grounds were considered to be fully regulated and no studies on IUU fishing had been conducted. However, she cautioned that this was not to be regarded as evidence of a lack of IUU fishing. In fact, as the main management goal at the national level was to enact plans for fleet segments using purse seine, trawl nets, shore seines and dredges, Ms Gruja envisaged that serious efforts would be necessary to ensure sustainability and to regulate fishing effort.

11. Mr Magdi, Abd El Wahed, from the Egyptian General Authority for Fish Resources Development, remarked that there were two main kinds of IUU fishing problems in Egypt. The first one was of a national character and concerned fishing without a license. As this happened quite often, he reported that solutions were under examination, including the possibility of painting fishing vessels with different colors so that those authorized to fish could contribute to identify people devoid of a fishing license. The second problem was linked to the activities of vessels fishing in the Egyptian territorial waters, but flying the flag of a State other than the Egypt. In response to this, Egypt was trying to establish a national control system to improve the tracking of fishing boats. To encourage fishermen to accept the installation of transponders onboard their vessels it was necessary to carry out pilot studies and determine how to teach them the benefit of better controls.

12. Mr Frédéric Schmit, from the French Directorate of fisheries and aquaculture, emphasized that the relatively small amount of fish caught in the Mediterranean Sea by France (4% of the total national catch) was not a pretext for his country not to fight IUU fishing. 14% of the national fishermen were engaged in fishing activities in the Mediterranean Sea and its richness in marine ecosystems and biodiversity called for serious conservation efforts. Mr Schmit noted that in recent years IUU activities detected by France were mainly attributable to French or EU fishermen. As for the scope of actions aimed at countering IUU fishing, priority had been given to implement the relevant provisions of EU regulations on control. This had resulted in a greater focus on the market dimension of fisheries with a view to preventing illegal products from entering the trade market at the national level. Nonetheless, the amelioration of the knowledge base in the years to come could provide a clearer snapshot on IUU fishing in the Mediterranean Sea, including in statistical terms.

13. Mr Stefanos Kavadas, from the Hellenic Centre for Marine Research, noted that since 2000 Greece has been keeping a national electronic database which recorded relevant information on IUU fishing by national vessels in territorial waters. According to the collected data, an increasing trend towards IUU fishing occurred during spring, summer and early autumn. A large number of penalties had been imposed in major fishing ports of the Aegean Sea, including against amateur fishers. The average size of fishing boats that were involved in IUU fishing varied and the main target species could not be easily determined. An effort would be made towards the publishing of scientific papers on IUU fishing and to study ways to fight it. Mr Kavadas also remarked on the importance of monitoring the social and economic effects of IUU fishing activities as they often contributed in Greece to the abandonment of the fishing profession, especially in areas directly dependent on fishing.

14. Mr. Daniele Praticò, from the Italian Ministry of Agricultural, Food and Forestry Policies, reported on the progress that was being made at national level in the fight against IUU fishing. He referred especially to the tight controls, including at the borders, to prevent IUU products from reaching the market. Also, he provided an update on the use of driftnets by Italian fishermen, which had significantly been reduced as had also been documented by EU inspectors. Mr Praticò ascribed some IUU related problems in Italy to traditions and habits as fishermen have been practicing certain fishing activities over a long time. Consequently, he stressed the need of addressing socio-economic aspects of IUU fishing.

15. Mr Ahmed Abukhder, from the Libyan General Authority for Marine Wealth, acknowledged that IUU fishing was mainly related to the activities of international vessels, trawlers targeting demersal and pelagic species in particular, and was occurring all year around. This was corroborated by data and statistics from detained boats. As with several other participants, Mr Abukhder recognized the socio-economic impacts of IUU fishing which also encompassed damage to the marine environment, loss of employment opportunities, food insecurity and reluctance from people to become fishermen. Despite several laws and regulations enacted at the national level, IUU was still thriving and this was mainly attributed to the weakness of coast guard facilities, the low awareness on sustainable fishing and a shortage of human MCS resources.

16. Ms Rachel Galea, from the Maltese Department of Fisheries and Aquaculture, presented some facts on the commitment of Malta to fight against IUU fishing. She noted that considerable resources had been devoted at the national level to bringing Malta to an equal footing with other EU Member States, regardless of the extended coastline of the island and the huge zone of water to be controlled. Irrespective of these obstacles, Malta had been able to elicit compliance with applicable regulations from the fishermen although infringements were still detected and the problem of IUU fishing had not been completely resolved. Ms Galea expressed the view that the GFCM should promote regional cooperation so that those sub-regions in the basin where several GFCM Members were known to fish could be regulated.

17. Ms Nada Lakicevic, from the Montenegrin Ministry of Agriculture and Rural Development, detailed the activities which were considered to amount to IUU fishing at the national level and in conformity with international and regional instruments. She made reference, among others, to fishing without a permit, fishing with prohibited gear, in protected areas and for juvenile fish, etc. For all these activities, appropriate penalties had been laid down, including imprisonments for egregious violations. Ms Lakicevic noted that Montenegro had undertaken an active fight against IUU fishing in order to avoid market and price instability in relation to fishery products. To date, national controls had proven stringent and adequate but the problem was ongoing and it required continuous attention.

18. Mr Nadir Chafai Alaoui, from the Moroccan national surveillance center of fishing vessels, described the national fisheries plan which pursued the durability of resources as a main goal and aimed at ensuring their exploration for future generations. Mr Alaoui recalled that the Department of Fisheries had adopted a new approach which revolved around VMS, control measures and an effective traceability system which enabled to track down the origin of fishery products throughout the value chain. The VMS system was therefore integrated and contributed to the fight against IUU fishing. Also, at legal level, a bill relating to the fight against IUU fishing had been approved. Among others, this instrument would supplement existing laws in view of endowing the control system with increased efficacy.

19. Mr Juan Sainz Herrero, from the Spanish Ministry of Agriculture, Food and Environment, emphasized that Spain was fully committed to the fight against IUU fishing, which was identified as a threat to the society and therefore recognized as a political priority. As a result, he emphasized the need to improve and extend the recourse to existing tools to fight IUU fishing at the regional level, including EU regulations on the subject matter. Past experiences, such as control schemes used in bluefin tuna campaigns, should be regarded as examples of the use of new technologies against the background of increased regional cooperation. Mr Herrero advocated that the dynamics of the Mediterranean Sea could not be fully understood without acknowledging the importance of the fishing sector, in light in particular of its huge socio-economic implications at the local level. To protect Mediterranean coastal communities IUU fishing should be fought through the development and use of new technologies, intra-institutional and intra-agency cooperation and high level political commitment. As far as Spain was concerned, Euro-Mediterranean integration was welcome, including through the GFCM.

20. Mr Mehrez Besta, from the Tunisian Directorate General of Fisheries and Aquaculture, pointed out that the national legal and organizational framework was the foundation for the fight against IUU fishing. Several measures had been envisaged, spanning from those linked to the conservation of the resources to those aimed at controlling the market and boosting the commercial value of fishery products. Nonetheless, in Tunisia the problem of IUU fishing had proven to be undeterred in relation to deep sea habitats and protected areas. Furthermore, non-Tunisian vessels were known to fish in the Gulf of Gabes. Mr Besta hoped that in implementing GFCM recommendations linked to monitoring, control and surveillance his country could reduce the incidence of IUU fishing.

21. Mr Murat Toplu, from the Turkish General Directorate of Fisheries and Aquaculture, referred to the Turkish national legal framework at the outset of his presentation. The management of fisheries, licensing rules, the ban of given gears and techniques, procedural provisions on inspections and sanctions were all regulated in Turkey. Mr Toplu singled out small-scale fisheries which constituted the bulk of fisheries in Mediterranean Turkey. They were also the subject of inspections and controls as performed according to applicable international and regional instruments as well as of relevant EU regulations currently being voluntarily applied by Turkey. The work done by the various fisheries port offices, roughly 40, had enabled the taking of sanctions, administrative fines, seizures, confiscation of catch, gear and equipment and the suspension and cancellation of licenses in many instances. The deterrent effect of these actions had a positive impact in the fight against IUU fishing although the overall problem was still there and required further efforts.

22. Mr Xavier Vasquez Alvarez, from the Directorate General MARE of the European Commission, drew the attention of participants to the preventive nature of the measures to fight IUU fishing as well as on the need to reflect on the root causes making IUU activities profitable (e.g. absence of legal frameworks, weaknesses in the control systems, poor enforcement of applicable rules, etc). He elaborated on these notions by providing an explanation: (i) of the integrated system of control at EU level, clarifying the pillars of the EU control system (i.e. control regulation 1224/2009, IUU regulation 1005/2008 and fishing authorization regulation 1006/2008, currently under revision), (ii) of the implementation of the bluefin tuna recovery plan, including through the Joint Deployment Plan coordinated by the European Fisheries Control Agency, caging operations to avoid unreported catches and bilateral cooperation with Turkey, and (iii) of the EU catch certification system and its expected benefits. Mr Vasquez insisted that measures to be taken at regional level to mitigate

the IUU activities should also be preventive in nature. This would be the case of initiatives aimed at improving cooperation with flag States, the identification of non-cooperating Members and non-Members and the establishment of IUU lists.

23. Mr Bradley Soule, from the INTERPOL Environmental Crime Programme, updated participants on recent initiatives launched to fight environmental crimes under the purview of his organization. Because IUU fishing was estimated to cost the global economy up to 23 billion USD a year in lost revenue and harms to coastal communities, actions had to be taken accordingly. More precisely, Mr Soule expounded the concept of fisheries crime which entailed threats to resource conservation, food security, livelihoods, vulnerable coastal regions and was linked to offences such as money laundering, corruption, fraud, human and drug trafficking. Through the “ProjectScale” initiative, INTERPOL was now raising awareness on fisheries crime and its consequences. To this end national environmental security task forces had been established with a view of ensuring institutionalized cooperation between national agencies and international partners, including international organizations such as the GFCM. Reference was also made to the “Purple Notice” alert system which was envisaged as a means to investigate IUU vessels. INTERPOL welcomed engagement from all GFCM Members, all of which were INTERPOL Members as well, on using INTERPOL tools and services to identify and investigate the vessels, corporations and people profiting from IUU fishing and fisheries crime. A Fisheries Crime Working Group had been set up too, which had met for the first time in February 2013. The second meeting of the Working Group was scheduled to take place in Nairobi, Kenya, starting on 4 November, 2013.

24. Ms Eszter Hidas, from WWF, described WWF’s priorities at the EU level in the fight against IUU fishing. Those included lending support to the effective implementation by EU Member States of key EU legislation aimed at preventing IUU fishing and working with key stakeholders to improve seafood traceability and fishing transparency in the EU. As far as the Mediterranean Sea was concerned, Ms Hidas noted that WWF was promoting the ratification of the 2009 FAO Port State Measures Agreement as well as the establishment of a global record of fishing vessels. The importance of co-managed coastal fisheries programs in preventing and deterring IUU fishing was also recognized.

25. Mr Nenad Hercigonja, IUU expert, expressed the view that no fight against IUU fishing could be effective without recourse to MCS technology. He encouraged GFCM Members, including through the Commission, to remain apprised of latest developments available on the market which were offered by several companies and to avail themselves of the expertise of those working in the industry.

OPEN DISCUSSIONS ON CONCERTED ACTIONS TO FIGHT IUU FISHING IN THE MEDITERRANEAN SEA

26. Participants agreed on the need to urgently address the problems posed by IUU fishing in the Mediterranean Sea. However, there was also agreement on the current lack of data on the very nature and extent of IUU fishing. Although the existence of legal frameworks at national level which enabled GFCM Members to punish infractions linked to IUU fishing was praised, illegal activities were still being detected. Furthermore, they were evolving in the sense that GFCM Members noted, in some cases, “new” infractions. Reference was made, for instance, to the trade of illegal driftnets in the Mediterranean Sea. Although strict measures had been envisaged to destroy these nets in some GFCM Members, wrongdoers were apparently opting for selling the illegal driftnets to the fishermen of other GFCM Members

where they had not been previously used. Similar cases demonstrated that continuous attention was needed and that the fight against IUU fishing in the Mediterranean Sea had to evolve proportionate to the evolution of IUU fishing activities.

27. In order to make up for the lack of IUU data several proposals were made. As some data was available in some GFCM Members, which had begun to create databases with infringements detected and punished, it was suggested that the GFCM Secretariat should receive these data and initiate a regional compilation on their basis. Furthermore, where IUU data had not been yet collected, it was advised that GFCM Members should start to take some action. In addition, studies on the economic impacts generated by IUU fishing at the national level would have to be carried out. As it was noted that at times similar information, or other information relating to IUU fishing, could be available through institutions, entities and civil society organizations, a network of relevant actors should be established. The GFCM Secretariat could compile such contributions in the same way that this was already being done by other RFMOs, such as ICCAT. This would be without prejudice to any final decision concerning the utilization of available information on IUU fishing which would rest solely with GFCM Members.

28. Reference was made to several GFCM recommendations which imposed submission duties on GFCM Members. Examples included GFCM recommendation 2008/32/1 on port State measures and GFCM recommendation 2009/33/8 on the establishment of an IUU list of vessels. In light of the presentations delivered by the national experts in Tunis, it was apparent that the GFCM Secretariat could be swiftly provided with the type of Member contributions that are needed to compile central data files on IUU fishing. Consequently, it was recommended that all Members should make their submissions (for example, pertaining to identified ports, or alleged IUU vessels) to the GFCM Secretariat at the earliest possible opportunity. The GFCM Secretariat should then take prompt and appropriate action.

29. The behavioural characteristics of IUU fishing in the Mediterranean Sea were discussed. The Workshop acknowledged that the high value commercial species fished in the basin (e.g. bluefin tuna and swordfish) were already regulated under ICCAT. The problem of IUU fishing of other species had to be seen from a socio-economic perspective in addition to a market perspective. The regulation of the market could be already viewed as a specific objective of the GFCM, thanks to the recourse to effective measures such as traceability schemes and commercial bans on illegal fishery products. However, an understanding of the socio-economic dynamics behind IUU fishing called for further work within the remit of the Sub-Committee on Economic and Social Sciences (SCESS) of the GFCM Scientific Advisory Committee. It was recalled that SCESS had recognized several times the importance of socio-economic data to be collected and analysed for the sake of the sound management of Mediterranean fisheries. Efforts were ongoing within the GFCM, including the new GFCM Data Collection Reference Framework, to improve the regular collection of socio-economic data by GFCM Members. It was anticipated that SCESS could consider issues linked to IUU fishing when examining methodologies relating to the collection and analysis of socio-economic data.

30. Although there was no “one size fits all” solution to counter IUU fishing, there was agreement that cooperation would represent the best solution available to States. In the case of the Mediterranean Sea, where several organizations and entities had experience in the fight against IUU fishing, it would be important for the GFCM to capitalize on those efforts which were already underway. ICCAT should be approached and concerted actions could be

launched, among others and as appropriate, together with the European Fisheries Control Agency, the European Maritime Safety Agency, the FAO and its regional fisheries bodies. The underlying principle of cooperation in the fight against IUU fishing would have to remain the sharing of knowledge that existed at the Mediterranean level. This strengthening of the regional knowledge base would prompt actions to be taken in the remit of the GFCM.

31. The Workshop consequently recognized that there would be a need for similar meetings to be convened on a constant basis. The setting up of a forum dedicated to IUU fishing within the GFCM was already recommended in 2004 at the end of the GFCM/FAO Workshop on IUU fishing in the Mediterranean Sea. However, means would have to be found to ensure that the specificities of the GFCM Area were duly considered and addressed. Bearing in mind the ongoing amendment process of the GFCM legal framework, it was acknowledged that a sub-regional approach would enable GFCM Members to discuss on the one hand a regional approach applicable to everyone, while on the other hand to tailor measures to the different realities of each GFCM sub-region, including the Black Sea. One option to consider could be that of endowing the Compliance Committee with a special working group on IUU fishing whose terms of reference could be developed and adopted by the Commission at its next session, according to the advice from the meeting.

32. Reference was also made to criminal activities linked to IUU fishing. In this regard, it was underlined that the term “fisheries crime” would not correspond to any legal definition adopted by States at international level and that the use of those services that were already available for States to address fisheries crimes would be without prejudice to national provisions regulating infringements in fishing. As a matter of fact, some GFCM Member regarded these infringements as administrative rather than criminal violations. Nonetheless, the seriousness of the problem was recognized and the commitment against impunity was affirmed so that GFCM could adequately address IUU fishing in the Mediterranean Sea.

33. Having considered the varying and multifaceted nature of IUU fishing in the Mediterranean Sea, and consistent with the same approach adopted in connection with the workshop on IUU fishing in the Black Sea, it was proposed to identify six sets of actions. Each of these would deserve to be included in a roadmap to fight against IUU fishing in the Mediterranean Sea: (i) institutional aspects at regional and sub-regional level, (ii) legal aspects, (iii) scientific research aspects, (iv) technical aspects, (v) socio-economic and education aspects and (vi) MCS related aspects. The proposed roadmap should be considered as a basis for future undertakings to be launched by the GFCM which would require strong political commitment from GFCM Members. Among others, a regional plan of action to fight IUU fishing could be developed and adopted, consistent with the FAO practice.

PROPOSAL FOR A ROADMAP TO FIGHT IUU FISHING THE MEDITERRANEAN SEA

34. The meeting proposed the following elements for a roadmap to fight IUU fishing in the Mediterranean Sea:

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE MEDITERRANEAN SEA	OBJECTIVES/METHODOLOGY
<i>Institutional Aspects at regional and sub-regional level</i>	<u>Set up a working group of the Compliance Committee on IUU fishing and MCS</u>	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
	<u>Strengthen mechanisms to facilitate sharing of knowledge and cooperation among Mediterranean riparian States, including through the GFCM and other existing relevant organizations</u>	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
	<u>Establish a network of entities and institutions that could contribute to share knowledge and improve cooperation</u>	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
	<u>Assess the presence of non GFCM Members in the area of competence of the Commission</u>	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
<i>Legal Aspects</i>	<u>Assist, develop and harmonize the legislations of GFCM Members taking into account their specific needs in the fight against IUU fishing</u>	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
	<u>Ensure the timely submission of information relating to IUU fishing to the GFCM Secretariat, according to recommendations in force</u>	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)

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE MEDITERRANEAN SEA	OBJECTIVES/METHODOLOGY
	<u>Elaborate a regional plan of action to prevent, deter and eliminate IUU activities based on by scientific and socio-economic data</u>	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
<i>Scientific Research Aspects</i>	<u>Develop and agree on standard methodologies to evaluate IUU catches and trade of fishing products in support of scientific advice</u>	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
	<u>Strengthen national statistical systems of Mediterranean riparian States, including through the elaboration of common formats for reporting and evaluation of data on IUU fishing</u>	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
<i>Technical Aspects</i>	<u>Elaborate a catalogue of fishing gears and their technical characteristics mainly used in the Mediterranean Sea for IUU fishing purposes</u>	Available information should be collected by the GFCM through Mediterranean riparian States with a view to enable the marking of fishing gears
	<u>Carry out surveys on the use of illegal fishing gears in the GFCM Area</u>	Particular attention should be given in the studies to the trading of these gears between GFCM Members
	<u>Eradicate illegal by catch, discards and ghost fishing</u>	Illegal practices causing by catch, discards and ghost fishing should be identified and phased out and selectivity of fishing gear encouraged
	<u>Mitigate the impacts of IUU fishing on cetaceans, seabirds and</u>	In view of mitigating the impacts of IUU fishing on cetaceans in the Mediterranean Sea, projects should be launched together with

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE MEDITERRANEAN SEA	OBJECTIVES/METHODOLOGY
	<u>turtles</u>	ACCOBAMS
	<u>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</u>	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
<i>Socio-economic and Education Aspects</i>	<u>Awareness campaigns for the protection of Mediterranean Sea fisheries against IUU fishing</u>	The establishment of a network of entities and institutions would be instrumental to the undertaking of this action
	<u>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</u>	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
	<u>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</u>	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
<i>MCS related Aspects</i>	<u>Improve traceability mechanisms and take measures to prevent deter and eliminate the trade in IUU products</u>	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
	<u>Adapt tools such as the joint international inspection scheme and</u>	Coordination among controlling organs operating at regional level (e.g.

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE MEDITERRANEAN SEA	OBJECTIVES/METHODOLOGY
	<u>observer programmes to GFCM Members, including at sub-regional level</u>	coast guard, border guards, financial police and fisheries inspectors) would have to be pursued, including through existing networks of coast guards
	<u>Carry out joint training of fisheries inspectors and other enforcement authorities</u>	The GFCM could organize training sessions with the cooperation of the EU (i.e. the European Fisheries Control Agency), if possible
	<u>Establish a GFCM centralized VMS system and continue providing technical assistance and transfer of technology in the domain of MCS</u>	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

ANY OTHER MATTER

35. The participants thanked the hosting country for the hospitality and the European Commission for having provided financial support for the organization of the Workshop.

CONCLUSIONS AND CLOSURE OF THE JOINT WORKSHOP

36. The Workshop recommendations, including the proposal for a roadmap, were adopted on 4th October 2013. The final report of the meeting was endorsed by email.

Agenda**GFCM Workshop on IUU Fishing in the Mediterranean Sea**

- 1. Opening and arrangements of the meeting**
- 2. Adoption of the agenda**
- 3. Introduction of participants and meeting's objectives**
- 4. General overview on Illegal, Unreported and Unregulated (IUU) fishing in the Mediterranean Sea**
- 5. Open discussions on concerted actions to fight IUU fishing in the Mediterranean Sea**
- 6. Proposal for a roadmap to fight IUU fishing the Mediterranean Sea**
- 7. Any other matters**
- 8. Conclusions and closure of the workshop**

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Questionnaire for the Workshop on Illegal, Unreported and Unregulated Fishing in the Mediterranean Sea

COUNTRY

Name/Institute

1. Do you have any data or record for IUU fishing in your territorial waters or Exclusive Economic Zone (EEZ)? If so, since when?
2. Please provide the below information on IUU fisheries in your water as much as possible.
 - Season/months
 - Areas
 - Main fishing gear
 - Average size of fishing boats
 - Main target species
 - By catch records
 - Ghost fishing (abandoned nets)
 - Estimated revenues of the IUU products
3. Have there been or are there any on-going particular studies on IUU fishing in your country?
4. Do you have any legal measures to reduce IUU fishing in your waters, such as fines, detention of boats or fishing gears?
5. Are coastguards or fisheries authorities well-informed of IUU fisheries?
6. Do you have any monitoring or controlling system for your fishing fleet, such as landing control or assigning on-board observers?
7. What are the social/economic impacts of IUU fishing to your society?
8. How can this problem be solved in your country and also among the Mediterranean countries?
9. Which is the structure of your national fishing fleet operating in the Mediterranean Sea? Please provide the below information:
 - Total number of vessels (active and not active)
 - Number of vessels by
 - length classes (0-6, 6-12, 12-18, 12-24, >24 m)
 - main categories of vessel type²
 - main categories of fishing gear³
 - Vessels equipped with VMS system or other technologies to track down their fishing activities
 - Total number
 - Number by length classes
10. Is there any national fleet management plans currently in place? If yes, kindly specify the main characteristics of the plan.
11. Any other suggestions and comments?

² According to the “International Standard Statistical Classification of Fishery Vessels by Vessel Types (ISSCFV) - <ftp://ftp.fao.org/FI/DOCUMENT/cwp/handbook/annex/annexLII.pdf>

³ According to the “International Standard Statistical Classification of Fishing Gear (ISSCFG) - <ftp://ftp.fao.org/fi/document/cwp/handbook/annex/AnnexM1fishinggear.pdf>

Background paper for the GFCM Workshop on Illegal, Unreported and Unregulated Fishing in the Mediterranean Sea

NATURE AND EXTENT OF ILLEGAL, UNREPORTED AND UNREGULATED (IUU) FISHING IN THE MEDITERRANEAN SEA

Prepared by
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Countries/States

The words "countries" and "States" appearing in the text refers to countries, territories and areas without distinction.

EXECUTIVE SUMMARY:

Illegal, Unreported and Unregulated (IUU) fishing is one of the most serious threats to sustainable fisheries in the Mediterranean Sea. Due to IUU fishing, which also encompasses ghost fishing and by-catch (of cetaceans, sea turtles, seabirds and sharks), depletion of fishing stocks and destruction of the benthic ecosystems occur. This issue also has several social, economic and legal ramifications. Most of the coastal States in the region adhere to anti-IUU fishing practices, including through the General Fisheries Commission for the Mediterranean of the FAO (GFCM). However, most of them do not necessarily have records of by-catch, ghost fishing and crimes related to fisheries.

In the Mediterranean Sea purseine, trawl and driftnets are among the most used fishing gears in IUU fishing whereas bluefin tuna, swordfish and shrimps, among benthic species, are the most common target by vessels engaged in IUU fishing. Among the most known negative impacts of IUU fishing unfair competition, loss of biodiversity, loss of income and threats to human lives and safety deserve to be singled out. Consequently, IUU fishing is increasingly drawing the attention of GFCM Members at regional and sub-regional level. Together with FAO, several studies, initiatives and measures have been crafted for combatting IUU fishing.

Lower and upper estimates of the current total loss per year due to IUU fishing worldwide are USD 9 billion and USD 24 billion, respectively, representing between 11 and 26 million tons of fish globally (Agnew *et al.*, 2009). It is possible that the situation has even deteriorated since the time this

estimation was made. Suffices to mention that the INTERPOL has launched a project (ProjectScale) as a global initiative to detect, suppress and combat fisheries crimes, which were estimated to cost to the global economy up to USD 23 billion each year. As in the case of IUU fishing, to which they are often times associated, fisheries crimes threaten food security and livelihoods and can destabilize vulnerable coastal States.

From a regional perspective, the nature and extent of IUU fishing in the Mediterranean Sea is not clearly known at present. It is known, however, that these dubious activities are becoming a common practice in recent years. Suffices to recall that in the Mediterranean and the Black Sea 50 % of the fish stocks are considered to be already overfished (Ye and Cochrane, 2011). It is hard to question that IUU fishing has a lot to do with this dramatic situation. Mediterranean riparian States currently report several IUU fishing related issues. Some of them have short coastlines and are engaged mostly in small scale fishing, thus the fishing pressure is relatively weak, which consequently results in the pressure by IUU fishing remaining at a low level. Nonetheless, in the case of small scale fisheries IUU fishing activities are usually carried out in coastal areas in waters up to 50 meters of depth. These coastal areas are generally covered by the Mediterranean endemic *Posidonia* meadows. As these areas often time present muddy and sandy bottoms, they are suitable for trawling for mainly demersal fish and invertebrates.

Some other Mediterranean riparian States mainly practice industrial fishing, thus causing more detrimental effects to the marine environment and its resources when IUU fishing occurs. Due to decreasing amount of fish caught in industrial fisheries, oversized fishing fleets and rising demand for fish, the negative impacts of IUU fishing will likely exacerbate, making dishonest profits higher for those involved (Flothmann *et al.*, 2013). Overexploitation of the fish stocks is reported to be widespread across the Mediterranean Sea, where more than 65% of commercial stocks are fished beyond sustainable limits. Some species such as bluefin tuna (*Thunnus thynnus*) and dusky grouper (*Epinephelus marginatus*) have been fished to such an extent that they are both listed as endangered on the IUCN Red List.

A precise estimation of the economic damage caused by IUU fishing in the Mediterranean Sea is not possible to compute at present because of data uncertainty and paucity. The effects it entails on the other hand are fairly known and span from deterioration of fish stocks and habitats, to loss of sales tax, income and employment, disturbances to the supply chain and fishing operations. Furthermore, IUU fishing cause ghost fisheries (e.g. abandoned nets) when the fishermen abandon their nets to try and escape from coast guards or other relevant authorities.

Concerning by-catch of non-target species, the loggerhead turtle *Caretta caretta* and green turtle *Chelonia mydas* are impacted by illegal fishing activities due to bottom trawling and set nets. Cetaceans are also impacted by illegal fishing activities, due in particular to illegal driftnets. Some NGO's, such as Marevivo, Legambeinte, Oceana and PEW, reported that IUU fishing and by-catch issues were quite common to surface in several GFCM Members in recent years. The picture could get worse depending on the fishing gears, seasons and areas associated to IUU fishing because impacts on marine life and ecosystems vary considerably. For example, deep trawling has impacts on sea grass beds and causes physical damages destroying benthic community and habitat loss for many species, such as endemic sponges *Axinella cannabina*. In the case of clams, IUU fishing imperils their habitats (i.e. use of prohibited fishing gears in clam harvesting) and their dredging affects soft bottom communities and siltation, which is harmful for macro and meio benthos. Furthermore, IUU fishing of bivalve organisms and their sell on the market may cause fatal results if toxic plankton bloom occurs.

There are some legislation and regulations in force in the Mediterranean Sea to fight against IUU fishing. For EU States there is a strict body of law applying, which in some instances (EU Regulation 1005/2008) also contains provisions targeting third States. However, uniform norms and regulations for all riparian States can be brought about solely through the GFCM. This forum, in light also of its institutional links with the FAO as well as of the ongoing reform of the Commission, offers a unique opportunity to tackle IUU fishing at regional and sub-regional levels. Several recommendations have

been already adopted by the GFCM and efforts will intensify in the near future to come to grips with this scourge. Nevertheless, all GFCM Members, in their capacity of flag States, are responsible to ensure that their fleet do not engage in IUU fishing and are obliged to take all necessary measures in turn, according also to relevant international treaties (i.e. UNCLOS, UNFSA, FAO Compliance Agreement and FAO Port State Measures Agreement).

Because bluefin tuna stocks, by far the most valuable species in the Mediterranean Sea, are depleted there is a need to elaborate and implement robust strategies in support of recovery plans as a means to combat their IUU fishing. To this end, cooperation between GFCM and ICCAT should be strengthened. This should include studies on sustainable aquaculture from eggs of bluefin tuna, which should be further promoted by both organizations in light of their expertise and considering that aquaculture could be one of the best solutions for stock recovery and mitigation of IUU fishing activities in the Mediterranean Sea. Encouraging precedents exist as in Japan, a Member of both GFCM and ICCAT, where there have been recently positive results in breeding bluefin tuna. It is also reported that some European companies have already started experiments and succeeded to a certain level of breeding.

Aware of the fact that IUU fishing demands continuous attention not only from States but from the part of a wide variety of actors and stakeholders, establishing a special working group on IUU fishing under the GFCM umbrella would be advisable. This body, whose creation was originally proposed in 2004 in connection with the first FAO/GFCM workshop on IUU fishing in the Mediterranean Sea, should be stirred by the same approaches of inclusive participation and transparency which are at the cornerstone of the GFCM Task Force in charge of the ongoing reform of the Commission. Fortunately, no fishing causality due to IUU fishing has been reported to date in the Mediterranean Sea, unlike in the case of the Black Sea where several causalities have occurred of late years in connection with turbot fisheries. Still, this issue too should be closely monitored by the proposed special working group.

In addition to setting up an institutional forum endowed with the responsibility of ensuring that necessary controls are performed from the net to the plate, the GFCM should also promote the fight against IUU fishing through other initiatives. This could include building awareness (i.e. a special day for IUU fishing could be organized in all Mediterranean together with other organizations, stakeholders and partners), slow food and marine stewardship initiatives so that consumers become more cautious and selective when they purchase seafood and increased reliance on area-based management tools. For all these purposes, closer cooperation will be needed as well as an ad hoc network to be possibly created and spearheaded by the GFCM. Ongoing developments within the GFCM (i.e. the Symposium on Small-Scale Fisheries, the adoption of memoranda of understanding with other organization, etc.) point to the feasibility of launching concerted actions to halt IUU fishing. A roadmap to fight IUU fishing in the Mediterranean Sea would be needed in order to set common goals and methodologies to be followed in the short, medium and long term.

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INTRODUCTION

The Mediterranean Sea is a semiclosed basin whose sole connection with other masses of water is through narrow isthmuses such as the Strait of Gibraltar, the Çanakkale (Dardanelles) Strait and the Suez Canal. Overall, the Mediterranean Sea (0.82% of the global oceanic surface) holds 4%–18% of all known marine species (~17,000), with a high proportion of endemism. It is also known to be a hot spot of biodiversity with its great variety of marine and coastal habitats wetlands, lagoons, dunes, reefs, seamounts, canyons, sandy and rocky coasts, which are all important fisheries grounds too. There are 21 riparian States along the shores of the Mediterranean Sea. Populations and economic activities are often times concentrated therein. In the specific case of fisheries, they are in the Mediterranean Sea, historically and traditionally, of vital importance and provide significant source of

food and income. However, several stocks are currently depleted due to overfishing and the rise of IUU fishing in recent years is no stranger to the decline. As a matter of fact, IUU fishing can be currently recognized as a serious threat for the conservation of the marine ecosystems in the Mediterranean Sea and for the sustainable use of living marine resources found therein.

As it is known, the scope of IUU fishing encompasses: (i) illegal activities conducted by national or foreign fishing vessels in waters under the jurisdiction of a State, without the permission of that State, in contravention of its laws and regulations, or conducted in violation of national laws or international obligations; (ii) fishing which has not been reported, or has been misreported, to the national authority, in contravention of national laws and regulations and (iii) fishing in areas or for fish stocks for 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 laws (FAO, 2001).

The GFCM 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 GFCM 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 by the GFCM, 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 GFCM has continued to tackle IUU fishing and several recommendations have been adopted by the Commission 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.

Irrespective of the existence of these measures, there is presently a need to evaluate more precisely the negative impacts of IUU fishing in the Mediterranean Sea, such as unfair competition, loss of biodiversity, loss of income and the threats it could pose to human lives. At global level INTERPOL has recently launched a project - ProjectScale - to detect, suppress and combat fisheries crimes which threaten food security and livelihoods and can destabilize vulnerable coastal ecosystems. It is expected that, thanks to this and other initiatives, IUU fishing will increasingly draw the attention of the international community bearing in mind that rough lower and upper estimates of the total loss per year due to IUU fishing worldwide have been reported to vary between USD 9 billion and USD 24 billion, respectively, representing between 11 and 26 million tons of fish globally (Agnew *et al.*, 2009). Decreasing amount of fish caught in global fisheries, oversized fishing fleets and rising demand for fish are accelerating the negative impacts of IUU fishing and making the problem increasingly widespread and profitable for those involved (Flothmann *et al.*, 2013).

At regional level, it is particular the socio-economic ramifications of IUU fishing in the Mediterranean Sea that have to be addressed when dealing with this problem. It seems safe to affirm that the nature and extent of the IUU fishing in the Mediterranean Sea is not entirely known at present. It is however known that this kind of illegal activities are becoming common practices in recent years and that they are causing a serious stress to the fish stocks in the region, 50% of which are reported to be already overfished (Ye and Cochrane, 2011). As far as overexploitation is concerned, it has been reported that across the Mediterranean Sea more than 65% of commercial stocks are fished beyond sustainable limits. Determining who is accountable of what share of this percentage is not exactly fair-weather sailing.

Indeed, Mediterranean coastal States are quite different from each other: some have short coastlines and are engaged generally in small scale fisheries, thus the fishing pressure is relatively weak and IUU

fishing remains at low levels. IUU fishing activities is usually carried out in the coastal areas up to 50 meters in this case. It is worth to incidentally point out that these coastal areas are generally covered by the Mediterranean endemic *Posidonia* meadows. Some other countries mainly practice industrial fisheries, thus causing more detrimental effects when IUU fishing occurs. Some species such as bluefin tuna (*Thunnus thynnus*) and dusky grouper (*Epinephelus marginatus*), have been fished to such an extent that they are listed as endangered on the IUCN Red List. Both croaker (*Sciaena umbra*) and shi drum (*Umbrina cirrosa*) have been listed as vulnerable, while European plaice (*Pleuronectes platessa*), Baltic flounder (*Platichthys flesus*), European sea bass (*Dicentrarchus labrax*), white grouper (*Ephinephelus aeneus*), swordfish (*Xiphias gladius*) and Atlantic chub mackerel (*Scomber colias*) are listed as near threatened (Abdul Malak *et al.*, 2011). Of 86 shark, ray and chimera species that can be found in the Mediterranean Sea, 15 are critically endangered, nine are endangered, and eight are vulnerable (Abdul Malak *et al.*, 2011). Among invertebrates red coral (*Corallum rubrum*) and red shrimp (*Aristeus antennatus* and *Aristomorpha foliacea*) are also known to be illegally caught. Due to illegal fishing activities, the degradation of large areas of coralligenous species has also been reported by RAC/SPA.

In light of the above it appears evident that fisheries management in the Mediterranean Sea suffers some harmonization problems, which are at times exacerbated by the different nature of political and institutional contexts found in the region. Eight countries, namely Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, and Spain, are members of the EU and are hence compelled by relevant EU regulations. The rest of the countries have their own fisheries regulations and enforcement procedures although some of them are committing to either apply a number of EU regulations or approximate their bodies of law to them. The common trait of all these countries is that they are Contracting Parties to the GFCM. This represents a great advantage as it gives them the possibility to apply and promote a unique and common fisheries management throughout the Mediterranean Sea. It goes without saying that there is and there will be a constant need of exchange of information and cooperation among all countries in general terms and, in particular, in order to combat IUU activities under the stewardship of the GFCM.

The following information was compiled based on the information contained in several published papers and reports as well as on the basis of the replies provided by participants in the “GFCM Workshops on IUU fishing in the Mediterranean Sea” (Tunis, 3-4 October 2013) to a questionnaire prepared and circulated by the GFCM Secretariat (Appendix C). However, the level and amount of information provided by the counties in the questionnaires submitted varied. This is reflected in the summaries presented in the next section of the report which contain a short evaluation of IUU fishing in each country using pertinent information in the questionnaires. No information is reported on those countries that did not respond to the questionnaire.

EVALUATION OF IUU IN RIPARIAN COUNTRIES

Albania

Officially a record on IUU fishing exists which includes the total number of infringements reported in inland waters, aquaculture and marine areas. These water spaces are not treated separately in Albania. As a management structure, the Fishery Directorate communicates with the IMOC Centre (Inter Operational Marine Centre, under the Ministry of Defense) which is endowed of a fishing activity control operation in marine areas in the frame of the national VMS- MCS system. The IMOC Center started to operate in 2010 whereas the VMS-MCS system has been built in a frame of a EU founder project. IUU data is reported to Fishery Directorate. In 2012, several infringements were detected by the IMOC Centre, such as fishing in forbidden depths in January, February, March, April, July and August. Furthermore, illegal activities in Albanian territorial waters by Greek and Italian fishing boats have been recorded (6 cases in 2012). Fishery authorities involved in controls and inspections are well informed on IUU fishing. Several training courses have been organized to improve their knowledge on the subject. However, no study has been carried out or published in Albania on IUU fishing thus far.

The social and economic impacts of IUU fishing in Albania are complex to assess due to various reasons. Among others, there is a lack of a specific and systematic strategy to combat IUU fishing, including a fleet management plan, solid, professional, well-equipped inspection/control structures, clear legal provisions which are easy to apply, strong communication and collaboration with similar structures in other GFCM Members. Although a central body exists within the Fishery Authority which examines and analyzes all reports regularly, as well as fines and penalties charged after inspections, the authority to be exercised is too fragmented and scattered among national agencies at present.

Algeria

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 bluefin 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 boats 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.

Croatia

Only Croatian fleet is known to operate in Croatian territorial waters while in the Adriatic Sea small pelagics are mainly exploited by Croatia, Italy and Slovenia and demersal stocks by Italy and Croatia. There has been no fishing vessel flagged to other countries recorded or observed by Croatia in these areas thus far. Because the fishing grounds are exploited by national fleets and are considered to be fully regulated, there have been no studies on IUU fishing in Croatia to date. Legal measures concerning IUU fishing have been harmonized with those under the EU regulations in view of the Croatian accession to the EU. These include fishing fleet register, catch certification scheme, their verification, management plans for specific fishing fleet segments, the control of incoming fisheries consignments and import of fish products (customs, vet, port authorities, fisheries inspectors etc.).

The fishing fleet activities, as well as catch, landing and marketing of fishery products in Croatia, is monitored by national authorities under Directorate of Fisheries by the medium of a number of mechanisms, including electronic communications as well as standard logbooks and catch certificates. The introduction of electronic system and links between the databases on licenses, fleet, catches and landings, first buyers, first sales and VMS system, has enabled efficient data cross check. Considering the geographical characteristics of Croatia there are many landing places. This complicates the physical control of catches/landings/sales. To facilitate the on-the-spot control and increase coverage of the inspection activities Croatia has hence adopted an electronic system for detection of the discrepancies between data and potential irregularities. On-the-spot inspections are planned and

implemented based on risk analysis and potential number of infringements in relation to landed quantities and/or number of vessels operations in a certain port. To regionally fight against IUU fishing in the Mediterranean Sea, stronger MCS and inspections at sea are needed.

Egypt

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 boats 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 bluefin 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.

France

Of the total French catch, 4% came from the Mediterranean Sea in 2010, with 3169 fishermen engaged in this business. All fishing activities are regulated and implemented according to the EU regulations which constitute the applicable legal framework. In the French legal system several issues are further clarified, such as landings, names of the ports, list of the ports national control programmes. No IUU fishing activities in French waters in the Mediterranean Sea have been reported to date.

French fishing boats have several obligations to report, such as catch amount and species, catch date and area, engines of the boats. Besides, fishing boats are monitored by VMS if over 12 m in length, short of some exceptions. AIS system is also obligatory for all fishing boats over 15 m. Controls at sea are essential for ensuring sustainability in fishing. For the bluefin tuna, 100% of landings are subject to controls. Besides, a scientific observer system is also obligatory under relevant ICCAT regulations.

Greece

Data are available for IUU fishing in relation to the activities of Greek fishing vessels in territorial waters. These data have been recorded in a national electronic database since the year 2000 and seem to point to an increasing trend in IUU fisheries during spring, summer and early autumn. IUU fishing activities are scattered throughout Greece and sanctions are charged by the local port authorities. There have been a large number of penalties imposed on fishing vessels berthed in major fishing ports all over the Aegean Sea. Amateur fishers are particularly renowned for incurring in infringements, but also fishing vessels with various gears (except dynamic tools) and bottom trawlers account for a significant share. VMS has proven to be helpful in identifying and demonstrating infringements. Also, there are data available for by-catch in bluefin tuna fisheries, which are included in the bluefin tuna recovery plan. Conversely, there is no data available for other species, for ghost fishing and for estimated revenues of IUU products. There are no relevant studies or published scientific papers on IUU fishing in Greece.

Legal measures to reduce IUU fishing encompass both administrative and criminal sanctions for fisheries offences. The former include fines, temporary or permanent withdrawal of the fishing license, seizure of illegal fishing gear and species. A point system for serious infringements is expected to be enacted before long, in accordance with EU legislation. The entire personnel of Hellenic Coast Guard is involved in controls. There is also specialized personnel dealing with fisheries inspections. These people know the entire fisheries legislation and are continuously kept appraised on developments through orders and circulars issued by the Administration of the competent Ministries, and,

furthermore, through organized seminars. There is control in landings at fishing ports as well as mandatory inspection for bluefin tuna. For monitoring purposes of landings, and within the scope of RFMOs recommendations and EU legislation, there are certain designated fishing ports, including for landings by third country vessels, bottom trawlers, longliners, purse seiners and dredges. An observer scheme is applicable for live tuna fishery. There is a national fleet management plan ongoing and a multiannual management plan for purse seiners for small pelagic species (i.e. anchovy and sardine). A multiannual plan for bottom trawlers is in the process of being established. To ensure the effectiveness of these and other measures, fighting IUU activities will require the strengthening of regional cooperation, control mechanisms and technical means, such as patrol vessels.

Italy

Many cases of IUU fishing are yearly reported, including in connection with the use of small nets placed in protected areas in front of estuaries all year around. Also, the illegal selling of IUU catches with longliners is common, including by non-commercial fishermen. No estimate has been made however for revenues generated by this and other kind of IUU fishing. However, although minimal for a single operation, the total amount of revenues could be considered to be very high. Main fishing gears used in IUU fishing operations are trammel nets and longlines. Lack of control is a recurrent problem linked to IUU fishing in Italy and it is believed that most coastal fish stocks are seriously depleted in most areas in turn. A serious control policy effort, including the involvement of citizens to spot infringements, is needed.

Lebanon

The Lebanese fishing fleet is characterized by being totally artisanal and predominantly made of wood and, to a lesser extent, fiberglass. No data is available for IUU fishing, but this particular occurrence is known to take place all year around in Lebanon. The current regulations envisage penalties for law infringements that include fines and confiscation of illegal gears. Although the Lebanese Navy and Police are well aware of the national fishery regulations, they also have other tasks to perform which are considered to represent higher priorities than IUU fishing at national level. As far as fisheries authorities are concerned, they are understaffed, not well-trained and ill-equipped. Furthermore, their duties encompass the forestry sector. To solve problems in Lebanon proper staffing, training and equipping are hence necessary. Appropriately amended regulations, installing local and regional VMS, monitoring of landings and raising awareness of fishermen on the negative impacts of IUU fishing for the sustainability of the resources are also needed.

Libya

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 longliners (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.

Malta

Maltese authorities have been controlling and managing the Fisheries Management Zone (FMZ) around Malta since its establishment. This was further consolidated as of 2009 with the introduction of VMS for all fishing vessels of 12 m and over. The FMZ covers a 25 mile nautical zone and monitors all the Maltese flagged fishing vessels and third country fishing vessels operating in these waters. Illegal fishing over the seasons and months do not show any regular pattern. Penalties were charged in 2012 mostly due to false registration, unreported fishing, fishing in illegal areas, fishing in closed season and illegal retaining of fishery products. Main fishing boats involved were trawlers, tug vessels and sport fishing boats. Maltese authorities control designated and non-designated ports on a 24-hour basis and all landings of bluefin tuna, swordfish, dolphin fish and trawled fish must be notified to the Department of Fisheries and Aquaculture prior to landing. When by-catches are found not to be compliant with current legislation or over the allocated percentages of what is allowable, these are seized by the authorities. There are no records in 2012 related to IUU activities in connection with by-catch. Moreover, there are no records of any ghost fisheries and thus no data can be provided.

All EU legislation relating to IUU fishing was transposed into Maltese Law and Maltese authorities have taken all necessary measures to introduce all the relevant actions to prevent, deter and eliminate IUU fishing activities. There are no on-going studies strictly related to IUU activities and no scientific paper has been published on IUU fishing in the Maltese waters. Malta has regular statistics for IUU fishing though. The Department of Fisheries and Aquaculture are the designated bodies entrusted with control and management measures related to all fishing activities. The fisheries authorities act in continuous liaison with the armed forces of Malta that hold the same powers of fishery protection officers in order to communicate all related updates required to perform controls over the FMZ. Malta has also a monitoring and controlling system for fishing fleet. Maltese authorities manage the designated ports and landing facilities and also conduct random inspection in non designated ports. Maltese authorities also assign onboard observers on bluefin tuna longliners as stipulated by EU regulations. Moreover, they have recognized that although the fishing fleet is considered as mainly artisanal in nature and family based, the fines regarding IUU activities may leave irreparable impacts on the well-being of the fishing. Malta is currently in the process of enhancing data validation systems to cross-check VMS, catch, effort and market data, crew data and data related to the Community fishing fleet register as well as the verification of licenses and fishing authorizations.

Montenegro

The national Law on Marine Fisheries and Mariculture recognizes IUU fishing as fishing without a permit, fishing with tools and gear not allowed, fishing in sites not allowed for fishing, as well as fishing juvenile fish. Appropriate misdemeanor or criminal penalty is foreseen for all activities that are not allowed or are prohibited. Catching fish and other aquatic organisms with explosives, electricity, poison or stunning devices is a crime sanctioned by imprisonment. Harmonization of national laws with EU regulations is planned for the upcoming future. Most IUU fishing activities are reported between May and October in the territorial sea. Main fishing gears used in this period are trawlers and purse seines. Main target species are demersal and pelagic fishes. No records exist on by-catch and one of the biggest problems in Montenegro remains fishing with dynamite. No data about estimated revenues of the IUU products are available.

Under the implementation of a 2009 project Montenegro has developed the system of satellite monitoring of fishing vessels above 10 m. The Fishing Monitoring Centre, situated in the premises of the Ministry of Agriculture and Rural Development, receives data on the position of fishing vessels via satellite every two hours. Furthermore, in order to leave the territorial waters, a fishing vessel has to notify the Maritime Safety Administration, the port, customs and police services as well as the Port Master's Office. Administration for Inspection Affairs, together with the Ministry of Agriculture and Rural Development and legitimate fishermen, encourage as many fishermen as possible to be legal and to apply for a fishing license. The Ministry of Agriculture and Rural Development recently issued fishing licenses based on the opinion of the relevant scientific institution (Institute of Marine Biology) on the amount of fish that can be caught which in turn is decisive to determine the number of vessels

for each fishing gear. There is a need for being more aware of IUU fishing though. In this regard, it should be stressed that in Montenegro the control of the entire coast is done by four inspectors, who do not own a boat, with the help of the Border Police. Assistance with this kind of equipment would certainly contribute to higher quality and more efficient control.

Morocco

Morocco has been collecting national data for IUU fishing since 1994. These data are easily accessible. Most of the infringements detected concern shrimps and cuttlefish during their reproduction period in a 3 nautical miles zone. Main fishing gear used is trawling. A national control plan and studies have been carried out to estimate revenue of IUU fishing. No data on by-catch and ghost fishing are available. There is an ongoing project to address IUU fishing under a national plan. There are also several legal measures and, accordingly, statistics for detained boats and fines. Coastguards or fisheries authorities are knowledgeable in connection with IUU fishing and are trained in workshops regularly. There is also a monitoring or controlling system for fishing fleet and a central observation system for fishermen. During bluefin tuna fishing, an observer is always on board. Landing controls are also effectively done for each fishing port in all regions of Morocco.

The social and economic impacts of IUU fishing in Morocco are under study. IUU problems can be solved only by educating fishermen and decision makers, developing new methods (such as new information systems), data collection centers and bilateral and regional cooperation. National fleet information is recorded by the Fisheries Department, with all the characteristics and in all harbors along the Atlantic and Mediterranean coasts of Morocco. The Fisheries Department also follows the development of newly constructed fishing boats as of 1992, operations for the reduction of the fishing nets and the management of fishing effort.

Slovenia

The Slovenian Fisheries Inspection Unit performs inspections at sea in accordance with EU regulations. During these inspections no IUU fishing by Slovenian fishermen or fishermen of other nationalities has been detected in any season or time for the time being. No on-going IUU study in Slovenia is currently planned. To mitigate IUU fishing through legal measures fines have been applied. Enforcement measures and accompanying sanctions and the confiscation of illegally acquired goods have been prescribed as well. Also, the EU legislation in this field is applied directly in Slovenia. Fines, enforcement measures and sanctions for fisheries in general are also prescribed in the National Marine Fisheries Act, including the possibility of detention of boats and fishing gears.

Coastguards or fisheries authorities are well-informed on IUU fishing and they are also informed by other competent or cooperating authorities, such as the Ministry of Agriculture and the Environment and the Customs Administration of the Republic of Slovenia. Furthermore, they have been informed through participation in discussions during the preparation of the relevant legislation at the EU level and Slovenian national legislation and they have participated in a number of workshops organized by the European Fisheries Control Agency (EFCA). Controls of landings are performed regularly. Landing control proceeds in accordance with the sampling plan which has been prepared pursuant to relevant EU regulations.

Spain

There are no IUU cases reported in the Spanish territorial waters or the EEZ. In any case, Spain supports any mechanism that identifies those involved in IUU fishing, including vessels listed in the EU IUU list or any RFMO IUU list. No scientific paper on IUU fishing has been published thus far. However, several documents and studies were carried out internally to ensure the implementation of EC Regulation 1005/2008. In addition, Spain has begun to enact laws against IUU fishing since 2002 so it has great experience in the domain and remains open to any concrete proposal that could be made in the future. The actions undertaken by the Spanish Secretary General on Fisheries to control IUU

fishing activities have proven adequate, such as documentation control, mandatory and on the spot (at ports). All fishing vessels are subject to very strict control measures. The control is double: 1) vessels must have an e-logbook or logbook (depending on their size), 2) inspections are duly performed. Also, VMS is installed on vessels over 12 m. There is an ongoing national fleet management plan. It is foreseen that fishing effort will be diminished thanks to this measure for at least 10% of units, with an additional reduction of fishing effort of 20% for bottom trawlers. This can help sustainable management of fishing activities in order to ensure the preservation of small pelagics and demersal species. Ad hoc measures exist at national level for bluefin tuna, swordfish and by-catch.

IUU fishing is considered as one of the worst threats to the sustainable exploitation of marine living resources. According to Spain, the socio-economic cost of IUU fishing is very high and IUU fishing must be fought with commitment. To this end, EU regulations must be applied and multilaterally additional measures have to be agreed upon. One option that could be considered is that of trying to take into account provisions in relevant EU regulations so that they can inform the adoption of measures in other fora. The Mediterranean Sea could be a pilot area to do this, bearing in mind that there is no one size fits all formula to solve the problem of IUU fishing. Cooperation and mutual understanding are needed for: addressing lack of data, low reliability of focal points providing data, no prompt responses from third countries in matters pertaining to the trade of fishery products, ignorance on regulations in place, lack of enforcement at national level to punish infringements, lack of uniform standards among countries, forging of documents and import of products without the required documentation.

Tunisia

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 are some studies on IUU fishing in Tunisia that can be retrieved online at www.faocopemed.org, www.webmanagercenter.com, www.apal.nat.tn. There is a 1994 law in Tunisia concerning IUU fishing which has been consistently applied ever since. Coastguards receive training on IUU. There is also a boat observation system for bluefin 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.

Turkey

In Turkey, under the authority of the Ministry of Food, Agriculture and Livestock, data recording has been carried out by the Fisheries Information System (FIS) which comprises a combination of resources organized to collect, process, transmit, and disseminate the fisheries relevant data. The different components of the FIS are catch information, sales notes, VMS, Fishery Port Offices and Fisheries Coastal Structures. Also based on these data IUU fishing is observed both in open and closed fishing seasons. The most common IUU fishing activities are violation of minimum catch size and illegal fishing gear usage. Main illegal fishing gear observed in inspection and control practices is mono and multifilament fishing net which has been banned since 2011. Average size of fishing boats engaged in IUU fisheries is usually below 12 m. The Ministry of Food, Agriculture and Rural Affairs has carried out scientific research activities on IUU fishing in cooperation with universities and research institutions. The national laws specify infringements, violations and fines to be applied. The fishing licenses of 134 vessels were revoked because of violation of regulations in force in 2012.

Coastguards and fisheries authorities are well-informed on IUU fishing. MCS practices are conducted by the Coast Guard Command at sea and by fisheries inspectors of Provincial Directorates under the coordination of the General Directorate of Fisheries and Aquaculture on landing sites. MCS is possible

via satellite based VMS for vessels over 15 m AIS for vessels over 12 m. Nevertheless, weak implementation of the fisheries law is one of the impediments to combat IUU fishing in the Turkish part of the Aegean and Mediterranean Sea. There is a fishing management plan currently ongoing in Turkey. Among others, fishing licenses have not been issued for marine vessels since 2002 in order to reduce catch stress on stocks and to maintain sustainable fisheries. Additionally, a new support scheme was taken into effect in Turkey for the reduction of the number of fishing vessels over 12 m. The fishing license of 407 vessels over 12 m are to be annulled and removed from fleet in 2013.

MAIN SPECIES AFFECTED BY IUU FISHING

Several fish and invertebrate species are affected by IUU fishing in the Mediterranean Sea. In Turkey, albacore, red mullet, sea bream, frigate mackerel, bluefin tuna, little tunny, Atlantic bonito and cuttlefish have been reported. In Morocco, sparid fish, shrimps, octopus and cuttlefish have been reported. In Italy, swordfish, mullet, striped bream, sea bass, gilthead bream have been reported. It could be presumed that similar information is available in other countries although it should not be ruled out that other species could be negatively affected by IUU fishing, also in light of problems linked to by-catch and ghost fishing.

FISHING GEAR AND FLEETS FOR TARGET FISHES

For bluefin tuna, the main fishing gear used in all coastal States is purse seine. For demersal fish and invertebrate species, it is bottom trawler. For clam fishing, dredge is the main gear. For swordfish and some scombrids, the main gear is driftnet but also monofilament nets. As far as nets are concerned, the problem of the use of illegal driftnets in several GFCM Members has been reported several times.

Fishing with illegal fishing gears in the Mediterranean Sea remains one of the most serious problems considering the impacts they can have. Increasingly modern and efficient fishing methods have significant effect on several species. In addition, increase in vessel engine power, size of the gear and vessels, development in fishing gear and fishing net technology, development in electronic devices and easy application to the fishing practices, all have contributed to the decline of aquatic stocks. Purse seining, trawling, longlines, driftnets and set nets are main gears illegally used in most areas of the Mediterranean Sea when fishing seasons are closed. Trawling is generally recognized as a particularly destructive practice for the benthic communities. It severely alters deepwater coral ecosystems, sea grass meadows and their associated fauna, reducing both the number of species and available habitats (UNEP/MAP 2012).

SOCIAL, ECONOMIC AND ENVIRONMENTAL IMPACTS OF IUU FISHING IN THE MEDITERRANEAN SEA

IUU fishing is undoubtedly one of the reasons for the over-exploitation of the fishing resources in the Mediterranean Sea and for the unfair competition among fishermen. Estimations of the exact economic damage caused by IUU fishing, both in terms of loss of revenues and impacts on the marine living resources and the marine ecosystems, cannot be easily made. However, in general, IUU fishing in the Mediterranean Sea brings the following to the fore:

- deterioration of fish stocks and habitats,
- loss of sales tax,
- loss of income due to loss of fish,
- loss of income and employment in other industries and activities in the supply chain and the fishing operation itself,
- loss of biodiversity,

- legal, social and political problems, such as loss of human lives and injuries in general.

Furthermore, IUU fishing causes ghost fisheries (abandoned nets) and by-catch in the Mediterranean Sea. Existing statistics cannot be considered to elaborate solid management plans for both target species and by-catch species.

Effects and impacts of illegal fishing practices to marine life in the Mediterranean Sea are various depending on the fishing gear, season, and area. For example, deep trawling has impacts on sea grass beds and gives physical damages, destroy benthic community and habitat loss for many species, such as endemic sponges *Axinella cannabina* and other species. Elasmobranch species are known to have characteristics such as slow growing and late maturation, low fecundity species. It is known that many populations of elasmobranch species are declining in the Mediterranean Sea due to illegal fishing, overfishing and by-catch, mostly white sharks and sting rays. IUU fishing also damages vulnerable habitats by the use of prohibited fishing gears, mainly for clam harvesting. Illegal clam dredging creates destructive effects on the soft bottom communities and siltation which is harmful for macro and meio benthos. Besides, illegal and unreported bivalve fishing, due to their marketing, may cause fatal consequences for human being when toxic plankton bloom occurs.

By-catch

By-catch of the non-target species in the Mediterranean Sea concern the following: seabirds, mainly Mediterranean shag and the Audouin's gull, which have high mortality rates mostly because of driftnets and long lines; the loggerhead turtle *Caretta caretta* and green turtle *Chelonia mydas*, which suffer from the use of bottom trawling and set nets and, to a lesser extent, of surface longlines employed for swordfish; cetaceans, most commonly the striped dolphin *Stenella coeruleoalba*, common dolphin *Delphinus delphis*, sperm whale *Physeter catodon* and fin whale *Balaenoptera physalus*. Even in their case the main root cause of by-catch are illegal driftnets (Di Natale *et al.*, 1993; Öztürk *et al.*, 2001; Tudela *et al.*, 2005, Notarbartolo di Sciara and Birkun, 2010; Akyol *et al.*, 2012).

To reduce by-catch of non-target species, including those above, some recommendations have been adopted by international bodies and legal measures have been implemented. According to resolutions 44/ 225 and 46/ 215 adopted in 1989 and 1991 by the General Assembly of the United Nations, a moratorium on all large-scale pelagic driftnet fishing was agreed at global level. In 1992, the EU prohibited driftnet fishing in the Mediterranean Sea with nets longer than 2.5 km in length, as did the GFCM in 1997 under a binding resolution. The same decision was adopted by ICCAT. All fishing activities outside this legal framework are tantamount to IUU fishing. IUU fishing and the use of illegal driftnets in the Mediterranean Sea are hence closely interrelated.

In the past few years, an increasing number of cetacean by-catch has been reported. At first it was noted that an increasing number of cetacean strandings was recorded, especially in the Ligurian Sea. It was also noted that an increasing proportion of stranded cetaceans showed the evidence of entanglement in netting (net fragments or scars, or missing tails; Notarbartolo di Sciara and Birkun 2010). Sperm whales, perhaps due to their size or feeding habits (they are deep divers) are rarely reported in driftnets. It should not be discarded that illegal, large scale driftnets are still used in several Mediterranean areas at present.

Ghost fisheries

IUU fishing sometimes cause ghost fisheries when fishermen abandon their nets in the sea and try to escape at the sight of patrolling coast guards or other relevant authorities. Released nets can cause ghost fisheries, that is, many organisms such as dogfish, stingrays and dolphins, are entangled to the nets and die, later either strand to the shore or sink to the bottom. Ghost fisheries is threat not only for

marine life itself. As a matter of fact, after a certain period, nets start sinking or floating on the sea surface, then became a threat for marine transportation, mostly when they are engulfed in the ship propellers at night. Fast speed boats suffer extensively by floating ghost nets in the Mediterranean Sea. Besides, these nets are washed up to the shores and cause pollution on the beach.

LEGISLATION ISSUES

There are some legislations and regulations in force for EU Members Mediterranean riparian States relating to the fight against IUU fishing. New regulations of the EU since 2010 oblige them to ensure that fishery imports into the EU are from legal sources (i.e. Council Regulation (EC) No. 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing, amending Regulations (EEC) No. 2847/93, (EC) No. 1936/2001 and (EC) No. 601/2004 and repealing Regulations (EC) No. 1093/94 and (EC) No. 1447/1999). Some other countries on the other hand are still to develop very detailed rules against IUU fishing. However, there is a positive trend overall as GFCM Members are either striving to enact legislation of their own or are, in a number of instances, approximating their laws to relevant EU regulations.

At present there is no uniform legal framework for all riparian States, short of GFCM recommendations. GFCM hence remains the only organization that can manage and regulate IUU fishing the entire Mediterranean Sea. Other organizations, such as ICCAT, might have a mandate only on given species, and global agencies, including the FAO, are focusing their attention on developing instruments which subsequently call for a transposition at regional level. The opportunity of having the GFCM as a point of reference in the region is unique for all countries in the east, west, north or south of the basin. However, GFCM Members should commit not only to agree on additional measures to fight IUU fishing in the future, but also to submit those data which could be already used in the fight against IUU in accordance with relevant GFCM recommendations (e.g. GFCM 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”). Their reactivity would significantly contribute to underpin concerted actions at regional level.

A PROPOSED ROAD MAP TO FIGHT AGAINST IUU FISHING IN THE MEDITERRANEAN SEA

According to the information submitted by GFCM Members in their questionnaires, there are no studies carried out on IUU fishing. This lacuna should be filled by launching studies, possibly with a standardized and harmonized method. Some countries do have records of by-catch and ghost fisheries while others do not have any data. The problem of IUU data should also be tackled in a standardized and harmonized manner.

Nonetheless, the very incidence of IUU fishing in the Mediterranean Sea reveals that there are some gaps in fisheries management at regional level. An accurate identification of these gaps, including on the basis of studies and data, could enormously help in addressing IUU fishing in the short term with the cooperation of all riparian States which, at present, demonstrate to possess a strong willingness to stamp out IUU fishing. It is important that this willingness triggers a zero tolerance policy towards IUU fishing activities in the long term. A number of actions should be proposed and advocated through the GFCM to make sure that a strategy is devised to steer the transition from the short to the long term. A participatory and down-to-earth option could be that of developing a roadmap to fight IUU fishing in the Mediterranean Sea comprised of the following aspects:

- (i) institutional aspects,
- (ii) legal aspects,
- (iii) scientific research aspects,
- (iv) technical aspects,

- (v) socio-economic and education aspects, and
- (vi) MCS related aspects.

The proposed roadmap should be considered as a basis for future undertakings to be launched within the remit of the GFCM which would require strong political commitment from its Members. Among others, a regional plan of action to fight IUU fishing could be developed and adopted on the basis of the roadmap, consistent with the FAO practice. This would allow GFCM Members to tailor responses adequate for a problem, that of IUU fishing, which in the Mediterranean Sea has very peculiar traits due to the specificities of the region. For that purpose, all the aspects identified above would have to be considered as IUU in the Mediterranean Sea also has, if not predominantly, a human dimension.

Insufficient information on fishing fleet and weak implementation of port States controls are among major impediments that contribute to IUU fishing in some Mediterranean coastal States. Bluefin tuna stocks, by far the most commercially valuable species in the region, are depleted and there is need to reduce fishing effort and to elaborate and implement robust and efficient recovery plans. Creating incentives for fishermen could help. Besides, sustainable aquaculture from eggs of the bluefin tuna should be promoted in riparian States of the Mediterranean Sea which are engaged in bluefin tuna industry. This aquaculture can be one of the solutions for stock recovery while at the same time it can mitigate IUU fishing in the Mediterranean Sea, if done properly. They have succeeded over the last ten years in breeding bluefin tuna in Japan. It is also known that some European companies already have started experiments and thrived in breeding bluefin tuna. The GFCM, through its Committee of Aquaculture, should evaluate this progress in near future as a new viable option to be pursued by the aquaculture sector in the Mediterranean Sea.

Small pelagic species, like anchovy and sardines, are shared stocks and cannot be managed properly without regional cooperation. A distinction of the small scale fisheries and industrial fisheries will have to be made though, bearing in mind that the latter, particularly in the case of purseiners and deep trawlers, often times cloak IUU fishing activities. Accordingly, traditional and historical fishing methods, such as dalian, harpooning, traditional sponge and coral diving, which are known to be practiced in small scale fisheries, should be more promoted.

Although IUU fishing mainly impacts on marine living resources, the damage that it does to the marine ecosystems should not be overlooked altogether. Area based management tools, such as the designation of Marine Protected Areas (MPAs), need to be supported by countries because most of them provide stringent protection measures and their implementation could be straightforwardly assessed. The GFCM, based also on recent memoranda of understanding it had adopted, could avail itself of the cooperation of UNEP-MAP, ACCOBAMS and MedPAN to tackle this issue.

Establishing a special working group on IUU fishing under the GFCM umbrella was already discussed in 2004. This initiative should be re-activated and updated so that GFCM Members could launch concerted action against IUU on the basis of the roadmap. Moreover, this group should prepare a yearly report to the GFCM Compliance Committee, not only for the Mediterranean Sea but also for the Black Sea, including achievements, progress, difficulties, impediments etc. In order for the group to perform, it should be open to a vast array of actors, including NGOs and fishermen associations, not to mention representatives of regional and international organizations. Improving market control and traceability mechanisms and stop the trade of IUU products could be, among other subjects, considered in this forum. Consequently, the working group could contribute to ensure that controls are performed from the net to the plate.

Awareness campaigns, such as a special day for IUU fishing in the Mediterranean Sea, should be promoted. Inspiration could be drawn from the "Clean up the Med" campaign. This could help to investigate the reasons or excuses used by fishermen when concealing IUU activities. Similarly, socioeconomic studies should be commissioned. In this respect, GFCM Members should avail themselves of the established Sub-Committee on Scientific and Economic Sciences (SCESS) of the Scientific Advisory Committee. This is yet another instance of the fact that institutional settings and

fora already exist and the time has come for countries to making best use of them. With a view of promoting positive messages, slow food and marine stewardship initiatives should be encouraged so that consumers become more cautious and selective when they purchase seafood and the role of traceability is boosted. Such an effort will require the strong participation of civil society organizations and fishermen associations too.

Capacity building and training will remain a top priority in the years to come, 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.

As the EU, including through its relevant agencies (i.e. EFCA and EMSA), is not the only institution keen to enhance capacity building and promote sustainable development, others would be also welcome to step up to the plate. In recent times participatory approaches, which call upon all components of the society, have proven to be more efficient than traditional top-down approaches. There is significant scope for agencies, civil society organizations and various entities to provide technical assistance in the Mediterranean basin. Among others, and looking back at fruitful initiatives already undertaken in the past, the Japan International Cooperation Agency (JICA), the PEW Charitable Trust, the Marine Stewardship Council, WWF, Oceana and the GEF are worth mentioning. Also, organizations such as the IMO, CITES, UNDP and UNODC could be GFCM partners in launching training seminars on various issues of mutual interest. A recent initiative which is worth mentioning, namely the INTERPOL Environmental Crime Programme based “ProjectScale”, could be of great help in shedding light on a concept, that of fisheries crimes, which is still partly unknown. After all, when looking at the bigger picture the ramifications of IUU fishing in the Mediterranean Sea could be staggering. It suffices to mention the issue of migration which at times is made possible from one shore of the Mediterranean to the other because fishing boats are used for purposes other than fishing.

It will be important that any measures taken at regional level to mitigate IUU fishing in the Mediterranean Sea will be conceived as preventive in nature. At least some countries such as Croatia, Turkey, Algeria, and Spain have reported that they are going to reduce their fishing fleets and not allow to build new fishing boats in order to protect fishing resources and grounds. This policy should be followed by other States with the support of scientific advice and data by GFCM to reduce the overall fishing effort in the Mediterranean Sea. Attention should be paid in turn to the number of fishing vessels operating in the region. Based on the replies to the questionnaires, the number of fishing vessels reported, both active and not active, is given in Table 1. Fishing vessels include trawlers, midwater trawlers, purse seiners and small scale longliners, polyvalent small scale vessels without engine and hooks. Interestingly, there are some discrepancies between what was reported through the questionnaires and the info submitted officially to the GFCM Secretariat in connection with the regional fleet register.

Table 1. Number of fishing boats reported by each country in the Mediterranean Sea

Country	Number of fishing boats
Albania	501

Algeria	4,167
Croatia	7,770
Egypt	3,082
France	1,483
Greece	15,920
Italy	Not reported
Lebanon	2,762
Libya	4,621
Malta	1,076
Montenegro	19
Morocco	3,463
Slovenia	175
Spain	2,861
Tunisia	11,990
Turkey	9,307

As there could well be other fishing vessels, operating under flags different than those of GFCM Members, preventive would have to be also any initiative aimed at improving cooperation with non GFCM Members. If known to fish in the Mediterranean Sea their flagged vessels would be by definition engaging in IUU fishing. In this connection, it is important to recall the clear wording used in Article 8 (paragraphs 3 and 4 in particular) of the 1995 United Nations Fish Stocks Agreement, which has 81 Contracting Parties at the moment of writing, including major fishing nations. Either membership of cooperating non Contracting Party status are mandatory for those countries whose vessels are known to fishing in an area under the mandate of an RFMO.

NON GFCM MEMBERS FISHING IN THE MEDITERRANEAN SEA

The presence of non GFCM Members in the Mediterranean Sea has not been discussed much thus far. There might be several reasons behind that, including the possible lack of knowledge on GFCM activities outside the area of competence of the Commission, as well as the lack of data. However, the situation could be bound to change in the near future. The GFCM, at its 37th Session (Croatia, May 2013), has adopted forms of letters of identification for both its Members and non-Members which would be sent by the Compliance Committee in cases of non-compliance. Therefore, the Compliance Committee is expected to take action in the future, based on any possible information that will be brought to its attention concerning the presence of non GFCM Members fishing in the Mediterranean Sea.

It is worth underlying that the lack of data does not automatically imply absence of non GFCM Members fishing in the Mediterranean Sea altogether. For instance, some ICCAT Members were attributed a quota for bluefin tuna in the Eastern Atlantic and Mediterranean in 2013. Obviously, their bluefin tuna catch could come entirely from the Eastern Atlantic and not from the Mediterranean Sea. Still, ICCAT databases show that in the past some small amounts of quota from GFCM non Members were actually caught in the Mediterranean Sea. As small as these amounts could be, compared to that of Mediterranean States which are both ICCAT and GFCM Members, the negative consequences of fishing in the area of competence under the mandate of an RFMO to which the fishing State is not a party to should not be disregarded. For one thing, this could cause a free rider effect.

Table 2. BFT 2013 allocation scheme for non GFCM Member in Eastern Atlantic and Mediterranean

<i>CPC</i>	<i>Quota (t)</i>	<i>%</i>
China	38.19	0.2850

Iceland	30.97	0.2311
Korea	80.53	0.6010
Norway	30.97	0.2311
Chinese Taipei	41.29	0.3082
<i>Total</i>	<i>221,95</i>	<i>1.6564</i>

Aranda *et al.* (2010) made specific reference to the presence of non GFCM Members in the Mediterranean Sea engaged in tuna fishing in the past. Among others, they reported the presence of a Korean purse seiner vessel which was operating in the Maltese EEZ in 2008. Jolly (2012) reported that two non-Mediterranean fleets (one Chinese and the other of unknown origin) were recently spotted in some of the main Mediterranean bluefin tuna fishing grounds. Leaving aside any value judgment on the matter, as the GFCM through its Compliance Committee will have to collect information and decide whether or not it is enough to approach a given non GFCM Member, the current legal reality and structure imposes on fishing States to either become Members or cooperating Parties to those RMFOs with a mandate over a marine area where they fish. It is a matter of fairness in addition to legal certainty. In the future science could be perhaps used to underpin legal certainty thanks, for instance, to the progress that has been made in genetics for analysing gene sequences of certain species. Analysing DNA of tuna and verifying where tuna species, whales or sturgeons were caught could be an important and effective method against false trade reporting. DNA testing techniques could be hence used for the better understanding of the sources of the fish illegally caught in the Mediterranean Sea and further reinforce the prevention of trade in IUU fishing products.

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