



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



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**Joint GFCM-BSC Workshop on IUU Fishing in the Black Sea
Istanbul, Turkey, 25-27 February 2013**

OPENING AND ARRANGEMENTS OF THE MEETING

1. The first “Joint GFCM-BSC Workshop on IUU Fishing in the Black Sea” was held on 25-27 February 2013 at the BSC HQs, in Istanbul, Turkey. 39 participants were in attendance from Bulgaria, Georgia, Romania, Russian Federation, Turkey, Ukraine, the European Commission, the FAO, the BSC Permanent Secretariat and the GFCM Secretariat. The List of Participants is appended under Appendix B.
2. The meeting was opened by Mr Halil Ibrahim Sur, Executive Director of the Black Sea Commission Permanent Secretariat, who greeted participants and emphasized the importance of cooperation between the BSC and the GFCM. In this respect, he underlined the importance of the joint workshop for the conservation of marine ecosystem of the Black Sea and the sustainable use of its resources.
3. Mr Abdellah Srour, Executive Secretary of the GFCM, echoed the views of Mr Sur. In his opinion the joint workshop was a historic event, whose legitimacy was demonstrated by the sheer participation of all Black Sea riparian States. Mr Srour recalled that the GFCM is the established Regional Fisheries Management Organization (RFMO) for the Black Sea and encouraged cooperative work among all Black Sea riparian States with a view of benefiting as much as possible from the existence of this institution as well as of that of other existing regional agreements.

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

4. Mr Bayram Öztürk, the workshop Moderator and GFCM consultant, indicated that concrete and concerted actions were necessary to come to grips with IUU fishing in the Black Sea. After participants introduced themselves, Mr Öztürk invited them to work together during the meeting in order to define relevant elements for a roadmap to fight IUU fishing to be elaborated further within the remit of the GFCM, together with the

BSC and other interested partners. He subsequently tabled the agenda of the joint workshop which was adopted without amendments by participants. The agenda is appended under Appendix A.

GENERAL OVERVIEW ON ILLEGAL, UNREPORTED AND UNREGULATED (IUU) FISHING IN THE BLACK SEA

5. The GFCM Secretariat, delivered a presentation on the recent initiatives launched within the GFCM, with particular reference to the GFCM Task Force and the GFCM Framework Programme. Participants were informed of upcoming activities envisaged by the GFCM, including those for the Black Sea. With regard to the Black Sea, Mr Simion Nicolaev, Chairman of the GFCM Working Group on the Black Sea and of the BSC FOMLR Advisory Group¹, recalled most salient undertakings within the remit of the GFCM Working Group on the Black Sea. He reported to participants achievements obtained thus far and then highlighted what the next steps will be, starting from the second meeting of the GFCM Working Group on the Black Sea scheduled to take place (Varna, Bulgaria, 25-27 April 2013).
6. The Moderator elaborated in a background document prepared for the workshop the outcomes of a questionnaire he carried out to appraise the nature and the extent of IUU fishing in the Black Sea. On the basis of replies received to the questionnaire (appended under Appendix C), after cursorily reviewing the history of cooperation in the Black Sea and current main issues for its fisheries, he advocated zero tolerance for IUU fishing and proposed a number of possible elements for the roadmap. Among others, he prompted Black Sea riparian States to agree on a work plan to fight IUU fishing to be carried out within the remit of the GFCM Working Group on the Black Sea. The paper by the Moderator is appended under Appendix D.
7. In the ensuing discussions clarification was sought as to the status of the 1959 Varna Convention. It was explained that the mixed commission envisaged by this convention was not operating although this convention was never formally denounced by States Parties to it. In fact, despite some meetings of experts were held in the second decade of the 90s to replace this convention with a new instrument, no concrete follow up was ever agreed upon.
8. With regard to fishing gears, the adoption of technical measures was proposed, especially for gillnets. Also, standardization and marking of fishing gear was recommended. In this regard, and with reference to the first meeting of the GFCM Black Sea Working Group (Constanta, Romania, 16-18 January 2012), it was recalled the proposal that the GFCM Secretariat be entrusted with the compilation of a catalogue of fishing gears used in the Black Sea and operate as a repository for information concerning fishing gears and vessel types used in the region.
9. Another issue which was discussed was that of the coast guard and the role of inspections schemes in other RFMOs such as ICCAT. Participants recognized that not only there would be a need for joint training on inspections and Monitoring, Control and

¹ Black Sea Commission's Advisory Group on the Environmental Aspects of the Management of Fisheries and other Marine Living Resources.

Surveillance (MCS) in the region, but education programmes for fishermen and the civil society would be needed as well to raise awareness. In this connection, it was noticed that some of the fishermen would stand ready to accept observers on board of their vessels. A fishery observer programme could be advised by governments as a medium to fight IUU.

10. The GFCM Secretariat delivered an additional presentation to get participants acquainted with the engagement of the GFCM in the fight against IUU fishing. A brief overview of past actions initiated by the GFCM was given before identifying future activities that the GFCM intends to carry out, including as a follow up to the joint workshop.
11. Mr Thomas Moth-Poulsen, from FAO REU, expounded that justified information on violations related to IUU fishing in the Black Sea varies considerably among Black Sea countries and in some areas no official reports exist, despite the amount of IUU caught fish is considerable. In the absence of such reliable information, he expressed the opinion that it would be important to consult with the fishing industry to obtain best available information which can later be investigated through research or control programs. Following this very approach, indications he collected from the industry would point *inter alia* to a possible IUU fishing in Abkhazian waters of an unrecognized economical magnitude that might seriously threaten the sustainable utilization of anchovy stocks. In his view, this could create unfair competition to the legal fishery for anchovy in the area.
12. During the debate it was clarified that substantial work on IUU fishing in Turkey has been carried out within the remit of the BlackSeaFish Project. The complexity of the issue would require to put forth strategies to fight IUU fishing in relation to each and every single species targeted by fishermen in the country.
13. As for the increasing recourse to violence, the concept of transnational organized crime was recalled and reference was made to a recent report prepared by Interpol on IUU fishing. To halt an escalation of the problem enhanced cooperation and transparency were considered of paramount importance. Disappointment was expressed on the sources of information which are often used to talk about IUU fishing in the Black Sea though. The encouragement was conveyed that all information should as much as possible have a scientific base instead of coming from the press.
14. Further to this, Mr Mehmet Çakmak, from the Ministry of Food, Agriculture and Livestock of Turkey, underscored that most press bulletins and news on IUU fishing activities in Turkey lack such scientific base and should not be taken into serious consideration. In fact, to combat with IUU fishing activities within the national coastal areas of Turkey effective measures and sanctions have been put forth through national laws, including special regulations for species such as anchovy, turbot, baby clam etc. (e.g., minimum catch size, fishing season, permitted fishing areas and mesh size). For commercial fishing in particular, prohibitions, restrictions and obligations to be implemented for sustainability purposes are in place. He also stressed that 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, it is foreseen that fishing licenses of 407 vessels over 12 meters will be revoked and vessels concerned will be removed from the national fleet in 2013. MCS activities are in place (VMS since 2008 under the rules of ICCAT and, for fishing vessels over 15 meters, AIS is mandatory) and authorized landing ports have been defined. Mr Çakmak indicated that during inspections carried out in 2012, 7,287 violations were detected, 823 tons of product were seized,

- 4,440,862 Euros of fines were charged. Also, fishing license of 134 vessels was revoked.
15. Mr Nicolaev delivered a presentation on IUU fishing of foreign vessels in Romanian waters. At the outset, he stated that over a ten years period six cases of IUU fishing of foreign vessels in the Romanian EEZ were investigated and brought to the attention of relevant authorities. These cases implicated 12 Turkish fishing vessels overall, 3 Bulgarian fishing vessels and 1 Turkish vessel operating under a Romanian flag. The charges pressed against these vessels included the performance of fishing activities without an authorization, the use of banned fishing gear and the disregard of closed fishing seasons. Mr Nicolaev evoked that the impacts of these illegal activities were deemed extremely severe by Romanian authorities as the targeted species (e.g. turbot, rays, etc.) had a high economic value and the quantity seized amounted to thousands of kilos per fishing vessel. Also, a high number of dolphins were entangled in the nets and abandoned gears continued to cause damages to the marine ecosystems and living resources therein. In concluding, Mr Nicolaev mentioned the fact that all data retrieved from the investigations of this IUU fishing activities have been submitted and stored to the national database.
 16. Following the presentation the existence of accurate data on nets, catch, operative modalities, etc., which was collected by Romanian authorities in the aftermath of the six cases presented, was praised. It was considered desirable that similar experiences be reproduced elsewhere in order to help Black Sea riparian States to have a clearer picture of IUU fishing. To this end, it was suggested that the scope of data collected through inspections be enlarged.
 17. Consensus emerged on the need to bring about mitigation measures of by-catch in the Black Sea where cetaceans are particularly vulnerable to the operations of IUU fishermen. This would be perfectly in line with recently adopted recommendation GFCM/36/2012/2 "On mitigation of incidental catches of cetaceans in the GFCM Area". In light of the provision under paragraph 6 of this recommendation, stipulating that SAC shall report back to the GFCM in 2015 on the issue, *ad hoc* interventions for the Black Sea could be foreseen.
 18. Mr Stoyan Urumov, from the National Administration for Fisheries and Aquaculture of Bulgaria, presented the main features of the Bulgarian fishing fleet which amounted to a total of 2336 fishing vessels in 2011, 95% of which being shorter than 12 meters. He specified that these vessels operated only in the Black Sea. The amendment of national legislation on fisheries is currently ongoing and it is expected that the amount of sanctions for infractions by fishing vessels, their owners and captains will be increased. In addition, fishing effort is being reduced through the scrapping of fishing vessels and the conversion of vessels into activities other than fishing, such as of tourism and creation of artificial reefs. With regard to the monitoring of vessels, two information systems and operative levels, namely Information Statistical system (ISS) and VMS, are being implemented. Mr Urumov noticed that under the umbrella of NAFA activities such as fisheries control, granting of fisheries licenses, verification and validation of catch certificates, designation of ports, etc., are currently carried out. Other national agencies oversee different types of controls (e.g. veterinary controls). In terms of protection of the marine environment, the importance of the EU established Natura 2000 sites was underlined.

19. Subsequently, it was recalled that Bulgaria and Romania have been working together on implementing a protocol on controls and surveys under relevant EU regulations. The Bulgarian experience with VMS could prove positive for Romania as this MCS tool contributed a lot to fight IUU fishing in Bulgaria. It was specified that trainings of Bulgarian and Romanian inspectors are carried out in Vigo at the European Fisheries Control Agency but this activity could be extended to other countries, including Black Sea riparian States, including on the basis of best practices existing at international level. The possibilities of expanding the use of VMS to all Black Sea riparian States were also encouraged. Although doubts were raised as for the tampering of VMS, it was recalled that under recommendation GFCM/33/2009/7 “Concerning minimum standards for the establishment of VMS in the GFCM Area” similar problems have already been addressed.
20. Mr Gheorghe Radu, from the National Institute for Marine Research and Development “Grigore Antipa” of Romania (NIMRD), pointed out that through IUU fishing activities the pursuance of maximum yield from marine ecosystems through fishing could be jeopardized. In Romania, data on IUU fishing have been recorded since 2006 although NIMRD has stored data on by-catch from 2002. Presently a network exists, including the Border Police, Environmental Protection Inspectorate of Constanta, and the Department for Fishing and Aquaculture from Ministry of Agriculture, to collect targeted data on IUU fishing. The main target species of IUU fishing are turbot (90%) and dogfish (5-10%). For both, closed seasons have been enacted to safeguard their conservation. Mr Radu concluded by indicating that the percentages of gear types used for IUU fishing is for 95% of the total gillnets and for the 5% reaming trawls and that the estimated revenues from the marketing of IUU products could amount to approximately 250,000 Euros per year in Romania.
21. Questions were posed as to whether or not prohibiting the use of monofilaments in the Black Sea would be a good conservation measure. It was indicated that as far as Black Sea riparian States are concerned this net could be too efficient in catching fish. Also, because this net does not cost much, multi monofilaments have been manufactured by fishermen in the past and this has created additional problems for the conservation of fisheries. Although future considerations to monofilaments and the selectivity of fishing gear were recommended, the opinion was expressed that conservation effort in the Black Sea could be nullified by the use of monofilaments.
22. Ms Esra Fatma Denizci Toslak, from the Ministry of Food, Agriculture and Livestock of Turkey, reminded participants that Turkey’s maritime jurisdiction represents 42% of all maritime jurisdiction areas of the Black Sea and that Turkey’s fisheries sector is highly concentrated in the Black Sea (almost 80% of Turkish fisheries revenues are generated in this basin). Under the responsibility of the Ministry of Food, Agriculture and Livestock management, organization, protection, development and technical support of the fishery and aquaculture sector is provided. She then referred to national Fisheries Law no. 1380, which is the framework for fisheries and aquaculture related activities. As explained, the law *inter alia* disciplines regulations and notifications procedures.
23. In the ensuing discussions it was pointed out that anchovy is the most targeted species by the Turkish fleet (in 2011, the share of anchovy was 55% for the whole commercial fishing in the Black Sea), followed by sprat (23% of the total in 2011), baby clam (8%) and horse mackerel (5%). The responsible bodies for inspections are the Ministry of

Food, Agriculture and Livestock, Coast Guard Command, Maritime Police and Gendarmerie. The fleet restructuring is ongoing at present and in 2013 almost 500 vessels are expected to be scrapped, some 150 operating in the Black Sea. Despite the predominance of Turkish vessels operating in the Black Sea, it was expounded that there is no restriction for a vessel, once a fishing license has been issued, to engage in fishing the Mediterranean Sea. The only existing restriction is to comply with all regulations in place. A new fisheries law will be enacted shortly by Turkey.

24. Mr Ertug Duzgunes, from Karadeniz Technical University, Faculty of Marine Sciences in Trabzon, Turkey, acknowledged that many progresses at legal, administrative and technical levels have been done by the Ministry of Food, Agriculture and Livestock of Turkey in the fight of IUU fishing in recent years. However, in his presentation he expressed the view that IUU fishing still represents a serious problem for the sustainability of Turkish fisheries. He supported his view with the results of recent surveys on rates of by-catch and encouraged the undertaking of surveys on the use of more selective gears. To his knowledge, there are unregulated fisheries in sprat, garfish, gobies, picarel, shad and bogue in Turkey, whose total production exceeds 90 thousand tons per year. More precise figures would require the coverage of main fish markets in data collection in order to address landings of unreported catch. In addition, MCS should be strengthened as controls are seldom performed on several landing sites and main local fish markets, according to Mr Duzgunes. He recalled that main measures for control purposes are size limitations but there is presently no regulation for mesh sizes for most species, especially in artisanal fisheries.
25. Among other matters that drew the attention of participants following the presentation, there were the need for funds for fishermen to change their gears with more selective ones, MCS and traceability policies and stakeholders participation in fisheries management. Unreported fishing was identified as a particularly complex problem that would call for additional inspections as well as comparison of the outcomes of inspections to understand when fishermen are lying on the catch that they report. It was advocated that in any future management plans the obligation to inspect at least 20% of the landing is necessary to counter unreported fishing.
26. Mr Ali Cemal Gucu, from Middle East Technical University, revealed that Turkey has the largest purse seine fleet operating in the Black Sea and obtains the largest share of catch in the total landing of anchovy. This fleet is managed through national fisheries regulation and infrastructure to facilitate better MCS, which includes coast guarding facilities and port offices, is currently being developed. As a result of this, Mr Gucu maintained that statistics have shown already a clear increase in the number of court cases concerning violations of regulations, particularly those on contravening minimum size. The increased control at sea and in the ports led fishermen to apply in turn means such as fish graders to discard undersized fish at sea. In the view of Mr Gucu, the control on the minimum size of the landings could hence have a positive effect on IUU fishing, with special reference to the increased quantity of unreported anchovy fishing. In the estimate on discarded anchovy rate he presented, based on comparison of the size distribution of anchovy landed at the fishing port and those sampled at sea, pointed out that the ratio might be as high as 41% by weight and 74% by number in the 2012-2013 fishing season. In finishing his presentation, Mr Gucu deemed evident that any attempt to assess the state of the anchovy stocks disregarding such a high discard rate could possibly reach erroneous conclusions.

27. It was acknowledged that the situation of anchovy in the Black Sea, like that of turbot, requires specific attention due to the severe impacts that IUU fishing has on this fish stock. Because the main bulk of anchovy arrives in the first part of the fishing season (e.g. October), a tangible measure to be foreseen could be that of closing fishing operations for the second part of this season. Furthermore, support was expressed to disseminate the results of stock assessment of anchovies in the Black Sea, including by bringing the result of this assessment to the attention of the GFCM Sub-Committee on Stock Assessments.
28. Mr Mustafa Zengin, from Central Fisheries Research Institute of Turkey, delivered a presentation on unreported landing concerning to a work done within the remit of the "The Sea Around Us Project". After a presentation of the project, he reported on a global catch reconstruction project and provided a best possible estimate of total fisheries removals. Mr Zengin noted that fishermen would tend to unreport their catch of roughly 40% of the total. Other issues such as discards and bottom trawling were also examined. He concluded by indicating that total reported landings from 1950-2010 were 13 million tons and estimated at around 5 million tons the rough unreported catch for Turkey in the Black Sea. Some of the participants objected the findings of Mr. Zengin's paper due to alleged overestimation of the unreported catch presented, the application of an unreliable methodology and the broad assumptions that followed.
29. Further exchange of views on the severity of unreported fishing in the Black Sea took place. However, perplexities were expressed as to existing methodologies used to estimate the total amount of unreported catch by fishermen. Hence, it was advised to consider the elaboration of more accurate methodologies. Moreover, there was widespread concern over the practice of discards; it was urged to encompass discards in any future endeavor concerning IUU fishing in the Black Sea.
30. Ms Karina Vyshniakova, from YugNIRO of Ukraine, illustrated to participants the national data relating to fisheries. 40 fish and other marine species or subspecies are currently being caught in Ukraine, mainly sprat, Azov Sea anchovy and Black Sea anchovy. In 2012 their total catch was 38,2 thousand tons, equivalent to 94% of the annual total catch of the country. Ms Vyshniakova reported that the active fishing fleet of Ukraine consists of approximately 610 vessels, most of which are multi-purpose vessels less than 18 meters long employing passive fishing gear. Vessels over 18 meters are trawler-purse seiners and trawlers and account for over 90% of the official catch of the country. She also underlined that no regular research on IUU fishing is being conducted in Ukraine. However, she was able to present some stock assessments of catch which have not been published in the official statistics, including sturgeons, turbot and shad. In concluding, she stated that by studying IUU fishing it would be likely possible to make amendments to the national Ukrainian Plan of Action to prevent, deter and eliminate IUU fishing and facilitate its adoption.
31. In the ensuing discussion it was acknowledged that the information presented to the studies conducted are closer to the reality of the fisheries, compared to official information, as they account for unreported catch. Similar exercises should be duplicated everywhere, but with a focus on main species, such as turbot, sprat and anchovy. Without unreported catch taken into account any stock assessment would be prejudiced. However, it was pointed out that best estimation are currently being used in the GFCM to perform stock assessment but this can be integrated with information on unreported fishing. In order to develop a standard methodology to better evaluate unreported catches in the

Black Sea, it was recommended that the GFCM data collection meeting to be held under the umbrella of the GFCM Framework Programme in April (Varna, Bulgaria, 22-24 April 2013) should represent an opportunity to take this matter into account.

32. The need to identify a priority species list, both demersal and small pelagics, targeted by IUU fishing emerged. Existing priority species lists, including those adopted by BSC and GFCM, could be used as reference point accordingly. In any case, the identification of selected species in connection with IUU fishing would be without prejudice to any existing list and would have only practical implications. In view of the elaboration of the roadmap, participants agreed that the following seven species should be the main targets of future joint actions: anchovy, horse mackerel, sprat, sturgeon, spiny dogfish, turbot and whiting.
33. Mr Alexander Okhanov, from the Russian Federation, gave a brief presentation on the status of IUU fishing in the Black Sea, focusing on the measures taken by Russian Federation at both national and international level to fight against IUU fishing, the national legal framework for the management and control of fisheries and relevant provisions of the domestic MCS. He noted that Russian vessels operating in the Black Sea are mainly small-scale vessels. More precisely, in 2012 33 vessels engaged in fishing activities, including 13 more than 24 meters long, 5 more of a 12-24 meters length and 15 less than 12 meters long. Catch of Russian Federation in the Black Sea in 2012 reached 10.3 thousand tons, including 6,470 tons of anchovy and 3,820 tons of sprat. Mr Okhanov also indicated that fishermen mainly use mid-water trawls and purse seines. Then, while noting the importance of fisheries in the Black Sea for Russian Federation, he said that IUU fishing occurs by default rather than by design and has a random trait. Nonetheless, he recounted about the preparation for the Federal Program for the development of the national fishing industry up to 2020, which contains a section on the development of fisheries in the Black Sea and the consequential possibility of governmental support to the fishery sector concerned.
34. In the discussions it was asked what is the strategy and policy of Russian Federation in the Black Sea for the future, in light of the fact that Russian scientists are recognized to be leading figures in stock assessment and they could hence contribute significantly to improve management of Black Sea fisheries. It was explained that under the existing national plans interventions on fisheries in the Black Sea and Azov Sea are envisaged. However, because this will require an increase of commitments in science, management, processing, controls, etc., the development of these plans will take time. Nonetheless, an increase of the fishing effort in the Black Sea could be envisaged.
35. Mr George Amashukeli, from the Natural Resources Agency of Georgia, illustrated the role of this agency in the country. Among others, the following problems are currently dealt with in its remit: the depletion of marine living resources due to IUU fishing, the existence of markets with illegally obtained marine living resources and the lack of the sufficient equipment and staff, including in the appropriate national bodies. In the view of Mr Amashukeli, IUU fishing might represent a source of profit for part of the fishery sector at the price of a significant damage caused to Black Sea marine ecosystems. Addressing it will require strict implementation of rules and requirements imposed by fisheries management in Georgian waters (e.g. fishing seasons, nets size, minimum length size, etc).

36. Clarifications were sought as to the role of various national departments involved in Georgia in the Black Sea, such as the Black Sea Division. It was explained that this division tries to oversee the control of the fleet but gaps exist, such as the regulation of markets. It was consequently proposed that the roadmap encompasses a common strategy for the Black Sea, including on exchange of data and controls. In addition, harmonization would be needed. For instance, the minimum size for anchovy in Georgia (total length) is currently 7 centimeters. Caution was expressed for this size as it could be too short. In this regard, it was proposed that minimum length sizes of the priority species identified by participants are the same throughout the Black Sea. With regard to turbot, reference was made to the a draft GFCM recommendation “On the establishment of a set of minimum standards for bottom-set gillnet fisheries for turbot and conservation of cetaceans in the Black Sea” tabled at the 36th Session of the Commission (Marrakech, Morocco, 14-19 May 2012) which provides that turbot to be landed shall have a minimum size of 45 cm (total length). This draft recommendation is reproduced under Appendix F.

ASSESSMENT OF MONITORING, CONTROL AND SURVEILLANCE (MCS) TOOLS IN RELATION TO THE FISHING FLEET

37. The GFCM Secretariat delivered a presentation on the work done thus far by GFCM on MCS. Attention was drawn of participants to recommendation GFCM/33/2009/7 on VMS, which after a progressive implementation phase has become mandatory for all GFCM Members. It was also explained that, in response to technical assistance requests by some GFCM Members to ensure the control of artisanal fisheries, devices alternatives to VMS are being tested thanks to the GFCM. Reference was made in particular to two case studies for Egypt and Lebanon presently ongoing.
38. Ms Valeria Abaza, from the BSC Permanent Secretariat, recalled the problems linked to overfishing in the Black Sea. She acknowledged that although in the Black Sea region there is no adopted legally binding document on all six riparian States concerning fisheries, a legal framework is nonetheless available that would allow to take joint actions on protecting the marine living resources and to use them in a sustainable manner. Ms Abaza referred in particular to the Black Sea Biodiversity and Landscape Conservation Protocol (adopted in 2002 and entered into force in 2011) and to the Black Sea Strategic Action Plan of 2009. Countries reports submitted to the BSC, although not very accurate, have so far pointed to declining trends both in fish stocks and in fishing fleet. Small-size vessels (less than 12 m) are predominant in the fleet operating the region. However, improvements in the quantity and quality of reports submitted to the BSC would significantly help this organization to provide a clearer snapshot on fishery issues, as indicated by Ms Abaza. This will entail a strengthening of the cooperation among all the six Black Sea riparian States.
39. It was indicated that Black Sea riparian States have to submit data on their vessels to the BSC and the GFCM through national reports. With regard to the latter organization, it was pointed out that according to recommendation GFCM/33/2009/8 “On the establishment of a list of vessels presumed to have carried out IUU fishing in the GFCM area repealing recommendation GFCM/30/2006/4”, both GFCM Members and Cooperating non-Contracting Parties are bound to submit every year information on any vessels flying the flag of a Member, and vessels flying the flag of a Cooperating non-Contracting Party presumed to be carrying out IUU fishing activities, accompanied by

evidence. Participants agreed that an inventory of rules relating to submission of data in Black Sea riparian States will have to be performed in order to harmonize the legal framework.

40. Mr. Xavier Vázquez Alvarez, from DG MARE of the European Commission, delivered a presentation on the EU activities to prevent IUU fishing in the Black Sea. His intervention was focused on three main topics: a) the integrated control policy in the EU and its three pillars (e.g. the control regulation, the IUU regulation and the fishing authorization regulation); b) the national control programmes for turbot fishery, agreed with Romania and Bulgaria, specifying the main components in terms of MCS and its expected results and c) a brief presentation of the scope, main elements and expected results of the IUU regulation.
41. Questions were asked on the EU policy concerning discards and it was acknowledged that it might be impossible to indeed eliminate discards. However, States should commit to progressively reduce discards as much as possible by increasing selectivity and adopting management measures aiming to avoid undesirable catches. This approach has been also adopted by the GFCM which aims at progressively reducing discards of pelagic stocks.
42. In connection with the use of VMS, the importance to encompass somehow small scale vessels was emphasized. The GFCM, as illustrated in the presentation delivered the Secretariat, has already begun to test alternative tools to VMS in Egypt and Lebanon, acting on the requests of these States which are keen to control their artisanal fleet. It was suggested that the potential use of GPS through mobile phones could also be tested. Feasibility case studies in the Black Sea region should be undertaken.
43. Mr Radu, signified in a presentation that in 2011 the number of active vessels of 24-40m was 2, one of them being a trawler and the other vessel a gillnetter. From a total number of 488 vessels, only 200 were active. He then clarified that in order to monitor the commercial fishing boats and vessels the track records on length categories exist. Boats shorter than 12 m are recorded in the Coastal Fishing Logbook, while those equal to or longer than 12 m are recorded in the Black Sea Fishing Logbook and must be equipped with VMS. Also, all vessels licensed for commercial fishing in the Black Sea must be assigned to a Landing Point and First Sale Center/Point with whom they have signed relevant contracts to trade the fish caught. Mr Radu presented data for 2010 and 2011 on the joint inspection and control plan being developed by Romania and Bulgaria, targeting fishery activities in both EEZs. Among others in 2011, 592 commercial fishing gears were confiscated and a quantity of fish over 795 kilograms was seized. He informed participants that 5 criminal proceedings were initiated.
44. With regard to the joint Bulgarian and Romanian inspection scheme it was elucidated that it enables to carry out inspections by nationals of one country on fishing vessels of the other in EU waters.
45. Mr Haydar Fersey, from FAO SEC, made a presentation on MCS in fisheries, focusing on fisheries management issues. He underlined that MCS is a key component of any effective fisheries management system. To this end, he provided several examples of international fisheries instruments that address the importance of MCS. The development and implementation of appropriate MCS tools as well as the importance of enforcement

and compliance mechanisms to combat IUU fishing, including with the support of users of resources and key stakeholders, were also highlighted.

OPEN DISCUSSIONS ON CONCERTED ACTIONS TO FIGHT IUU FISHING IN THE BLACK SEA, INCLUDING MCS

46. Participants agreed on the need to urgently address the problems posed by IUU fishing in the Black Sea. Having considered the varying and multifaceted nature of IUU fishing, it was proposed by the EU representative that six sets of actions are identified. Subsequent to open discussions, the following aspects were identified: (i) political and institutional aspects, (ii) legal aspects, (iii) scientific aspects, (iv) technical aspects, (v) socio-economic and education aspects and (vi) MCS related aspects. It was specified, in light of the nature of the joint workshop, that the categories from (ii) to (vi) would enable to pinpoint several activities whereas the first category was deemed to fall outside the scope of the joint workshop.
47. The activities linked to the identified aspects were proposed to be included in a table with the roadmap to fight IUU fishing in the Black Sea. It was recommended that, in order to benefit from those international agreements that are already in place, this roadmap be submitted in the short term to the attention of the second meeting of the GFCM Working Group on the Black Sea, which is opened to all States Members of the FAO. This group will then take appropriate decisions in view of the transmission of this document to the 37th Session of the Commission (Split, Croatia, 13-17 May 2013). Similarly, the roadmap will be presented to relevant meetings of the BSC and its subsidiary bodies as well as to any other initiative that could have an interest in considering it. In this connection, participants suggested that a presentation of relevant regional projects in the Black Sea is made to the second meeting of the GFCM Working Group on the Black Sea and, where appropriate, that the people involved in these projects participate in this meeting.
48. As it was noted that at present 3 out of 6 Black Sea riparian States are GFCM Members, it was indicated that in the medium and long terms it would be useful to set up a mechanism to assist the 3 non Members to transpose relevant provisions within the GFCM body of law into their national legislation to coordinate the fight against IUU fishing at regional level. For ease of reference, a list of relevant GFCM and BSC decisions and documents is reproduced under Appendix E.
49. With regard to the expected thrust of the FAO BlackSeaFish project, Mr Srour recalled the origin of this project which was launched following the presentation by GFCM of a detailed working document to strengthen cooperation in the Black Sea presented to the 33rd Session of the Commission (Tunis, Tunisia, 23-27 March 2009), the Government of Turkey manifested its interest in supporting the preparation of a feasibility phase of this project to contribute enhancing the capabilities of Black Sea countries for responsibly managing their fisheries in the Black Sea and approached the GFCM Secretariat to develop a proposal for this purpose. The GFCM Secretariat responded favorably to this request and a preliminary working document was subsequently elaborated. Based on this document, the GFCM Secretariat asked the FAO Fisheries and Aquaculture Department to develop a full project document proposal which was then finalized. A proposal was sent to the Government of Turkey and approved by relevant national authorities in February 2009.

50. Mr Srouf underlined that the BlackSeaFish project aimed at strengthening technical and scientific cooperation among all the six Black Sea riparian States consistent with other FAO Regional Projects operating in the Mediterranean Sea in support to the GFCM (i.e. CopeMed, EastMed, AdriaMed and MedSudMed).

PROPOSAL FOR A ROADMAP TO FIGHT IUU FISHING THE BLACK SEA

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

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE BLACK SEA	OBJECTIVES/METHODOLOGY
<i>Political and Institutional Aspects</i>	<u>Political will of the six Black Sea riparian States will be needed at one point to tackle IUU fishing</u>	To address IUU fishing in any future relevant document to be discussed and agreed upon by the six Black Sea riparian States
	<u>Strengthen mechanisms to facilitate cooperation and coordination among Black Sea riparian States, including through existing international and regional agreements, and encourage governments to integrate their body of law (also see Appendix E) to harmonize fisheries regulations and laws</u>	Efforts to fight IUU fishing in the Black Sea should depart from the implementation of existing measures. Black Sea riparian States should more promptly cooperate with existing international and regional agreements
<i>Legal Aspects</i>	<u>Develop a regional plan of action to fight IUU fishing and related activities in the Black Sea</u>	The lack of common rules shared by Black Sea riparian States, coupled with the joint dimension of the problems posed by IUU fishing, calls for the elaboration of a regional plan of action to fight IUU fishing tailored for the Black Sea. This could be done on the basis of the FAO IPOA-IUU/other relevant instruments
	<u>Elaborate a regional strategy to regulate small scale fisheries in the Black Sea</u>	Small scale fisheries account for important share of the fish caught in the GFCM Area. They have a huge value, also cultural, and have often been overlooked by policy making, including in the Black Sea. Black Sea riparian States are invited to actively participate in the first GFCM Workshop on Sustainable Artisanal Fisheries (Malta, October 2013) and report there on salient aspects of this sector. Also, they are invited to attend the FAO Technical Consultations to be held in May 2013 (Rome)

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE BLACK SEA	OBJECTIVES/METHODOLOGY
<i>Scientific Aspects</i>	<u>Develop and agree on standard methodologies to evaluate illegal, unreported and unregulated catches in support of stock assessments</u>	Species to be considered are anchovy, horse mackerel, sprat, sturgeon, spiny dogfish, turbot and whiting. A collection of existing studies would be necessary as a basis for the work
	<u>Inventory of data collection frameworks existing at national level</u>	Because data collection is limited in scope and national systems in the Black Sea region lack harmonization, existing gaps and needs should be appraised. The inventory should be carried out within the remit of those GFCM Framework Programme actions relating to data collection (Varna, Bulgaria, April 2013)
	<u>Provide technical assistance to strengthen capacity in the domain of data collection/processing/analysis/sharing</u>	Consider the possibility of endowing the BSC and the GFCM with efficient and reliant data submission systems through technical support to Black Sea riparian States
	<u>Strengthen national statistical systems of Black Sea riparian States, including through the elaboration of common formats for reporting of data and establishing regional common database</u>	<i>Ad hoc</i> measures should be identified (e.g. separate landings of sprat from those of anchovies) and referred to the ongoing actions relating to data collection within the remit of the GFCM Framework Programme. Focal points of Black Sea riparian States should work together, including by sharing software employed by their fishing vessels, and use as reference point existing statistical frameworks
	<u>Promote scientific research in the Black Sea through FAO Regional Projects (e.g. BlackSeaFish), the GFCM Framework Programme and any other relevant project</u>	Existing initiatives should be pursued in order to build up regional undertakings in the scientific domain

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE BLACK SEA	OBJECTIVES/METHODOLOGY
<i>Technical Aspects</i>	<u>Elaborate a catalogues of fishing gears and vessel types used in the Black Sea</u>	Available information should be collected by Black Sea riparian States and the GFCM could be the repository of this information
	<u>Scientific studies on selectivity should be collected. On the basis of gaps identified in the studies, further papers should be drafted</u>	Particular attention should be given in studies to the implications for reducing by catch, particularly of cetaceans, and discards. The positive and negative implications of monofilaments should be considered
	<u>MPAs have to be properly managed according to existing rules in place in the Black Sea. Further studies should be carried out to assist States in establishing MPAs in the Black Sea</u>	A network of MPAs in the Black Sea should be established and Black Sea riparian States should consider the creation of Fishing Restricted Areas through GFCM, where necessary
	<u>Study the mitigation of the impacts of IUU fishing on cetaceans</u>	In view of mitigating the impacts of IUU fishing on cetaceans, a project should be launched under the auspices of ACCOBAMS, BSC and the GFCM
	<u>Standardization of the following instruments of management in the Black Sea would be required: fishing seasons, fishing areas, minimum length size of priorities species, registering and marking of fishing gears, technical specifications for mesh size, mitigation of by-catch and banning or progressive reduction of discards</u>	Under the guidance of the GFCM Working Group on the Black Sea, Black Sea riparian States should elaborate recommendations on the basis of relevant technical elements for the States to adopt. Other potential fora should be also considered
	<u>Perform joint stock assessments of priority species</u>	Black Sea riparian States, including through the FAO and UNEP, should seek funding opportunities to support research in the Black Sea. The results of stock assessments performed for priority species should be brought to the GFCM Working Group on Stock Assessment, the GFCM Sub Committee on Stock Assessment and the BSC

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE BLACK SEA	OBJECTIVES/METHODOLOGY
	<u>Carry out joint surveys at sea (demersal and small pelagic species)</u>	Launch common initiatives, including through the FAO/GFCM framework, for the direct evaluation of the status of the priority species
<i>Socio-economic and Education Aspects</i>	<u>Awareness campaigns for the protection of Black Sea fisheries against IUU fishing should be launched</u>	A network of relevant actors in the Black Sea should be established to raise awareness. The establishment of a network of experts through the BSC and the GFCM could be instrumental to this action
	<u>Facilitate the development and involvement of NGOs, professional associations and the civil society in the management of Black Sea fisheries</u>	The current lack of participation of NGOs should be considered by Black Sea riparian States and their contribution to the conservation of the Black Sea ecosystems and the sustainable use of their living resources could benefit from their involvement
	<u>Invite the public opinion not to criminalize the fishery sector as a whole because of some IUU practices</u>	The alarming recourse to violence in relation to IUU fishing activities in the Black Sea has to be duly addressed. Black Sea riparian States should endeavor to promote the positive role of fisheries
	<u>Promote sustainable aquaculture activities</u>	Opportunities for the development of aquaculture in the Black Sea should be sought. The GFCM, through its CAQ, and EIFAC, could cooperate to assist Black Sea riparian States
<i>MCS related Aspects</i>	<u>Improve market control and traceability mechanisms and take measures to minimize the trade of 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, departing from the IPOA IUU of the FAO

ASPECTS TO BE ADDRESSED	PROPOSED ACTIONS TO FIGHT IUU FISHING IN THE BLACK SEA	OBJECTIVES/METHODOLOGY
	<u>Joint adaptive inspection schemes and national observer programmes have to be envisaged</u>	Coordination among controlling organs operating at regional level (e.g. coast guard, border guards and financial police) would have to be pursued, including through the existing regional network of coast guards in the Black Sea
	<u>Carry out joint training of fisheries inspectors and other enforcement authorities</u>	Common training based on best practices on controls in the six Black Sea riparian States should be organized. The GFCM could organize training sessions with the cooperation of the EU (European Commission and if so agreed, the European Fisheries Control Agency)
	<u>Reinforce MCS and develop cost effective options to that end</u>	Facilitate, through competent organizations, technical assistance and capacity building opportunities for the control of fishing fleets, including through VMS, in the Black Sea

ANY OTHER MATTER

52. Ms Oksana Tarasova, from the Committee of the Environmental Policy, Nature Use, and the Liquidation of the Consequences of the Chernobyl Catastrophe of Ukraine, invited the GFCM to contribute to the third assessment of the State of the Environment of the Black Sea (SoE) initiated by the BSC for then relevant chapter on fisheries and marine living resources.

CONCLUSIONS AND CLOSURE OF THE JOINT WORKSHOP

53. The workshop recommendations, including the proposal for a roadmap, were adopted on 27th February 2013. The final report of the meeting was endorsed by email.

Appendix A**Agenda**

- 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 Black Sea**
- 5. Assessment of Monitoring, Control and Surveillance (MCS) tools in relation to the fishing fleet**
- 6. Open discussions on concerted actions to fight IUU fishing in the Black Sea, including MCS**
- 7. Proposal for a roadmap to fight IUU fishing the Black Sea**
- 8. Any other matters**
- 9. Conclusions and closure of the workshop**

Appendix B

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Appendix C

Questionnaire for the Joint GFCM-BSC Workshop on Illegal, Unreported and Unregulated Fishing in the Black 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 Black Sea countries?
9. If there is an international agreement on IUU fishing in the Black Sea, what is your opinion about it?
10. Which is the structure of your national fishing fleet operating in the Black 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
11. Is there any national fleet management plans currently in place? If yes, kindly specify the main characteristics of the plan.
12. 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 Workshop Joint GFCM-BSC Workshop on Illegal,
Unreported and Unregulated Fishing in the Black Sea**

**NATURE AND EXTENT OF THE ILLEGAL, UNREPORTED AND UNREGUALTED
(IUU) FISHING IN THE BLACK SEA**

Prepared by
Bayram ÖZTÜRK
Moderator of the Joint Workshop and GFCM Consultant

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Countries

The word "countries" 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 threat for the sustainable fishing in the entire Black Sea. Due to IUU fishing, ghost fishing and by-catch, destruction of the benthic ecosystem has been witnessed. This issue has several socio-economic, environmental and legal ramifications. Most of the riparian countries are reluctant to report IUU fishing and to analyze it for several reasons. From 1992 to 2012, a total of 65 IUU fishing cases have been reported in the various Exclusive Economic Zones (EEZs) of the Black Sea. Among these cases, 5 fishermen lost their lives and 2 were wounded in the EEZs. This excessive use of force should be stopped for the sake of fishermen livelihood and peaceful settlement of disputes should be pursued when confrontations, altercations or arrests occur.

The main target fish in the Black Sea is turbot and stocks of turbot are decreasing. Consequently, regional stock assessment on a regular basis is requested. Enforcement of the existing fisheries regulations and laws is also necessary for all riparian countries to halt IUU

fishing. For this purpose, Monitoring, Control and Surveillance (MCS) system should be developed.

Asipenceriform species (sturgeons) are endangered species in the Black Sea and IUU fishing and overfishing are most likely the cause of the collapse of the stocks. Illegal clam and *rapana* dredging is also a threat for the benthic ecosystem.

Anchovy is the largest stock of small pelagic fish in the Black Sea and contribute for the major part of fisheries production in the region, especially for Turkey. Its unreported fishing should be seriously taken into consideration. Most of the countries do not have records of by-catch and ghost fishing in the Black Sea.

Because IUU fishing in the Black Sea shows a decreasing trend in recent years, concerted actions and international cooperation are essential. Zero tolerance should be the main driver in policy formulated against IUU fishing in the Black Sea. In addition, transparency and good governance need to be taken into account by riparian countries.

The General Fisheries Commission for the Mediterranean of the FAO (GFCM) is the regional fisheries management organization competent to manage fisheries in the Mediterranean, the Black Sea and connecting waters since its establishment (1949). Within its structure, it has a fully operational working group on the Black Sea. Among possible solutions to improve the fight against IUU fishing, there could be that of establishing a GFCM permanent working group for IUU fishing as a subsidiary body of the GFCM Compliance Committee (CoC).

In addition, both the GFCM Agreement and the Bucharest Convention should be promoted, in terms of participation and compliance to enable optimum utilization of the living resources. The possibility of creating a technical cooperation project for the Black Sea to be executed under the GFCM Framework Programme, together with partners such as the Black Sea Commission and ACCOBAMS, should be considered.

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INTRODUCTION

The scope of illegal, unreported and unregulated (IUU) fishing problems refers to 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. Unreported fishing means fishing which has not been reported, or has been misreported, to the national authority, in contravention of national laws and regulations. Unregulated fishing means 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).

IUU fishing has several negative impacts, such as unfair competition, loss of biodiversity, loss of income and even loss of human lives. Moreover, there are socio-economic, environmental and legal ramifications linked to such impacts. It is obvious that fish stocks have been depleted in many areas in the world oceans and seas due to various reasons, namely poaching, smuggling, overfishing and violation of the local, regional and international laws. As a result, it is expected that IUU fishing gets increasing attention in all fishing regions and sub-regions. FAO has made several studies and initiatives for combatting IUU fishing in all marine areas. GFCM too has studied the problem within the geographical remit of its area of competence.

Lower and upper estimates of the current total loss per year due to IUU fishing worldwide amount to roughly 9 billion USD and 24 billion USD, respectively, representing between 11 and 26 million tons of fish (Agnew et al., 2009). It is important to stress also that the estimated summary of costs of IUU fishing for three commercial groups (i.e. lost stock value, lost catch value and lost jobs) could equal to roughly 15% of the fishery value of the Black Sea and the Mediterranean Sea and amount to several thousands of Euros over the 2010-2020 decade (EFTEC, 2008).

IUU fishing is one of the root causes for the decline of fish stocks in the GFCM Area and it remains widespread in the Black Sea and the Mediterranean Sea. As the competent regional fisheries management organization, the GFCM adopted the “Declaration of the Ministerial Conference for the Sustainable Development of Fisheries in the Mediterranean” (Venice 25-26 November 2003), the “GFCM Control and Enforcement Scheme” (Appendix H to the report of the 29 Session of the GFCM - 2005), and several recommendations such as those on the establishment of the Compliance Committee, on criteria for obtaining the status of Cooperating non-contracting party, on the IUU list, on port State measures and on VMS.

It is worth mentioning that recently the INTERPOL has launched a project named Project Scale as a global initiative to detect, suppress and combat fisheries crimes which are estimated to cost the global economy up to 23 billion USD each year. As fisheries crimes threaten food security and livelihoods and can destabilize vulnerable coastal ecosystems, there could be scope under this project for collaboration with competent organizations at regional level.

As far as the Black Sea is concerned, the nature and extent of IUU fishing is not clearly known at present. It is, however, known that this kind of illegal activities are becoming common practices in recent years and a serious threat for the fish stocks and fishing communities in the region. This issue has already been discussed in several papers, such as Shlyakhov and Daskalov (2008), Düzgüneş and Erdoğan (2008), Raykov et al. (2011) in addition to those published by GFCM. It has been also reported that due to IUU fishing five fishermen were killed in 1997, 1998, 2000 and 2008 respectively (Öztürk, 2011). Besides,

some fishermen were wounded, some of them were arrested, their boats were detained and fines had to be paid.

Besides, the Black Sea is one of the fertile seas in terms of bio-resource due to high primary production. Fishing is one of the most important “métier” since ancient times and about half a million people depend on fisheries in the region. In recent years, due to various anthropogenic reasons, the most important commercial fish such as turbot, bluefin tuna, mackerel, swordfish and sturgeons stocks were decreasing. Anchovy is the single largest marine resource in the Black Sea and it is believed that the stocks of Black Sea anchovy are still being exploited above the level of sustainability (Barros, 2011). Ye and Cochrane (2011) reported that the Mediterranean and Black Sea (Area 37) had 50 % of the fish stocks overfished.

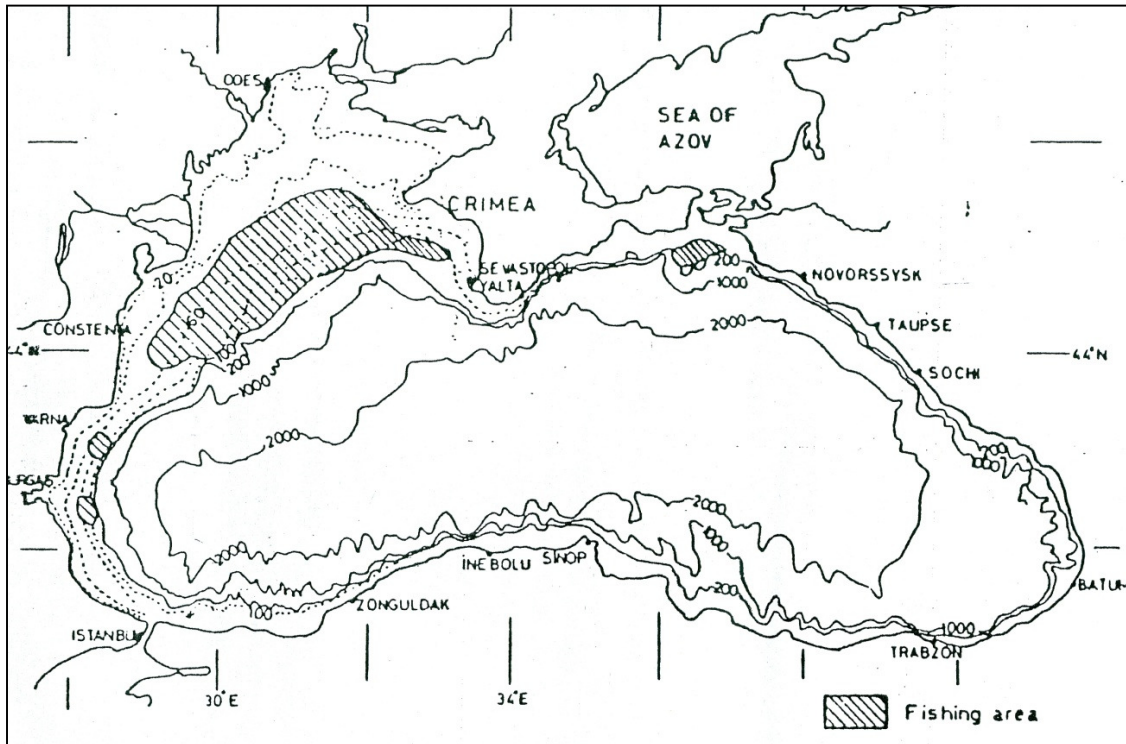
Fisheries management of the Black Sea suffers some harmonization problems due to the political and institutional context of the region. Nevertheless, due to the dubious nature of IUU fishing, there is no accurate data available for the yearly estimations in the Black Sea at the level of both market and catch. However, it is a common perception that turbot and sturgeon in the western part of the Black Sea and anchovy in the eastern part of the Black Sea are recurrently subjected to IUU fishing. Other commercial species have less market value and are hence less targeted.

In modern history, the fisheries in the Black underwent three critical periods. These started firstly with the Soviet revolution in 1917 and the foundation of the Turkish Republic in 1923, including the Cold War period up to 1991, later with the adoption and the implementation of the United Nations Convention on the Law of the Sea (UNCLOS) and, most recently, with the application of the Common Fishery Policy (CFP) with Total Allowable Catches (TACs) and quotas by EU members.

During the Cold War Period, the fishing regulation was very limited due to small size of the fishing boats and less fishing effort, and as a consequence there were more viable fish populations found in that period in the Black Sea. Except for Turkey, planned economy was applied in principle in the Soviet Union (which included Russian Federation, Ukraine and Georgia), Romania and Bulgaria. There was not much pressure on the fish stocks in the Black Sea then. An agreement was even signed in 1959 in Varna, which was not acceded by Turkey, to cooperate and regulate fishing activities between the so-called socialist States. During that period, several Turkish fishermen worked in the high seas of the Black Sea as they represented historical and traditional fishing grounds.

The second period was inaugurated when the former Soviet Union proclaimed its 200 nmiles Exclusive Economic Zone (EEZ). Turkish fishermen lost their traditional turbot fishing grounds in the Crimian Peninsula and Kerch Strait. EEZs enabled every nation to expand their jurisdictional waters up to 200 nmile off their Black Sea coasts. This EEZ concept was new to all countries and had to be expressly declared, unlike the continental shelf. The traditional fishing grounds have inevitably been under the exploitation of Russia, Ukraine, Romania and Bulgaria in turn (Acara, 1985). The increase of fishing power in the Turkish fleet in the late 1970's in terms of size of vessels and engine power gained momentum, particularly in relation to turbot in the Northern Black Sea. This situation changed however as a result of the

declaration of EEZ from the former Soviet Union (Özdemir, 1995). The process associated with EEZ delimitation dramatically affected the livelihoods of Turkish fishermen who were catching turbot. In 1985 the Turkish government and the Soviet fisheries authorities thus bilaterally discussed on the historical fishing grounds issue in the Black Sea but did not reach consensus for the turbot quota which the Turkish side requested. In 1987, the former Soviet Union and Turkey finally exchanged notes relating to an agreement for the delimitation of their EEZs in the Black Sea. This agreement reduced turbot fishing grounds in the entire Black Sea for Turkish fishermen (see Fig. 1).



Turkish turbot fishing areas between 1972 and 1983 (Acara, 1985)

According to Kara (2012), great economic value and increasing demand for turbot has recently encouraged Turkish fishermen to poach across the foreign Black Sea fishing zones and therefore unpleasant events have happened between such Turkish fishermen and the patrol boats of the relevant riparian countries as a consequence of turbot poaching.

The third period was from 2008 up to present. The CFP has applied to the Black Sea through Bulgaria and Romania. After this period, a quota system for sprat and turbot started for the first time. TACs also started to be implemented for EU Members. The rest of the Black Sea riparian States do not regulate their fisheries with TACs, on the other hand.

Appearance of IUU fishing started mostly after the 1980's and this period was still under the influence of the collapse of mainly pelagic fisheries in the Black Sea due to *Mnemiopsis* and other synergetic factors such as over-exploitation of the fish stocks, eutrophication, alien species and climatic fluctuations. Since this period, the illegal fishing started commonly in the Black Sea, mostly for turbot and sturgeon. Subsequently, in the beginning of the 2000's, Georgia demanded fishermen and fishing boats from Turkey and other riparian countries

interested to make bilateral agreements. Some companies were established throughout the region and some IUU fishing started. Riparian countries finally started to fight against IUU fishing in 2007 when a regional mechanism of cooperation, especially with coastguards, was put in place under the Black Sea Littoral States Border/Coast Guard Cooperation Forum (BSCF).

This background paper has been prepared based on the published papers, reports and records of Istanbul Fisheries cooperatives as well as the results of the survey with the questionnaires filled by the relevant authorities and researchers of the Black Sea riparian countries.

EVALUATION OF THE IUU IN RIPARIAN COUNTRIES

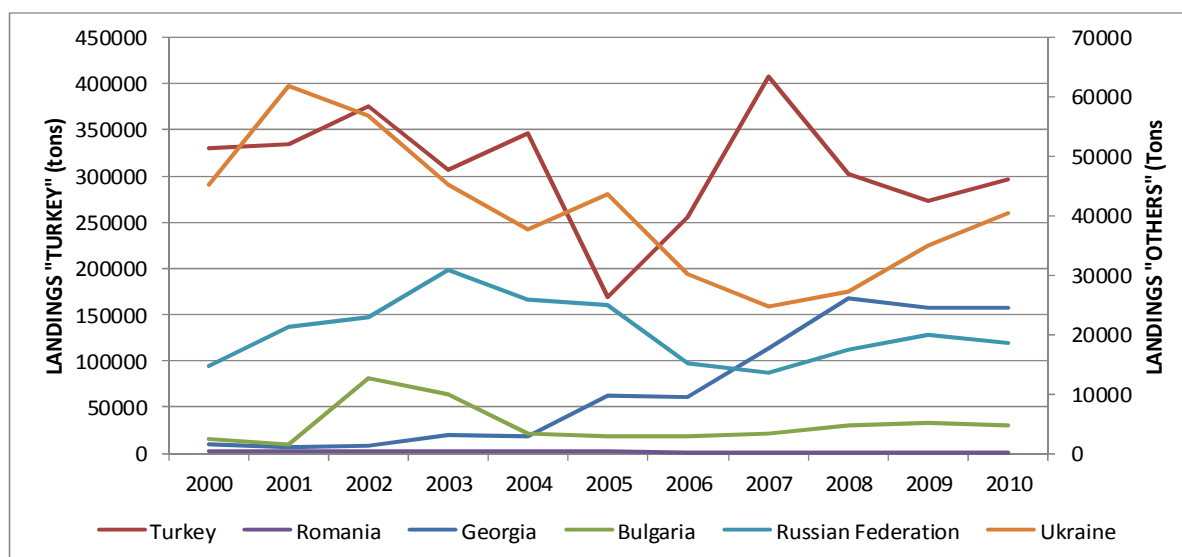
In this chapter, IUU fishing is examined country by county. At first, illegal practicing of fishing in the EEZ is considered. Later, IUU fishing within territorial water is also examined.

Table 1. Number of fishing vessels in riparian countries based on replies to the questionnaire (see Appendix C)

Countries	Number of registered fishing boats
Bulgaria	2557
Georgia	43
Romania	488
Russia	33
Turkey	4993
Ukraine	610
Total	8724

As it can be noticed clearly in Table 1, as of 2013 Turkey is dominant in terms of the number of fishing vessels in the Black Sea. Another remark is Georgia and Russia have the fewest fishing boats in the Black Sea. Due to large discrepancies between data sources, the information on the size and type of fishing boats is not presented here.

Table 2 shows the trend of total catch by riparian country in the Black Sea for the past decade. Turkish catch was larger than the others throughout that period with major and minor fluctuations, but showing decreasing trend after the peak in 2007. On the contrary, Ukraine has an increasing trend after 2007. Georgian catch has been increasing steadily.

Table 2. Landings of the total catch of the riparian countries in the Black Sea in 2000-2010

Bulgaria

In Bulgaria, only 7 cases were reported between 1997 and 2008 for illegal fishing of turbot. In addition to some Turkish fishermen arrested by the Bulgarian authorities, later charged with some fines, one Turkish fisherman was killed on 17 April 2008 by the Bulgarian border forces patrolling illegal turbot fishing in Bulgarian territorial waters. This juridical case is continuing at present.

In Bulgaria IUU fishing practices seems to continue all year round in the Bulgarian waters. Main fishing gears are gill nets and bottom trawl. Average size of fishing boats is 12m. Main target species are turbot, spiny dogfish, anchovy and mackerel. In 2012, totally 3300 kg of turbot and 20684 kg of other species were illegally caught. Estimated revenues of the IUU products at 287 808 leva (147 154 euros) were reported in Bulgaria.

IUU fishing in Bulgaria for 2012 is summarized in Table 2.

Table 3. IUU fishing for 2012 in Bulgaria

Nº	Fisheries Control Sector	Number of infringements	Quantities confiscated (kg)	Estimated revenues of the IUU products (levs)
1	Burgas	99	20318	243816
2	Dobrich	35	451	5412
3	Varna	120	3215	38580
	TOTAL	254	23984	287808

Besides, Bulgaria developed and implemented three information systems as Information Statistical system (ISS), Vessels Monitoring system (VMS), and Fishing Fleet Register for commercial and recreational fishing fleet. The implementation of these Information systems is in conformity with relevant EU Regulations as well as applicable GFCM recommendations.

A special database is created within the VMS to serve the operators and inspectors, allowing faster identification of the fishing vessel. In this database various data are stored such vessel's characteristics (e.g. name of the vessel, registration number, call sign and vessel's main identification elements) and technical parameters (e.g. length and width, actual picture of the fishing vessel, contact details of the master of the vessel, contact details of the vessel's owner).

The main national authorities involved in implementation of legislations against IUU fishing is NAFA. Its main responsibilities are fisheries controls, granting fisheries permissions, verification and validation of catch certificates, designating of ports for landing and transshipments for third countries fishing vessels.

Georgia

Contrarily to the other riparian countries, anchovy is the main target fish in Georgia. One of the major problems faced by Georgia is the control of the territorial waters. Ukrainian, Russian and Turkish fishermen are allegedly reported to carry out fishing activities therein. It has been reported also that even some foreign investors established fish oil and meal factories, trying to sell these products to fish farms. The problem could be therefore considered to be mostly political and to a certain extent beyond fisheries management issues. Nevertheless, Azov anchovy *Engraulis engrasicolus maeoticus* is caught in this area, although there is no accurate information on this stock. However, stock assessment in the Turkish and Georgian border zone has been proposed by Chaschin (1996). Düzgüneş and Erdoğan (2008) reported that Black Sea anchovy in the waters off Georgia is fairly exploited and this stock is accessible to Ukrainian fishermen in accordance with the bilateral agreements on fisheries adopted by the two countries.

No official data are available for IUU catch although Khavtasi et al. (2010) reported that IUU fishing by foreign vessels also happens in the Georgian territorial waters. Although a VMS is in use, it does not seem to be efficient enough. In 1997, a fisherman was killed as he was claimed practicing illegal fishing in the Georgian waters. Generally in the Georgian market, sturgeon and turbot are expensive species. It has been reported that 80% of the fish sold in the market is illegally caught. No information on by-catch record and abandoned nets was retrieved. Monitoring of the illegal and reported catch is not implemented in Georgia.

Öztürk et al. (2011) reported that the Turkish anchovy catch in Georgian waters from 2003 to 2009 was estimated as 60,968 tons. Anchovy fishing started in Georgian waters in 1996 by Turkish fleet according to mutual agreements between some Turkish and Georgian companies. Turkish catch of anchovy was estimated as 50,000 tons in 2011 by 30 fishing boats. Precise catch figures for anchovy and other species is not known though. Nevertheless, this fishing practice should be regulated by the national authorities with the help of regional cooperation.

Regulations applied to the Turkish fishermen by the Georgian authorities during anchovy fishing have mainly five components. These are: no fishing in marine protected areas in the

Georgian waters, fishing over 300 m off the coast, minimum catch size of anchovy is 7 cm, total allowable catch yearly is 60000 tons and 2/3 of the catch is to be detained for landing in Georgian market. Besides, to control Turkish fishermen operating in the Georgian waters, VMS and AIS are required. Interpreter/observer and reporting/control at the ports are also necessary.

However, due to IUU fishing in Georgia, 32 Turkish purse seiners were arrested between 2000 and 2010 and detained for a short period (less than 7 days) in the Georgian harbors and later they paid fines and their boats were also released. A total 16 cases of IUU fishing have been reported in Georgia. Also, Komakhidze (2004) reported that there is no effective environmental protection practice in Georgia against poachers. Enforcement of the Georgian fisheries regulation is needed. Zengin et al. (2012) reported that some Turkish fishermen were fined due to unreported landing of fish caught in Georgian waters in Trabzon.

Romania

Table 3 comprises in chronological order the illegal vessels arrested in the act of effectively fishing in the EEZ. During certain actions, it was necessary to make use of the weapons and technical equipment outfitting of the Border Police vedettes in order to seize and escort to port the vessels failing to comply with controls. Eight Turkish boats and one Bulgarian fishing boat were determined between 2007 and 2011. In addition to these, there have been a few reported cases of IUU fishing by foreign vessels, except such a case in 2002, when four Bulgarian vessels were caught practicing illegal fishing of dogfish.

Table 4. List of fishing vessels caught by the Romanian authorities

Name of fishing vessel	Flag	Date
Senyuzler	Turkish	12.06.2007
Uygunghior	Turkish	10.01.2009
Ames Sakir Reis	Turkish	12.03.2009
Karaca 2	Turkish	3-4.04.2010
Kaptan Seyfullah Ogulları	Turkish	3-4.04.2010
Canakcilar	Turkish	3-4.04.2010
Efeler 1	Turkish	04.11.2010
BCi - 5159	Bulgarian	13.04.2011
Ahmet Comoglu	Turkish	28.05.2011

Data on illegal fisheries have been recorded since 2006 at national level. Regionally operational structures were established. At the beginning of this activity, the vessels practicing illegal fishing were probably more numerous; however, the more extensive verifications in the area of oil drilling platforms performed by the Border Police resulted in identifying and subsequently arresting illegal vessels operating in the entire EEZ for turbot fishing. The main target of the illegal fisheries is again turbot in the EEZ, at 45-80 m depths,

close to the border lines between the Ukrainian EEZ and the Turkish EEZ, during spring (March-April) and autumn (September-November). As of the the 90's, several Turkish fishermen were arrested, boats detained and fines charged by the Romanian authorities.

However, in recent years, not much illegal fishing has been reported due to better frontier control and implementation of security measures since Romania has joined the EU. It seems that in the near future their marine frontiers will have more effective control implemented for illegal fisheries.

On 27 May 2011, a Turkish fishing boat was sunk by the Romania authorities due to illegal turbot fishing practiced in the Romanian EEZ and one fisherman was wounded. Later, the boat crew was brought back to Turkey with the help of Turkish coastguard.

In addition, IUU fishing has been reported for sturgeon near the Danube and the Romanian government is trying to stop it.

Monitoring or controlling systems for fishing fleet is necessary in Romania. In order to monitor the commercial fishing boats and vessels, there are track records on length categories; boats up to 12 m are recorded in the Coastal Fishing Logbook, while those equal to or longer than 12 m are recorded in the Black Sea Fishing Logbook and must be equipped with VMS.

All vessels licensed for commercial fishing in the Black Sea must be assigned to the Landing Point (LP) and First Sale Center/Point (FSP) with whom they have signed Service Provision Contracts, for all the fish caught.

When landing the fish, a document called Landing Statement must be filled-in, having an important role in subsequent monitoring and verification of catches for the respective landing point, on one hand, and for the economic operator filling-in the document, on the other hand. These Landing Points and First Sale Centers are strictly nominated and authorized to operate by Order of the National Authority dealing with fisheries and aquaculture.

Also, the Border Police, through the Coast Guard, has implemented for three years the Sea Operational Control System (SCOMAR), with complex facilities, comprising 12 surveillance and primary information acquisition stations, spread along the Romanian coast from Sulina to Vama Veche.

Turbot fishing is regulated separately in Romania. The fishing vessel which holds a Special Turbot Fishing Authorization is to abide by the following conditions: fish captured must be landed in the established landing point and transported to the first sale point; to use gears (gill nets) with mesh size $2a = 400$ mm according to the current legislation, the minimum size for turbot is to be 45 cm - according to Art. 18 from (CE) Reg. No 850/98 -, to announce by phone the designated fishing area and to announce within 2 hours before landing at the subordinated landing point, and vessels exceeding 15 m must have VMS installed.

Russia

Between 1990 and 2001, only 8 fishing violation cases were reported for Turkish fishermen illegally fishing in the Russian territorial waters for turbot. Fine was paid by the owners of these fishing boats and they were later released. Russian authorities declared that Turkish fishing boats were detained according to the Article 56 to 58, Chapter 5 in UNCLOS.

Not much information about IUU practices in the Russian waters in the Black Sea is available. Volovik (2004) reported uncontrolled large-scale poaching in the Russian part of the Black and Azov Sea has reached the unprecedented level. Kumantsov (2011) reported that poaching and absence of fish farming facilitate aggravate decline of the fishing sector in the Russian part of the Black Sea.

The Russian fishing fleet and catch records in the Black Sea is minor. Nevertheless, Russian Federation has a long tradition for fisheries and expects its fishing fleet to increase.

For nearly seventy years the Soviet, later Russian, fisheries control authorities have been combating poaching. Regarding fisheries in the Russian part of the Black Sea, it should be noted that IUU fishing is local and random, as compared to the fishing in the Azov Sea and the inland freshwater adjacent to the Azov Sea.

Fish inspections Azdonrybvod and Azcherrybvod, in the framework of the activity for monitoring and conservation of living aquatic resources during 2012, held 927 control events, found 679 violations of the Russian fisheries law and compiled 415 reports on administrative offenses.

Russian Federation has consistently conducted a policy to combat IUU fishing at the national and international level. At present, Russian Federation has a National Plan of action to prevent, deter and eliminate IUU fishing.

The system of management and control of the fisheries is based on the federal law "On Fisheries and Conservation of Aquatic Biological Resources", dated the December 20, 2004 № 166 TZ.

Sectoral Monitoring System (SSM) was established in accordance with decision of the Government on February 26, 1999 № 226 for the rational use, study and conservation of stocks of marine biological resources in the internal waters, territorial sea, continental shelf areas, EEZ of the Russian Federation, the Caspian and Azov Seas. SSM has been designed to collect, process, store and present data on the location of fishing vessels and on catch and production by the vessel.

Turkey

Generally, in the Black Sea, Turkish fishermen are involved in IUU activities both within the Turkish territorial waters and sometimes beyond Turkish EEZ. This kind of fisheries and its impacts are already reported by several studies, such as Zengin (2000), Samsun and Kalaycı (2004), Taner (2010), Öztürk (2011), Öztürk et al.(2011), Kara (2012), and Zengin et al. (2012).

In the territorial waters, most of IUU fishing activities are observed both in open and closed fishing seasons. Most common IUU fishing activities are violation of minimum catch size and usage of illegal fishing gear. Violation of closed season is a less common IUU fishing activity in Turkey. Illegal fishing gears and methods, fishing in coastal prohibited areas and fishing during fishing-closed seasons, mostly in summer, have been reported. On the other hand, technical, infrastructural and operational framework is being developed for controlling IUU fishing, such as establishing 36 offices at ports for collection of data on landing. Yakakent landing port in Samsun is designated as controlling port of IUU fishing in the Black Sea (GFCM, 2011). As for IUU fishing by Turkish fishermen beyond its EEZ for 20 years (between 1992 and 2012) 60 IUU cases were detected and reported. Totally 3 fishing boats were sunk by coastal patrol boats: two of them in Ukraine in 1998 and 2000, the other one in Romania. Totally five fishermen died due to the conflict, one in Georgia in 1997, two in Ukraine in 1998 and one in 2000, and one in Bulgaria in 2008. A total of 64 fishermen were arrested. Over 1 million USD was paid to detaining countries as fines during the last 20 years. Last illegal cases were reported by the Russian Federation in 2001 and Bulgaria in 2008. However, IUU fishing activities are decreasing due to more stringent measures for control and cooperation with other riparian countries beyond EEZ and more effective implementation of the fisheries law 1380 in the territorial waters. Fisheries Law 1380 and Fisheries Regulation 22223 of 1995, Notification 3/1 Regulating Commercial Fishing and Notification 3/2 Regulating Amateur (Sportive) Fishing are main tools for the fisheries management in Turkish waters.

These main legislative instruments set rules and principles for technical aspects of fishing, such as fishing gear, fishing season, fishing areas, protected areas, limitation on landing size, and prohibition on species to regulate commercial fishing. Turkish fishing fleet and production is the strongest among all riparian countries. In recent years however, from 2007 to 2011, significant reduction in the number of fishing vessels was observed (Table 5).

Table 5. Number of fishing vessels in the Turkish Black Sea and in Turkey in 2007-2011

Year	Black Sea	Turkey	Proportion of Black Sea to Turkey (%)
2007	6700	17681	37,9
2008	6587	17161	38,4
2009	5973	16845	35,5
2010	6137	16550	37,1
2011	4993	14300	34,9

Fisheries information system is also one of the main components of the Turkish fisheries in the Black Sea. This system contains information on registry of commercial fishing vessels,

registry of recreational fishers, issue of special fishing permits to fishers, monitoring of Atlantic bluefin tuna quotas, monitoring of venus clam quotas, collection of biological data, monitoring of anchovy catches transshipped to cold storages or processing plants and issue of catch certificate under the scope of EU Regulation 1005/2008. VMS is also in force. Vessels over 15 m are obliged to record and keep logbook, to be equipped with AIS.

Twenty three Fisheries Administration Office (FAO)'s are active in total in the Black Sea for fishing controls, fishing gears controls, logbook data entry into the information system, issuing of certificate of origin and certificate of transportation, monitoring of catch composition and training for fishermen.

There are special regulations for anchovy fisheries, such as no fishing activity for anchovy shall be permitted from 15 April to 31 August, the minimum landing size shall be 9 cm total length and fishing is permitted only between 16:00 and 8:00 during the fishing season. These are important principles, although implemented poorly at the moment.

Enforcement for the violation of the fisheries laws are: sanctions applied for fisheries violations, fines, confiscation of products caught, temporary seizure of fishing license and cancellation of fishing license.

However, even if all these measures are taken by fisheries authorities, IUU fishing has been reported mainly for *rapana* dredging. Sometimes demersal fisheries is practiced in the 3 miles zone where trawling is not permitted and in the areas completely closed to trawling. Monitoring and control activities are insufficient on daily quota allocated by the Ministry on baby clam. All the main and local markets and/or restaurants sell undersized fish (anchovy, whiting, horse mackerel, and bluefish).

Although some useful MCS measures were adopted in compliance with GFCM recommendations, more effective measures would be needed in the future to stop IUU fishing practices. Fishing license have not been issued for the marine vessels since 2002 in order to reduce catch stress on stocks and to maintain sustainable fisheries in Turkey. Additionally a new support scheme was taken into effect in Turkey for the reduction of the number of fishing vessels over 12 m. Fishing license of 407 vessels over 12 m will be annulled and removed from fleet within 2013. It is known that the average size of fishing boats taking part in IUU fisheries is generally below 12 m.

High performance and successful operations of the Turkish coast guard against IUU fishing in the territorial and international waters is another reason for the decrease of the IUU fishing activities compared to last few years.

Landing places are important in terms of fishery statistics, for monitoring the catch and enforcement of regulations. Estimation of IUU products out of revenues gathered from fishing activities is less than 2% of total revenues in Turkey.

Ukraine

The earliest records of IUU fishing date back to 1990. The violation of fishing rules relates both to citizens and non-citizens of Ukraine. Fines for violation of fishing rules, compensation of losses, damage to fisheries as a result of illegal fishing, extraction of vessels and fishing gears related with the violation are ordered by the court.

Illegal turbot catch was also reported in the Ukrainian waters. At least 30 Turkish fishermen have been arrested and later detained between 1992 and 2012. A total of 20 IUU cases were reported in that period. The most tragic event happened on 22 May 2000. The captain of a Turkish fishing boat was killed by the Ukrainian navy claiming their illegal fishing practice in the Ukrainian EEZ. Another boat was sunk by firing. Some legal experts reported that the Ukrainian navy practiced excessive use of force to the fishermen.⁴ Besides this incident, it has been reported that several fishing boats were detained, fines were charged, and some fishermen were arrested at least for a week.

IUU fishing is practiced mostly in the Ukrainian EEZ (northwestern part of the Black Sea), about 34 nautical miles or more from the coast. In addition, IUU fishing is common around the Kerch Strait. Fishing violations in using of bottom gill nets have also been reported. The timing depends on the target species, usually from March to May for turbot fishing. There had been, however, the violation of fishing rules recorded during autumn-winter season (October-April).

Shlyakhov (2003) reported that sturgeon poaching in the northwestern Black Sea was equal to 25 tons in 1970-1979 and 27 tons in 1980-1989 and the excessive catch is threat to the sturgeon population. Shlyakhov and Charova (2003) also reported turbot poaching by Ukrainian and Turkish fishermen in the Ukrainian waters. Shlyakhov and Daskalov (2008) reported that illegal sturgeon fisheries probably caused the collapse of their stocks in Ukraine.

Table 6 summarizes the information of IUU fisheries in Ukraine. Estimated revenues of the IUU products in Ukraine are quite informative (Table 7).

Table 6. IUU fisheries in Ukraine

Species	Season	Main fishing ground	Main fishing gear
Sturgeon	All seasons	North-western Black Sea	Gillnets, hooks, trawls
		Azov Sea coasts	Gillnets, trawls
Turbot	Spring, summer and autumn	North-western, North-eastern Black Sea	Gillnets, hooks, trawls
So-iuy mullet	All Seasons	Ukrainian coast of Azov Sea	Gillnets, purse seines
Azov-Don	October-April	Kerch Strait	Gillnets

⁴ For instance, Kurumahmut (2001) refers to Article 73, 300 and 301, Chapter 5 in UNCLOS for these tragic events and excessive use of force. He proposed peaceful pursuit rather than firearms.

shad			
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In 1989, the unreported catch of sturgeons was more than the official landing in Ukraine, including the landings in the rivers. After the collapse of the Soviet Union, unreported catch steadily increased due to poaching trawlers. It was estimated as 281 tons in 1993, 48 times higher than the official catch (Fig. 3).

Table 7. Estimated revenues of the IUU fisheries in Ukraine

Species	Fishing ground	Year	Estimated catch (tons)	Remarks
Sturgeon	Black Sea (Danube/Dnieper population)	1995	600	More than 12 times higher than the official landings all of the Black Sea
	Sea of Azov	1988-1990	4810	3-50 times higher than the official catch of Ukraine and the Russian Federation
		1992-1994	3210	
		1995-1997	2040	
		1998-2000	980	
		2001-2003	110	
		2004-2005	50	
Azov-Don shad		2011	15	1.7 times higher than the official landing of Ukraine
So-iuy mullet	Sea of Azov	2007-2010	> 10000	3 times higher than the official landings of Ukraine
Turbot	Black Sea	1992-2002	200-800	6-20 times higher than the official landings of Ukraine
		2005	800	7 times higher than the official landing of Ukraine

Table 8. Official landing and unreported catch of sturgeons in Ukraine

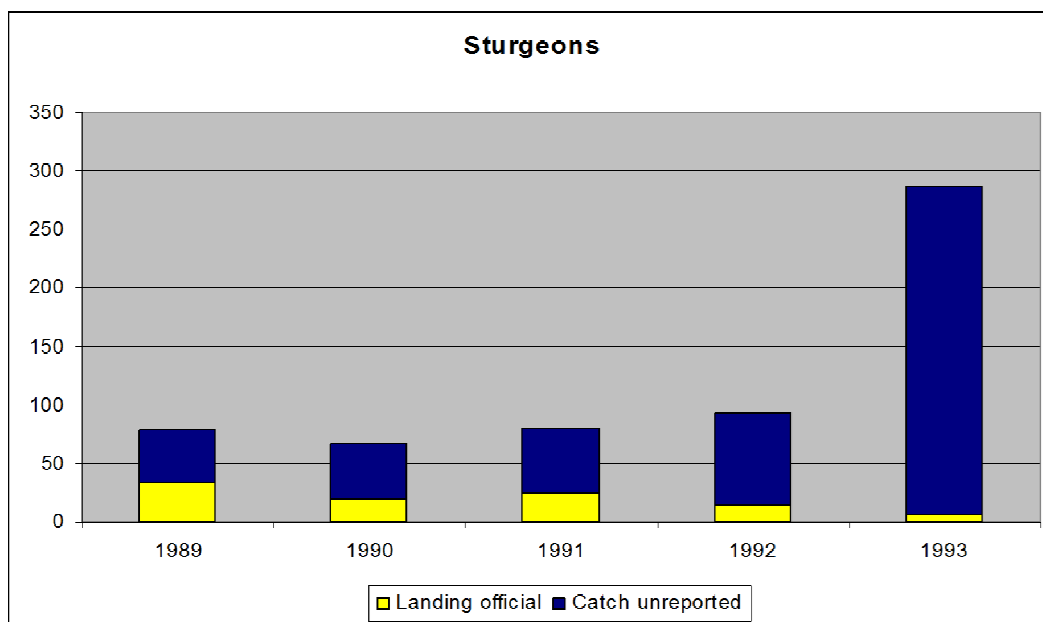


Table 9. Official landing and unreported catch of turbot in Ukraine

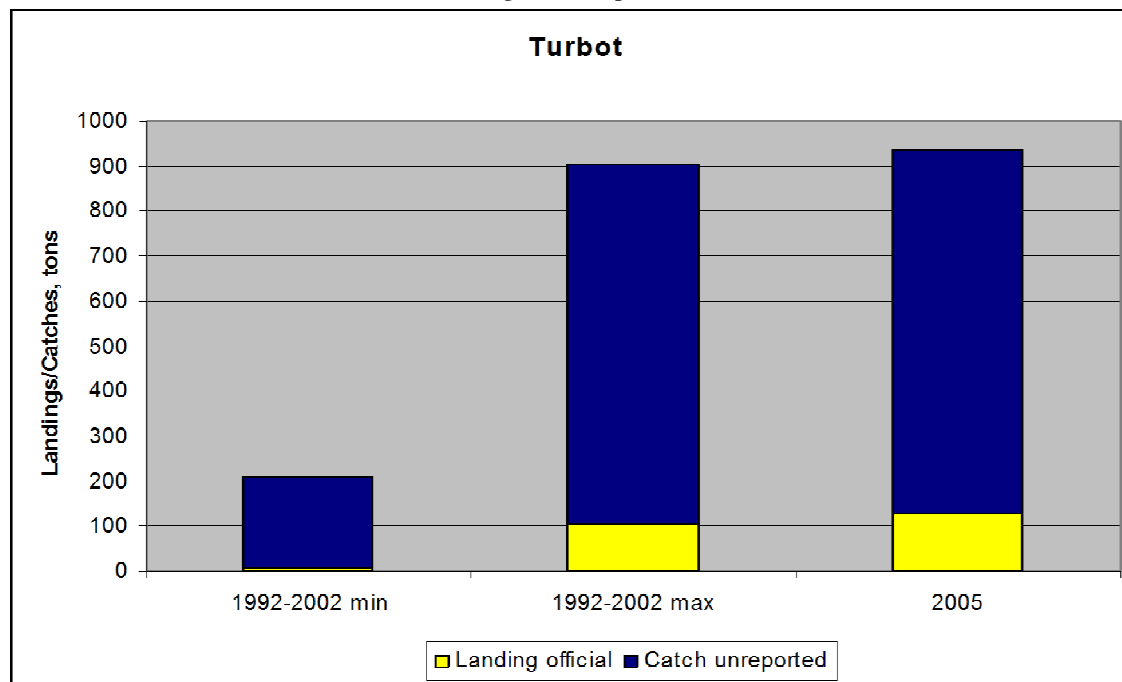


Table 9 shows that the estimate of unreported catch of turbot in Ukrainian waters exceeded the official catch of 8-22 times between 1992 and 2005.

MAIN SPECIES AFFECTED BY IUU FISHING

Several target fish species are affected by IUU fishing (see Table 10). The main targets are however, turbot and sturgeon in the western part of the Black Sea and anchovy in the eastern part of the Black Sea.

The Black Sea turbot *Psetta maxima* and *Scophthalmus maeticus* are highly commercial species. *P. maxima* is a benthic species living on soft bottom and gravel substrate to the depth of 80 m. Its length is 40-80 cm, max.100 cm. It feeds on other benthic fish such as gobies, as well as crustaceans and mollusks. Spawning season is spring and summer. Sexual maturity is reached at 3-5 years old. The eggs, as many as 10 to 15 million from a single fish, drift in the middle depths for a week, later rising in the form of larvae into the surface water where they are carried by currents. During this stage, larvae drift away from the spawning site. This movement resulting in larval loss when the developing fish try to settle beyond the continental shelf and find a habitat in a suitable depth of water (Acara, 1985).

The length of *S. maeticus* is 40-60 cm, max. 75 cm. This is also a benthic species on soft and hard substrates to the depth of 80 m. Young specimens are found in shallower waters than adults. It feeds mainly on benthic fish such as gobies. Spawning season is late winter and spring.

In addition, turbot is the only demersal fish which is caught by quota by two EU Member States in the Black Sea, namely Bulgaria and Romania, since 2008. This species is of high commercial value and there is high demand, mostly in the Turkish market. One kg of turbot was 20 Euro in 2012 in the Turkish market. This is the reason for the fact that illegal fishing is mainly focused on turbot, except for Georgia.

As it is seen in Table 11 the stocks of turbot in all riparian countries show decreasing trends from 2000 to 2010. The most significant decrease was observed on the Turkish side. It is not easy, however, to identify the proportion or contribution of the IUU fishing to the decrease of the turbot stocks.

Table 11.Turbot catch of the Black Sea countries (2000-2010)

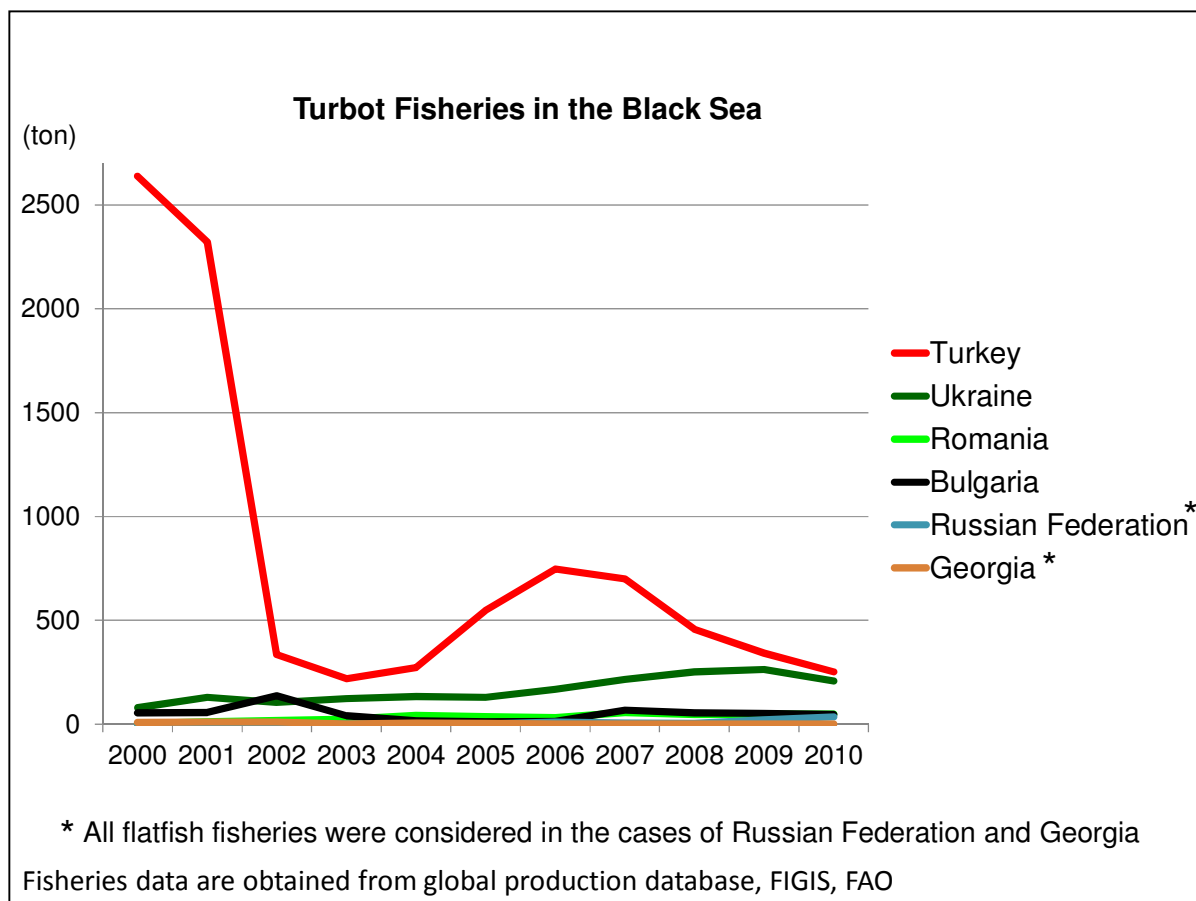


Table 10. Main target fish species of IUU fisheries in the Black Sea

	Bulgaria	Georgia	Romania	Russia	Turkey	Ukraine
Anchovy	x	x		x	x	
Bluefish					x	
Sprat					x	
Horse mackerel					x	
Bonito					x	
Sardine					x	
Scad					x	
Chub mackerel	x				x	
Whiting					x	
Red mullet					x	

Turbot	x	x	x	x	x	x
Russian sturgeon		x				x
Starry sturgeon						x
Beluga						x
Black Sea shad						x
So-iuy mullet						x
Spiny dogfish	x		x	x		x
Sea snail					x	
Baby clams					x	

As seen in Table 10, turbot is the only common target species for all riparian countries. It is also interesting that target fishes in Turkey are more diverse (13 species) than the other riparian countries.

So-iuy mullet and sea snail are two alien species. Sturgeons are at the endangered level in the Black Sea, even though they are fully protected in all riparian countries (CITES also concerns the status of sturgeons in the Black Sea).

FISHING GEAR AND FLEETS FOR TARGET FISHES

For turbot, the main fishing gear in all riparian countries is bottom gillnet, except in Turkey where bottom trawling is permitted (Daskalov et al., 2012). For anchovy, purse seining is the most common fishing gear.

Details of turbot fisheries in Turkey are summarized in Tables 12 and 13.

Turbot fishing area is within 100m isobath in the Turkish western Black Sea. In general, turbot fishery is operated within 15 miles from coast. Fishing season begins in April and ends in the last week of June. For the turbot fishery, nets are set end to end. One net is 60 fathom length (=108m). One set of nets has 5-15 anchors and there are 12-30 nets between two anchors. For example, one set of 50 nets is approximately 5 km long. The boats used for turbot fishery are between 7 to 30m in length. Table 13 shows number of boats, number of bottom gill nets and distance of fishing area from coast in the western part of Turkey.

Table 12. The features of turbot fishery and bottom gill nets in Turkey

Season	April, May, June
Fishing depth	20-60 fathom (36-108m) or 50-60 m
Soak time	10-30 days
Mesh size	160-200mm
Net twine	210d/9-18 no
Prohibitions	Min. fish body length 45cm; banned during 15 April-15June

Only in 5 fishing ports (İğneada, Kıyıköy, Karaburun, Şile, Ağva) on the Turkish western Black Sea coast 14,000 pieces of bottom gillnets in total were reported. Thus, the fishing effort is high considering the length of the coastline which is 350 km (Tonay, 2010).

Table 13. Number of boats, bottom gill nets and distance of fishing area from coast in Turkey

Fishing Port	Number of bottom gill nets	Number of boats	Distance of fishing area from coast (nmiles)
İğneada	4,000	80	15
Kıyıköy	5,000	27	15
Karaburun	2,000	8	3-5
Şile	1,000	10	1
Ağva	2,000	10	10
Total	14,000	135	-

In Romania, Bulgaria and Ukraine, turbot is fished in the western part of the shelf of the Danube, Crimea and Bulgarian continental shelf.

SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACTS OF IUU FISHING IN THE BLACK SEA

IUU fishing is undoubtedly one of the reasons for the over-exploitation of the fishing resources in the Black Sea and unfair competition for fishermen who practice fishing legally.

Estimation of the exact economic damage is not possible due to data uncertainty and paucity. However, in general, IUU fishing causes:

- 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 injury.

Furthermore, due to IUU fishing, some fishermen lose their boats or have their boats and gears detained and pay fines in the countries where they are arrested. IUU fishing causes ghost fisheries (abandoned nets) and by-catch in the Black Sea. Moreover, their statistics can never be considered to elaborate solid management plans for both target species and by-catch species.

Best example for the loss of biodiversity is seen in sturgeons. Due to sturgeon poaching for caviar and meat, which are of highly commercial value, these species are now endangered in the Black Sea and riparian countries have banned sturgeon fishing in their rivers and seas. Even in some countries like Turkey, stock enhancement practices have been started in recent years. IUU fishing also damages vulnerable habitats by the use of prohibited fishing gears, mainly for *rapana* and clam harvesting. Illegal *rapana* and clam dredging results in destructive effects on the soft bottom communities and siltation in macro and meio benthos. As a whole, IUU fishing is a threat for the marine biodiversity.

By-catch

By-catch of the non-target species is one of the most serious problems due to IUU fishing. Öztürk (1998) reported that due to sturgeon and turbot fishing about 2000-3000 dolphins, the majority being harbour porpoises, have remained entangled to the nets in the Turkish part of the Black Sea every year. Besides cetaceans, fish such as sharks and sturgeons are also caught accidentally by IUU fishing in the Black Sea. Pasyakin (1991) reported that 194 dead dolphins were found in the driftnet on 14 Turkish boats arrested in 1992 in Crimea. Between the late 1960's and the early 1990's bottom gillnets for turbot (*P. maeotica*) and dogfish (*Squalus acanthias*) caused 98% of known cetacean by-catch in the water off Crimea and Russian Caucasus; the remaining 2% belonged to bottom gillnets for sturgeons (*Acipenser* spp., *Huso huso*) and labyrinth trap nets (Artov et al., 1994). But official statistics in this area is quite incomplete because some legal and numerous illegal nets are not accounted for (Birkun, 2002).

Tonay and Öztürk (2003) reported a total by-catch of 40 harbour porpoises, one bottlenose dolphin and one common dolphin by one turbot fisherman in the Turkish Western Black Sea coast during one turbot fishing season.

Radu et al. (2003) reported that due to illegal fishing performed by foreign vessels in the Romanian EEZ in April 2002, 26 cetacean specimens were entangled in the fishing nets and all of them were harbour porpoise. He also noted that turbot gill net with the mesh size smaller than 20 mm is forbidden by the Romanian law. Incidental catches were found in April 2002, due to the fraudulent fishing carried out by Turkish trawlers in the Romanian EEZ (Radu et al., 2004). In the gill nets launched, found and recovered by the vessels of the Border Police and NIMRD, 20 harbour porpoise were recorded. The total number of dead animals was about 100; being in advanced decomposition stage, they detached from the nets during the recovery operations (Radu et al., 2003). The accidental by-catches, due to gear selectivity, consisted mainly in bottom fish species, frequent components of benthic biocoenoses, typical for the Black Sea (dogfish, common sting ray and thornback ray), however sometimes specimens of the three cetacean species, mainly *Phocoena phocoena*, of the Black Sea have been reported in Romania.

A good cooperation example was also reported between the Romanian and Turkish authorities about IUU fishing, by-catch and ghost fishing. In 2001 some Turkish fishermen took all turbot nets from Romanian EEZ with the permission of Romanian government, accompanied by the coastguards of both governments. After net hauling, all fishes found in the nets were delivered to Romanian fisheries experts.

Shark by-catch was reported by Kabasakal (1998) due to turbot fishing in the Turkish part of the Black Sea. In recent years, by-catch records can be collected via logbook of fishing vessels by Turkish experts. Since by-catch species has no economic value, those species are released into the sea. In 2006, in Bulgaria the police authorities found some dead dolphins on the beaches of Shabla and Krapets, near the Romanian border, and they suspected poaching. In Bulgaria by-catch records – 3300 kg of turbot and 20684 kg other species were reported.

Ghost fishing

IUU fishing sometimes causes ghost fisheries when fishermen abandon their nets to seas and try to escape at the sight of patrolling coast guards or other relevant authorities. Released nets 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 fishing is not only a threat for marine life itself. After a certain period, nets start sinking or floating on the sea surface and become a threat for marine transportation, mostly when they entangle the propellers at night. Fast speed boats suffer extensive damages from sinking ghost nets in the Black Sea. Besides, these nets come to a shore and cause pollution on the beaches. Topçu and Öztürk (2010) reported that fishing gears are generally the most attributable debris sources of the sea bed pollution. Sixteen fishing gears were found among 244 total solid waste

materials, which clearly showed that fishing activities could be the main sources of litter on the southwestern Black Sea sea bed.

According to a questionnaire survey conducted with the fishermen in Rumeli Feneri, a small fishing village at the exit of the Istanbul Strait, a total of 1279 turbot nets were lost, and 1200 of these nets were lost in the EEZ only in 2008 (Taner, 2010). The interviews conducted with fishermen during the study revealed that there were 10,000-15,000 turbot nets lost in the same region (Tonay, unpublished data). In Bulgaria, ghost fishing with 31210 m of abandoned nets was reported.

In Romania, due to abandoned gillnets, many times in great numbers, when lifted on board of the control vessels, by-caught dolphin individuals are often found, usually decayed. These “ghost” tools are gillnets, built in series, with no markings, mechanically armed, especially designed for bottom stationary fishing, mesh size 280-360 mm; never $2a \geq 400$ mm. According to existing data, the total length of the “ghost” nets found from 2006 to date is approx. 90 km.

Driftnet and mono-multifilament fishing nets referred as ghost fishing gear have been banned since 2011 in the Turkish waters. Inspection on the usage of above mentioned fishing nets are conducted by National Coast Guard Command at sea and by fisheries inspectors of Provincial Directorates under the coordination of the General Directorate of Fisheries and Aquaculture.

LEGISLATION ISSUES

There are some legislation and regulations in force in the Black Sea riparian countries to fight against IUU fishing. In Turkey, in the article 36 of 1380 numbered Fisheries Law, specified infringements, violations and fines to be applied are described. The fishing licenses of 134 vessels were detained because of the violation of the regulations in force in 2012.

Since Bulgaria and Romania are now members of the EU, all fishing rules and regulations should be consistent with those of EU. New regulations of the EU since 2010 oblige them to ensure that fishery imports come from legal sources.

EU policy in the Black Sea has a global and coherent approach for fisheries control system, specific control plans and actions regarding turbot fishery in the Black Sea. EU regulation on IUU fisheries is composed of three pillars: Control Regulation 1224/2009 ensuring compliance with the rules of the Common Fisheries Policy by EC vessels, IUU Regulation (EC) No. 1005/2008 of 29 September 2008, Fishing Authorisation Regulation (EC) No. 1006/2008 of 29 September 2008 concerning authorisations for fishing activities of Community fishing vessels outside Community waters and the access of third-country vessels to Community waters.

For turbot fishing in the Black Sea, STECF advice (Nov 2012) used information from Bulgaria, Romania, Turkey and Ukraine. The stock is considered severely depleted and is being exploited at an unsustainable rate. An international management plan should be initiated

to restore spawning stock to the level capable of producing maximum sustainable yield. EU Control Plans for turbot have already been elaborated.

For 2013, these plans are based on pre-established benchmarks and include among other aspects: limited number of designated ports, minimum level of inspection at sea, in ports and in markets on the basis of risk assessment, continuous monitoring of quota uptake, reinforced control during the closure period (mid April-mid June), joint operations between Romania and Bulgaria with the coordination of the European Fisheries Control Agency.

Ukraine has several legal measures such as managerial responsibility (penalties of 2 to 50 tax-free minimum incomes, with the confiscation of boats, fishing gear and catch, with or without confiscation), criminal liability with the confiscation of water-craft (boats), fishing gear and catch, with or without confiscation, imprisonment for up to 3 years), civil liability (compensation for losses incurred as a result of illegal fishing, or destruction of aquatic biological resources in accordance with the established rates).

At regional level Bulgaria, Romania, Georgia, and Ukraine are parties of ACCOBAMS (Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic Area) and very shortly Turkey will become a party as well. Much attention will then be given to cetacean by-catch and interaction with turbot fisheries.

All riparian countries are parties to the Convention of Biological Diversity and to the Commission on the Protection of the Black Sea Against Pollution (known as the Bucharest Convention) and its Advisory Group on the Environmental Aspects of the Management of Fisheries and Other Marine Living Resources (FOMLR) and Advisory Group on Conservation of Biological Diversity of the Bucharest Convention, namely the two most important tools to protect living resources of the Black Sea. All riparian countries are also members of the Black Sea Economic Cooperation.

Turkey, Romania and Bulgaria are members of GFCM, the only RFMO competent for fisheries resources of the Black Sea. To harmonize all efforts and elaborate concerted action plans, non-GFCM Members should either join the GFCM umbrella or at least apply for a cooperating non contracting party status. This would be even more important now that the GFCM Working Group on the Black Sea is fully operational (first meeting was held in January 2012 in Costanta; the second meeting will be convened in April 2013 in Varna).

Black Sea Littoral States Border/Coast Guard Cooperation Agreement (BSCA) was signed in 2007. One of the tasks in Article 3 of this agreement is the cooperation among riparian countries for the violation of fisheries rules and protection of marine living resources. This agreement has been put into force and it will be the most important tool against IUU fishing in the Black Sea if implemented properly. The number of illegal fishing activities has already started to decrease due to the joint establishment of the Black Sea coast guards commanding.

Establishment of a joint Black Sea Memorandum of Understanding on port state control in 1999 with all riparian countries involved for better controlling all kinds of vessels in the

Black Sea is another legal instrument with MCS purposes. All detained fishing vessels need to be clearly recorded to better understand real figures of IUU violations in the Black Sea.

At international level, except for Turkey, all coastal states are parties of Law of the Sea Convention (UNCLOS). With regard to the UN Fish Stock Agreement, the following are Members: Bulgaria, Romania, Russian Federation and Ukraine. According to article 8 of the UN Fish Stock Agreement, States fishing in an area under the mandate of an RFMO are expected to join this organization or to cooperate to the maximum extent with it in the application of conservation and management measures in place.

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

IUU fishing in the Black Sea clearly shows that there are some gaps in the fisheries management of the Black Sea. Identification of these gaps will solve the problem in a short term with the cooperation of riparian countries. At present, there is a will and a wish to abandon, mitigate or reduce IUU fishing in the Black Sea. It is clear that zero tolerance is an ultimate goal to halt IUU problems.

Cooperative efforts should lead to establish a comprehensive and standardized fisheries data collection program for the Black Sea, to perform joint bottom trawl and acoustic surveys and other research activities (standardization of biological parameters), to improve national and regional capability to analyze and assess fisheries data, to promote implementation of the holistic approach to fisheries (including criteria for marine protected areas and to develop common and harmonized approaches for the conservation and restoration of stocks of endangered species and their habitats.

There is no study on IUU fishing in riparian countries. This gap should be filled by starting IUU studies with standardized and harmonized methods urgently. Some countries do have records of by catch and ghost fishing while others do not have any data. These problems should also be tackled with standardized methods. It can be recommended to all riparian countries use of selective fishing gears and selectivity studies. Better data collection is also requested.

In fact, different legislations and enforcement schemes exist in the Black Sea, i.e. the EU, with two member countries - Bulgaria and Romania - and a candidate member country Turkey; GFCM, with three member countries - Bulgaria, Romania and Turkey; the Black Sea Economic Cooperation (BSEC) with members of all Black Sea countries; Black Sea Commission (BSC) has been acting on the mandate of all Black Sea countries with an aim to achieve sustainable management of marine living resources. However, the Black Sea region requires the application and implementation of those relevant international agreements that concern its ecosystems and living resources because no effective control on fishing practices seems to exist in general.

MCS and enforcement of the fisheries regulations in the riparian countries are particularly crucial for successful fishery management. However, in some countries there is lack of real commitment by the authorities to undertake MCS and enforcement of the regulations. It is also important to introduce regulations which are realistic in the current circumstances and which are enforceable. It is better to give overall control for MCS and enforcement as a single entity rather than as diverse authorities such as police, coastguard, civil persons, custom administration, etc. For the enclosed sea like the Black Sea, all efforts should be harmonized and coordinated by littoral states due to peculiarities of the demersal and pelagic stocks. An important element in successful implementation can be to work in close and effective coordination, consultation and share information among riparian countries and regional organizations to mitigate IUU fishing practices. In this framework, the Black Sea Littoral States Border/Coast Guard Cooperation Agreement (BSCA) becomes an important instrument against IUU fishing.

Another instrument is the recently signed a memorandum of understanding between the GFCM and BSC which aims at strengthening cooperation between these two organizations in their respective areas of competence. In fact, more stringent measures are needed against IUU fisheries in the Black Sea with regional cooperation and competent organizations such as GFCM and BSC. Besides, riparian countries should, as appropriate, develop and implement national plans into actions to prevent, deter and eliminate IUU fishing practices and related activities in the entire Black Sea, according to the FAO International Plan of Action against IUU fishing. For fishermen or owners of boats violating the national rules or practice any IUU activity, the license of fishing should be annulled and this annulment should be life-long. The responsible fishing boats should also be detained.

For mitigating IUU fishing, clear and transparent information system should be established and shared by the authorities of the riparian countries in case of crises. VMS is needed for all riparian countries. A recommendation on VMS has been adopted by GFCM in 2009 and work is currently ongoing within the GFCM to elaborate solutions alternative to VMS through technical assistance programmes through GFCM Members.

National fleet management plans have recently been started in some of the riparian countries, i.e. Turkey, Romania and Bulgaria. Fleet management is important also for surveillance purposes. MCS systems should hence be developed to reduce illegal fishing practices. MCS training is therefore essential and fishery observer programs can be applied where/when necessary. Besides, a detailed monitoring scheme is needed from the fishing net to the fish at the market, ready to be sold to consumers.

In addition, a scientific monitoring program is needed for creating a database of the IUU fishing in the region. To this end, 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" should be implemented in a way that special attention is given to the Black Sea.

A permanent working group for IUU fishing to be created within the COC would significantly help to address all these issues and more. This working group could work in close cooperation

with the GFCM Working Group on the Black Sea. Among other things, it could oversee the implementation of a roadmap to fight IUU fishing in the Black Sea to be developed by all riparian countries and together with BSC. In alternative, or in parallel, a technical cooperation project for the Black Sea could be established building upon the FAO practice of Regional Projects and it could be executed under the 1st GFCM Framework Programme. The project could oversee all matters pertaining to the Black Sea, including said roadmap to fight IUU fishing.

In any case, this roadmap should have a fully encompassing vision and also include means to protect the turbot stocks and mitigate IUU fishing in the Black Sea (such as turbot farming as an alternative method and replace the catch of wild fish). In fact, the turbot farming was started in the 1980's in the United Kingdom, followed by Spain and France. Spain is the main producer and Galicia Region is known worldwide as the main turbot producer for the EU market. Some riparian countries already produce turbot fries from the hatchery and some of them started stock enhancement in their waters as well.

To promote and finance turbot farming in the Black Sea by governments may be one of the solutions to balance the market demands, mostly in Turkey. Similarly, the GFCM could provide enormous help through its Committee on Aquaculture. If turbot farming becomes successful and the market price is reduced, IUU fishing could decrease. In addition, wild stocks could remain sustainable and their protection could be more easily guaranteed. This case resembles that of sea bream and sea bass aquaculture in the Mediterranean Sea. After successful farming of these two sparid fish was achieved, their prices decreased and the natural stocks were not depleted totally.

All fisheries associations and cooperatives should take an initiative for mitigation or zero tolerance against IUU fisheries among riparian countries. Public awareness campaigns against IUU fishing in the Black Sea with the help of fisheries authorities, with the active participation of fishery cooperatives, should be started. Overall an effective program should be developed to halt IUU fishing in the region, which includes also vocational trainings and involves relevant academic institutions and research centers existing at local level.

REFERENCES

Peer-reviewed articles, other published works and relevant legislation

- Acara, A. 1985. The Black Sea Turbot. State Planning Organization, Ankara, Turkey. 21p. (In Turkish)
- Agnew, D., Pearce, J., Pramod, G., Peatman, T., Watson, R., Beddington, R.J., Pitcher, T.J. 2009. Estimating the worldwide extent of illegal fishing. *Plus one* 4(2) e 4570. doi.10.1371.
- Artov, A., Pavlov, V., Zhuravleva, T. 1994. Incidental killing of Black Sea dolphins off the Crimea and Krasnodor territory coasts: Analyses of official data and Outlook. Pp 58-59. 8th European Cetacean Society, Montpellier, France.
- Barros, P. 2011. Mediterranean and Black Sea. Review of the state of world marine fishery resources. FAO, Fisheries and Aquaculture Technical Paper, No: 569, pp. 77-92.
- Birkun, A. Jr. 2002. Interactions between cetaceans and fisheries in the Black Sea. In: G. Notarbartolo di Sciara (Ed.), *Cetaceans of the Mediterranean and Black Seas: State of Knowledge and Conservation Strategies*. A report to the ACCOBAMS Secretariat, Monaco. Section 10.

- Chashchin ,A.K.The Black Sea population of Anchovy.Sci.Mar, 60(sup.2) 219:225.
- Council Regulation (EC) No 1005/2008. "Establishing a community system to prevent deter and eliminate illegal, unreported and unregulated fishing."
- EFTEC(2008) .Cost of Illegal , Unreported and Unregulated(IUU) fishing in EU fisheries.UK.75 p.
- FAO. 2008. Management of fishing capacity and the international plan of action to prevent, deter and eliminate illegal, unreported and unregulated fishing. <http://www.fao.org>
- Daskalov, G., Osio, C., Charef, A. 2012. Scientific, Technical and Economical Committee for Fisheries (STECF). Assessment of Black Sea Stocks. Joint Research Center. European Commision, 236 p.
- Düzgüneş, E., Erdoğan, N. 2008. Fisheries management in the Black Sea countries. Turkish Journal of Fisheries and Aquatic Sciences 8: 181-192.
- GFCM, 2011. Status of the GFCM Actions in the Black Sea. GFCM: SAC13/ inf.24.
- GFCM. 2012. Background document on the Black Sea fisheries for the First meeting of the GFCM Working Group on the Black Sea. Constanta, 16-18 January, 2012. Preliminary version.
- Kara, A. 2012. Turbot fishery. In: A. Tokaç, A.C. Gücü, B. Öztürk (Eds.), The State of Turkish Fisheries. Turkish Marine Research Foundation Publication, Number 35, pp. 400-418.
- Kabasakal, H. 1998. Shark and ray fisheries in Turkey. Shark News 11: 8.
- Khavtasi, M., Makarova, M., Lomoshvili, I., Phartsvania, A., Moth-Poulsen, T., Woynarovich, A. 2010. Review of fisheries and aquaculture development potentials in Georgia. FAO Fisheries and Aquaculture Circular, No.1055/1. FAO, Rome, 82 p.
- Komakhidze, A. 2004. Responsible Fisheries Booklet for the Black and Azov Seas. Turkish Marine Research Foundation Publication, Number 7, pp. 17-21.
- Kumantsov, M.I. 2011. The Birth and Evaluation of Fishery in the Northern Black Sea, Part 1, from Antiquity to the Early 20th Century. Vniro Publising, Moscow, 236 p.
- Kurumahmut, A. 2001. Legal Status of the Black Sea. Seminar of the Aquaculture. Chamber of Shipping, İstanbul, pp. 86-87.
- Pasyakin,V. 1991. The operation "Kalkan " is completed. Kareltny Krym.78:4. (In Russian).
- Radu, G., Nicolaev, S., Anton, E., Maximov, V., Radu, E. 2003. Preliminary data about the impacts of fishing gears on the dolphins from the Black Sea. In: B. Öztürk and S. Karakulak (Eds.) Workshop on Demersal Resources in the BlackSea and Azov Sea. Turkish Marine Research Foundation Number 14, pp. 115-129.
- Radu, G., Nicolaev, S., Papadopol, N.C., Anton, E., Maximov, V., Staicu, I., Radu, E. 2004. Results of the dolphin monitoring carried out between 2001-2002. Cercetari marine 35: 191-204.
- Raykov, V., Velikova, V., Lisichkov, K., Kuvendziev, S. 2011. Review of main fisheries indicators in the Black Sea by using diagnostic analysis. Natura Montenegrina Podgorica 10(3): 309-312.
- Shlyakhov, V. 2003. On the current state of Aciepnseridae stocks in the Ukrainian sector of the northwestern Black Sea. In: B. Öztürk and S. Karakulak (Eds.) Workshop on Demersal Resources in the BlackSea and Azov Sea. Turkish Marine Research Foundation Number 14, pp. 75- 77.
- Shlyakhov, V., Charova, I. 2003. The status of demersal fish populations along the Black Sea coast of Ukraine. In: B. Öztürk and S. Karakulak (Eds.) Workshop on Demersal Resources in the BlackSea and Azov Sea. Turkish Marine Research Foundation Number 14, pp. 65-74.
- Özdamar, E. 1995 . A comparative study on constructional characteristics and engine power of Turkish fishing vessel in the Black Sea.Turkish Journal of Marine Sciences, 1(2): 109-120.
- Öztürk, B. 1998. Black Sea Biological Diversity, Turkey. Black Sea Environmental Series Vol. 9, UN Publication, New York.

- Öztürk, B. 2011. Sea Essays. İlke Kitap, İstanbul. 378 p. (In Turkish)
- Öztürk, B., Keskin, Ç., Engin, S. 2011. Some remarks on the catch of anchovy, *Engraulis encrasicolus* (Linneus, 1758), in Georgian waters by Turkish fleet between 2003 and 2009. J.Black Sea/Mediterranean Environment 17(2): 145-158.
- Skalkov, V.A., Daskalov, G.M. 2006. The state of marine living resources. In: T. Oğuz (Ed.), State of the Environment of the Black Sea (2001-2006/7). Publication of the Commission on the Protection of the Black Sea Against Pollution (BSC), İstanbul, pp. 321-364.
- Taner, L. 2010. Determination of amount of lost fishing gear which cause to ghost fishing in İstanbul artisanal fisheries. MSc Thesis. İstanbul University, İstanbul. (In Turkish)
- Tonay, A.M., Öztürk, B. 2002. Cetacean bycatches in turbot fishery on the western coast of the Turkish Black Sea. In: I.K. Oray, M.S. Çelikkale, G. Özdemir (Eds.), International Symposium of Fisheries and Zoology (In memory of Ord. Prof. Dr. Curt KOSSWIG in His 100th Birth Anniversary), İstanbul, pp. 131-138.
- Topçu, N.E., Öztürk, B. 2010. Abundance and composition of solid waste materials on the western part of the Turkish Black Sea seabed. Aquatic ecosystem Health and management. 13:3,301-306.
- Volovik, S. 2004. State and prospects of the development of Russian Fisheries in the Azov and Black Sea basin. Responsible Fisheries Booklet for the Black and Azov Seas. Turkish Marine Research Foundation Number 7, pp. 37-47.
- Ye, Y., Cochrane, K. 2011. Review of the state of world marine fishery resources. FAO, Fisheries and Aquaculture Technical Paper, No:569, p.32 .Roma.
- Zengin, M. 2000. The Bio-ecology, Population Parameters and Stocks Assessment of the Turbot (*Scophthalmus maeoticus* Pallas, 1811) in the Turkish coast of the Eastern Black Sea. Ph.D. Thesis. Fen Bilimleri Enstitüsü, Karadeniz teknik Üniversitesi, Trabzon. 221p. (In Turkish)
- Zengin, M., Genç, Y., Ak, O. 2012. A preliminary investigation on the state of Turkish fishing fleet on anchovy along north eastern Black Sea (Georgia, Abkhazia) coast. Yunus Araştırma Bülteni 4: 27-43. (In Turkish)

Newspaper articles

- Basler Zeitung, 7 July 2000.
- Inter-TASS, 11 May 1996.
- Milliyet, 30 May 2000.
- Romania Libera, 20-21 April 2002, p. 16.
- Sabah, 25 April 2000.
- Sabah, 19 August 2002.
- 3 March Odesky Vestnik
- Segondya, 4 March 2000.
- The Kievskie Vedomosti, 6 March 2000, p. 5.

Internet sources:

- www.interpol.int/crime-areas/environmental-crime
- [www.pewtrustorg/reports/protecting_ocean_life/eftec Cost IUU Fishing.pdf](http://www.pewtrustorg/reports/protecting_ocean_life/eftec_Cost_IUU_Fishing.pdf).

Appendix E

List of relevant GFCM and BSC decisions and documents

GFCM	Black Sea Commission
Selected Recommendations on Conservation and Management and MCS	Selected Relevant Documents
CM-GFCM/36/2012/2 On mitigation of incidental catches of cetaceans in the GFCM area	Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea (adopted in Sofia, Bulgaria, 17 April 2009)
CM-GFCM/36/2012/3 On fisheries management measures for conservation of sharks and rays in the GFCM area	Appendix 2. List of Species of Black Sea Importance (Biodiversity and Landscape Conservation Protocol to the Bucharest Convention)
MCS-GFCM/35/2011/1 Concerning the establishment of a GFCM Logbook, amending Recommendation GFCM/34/2010/1	Appendix 4. List of Species Whose Exploitation Should be Regulated (Biodiversity and Landscape Conservation Protocol to the Bucharest Convention)
MCS-GFCM/34/2010/2 On the management of fishing capacity	Black Sea Fishes Check-List
MCS-GFCM/34/2010/3 Concerning the identification of non-compliance	Black Sea Fishes List – IUCN Status
MCS-GFCM/33/2009/6 Concerning the establishment of a GFCM record of vessels over 15 metres authorized to operate in the GFCM area amending the recommendation GFCM/29/2005/2	Black Sea non-native Fish Species List
MCS-GFCM/33/2009/7 Concerning minimum standards for the establishment of a Vessel Monitoring System (VMS) in the GFCM area	
MCS-GFCM/33/2009/8 On the establishment of a list of vessels presumed to have carried out IUU fishing in the GFCM area repealing the recommendation GFCM/30/2006/4	
MCS-GFCM/32/2008/1 On the regional scheme on port State measures to combat illegal, unreported and unregulated fishing activities in the GFCM Area	

GFCM	Black Sea Commission
CM-GFCM/31/2007/1 On the mesh size of trawl nets exploiting demersal resources	
CM-GFCM/30/2006/1 Management of certain fisheries exploiting demersal and small pelagic	
MCS-GFCM/30/2006/5 Criteria for obtaining the status of cooperating non-contracting party in GFCM area	

Appendix F**Draft GFCM Recommendation on the establishment of a set of minimum standards for bottom-set gillnet fisheries for turbot and conservation of cetaceans in the Black Sea⁵**

The General Fisheries Commission for the Mediterranean (GFCM),

RECALLING that the objectives of the Agreement establishing the General Fisheries Commission for the Mediterranean are to promote the development, conservation, rational management and proper utilization of living marine resources;

RECALLING the Johannesburg Declaration on Sustainable Development of 2002 and in particular its Plan of Implementation;

REAFFIRMING the principles of the FAO Code of Conduct for Responsible Fisheries and recalling the precautionary and ecosystem approach to fishery management;

RECOGNIZING that some fishing operations carried out in the Convention area can adversely affect marine mammals and there is a need to implement measures to mitigate these adverse effects;

RECOGNIZING that these fishing operations shall be consistent with the sustainable exploitation and conservation of the fish species targeted;

AIMING to improve the knowledge about the impact that certain fisheries have on marine mammals;

AIMING to reduce the incidental taking of marine mammals in certain fisheries;

TAKING INTO ACCOUNT the SAC advice on the need to endorse measures for the reduction of the by-catch of marine mammals;

**PART I
Scope**

1. Members and cooperating non-Members of GFCM shall adopt fisheries management measures in the Black Sea region to ensure adequate conservation of turbot;
2. Members and cooperating non-Members of GFCM shall adopt fisheries management measures to study, monitor, prevent, reduce and, to the extent possible, eliminate incidental taking of cetaceans during fishing operations.

**PART II
Definitions**

⁵ This draft recommendation was presented at the 36th Session of the Commission (Marrakech, Morocco, 14-19 May 2013). It was decided by the Commission to put it on hold for further elements to be addressed during the second meeting of the GFCM Working Group on the Black Sea (Varna, Bulgaria, 25-27 April 2013).

3. For the purposes of this Recommendation the following definitions shall apply:
- "Black Sea" means the GFCM geographical subarea n° 29 as defined in Resolution GFCM/33/2009/2;
 - "Turbot" means fishes pertaining to the species *Psetta maxima*;
 - "Picked dogfish" means fishes pertaining to the species *Squalus acanthias*;
 - "Bottom-set gillnet" means any net made up of a single piece of net held vertically in the water by floats and weights fixed or capable of being fixed by any means to the bottom of the sea and maintain the gear in place either close to the bottom or floating in the water column.
 - "Mesh size" means :
 - o For knotted netting: the longest distance between two opposite knots in the same mesh when fully extended (stretched mesh);
 - o For knotless netting: the inside distance between the opposite joints in the same mesh when fully extended (stretched mesh) along its longest possible axis.

PART III

Fisheries management measures related to turbot in the Black Sea

4. Members and cooperating non-Members of GFCM shall ensure that turbot in Black Sea waters is exclusively fished using bottom-set gillnets and that the following conditions are respected:

- Mesh size is equal to or larger than 400 mm

The mesh size of the net shall be determined as the mean value of the series of 20 selected meshes; in case of different mesh sizes in the fishing net, the meshes shall be selected from the part of the fishing net having the smallest meshes.

Meshes shall be measured only when wet and unfrozen; meshes that have been broken or have been repaired shall not be included.

- To be landed, turbot shall have a minimum size of 45 cm measured from the tip of the snout to the end of the tail fin (total length).

PART IV

Fisheries management measures for the mitigation of marine mammals by-catch

5. In order to mitigate the impact of bottom-set gillnet fisheries on marine mammals populations, Members and cooperating non-Members of GFCM shall ensure that monofilament or twine diameter shall not exceed 0.5 mm. Monofilament or twines shall be assessed when unfrozen. Monofilament (or) of twines within a mesh that are broken or have been repaired shall not be selected.

6. Members and cooperating non-Members of GFCM should set up adequate monitoring in order to collect reliable information on the impact that bottom-set gillnets targeting picked dogfish have on cetaceans populations in the Black Sea.