GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN

COMMISSION GÉNÉRALE DES PÊCHES POUR LA MÉDITERRANÉE

GFCM Working Group on the Black Sea (WGBS)

Report of the third meeting of the ad hoc Working Group on the Black Sea

Trabzon, Turkey, 26-28 February 2014

OPENING, ARRANGEMENT OF THE MEETING AND ADOPTION OF AGENDA

1. The third meeting of the Working Group on the Black Sea was held in Trabzon, Turkey, from 26 to 28 February 2014. The meeting was attended by experts from Black Sea riparian countries (Bulgaria, Georgia, Romania, Turkey and Ukraine), as well as by representatives of the European Union (EU), the FAO Regional Office for Europe and Central Asia (FAO-REU) and the GFCM Secretariat. The list of Participants is provided in Appendix B of this report.

2. Mr Simion Nicolaev, coordinator of the WGBS, opened the meeting and greeted participants. In quickly recalling the activities of the WGBS since its establishment, he underlined the achievements of the first meeting of the GFCM sub-regional group on stock assessment in the Black Sea (SGSABS) and the encouraging results of the workshop on testing feasibility of implementing fisheries management plans in the Black Sea. He then reminded the role of the WGBS in reviewing the outcomes of activities undertaken, determining priorities and setting its workplan for the next intersessional period.

3. Mr Ilhan Aydin, vice-coordinator of the WGBS, welcomed participants to Trabzon and expressed his appreciation for the presence of many experts from Black Sea riparian countries. He referred to the success of the second meeting of the WGBS and hoped for similarly encouraging cooperation and results.

4. Mr Fabio Massa, from the GFCM Secretariat, thanked on behalf of the GFCM Executive Secretary the Turkish authorities for hosting the meeting and the Central Fisheries Research Institute of Trabzon for the warm hospitality and great organization. He noted with appreciation that since the establishment of the WGBS, cooperation in the region had been considerably reinforced and in particular in the fields of stock assessment, data collection, aquaculture training and more recently in the management of selected fisheries. He also recalled the GFCM had adopted at its thirty-seventh session in May 2013 its first binding recommendation for turbot fisheries and conservation of cetaceans in the Black Sea.

5. Mr Nicolaev chaired the meeting and the GFCM Secretariat undertook the task of reporting. The Agenda was adopted with some changes and is provided in Appendix A.

OVERVIEW OF THE GFCM INTERSESSIONAL ACTIVITIES IN THE BLACK SEA

6. A basis for discussion was provided by several presentations concerning i) GFCM activities undertaken and decisions implemented since the 37th session of the Commission (May 2013) approved the WGBS workplan for 2014 as well as ii) ongoing projects and initiatives in the area.

Main conclusions of the second meeting of the WGBS and outcomes of the thirty-seventh session of the GFCM with regards to the Black Sea

7. The WGBS coordinator presented the main conclusions and recommendations for both fisheries and aquaculture emanating from the second meeting of the working group along the activities carried out in the intersessional period. He underlined the positive results achieved through the setting up of the sub-regional group for stock assessment in the Black Sea (SGSABS) and mentioned the good work that had been carried out in the workshop for the implementation of management plans in the Black Sea. He recalled the 37th session of the GFCM had formally adopted the first Black Sea specific 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' (Rec. GFCM/37/2013/2). Finally, he summarized the main outcomes of the First Regional Symposium on sustainable small-scale fisheries in the Mediterranean and Black Sea (Malta, November 2013) and anticipated elements of the Aquaculture Multi-Stakeholder Platform (AMShP).

On-going cooperative programmes on capture fisheries and aquaculture

8. The GFCM Secretariat recalled the nature and scope of all main initiatives active in the Black Sea. It was suggested, echoing the experience of the database of experts in the Black Sea set up upon the request of the first meeting of the WGBS, to create a database of ongoing projects in the area – inclusive of information on related objectives, duration, funds, beneficiaries and partners – to serve as a tool for involved experts and interested stakeholders and a basis for potentially exploiting synergies and complementarities.

9. Mr Aydin summarised the activities carried out by the institute of relevance to fisheries and aquaculture in the Black Sea.

10. Mr Thomas Moth-Poulsen, FAO REU, delivered a presentation on the progress of FAO BlackSeaFish, a project proposal to support responsible fisheries in the Black Sea. He outlined the background that had led to a meeting for the validation of the feasibility phase in January 2014, whereby all six riparian countries had submitted overview reports on the national fisheries sector, which firstly fed the project concept note analyzed during a coordination meeting in October 2013 and that was then elaborated into the final project document on the basis of countries' inputs. He also listed the activities foreseen in the proposal and indicated it should have an operative Secretariat alongside working groups on specific issues such as aquaculture, MCS issues, etc. He stressed that the project outcomes were following the same concept of the FAO regional projects operating in the Mediterranean and that he wished cooperation in the area and with the GFCM could follow that example.

11. In the ensuing discussions, the chair stated the project could constitute a tool to support the GFCM through its WGBS. The GFCM Secretariat took the occasion to mention the tangible benefits of the existing collaboration with the FAO projects in the Mediterranean and welcomed the opportunities of the potential establishment and launching of the BlackSeaFish project.

12. Ms Esra Fatma Denizci Toslak, from the Turkish Ministry of Food, Agriculture and Livestock, highlighted the importance of the project and stated it would provide important developments in the region together with the cooperation of all six Black Sea riparian countries, including through GFCM.

13. The EU representative explained BlackSeaFish was appreciated and needed, recalling EU's consistent support to the FAO projects approach. She regarded BlackSeaFish as an opportunity to bring together the countries concerned and achieve sound results, but always within the remit of the work of the GFCM. In this latter case, she stated the EU would be ready to actively cooperate. In this regard, Mr Moth-Poulsen pointed out that the modalities under which the project would operate were still to be determined but agreed on the importance of its support to GFCM activities.

OUTCOMES OF GFCM FRAMEWORK PROGRAMME (FWP) ACTIVITIES OF RELEVANCE TO THE BLACK SEA

Progress towards the new GFCM Agreement and Annexed Rules, with specific reference to provisions of relevance to the Black Sea

14. The GFCM Secretariat recalled the main objectives of the ongoing process of amendment of the GFCM legal and institutional framework, as well as the outcomes of the workshop that examined a new set of constitutive texts of the GFCM, which had just been held in Istanbul (19-21 February 2014).

15. Ms Denizci Toslak underlined that sound work had been undertaken during said workshop and stressed – in light of the successes obtained by the WGBS as a technical forum where all six Black Sea Riparian States cooperate – the opportunity to potentially institutionalize such cooperation within the ongoing process of amendment of the GFCM legal framework.

16. The delegates from Georgia communicated that the amendment process was being closely followed by the relevant decision makers in their country, reason for which they were requesting constant updates on the status of negotiations.

17. The GFCM Secretariat specified the minutes of the workshop held in Istanbul together with the agreed draft amended texts were being circulated also to non-Members, who were invited to review the proposed contents in view of the holding of the GFCM Extraordinary session (Athens, Greece, 7-9 April 2014) to which they were being formally invited so to take active part in the debate.

Advances on IUU fishing

18. Mr Bernal outlined the steps undertaken in the fight against IUU fishing, recalling that the roadmap proposed during a joint GFCM/BSC workshop (February 2013), then reviewed by the second meeting of the WGBS, had been adopted at the 37th session of the Commission. A phased implementation of such roadmap was undergoing and a follow-up workshop was foreseen, together with targeted activities, still to be clearly defined, such as a joint GFCM/EFCA training for Black Sea inspectors or other training opportunities with FAO on issues such as port state measures.

19. The delegate from Georgia welcomed the opportunity for her country to benefit of the foreseen training of inspectors, regarded as an essential step towards the effective fight against IUU fishing.

Status of the main fishery stocks in the Black Sea

20. Mr Bernal summarized the findings of the SGSABS during its meeting in January 2014, which reviewed information on stock assessment for eight Black Sea fish stocks/populations including i) five stock assessment attempts: Turbot (*Psetta maxima*) at Black Sea scale and only within western Ukrainian waters, two stocks of two Anchovy subspecies (*Engraulis encrasicolus ponticus* – Black Sea anchovy, and *Engraulis encrasicolus maeoticus* – Azov Sea anchovy) and Sprat (*Sprattus sprattus*), as well as ii) information on catches of Spiked Dogfish (*Squalus acanthia*), Bonito (*Sarda Sarda*) and Rapa Whelk fisheries (*Rapana venosa*). He specified the stock advice was reviewed by the

GFCM subcommittee on stock assessment (SCSA) in February 2014, which provided management advice as appropriate.

21. The WGBS analyzed the six stock assessments of Black Sea species and related stock advice and decided to provide its comments on the management advice for consideration by the 16th session of the GFCM Scientific Advisory Committee (SAC) (March 2014). Some salient issues raised during discussions are reproduced below and a summary of main conclusions for each of the stocks is included in the final table of stock assessments and related comments as available in Appendix C.

Turbot

22. The EU representative, in agreeing with the advice of implementing a recovery plan, insisted on the necessity to simultaneously tackle IUU fishing in the plan, in line with the analysis and conclusions of the SGSABS for this stock. He also suggested to consider carrying out a stock delimitation study.

Sprat

23. The WGBS noted the great fluctuation in catches and extensively discussed the possible causes. It was recalled that Turkey had related the specific increase of 2011 catches with a supply to Turkish fishing mill factories, rather than use for direct consummation or conservation. However it was also mention that there were differences in the importance of sprat for the different fleets operating in the Black Sea, and that Turkish fleet did not have sprat as a priority target.

24. The WGBS agreed that the causes of such fluctuations had to be investigated in order to determine whether the fluctuation was; i) natural, hence affecting stock status and advice, or ii) a result of other factors, including market constraints. It was suggested the SGSABS could ensure this task at its following meeting.

Anchovy

25. The WGBS pointed to the need of better identify the different anchovy sub-species in the catches, in order to be able to estimate their proportion and the total catches for both sub-species. In this regard, involved experts from Turkey specified the intention to carry out an study to use otoliths to estimate the percentage of both sub-species in the Turkish catches, especially in the area off the coast of Georgia, where both sub-species coexist during the winter period.

26. Also, the necessity to improve and harmonize data collection was highlighted, considering countries do not collect data in the same manner. The GFCM workshop on the harmonization of surveys in the Black Sea scheduled by the end of 2014 was recalled for this purpose.

27. In light of the unknown status of the stock of Black Sea anchovy and the SGSABS advice requesting a time series of surveys so to establish a complete and reliable assessment of the species, the group agreed that both acoustic and Daily Egg Production Method (DEPM) surveys should be promoted. In addition to this, the group agreed that pending sound assessment of the stock, precautionary reference points should be estimated, if possible at the next SGSABS meeting.

28. The delegate from Georgia stated her country wished to further improve their methodology for data collection (based on catch quotas and licensing after 300 meters from the coast) and insisted on the need for collaboration among riparian countries in this regard. The group agreed that the lack of scientific basis for the estimation of quota limits, due to lack of reliable stock assessments, jeopardizes the effectiveness of the quota system to manage the stock.

Piked dogfish

29. The Romanian delegate informed the group that the UNEP Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) was examining the proposal to have this species, presently classified under *Appendix II - Migratory species conserved through Agreements,*

moved to *Appendix I – Endangered migratory species* (i.e. strict protection, no catches). In this regard, he pointed out that Ministries of Environment could be interested stakeholders in ensuring a sound assessment is carried out to provide a clear picture on the status of the stock.

30. The Georgian delegate underlined the influence on catches of recreational fishing, for which there was a considerable lack of information.

31. The group agreed that better estimates of piked dogfish are necessary to assess and manage the status of the stock, also in agreement with existing GFCM recommendations.

Bonito

32. The WGBS commented on the peaks in catches, on the fact that these were often coinciding with opposite behavior of other species (e.g. anchovy in Turkey), and on the very high growth rate of bonito in the area. Also, the group discussed on the relationship of bonito catches with environmental variables and the spawning intensity in the Mediterranean area, as well as on the potential effect of punctual high abundances of bonito in the fleet and in the Black Sea ecosystem. Although not considered among the most urgent issues to tackle, a multivariate study of bonito catches in the area was suggested to further understand the dynamics of this species in the area.

Rapa whelk

33. The need for surveys on the actual status of abundance of rapa whelk and related interactions (e.g. impact of rapa whelk on the Black Sea ecosystem, impact of rapa whelk fishing gears on other species) with the ecosystem was highlighted.

Management of stocks

34. Mr Bernal introduced the main objectives and contents of the *Minimum structure, criteria and measures for multiannual management plans for turbot fisheries in the Black Sea* (Appendix F) that had been agreed and adopted among participants of the Workshop of testing the feasibility of implementing management plans in the Black Sea. He recalled that, in addition, a background technical document summarizing existing information on the fishery would be prepared by the Secretariat and circulated to participants.

35. Following an enquiry regarding the robustness of the assessment of turbot to provide management advice, it was specified that notwithstanding existing uncertainties on some aspects (e.g. stock boundary and the level of IUU catches) a precautionary approach should be taken, and that a potential management plan should include i) precautionary measures while stock assessment was uncertain, ii) ensure that uncertainties in stock assessment are addressed by the adequate research, and iii) include a provision on a regular revision of the plan to incorporate new knowledge in the management of the stock.

36. In reply to Ms Ayşe Gazihan Akoğlu (Turkey) asking whether such precautionary approach included the effect of tropic interactions between species together with the effect of the fishery, it was explained that ecosystem interactions were currently not fully incorporated into the assessment of status of stocks and the existing management advice, but the importance of these interactions for the management were acknowledged and therefore should be further investigated by the SAC.

Establishment of the multi-stakeholder Aquaculture Platform

37. Mr Massa presented the background, concept and rationale of the recently established Aquaculture Multi-Stakeholder Platform (AMShP), the fruit of a cooperation and consultation process among aquaculture actors (scientist, administrations, farmers, NGOs) and a new working method to support the development of aquaculture in the region. He indicated it foresees an ad hoc steering committee, is organized around four main fora – namely addressing i) regulatory framework, ii)

environment and disease management, iii) quality and market of aquaculture products and iv) technology and food production – and tackles several strategic areas covering priorities for the sustainable development of aquaculture in the region.

38. The initiative was praised for its ambitious programme and the preparatory work being carried out. In particular, national capacity building through trainings was welcomed – also in light of the usefulness of aquaculture trainings carried out by the GFCM in the Black Sea in 2013 – especially by countries where the potential of marine and brackish aquaculture was not exploited.

39. In this regard, mention was made of the heterogeneity of aquaculture development in the Black Sea, whereby Turkey had witnessed a remarkable growth of the sector in recent years while other countries were making advances unequally. Participants stressed that the AMShP should take into consideration such heterogeneity and plan activities accordingly.

40. In commenting in more detail some of the AMShP strategic areas, the following issues were noted:

- the importance of "technology innovation and diversification in aquaculture" for the development of the sector in the Black Sea, with particular attention to mollusks and shellfish culture (mussels). The latter is furthermore beneficial for the environment (removing nutrients, enhancing water clarity) and does not impact fisheries resources (uses fishmeal and/or fish oil);
- the identification and adoption in riparian countries of Better Management Practices (BMPs) as well as the responsible use of fish feed (via reduction the Food Conversion Rate - FCR) should improve the integration of aquaculture with the environment.
- the potential of the cultivation of non-carnivorous fishes as well as of trophic aquaculture activities and policulture toward the reduction of aquaculture oriented over nutritional capacities.

Aquaculture statistics

41. Mr Massa recalled the need – identified since the establishment of the WGBS – to gather information on aquaculture data statistics, including prepare an inventory of production centres in order to assess the production capacity for the Black Sea. In this regard, he informed the group that substantial progress had been made but not for the whole Black Sea area, sometimes due to lack of a protracted contact in a given country. He made particular reference to the data collected on the basis of 'Recommendation GFCM/35/2011/6 on reporting of aquaculture data and information' and of the recently adopted format for submitting information on the production centres, namely, inter alia: i) unit (segment) of production (hatcheries, ongrowing farms), ii) number of production centres per unit (segment), iii) cultured species per unit (segment), iv) total volume (m3) of facilities of production centres per segment, v) destination of product per segment (consumption, ongrowing, restocking, ornamental).

42. In light of the above, he underlined the relevance of having reference experts for aquaculture in all riparian countries and the WGBS discussed the possibility of creating an ad hoc sub-group focused on aquaculture matters.

43. Mr Massa also recalled that, in the collection of statistical data on production statistics and production centres, data, in particular for the case of brackish and marine aquaculture, are generically referred to the FAO Mayor Fishing area 37 only, and therefore no distinction is made between the different statistical areas or between Mediterranean and Black Sea.

44. The WGBS agreed on the necessity to improve the regional data collection system on aquaculture and indicated the distinction should be made between subareas (i.e. 37.3 and 37.4), particularly when the culture of a given species occurs in more than one of them.

Aquaculture restocking activities

45. The advances made in the frame of WGBS on the role of aquaculture activities on marine restocking for stock enhancement and conservation of marine biodiversity were recalled, together with the adopted series of principles for their implementation. It was specified that such principles served as a basis for the preparation of specific guidelines for the "restocking activities made with farmed fish or hatchery based". It was finally considered essential that the guidelines (Appendix G) also include a monitoring scheme to assess the real impact on wild stocks, of which a draft was presented as reported in Appendix H.

46. The related discussions focused on the effectiveness of the restocking activities, in particular when aimed at the replenishment of declined fishery populations. In this respect, experiences showed measurable increases in the populations, such as the restocking of fingerlings of sturgeons in Romania and the restocking of turbot under the supervision of the Trabzon Central Fisheries Research Institute, during which it was possible to track the rate of recapture of adults thanks to a tagging programme implemented in collaboration with fishermen. Although a direct influence between restocking activities and size of populations cannot be certified, it was worth mentioning that recent years witnessed a certain recovery of the wild stocks of sturgeons.

INTRODUCTION OF THE GFCM DATA COLLECTION REFERENCE FRAMEWORK (DCRF)

47. Mr Bernal presented the final draft of the GFCM Data Collection Reference Framework (DCRF) underlining the importance of the DCRF to achieve a more efficient data collection programme at subregional level and a better integration of data collection within the mandate of the GFCM. He highlighted that the DCRF contained GFCM data requirements included in the previous GFCM recommendations, but taking into consideration suggestions provided by the GFCM Members to simplify and clarify data requirements.

48. After a quick overview of the historical background, including the GFCM performance review, the Task Force, the Framework Programme as well as the data collection activities, he summarized the main issues in terms of gaps, difficulties and proposals which arose from the subregional workshops on data collection. The presentation continued with a summary of DCRF tasks including the type of requested data and their purposes:

T.I Catch (landing data, catch data per species)

T.II By-catch of vulnerable species

T.III Fleet

T.IV Effort

T.V Socioeconomics

T.VI Biological information (stock assessment, length data, other biological data, dolphin fish, red coral)

49. In the ensuing discussions, and in relation to the existence of a list of priority species for the different Tasks and for which different obligations exist, the Group highlighted the fact that some Black Sea countries already had in place a list of species with different degree of protection, that should be considered specially for the definition of priority species for the Black Sea in terms of conservation. The GFCM Secretariat invited countries to share this information in order to incorporate it into the DCRF.

50. Countries convened they would examine the full document available and submit their comments and/or information of relevance for its inclusion on the GFCM DCRF, as appropriate.

COOPERATION OF GFCM/WGBS WITH BSC/AGFOMLR IN THE FRAME OF THE EXISTING MEMORANDUM OF UNDERSTANDING

51. In the frame of the operationalization of the existing MoU between the GFCM and the BSC, Mr Nicolaev verbally summarized the outcomes of the last meeting of the BSC Advisory Group on Fisheries and presented the items of the workplan that the BSC/AGFOMLR had decided to put at disposal of the WGBS for evaluating the possibility of jointly addressing issues of common interest and/or implementing activities.

52. The WGBS acknowledged and reviewed the workplan proposed by the BSC/AGFOLMR; the most relevant conclusions deriving from this review are included in paragraph 68 of this report and the related items have also been included and prioritized within the WGBS workplan.

53. In relation to the elaboration and implementation of a harmonized scheme for reporting at national level and exchange of data between BSC and GFCM, the WGBS was informed that the BSC/AG FOLMR had agreed to share the information obtained through the submission by the six riparian countries of national reports. It was decided to update the BSC format by including some issues of relevance to the GFCM emanating from the format for national reports that GFCM Members submit to SAC each year. A proposal would be presented to WGBS experts for consideration and approval.

WGBS ORGANIZATIONAL MATTERS

54. The main decisions unanimously agreed upon by the WGBS on the modalities to improve its functioning, timeliness and quality of deliverables during the intersessional period as well as overall support to the activities carried out in the Black Sea are detailed in the general conclusions and recommendation section (paragraph 63 of this report).

55. The WGBS agreed to set up – following the successful creation of the database of experts on the Black Sea – a database of existing projects in the Black Sea, of easy consultation and providing relevant information and related contact links.

56. The GFCM Secretariat informed the WGBS that the new GFCM website would soon be released and that, with the objective to promote ongoing action in the region, relevant information and/or news about events of importance could be posted online, as appropriate.

57. The WGBS expressed its appreciation for the work undertaken by the SGSABS and commended the valuable contribution the creation of a sub-group had provided. In light of this, it reiterated the importance of maintaining the SGSABS, and potentially establishing a sub-group for aquaculture matters, as possible and as appropriate.

58. The WGBS focal points were updated and/or confirmed as follows:

Bulgaria:	Ivelina Bektchieva
Georgia:	*pending confirmation by competent authorities*
Romania:	Gheorghe Radu
Russian Federation:	Olga Vilkova
Turkey:	Ilhan Aydin
Ukraine:	Vladyslav Shlyakhov

GENERAL CONCLUSIONS AND RECOMMENDATIONS

59. On the basis of the discussions held and with the objective to further support the sustainable development of fisheries and aquaculture in the Black Sea, the WGBS reached the following conclusions and recommendations:

Common issues

60. The WGBS underlined that cooperation on activities of common interest to all Black Sea riparian States, as well as sharing of knowledge, should continue and/or be strengthened with existing regional initiatives and projects on capture fisheries and aquaculture in the Black Sea, in particular in view of the potential establishment and launching of FAO BlackSeaFish;

61. The WGBS recommended to improve regional scientific cooperation among research institutes, including participation on international events such as the International Symposium on Fisheries and Aquatic Science[1], and coordination with other ongoing and proposed projects, including FAO projects in the area;

62. The WGBS recommended to submit an updated list of activities and outcomes of its ongoing work in the Black Sea to the attention of the 29th session of the FAO Regional Conference for Europe (ERC) (Romania, April 2014), to be potentially introduced into document ERC/14/INF/9 (Summary report of the recommendations from the various fisheries commissions in the Region and the importance of fisheries for the Europe and Central Asia Region);

63. The WGBS proposed to improve its organizational structure by supporting its activities as follows:

- Each WGBS meeting should be preceded by a call for presentations on fisheries and aquaculture activities in the area and the agenda of the meeting should be jointly prepared by all involved stakeholders (WGBS coordinators and nominated focal points, participating independent experts, relevant ongoing projects, etc.);
- The WGBS coordinator and vice-coordinators should select presentations on the basis of identified main issues to be addressed (e.g. fisheries management, aquaculture development, technologies, etc.) and ensure coordination and participation of relevant experts in identified fields;
- Participation of experts from all six Black Sea riparian countries should be ensured and funding possibilities should be sought through external projects potentially interested in WGBS deliverables, the EU DC-MAP and/or other sources, as appropriate;
- For the sake of resources and cost optimization, WGBS meetings should be organized back-to-back with other relevant meetings, and selected WGBS activities should be carried out electronically;
- WGBS coordinators and nominated focal points would be provided with permanent access to WGBS web-site and related subgroups material available on the GFCM SharePoint.

[1] FABA 2014; 25-27 September 2014, Trabzon, Turkey.

Fisheries issues

64. The WGBS recommended to facilitate, at national level, that scientific surveys incorporated in different ongoing projects and related to WGBS objectives could cover waters under the jurisdiction and sovereignty of the different riparian States;

65. The WGBS revised the advice provided by SCSA on the management of Black Sea stocks, and provided comments as reported in Appendix C;

66. The WGBS endorsed the terms of reference of the SGSABS and the Workshop on Black Sea scientific surveys at sea as reproduced in Appendix E;

67. The WGBS endorsed the "Proposed minimum structure, criteria and measures for multiannual management plans for turbot fisheries in the Black Sea" emanating from the *GFCM Workshop to test the feasibility of implementing multiannual management plans in the Black Sea* (Turkey, February 2014), as included in Appendix F;

68. In view of the operationalization of the GFCM/BSC MoU, and on the basis of the cooperation activities proposed by the BSC and reviewed during the meeting, the WGBS:

- decided – in relation to the issue of delimitation of stocks in the area – to prioritize at a first stage the stock delimitation for turbot;
- agreed to tackle the issues of i) standardization of fishing gear construction and methods for use in scientific surveys and ii) development of rules and procedures to organize and implement fish stock surveys within the already scheduled *GFCM Workshop on Black Sea scientific surveys at sea: harmonization of survey methodologies and analysis of data* and to invite the BSC to participate;
- advised to extrapolate the methodology of the GFCM/ACCOBAMS project on interactions between cetaceans and fishing activities, currently funded in the Mediterranean Sea by the MAVA Foundation, to be potentially applied to the Black Sea and/or evaluate the possibility of having a specific case study for the Black Sea within the same project;
- recommended both the GFCM and the BSC – for the sake of enhanced cooperation and optimization of means and resources – to share the agreed workplan on fisheries activities in the Black Sea with each other as soon as available and discuss interactions as well as possible joint organization of activities;
- agreed the GFCM will contribute to the Status of Environment of the Black Sea (SOE) Report by providing relevant sections of the GFCM Status on Mediterranean and Black Sea Fisheries Report, expected to be finalized by the Secretariat by mid-2015;
- strongly advised relevant Black Sea associations, actors and stakeholders to take part in the second Symposium on Sustainable Small-Scale Fisheries in the Mediterranean and the Black Sea;

69. The WGBS concluded that IUU fishing encompasses an important fraction of the fishing mortality for Black Sea stocks, and that reduction of IUU fishing would be fundamental to achieve the reduction of fishing mortality advised for stocks such as Turbot. In addition, estimates of IUU catches are fundamental to obtain realistic assessment of the stock status in the area. In this regard, the WGBS invited all riparian States to improve the monitoring of their fisheries with the aim to reduce the level of unreported catches.

Aquaculture issues

70. The WGBS suggested to establish a specific sub-group on aquaculture with the objective to more specifically address aquaculture priorities, take advantage of regional expertise and share existing knowledge;

71. The WGBS recommended the promotion of the implementation of Allocated Zones for Aquaculture at national level in riparian countries to support the development of responsible aquaculture in the region, within the Integrated Coastal Zone Management reference framework;

72. The WGBS advised to foster Black Sea scientific cooperation on aquaculture activities, including through national capacity building, training activities and internships on specific subjects (recirculation systems, aquaculture techniques, marketing, legal aspects, health and safety, animal welfare and handling, production management, good practices);

73. The WGBS agreed to ensure activities of fish restocking and stock enhancement purposes with cultured marine juvenile (i.e. turbot or other farmed species) into wild population in the Black Sea take into account a "responsible and precautionary approach" and the conservation of marine biodiversity. Such approach should consider among others the implementation of a data recording system to assess the successful interaction with fisheries activities (principles and data recording monitoring scheme available in Appendix G);

74. The WGBS insisted on fostering the participation of aquaculture national experts in the regional networks on aquaculture and in particular within the GFCM aquaculture multi-stakeholder platform (AMShP);

75. The WGBS suggested to improve the GFCM regional data collection system on aquaculture production statistics and production centers. In this regard, reporting data for the FAO Mayor Fishing Area 37, distinction should be made between Subareas (i.e 37.3 and 37.4) when the culture of a given species occurred in more than one of them;

76. The WGBS advised to support the diversification of species in aquaculture activities in the region and prepare specific technical guidelines addressing on related techniques to be developed in the Black Sea.

TENTATIVE PROGRAMME OF WORK FOR 2014-2015

77. On the basis of the priorities identified, the WGBS suggested to carry out the following activities for aquaculture:

- Finalize guidelines on responsible activities for fish restocking and stock enhancement purposes
- Finalize the inventory of marine and brackish aquaculture farms and production centers in the Black Sea area on the basis of the WGBS recommendation on improving the regional data collection system on aquaculture production statistics and production centers
- Elaborate a programme for a pilot study for aquaculture projects including the implementation of demonstrative centers to promote sustainable aquaculture in the area
- Identify training requirements in relation to aquaculture and prepare specific actions in relation to them
- Disseminate results and technical documents on Allocated Zones for Aquaculture and on indicators for sustainable aquaculture

- Organize a roundtable on capture fisheries/aquaculture management involving relevant experts from the Black Sea within the International Symposium on Fisheries and Aquatic Science (Trabzon, September 2014).

78. In light of the considerable number of expected activities for fisheries, the WGBS i) discussed which level of priority each of these should bear in the planning and ii) in line with discussions held on the functioning of the WGBS, identified the person that would actively collaborate with other experts, ongoing projects and the GFCM Secretariat for the implementation of selected activities, as follows:

Fisheries workplan item	Priority Level[2]	Involved expert
1. Propose a list of priority stocks for which an assessment should be carried out, and collect information on those stocks from all riparian countries, including on the estimated impact of IUU fishing on those stocks, in view to perform a joint assessment exercise	➢ 1	V. Raykov
2. Perform a comparative analysis of stock assessment methods for the list of priority stocks identified	➢ 1	V. Raykov
3. Advance on the implementation of management measures for the recovery of the Black Sea turbot population, inter alia through the implementation of a management plan/management plans following the indications provided in Appendix D.	➢ 1	
4. Prepare a proposal for an activity on stock differentiation for turbot, following the recommendations of Appendix D, and also taking into account comments from the Black Sea Commission	➢ 1	
5. Analyze anchovy otoliths from survey and catches in order to evaluate the possibility to estimate the percentage of the different anchovy subspecies in anchovy catches in the Black Sea	➢ 1	A. Cemal Gücü
6. Identify training activities in the field of data collection/processing/analysis/sharing	➢ 1	
7. Collect information to analyze fluctuation on the catches of small pelagic species, especially sprat (catches, market, etc.)	➢ 2	V. Raykov
8. Coordinate with ICCAT to collect information on bonito abundance and distribution in the Mediterranean and Black Sea	➢ 2	O. Ak
9. Collect information on catches of picked dogfish and both catches and by-catch of the rapa whelk fishery and report it to SGSABS	➢ 2	E. Düzgüneş (rapana)
10. Identify training activities for fisheries management	➢ 2	
11. Elaborate a catalogue of fishing gears and vessels types used in the Black Sea, including the relative importance of the different types of gears used by the fleets	➢ 2	G. Dalgiç

[2]

Priority Level 1= high (last quarter 2014 – first quarter 2015)
Priority Level 2= medium (second quarter 2015 – end 2015)
Priority Level 3= low (2016)

Fisheries workplan item	Priority Level[2]	Involved expert
12. In coordination with the Black Sea Commission, identify cost-efficient ways to reduce fishing mortality in the Black Sea, such as measures for the reduction of IUU fishing, improvement of selectivity of main fishing gears, establishment of marine protected areas, capacity building of fisheries management related institutions, etc.	➢ 2	
13. Finalize the inventory of the existing legal instruments related to fisheries in riparian countries of the Black Sea	➢ 3	T. Moth-Poulsen

79. During the discussions related to the workplan, participants expressed concern related to the fact that activities mainly prioritized as number 1 could face difficulties of implementation because of the short amount of time provided. It was however specified that the suggested timeframe was to indicate a starting point rather than the completion of the activity.

80. In relation to activities involving data collection, the EU representative suggested to monitor the evolution of other GFCM activities in the field – such as the foreseen training on data collection for the Mediterranean and Black Sea and the follow-up to the DCRF – in order to ensure all aspects are taken into consideration in the planning. In this regard, it was specified the data collection training would be scheduled only when the DCRF would be adopted by the GFCM at its annual session.

81. In relation to workplan item n. 11, it was specified that the catalogue of fishing gears already existed and that the involved expert was only required to complete it with relevant parts.

82. In relation to workplan item n. 12, Mr Moth-Poulsen specified an inventory of legal instruments had already been completed in the frame of BlackSeaFish among all Black Sea Riparian States. Considering the GFCM had carried out a similar activity in view of the first meeting of the WGBS (January 2012), it was indicated efforts could be joined towards the finalization of such tool.

83. The following meetings were scheduled:

Meeting	Place/Date
Workshop on Black Sea scientific surveys at sea: harmonization of survey methodologies and analysis of data	TBD 2014*
Workshop on training for data collection in the Mediterranean and Black Sea	TBD 2014/2015*
Follow up workshop on implementation of the IUU roadmap	TBD 2014/2015*
Workshop on age reading for red mullet	2016
Workshop on stock assessment for data limited stocks in the Mediterranean and Black Sea	TBD 2014/2015
Subregional group on stock assessment in the Black Sea (SGSABS) (possibly together with BSC/AGFOLMR)	TBD October – December 2014
SAC Subcommittee on Stock Assessment (SCSA)	Rome, TBC October – December 2014
Fourth meeting of the Working Group for the Black Sea (WGBS)	Georgia, TBC Jan-Feb 2015

*Already included in the FWP program for 2014.

ANY OTHER MATTER

84. The chair together with all participants repeatedly thanked both the Government of Turkey for hosting the WGBS and the Director of the Trabzon Central Fisheries Research Institute with his whole supporting team for the warm hospitality and great organization of the meeting.

85. The contributions of all participating experts were praised, together with the engagement of those involved in ensuring the correct implementation of WGBS activities as set out in the workplan as well as the constant commitment of the coordinator and vice-coordinators. Special thanks were on several occasions addressed to Mr Ertug Düzgüneş and his colleagues for compiling and putting printed copies at disposal of the newly published *Turkish Fisheries in the Black Sea* (publication N° 40 of the Turkish Marine Research Foundation), a valued contribution to the work being carried out.

86. The presence, active participation and commitment of GFCM non-Members to the meeting were highly appreciated and regarded essential towards an effective concerted management of fisheries and aquaculture in the area.

87. Gratitude was expressed to the WGBS coordinator for chairing the meeting and for his efforts all year long in support of WGBS activities. He, in turn, thanked participants especially in light of the growing complexity of the issues addressed and their persistent and encouraging spirit of cooperation.

DATE AND VENUE OF THE THIRD MEETING OF THE WGBS

88. The WGBS applauded the kind offer by Georgia to host the fourth meeting of the group. Exact dates and venue would be determined at a later stage, in agreement with the hosting country and on the basis of workplan commitments.

ADOPTION OF THE REPORT

89. The meeting formally adopted the conclusions, recommendations and workplan for the WGBS on Friday 28 February 2014.

Appendix A

Agenda

1. **Opening, arrangements of the meeting and adoption of the agenda**
2. **Overview of the GFCM intersessional activities in the Black Sea**
   - 2.1 Main conclusions of the second meeting of the GFCM Working Group on the Black Sea and outcomes of the 37th Session of the GFCM with regards to the Black Sea (by the WGBS coordinator)
   - 2.2 Fisheries activities (by the GFCM Secretariat)
   - 2.3 Aquaculture activities (by the GFCM Secretariat)
   - 2.4 On-going cooperative programmes on capture fisheries and aquaculture (i.e Black Sea Fish Project and others)
3. **Outcomes of the ad hoc Working Group on the GFCM amendment process and of the first phase of the GFCM Framework Programme (FWP) in the Black Sea**
   - 3.1 Progress towards the new GFCM Agreement and Annexed Rules, with specific reference to provisions of relevance to the Black Sea
   - 3.2 Advances on IUU fishing
   - 3.3 Status of the main fishery stocks in the Black Sea
   - 3.4 Management of stocks
   - 3.5 Establishment of the multi-stakeholder Aquaculture Platform
4. **Cooperation of WGBS/GFCM with AGFOMLR/BSC in the frame of the existing Memorandum of Understanding (by the WGBS coordinator)**
5. **Tentative programme of work for 2013-2014**
6. **WGBS organizational matters (updating the Focal Points, issues of setting-up the WGBS sub-groups, Black Sea experts Database, etc.)**
7. **General conclusions and recommendations**
8. **Any other matter**
9. **Date and venue of the fourth meeting of the WGBS**
10. **Adoption of the conclusions and recommendations and closure of the meeting**

Appendix B

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Appendix C

Assessments for Black Sea species, with recommendations by the SGSABS and SCSA, and comments from the WGBS

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr /Flim	Advice	SGSABS Comments	SCSA Comments	WGBS Comments
GSA 29	Turbot	a) catch-at-age data age-classes 2 to 10+ b) Ukrainian catch-at-length	a) 1950-2012 b)	a) SAM b) LCA	Black Sea stock: Depleted and in overfishing Northwest population (Ukrainian waters): in overfishing, with a slight decreasing trend in SSB	a) 2.1 b) 3.8	A recovery plan is needed. Fishing mortality has to be reduced to allow the biomass to recover.	Two different assessments that cover different part of the Black Sea turbot populations were presented. Models differed in the estimation on IUU catches and in several technicalities. Model results are different, however both models agree that current fishing mortality is not sustainable. Some doubts on the estimate of F in the LCA remain. Further analysis of model differences should be investigated	The SCSA endorsed the advice. The SCSA recommended that an agreement on stock limits for the purpose of stock assessment is done.	The WGBS endorsed the advice. The WGBS recommended that a management plan be prepared following the "proposed minimal structure, criteria and measures for multiannual management plans for turbot fisheries in the Black Sea", especially in relation to the fight against IUU. The WG also agreed on the importance of improving the knowledge on stock limits and proposed that a project proposal be prepared.
GSA 29	Sprat	Catch-at-age	1992-2012	ICA	Moderate exploitation rate. Average biomass Sustainably exploited	--	F could be maintained at current levels. Due to fluctuations this should be revised related to next year recruitment	Further information on biological parameters and environmental relationships from analysis of catches is desirable.	The SCSA recommended the advice to be rephrased as do not increase the fishing mortality. The SCSA agreed on the importance of a recruitment estimate to provide advice.	The WGBS endorsed the advice. The WGBS pointed to the large fluctuation of catches of the different small pelagic species between years, which should be investigated.

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr /Flim	Advice	SGSABS Comments	SCSA Comments	WGBS Comments
GSA 29	Anchovy *E. encrasicolus ponticus*			a) XSA with CPUE tuning b) time series analysis exercise	Unknown Exercise with time series of catches suggest that the current F may not be precaution ary	--	Although the assessment is inconclusive, an exercise of estimating a virgin biomass and applying some precautionary concepts suggest that current F could be higher than a precautionary F.	Assessment model is not expected to be reliable until a time series of surveys is accumulated. Some uncertainties in the surveys due to coverage are expected. An alternative precautionary approach should be investigated. An exercise of estimation of a potential virgin biomass provides indication that current fishing pressure could be higher than a precautionary F.	The SCSA agreed with the SGSABS comments and recommended that continuation on surveys and improvement on survey coverage is ensured.	The WGBS agreed with the SCSA comments. The WGBS recommended to improve stock assessment methods. It agreed to propose that the next SGSABS tries to estimate precautionary reference points.
GSA 29-30	Anchovy *E. encrasicolus maeoticus*		1992-2012	Lampara surveys	Moderately exploited High biomass	0.25	F could be maintained at current levels.	Stock is managed using biomass reference points established based on time series. There are some uncertainties in the estimation of F (as assessment is only based on direct surveys and catches do not have complete coverage and do not include IUU), however biomass levels are high.	The SCSA recommended the advice to be rephrased as do not increase the fishing mortality.	The WGBS endorsed the advice. No further comments

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr /Flim	Advice	SGSABS Comments	SCSA Comments	WGBS Comments
GSA 29	Picked dogfish	--	--	--	depleted	--	Recovery plan needed. Some existing recommendations from GFCM apply, but further measures required to recover population	Only information on Ukrainian fisheries is presented. No formal assessment, however very low abundance and presence in catches confirm previous assessments that the stock is depleted	The SCSA endorsed the advice, but suggested that more detailed information on the available data is provided.	The WGBS endorsed the advice. The WGBS recommended that all riparian countries report catches.
GSA 29	Atlantic Bonito	--	--	--	--	--	No advice	The catches of Bonito in the Black Sea are assumed to be from a small resident population and a larger migratory population from the Mediterranean sea. Further research on Bonito dynamics in the Black Sea required	The SCSA recommended that ecological role of Bonito in the Black Sea is further investigated.	The WGBS agreed with the comments from the SCSA.

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr /Flim	Advice	SGSABS Comments	SCSA Comments	WGBS Comments
GSA 29	Rapa whelk	--	--	--	--	--	No advice	Abundance and distribution of Rapa whelk in the Black Sea is unknown. Surveys are required.	The SCSA recommended that the abundance and distribution of Rapa whelk in the Black Sea is estimated and that SCMEE evaluates its effect in the Black Sea ecosystems	The WGBS agreed with the comments from the SCSA. The WGBS recommended that further information on rapana abundance and distribution, as well as by-catch of the rapana fishery should be provided to Black Sea stock assessment Group.

- Flim =
  - Turbot model a): Flim10 (SAM - STECF)
  - Turbot model b): F0.1 (LCA)
  - Azov Anchovy : Fpa based on Biomass reference point (not considered fully reliable)

Appendix D

Guidelines for a proposal on a scientific project on turbot stocks differentiation in the Black Sea, including separation between Western and Eastern areas and within Western areas

(Proposal discussed at the WGBS and to be submitted to Black Sea Commission for inputs)

- Project should incorporate all Black Sea riparian states
- Project should facilitate harmonization of the methodology for estimating:
    - Catches
    - IUU catches
    - biological rates (growth, age)
- An integrated approach to stock identification should be used, including:
    - Tagging
    - Genetics
    - Morphometrics
    - Biological parameters
- Project objectives should include:
    - Differentiation of stock units
    - Movement and flow of animals between units/areas
    - Proposal for a framework of Turbot stock distribution with a view of stock assessment methods
    - Improved stock assessment for turbot, including estimates of IUU.
- Potential donors could be:
    - FAO regional project
    - GEF, World Bank
    - EU Black Sea Joint Operational Program

Appendix E

Proposed Terms of Reference for the SGSABS (December 2014 – January 2015)

- Revise the status of the main commercial stocks in the Black Sea, with focus on turbot and small pelagic stocks;
- Review existing data and stock assessment methods for main stocks in the area, with a special focus on the estimation of IUU and discards required to perform stock assessment;
- Review updated information on stock identification;
- Provide advice to GFCM and other relevant organizations on stock status and research priorities to improve the knowledge on status of stocks;
- For 2014, the following two specific ToRs are proposed:
    - Evaluation of biomass based assessment methods for anchovy in the Black Sea
    - Attempt to define a precautionary reference point for anchovy in the Black Sea

Proposed Terms of Reference for the Workshop on Surveys in the Black Sea

- To collect information on spatio-temporal coverage, methods and objectives of existing surveys in the Black Sea;
- To list and prioritize stocks for which a survey is needed in order to obtain a reliable scientific assessment;
- To list a common set of environmental parameters relevant from the point of view of fisheries that can be collected in the different surveys.
- To identify stocks and areas which could be assessed together in a coordinated survey;
- To list the requisites of the harmonized surveys identified, including:
    - A proposal of vessels, countries and spatiotemporal coverage of the different sections of the survey
    - A proposal of requirements for harmonization to make the results of the different sections comparable
    - A proposal on data sharing (including data structure, hosting of a common database, access rights, etc.)

Appendix F

Proposed elements for the management of turbot fisheries in the Black Sea

1. Scope of this proposal

A definition of the area covered by this proposal (the *Black Sea, GSA 29*) as well as the fisheries included in this proposal and species concerned (*target* and *associated* species) will be needed.

Target fisheries:

- bottom set gillnet,

Other fisheries affecting turbot:

- Bottom trawl,
- Rapana beam trawl and dredges
- Hydraulic dredges (venus)
- midwater trawls
- longlines for dogfish

Target species:

Turbot (*Psetta maxima*). The structure of Turbot population at Black Sea is uncertain (limit between populations, degree of mixing/independency). However, ecology, biology and fishing gears are similar through all the Black Sea, and similar issues exist in the different areas, including high fishing pressure (high fishing effort, overfishing and indirect mortality e.g. bycatch) and high IUU fishing pressure due to economic value. A main research priority should be improved knowledge on population structure, but this should not prevent common management framework.

Associated species:

Bottom gillnet:

- Cetaceans
- Picked dogfish
- Thomback ray
- Common stingray

2. Objectives

Two options could be considered: a common sub-regional management plan or a common management plan structure to be implemented through national management plans. Any discrepancies with national legislations should be evaluated.

Following the GFCM guidelines on management plans (GFCM/36/2012), and in agreement with the established roadmap for fighting IUU fishing, the regional plan should consider inter alia the following options:

To counteract and/or to prevent overfishing (both direct and indirect e.g. bycatch) with a view to ensure the sustainable economic viability of fisheries;

To restore, to the extent possible, the size of Black Sea turbot stocks at least at levels which can produce the maximum sustainable yield

To guarantee a low risk of stocks of the associated species falling outside safe biological limits;

To reduce the extent of IUU fishing on turbot.

To ensure protection of biodiversity to avoid undermining ecosystems' structure and functioning;

Operational objectives

The plan should define, for each agreed objective, specific operational objectives that have practical interpretation, can clearly describe expected outcomes and can be measured with indicators. For example,

Objective

To restore, to the extent possible, the size of Black Sea turbot stocks at least at levels which can produce the maximum sustainable yield

Operational objective

- To restore the biomass of turbot above agreed precautionary biological reference points (e.g. $B > B_{target}$).

In the case that SAC has accepted different assessments for different areas, all of the accepted assessments should comply with this operational objective.

Objective

To counteract and/or to prevent overfishing (both direct and indirect e.g. bycatch) with a view to ensure the sustainable economic viability of fisheries;

Operational objective

- To maintain fishing mortality within agreed precautionary fishing mortality reference points (e.g. $F<F_{target}$)

In the case that SAC has accepted different assessments for different areas, all of the accepted assessments should comply with this operational objective. In the absence of an accepted assessment or a fishing mortality reference point, a precautionary limit should be established.

Objective

To guarantee a low risk of stocks of the associated species falling outside safe biological limits;

Operational objective

- To keep fishing mortality of the associated species at levels that allow them to be within safe biological limits.

Objective

To reduce the extent of IUU fishing on turbot.

Operational objective

- To implement by priority actions within the Roadmap for fighting IUU fishing (reference) which are relevant to turbot.
- To develop specific cooperation (exchange of information, trainning, port State measures) at Black Sea scale regarding control of turbot fishery

Objective

To ensure protection of biodiversity to avoid undermining ecosystems' structure and functioning.

Operational objective

- To decrease discards of commercial and non-commercial species by (x)% in (y) years.
- To decrease the incidental catch of protected and endangered species.
- To reduce the amount of lost fishing gear and cage nets.

3. Indicators and reference points

The indicators and reference points accepted by the SAC should be used in the management plan.

In situations where stock biomass is used as indicator of status of the stock, the following reference points could be used:

B_{lim}: a biomass level which is considered undesirable and which management actions should avoid with high probability.

$B_{threshold}$: a threshold level of biomass established to reduce the probability that the limit reference point will be exceeded.

B_{target}: B_{msyy} as a possible target reference point.

Spawning stock biomass: ratio between the spawning stock biomass and the total biomass.

In situations where fishing mortality is used as an indicator of fishing pressure, the following reference point could be used:

$F_{0.1}$: The fishing mortality rate at which the slope of the yield-per-recruit curve is only one-tenth the slope of the curve at its origin.

Concerning the objective of ensure protection of biodiversity to avoid undermining ecosystem's structure and functioning, the following indicators and references points could be used:

Indicator	**Reference point**
Discard rate of undersized turbot and associated species (%)	- Historical - Trend (% over time)
Bycatch of protected/endangered species	- Historical - Trend (% over time)
Lost and abandoned	- Recovery of a number of lost/abandoned gears - Trend (% over time)

Indicators for environmental and other anthropogenic effects on the fishery

Considering the relevance of external impacts on the performance of fisheries management, the plan should indicate a set of indicators to be monitored in connection to known environmental and other anthropogenic effects on the stocks. For turbot, the following indicators of environmental status are considered important:

- Water temperature in the spawning period
- Water temperature stratification
- Spatial extent of hypoxia

4. Fisheries management measures

In order to reach the objectives of the management plan, and without prejudice to stricter measures adopted nationally, countries should consider the adoption of the following minimum conservation measures for the turbot fisheries covered by this plan.

Management tools	Potential measures	Rank (effectiveness)
Spatial restrictions	Areas restricted to trawling Areas resticted to gillnet fisheries Areas restricted to other fisheries catching turbot as bycatch No-take areas	High High High Medium (because no-takes are usually small)
Temporal restrictions	Close fishery during spawning season. If similar spawning season occur in diffreent areas, a common closed season should be established.	High
Gear restrictions	Maximum length and height of gillnets Hanging ratios of gillnets Minimum mesh size for gillnets Bycatch Reduction Devices for beam trawl and bottom trawl Maximum monofilament or twine diameter in bottom set gillnets of 0.5 mm (not implemented in Ukraine)	Medium High (cetacean bycatch) High Low High (cetacean bycatch)
Effort restrictions	Limit the overall capacity of the authorized fleet Number of days. hours at sea	High Medium
Minimum size	Minimum size 45 cm TL (Ukraine 35 cm SL) Minimum sizes should be established for: - Picked dogfish[1] - Thomback ray - Common stingray	High High
Participatory	Adoption of special authorizations for turbot fishing	High

Management tools	Potential measures	Rank (effectiveness)
restrictions		
Others…	- Catch restrictions (e.g. TAC or Limit) - Bycatch restrictions (e.g. maximum number or weight of turbot allowed to be caught as bycatch) - Restocking	Medium (high IUU catches) Medium High

1. Currently minimum sizes for picked dogfish have defined in Ukraine (85 cm SL), Romania (120 cm TL), Bulgaria (90 cm TL)

5. Decision rules

Management plans will include decision rules with pre-agreed measures to be adopted under different conditions of the stock in relation to agreed biological reference points. The specific technical measures to be adopted under each stock status scenarios are to be defined in appropriate national and sub-regional working groups, taking into account the socioeconomic impacts of the proposed measures.

6. Scientific monitoring

The Scientific Advisory Committee (SAC) of the GFCM should be responsible for advice on status of stocks and economic indicators of fisheries, taking into account the work performed by its subsidiary bodies. The Working Group of the Black Sea should oversee the implementation of the management plan.

Adequate and periodic scientific monitoring of fisheries (including socioeconomic indicators) and exploited stocks at national level should be ensured so that SAC is in a position to provide scientific advice.

In line with the roadmap for fighting IUU fishing, the management plan should develop and agree on standard methodologies to evaluate illegal, unreported and unregulated catches in support of stock assessments.

7. Research priorities to improve the assessment and management of fisheries

- Stock identification
- Improving data collection, especially for small scale fisheries
- Estimation of bycatch, discard and IUU catches
- Improvement of the selectivity of the fishery, including more ecosystem friendly fishing gears
- Cooperation among countries and Black Sea Commission
- Assessment of the socioeconomic importance of the fisheries and the socioeconomic impacts of the proposed measures in the management plan both at national and regional level

8. Fisheries Monitoring, Control and Surveillance

To ensure compliance with the measures to be adopted in the management plan, the following actions are to be implemented:

- Concerned Parties should make efforts to implement GFCM recommendations related to MCS, including those listed below:

- Vessel information submitted to GFCM Regional Fleet Register.
- Record of fishing vessels larger than 15 metres authorized to fish in the GFCM Area.
- Satellite-based VMS required for vessels >15 meters authorized to fish in the GFCM area.
- Required submission of data on vessels engaged in IUU fishing (IUU Vessel List).
- Required logbook for vessels exceeding 15 meters authorized to fish in GFCM area. Logbook shall register quantities of each species caught and kept on board, above 50 kg in live weight.
- Adoption of Port State measures to prevent, deter and eliminate IUU fishing.

These obligations are already in place for the GFCM members but the possibility that some of them are used in the management plan for turbot by members and non-members of GFCM should be explored.

Additional actions to combat IUU fishing should be considered. The proposed actions should build on the elements of the roadmap elaborated in the "Joint GFCM-BSC Workshop on IUU Fishing in the Black Sea", Istanbul, Turkey, 25-27 February 2013. Specific reference to the following action in the roadmap should be made:

- Improve market control and traceability mechanisms and take measures to minimize the trade of IUU products.
- Joint adaptive inspection schemes and national observer programmes have to be envisaged.
- Carry out joint training of fisheries inspectors and other enforcement authorities
- Awareness campaigns for the protection of Black Sea fisheries against IUU fishing should be launched

9. Review of the management plan

The contents of the management plans should be periodically reviewed in order to accommodate changes (past and foreseen) in the fisheries system. The review should be carried out as follows:

To be done by SAC:

- Status of stocks assessed yearly.
- Status of the fishery (e.g. economic indicators)
- Reference points should be proposed by the SAC once indicators are available.
- Once reference points are establish, the SAC should propose a review term for them.

To be done by Concerned Parties:

Management action taken based on stock status and fishery conditions (socioeconomic indicators) and according to the decision rules and management tools described.

10. Compliance with the plan

Management actions, modifications of the plan and compliance with the plan should be reported to the GFCM within the National Report submitted yearly to the GFCM (the use of the common format decided for the GFCM and Black Sea Commission is recommended). The Compliance Committee of the GFCM shall review this report and take necessary actions.

Appendix G

Draft principles for aquaculture stock enhancement guidelines

Within *"restocking or releasing activities for marine stock enhancement from farmed fish"* species, among others, the following main principles and data recording monitoring scheme should be considered:

Principles

- Restocking programme and activities should be species-specific;
- Restocking programmes with non-native species should be avoided;
- The origin of the broodstock for breeding purposes should be based on specimens coming from local populations;
- The activities of restocking should be based on the best aquaculture knowledge, assessment of the stock considered;
- A good knowledge of biology and ecology of the species considered should be supported by research activities on the species including a management and monitoring programme;
- The aquaculture conditions must be very well known and proven in terms of technologies applied;
- The size of fingerlings to be released in the environment should be appropriate to ensure a higher survival rate;
- The quality of the fingerlings to be stocked should be wild-like and the specimens should be guaranteed as pathogen free;
- The stocking activities should be very accurate and the environmental carrying capacity known;
- A tagging programme is considered appropriate for restocking, in close cooperation with fishermen for recapture and monitoring, together with the involvement of fishermen in catch result analysis;
- Restocking programmes, in particular if referred to shared stocks, should consider scientific cooperation among the different institutions;
- The preparation of species-specific guidelines for "restocking activities for marine stock enhancement from farmed fish" would be useful in addressing responsible aquaculture and fisheries activities
- The guidelines should consider among others the implementation of a data recording system to assess the successful interaction with fisheries activities (principles and data recording monitoring scheme);

Appendix H

AREA OF RELEASING /RESTOCKING

Country name

1	**Area**			
		Geographical Sub-Area (GSA)		
		Coordinate(s)		
2	**Institutions**			
		Main Insitution		
		Cooperative Instituions		
4	**Purposes**			
		Stock enhacement		
		Conservation		
		Other		
5	**Activities (frequency)**			
		Regular		Since (year)
		Occasional		
		Cooperative countries		
4	**Origin of Broodstock / Breeders**			
		GSA		
		From local population		
3	**Species**			
		Species name		
		Autoctonus		Quantity
		Exotic		Size
5	**Aquaculture technology**			
				density/stocking
		Hatchery		feed: natural
		Other (specify)		Feed artificial
				Feed mixed (a/n)
7	**Fishing activities**			
		Shared fisheries resources		
		Information		
6	**Pathologies**			
		Pathogen free		
		Veterinary information		
8	**Research programme**			
		Title		
		Cooperative with		
		Environmental conditions		
		Survey on fishery resoruces		
		Tagging programme		
		Survey programme		
		Survival estimation		
		Recovery estimation		
		Divulagation programme		