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**GENERAL FISHERIES COMMISSION FOR  
THE MEDITERRANEAN**

**COMMISSION GÉNÉRALE DES PÊCHES  
POUR LA MÉDITERRANÉE**



**SCIENTIFIC ADVISORY COMMITTEE (SAC)**

**Sixteenth Session**

**St Julian's, Malta, 17-20 March 2014**

**EXECUTIVE REPORT FOR THE SAC INTERSESSIONAL  
ACTIVITIES**

Final Draft

## INTRODUCTION

1. This report is a summary of the intersessional activities carried out by the Scientific Advisory Committee (SAC) of the General Fisheries Commission for the Mediterranean (GFCM) in 2013-2014 through its four subcommittees, working groups and workshops as well as within the First GFCM strategic Framework Programme (FWP). It summarizes the main outcomes, including with regards to fisheries management advice, and proposes the preliminary work plan for 2014-2015.

### I. INTERSESSIONAL ACTIVITIES OF SAC IN 2013–2014

2. At its thirty-seventh session (Croatia, May 2013), the Commission endorsed the Programme of work for the intersessional period 2013–2014 proposed by SAC<sup>1</sup>. Consistent with the decisions by the Commission, with priority issues defined in the FWP and according to funds availability, SAC worked to implement such programme of work and all the below meetings were held:

2.1 Fourteenth session of the subcommittee on Statistics and Information (SCSI) (Montenegro, 4-5 February 2014)

2.2 Fourteenth session of the subcommittee on Economic and Social Sciences (SCCESS) (Montenegro, 4-5 February 2014), and related meetings:

- Working Group on a common methodology to carry out socio-economic analysis (Montenegro, 3 February 2014)
- First Regional Symposium on Sustainable Small-Scale Fisheries in the Mediterranean and the Black Sea (Malta, 27-30 November 2013)

<sup>1</sup> Report of the thirty-seventh session of the Commission, paragraphs 111-113.

2.3 Fourteenth session of the subcommittee on Marine Environment and Ecosystems (SCMEE) (Montenegro, 4-5 February 2014), and related meetings:

- First Working Group on Marine Protected Areas (Montenegro, 3 February 2014)
- Workshop on Regional Management Plan for red coral (Belgium, 21-22 January 2014)
- Workshop on Artificial Reefs in the Mediterranean and the Black Sea, organized within the framework of the 10<sup>th</sup> International Conference on Artificial Reefs and Aquatic Habitats (23–27 September 2013, Izmir, Turkey) (Turkey, 27 September 2013)

2.4 Fifteenth session of the subcommittee on Stock Assessment (SCSA) (Montenegro, 3-4 February 2014), and related meetings:

- Working Group on Stock Assessment of Demersal Species (Montenegro, 28 January – 1 February 2014)
- Working Group on Stock Assessment of Small Pelagic Species (Montenegro, 28 January – 1 February 2014)
- Joint JRC-GFCM-Regional Projects training course on Improving the Analysis of Fisheries Data: An Introduction to R and the Fisheries Library based on R (FLR) (GFCM HQ, Italy, 4-8 November 2013)
- Framework Programme (FWP) Sub-Regional Workshop on Fisheries Management for Western, Central and Eastern Mediterranean (Tunisia, 7–10 October 2013)

2.5 Third meeting of the Working Group on the Black Sea (Turkey, 26–28 February 2014), and related meetings:

- Sub-regional group on stock assessment for the Black Sea (SGSABS) (Romania, 14–16 January 2014)
- Workshop to test the feasibility of implementing multiannual management plans in the Black Sea (Turkey, 24–25 February 2014)

2.6 Selected activities within the GFCM Framework Programme (FWP)

- Workshop on IUU Fishing in the Mediterranean Sea (Tunisia, 3–4 October 2013)

3. The reports of the working groups and workshops held throughout the inter-sessional period are reproduced in documents GFCM:SAC15/2013/Inf.12 to Inf.17. The outcomes of these meetings were then reviewed by each concerned subcommittee (Montenegro, 3-5 February 2014) and, as appropriate, by the Working Group on the Black Sea (WGBS) (Turkey, 26-28 February 2014). The complete reports of the subcommittees and of the WGBS are available as documents GFCM:SAC15/2013/Inf.5 to Inf.8 and GFCM:SAC15/2013/Inf.10, respectively.

4. A summary of the most relevant outcomes of the SAC inter-sessional activities, including within the FWP, by subcommittee/working group, is provided below.

### **SUBCOMMITTEE ON STATISTICS AND INFORMATION (SCSI)**

The subcommittee focused its work on aspects related to the proposal of a Data Collection Reference Framework (DCRF), conceived to achieve a more efficient data collection programme at subregional level and for a better integration within the mandate of the GFCM. Technical inputs encompassing environmental, economical, statistical and scientific aspects were gathered in relation to prioritization of species at sub-regional level, definition on effort measures for different fishing gears, inclusion of the IMO number for compatibility of fleet data with the FAO Global Record, definition of fleet segments and data confidentiality, among others.

Moreover, it analyzed the status of Members' compliance regarding data and information reporting with particular focus on Vessel records (fleet data) and Task 1. Although an increased number of data

submissions in 2013 were noted (e.g. 22 fleet related data by nine countries and 14 full national datasets for Task.1), the need for improvement was raised, considering that some national datasets were still out of date, incomplete or completely missing.

Finally, the subcommittee was briefed by the Secretariat on the context of GFCM data and information services. In this regard, the Committee noted several advancements occurred in order to improve usability and ease access to the information produced. These improvements encompassed the design of a new GFCM web site (not yet public) and a series of cloud-based services stemming from the new IT infrastructure based on SharePoint online and Azure. The new web site has increased performance, enhanced browser compatibility and improved web consultation experience. In parallel, the IT infrastructure has been enriched with: i) an online submission tool for stock assessment data already implemented and tested by the concerned SAC working groups; ii) an online National Reports submission system, being released; iii) a server infrastructure based on R, enhancing data analysis tasks; and iv) a set of data representation web interfaces (dashboards), that will allow users to query and visualize data in tabular or graphical format. Additionally, GIS capabilities will progressively extend the above during 2014.

Detailed information about all the issues discussed by SCSi may be found in document GFCM:SAC16/2014/Inf.16.

### **SUBCOMMITTEE ON ECONOMIC AND SOCIAL SCIENCES (SCESS)**

The subcommittee reviewed progress that was made on various socio-economic issues during the inter-session. Special attention was paid to the suggestions submitted to SCESS by the Working Group on a common methodology to carry out socio-economic analysis (WGSEM). The outcomes of this working group were endorsed. The subcommittee expressed great concern for the lack of participation of experts from GFCM Members to both its session and the working group and asked for a proper solution.

A transversal session was done with SCSi in order to examine socio-economic variables and indicators which are envisaged by the DCRF and for which GFCM Members will have to collect and submit data to the GFCM Secretariat. During this session a number of proposals were made to revise and improve the DCRF and they were included in the document. Similarly, the Committee insisted on the importance of socio-economic sciences for the development of fisheries multi-annual management plans.

Furthermore, the subcommittee examined the conclusions that arose out of the First Regional Symposium on Sustainable Small-Scale Fisheries in the Mediterranean and the Black Sea. Great satisfaction was expressed for the success of this initiative, which gathered 170 participants from GFCM Members, international organizations, NGOs, civil society and stakeholders, and for the cooperation with the partners who co-organized it together with GFCM (i.e. FAO Fisheries and Aquaculture Department, FAO Regional Projects, WWF, MedPAN and CIHEAM). There was strong agreement on the need to continue addressing small-scale fisheries for the benefit of coastal communities at local level.

Detailed information about all the issues discussed by SCESS may be found in documents GFCM:SAC16/2014/Inf.7, Inf.13 and Inf.24.

### **SUBCOMMITTEE ON MARINE ENVIRONMENT AND ECOSYSTEMS (SCMEE)**

The subcommittee revised the outcomes of its intersessional meetings, as listed in paragraph 2.3. The most salient topics dealt with during this period were artificial reefs, management plan for red coral and marine protected areas, among others.

With regards the use of artificial reefs as a fisheries and protection management tool, the workshop co-organised with Eastmed project and the Ege University of Izmir reviewed the draft *Practical Guidelines for Artificial Reefs in the Mediterranean and the Black Sea* and proposed some changes

that were finally accepted by the SCMEE. The document is put at disposal of the SAC for its consideration and possible transmission to the Commission.

The draft plan for the management of red coral was reviewed during the Workshop on red coral that was attended by experts from Members and relevant stakeholders concerned by the exploitation of red coral in the Mediterranean. The workshop thoroughly analysed the objectives of the proposal and assessed its feasibility taking into account the potential technical measures to be adopted by the countries for its implementation. The major amendments and the resulting main elements of the plan are summarised in document GFCM:SAC/2014/4.

The first meeting of the GFCM Working Group on Marine Protected Areas (WGMPA) was attended by representatives of IUCN, MedPAN, WWF, UNEP/MAP-RAC/SPA, OCEANA, ACCOBAMS, the Pelagos International Sanctuary and national experts. The meeting reviewed the status of art of Mediterranean protection, proposed a harmonization of the type of information required for the establishment of FRAs, SPAMIs, and Areas of special importance for cetaceans, and reviewed the functioning of the four existing “fisheries restricted areas” (FRA). It proposed to use the existing protection tools in the most coordinated way with partners organization with the final aim of strengthening protection in agreed priority areas of the Mediterranean and the Black sea.

Detailed information about all the issues discussed by SCMEE may be found in documents GFCM:SAC/2014/4 and GFCM:SAC16/2014/Inf.12, Inf.16.

#### **SUBCOMMITTEE ON STOCK ASSESSMENT (SCSA)**

The subcommittee revised the outcomes of its intersessional meetings, as listed in paragraph 2.4, and in addition the recommendations from the sub-regional group on stock assessment for the Black Sea. Advice was provided for a total of 39 stocks, 34 in the Mediterranean (25 demersal and 9 small pelagics), and 5 in the Black Sea (3 demersal and 2 small pelagics). Also, reference points for all small pelagic stocks, including those object of Recommendation GFCM/37/2013/1, were updated, with the exception of anchovy stocks in GSA16 and 17, for which the group concluded that no reference points could be established due to uncertainties in the assessment. In addition, the subcommittee prepared a proposal for a *Framework for providing advice and recommendations in relation to stock status and reference points*, based on the principles laid down by the GFCM guidelines for multiannual management plans. Training on assessment models was also provided through a workshop in collaboration with the European Union Joint Research Center and the FAO Regional Projects.

Detailed information about all the issues discussed by SCSA may be found in documents GFCM:SAC16/2014/Inf.8, Inf.14, Inf.15, Inf.17 and GFCM:SAC16/2014/6.

#### **WORKING GROUP ON THE BLACK SEA (WGBS)**

The Working Group on the Black Sea revised the outcomes of its intersessional meetings, as listed in paragraph 2.5. The Working Group provided management advice for the 5 stocks assessed in the Black Sea, prioritized a series of activities to be carried out in the intersessional period, also in collaboration with ACCOBAMS and the Black Sea Commission, and endorsed the *Proposed minimal structure, criteria and measures for multiannual management plans for turbot fisheries in the Black Sea*.

Detailed information about all the issues discussed by WGBS may be found in documents GFCM:SAC16/2014/Inf.10, Inf.11, Inf.17 and GFCM:SAC16/2014/7

#### **SELECTED ISSUES WITHIN THE FWP**

In addition to the those activities of the Framework Programme listed in paragraph 2, the following transversal activities were also carried out in the SAC intersessional period:

**IUU fishing:** A workshop on IUU in the Mediterranean was held to examine issues relating to the nature and extent of IUU fishing in the Mediterranean Sea. The workshop was attended by

representatives of GFCM Members, the FAO Fisheries Department, the GFCM Secretariat, Interpol, NGOs and stakeholders. The outcomes of this workshop were developed on the basis of a similar workshop convened in February 2013 at Istanbul in relation to IUU fishing in the Black Sea and can be read in the report of the workshop. A roadmap was proposed to fight IUU fishing in the Mediterranean Sea which also includes a number of scientific and technical aspects that will require actions and activities to be promoted consistent with the decisions by SAC. The report of this workshop is quoted GFCM:SAC16/2014/Inf.19.

Environmental status of exploited populations: Within the framework of the Memorandum of Understanding with UNEP-MAP, the project Medsuit (*A Mediterranean Cooperation for the Sustainable Use of Marine Biological Resources* – funded by the Italian Ministry of Environment), was launched in November 2013 with the aim to i) harmonize criteria to define environmental targets, ii) determine the status of exploited marine populations, taking into account relevant socio-economic aspects, and iii) design monitoring requirements to ensure maintenance of good environmental status. The Secretariat attended the UNEP-MAP Integrated Correspondence Groups of GES and Targets meeting, (Athens, Greece, 17-19 February 2014), which addressed proposals for the definition of Good Environmental Status (GES) of marine populations and ecosystems and its associated indicators and targets, and presented a draft proposal for GES, indicators and targets of exploited fish and shellfish populations. The document GFCM:SAC16/2014/Inf.25 related to this activity is submitted for the consideration by the Committee.

## II. CONCLUSIONS AND RECOMMENDATIONS

5. On the basis of the above issues and related activities carried out, main conclusions and recommendations were put forth as follows:

### Statistics and Information issues

- Endorse the proposal of GFCM Data Collection Reference Framework (DCRF) enriched with the technical inputs provided by the Committee including the inclusion of the IMO number, as defined by the IMO Assembly Resolution A.1078(28), in the fleet data component.
- Improve national data collection and transmission with special reference to the GFCM Vessel records (fleet register data);
- Provide assistance to concerned countries, as appropriate, in sampling programs at sub-regional level;
- Ensure continuity of the developments in the field of cloud-based IT solutions for data/information and dissemination;
- Develop a strategy for the potential use of data collected through VMS for stock assessment and evaluation of fisheries populations (spatial and temporal dimensions could be envisioned when dealing with stocks on the basis of VMS data).
- Further assess technical implications of the harmonization of the mismatching of boundaries of the GFCM Statistical Grid with some GSAs;
- Investigate feasible interactions with the EU fleet register system to facilitate the fleet data submission from EU members to the GFCM Secretariat;

### Economic and Social Sciences issues

- Develop and launch a regional programme on small-scale fisheries, as proposed by the First Regional Symposium on Sustainable Small Scale Fisheries in the Mediterranean and the Black Sea, to promote and strengthen cooperation on relevant small-scale related aspects linked to data collection, co-management, MPAs, value chain and the implementation of the FAO Voluntary Guidelines on SSF.
- Endorse the common methodology to carry out the collection of socio-economic data, as elaborated by the SCESS WGSEM;
- Ensure socio-economic impacts of multiannual management plans proposed by the Commission are adequately addressed and, to this end, include a small group of economists in future meetings of working groups where multiannual management plans will be examined.

### Environment and Ecosystems issues

- Endorse Practical Guidelines on Artificial Reefs in the Mediterranean and Black Sea (document GFCM/SAC16/2014/Inf.23);
- Adopt the elements for a regional management plan on red coral, to be progressively implemented as follows:
  - (i) an initial phase based on the establishment of the minimum legal size of 7 mm in the annual landings (with a tolerance of 10% in weight of undersized colonies), provided that countries ensure this average size will be also respected on a daily (or weekly) basis for all fishing grounds through the local control of landings at ports;

- (ii) a second objective that would fix quotas based on sustainable yields should be adopted within the next three years while acquiring the necessary data to perform stock assessment and to establish reference points for yield, although countries are invited to adopt it to the shortest delay if scientific data at national level so allows.
- Some discrepancies among participants led to raise the SAC a request to provide advice on the consideration of the alternative option of adopting management objective (ii) (based on quotas) only in cases where objective (i) has proven to be ineffective in maintaining catches within the legal size.
- Advise on the impact and the feasibility of using ROV for direct harvesting of red coral after 2015 as stated in Recommendation 35/2011/2. (A technical workshop is proposed to be organised in 2016 if results of studies performed until 2015 and provided to SAC so allows).
- In connection with **Marine Protected Areas (MPAs)**, consider two options for strengthening protection with the overlap among different instruments, namely by:
  - designating national MPAs in areas deeper than 1000 m which fall within national waters limits in order to strengthen the protection of those areas that have already restrictions to trawling and dredging by the GFCM
  - designating fisheries restricted areas in areas already protected by other institutions (e.g. the Pelagos International Sanctuary could host a FRA if relevant for the objectives of this recognized international SPAMI)
- Define mechanisms to ensure control and enforcement of existing FRAs. Criteria for the regular evaluation of FRA management should also be foreseen together with the possibility to define a scheme of joint international surveillance at regional level;
- Endorse the updated section “3.3.1 *Current human use and development of fisheries*” in the Standard form for the submission of proposals for establishing new fisheries restricted areas (FRAs) in the Mediterranean and Black Sea to the GFCM (see Appendix C of this document for the proposal of modification; full form reproduced in Appendix E of GFCM/SAC16/2014/Inf. 5).

### **Stock Assessment issues**

Advice on the status of Mediterranean and Black Sea stocks and proposed management measures are included in Appendix D. Management advice was provided for all stocks for which assessment was considered valid (38), plus a stock for which precautionary management advice was provided based on previous years assessments (hake in GSA03). A summary of the status of stocks and advice related issues is provided below:

#### **i) Stock status**

**Status of Mediterranean demersal stocks:** Advice was provided for a total of 24 demersal stocks; three of the stocks were considered in sustainable exploitation status and twenty-one of them in overfishing status. For those stocks for which a time series of biomass estimates exist, 2 of them are considered to have a high level of biomass (over the 66<sup>th</sup> percentile of the time series), eight of them show intermediate level of biomass and seven other stocks show low or very low biomass (below the 33<sup>rd</sup> percentile of the time series).

**Status of Mediterranean small pelagic stocks:** Advice was provided for a total of 9 stocks: Sardine stock in the northern Alboran Sea (GSA01) and anchovy stock in Northern Spain (GSA06) were considered sustainably exploited. Sardine in the North Adriatic Sea (GSA17) was classified as in an increased risk of overexploitation, while anchovy off the Southern Sicilian coast (GSA 16) was considered in overexploitation. Sardine off Northern Spanish coast (GSA01), sardine off the Southern Sicilian coast (GSA 16), and anchovy stock in the North Adriatic Sea (GSA17) were classified as “overexploited and in overexploitation”. Anchovy and sardine in the Gulf of Lions

(GSA07) were considered respectively depleted, with low exploitation rate and low biomass, and unbalanced, with high recruitment but fish small and in poor conditions.

Status of Black Sea stocks: Advice was provided for a total of 5 stocks; the population of turbot (*Psetta maxima*) is considered depleted at Black Sea scale, and subject to overfishing in Ukrainian waters, although local populations in that area do not yet show signs of depletion. Picked dogfish (*Squalus acanthias*) is also considered depleted at Black Sea scale. Stocks of sprat (*Sprattus sprattus*) and Azov Sea anchovy (*Engraulis encrasicolus maeticus*) are considered to be currently exploited at sustainable levels. For the stock of anchovy in the Black Sea (*Engraulis encrasicolus ponticus*), the assessment was considered uncertain, although an exercise on precautionary biomass reference points performed during the meeting suggested that current fishing mortality could be higher than a precautionary fishing mortality for this population.

## ii) **Stock advice related issues**

- Adopt the framework for providing guidance in formulating advice and recommendations in relation to stock status and reference points, coherent with the GFCM guidelines on management plans (document GFCM/SAC16/2014/6), and establish the frequency of the definition and revision of reference points on the basis of this framework;
- Further standardize the advice table for the use of the stock assessment expert groups, including a clear indication of stocks for which the provided advice should be submitted to the SAC for endorsement and decisions.
- Base advice, when possible, on reference points for both fishing mortality and biomass, and evaluate the possibility to define the maximum number of types of reference points for each indicator (i.e. target, threshold and limit);
- Take into account – in the management measures for shared stocks – the impact of the different fleets operating in the shared stock (e.g. reduction of fishing mortality to be done taking into consideration the different effects of the fleets on the stock);
- Include a dedicated session on the estimation of growth parameters in the agenda of the following WG on Stock Assessment of Demersal species;

## **Working Group on the Black Sea (WGBS)**

- Advice on Black Sea stocks, including comments on management by the WGBS is included in Appendix D;
- Endorse 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 (document GFCM:SAC16/2014/7);
- Share both the GFCM and BSC 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;
- In light of the assumed level of IUU catches for Black Sea stocks, to:
  - improve the monitoring of their fisheries with the aim to reduce the level of unreported catches,
  - reduce IUU fishing as a fundamental step to achieve the reduction of fishing mortality advised for stocks such as Turbot.
  - incorporate estimates of IUU in the assessment of the status of stocks,



### III. PRELIMINARY DRAFT WORKPLAN RELATING TO THE INTERSESSIONAL ACTIVITIES OF SAC ENVISAGED FOR 2014–2015

6. The activities listed below have been proposed by the working groups and workshops, as well as validated by the subcommittees within their respective remit.

#### SCSI WORKPLAN

- Carry out an assessment at national level in each GFCM member for the improvement of data collection on small-scale fisheries;
- Organize a regional meeting to implement the DCRF within the GFCM FWP and in collaboration with the FAO Regional Projects;

#### SCESS WORKPLAN

- Develop a common methodology to carry out the collection of socio-economic data that will address all fishing vessels which are currently not covered by the proposed methodology (i.e. those without a license);
- Convene the Second Regional Symposium on Sustainable Small Scale Fisheries in the Mediterranean and the Black Sea in connection with the proposed regional project on Small Scale Fisheries, in 2015 or 2016;

#### SCMEE WORKPLAN

- Update the definition of Artificial reefs in the SAC Glossary according to the definition adopted in the Practical Guidelines for Artificial Reefs in the Mediterranean and Black Sea;
- Launch the first regional cartographic database on Artificial Reefs of the Mediterranean and Black Sea.
- Organize a FWP Workshop on Elasmobranchs in the Mediterranean and the Black Sea. The terms of reference are provided in Appendix A;
- Ensure proper follow-up to Recommendations GFCM/35/2011/3, GFCM/35/2011/4, GFCM/35/2011/5 and GFCM/35/2012/2 on the reduction of bycatch of vulnerable species, within the framework of activities undertaken by GFCM, RAC/SPA, ACCOBAMS and some countries as follows<sup>2</sup>:
  - Produce informative material and leaflets on good practices to reduce the fishing mortality of sea turtles to be available for download on the GFCM website (taking into account existing material);
  - Collate existing information on technical tools and management measures to reduce by-catch of seabirds and monk seals (taking into account existing material).
- Developing a study on deep sea habitats and VMEs with the aim of assessing the feasibility to protect areas shallower than 1000 m together with the related fisheries implications;
- Within the remit of the Working Group on MPAs, the following actions were recommended to be carried out in the following years in view of the future organizations of new meetings of the WGMPA:

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<sup>2</sup> Specific Terms of reference for a possible consultancy to be engaged within the Project “**ACCOBAMS-GFCM joint project on interactions between cetaceans and fishing activities**” funded by MAVFA Foundation are presented in Appendix B

- Compile a review of existing national areas subject to spatial based fisheries management measures under the provisions of national legislation (e.g. seasonal closures, gear restrictions).
- Explore the possibility of assigning IUCN protected areas management categories to GFCM FRAs and to the existing national areas subject to spatial based fisheries management measures.
- Develop – within the GFCM-UNEP/MAP MoU and in collaboration with RAC/SPA – a pilot study to test new joint designations of marine protected areas firstly focusing on the conservation of exploited resources (e.g. spawning grounds, nursery areas), but also facilitating the designation of overlapping compatible protection instruments by more than one institution;

### **SCSA WORKPLAN**

- Incorporate in the next agenda of the stock assessment expert groups (i.e. WGSAs and SGSABS) a specific session to discuss the advice on the status of stocks included in Recommendation GFCM/37/2013/1;
- Compare management measures included within management plans in place in the Mediterranean and Black Sea with the management advice provided by the SAC;
- Update the SAC glossary with the models used in the stock assessment expert groups, to be regularly updated;

### **WGBS WORKPLAN**

- Perform a comparative analysis of stock assessment methods for the list of priority stocks identified;
- Develop elements for a management plan on turbot in the Black Sea, following the agreed *Proposed minimum structure, criteria and measures for multiannual management plans for turbot fisheries in the Black Sea* (document GFCM:SAC16/2014/7);
- Elaborate a proposal for an activity on stock differentiation for turbot, following the recommendations of the *Guidelines for a proposal on a scientific project on turbot stocks differentiation in the Black Sea* (Appendix B), and also taking into account comments from the Black Sea Commission;
- Identify training activities in the field of data collection/processing/analysis/sharing and fisheries management;
- 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;
- Identify, in coordination with the Black Sea Commission, 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.

#### IV. SUGGESTED ACTION FOR THE SAC

7. The Committee is invited to consider the activities proposed by its subsidiary bodies as well as within the FWP in the period 2014-2015, and may wish, as appropriate, to identify necessary inputs to support activities as well as to specify, where relevant, expected timeframes and outputs. The Committee is also invited to review and evaluate the priorities outlined in this document, and related budgetary implications.

#### V. MEETINGS

8. The below list of meetings is for consideration of the SAC:

Meeting	Place/Date
Workshop on the assessment of data limited stocks in the Mediterranean and Black Sea (back-to-back with WGSAs)	TBD 2014-2015
EIFAAC/GFCM/ICES Working Group on Eels (WGEEL)	TBD October – December 2014
Meeting of the Sub-regional Group on Stock Assessment in the Black Sea (SGSABS) (possibly together with BSC Advisory Group on Fisheries)	TBD October – December 2014
SCSA Working Group on stock assessment of Demersal Species (WGSAD)	Rome, TBC October – November 2014
SCSA Working Group on stock assessment of Small Pelagic Species (WGSASP)	Rome, TBC October – November 2014
15 <sup>th</sup> Session of the SCSA	Rome, TBC October – November 2014
14 <sup>th</sup> Session of the SCMEE	Rome, TBC October – November 2014
14 <sup>th</sup> Session of the SCSA	Rome, TBC October – November 2014
13 <sup>th</sup> Session of the SCESS	Rome, TBC October – November 2014
17 <sup>th</sup> session of the Scientific Advisory Committee (SAC)	TBD

9. The final schedule will include priority activities and will be subject to availability of funds.

10. In addition, the below meetings are scheduled within the GFCM Framework Programme for 2014 – 2015 are brought to the attention of the SAC:

<b>FWP Meeting</b>	<b>Place/Date</b>
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
Follow up Workshop for the implementation of management measures in selected case studies in the Mediterranean and Black Sea	TBD 2014/2015
Workshop on Elasmobranchs	Sète, France 2014

## Appendix A

**DRAFT TERMS OF REFERENCE FOR SELECTED MEETINGS**

1. (SCMEE) Terms of Reference of the **Workshop on Elasmobranchs of the Mediterranean and Black Sea (second half of 2014)**
  - Collate historical datasets and review all the ongoing research programs in the region to update previous 2010 publication
  - Identify main fisheries and other human activities impacting sharks
  - Identify sensitive areas for elasmobranchs
  - Assess by-catch rates in selected fisheries and other mortality rates induced by human activities
  - Proposals for improvements for i) the monitoring of by-catch; ii) stock assessments and iii) for the control of illegal finning
  - Proposals for a series of technical measures to mitigate by-catch in the identified fisheries to be included within multiannual management plans including time or area closures in identified sensitive areas
  - Discuss on the best option for the creation of a community of practice for elasmobranchs in the Mediterranean and Black Sea hosted at the GFCM secretariat
2. (SCSA) Terms of Reference of the **Sub-regional Group on Stock Assessment in the Black Sea (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
3. (SCSA) Terms of Reference of the **Workshop on Surveys in the Black Sea (2014)**
  - Collect information on spatio-temporal coverage, methods and objectives of existing surveys in the Black Sea;
  - List and prioritize stocks for which a survey is needed in order to obtain a reliable scientific assessment;
  - List a common set of environmental parameters relevant from the point of view of fisheries that can be collected in the different surveys.
  - Identify stocks and areas which could be assessed together in a coordinated survey;
  - 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.)

4. (SCSA) Terms of Reference of the **EIFAAC/GFCM/ICES Working Group on Eels** (October – December 2014)

- Assess the latest trends in recruitment, stock and fisheries, including effort, and other anthropogenic factors indicative of the status of the stock, and report to ACOM, EIFAAC and GFCM Scientific Advisory Committee on the state of the international stock and its mortality;
- Review the life-history traits and mortality factors by ecoregion;
- Further develop the stock–recruitment relationship and associated reference points, using the latest available data;
- Explore the standardization of methods for data collection, analysis and assessment, and work with ICES DataCentre to develop a database appropriate to eel along ICES standards (and wider geography);
- Provide guidance on management measures that can be applied to both EU and non-EU waters;
- Address the relevant generic ToR from ACOM for Regional and Species Working Groups.

WGEEL will report by (details to be determined) for the attention of ACOM, WGRECORDS, SSGEF and FAO, EIFAAC and GFCM.

## Appendix B

**TERMS OF REFERENCE FOR SELECTED ACTIVITIES AND CONSULTANCIES  
PROPOSED BY THE SUBCOMMITTEES**

1. (SCMEE) Terms of Reference for a **consultant to be engaged within the “ACCOBAMS-GFCM joint project on interactions between cetaceans and fishing activities”** supporting actions to comply with Recommendations GFCM/35/2011/4 and GFCM/35/2011/5:
  - Gather updated information on the characteristics of devices, fishing gears and fishing operations or other approaches to mitigate/eliminate sea turtles by-catch and to release them alive.
  - Produce waterproof factsheets with practical information to mitigate/eliminate sea turtles by-catch and to release them alive to be distributed through the fisheries considered most impacting on sea turtles.
  - Analyze and define practical measures which could be implemented to mitigate the negative consequences of monk seal/fisheries interactions.
  - Design scientifically sound monitoring schemes to successfully examine mitigation measures effectiveness to reduce very low and close-to-0-risk of monk seals incidental taking and mortality once they are implemented.
  - In the implementation of the above activities the FAO Guidelines to reduce sea turtle mortality in fishing operations (FAO Fisheries and Aquaculture Department. Rome, FAO. 2010. 128pp.) as well as other produced by relevant institutions should be taken into consideration and its contents should be adapted to the Mediterranean and Black Sea region (if necessary).
  
2. (SCSA) 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**
  - 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 C

**Amendment of section “3.3.1 Current human use and development of fisheries” of the Standard form for the submission of proposals for GFCM fisheries restricted areas (FRAs) in the Mediterranean and Black Sea**  
(in red the new sections as proposed by SCMEE 2014)

### 3.3 USE OF NATURAL RESOURCES

#### 3.3.1. Current human use and development of fisheries

a) Briefly describe the current use of the area by artisanal, industrial and recreational fishing, **including information on:**

- *Number of vessel by fishery operating in the area*
- *Total annual catches by species of each fishery in the area*
- *Percentage of total catches fished in the area with respect to the total*
- *Value of this catches*
- *Percentage with respect to the total*
- *By-catch rates of vulnerable species in the area*
- *Number of fishers involved in the fisheries operating in the area*
- *Name(s) of base port(s)*



**Table 1 – ASSESSMENTS FOR SMALL PELAGIC SPECIES, as validated by SCSA**

GSA	Species	Methodology used	Stock status	Management advice	WGSASP comments	SCSA comments
GSA 01	Sardine, <i>Sardina pilchardus</i>	Indirect method: BioDyn (Surplus production Model)	<u>Sustainably exploited</u> Trend in landings is stable. Exploitation rate is lower than the Patterson's reference point (E=0.36). $B_{cur}/B_{MSY}=1.31$ $F_{current}$ (0.33) is below $F_{0.1}$ (0.5).	Not to increase fishing mortality	Uncertainty in the assessment and methodological problems in incorporating acoustic time series in the production model, so the model only relies on CPUE, which is very similar to the landings. The WGSASP suggested to evaluate the trend in effort data and that CPUE is evaluated independently to its performance in the production model. The WGSASP recommended the use of available time series both for CPUE and acoustic abundance indices. In the case of fitting problems, alternative production model should be tested. The area should be covered yearly with an independent survey.	The SCSA endorsed <u>stock status and advice</u> and stressed the limitation of the use of only CPUE indexes on production model. The SCSA agreed with the comments of the WG.
GSA 06	Anchovy, <i>Engraulis encrasicolus</i>	Indirect method: BioDyn (Surplus production Model)	<u>Sustainably exploited</u> Increasing trend in landings and biomass from acoustic $F_{current}$ (0.18) is lower than $F_{MSY}$ reference point (0.25). Exploitation rate is lower than the Patterson's reference point (E=0.24). Current biomass is above $B_{MSY}$ .	Not to increase fishing mortality	Uncertainty in the assessment and methodological problems in incorporating acoustic time series in the production model, so the model only relies on CPUE which in this case is very similar to the landings. The WGSASP suggested that CPUE is evaluated independently to its performance in the production model. The WGSASP recommended the use of available time series both for CPUE and acoustic abundance indices. In the case of fitting problems, alternative production model should be tested. Empirical RP not reliable since an historical maximum or minimum is not obvious in the time series available.	The SCSA endorsed <u>stock status and advice</u> and stressed the limitation of the use of only CPUE indexes on production model. The SCSA agreed with the comments of the WG.

GSA	Species	Methodology used	Stock status	Management advice	WGSASP comments	SCSA comments
GSA 06	Sardine, <i>Sardina pilchardus</i>	Indirect method: BioDyn (Surplus production Model)	<u>Overexploited and in Overexploitation.</u> Both landings and CPUE decreasing. Exploitation rate is higher than the Patterson's reference point ( $E = 0.46$ ). $F_{current}$ (0.42) is higher than the $F_{0.1}$ reference point (0.25). $B_{current}$ is below $B_{MSY}$ ( $B_{curr}/B_{MSY}=0.37$ ).	Reduce fishing mortality. Apply a multiannual management plan.	Uncertainty in the assessment and methodological problems in incorporating acoustic time series in the production model, so the model only relies on CPUE, which in this case is very similar to the landings. The WGSASP suggested that CPUE is evaluated independently to its performance in the production model. The WGSASP recommended the use of available time series both for CPUE and acoustic abundance indices. In the case of fitting problems, alternative production model should be tested. The declining trend is clear and in accordance with the acoustic. The exercise on reconstructed time series of biomass based on harvest rate seems to be coherent with acoustic estimates and point out for low biomass.	The SCSA endorsed stock status and advice and stressed the limitation of the use of only CPUE indexes on production model. The SCSA agreed with the comments of the WG. The SCSA recommended that the current Management Plan in place is confronted to these scientific advices.
GSA 07	Anchovy, <i>Engraulis encrasicolus</i>	Direct method by acoustics and harvest rate from catches/acoustic	<u>Depleted</u> Low exploitation rate and very low biomass, low commercial-sized anchovy abundance. Declining trend in landings and biomass. Current biomass is below $B_{pa}$ (27,308) and slightly above $B_{lim}$ (13,654).	Implement a recovery plan (including monitoring on biological parameters and limits on effort)	Biomass is more or less stable in this stock since 2005, with a slight increasing trend in 2011, but in 2012 the stock estimate decreased. Average size and condition of anchovy remains low. Unusual high acoustic energy close to the surface in all the area in 2013: extra uncertainty on the estimates due to difficulties in catch the signal and lower success in trawling.	The SCSA agreed with the comment from the WG but in line with the discussion on reference point at SC level, suggested to consider the stock status as "low biomass" and the management advice to be "reduce fishing mortality". The SCSA recommended that the current Management Plan in place is confronted to this scientific advice.
GSA 07	Sardine, <i>Sardina pilchardus</i>	Direct method by acoustics and harvest rate from catches/acoustic	<u>Unbalanced</u> Landings continue decreasing, the biomass is stable, high recruitments, but the fish are small and in poor conditions.	Fishing mortality should not be allowed to increase, monitoring of changes in the fishing effort/gears required.	This year the juvenile-adult partition was not done (disappearance of the two modes and changes in growth). There is a change in the fishery: in 2012 purse seiners contribute to 95% of the catch of sardine (previously around 20%). Measures of effort should be improved (e.g. number of "fishing sets" for purse seiners).	The SCSA endorsed stock status and advice and considered this assessment as qualitative. The SCSA recommended that the current Management Plan in place is confronted to this scientific advice.

GSA	Species	Methodology used	Stock status	Management advice	WGSASP comments	SCSA comments
GSA 16	Sardine, <i>Sardina pilchardus</i>	Harvest Rate and Surplus production model (BioDyn)	<u>Overexploited and in overexploitation</u> F <sub>Current</sub> (0.18) is below the sustainable fishing mortality at current biomass levels (F <sub>cur</sub> /F <sub>SYCur</sub> =0.74) but above F <sub>MSY</sub> (F <sub>MSY</sub> =0.16; F <sub>cur</sub> /F <sub>MSY</sub> =1.11). B (16415) < B <sub>MSY</sub> (32830) B <sub>current</sub> is above B <sub>lim</sub> but below B <sub>pa</sub> .	Fishing mortality should be reduced by means of a multi-annual management plan.	The role of the environmental index in the population and in the model fitting procedure is unclear. Further analysis in the model fitting behaviour should be investigated (e.g. testing other environmental factors, sensitivity analysis on seed values...). The WGSASP suggested to look at the monthly catches and the LFD of the catches.	The SCSA <u>endorsed stock status and advice</u> and pointed out that F <sub>current</sub> is 11% higher than F <sub>MSY</sub> . Given the low level of biomass it should be recommended to reduce fishing mortality immediately.
GSA 16	Anchovy, <i>Engraulis encrasicolus</i>	Harvest Rate and Surplus production model (BioDyn)	<u>In overexploitation</u> Exploitation rate is higher than the Patterson's reference point (E=0.42) Model trial provides a high exploitation rate.	Fishing mortality should be reduced by means of a multi-annual management plan.	The assessment is uncertain. The catches and the biomass estimates provide opposite trends and the performances of the model are low. The WGSASP suggested to look at the monthly catches and the LFD of the catches. The overall picture shows a decreasing trend in biomass, a harvest rate that is fluctuating up to really high values (in 2011 was about 80%) and an increase in F. Empirical RP not reliable since an historical maximum or minimum is not obvious in the time series available.	The SCSA <u>endorsed stock status and advice</u> and accepted that the assessment is considered to be qualitative.
GSA 17	Sardine, <i>Sardina pilchardus</i>	SAM tuned by acoustic  Tests with ICA and ASAP tuned by acoustic	<u>Increased risk of overexploitation.</u> Exploitation rate is higher than the Patterson's reference point (E=0.42). B <sub>current</sub> is above both limit and precautionary reference point. Positive trend. Harvest rate is equal to 26%.	Do not increase fishing mortality and revise stock advice next year.	The WGSASP chose the SAM model as the final assessment due to better performance. All models tested provide similar estimates in the recent years, nevertheless there are discrepancies in the historical perspective. Catch data and acoustic data show some inconsistencies in the abundance by age trend (cohorts signal). Partial coverage of the eastern acoustic survey in the last two years: analysis of spatial variability should be desirable. Some differences in the ALK between the eastern and western data were identified. The WGSASP recommended a revision of the input-basic data (e.g. age structure) including testing the use of recent biological data (length structure and ALKs) from the Eastern area in the older part of the eastern landings time series, instead of data from the Western area.	In line with the discussion on reference point at SC level, SCSA suggested to consider the stock status as " <u>increased risk of being overexploited and in overexploitation</u> " and the <u>management advice to be "reduce fishing mortality"</u> . In relation to the GFCM management plan approved for small pelagic fish in the Adriatic Sea the current status of the stock would be classified in option 16d – ii of the plan, and therefore the advice will be to adapt F by a ratio of 0.935

GSA	Species	Methodology used	Stock status	Management advice	WGSASP comments	SCSA comments
GSA 17	Anchovy, <i>Engraulis encrasicolus</i>	Both ICA and SAM with acoustic tuning are considered for the advice.	<u>Overexploited and in overexploitation</u> Exploitation rate is higher than the Patterson's reference point (E=0.48-0.57). Biomass level is at a low level (between 12-19 percentile of the biomass estimates)	Fishing mortality should be reduced and the existing management plan should be applied.	Both models were retained to provide a comprehensive advice. The recent perspective is consistent, but models provide a different historical perspective; ICA 2012, ICA 2013 and SAM all give a different perspective in both maximum and minimum biomass and some variability in F for the more recent years. Terminal F shows a large drop (probably unreliable) with a large CI. Due to unclear historical perspective, previously adopted reference points were considered not reliable. Advice was therefore provided on a precautionary basis (exploitation rate and biomass percentiles). The WGSASP recommended that the discrepancies of the different models should be further investigated. Partial coverage of the Eastern acoustic survey in the last two years: analysis of spatial variability should be desirable. Some differences in the ALK between the Eastern and Western data were identified. The WG recommends a revision of the input-basic data (e.g. age structure) including testing the use of recent biological data (length structure and ALKs) from the eastern area in the older part of the Eastern landings time series, instead of data from the Western area.	The SCSA <u>endorsed stock status and advice</u> . In relation to the GFCM management plan approved for small pelagic fish in the Adriatic Sea the current status of the stock would be classified in option 16d – ii of the plan, and therefore the advice will be to adapt F by a ratio of 0.935

**Table 2 – ASSESSMENTS FOR DEMERSAL SPECIES, as validated by SCSA**

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr/F0.1	Management advice	WGSAD comments	SCSA comments
GSA 01	European hake, <i>Merluccius merluccius</i>	Catch, effort Lfreq catch & trawl surveys	2003-2012	XSA tuned with CPUE from commercial fleet and MEDITS data.	High overfishing Relative intermediate biomass	7.4	A reduction of the current fishing mortality is recommended by reducing the fishing effort and improving the selection pattern of the fishery.	No specific comments on this stock.	The SCSA endorsed the <u>assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 7 times higher than the Fmsy.
GSA 03	European hake, <i>Merluccius merluccius</i>	Catch, CPUE, trawl surveys, Lfreq (commercial and surveys)	2003-2012	a) VIT (LCA, VPA, Y/R) b) ExcelSheet1 (Y/R) c) ExcelSheet2 (LCA, Y/R) M=0,2 d) ExcelSheet2 (LCA, Y/R) M=0,5 e) ExcelSheet2 (LCA, Y/R, M vector) f) Biodyn (Production Model)	Uncertain	a) 4,5-5 (2007, 2008) b) 8,3-9,1 (2007, 2008) c) 8,33 (2007, 2008) d)6,7 (2007, 2008) e) 2,9 (2007, 2008) f) 1.0 (2003-2012)	No management advice could be derived from the results. The assessment was not endorsed.	The original VPA showed some problems: it merged information from the fleet and from the surveys, M was used as a scalar not as a vector and the production model used a short data series, without clear contrasts reflecting substantial changes in fishing effort, as recommended last year. The assessment was re-run using VIT for the 2 years in which commercial data was available (2007-2008), but the results were not used for providing management advice as they were considered too old. A trial comparing trends from commercial CPUEs and survey data was carried out, trying to produce qualitative assessment, but there was not a clear correspondence between both series of data. It was recommended to use SURBA in the following years.	The SCSA agreed with the WG comments. However, considering the overfishing status of the fishery in 2007-2008, it was advised that <u>any increase of fishing effort/catches of hake in this area should be avoided until a new assessment of the stock is available</u> .
GSA 05	European hake, <i>Merluccius merluccius</i>	Catch, effort, Lfreq catch & trawl surveys	2000-2012	XSA and Y/R analysis	In high overfishing status with relative high biomass	8.4	To reduce fishing mortality.	No specific comments on this stock.	The SCSA endorsed the <u>assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 8 times higher than the Fmsy.
GSA 07	European hake <i>Merluccius merluccius</i>	Catch, effort, Lfreq catch (French and Spanish trawlers, French gillnetters and Spanish longliners), trawl surveys	1998-2012	XSA and Y/R analysis	In High overfishing status; relative low biomass	12.2	- Improve the fishing pattern of the trawlers so that the minimum length of catches is consistent with the minimum legal landing size - reduce the effort of trawlers, longliners and gillnetters. - Freezing of the effort in the Fishery Restricted Area	The WGSAD was informed that some management measures have been taken since 2011 (reduction from 2010 to 2012 by 20% of the number of trawlers). This measure was enforced in 2013. Also, temporary closure for the trawlers (1 month per year) is enforced since 2011.	The SCSA endorsed the <u>assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 12 times higher than the Fmsy.

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr/F0.1	Management advice	WGSAD comments	SCSA comments
GSA 12, 13, 14, 15, 16	European hake, <i>Merluccius merluccius</i>	Catch & Lfreq catch	2010-2012	LCA, Y/R analysis	The stock is in high overfishing and low biomass level	5.8	F should be reduced and the fishing pattern improved by increasing the selectivity of gears	LCA run by year, and combining the last three years, showed similar results. The WGSAD agreed to consider the results of the last year (2012) as reference for advice. WGSAD agreed on assessment results and management advice provided.	The SCSA <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 8 times higher than the Fmsy.
GSA 18	European hake, <i>Merluccius merluccius</i>	Catch, effort, Lfreq catch, trawl surveys	survey data: 1996-2012; catch data: 2007-2012	XSA; ALADYM	High overfishing	5.6	Stock is in overfishing status and intermediate biomass (estimates on the MEDITS time series). The stock is characterized by fluctuations of recruitment and abundance, which contribute to sustain the catches. The stock is in overfishing as current fishing mortality exceeds the F <sub>0.1</sub> levels (1 vs. 0.18) and thus a considerable reduction of the fishing mortality is necessary to allow the achievement of F <sub>0.1</sub> . Objectives of a more sustainable harvest strategy could be achieved with a multiannual plan that foresees a reduction of fishing mortality through fishing limitations. As observed in 2012, the production of hake in GSA 18 is split in 17% caught by Italian longlines, 74% by Italian trawlers, about 1% by Montenegrin trawlers and about 8% by Albania trawlers.	No specific comments on this stock.	The <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 5 times higher than the Fmsy.

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr/F0.1	Management advice	WGSAD comments	SCSA comments
GSA 17	Common sole, <i>Solea solea</i>	Trawls surveys, catch, Lfreq catch & Lfreq catch	1970-2012 (SCAA); 2006-2012 (XSA)	XSA, SCAA with SS3	High overfishing with relative low biomass level.	3.0	A reduction of fishing mortality towards the proposed reference point is advised. Considering the overexploited situation and the low values of SSB and biomass of the sole stock in GSA 17 a reduction of fishing pressure and an improvement in exploitation pattern is advisable, especially of Italian rapido trawlers and gillnetters, which mainly exploit juveniles. The best option to reduce effort and improve the exploitation pattern for sole in GSA 17, would be to introduce a closure for rapido trawling within 17 km of the Italian coast during the summer-fall period (June- December). Moreover, it was noted that in the last years some Italian artisanal fleets fish with gill net in the main spawning area during periods when trawling is prohibited. Additional measures to restrict exploitation of sole in the spawning area are desirable, to afford further protection of the Adriatic sole stock.	The WGSAD appreciated the comparison between the two models provided, as requested by last year's WG.	The SCSA endorsed the assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 3 times higher than the Fmsy.
GSA 05	Red mullet, <i>Mullus barbatus</i>	Catch, trawl surveys & Lfreq catch.	2000-2012	XSA and Y/R	High overfishing status with relative low biomass level.	6.6	To reduce fishing mortality.	No specific comments on this stock.	The SCSA endorsed the assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 6 times higher than the Fmsy

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr/F0.1	Management advice	WGSAD comments	SCSA comments
GSA 06	Red mullet, <i>Mullus barbatus</i>	Total annual landings, annual catch in number by size class, abundance index from commercial fleet and MEDITS surveys	1995-2012	XSA, Y/R	High overfishing and relative intermediate biomass level.	1.8	A reduction in fishing mortality towards the $F_{0.1}$ level is advised. A progressive reduction in fishing effort is recommended.	The use of 40mm square or 50mm diamond mesh has improved the exploitation pattern. Age groups 0-1 were predominant in catches until 2010. From 2011 onwards age groups 1-2 are predominant.	The SCSA endorsed the assessment and proposed to reduce fishing mortality. The SCSA pointed out that $F_{current}$ is about 2 times higher than the $F_{msy}$ .
GSA 07	Red mullet, <i>Mullus barbatus</i>	Commercial and survey catch at age	2004-2012	XSA, Y/R	High Overfishing with relative high biomass level.	4.0	-Improve the fishing pattern of trawlers, so that the minimum length of catches is consistent with the minimum legal landing size -Reduce the effort of trawlers -Freezing the effort in the fishery Restricted Area	No specific comments on this stock.	The SCSA endorsed the assessment and proposed to reduce fishing mortality. The SCSA pointed out that $F_{current}$ is about 4 times higher than the $F_{msy}$ .
GSA 10	Red mullet, <i>Mullus barbatus</i>	Trawl surveys, catch & $L_{freq}$ catch.	survey data: 1994-2012; catch data: 2006-2012	XSA	Sustainable exploited with relative intermediate biomass level.	0.8	It is recommended to not increase the relevant fleets' effort and/or catches to maintain fishing mortality in line with the agreed reference point and to avoid future loss in stock productivity and landings.	No specific comments on this stock.	The SCSA endorsed the assessment and advice.



GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr/F0.1	Management advice	WGSAD comments	SCSA comments
GSA 17	Red mullet, <i>Mullus barbatus</i>	Trawls surveys, catch, Age freq catch	2006-2012	XSA, Y/R	High overfishing status with relatively intermediate high biomass level.	5.3	A reduction fishing mortality towards the proposed reference point is advised. Considering the overfishing situation of the red mullet stock in GSA 17 a reduction of fishing pressure and an improvement in exploitation pattern, especially of Italian trawlers exploiting a larger amount of Age 0+ group than Croatian and Slovenian trawlers, is advisable. However, from the analysis of the relative biomass observed in 2012 from MEDITS and from the SSB and total biomass estimated for the same year from XSA is possible to conclude that the abundance of the stock is high and there is not risk of stock depletion.	No specific comments on this stock.	The SCSA endorsed the <u>assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 5 times higher than the Fmsy.
GSA 19	Red mullet, <i>Mullus barbatus</i>	Catch, Lfreq catch, trawl surveys	2006-2012 (commercial) 1994-2012 (survey)	LCA, Y/R	High overfishing status with relative intermediate biomass level.	3.1	Considering the results of the analyses, the objectives of a more sustainable harvest strategy could be achieved with a multiannual plan based on a reduction of the fishing mortality through fishing activity limitations and possibly fishing capacity decreasing, mostly focused on trawling.	No specific comments on this stock.	The SCSA endorsed the <u>assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 3 times higher than the Fmsy.
GSA 05	Striped red mullet, <i>Mullus surmuletus</i>	Catch, trawl surveys & Lfreq catch.	2000-2012	XSA, Y/R and short term forecasts	High overfishing status with relative low biomass level.	3.0	To reduce fishing mortality.	The decrease in biomass and recruitment in the last two years is not connected with the dynamics of effort that is constant. This apparent contradiction is difficult to understand and could be related to changes in the fishing exploitation pattern related to market demands (it is a multispecific fishery), changes in selectivity or in the ecosystem.	The SCSA endorsed the <u>assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 3 times higher than the Fmsy.

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr/F0.1	Management advice	WGSAD comments	SCSA comments
<b>GSA 15-16</b>	Striped red mullet, <i>Mullus surmuletus</i>	Trawl surveys, catch & Lfreq catch	2002-2012	XSA, Y/R	High overfishing status with relative intermediate biomass level.	4.1	To reduce the current F toward the proposed FMSY, in order to avoid future loss in stock productivity and landings. This should be achieved by means of a multi-annual management plans, considering also reduction in the relevant fleets' effort and / or catches.	The reliability of MEDITS survey indices as tuning data was discussed. It is important to highlight that the XSA assessment would also benefit by the inclusion of time series of CPUE from gillnets and trammel nets to better reconstruct the dynamics of oldest age classes. It was suggested to repeat this assessment next year with the inclusion of Tunisian catch data if available.	The SCSA endorsed the <u>assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 4 times higher than the Fmsy.
<b>GSA 26</b>	Striped red mullet, <i>Mullus surmuletus</i>	Catch & Lfreq catch	2011-2012	LCA, Y/R	High overfishing status	2.1	The objectives of a more sustainable harvest strategy could be achieved by reduction of fishing mortality through fishing activity limitations. Improve the selection pattern of the trawl fishery and enforcement of the application of the closed season will help in protecting the SSB. The lack of enforcement of the existing regulations, specifically the closed season during the last three years, can have a strong effect in this stock.	No specific comments on this stock.	The SCSA endorsed the <u>assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 2 times higher than the Fmsy.
<b>GSA 26</b>	Brush tooth lizard fish, <i>Saurida undosquamis</i>	Catch & Lfreq catch	2011-2012	LCA, Y/R	In high overfishing status.	2.2	- Reduce the fishing mortality to F <sub>0.1</sub> by limitation of trawl fishing activities. - Improvement of the selection pattern of the trawl fishery	No specific comments on this stock.	The SCSA endorsed the <u>assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 2 times higher than the Fmsy.
<b>GSA 25</b>	Picarel, <i>Spicara smaris</i>	Catch, Age freq catch, CPUE as tuning index	2005-2012	XSA, Y/R	Sustainable exploitation with intermediate biomass	0.6	Do not increase the fishing mortality.	No specific comments on this stock.	The SCSA endorsed the <u>assessment and advice</u> .
<b>GSA 05</b>	Red shrimp, <i>Aristeus antennatus</i>	Catch, trawl surveys & Lfreq catch and commercial CPUE	1992-2012	LCA, XSA, VPA, Y/R	The stock is subject to high overfishing with relative low biomass level.	4.3	To reduce fishing mortality.	No specific comments on this stock.	The SCSA endorsed the <u>assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 4 times higher than the Fmsy.

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr/F0.1	Management advice	WGSAD comments	SCSA comments
GSA 05	Deep-water pink shrimp, <i>Parapenaeus longirostris</i>	Catch, trawl surveys & Lfreq catch.	2002-2012	XSA, Y/R and short term forecasts	Low overfishing status with relative intermediate biomass level.	1.2	To reduce fishing mortality.	No specific comments on this stock.	The SCSA endorsed the assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 20% higher than the Fmsy.
GSA 06	Deep-water pink shrimp, <i>Parapenaeus longirostris</i>	Catch, trawl surveys & Lfreq catch	2001-2012	XSA, Y/R	High overfishing. Relative intermediate biomass.	5.5	A reduction of the current fishing mortality is recommended by reducing the fishing effort.	Fluctuations found in this stock are in agreement with those observed in other areas, probably related to environmental variability. The WGSAD endorsed the assessment and recommendations.	The SCSA endorsed the assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 5 times higher than the Fmsy.
GSA 12-16	Deep-water pink shrimp, <i>Parapenaeus longirostris</i>	Catch, trawl surveys & Lfreq catch	2007-2012	LCA, Y/R	High overfishing.	1.8	To reduce fishing mortality. The protection of juveniles is also recommended. This objective can be achieved by improving the exploitation pattern of trawlers, and the protection of nursery areas.	No specific comments on this stock.	The SCSA endorsed the assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 2 times higher than the Fmsy.
GSA 18	Deep-water pink shrimp, <i>Parapenaeus longirostris</i>	Trawl surveys, catch & Lfreq catch	survey data: 1996-2007; catch data: 2007-2012	XSA, ALADYM	High overfishing.	1.8	It is necessary to consider a considerable reduction of the fishing mortality to allow the achievement of F <sub>0.1</sub> . The reference point F <sub>0.1</sub> can be gradually achieved by multiannual management plans that foresee a reduction of fishing mortality through fishing limitations. As observed in 2012, the contribution of each country to the total production of P. longirostris in the GSA18 is the following: Italy 60 %, Albania 38% and Montenegro 2%.	No specific comments on this stock.	The SCSA endorsed the assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 2 times higher than the Fmsy.

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr/F0.1	Management advice	WGSAD comments	SCSA comments
GSA 19	Deep-water pink shrimp, <i>Parapenaeus longirostris</i>	Trawl surveys, catch & Lfreq catch	survey data: 1994-2007; catch data: 2006-2012	XSA, ALADYM	High overfishing with relative high biomass level.	2.4	It is necessary to consider a considerable reduction of the fishing mortality in order to achieve the estimated $F_{0.1}$ levels. Objectives of a more sustainable harvest strategy could be achieved with a multiannual plan that foresees a reduction of fishing mortality through fishing limitations and improving selectivity pattern	No specific comments on this stock.	The SCSA endorsed the assessment and proposed to reduce fishing mortality. The SCSA pointed out that $F_{current}$ is about 2 times higher than the $F_{msy}$ .
GSA 15-16	Norway lobster, <i>Nephrops norvegicus</i>	Trawl surveys, catch & Lfreq catch	survey data: 2002-2012; catch data: 2002-2012	An SCA approach (Millar et al., 2012) using the a4a assessment model was performed on 2002-2012 catch data, tuned with Medits data	The estimated $F_{cur}$ was below FMSY in 2012 indicating that in this year the stock was exploited sustainably	0.7	Not to increase relevant fleets' effort or catches to maintain fishing mortality below the proposed FMSY level, in order to avoid future loss in stock productivity and landings.	The WGSAD identified uncertainty on the way the model reconstructed recruitment with outliers values in 2011 and 2012. Assessment and recommendations were endorsed.	The SCSA endorsed the assessment and advice.

**Table 3 - ASSESSMENTS FOR BLACK SEA STOCKS, as validated by SCSA, with 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+	a) 1950-2012	a) SAM	<u>Black Sea stock</u> : Depleted and in overfishing	a) 2.1	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 <u>endorsed the advice</u> . The SCSA recommended that an agreement on stock limits for the purpose of stock assessment is done.	The WGBS <u>endorsed the advice</u> . 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.
		b) Ukrainian catch-at-length	b)	b) LCA	<u>Northwest population</u> (Ukrainian waters): in overfishing, with a slight decreasing trend in SSB	b) 3.8				
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 <u>as do not increase the fishing mortality</u> . The SCSA agreed on the importance of a recruitment estimate to provide advice.	The WGBS <u>endorsed the advice</u> . The WGBS pointed to the large fluctuation of catches of the different small pelagic species between years, which should be investigated.
GSA 29-30	Anchovy <i>E. encrasicolus maeoticus</i>		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 <u>do not increase the fishing mortality</u> .	The WGBS <u>endorsed the advice</u> . No further comments

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr/ Flim	Advice	SGSABS Comments	SCSA Comments	WGBS Comments
<b>GSA 29</b>	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 <u>SCSA endorsed the advice</u> , but suggested that more detailed information on the available data is provided.	The WGBS <u>endorsed the advice</u> . The WGBS recommended that all riparian countries report catches.

- 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)