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



**Thirty-eighth session of the Commission**

**FAO HQ, Rome, Italy, 19–24 May 2014**

**Report on fisheries intersessional activities in 2013–2014, recommendations  
and work plan for 2014–2015**

## INTRODUCTION

1. This document highlights the main outcomes achieved by the Scientific Advisory Committee (SAC) and its subsidiary bodies as well as the results of related technical meetings carried out during the intersessional period. These include the **main conclusions, management advice** and the **2014-2015 work plan** emanating from the sixteenth session of SAC (full report in document GFCM:XXXVIII/2014/Inf.5).
2. The activities described here have been undertaken by GFCM Members at the national level, and coordinated by the GFCM Secretariat within the framework of the SAC subsidiary bodies or within the remit of the GFCM Framework Programme (FWP).

## ACTIVITIES OF THE SCIENTIFIC ADVISORY COMMITTEE (SAC)

3. The sixteenth session of SAC was held in St. Julian's, Malta, from 17 to 20 March 2014. The session was attended by 18 Contracting Parties, 7 observers, representatives of FAO regional projects and GFCM Secretariat.
4. The intersessional activities have been carried out in accordance with the programme of work as agreed by the Commission at its thirty-seventh session (Croatia, May 2013) and to the priorities defined in the FWP, according to funds availability. Activities organized by other organizations in which the GFCM has participated are summarized in document GFCM: XXXVIII/2014/Inf.9. A complete list of the meetings organized within the remit of SAC is included in Appendix C.
5. A summary of the most relevant outcomes of the SAC intersessional activities, including within the FWP, by subcommittee/working group, is provided below.

### Subcommittee on Statistics and Information (SCSI)

6. 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 the subregional level and to better integrate the different data requirements for the implementation of the GFCM mandate. Also, it examined the status of Members' compliance regarding data and information reporting, with particular reference to vessel records (fleet data) and Task 1. Moreover, the subcommittee

reviewed the progress made regarding the GFCM data and information dissemination system, including a proposal for a new GFCM web site, online databases and data submission protocols, as well as the launch of online analysis and visualization tools to browse the contents of those databases.

#### **Subcommittee on Economic and Social Sciences (SCESS)**

7. The subcommittee agreed on a common methodology to carry out socioeconomic analysis. Moreover, it examined the socioeconomic variables and indicators proposed within the DCRF and reviewed the conclusions of the First Regional Symposium on Sustainable Small-Scale Fisheries in the Mediterranean and the Black Sea. Further follow-up on small-scale fisheries has been performed during the sixteenth session of the SAC in view of the preparation of a concept note to launch a regional programme on small-scale fisheries.

#### **Subcommittee on Marine Environment and Ecosystems (SCMEE)**

8. The subcommittee, upon mandate from the Commission at its thirty-sixth session, and thanks to the participation of experts and stakeholders in dedicated workshops, reviewed and endorsed: i) a proposal for a draft regional plan for the management of red coral; and ii) Practical Guidelines for Artificial Reefs in the Mediterranean and the Black Sea. In addition to these, the subcommittee reviewed the outcomes of the first meeting of the GFCM Working Group on Marine Protected Areas (WGMPA), concerning: i) the status and functioning of the four existing fisheries restricted areas (FRA), ii) the coordination among concerned partner organizations on the use of existing protection and designation tools to protect agreed priority areas of the Mediterranean and the Black Sea; and iii) the harmonization of the type of information required for the establishment of FRAs, specially protected areas of Mediterranean interest (SPAMI), and areas of special importance for cetaceans.

#### **Subcommittee on Stock Assessment (SCSA)**

9. The subcommittee reviewed the outcomes of its intersessional meetings, as listed in Appendix C. Advice was provided for a total of 39 stocks, 34 of which in the Mediterranean (25 demersal species and 9 small pelagic species), and 5 in the Black Sea (3 demersal species and 2 small pelagic species). Moreover, the subcommittee prepared a proposal for a framework to provide advice and recommendations on stock status and reference points, based on the principles laid down by the GFCM Guidelines for multiannual management plans. A training on assessment models was also organized in collaboration with the European Union Joint Research Center and the FAO regional projects.

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

10. The WGBS reviewed the outcomes of its intersessional meetings and provided management advice for the five 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 elements for the management of turbot fisheries in the Black Sea.

#### **Selected issues within the FWP**

11. In addition to the activities held within the Framework Programme in close connection to subcommittees, as included in Appendix C, the following transversal activities have been carried out during the intersessional period:

- **IUU fishing:** A workshop on IUU fishing 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 based on a similar workshop on IUU fishing in the Black Sea, convened in February 2013 in Istanbul, Turkey, and included a roadmap to fight IUU fishing in the Mediterranean Sea also presenting a number of scientific and technical aspects.

- **Environmental status of exploited populations:** Within the framework of the memorandum of understanding (MoU) with UNEP-MAP, a proposal for the definition of good environmental status (GES) of exploited marine fish and shellfish populations, as well as associated indicators and targets, was made to the UNEP-MAP Integrated Correspondence Groups of GES and Targets meeting (Athens, Greece, 17–19 February 2014). The proposal was revised by the SAC, which agreed to use those indicators already available but suggested that the SAC further evaluate the implications of the use of other indicators. In addition to this activity, the MedSuit project (Mediterranean cooperation for the sustainable use of marine biological resources) funded by the Italian Ministry of Environment was launched in November 2013 with the aims 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 the maintenance of good environmental status.

## **SUGGESTIONS AND ADVICE OF THE SCIENTIFIC ADVISORY COMMITTEE (SAC)**

12. In light of the main conclusions and suggestions made by its subsidiary bodies, the SAC approved the following conclusions and/or advice for fisheries management in connection with the topics below:

### **Statistics and information issues**

- Take the necessary steps to implement the adopted GFCM Data Collection Reference Framework (DCRF as described in document GFCM:XXXVIII/2014/10 and summarized in Appendix B of this document), and provide: i) a detailed description of the GFCM data requirements; ii) a manual on how to meet these requirements; and iii) an analysis of the relation between the DCRF and previously adopted recommendations.
- Ensure continuing developments in cloud-based IT solutions for data, information and dissemination.
- Develop a strategy for the potential use of data collected through vessel monitoring system (VMS) for stock assessment and for the evaluation of fisheries populations (spatial and temporal dimensions could be envisioned when dealing with stocks on the basis of VMS data).

### **Economic and social sciences issues**

- Recognize the role of small-scale fisheries and the need to ensure their sustainable development through a regional programme on small-scale fisheries, according to the concept note included in document GFCM:XXXVIII/2014/Inf.17.
- Make sure that the socioeconomic impacts of the multiannual management plans proposed by the Commission are adequately addressed and, to this end, involve economists in future meetings of the working groups where multiannual management plans will be examined.

### **Environment and ecosystem issues**

- Adopt a regional management plan for **red coral**, on the basis of the elements contained in document GFCM:XXXVIII/2014/4.
- Adopt the Practical Guidelines on **Artificial Reefs** in the Mediterranean and Black Sea (document GFCM:XXXVIII/2014/Inf.14).
- In connection with **marine protected areas (MPAs)**, consider options for strengthening the preservation of selected areas through the overlap of different protection instruments, as follows:

- Designate national MPAs in areas deeper than 1000 m, which fall within national water limits and that are already protected by the GFCM from trawling and dredging;
- Designate FRAs in areas that are 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 the control and enforcement of existing FRAs. Criteria for the regular evaluation of FRA management should also be foreseen together with the possibility of defining a scheme for joint international surveillance at the regional level.

### **Stock assessment issues**

- Acknowledge the advice on stock status provided by the SAC, which includes a total of 39 stocks (Appendix A), 34 of them in the Mediterranean (25 demersal and 9 small pelagic species), and 5 in the Black Sea (3 demersal and 2 small pelagic species). For Mediterranean stocks, three demersal and two small pelagic stocks were considered in sustainable exploitation status, while the 29 other stocks (22 demersal and 7 pelagics) were considered under some kind of threat – overexploitation, being overexploited or ecologically unbalanced. In the Black Sea, two stocks of small pelagic species were considered to be sustainably exploited, while the three demersal stocks assessed were considered either depleted, overexploited or in overexploitation.
- Reduce fishing mortality and improve selection patterns for fisheries that exploit those stocks considered to be overexploited or in overexploitation.
- In light of the sixteenth session of the SAC, which reviewed the technical elements included in Recommendation GFCM/37/2013/1 on the management of small pelagic fisheries in GSA 17 and 18 (Adriatic Sea), as instructed in the mentioned recommendation, the Commission may wish to reopen the discussion on the management measures included in this recommendation, in particular to take into consideration the advice by the SAC.
- Review and take the appropriate actions on the elements for the management of the following fisheries: i) small pelagics in the Alborán Sea; ii) mixed fisheries of European hake and deep water rose shrimp in the Strait of Sicily; iii) deepwater shrimp in the eastern Mediterranean; and iv) turbot in the Black Sea, in light of possible decisions on the management of these fisheries.
- Endorse the framework for providing guidance in formulating advice and recommendations in relation to stock status and reference points, as adopted by the SAC (GFCM:XXXVIII/2014/Inf.13)

### **Black Sea related issues**

- Acknowledge the management advice for Black Sea stocks as provided by the WGBS and included in Appendix A;
- Establish the Subregional Group on Stock Assessment in the Black Sea;
- In light of the assumed level of IUU catches for Black Sea stocks:
  - improve the monitoring of Black Sea fisheries 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,

### Research activities by member countries

- Agree on the establishment of a pilot test study on the use of an online submission tool for the national reports, to be provided by the GFCM Secretariat. Members shall be invited to use this tool on a voluntary basis as an alternative of the Word format currently available.
13. The main outcomes of the SAC on which the Commission is invited to take action can be summarised as follows:
- i) evaluate the possibility of adopting a recommendation for the management of red coral, to be potentially submitted by one or more Members, based on the suggestions made by the thirty-seventh session of the Commission and on the technical elements adopted by the SAC;
  - ii) endorse the DCRF as adopted by the SAC and ensure that actions to implement the DCRF are listed in the Commission's work plan for the next intersession, including the technical work to be done by the SAC, the identification of the previous GFCM recommendations that could be affected by the DCRF, and the preparation of the required elements for a possible recommendation encompassing all data requirements to Members;
  - iii) endorse the technical advice of the SAC and, if necessary, take the appropriate decisions in relation to: a) artificial reefs, and b) elements for the management of small pelagics in the Alborán Sea, mixed fisheries of European hake and deepwater rose shrimp in the Strait of Sicily, deepwater shrimp in the eastern Mediterranean, and turbot in the Black Sea.

### **WORK PROGRAMME OF THE SCIENTIFIC ADVISORY COMMITTEE (SAC)**

14. The list of meetings proposed by the SAC is reproduced hereafter and subdivided by: i) regular meetings of the SAC and its subcommittees and working groups; ii) meetings to be held within the FWP (already scheduled and for which extra-budgetary funds are identified); and iii) new proposed meetings.

<b>SAC meeting</b>	<b>Place/Date</b>
SCSA Working Groups on Stock Assessment of Demersal and Small Pelagic Species (WGSAD and WGSASP), including a session on the assessment of data limited stocks in the Mediterranean and Black Sea	Rome, TBC October – November 2014
Meeting of the Subregional Group on Stock Assessment in the Black Sea (SGSABS) (possibly together with BSC Advisory Group on Fisheries)	TBD October – December 2014
Sessions of the SAC subcommittees (SCSI, SCESS, SCMEE, SCSA), including a session on fishing technologies	Rome, TBC November – December 2014
Coordination meeting of the subcommittees (CMSC)	TBD
Fourth meeting of the WGBS	Georgia, April 2015
Seventeenth session of the Scientific Advisory Committee (SAC)	Rome, TBC March 2015

<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 2014/2015
Workshop on the implementation of the DCRF in the Mediterranean and Black Sea	TBD October – November 2014
Follow-up workshop on the 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 the Black Sea	TBD 2014/2015
Workshop on the conservation of elasmobranchs	Sète, France 2014
MedSuit project inception meeting	Italy, September 2014
Second Regional Symposium on Sustainable Small-Scale Fisheries in the Mediterranean and the Black Sea	Algeria, 2015

<b>New proposed meeting</b>	<b>Place/Date</b>
EIFAAC/GFCM/ICES Working Group on Eels (WGEEL)	Tunisia November 2014
Second meeting of the Working group on Marine Protected Areas (WGMPA) (possibly back-to-back with the RAC/SPA meeting on SPAMIs)	Tunisia June 2015

15. In addition to the preparation of the meetings listed above, the following activities of relevance for the Commission were identified by the four subcommittees, reviewed and adopted by the SAC at its sixteenth session:

#### **Subcommittee on Statistics and Information (SCSI)**

- Carry out an assessment at the national level in each GFCM Member country for the improvement of data collection on small-scale fisheries;
- Evaluate the requirements to implement the DCRF (technical manual on data requirements and monitoring recommendations, country requirements, etc.).

#### **Subcommittee on Economic and Social Sciences (SCESS)**

- Develop a common methodology to carry out the collection of socioeconomic data for vessels without license;
- Launch the First regional programme on small-scale fisheries.

### **Subcommittee on Marine Environment and Ecosystems (SCMEE)**

- Within the remit of the Working Group of Marine Protected Areas:
  - Compile, in collaboration with MedPAN, a review of existing national areas subject to area-based fisheries management measures under the provisions of national legislations (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 area-based fisheries management measures;
  - Within the GFCM–UNEP/MAP memorandum of understanding (MoU) and in collaboration with RAC/SPA, envisage the possibility of carrying out:
    - A pilot study to test new joint designations of marine protected areas by more than one institution;
    - A study on deep sea habitats and vulnerable marine ecosystems (VME) with the aim of assessing the feasibility of protecting areas shallower than 1 000 m and the related fisheries implications.

### **Subcommittee on Stock Assessment (SCSA)**

- 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;
- Regularly update the SAC glossary with the models used in the stock assessment expert groups.

### **Working Group on the Black Sea**

- 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 elements for management of this fishery as included in the SAC report;
- Share among the GFCM and BSC the agreed work plans on fisheries activities in the Black Sea as soon as available and discuss interactions as well as the possible joint organization of activities;

16. Draft terms of reference (ToRs) for the meetings and some of the activities listed in the work plan are provided in Appendix D of this document.

### **Potential activities to be jointly developed in collaboration with party organizations**

17. Several activities mentioned above could be carried out together with party organizations with which the GFCM has signed a memorandum of understanding or within the framework of future cooperative efforts, as explained in document GFCM:XXXVIII/2014/Inf.9.

### **SUGGESTED ACTION BY THE COMMISSION**

18. The Commission is invited to review the activities carried out by its subsidiary bodies and through the Framework Programme during the intersessional period and to provide guidance on any follow-up that may be required as well as on the working strategies to be adopted.

## Appendix A

## Stock assessments for small pelagic, demersal and Black Sea stocks, as reviewed by SAC

Table 1 – Assessments for small pelagic stocks, as reviewed by SAC

GSA	Species	Methodology used	Stock status	Management advice	WGSASP comments	SCSA comments	SAC 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 <u>endorsed 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.	The SAC endorsed the advice
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 <u>endorsed 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.	The SAC endorsed the advice



GSA	Species	Methodology used	Stock status	Management advice	WGSASP comments	SCSA comments	SAC comments
GSA 06	Sardine, <i>Sardina pilchardus</i>	Indirect method: BioDyn (Surplus production Model)	<p><u>Overexploited and in Overexploitation.</u></p> <p>Both landings and CPUE decreasing.</p> <p>Exploitation rate is higher than the Patterson's reference point (<math>E = 0.46</math>).</p> <p><math>F_{\text{current}}</math> (0.42) is higher than the <math>F_{0.1}</math> reference point (0.25).</p> <p><math>B_{\text{current}}</math> is below <math>B_{\text{MSY}}</math> (<math>B_{\text{curr}}/B_{\text{MSY}}=0.37</math>).</p>	Reduce fishing mortality. Apply a multiannual management plan.	<p>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.</p> <p>The WGSASP suggested that CPUE is evaluated independently to its performance in the production model.</p> <p>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.</p> <p>The declining trend is clear and in accordance with the acoustic.</p> <p>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.</p>	<p>The SCSA <u>endorsed stock status and advice</u> and stressed the limitation of the use of only CPUE indexes on production model.</p> <p>The SCSA agreed with the comments of the WG.</p> <p>The SCSA recommended that the current Management Plan in place is confronted to these scientific advices.</p>	The SAC endorsed the advice
GSA 07	Anchovy, <i>Engraulis encrasicolus</i>	Direct method by acoustics and harvest rate from catches / acoustic	<p><u>Depleted</u></p> <p>Low exploitation rate and very low biomass, low commercial-sized anchovy abundance.</p> <p>Declining trend in landings and biomass.</p> <p>Current biomass is below <math>B_{\text{pa}}</math> (27,308) and slightly above <math>B_{\text{lim}}</math> (13,654).</p>	Implement a recovery plan (including monitoring on biological parameters and limits on effort)	<p>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.</p> <p>Average size and condition of anchovy remains low.</p> <p>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.</p>	<p>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 <u>stock status as "low biomass" and the management advice to be "reduce fishing mortality"</u>.</p> <p>The SCSA recommended that the current Management Plan in place is confronted to this scientific advice.</p>	The SAC endorsed the advice

GSA	Species	Methodology used	Stock status	Management advice	WGSASP comments	SCSA comments	SAC comments
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 <u>endorsed stock status and advice</u> and considered this assessment as qualitative.  The SCSA recommended that the current Management Plan in place is confronted to this scientific advice.	The SAC consider the status of the stock as <u>Ecologically unbalanced</u> , in light of the analysis carried out
GSA 16	Sardine, <i>Sardina pilchardus</i>	Harvest Rate and Surplus production model (BioDyn)	<u>Overexploited and in overexploitation</u> $F_{current}$ (0.18) is below the sustainable fishing mortality at current biomass levels ( $F_{cur}/F_{SYCur}=0.74$ ) but above $F_{MSY}$ ( $F_{MSY}=0.16$ ; $F_{cur}/F_{MSY}=1.11$ ). $B$ (16415) < $B_{MSY}$ (32830) $B_{current}$ is above $B_{lim}$ but below $B_{pa}$ .	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 $F_{current}$ is 11% higher than $F_{MSY}$ .  Given the low level of biomass it should be recommended to reduce fishing mortality immediately.	The SAC endorsed the advice
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.	The SAC endorsed the advice

GSA	Species	Methodology used	Stock status	Management advice	WGSASP comments	SCSA comments	SAC comments
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	The SAC advice is to <u>reduce fishing mortality</u>
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	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	The SAC advice is to <u>reduce fishing mortality</u>

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GSA	Species	Methodology used	Stock status	Management advice	WGSASP comments	SCSA comments	SAC comments
					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.		

Table 2 - Assessments for demersal stocks, as reviewed by SAC

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / F0.1	Management advice	WGSAD comments	SCSA comments	SAC 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 <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 7 times higher than the Fmsy.	The SAC endorsed the advice
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> .	The SAC endorsed the advice

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / F0.1	Management advice	WGSAD comments	SCSA comments	SAC comments
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 assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 8 times higher than the Fmsy.	The SAC endorsed the advice
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 assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 12 times higher than the Fmsy.	The SAC endorsed the advice
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 endorsed the assessment and proposed to reduce fishing mortality. SCSA pointed out that Fcurrent is about 8 times higher than the Fmsy.	The SAC endorsed the advice

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / F0.1	Management advice	WGSAD comments	SCSA comments	SAC comments
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 $F_{0.1}$ levels (1 vs. 0.18) and thus a considerable reduction of the fishing mortality is necessary to allow the achievement of $F_{0.1}$ . 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 $F_{current}$ is about 5 times higher than the $F_{msy}$ .	The SAC endorsed the advice
GSA 17	Common sole, <i>Solea solea</i>	Trawls surveys, catch, Lfreq catch & Lfreq catch	1970-2012 (SCA A); 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 <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that $F_{current}$ is about 3 times higher than the $F_{msy}$ .	The SAC endorsed the advice

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / F0.1	Management advice	WGSAD comments	SCSA comments	SAC comments
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 <u>endorsed the assessment and proposed to reduce fishing mortality</u> . SCSA pointed out that Fcurrent is about 6 times higher than the Fmsy	The SAC endorsed the advice
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 <sub>0.1</sub> 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 <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 2 times higher than the Fmsy.	The SAC endorsed the advice
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 <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 4 times higher than the Fmsy.	The SAC endorsed the advice



GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / F0.1	Management advice	WGSAD comments	SCSA comments	SAC comments
GSA 10	Red mullet, <i>Mullus barbatus</i>	Trawl surveys, catch & Lfreq catch.	survey data: 1994-2012; catch data: 2006-2012	XSA	Sustainably 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 <u>endorsed the assessment and advice.</u>	The SAC endorsed the advice
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 <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.	The SAC endorsed the advice
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 <u>endorsed the assessment and proposed to reduce fishing mortality.</u> The SCSA pointed out that Fcurrent is about 3 times higher than the Fmsy.	The SAC endorsed the advice

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / F0.1	Management advice	WGSAD comments	SCSA comments	SAC comments
<b>GSA 05</b>	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 assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 3 times higher than the Fmsy.	The SAC endorsed the advice
<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 assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 4 times higher than the Fmsy.	The SAC endorsed the advice
<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 assessment and proposed to reduce fishing mortality. The SCSA pointed out that Fcurrent is about 2 times higher than the Fmsy.	The SAC endorsed the advice

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / F0.1	Management advice	WGSAD comments	SCSA comments	SAC comments
<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 $F_{0.1}$ by limitation of trawl fishing activities. - Improvement of the selection pattern of the trawl fishery	No specific comments on this stock.	The SCSA <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that $F_{current}$ is about 2 times higher than the $F_{msy}$ .	The SAC endorsed the advice. SAC recommended that the ecological role and management advice are further discussed in SCME and SCSA
<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 <u>endorsed the assessment and advice</u> .	The SAC endorsed the advice
<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 <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that $F_{current}$ is about 4 times higher than the $F_{msy}$ .	The SAC endorsed the advice

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / F0.1	Management advice	WGSAD comments	SCSA comments	SAC comments
<b>GSA 05</b>	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 <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 20% higher than the Fmsy.	The SAC endorsed the advice
<b>GSA 06</b>	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 <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.	The SAC endorsed the advice
<b>GSA 12-16</b>	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 <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that Fcurrent is about 2 times higher than the Fmsy.	The SAC endorsed the advice

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / F0.1	Management advice	WGSAD comments	SCSA comments	SAC comments
<b>GSA 18</b>	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 <i>P. longirostris</i> in the GSA18 is the following: Italy 60 %, Albania 38% and Montenegro 2%.	No specific comments on this stock.	The SCSA <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that F <sub>current</sub> is about 2 times higher than the F <sub>msy</sub> .	The SAC endorsed the advice
<b>GSA 19</b>	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 <sub>0.1</sub> 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 <u>endorsed the assessment and proposed to reduce fishing mortality</u> . The SCSA pointed out that F <sub>current</sub> is about 2 times higher than the F <sub>msy</sub> .	The SAC endorsed the advice
<b>GSA 15-16</b>	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 <sub>cur</sub> was below F <sub>MSY</sub> 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 F <sub>MSY</sub> 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 <u>endorsed the assessment and advice</u> .	The SAC endorsed the advice

Table 3 - assessments for Black Sea stocks, as reviewed by SAC

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / Flim	Advice	SGSABS Comments	SCSA Comments	WGBS Comments	SAC 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 endorsed the <u>advice</u> . The SCSA recommended that an agreement on stock limits for the purpose of stock assessment is done.	The WGBS endorsed the <u>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.	The SAC endorsed the advice
		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 endorsed the <u>advice</u> . The WGBS pointed to the large fluctuation of catches of the different small pelagic species between years, which should be investigated.	The SAC endorsed the advice

GSA	Species	Data type	Years data	Methodology used	Stock status	Fcurr / Flim	Advice	SGSABS Comments	SCSA Comments	WGBS Comments	SAC comments
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	The SAC endorsed the advice
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 <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.	The SAC endorsed the advice

- 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 B

## DCRF STRUCTURE

TASK		DATA	PURPOSES
T.I CATCH	I.1) Landing data	Annual data on total national captures (i.e. landing) by country, area and fleet segment.	Monitoring total annual biomass landed by fleet segment, country and area.
	I.2) Catch data per species	Annual data on total catch (i.e. landing and discards) for the main commercial species reported by country, area and fleet segment.	Monitoring the trend of total catches (landing and discards) of the main commercial species
T.II BY-CATCH OF VULNERABLE SPECIES		Annual data (i.e. number of specimens) on incidental catches of vulnerable species (i.e. seabirds, turtles, marine mammals and sharks species) by area, country and fishing gear.	Quantification of incidental catches of vulnerable species and assessment of the impact of fisheries on species of conservation concern.
T.III FLEET		Register of fishing vessels with identification features (i.e. vessel name, registration number, port, fishing gears, geographical sub area, etc.) and information on technical features (i.e. gross tonnage, kilowatt, length overall etc.) of fleets operating in the GFCM area.	Monitoring of fishing capacity in the GFCM area
T.IV EFFORT		Fishing effort data calculated as a combination of capacity and activity by country, area, fleet segment and fishing gear.  Information on catch per unit effort (CPUE) for the main commercial species.	Accounting for the amount of effort deployed and to evaluate fishing pressure and trends in CPUE.
T.V SOCIO-ECONOMICS		Data related to economic and social variables of the fishery by country, area and fleet segment.	Assessing the economic value and social implications of the fisheries.
T.VI BIOLOGICAL INFORMATION	VI.1) Stock assessment	Annual data on stock identification and stock biological information on priority species: growth parameters, length/weight relationships, recruitment, biomass. Information on environmental factors that may affect the population dynamics.	Assessing the status of stocks and provision of scientific advice.
	VI.2) Length data	Data related to the observed size distribution of the catch (landing and discards), by identified priority species per area and fleet segment.	Monitoring the structure of populations
	VI.3) Other biological data	Biological variables (i.e. sex, maturity and age) of the catch (landing and discards), by identified priority species per area and fleet segment	Monitoring the biological rates and the dynamics of the exploited species.
	VI.4) Dolphin fish	Annual data on the total landing, the fishing period and the area of fishing operations regarding the dolphin fish <i>Coryphaena hippurus</i> .	Monitoring the population status of the dolphin fish and assessing the effect of the seasonal closure on the fishery
	VI.5) Red Coral	Information on red coral harvesting: management measures at national level, catches, effort and biological parameters.	Assess the current status and regulate the exploitation of red coral.



## Appendix C

**List of meetings organized within the remit of the SAC in the 2013–2014 intersessional period**

1. Fourteenth session of the Subcommittee on Statistics and Information (SCSI) (Montenegro, 4-5 February 2014)
2. Fourteenth session of the subcommittee on Economic and Social Sciences (CESS) (Montenegro, 4-5 February 2014), and related meetings:
  - Working Group on a common methodology to carry out socioeconomic 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)
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 a 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 10th International Conference on Artificial Reefs and Aquatic Habitats (23–27 September 2013, Izmir, Turkey) (Turkey, 27 September 2013)
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) Subregional Workshop on Fisheries Management for Western, Central and Eastern Mediterranean (Tunisia, 7–10 October 2013)
5. Third meeting of the Working Group on the Black Sea (Turkey, 26–28 February 2014), and related meetings:
  - Subregional 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)
6. Other selected transversal activities within the GFCM Framework Programme (FWP)
  - Workshop on IUU Fishing in the Mediterranean Sea (Tunisia, 3–4 October 2013)

**Draft terms of reference for selected activities as agreed by the SAC at its sixteenth session****A. (SCSI) Workshop on the implementation of the DCRF in the Mediterranean and Black Sea**

1. Comparative analysis of new data requirements within the proposed Data Collection Reference Framework (DCRF) in relation to previous recommendations;
2. Definition of the role of national focal points (terms of reference and nomination procedures);
3. Introduction of the methodological manual for data collection and submission.
4. Revision of DCRF appendices, including priority species, fleet segments, gears, effort measurement, shared stocks;
5. Identification of national constraints to fulfil data requirements of DCRF;
6. Proposals for technical assistance (in collaboration with the FAO regional projects).

**B. (SCSA) Workshop on Black Sea scientific surveys at sea: harmonization of survey methodologies and analysis of data**

1. Collect information on spatiotemporal coverage, methods and objectives of existing surveys in the Black Sea;
2. List and prioritize stocks that need a survey to obtain a reliable scientific assessment;
3. List a common set of environmental parameters – relevant from the fisheries point of view – that can be collected in the different surveys;
4. Identify stocks and areas which could be assessed together in a coordinated survey;
5. List the requisites for 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.)

**C. (SCSA) EIFAAC/GFCM/ICES Working Group on Eel (October–December 2014)**

1. 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 the GFCM Scientific Advisory Committee on the state of the international stock and its mortality;
2. Review the life history traits and mortality factors by ecoregion;
3. Further develop the stock–recruitment relationship and associated reference points, using the latest available data;
4. Explore the standardization of methods for data collection, analysis and assessment, and work with ICES Data Centre to develop a database appropriate to eel along ICES standards (and wider geography);
5. Provide guidance on management measures that can be applied to both EU and non-EU waters;
6. Address the relevant generic ToR from ACOM for Regional and Species Working Groups;
7. WGEEL will report by (details to be determined) for the attention of ACOM, WGRECORDS, SSGEF and FAO, EIFAAC and GFCM.

**D. (SCSA) Workshop on the assessment of data limited stocks in the Mediterranean and Black Sea (back-to-back with WGSAs)**

1. Review existing methods to assess the status of data limited stocks (DLS)
2. Evaluate the possibility to incorporate concepts from the ecosystem approach process (EcAP) into the assessment of the status of exploited populations
3. Collect suitable information from GFCM Members to apply DLS methods agreed prior to the meeting and apply them during the Workshop.
4. Provide a summary of the status of Mediterranean and Black Sea exploited populations, based on the analysis carried out and on previous assessments carried out by the SAC.

**E. (SCMEE) Workshop on Elasmobranchs in the Mediterranean and Black Sea**

1. Collate historical datasets and review all ongoing research programmes in the region to update the previous 2010 publication;
2. Identify the main fisheries and other human activities impacting sharks;
3. Identify sensitive areas for elasmobranchs;
4. Assess by-catch rates in selected fisheries and other mortality rates induced by human activities;
5. Make proposals to improve: i) the monitoring of by-catch; ii) stock assessments and iii) the control of illegal finning;
6. Make proposals for a series of technical measures to mitigate by-catch;
7. Create a community of practice for elasmobranchs in the Mediterranean and Black Sea hosted at the GFCM Secretariat IT platform.

**F. (SCMEE) Second meeting of the GFCM Working Group on Marine Protected Areas**

1. Assess the efficacy, performance and benefits of FRAs;
2. Assess information regarding time/area closures and other area-based protection measures;
3. Follow up on MPA developments under the MoU between GFCM and UNEP-MAP;
4. Follow up developments related to vulnerable marine ecosystems (VMEs);
5. Evaluate and possibly propose to the SAC new FRAs based on scientific information;
6. Compile Mediterranean best practices showing evidence of the role of time/area closures and MPAs in enhancing fishing stocks health and fishers' income.

**G. (WGBS) Subregional Group on Stock Assessment in the Black Sea (SGSABS)**

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

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**H. Follow-up workshop for the implementation of management measures in selected case studies in the Mediterranean and Black Sea**

1. Review the latest information from the SAC on the status of stocks for the following fisheries: i) small pelagics in the Alborán Sea; ii) mixed fisheries of European hake and deep water rose shrimp in the Strait of Sicily; iii) deepwater shrimp in the eastern Mediterranean; iv) turbot in the Black Sea; and eel in the Mediterranean basin;
2. Review harvest and effort control rules for mixed fisheries that could be applied in the Mediterranean and Black Sea fisheries indicated above;
3. Compare the possible implications of management measures proposed for the fisheries indicated above, including expected effects on stocks and socioeconomic conditions;
4. Identify new case studies for the preparation of future management plans.

**I. Follow-up workshop on the implementation of the IUU roadmap**

1. Collect information on the nature and extent of IUU fishing in the Mediterranean and the Black Sea, including its socioeconomic implications;
2. Evaluate the progress made in the implementation of the roadmaps to fight IUU fishing in the Mediterranean and the Black Sea;
3. Identify needs and priorities, including for capacity-building and technical assistance purposes, to improve the fight against IUU fishing;
4. Examine available means to strengthen cooperation and build synergies among actors concerned with a view to developing a fully-encompassing approach to IUU fishing related problems.

**J. Inception meeting of the MedSuit project**

1. Provide a comparative analysis of existing frameworks related to the definition, monitoring and proposed measures toward the good environmental status (GES), with special focus on exploited populations.
2. Agree on the implementation of a case study to: i) evaluate harmonized indicators that could be used both in EU and non-EU Member countries to ensure the minimum requirements foreseen in the EU Marine Strategy Framework Directive (MSFD), the UNEP-MAP Ecosystem Approach Process (EcAp) and GFCM fisheries assessment and management objectives as agreed by the SAC; ii) analyze the monitoring requirements for the indicators proposed in point (i) above; iii) evaluate the efficiency of different measures to advance towards GES.
3. If required, prepare proposals to harmonize the implementation of the MSFD, the EcAp initiative and the GFCM framework for the assessment of the status of biological populations in the Mediterranean and Black Sea.