GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN

COMMISSION GÉNÉRALE DES PÊCHES POUR LA MÉDITERRANÉE

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REPORT ON INTERSESSIONAL ACTIVITIES FOR 2011, RECOMMENDATIONS AND WORKPLAN FOR 2012 OF THE SAC AND ITS SUBSIDIARY BODIES

INTRODUCTION

1. This document provides a summary of the work undertaken by the Scientific Advisory Committee (SAC) and its subsidiary bodies during the intersessional period. It also gathers the main conclusions and management advice as well as its programme of work as identified and included in the report of its fourteenth session (document GFCM:XXXVI/2012/Inf.7). It also takes into consideration the main outcomes of the Ad hoc meeting established with the aim to finalize and consolidate selected conclusions of the SAC (11-12 April 2012), available in the meeting report under document GFCM:XXXVI/2012/Inf.8.

2. The activities set out in the programme are to be undertaken by Members at national level, the Scientific Advisory Committee (SAC) and the SAC Subsidiary bodies. Budgetary implications are taken into consideration in document GFCM:XXXVI/2012/7.

ACTIVITIES OF THE SCIENTIFIC ADVISORY COMMITTEE (SAC)

3. The fourteenth session of the SAC was held in Sofia, Bulgaria, from 20 to 24 February 2012. The session was attended by delegates from 19 Contracting Parties, Cooperating non-Contracting Parties (Georgia, Russian Federation, Ukraine), intergovernmental organizations (ACCOBAMS, ICCAT, MedPAN) as well as representatives of the FAO Regional Projects and GFCM Secretariat.

4. The intersessional activities were carried out in accordance with the programme of work agreed upon by the Thirty-fifth Session of GFCM (May 2011). All the approved meetings of SAC were convened as listed below:

- Second Transversal Workshop on **Red Coral**; Ajaccio, France, 5-7 October 2011;
- Expert Meeting on **Fisheries legislation** in the Mediterranean and Black Sea: Beirut, Lebanon, 26-28 October 2011;
- SCSA Working Group on Stock Assessment of **Demersal** species; Chania, Greece, 24-29 October 2011;

- SCSA Working Group on Stock Assessment of **Small Pelagic** Species , Greece, 24-29 October 2011;
- Workshop on the establishment of a Vessel Monitoring System (**VMS**) in the Mediterranean and the Black Sea; Zagreb, Croatia, 28-30 November 2011;
- Second meeting of the Working group on **by-catch** (In collaboration with ACCOBAMS); Antalya, Turkey, 7-9 December 2011;
- Working Group on Stock Assessment of selected species of **Elasmobranchs** in the Mediterranean and Black Sea; Brussels, Belgium, 12-16 December 2011;
- First *ad hoc* Working Group on the **Black Sea**; Constanta, Romania, 16-18 January 2012;
- 13th Session of the **Subcommittee on Stock Assessment** ; Rome, Italy, 23- 26 January 2012;
- 12th Session of the **Subcommittee on Marine Environment and Ecosystems**; Rome, Italy, 23-26 January 2012;
- SCMEE workshop on **Artificial Reefs** (back-to- back with the SCMEE meeting); Rome, Italy, 24 January 2012;
- 12th Session of the **Subcommittee on Statistics and Information**; Rome, Italy, 23- 26 January 2012;
- 12th Session of the **Subcommittee on Economic and Social Sciences**; Rome, Italy, 23- 26 January 2012;
- Transversal Workshop on **Spatial Based Approach to Fishery Management**, Rome, Italy 6-8 February 2012;
- EastMed project-GFCM Seminar on **Control, Inspection and Good Hygienic Procedures**. Egypt 24-29 March 2012;
- Ad hoc Meeting to finalize and consolidate **selected outcomes from the 14th session of the SAC;** Rome 11-12 April 2012

Main activities and outcomes of SAC subsidiary bodies

5. The main deliberations, activities and outcomes of the technical workshops and meetings listed above can be summarized as follows:

6. The ***2nd Transversal Workshop on red coral*** updated the status of populations, approved a proposal for data collection forms to be filled by Contracting Parties to comply with Recommendation GFCM/35/2011/2 and drew outlines for a regional adaptive management plan.

7. The ***Expert meeting on fisheries legislation in the Mediterranean and the Black Sea*** reviewed the information provided by national experts with respect to the following topics: (i) access regime, (ii) conservation and management measures, (iii) monitoring, control and surveillance and (iv) enforcement procedure and sanctions. The meeting recognized the need to enhance both the level of coordination, whether at national level or between institutions active in the GFCM Area, and the level of implementation of GFCM Recommendations.

8. The ***Workshop on the establishment of a Vessel Monitoring System (VMS) in the Mediterranean and the Black Sea*** identified a number of requirements that are instrumental to the sound implementation of VMS by the member countries and agreed that, given the evolution of VMS and inclusion of new technologies, some guidelines should be elaborated to provide minimum standards to assist Contracting Parties in ensuring compliance with GFCM Recommendations.

9. The ***2nd Transversal Working Group on by-catch*** (organized in collaboration with ACCOBAMS) stressed the need for improving data collection schemes through observers on board and agreed that the tool developed by GFCM Secretariat within the current Task 1 protocol was the appropriate instrument to facilitate data submission. However, the level of compliance by Contracting Parties, as well as by Cooperating non-contracting Parties, is still marginal.

10. The ***Working Group on Stock Assessment of selected species of Elasmobranchs in the Mediterranean and Black Sea*** reviewed the different methods available in situations where data is poor, such as the case of elasmobranchs. It assessed the stock of 3 species: *Scyliorhinus canicula, Glaucostegus cemiculus* and *Squalus acanthias* in Algeria, Gulf of Gabés and Black sea respectively and reviewed the work previously done by experts on 5 other stocks of four species: *Raja asterias, Raja clavata, Scyliorhinus canicula* and *Galeus melastomus* in the Ligurian and North Tyrrhenian sea and the strait of Sicily. They all resulted to be in overfishing status. Results are available in table 3 of Appendix A.

11. The ***Transversal Workshop on Spatial Based Approach to Fishery Management*** recognized the positive effects of marine protected areas *sensu lato* on demersal fish populations and noted that socio-economical aspects must be taken into consideration in the design phase and during the management process. The involvement of stakeholders was considered an important step in the achievement of expected results and of a good level of compliance.

12. The ***Workshop on Artificial Reefs in the Mediterranean and the Black Sea*** recognized the positive outcomes of the use of artifical reefs (ARs) in the region as a tool to avoid illegal trawling, to reduce conflicts between fisheries and to increase productivity. ARs were also considered appropriate for the management and diversification of small-scale fisheries activities. One of major constraints for the non-effectiveness of ARs was identified in the lack of adequate management and surveillance/control measures.

13. The ***2 Working Groups on Stock Assessment on demersal and small pelagic species*** validated 28 technical papers on demersal species and 11 technical papers on small pelagics. Overall, 14 GSAs for the demersal species and 11 GSAs for small pelagics were covered. The species studied were: *Merluccius merluccius, Mullus barbatus, Mullus surmuletus, Nephrops norvegicus, Parapenaeus longirostris, Boops boops, Solea solea, Sphyraena sphyraena, Galeus melastomus, Spicara smaris, Aristeus antennatus, Aristaemorpha foliacea, Engraulis encrasicolus, Sardina pilchardus*. The results and management advice can be consulted in Tables 1 and 2 of Appendix A to this document.

14. The ***Sub-Committee on the Marine Environment and Ecosystems (SCMEE)*** reviewed the outcomes of the workshops on Red coral, Artificial reefs, and on by-catch reduction; it analysed the proposals of a Regional Adaptive Management Plan for red coral exploitation and of updating the TechnoMed databases.

15. During its 13th Session, the ***Sub-Committee on Stock Assessment (SCSA)*** examined and validated the main outcomes of the three working groups on Stock assessment and 3 technical workshops on Red Coral, By-catch and Spatial Based Management Approach. Furthermore, the SCSA reviewed and approved a series of modifications to the current Stock Assessment Forms (SAFs) to facilitate revision of analysis whenever deemed necessary. The follow up on the work done on European Eel and on the Elasmobranchs Medium-Term Working Program was also addressed and relevant information was consequently updated.

16. The ***Sub-Committee on Statistics and Information (SCSI)*** reviewed the outcomes of the workshop on the implementation of VMS and highlighted in particular the progress made on the development and management of GFCM databases and information systems together with dynamic representations of the data. At the transversal session SCSI/SCSA, it was proposed to have a Task 2 data collection scheme concerning the biological structure of yearly catch instead of Task 1.5.

17. The ***Sub-Committee on Economic and Social Sciences (SCESS)*** reviewed the outcomes of the Expert meeting on fisheries legislation in the Mediterranean and the Black Sea held under the umbrella of the LaMed Project (Component 1) and the way forward towards the finalization of the Project. In addition, the SCESS addressed the use of bio-economic models in fisheries management. It also dealt with the recreational fisheries and especially addressed the need to identify data parameters pertaining to

the sector and to develop a common and harmonized scientific monitoring protocol for these activities, along with a Code of Practice/Technical Guidelines adapted to the specific regional features.

18. The organization of the ***Ad hoc meeting to finalize and consolidate selected outcomes from the 14th session of the SAC***, held at GFCM HQ in Rome on 11 and 12 April 2012, was decided during the SAC14 session with the aim to prepare information on specific issues to be delivered at the Commission. The meeting addressed i) the revision and finalization of the **Regional Plan of Action (RPOA) for the Management of Fishing Capacity**; ii) the scientific advice emanating from the **stock assessments** and iii) the **work plan** for the intersessional period. A thorough analysis of the draft RPOA on fishing capacity defined by the workshop on fishing capacity held in Rome in September 2010 was carried out and a series of actions for Members were identified

SUGGESTIONS AND ADVICE OF THE SCIENTIFIC ADVISORY COMMITTEE (SAC)

19. On the basis of the main conclusions and suggestions of its subsidiary bodies, the SAC approved conclusions and advice for fisheries management according to the following topics:

Marine environment and ecosystems

- **Advice on by-catch:**
  - The SAC suggested the following actions: i) prohibition of the use of inoxidable materials in hooks and metals in snoods in long lines; ii) Member countries should make every possible effort in order to eliminate ghost fishing; iii) an increase in gill net mesh size up to 400 mm (measured among 3 knots) and the use of filaments of a thickness of less than 0.5 mm (160-Rtex) was proposed for the turbot fishery in the Black Sea.
  - With the aim to reduce interactions between fisheries and marine mammals, the SAC also suggested: i) seasonal closure during spawning period of the animal's prey during which period the highest rate of entanglement of marine mammals juveniles is usually observed (Tunisia, Greece); ii) ban of the dogfish fishery using nets in Black Sea, as it has a high rate of cetacean by-catch and most of the targeted catch is discarded due to the species dying very fast after being caught; and iii) adaptation of the gears so as to reduce cetacean fatalities and losses to the fishermen: need for tests to verify if increasing the purse seine net filament thickness could prevent holes made by the dolphins in those nets (Tunisia).
- **Advice on red coral:**
  - The SAC proposed to: i) establish a minimum size of 7 mm of diameter measured within one centimeter from the base with a tolerance of 5% of the total weight of the daily catch; ii) establish a quota system based on number of licenses; iii) establish a statistical form to facilitate the transmission of the data required in Recommendation GFCM/35/2011/2 and iv) to set up an Adaptive Regional Management Plan on Red Coral for which a consultant should be appointed.
- **Advice on other issues:**
  - i) to modify the GFCM standard forms for the new proposals of FRAs
  - ii) to establish a protocol for data collection of Alien species for what a request must be done to the Sub-Committee on Statistics and Information
  - iii) to collect ecological and biological information on seamounts;
  - iv) to publish a catalogue of fishing gears used in the Mediterranean and Black Sea.

Stock assessment

- **Advice on demersal, small pelagic species and elasmobranchs**

Based on the assessment work by the SCSA and the related management advice as well as on the conclusions emanating from Ad hoc Meeting to finalize selected outcomes from the 14th session of the SAC, the following proposals are submitted to the consideration of the Commission:

- Advice on selected fish stocks (demersal and small pelagics) in some GFCM geographical sub-regions as provided in the Tables 1 and 2 of Appendix A to this document;

- Advice on selected elasmobranches in some GFCM geographical sub-regions as provided in the Table 3 of Appendix A to this document;

- A proposal providing relevant elements for a possible binding decision in relation to the management of demersal fisheries (hake in Gulf of Lions, deep water rose shrimp in the Strait of Sicily and sole in the Northern Adriatic). Such proposal is reproduced in Appendix B.

Statistics and information

- SAC agreed on the terms of reference for consultants to revisit the frame and scope of Task 1 and potential Task 2 (biological information) in light of the analysis of strengths, weaknesses, threats and opportunities (SWOT) undertaken during the transversal session of the SCSI/SCESS to identify gaps and solutions of Task 1 data collection framework.

- The Committee noted the problem of compliance concerning the submission of Task 1 and Fleet data thus reiterating the request already made in 2011 to have formal nominations of national focal points that would be responsible for these data submissions.

Economic and social sciences

The SAC approved the following suggestions:

- To launch a capacity building programme on the use of bio-economic models, tailored to specific needs and priorities and focused on a limited number of priority stocks for which the required data are available and sufficient.

- To establish licencing or authorization systems for recreational fisheries in the GFCM competence area and to develop technical guidelines adapted to specific regional features.

- To enhance socio-economic studies and analysis of the small-scale fisheries in the Mediterranean and the Black sea, considering the definition of this sector as already provided in the Task 1 statistical matrix.

- To extend the scope of the study carried out by CIHEAM on "*Development of cooperation in the fishery sector in the Mediterranean: the world of labour, producers' organizations, consumers' associations and training*" *(PESCAMED)* to other GFCM countries.

- To better integrate socio-economic aspects with the other topics addressed by SAC, which implies an in-depth revision of the objectives and functioning of the relevant Sub-Committee.

Fishing capacity

The SAC, through its Ad hoc meeting, reviewed and improved the draft outline for a Regional Plan of Action for the Management of Fishing Capacity in the GFCM competence area (RPOA-Capacity) as examined by the 35th session of the Commission (available as Appendix A of the session's report). It further finalized this document and proposed a final draft RPOA-Capacity which is reproduced in document GFCM:XXXVI/2012/Inf.12. This Plan contains the following actions:

- Freeze fishing capacity at current levels based on and with reference to the GFCM vessel records as defined in Resolution GFCM/35/2011/1; Members who have not yet submitted relevant data in accordance with this resolution are urged to do so;
- Where there is evidence of overcapacity, and consistent with the application of the precautionary approach, Members are urged to undertake capacity reduction programs;
- Members shall use the agreed regional fishing capacity measure unit (GT or GRT and Kw of engine power) as established in the Recommendation GFCM/33/2009/5;
- The SAC will continue to assess and advise on the current levels and options for desired levels of fishing capacity per fishing area/sub-region in relation to fleet segmentation, fishing type, species and fishing gears;
- In cases where Members are undertaking fleet modernization programs and activities, they must provide evidence that overall capacity is not increasing;
- Members of the GFCM should ensure the evaluation of the effects of modernization, new fishing practices, and technology creep on fishing capacity;
- For fishing vessels larger than 15 metres, LOA fishing capacity may be transferred within geographic sub-regions (GSAs) provided that the overall fishing capacity and the fishing capacity in the GSA of the involved Members does not increase;
- The GFCM shall improve the evaluation of the issue of fishing capacity for vessels of 15m and under LOA including small scale fisheries;
- Members shall consider the use of some limitations or other mechanisms in order to prevent negative impacts of the transfer of fishing capacity from one operational unit to another thereby endangering the stability of biodiversity;
- Members are encouraged to consider the use of rights-based fisheries systems in situations such as, but not limited to, fisheries restricted areas (FRAs);
- The GFCM shall develop mechanisms to monitor fishing capacity levels through, *inter alia*, the regional fishing fleet register and other data collection schemes;
- The Secretariat will be responsible for updating and displaying the current levels of fishing capacity;
- The Commission through its Compliance Committee shall monitor the implementation of the RPOA-Capacity through annual reports submitted by its Members. It shall review the programs and impacts of the RPOA every XX years;
- The RPOA will be updated by the Commission every 3 years on the basis of the above, taking into consideration any additional management measures adopted by the GFCM during the preceding period.

WORK PROGRAMME OF THE SCIENTIFIC ADVISORY COMMITTEE (SAC)

20. Set out below are the proposed lists of activities for the intersessional period 2011 as identified by the four SAC Sub-Committees and reviewed and completed by the SAC at its fourteenth session. Comments emanating from the *A*d hoc Meeting to finalize selected outcomes from the 14th session of the SAC are included as footnotes. Draft Terms of Reference (ToRs) for certain activities are given in Appendix C to this document.

Sub-Committee on Marine Environment and Ecosystems (SCMEE)

- Develop a Regional Management Plan for Red Coral
- Co-organize with the Ege University (Turkey) the International conference on Artificial Reefs that will be held in İzmir (Turkey) in September 2013. It is suggested that this action be an alternative to the proposed Workshop on artificial reefs.
- On gear selectivity:
  - Complete the different database of TECHNOMED network and to re-activate the TECHNOMED website;
  - Elaborate a catalogue of fishing gears in the GFCM Area;
  - Co-organize with the CopeMed Project a meeting of the Working Group on Selectivity and fishing technology
- On the implementation of the medium-term **elasmobranchs** programme:
  - Produce factsheets to facilitate the identification of the most commonly landed species
  - Publish the updated version of the Draft GFCM publication on: Status of Elasmobranchs in the Mediterranean and the Black Sea.
  - Organize a training Workshop on elasmobranchs age reading methodologies.

Sub-Committee on Statistics and Information (SCSI)

- Launch a consultation phase for reviewing the Task 1 data submission framework. Organize a workshop to finalize the new Task 1 & 2 data submission framework and define a plan of action, possibly within the context of the Framework Program, for improving member countries' capacity to collect and submit relevant data.

Sub-Committee on Economic and Social Sciences (SCESS)

- Organize a Workshop including a training component on bio-economic analysis-models used in the GFCM area. This Workshop should possibly be organized in collaboration with the EastMed Project and will be applied to three fisheries selected at the Ad hoc meeting of the SAC for which sufficient data are known to be available, namely: i) demersal trawl fishery in the Ligurian and North Tyrrhenian Sea, GSA09; ii) *Parapenaeus* and *Merluccius* trawl fishery in the Strait of Sicily, GSAs 12-16; and iii) demersal trawl fishery in the Gulf of Lions, GSA07 extended to species other than *Merluccius*.
- Undertake regional case studies related to the socio-economic analysis of Recreational fisheries and of small-scale fisheries.
- Hold a specific Working Group back-to-back to the forthcoming SCESS meeting on the review of the variables list of Task 1.3 and their related definitions.

Sub-Committee on Stock Assessment (SCSA)

- Organize the two Working Groups on Demersal and on Small Pelagic species including some species of elasmobranchs;
- Organize an expert consultation to elaborate the design and contents of the new Task 2 module;

- Contribute to the Joint ICES/EIFAAC/GFCM Working Group on European Eel.
- Organize a training course on the Time Series Analysis in the framework of the GFCM Permanent Working Group on Stock Assessment Methodologies (PWGSAM)

Ad hoc Working Group on Black Sea

- Organize a Workshop on data collection and information systems on fisheries in the Black Sea
- Organize a training course on direct and indirect stock assessment methodologies.
- Organize sub-regional stock assessments on small pelagic and demersal stocks (possibly in collaboration with STECF).
- Organize a workshop to assess IUU fishing and its impact in the region.
- Create, through the GFCM website, a common regional database of experts and research institutions working in the Black Sea area.
- Elaborate a publication on the most recent status of fisheries and aquaculture, as a result of the collaboration between the GFCM Secretariat and national experts from all riparian countries.
- Elaborate a technical publication on the main fishing gear and fleets typology.
- Revitalize the joint GFCM/EIFAAC Working Group on Sturgeon.

Potential activities resulting from the Task force process and collaboration with partner Organizations

21. Several other actions could be envisaged as a result of the decisions that will eventually be taken by the Commission in relation to the activities of the Task Force and as deemed necessary within the framework of the different Memoranda of Understanding signed with partner Organizations and reproduced in document GFCM:XXXVI/2012/Inf.5.

Issues related to the functioning of the SAC and its Sub-Committees

22. The SAC at its fourteenth session reviewed the outcomes of the Expert meeting organized in the framework of the Task force to address the functioning of the Committee. In this respect, it was highlighted that the structure of SAC could be revised to the extent that Sub-Committees would meet back-to-back with the annual session, allowing the Sub-Committee meetings to also benefit from the simultaneous translation (English-French) and hence ensuring better involvement of the scientists, subject to the availability of funds and considering alternative options (e.g. reducing SAC session to four days in order to allocate the budget for the simultaneous translation). The next sessions of the SAC and of its Sub-Committees are scheduled according to this suggestion.

Scheduled meetings for the 2012-2013 intersessional period:

Meeting	Place/Date
GFCM/ICES/EIFAAC Working Group on EEL	Rome?/ second half of 2012
International conference/Workshop on Artificial Reefs	Turkey/ September 2013
Working Group on Selectivity and fishing technology (in collaboration with CopeMed II)	TBD/ last quarter of 2012
Meeting of the PWGSAM on Time Series Analysis	Sicily, Italy/ September 2012
Working Group on the review of the variables list of Task 1.3 and their according definitions (back-to-back with the SCESS/SAC Session)	Egypt/ February 2013
SCESSWorking Group on bio-economic analysis models	Tunisia/ last quarter of 2012
Workshop for finalising the new Task 1 & 2 data submission framework (SCSI)	TBD/ second half of 2013
Workshop to assess IUU fishing and its impact in the Black Sea	TBD/ second half of 2013
Workshop on data collection and information systems on fisheries in the Black Sea	TBD/ September 2012
Training on direct and indirect stock assessment methodologies (possibly with the STECF)	Varna, Bulgaria/ 30 April - 4 May 2012
Sub-regional stock assessments on small pelagic and demersal stocks (possibly in collaboration with STECF)	Bucharest, Romania/ October 2012
Working Group on stock assessment of Demersal and elasmobranchs Species (SCSA) (5 days)	Split, Croatia/ 22-26 October 2012
Working Group on stock assessment of Small Pelagic Species (SCSA) (5 days)	Split, Croatia, 22-26 October 2012
14th Session of the SCSA (2 days)	Egypt/ February 2013
13th Session of the SCMEE (2 days)	Egypt/ February 2013
13th Session of the SCSI (2 days)	Egypt/ February 2013
13th Session of the SCESS (2 days)	Egypt/ February 2013
15th Session of the **SAC** (4 days)	Egypt/ February 2013
2nd Session of the Working Group on Black Sea	TBD/ first half of 2013

SUGGESTED ACTION BY THE COMMISSION

23. The Commission is invited to review the activities carried out by its subsidiary bodies 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. It is also invited to examine and, as appropriate, endorse the conclusions and advice of its Scientific Advisory Committee.

24. The Commission is also invited to review the activities proposed by its Scientific Advisory Committee as detailed in this report. The Commission may wish to highlight its priorities and to consider budgetary implications in finalising the programme of work.

Appendix A

Table 1 – Management advice for demersal species

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
GSA 01 Northern Alboran Sea	*Merluccius merluccius*	In overfishing with intermediate abundance Fc (1.33) higher than F0.1 (0.20).	To reach F0.1 a reduction of 80% of the FC is advisable; Improve the fishing pattern of the trawl fleets Especial surveillance in the use of 40mm square/50 diamond mesh size in the cod end in trawl gears.	The WG endorsed the assessment and recommendations.	The SC commented that the low contribution of long-liners and gillnetters to fishery not necessarily implies the absence of recruitment overexploitation risks. Endorsed.	No further comments. Endorsed.
GSA 05 Balearic islands	*Merluccius merluccius*	Over-exploited; current F (1.21) higher than F0.1(0.16) and Fmax (0.24).	Reduce fishing mortality by reducing the effort activity and improving the selection pattern of the fishery. The use of the information from the vessel monitoring system will help to improve the knowledge about the spatial distribution of the fishing effort.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed.
GSA 05 Balearic islands	*Mullus surmuletus*	In overfishing; current F (0.55) higher than F0.1 (0.55) and lower than Fmax (1.10)	Reduce fishing mortalities by reducing the effort activity and improving the selection pattern of the fishery.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed.
	Aristeus antennatus	In overfishing; current F (059) higher than F0.1 (0.15) and lower than Fmax (0.23).	A decrease in F could be provided using complementary management measures like temporal fishing time reduction for some periods like at the beginning of the reproduction or spawning period and during the recruitment period at the beginning of autumn period.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed.
GSA 06 Northern Spain	*Mullus barbatus*	In overfishing; current F (0.72) higher than F0.1 (0.20) and Fmax (0.35).	Decrease the fishing mortality of about 70%. More effective control in shelf areas above 50 m depth to reduce the catch of small individuals under the minimum legal size. The use of the 40 mm square mesh in the cod-end should improve trawl exploitation pattern and Y/R by 24%, but a close supervision of the observance of this measure is needed.	Co-occurrence of SSB increasing and recruitment decreasing. The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed.

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
	Aristeus antennatus	In overfishing; current F (1.33) higher than F0.1 (0.28) and Fmax (0.49).	Reduce F by 72% trough a reduction in effort capacity and improving the selection pattern. Implementing areas closed to fishing in the nursery areas during the recruitment period.	Check the influence of using biological parameter in combined sex assessment. The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed.
GSA 06 Northern Spain	*Parapenaeus longirostris*	In overfishing and low level of abundance; current F (1.14) higher than F0.1(0.30) and lower than Fmax (2.73).	Reduce growth overfishing: - Reduce the fishing mortality by 70%.	The oscillation found for this species is in agreement with other areas of the Mediterranean. It is assumed that environmental and ecological factors (e.g. water temperature,predatory release effect) can affect the stock in addition to the fishing mortality and difficult toevaluate the status of the stock. The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed.
GSA 07 Gulf of Lion	*Merluccius merluccius*	In overfishing and low abundance; current F (1.43) higher than F0.1(0.19) and Fmax (0.29).	Reduce growth overfishing: • Improve the fishing pattern of the trawl to rise the minimum length of catches equal to the minimum legal landing size • Close nursery areas at least temporally • Reduce the effort of trawl, from reducing time at sea, number of fishing boats, engine power, Bollard pull and/or trawl size- To avoid recruitment overfishing: • Reduce the effort of longline and gillnets in order to increase (or at least maintain) the SSB. • Establish temporal closures for longline and gillnet during the period of maximum spawning (end of autumn and beginning of winter, main peak of spawning period) • Freezing of the effort in the Fishery Restricted Area.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed.

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
GSA 07 Gulf of Lion	*Mullus barbatus*	In overfishing and intermediate level of abundance current F (0.85) higher than F0.1 (0.45) and lower than Fmax (1.68).	Current F has to be reduced to reach F0.1.	The SSB was found to increase, so there was some doubt about the XSA results. The MEDITS trend was the same with that of SSB. It is rather odd that with so high overexploitation the trend of SSB is increasing. The WG endorsed the assessment and recommendations.		No further comments. Endorsed.
GSA 09 Ligurian and North Tyrrhenian Sea	*Merluccius merluccius*	In overfishing; current F (1.5-2) higher than F0.1 (0.22) and Fmax (0.35).	A reduction of F is recommended.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed.
	Mullus barbatus	In overfishing and overexploited; current F (0.54) higher than FMSY (0.47) B2010/Bmsy=0.60	A reduction of F is recommended.	The WG endorsed the assessment and recommendations.	No further comments. Endorsed.	No further comments. Endorsed.
	Mullus surmuletus	In overfishing; current F (056_0.71) higher than F0.1 (0.35) and lower than Fmax (1.00).	A reduction of F is recommended.	The WG endorsed the assessment and recommendations.	No further comments. Endorsed.	No further comments. Endorsed.
GSA 09 Ligurian and North Tyrrhenian Sea	*Aristeus antennatus*	In overfishing current F (0.62) lower than F0.1 (0.32).	A reduction of F is recommended.	The WG endorsed the assessment and recommendations.	The SCSA endorsed the assessment presented at the WG. In the WG report, in the diagnosis of stock status. Exploitation rate should be substituted by “fishing mortality rate”.	No further comments. Endorsed.

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
	Nephrops norvegicus	In overfishing current F =0.35 higher than F0.1 (0.21).	A reduction of F is recommended.	The WG endorsed the assessment and recommendations.	The SC recommended for sedentary species to assess stock status using a spatial scale lower than that of GSA. Endorsed.	No further comments. Endorsed.
	Parapenaeus longirostris	Under-exploited current F =0.40 in 2009 and 0.29 in 2010 lower than F0.1 (0.78).	The current F is considered low and appears to ensure good yields and a safe situation. In any case, it is advisable, within the precautionary framework, to keep the fishing pressure on this stock at the current level.	The WG endorses the assessment and the related recommendations.	The SC recommend to substitute in the stock status "underexploited" with "sustainable exploitation".	No further comments. Endorsed.
GSAs 12/13 Northern and Eastern Tunisia	*Shpyraean sphyraena*	In overfishing.	A reduction of F is recommended (40% in northern and 60% in eastern sector).	The WG endorsed the assessment and recommendations.	The SC endorses the assessment and the related recommendations of the WG. The use of F_{max} as RP should be however replaced by F_{01}.	No further comments. Endorsed.
GSAs 12/13/14/ 15/16 Strait of Sicily	*Parapenaeus longirostris*	In overfishing; current F (1.21) higher than F0.1 (0.95).	A reduction of about 20% is considered necessary in order to reach the F0.1 level. In addition the exploitation pattern of the fishery should be improved. A protection of the stable nurseries on the Adventure and Malta Banks in the Strait of Sicily is advised.	Trawl survey based approach should be used in the future to make the assessment more robust. The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed
GSA 15/16 Strait of Sicily	*Mullus barbatus*	In overfishing current F =0.78 (mean 2006-2010) higher than F0.1 (0.45) Increasing trend of SSB and recruitment in the last years was higher than that in the nineties.	A reduction of F is recommended.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed	No further comments. Endorsed.

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
	Pagellus erythrinus	In overfishing current F =0.60 (mean 2006-2010) higher than F0.1 (0.30) No signs of decrease in SSB and recruitment in the last years.	A reduction of F is recommended.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed.
GSA 15/16 Strait of Sicily	*Aristaeomorpha foliacea*	In overfishing current F =1.00 (2010 value) higher than F0.1 (0.40) SSB and recruitment at low level from 2002 to 2010.	A reduction of F is recommended.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed.	No further comments. Endorsed.
GSA 17 Northern Adriatic	*Solea solea*	In overfishing; current F (1.34-1.20) higher than F0.1 (0.24-0.26) and Fmax (0.38-0.46).	A reduction of F, especially by rapido trawling, is recommended. A two–months closure for rapido trawling inside 11 km off-shore along the Italian coast, after the biological fishing ban, would be advisable to reduce the portion of juvenile in the catches.	The WG highlights the use of data from the eastern side of the basin. Moreover, the group underlines the need to extend the rapido trawl survey inside the 12 nm from the Croatian coast, as was performed in 2005 and 2006.	No further comments. Endorsed.	No further comments. Endorsed.
GSA 18 Southern Adriatic Sea	*Merluccius merluccius*	In overfishing; current F (0.87) higher than F0.1 (0.21) and Fmax (0.27). ALADYM simulations show that after a decrease of the catches in the short terms the yield trend is increasing and reach levels higher than the values in the beginning of the time series with an improvement of stock productivity SSB.	Reduce fishing mortality through fishing activity limitations and possibly fishing capacity decreasing. Most of the F is derived from the Italian bottom trawlers, that represent about 85% of the total F in the GSA, and from the Italian longliners, accounting for about 7-8% (overall 92-93% of F). Montenegrin trawlers account for about 1% of the F and Albanian trawlers for about 6.5%.	The assessment provides a wide range of analysis useful to managers for assisting the decision process. The WG endorses the assessment and the related recommendations.	Since the fleets of three countries (Albania, Italy and Montenegro) are involved in hake fishery in GSA18, the advice for management should consider the different situations of the three countries. Endorsed.	No further comments. Endorsed.
GSA 25 Cyprus island	*Mullus barbatus*	In overfishing; current F (0.43-0.46) higher than F0.1 (0.33) and lower than Fmax (0.51).	The stock is in overfishing state, considering that the current F should be reduced by 24% (based on 2010 Y/R analysis) or by 28% (based on 2009 Y/R analysis) for reaching the F0.1 reference point.	The WG endorses the assessment and the related recommendations.		No further comments. Endorsed.

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
	Mullus surmuletus	In overfishing; current F (0.42-0.49) higher than F0.1 (0.22-0.23) and lower than Fmax (0.32-0.34).	Current F should be reduced by 53% (2010 results) or 48% (2009 results) for reaching the F0.1 reference point.	The WG endorses the assessment and the related recommendations.		No further comments. Endorsed.
	Spicara smaris	Fully exploitation in 2005-2007 being Fcur= 0.19, Fmax= 0.38 and F0.1=0.19. In overfishing in 2008-2010 being Fcur= 0.37, Fmax= 0.40 and F0.1=0.24. In overfishing in 2005-2007 being Fcur= 0.57, Fmax= 0.38 and F0.1=0.24.	According to transition analysis, an approximate reduction of 15% (10-20%) of the current F could lead to F0.1. This could be achieved with the reduction of licensed fishing vessels LOA 6-12m and trawlers LOA 12-24m. The increase of selectivity is also important.	The WG recommends to improve the analyses by using approach out steady state (VPA or XSA). The WG endorsed the assessment and recommendations.	The SC endorses this assessment as preliminary due to some inconsistencies in the results of the analyses on the two sets of data. It would advisable to carry out the VIT analysis for each year separately to better evaluate the consistency of the steady state assumption for the stock.	No further comments. Endorsed.
GSA 25 Cyprus island	*Boops boops*	In overfishing in 2008-2010 being Fcur= 0.37, Fmax= 0.39 and F0.1=0.24.	F must be reduced in the case of artisanal fishery. According to transition analysis, an approximate reduction of 15% (10-20%) of the current F could lead to F0.1. This could be achieved with the reduction of licensed fishing vessels OAL 6-12m and increasing the selectivity.	The WG recommends to improve the analyses by using approach out steady state (VPA or XSA). The WG endorsed the assessment and recommendations.		No further comments. Endorsed.
GSA 26 South levant	*Pagellus erytrinus*	In overfishing; current F (0.55-0.72) higher than F0.1 (0.27-0.30) and Fmax (0.54-0.57).	Reduce the fishing mortality by 45% (entire Egyptian coast) and 60% (Port Said area). Improve the exploitation pattern.	The WG endorsed the assessment and recommendations.	The SC recommends to enhance data collection to improve the quality of the assessment. The Eastmed Project Coordinator highlighted that the present assessment has been guided by the project staff during the WG and although the data concern previous years it was tried the best use of them.	No further comments. Endorsed.

Table 2 – Management advice for small pelagic species

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
GSA 03 Southern Alboran sea	*Sardina pilchardus*	Exploitation rate: Moderate in East, high in west; Biomass level: lower than previous year; Fully exploited.	• Maintain the current fishing effort; • Reduce the mortality of fishing on the spawning fish • Introduce seasonal closure during January which coincides with the peak of the spawning.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed	The Morocco delegate commented that the management options should be given in a more general way, avoiding of being to specific on defining the management measure.
GSA 06 Northern Spain	*Engraulis encrasicolus*	The stock abundance is considered as low, while the exploitation rate is uncertain. Fully exploited.	Not to increase the fishing effort. Despite F resulted quite stable there are fluctuations in biomass.	The WG endorses the advice and recommendation for this stock. The WG encourages improving the quality of data used for the analysis in terms of the length of the time series and the biological data used (age – length keys).	The SC support the recommendation of the WG to improve the ageing problem by obtaining more reliable age-length-keys in the area. The lack of reference point to support the diagnosis of the stock status (fully exploited) was discussed.	No further comments. Endorsed.
GSA 06 Northern Spain	*Sardina pilchardus*	Exploitation rate: high; Biomass level: the lowest value in time series Overexploited.	Reduce the fishing effort until the recruitment increase.	The WG detected a danger of recruitment overexploitation due to the decreasing trend in recruitment and very low levels of the spawning stock. The WG also recommends that a series of tests be carried out for future assessments of the robustness. The WG endorsed the assessment and the related recommendations.	The SC noted the decreasing trend in landing, SSB and recruitment recognizing the risk of stock collapse. The advice was found not in line with the assessments results and stock diagnosis (overexploited) which clearly indicated the need to reduce the fishing mortality to the lowest value possible.	No further comments. Endorsed.

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
GSA 07 Gulf of Lion	*Engraulis encrasicolus*	Exploitation rate: Moderate; Biomass level: low; Fully exploited.	Not to increase fishing effort.	The WG endorses the assessment and the related recommendations. The WG also acknowledges that there is evidences on changes in the pelagic ecosystem of this area, and suggest that further ecological studies are conducted to clarify the ecosystem status.	The SC endorsed the assessment but proposes to change the status to "recovering" instead of fully exploited.	Demographic structure of anchovy highly unbalanced since 2009 with very low abundance of larger individuals corresponding to age 2+ in landings. Age group 1 represents more than 60% of the estimated total biomass. Moreover, the analysis of different biological indicators showed a lower mean length at age, distortion of sex-ratio and decrease of condition index, growth rate and size-at-first maturity than previously observed This stock should be considered as fully exploited and not as in a recovery state.
GSA 07 Gulf of Lion	*Sardina pilchardus*	Exploitation rate: very low; Biomass level: very low with decreasing trend. Close to collapse; Fully exploited.	Fishing effort cannot be increased until the system stabilise or show signals of recovery.	The WG endorsed the assessment and recommendations The WG also acknowledges that there is evidences on changes in the pelagic ecosystem of this area, and suggest that further ecological studies are conducted to clarify the ecosystem status.	The SC endorsed the assessment, recommending anyhow to change the stock status from "fully exploited" to "depleted" as showed by the drastic reduction of the catch and biomass and consequently of the fishing activity.	No further comments. Endorsed.

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
GSA 16 Strait of Sicily	*Engraulis encrasicolus*	Exploitation rate (ratio between total landings and biomass estimates): high fishing mortality. FCur/FMSY=1.76 Stock abundance (acoustic biomass estimate): intermediate abundance BCur/BMSY = 0.85 Overexploited.	- Fishing effort should not be allowed to increase and consistent catches should be determined; - Prevent a possible further shift of effort back from anchovy to sardine.	The WG endorses the advice and recommendation given for this stock. No specific limit or precautionary reference point have been yet endorsed for small pelagic fish species in the framework of GFCM. The fitting of the SPM is poor.	The SC endorses the assessment and the related recommendations of the WG, and proposed to amend the last sentence that has an apparent contradiction. In the advice provided in the assessment report of the WG the term "anchovy" should be read as "sardine".	No further comments. Endorsed.
GSA 16 Strait of Sicily	*Sardina pilchardus*	Exploitation rate (ratio between total landings and biomass estimates): moderate fishing mortality. Fc/FMSY(2010)=0.22 Stock abundance (acoustic biomass estimate): low/intermediate abundance. Bc/BMSY(2010)=0.48 Fully exploited.	- Fishing effort should not be allowed to increase and consistent catches should be determined; - Prevent a possible further shift of effort back from anchovy to sardine.	The WG endorses the advice and recommendation. The WG appreciated the use of surplus production model with the inclusion of the environmental factor improves the fitting of the production model. The WG also recommend trying to estimate a B-Lim reference point, as it will facilitate taking advise in relation to the current stock status.	The SC endorsed the assessment and the related recommendations. The SC also discussed the use of 40% Bmsy as technical limit reference point for small pelagic stocks, recommending to test this biomass RP during the next WG of Small Pelagic.	No further comments. Endorsed.
GSA 17 Northern Adriatic	*Sardina pilchardus*	Exploitation rate (ratio between total landings and biomass estimates): moderate. Stock abundance (VPA and acoustic biomass estimate): low abundance. Fully exploited.	- No increase the fishing effort. - Consider the interactions with anchovy fisheries.	The WG endorses the advice and recommendation. The WG suggests that future assessments take into account combined data from 17 and 18 GSAs. The WG also suggests continuing to explore the relationships between recruitment and environment.	The SC endorses the assessment and the related recommendations of the WG. Advice should be related to fishing mortality and not directly to fishing effort, or eventually both fishing effort and catches should be mentioned. Endorsed.	No further comments. Endorsed.

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
GSA 17 Northern Adriatic	*Engraulis encrasicolus*	Exploitation rate (ratio between total landings and biomass estimates): moderate Stock abundance (VPA and acoustic biomass estimate): intermediate abundance. Fully exploited.	- No increase the fishing effort. - Consider the interactions with sardine fisheries.	The WG endorses the advice and recommendation. The WG suggests that future assessments take into account combined data from 17 and 18 GSAs. The WG also suggests continuing to explore the relationships between recruitment and environment.	The SC endorses the assessment and the related recommendations of the WG. Advice should be related to fishing mortality and not directly to fishing effort, or eventually both fishing effort and catches should be mentioned. Endorsed.	No further comments. Endorsed.
GSA 18 Southern Adriatic Sea	*Engraulis encrasicolus*	Exploitation rate (ratio between total landings and biomass estimates): moderate Stock abundance (DEPM and acoustic biomass estimate): Moderately exploited with uncertain in exploitation rate.	Not to increase the fishing effort in the western part low abundance.	The WG endorses the conclusions and recommendations. It is necessary to improve data collection of catches. The WG recommends to continue with the two direct assessments of anchovy biomass, checking the reliability of spawning frequency for anchovy obtained through eggs and larvae surveys and cross-comparing the final estimates from the two methods. Also the WG recommends obtaining yearly estimates of the harvest rate.	The SC found not clear the stock identification in the GSA 18. The participants agreed on the need to provide SSB estimates on a stock basis and not at the country level. The SC evidenced the uncertainty of the evaluation and the poor knowledge of the stock status and considered the assessment as preliminary. Anyway on the base of the precautionary approach the advice should be: not to increase the fishing mortality. The need to merge the GSA 17 and 18 was also stressed by the SC.	No further comments. Endorsed.

GSA	Species	Stock status	Management opinion	WG	SC comments	SAC comments
GSA 18 Southern Adriatic Sea	*Sardina pilchardus*	Exploitation rate (ratio between total landings and biomass estimates): moderate Stock abundance (acoustic biomass estimate): low abundance. Moderately exploited with uncertain in exploitation rate	No increase the fishing effort in the western part.	The WG endorses the conclusions and recommendations for this stock. Nevertheless, the assessment is considered uncertain, as it is difficult to assess the relation between current stock levels and catches in the area. An effort should be made to improve the quality and availability of landings data. Exploitation rate should be calculated each year on the base of survey and landings data. The WG suggests that future assessments take into account combined data from 17 and 18 GSAs.	The SC found not clear the stock identification in the GSA 18. The participants agreed on the need to provide SSB estimates on a stock basis and not at the country level. The SC evidenced the uncertainty of the evaluation and the poor knowledge of the status of the stock and considered the assessment as preliminary. Anyway on the base of the precautionary approach the advice should be: not increase the fishing mortality. The need to merge the GSA 17 and 18 was also stressed by the Sub-Committee.	No further comments. Endorsed.

Table 3 – Management advice for elasmobranchs species

GSA	Species	Stock status	Management opinion	WG	SC Comments	SAC Comments
GSA 09 Ligurian and North Tyrrhenian Sea	*Raja asterias*	In overfishing status.	Reduction of F.	The WG endorses the assessment and the related recommendations	No further comments. Endorsed.	No further comments. Endorsed.
	Raja clavata	In overfishing status.	Reduction of F.	The WG endorses the assessment and the related recommendations	No further comments. Endorsed.	No further comments. Endorsed.
	Scyliorhinus canicula	In overfishing status.	Reduction of F.	The WG endorses the assessment and the related recommendations	No further comments. Endorsed.	No further comments. Endorsed.
	Galeus melastomus	In overfishing current F (0.35) lower than F0.1 (0.10).	A reduction of F is recommended. Reduce the catch in areas where juveniles are concentrated.	The WG endorsed the assessment and recommendations.	The SC endorses the assessment and the related recommendations of the WG.	No further comments. Endorsed.
GSA 15,16 Malta Island and South of Sicily	*Raja clavata*	In overfishing status.	Reduction of F.	The WG endorses the assessment and the related recommendation	No further comments. Endorsed.	No further comments. Endorsed.
GSA 04 Algeria	*Scyliorhinus canicula*	In overfishing status.	Reduction of F.	The WG endorses the assessment and the related recommendations	No further comments. Endorsed.	No further comments. Endorsed.
GSA 14 Gulf of Gabes	*Glaucostegus cemiculus*	Underexploitation status.	No recommendations.	The WG endorses the assessment and the related recommendation	No further comments. Endorsed.	No further comments. Endorsed.
GSA 29 Black Sea	*Squalus acanthias*	Uncertain considering the highly variable natural mortality along time series.	Enhance the knowledge on influence of environment and species interactions on abundance and survival.	The WG endorses the assessment and the related recommendations	No further comments. Endorsed.	No further comments. Endorsed.

Appendix B

ELEMENTS FOR A POTENTIAL BINDING DECISION ON THE MANAGEMENT OF DEMERSAL FISHERIES IN THE GFCM COMPETENCE AREA

The General Fisheries Commission for the Mediterranean (GFCM),

CONSIDERING that 27 of the 28 assessments of demersal stocks validated by the 14th session of the SAC (February 2012) are considered as overexploited with a current fishing mortality (F) value being at least 2 times greater than the value of a proxy of FMSY: $F_{0.1}$ (i.e. the ratio $F_{0.1}/F_{curr} \geq 50\%$);

CONSIDERING that fishing mortality is the only parameter that management measures can directly affect (biomasses are only affected indirectly and depend on various environmental factors) the most appropriate approach to manage fish stocks should be through the achievement of fishing mortality based reference points;

CONSIDERING that the *World Summit on Sustainable Development* (Johannesbourgh, 2002) advice for the management of fisheries indicates the reduction of the fishing mortality in order to reach the FMSY value proxy $F_{0.1}$ in 2015;.

RE-AFFIRMING the principles of the FAO Code of Conduct for Responsible Fisheries and recalling the precautionary and ecosystem approach to fisheries;

CONSIDERING that on the long term there would be social and economical benefits, from reductions in fishing mortality, while in the short term, too high reductions of fishing efforts could have unacceptable heavy socio-economic consequences, a gradual approach may be preferable. Moreover available experience shows that effort reductions of less than 20-30% may be difficult to detect in terms of changes in fishing mortality.

CONSISTENT with the Resolution GFCM/33/2009/1 on the management of demersal fisheries in the GFCM area wich resolves that, "unless proven unnecessary by sound scientific advice, a reduction of a minimum of 10 percent of bottom trawling fishing effort shall be applied in all GFCM areas".

CONSIDERING that for three of the stocks assessed in 2011 (**hake in Gulf of Lions, deep water rose shrimp in Strait of Sicily and sole in Northern Adriatic**) information available allowed to define appropriate management measures to reduce significantly the fishing mortality;

CONSIDERING that a given reduction in fishing mortality can be obtained by implementing, as a proxy, an equivalent reduction of fishing effort;

ADOPTS that:

1. A standard reduction by 20% of the fishing mortality shall be applied from the entry in force of the present Recommendation to the stocks listed in Table 1.

Table 1. 28 stocks validated by the SAC in 2011 with the ratio Current $F/F_{0.1}$ indicating overfishing status for all except one: *P. Longirostris* in GSA09

GSA	Species	Ratio $F_{cur}/F_{0.1}$
GSA 01 Northern Alboran Sea	*Merluccius merluccius*	**6,65**
GSA 05 Balearic islands	*Merluccius merluccius*	**7,56**
	Mullus surmuletus	**2,11**
	Aristeus antennatus	**3,93**
GSA 06 Northern Spain	*Mullus barbatus*	**3,6**
	Aristeus antennatus	**4,75**
	Parapenaeus longirostris	**3,8**
GSA 07 Gulf of Lion	*Merluccius merluccius*	**7,52**
	Mullus barbatus	**1,88**
GSA 09 Ligurian and North Tyrrhenian Sea	*Merluccius merluccius*	**9,09**
	Mullus barbatus	**1,14**
	Mullus surmuletus	**2**
	Galeus melastomus	**3,5**
	Aristeus antennatus	**1,93**
	Nephrops norvegicus	**1,66**
	Parapenaeus longirostris	**0,37**
GSAs 12, 13 Northern and Eastern Tunisia	*Shpyraena sphyraena*	In overfishing
GSAs 12-16 Strait of Sicily	*Parapenaeus longirostris*	**1,27**
GSA 15, 16 Strait of Sicily	*Mullus barbatus*	**1,73**
	Pagellus erythrinus	**2**
	Aristaeomorpha foliacea	**2,5**
GSA 17 Southern Adriatic	*Solea solea*	**4,61**
GSA 18 Southern Adriatic Sea	*Merluccius merluccius*	**4,14**
GSA 25 Cyprus island	*Mullus barbatus*	**1,39**
	Mullus surmuletus	**2,13**
	Spicara smaris	**1,54.**
	Boops boops	**1,54**
GSA 26 South levant	*Pagellus erytrinus*	**2,4**

2. In the case of stocks shared among different fleets belonging to different countries, where a reduction of fishing mortality (F) is recommended, the implementation of this reduction shall be negotiated among the countries actually exploiting those specific shared stocks, taking into account their different levels of fishing mortalities, landings and efforts. The outcome of the above mentioned negotiations shall be reported to the Compliance Committee.

3. Contracting parties should inform the GFCM Secretariat on the measures they are going to adopt as from 2012 to achieve such a reduction. This information shall be submitted to the SAC in order to allow the Scientific Advisory Committee to assess the bioeconomic impacts of these measures.

4. In the Gulf of Lion (GSA 7, exploited by French and Spanish fleets), reduce fishing mortality on hake (*Merluccius merluccius*) by 10% per year from 2012 to 2015 by reducing the effort of trawlers (by reducing time at sea and/or number of boats and/or engine power and/or bollard pull and/or trawl

size). Establish temporal closures for longlines and gillnets during the period of maximum spawning and close nursery areas at least temporally.

5. In the Strait of Sicily (GSAs 12,13,14, 15&16, exploited by Italian, Maltese and Tunisian fleets) reduce the fishing mortality on the shrimp *Parapenaeus longirostris* by 20% in order to reach the F0.1 level. Implement protection measures of the stable nurseries on the proximities of Adventure and Malta Banks as indicated in figure 1.

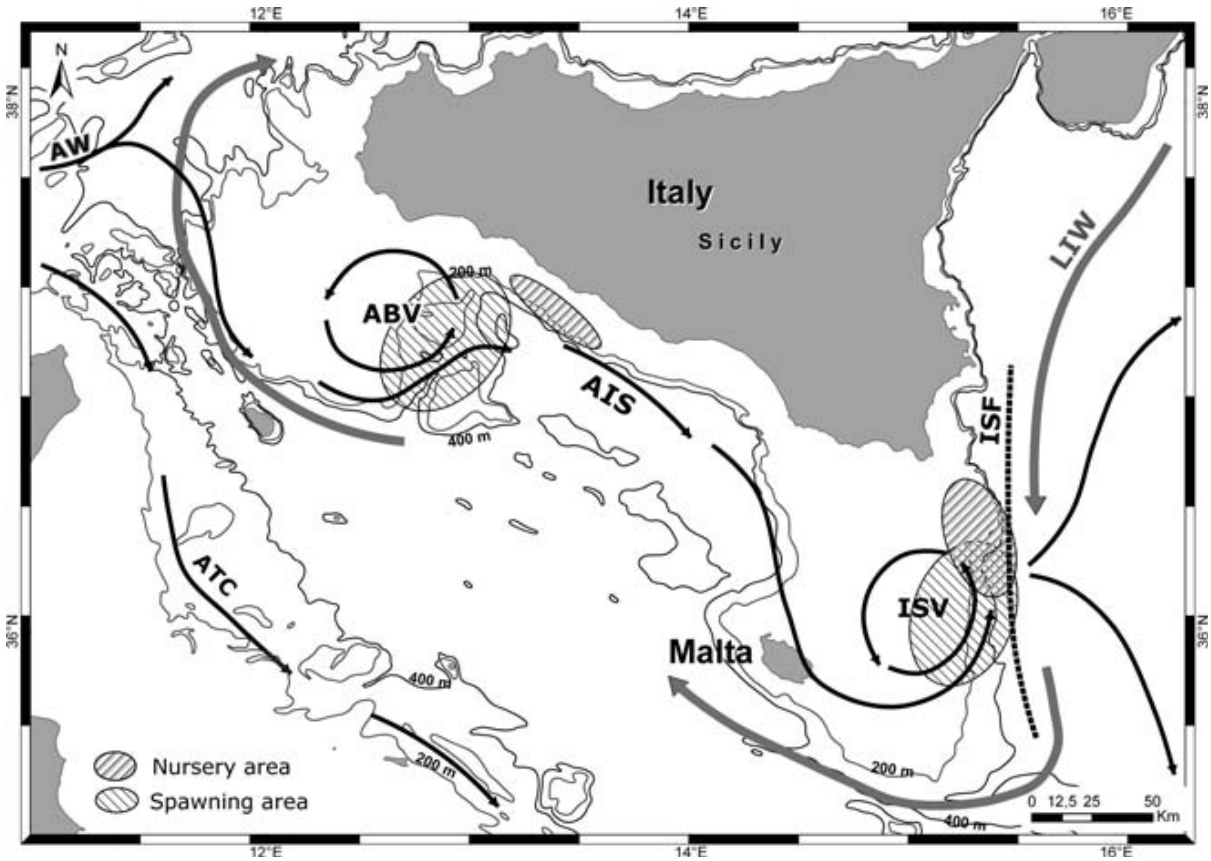

Figure 1. Nursery and spawning areas in the proximities of Adventure And Malta Banks

6. Reduce the fishing mortality on the juvenile sole *Solea solea* (GSA 17 Northern Adriatic, exploited by Croatian, Italian and Slovenian fleets) by implementing a two–months closure for beam trawling inside 11 km (6 nm) off-shore along the Italian coast, after the current biological fishing ban (August). Implement measures to protect the spawning area of the species in the area. (Map to be provided)

Appendix C

DRAFT TERMS OF REFERENCE OF SELECTED ACTIVITIES AS AGREED BY THE SAC AT ITS 14th SESSION

1. Consultancy for the Elaboration of Regional Management plan for Red Coral

- Collect and organize all scientific literature on the Red Coral in the Mediterranean covering points II and III of Appendix E of the Report of the 2nd Transversal Workshop on red coral held in Ajaccio in October 2011.
- Collect information differentiating the use of ROVs for surveying and security and for scientific purposes, and also on the present research programmes performed on the use of ROVs following REC. GFCM/35/2011/2.
- Collect information on the socio-economic aspects of red coral harvesting both from the fishermen and from the artisanal industry.
- Formulate a draftregional management plan for red coral including advice for potential technical measures.

2. (SCSI/SCSA/SCESS) Transversal Workshop on the new Task 1 & 2 data submission framework to define a Plan of Action to improve member countries' capacity to collect and submit relevant data.

ToRs for the Consultant:

- Comparative analysis of Data Collection systems in other Regional Fisheries Management Organisations;
- Analyse the relevant subcommittee and SAC reports, the GFCM performance review, documents and work done by FAO sub-regional projects in relation to data collection and data submission to Task 1;
- Revise the purpose of Task 1 and possible extension towards a Task 2, including the need to standardise the methodologies for the collection and reporting of data;
- Taking into consideration (i) the SCSI/SCESS analysis of the strengths, weaknesses, threats and opportunities, (ii) the SCSI/SCESS discussion of a possible new Task 2, (iii) the national potentialities, (iv) the need to keep memory of the data already submitted and (v) the need to build a cost effective system, define the structure of a refined Task 1 and a possibly a new Task 2 to hold all the information.

ToRs for the Working Group:

- Review the work done by the consultants and agree upon the final structure and definitions of Task 1 & 2;
- Propose actions to address, if needed, the remaining work to be done in order to have all variables included in Task 1 & 2 fully described and relevant agreed protocols for data collection and submission;
- Propose actions within the GFCM Framework Programme to address the gaps and deficiencies in national fisheries information systems, together with FAO regional projects.

3. Working Group on the review of the variables list of Task 1.3 and their relevant definitions (back-to-back with the SCESS Session)

- Review the economic components variables of the Task 1. 3;
- Enrich, revise and/or fine tune the definitions provided for each of these variables.

4. Workshop including training component on the use of bio-economic analysis models used in the GFCM Area

- Training on the process of modelisation for bioeconomic purpose
- Review the existing bio-economic studies and/or models in the GFCM Area
- Simulation of the potential effects of management measures through practical sessions with case studies data selected by the SAC

5. GFCM/ICES/EIFAAC Workshop on EEL

- Consideration of data requirements for the assessment of the local stocks, and identification of data and knowledge gaps, focusing on the data reporting requirements of the EU and CITES
- Launch of a data call for the participants ensuring that the objectives of the meeting can be achieved. (i.e. eel production, yield and escapement, including physical habitat data (e.g. wetted area, productivity);

ToRs for the Workshop:

- Identification of available data, summary of published documentation, creation of a data inventory, analysis of gaps and identification of any management plans implemented;
- Assessment of local stocks;
- Estimation of aquaculture production in the GFCM area;
- Assessment of the anthropogenic impacts on the stock and its relation to the targets/limits of the (national) Eel Management Plans (if present) and the (international) EU Recovery Plan and the need for non-detriment findings under CITES.

6. 3rd Meeting of the SCSA Working Group on Assessment Methodology (WGAM) on: Time Series Analysis:

Objectives:

The main outcome of the working group would be the review the main methodological approaches of Time Series Analysis and the improvement of investigation of trends and patterns of fishery related indicators (resource, fleet and environment) in the GFCM area . The working group should be training oriented and the results of case studies that participants would provide, and that would be addressed by the WG within practical sessions, should be published in a handbook style with examples of real case data as an special issue of GFCM Studies and Reviews. The workshop will consist of practical sessions preceded by introductory sessions of the suitability of the different available methods taking into consideration the peculiarities of different kind of data.

ToRs for the Working Group:

Time Series Analysis techniques will be applied to relevant data that may concern, but not be limited to, the following topics:

- Estimation of abundance indices of fishery resources from commercial and fishery independent monitoring;

- Identification of environmental parameters acting as ecological factor on resources dynamics;
- Evaluation of fishing capacity, efforts and other fishery related data;
- Estimation of Yield and biomass;

7. Working Group on Selectivity and Fishing Technology

Objectives

Enhance the knowledge in fishing technology of scientists and managers in charge of fisheries management;

ToRs for the Working Group:

- Identification of the general characteristics of fishing gears components and of their use; normes and standard representation; how to read draws; material of construction;
- Identification of the general characteristics of main fishing equipment; navigation and prospecting means; winches and haulers for small and large vessels;
- Identification of the technical component of a vessel of fishing power; link to fishing efficiency and fishing mortality;
- Identification of the technical component of the fishing economic efficiency: regulation of fuel consumption; role of rigging and vessels characteristics in fishing capacity;
- Legislation and control;
- Selectivity studies and fishery evaluation; how to build the experimental process and the samplers and selectivity devices; how to prepare the data analyse;
- Technologies for reducing environment impact (substrate, species of conservation concerns, etc.)

8. Workshop on data collection and information systems on fisheries in the Black Sea

- assess the existing fisheries data and information systems;
  draw up an inventory of existing tools and methods for data collection and analysis;
- produce standard criteria for establishing a harmonized data collection system in the region taking in consideration the requirement for various users (GFCM, EU, BSC…).