



GENERAL FISHERIES COMMISSION FOR THE  
MEDITERRANEAN

COMMISSION GÉNÉRALE DES PÊCHES POUR LA  
MÉDITERRANÉE



**GENERAL FISHERIES COMMISSION FOR THE  
MEDITERRANEAN**

**SCIENTIFIC ADVISORY COMMITTEE**

**Tenth Session**

**Nicosia, Cyprus, 22-26 October 2007**

**CONCLUSIONS AND RECOMMENDATIONS OF THE FOUR SAC  
SUB-COMMITTEES  
Kavala, Greece, 17–20 September 2007**

**I. INTRODUCTION**

1. The four Sub-Committees of the Scientific Advisory Committee (SAC) met simultaneously in Kavala, Greece between 17–20 September 2007. This allowed a joint and multidisciplinary assessment of the outcomes of the Transversal Workshops held during SAC intersession together with a review of selected issues by the Coordination Meeting of the Sub-Committees (CMSC), as provided in document GFCM/SAC/2007/Inf.9. This document summarizes the main conclusions and recommendations of the session of each Sub-Committee, as reflected in their reports, respectively quoted: GFCM: SAC/2007/Inf.5, 6, 7 and 8.

**II. SUB-COMMITTEE ON STOCK ASSESSMENT (SCSA)**

2. The Working groups on demersal and on small-pelagic species, met back to back in Athens (Greece), from 10-12 and from 13-14 September 2007. On the basis of the reports of the Working groups, the SCSA reviewed:

- 16 documents on assessment of demersals, covering 8 species and 13 stocks (including one share stock) in 7 GSAs as well as 5 “assessment related” documents.
- 18 documents on assessment of small-pelagics, covering 14 stocks (including 4 shared stocks) of sardine and anchovy in 7 GSAs.

3. The detailed description of fisheries, status and abundance of concerned stock, information source, exploitation rate and related analysis for each assessment document mentioned above

are available in the SCSA report. Management advice for those assessments which were endorsed by the Sub-Committee are summarized by GSA concerned below<sup>1</sup>.

4. Management advice for demersal stocks

**GSA 05** (Balearic Islands)

**Hake (*Merluccius merluccius*)**

Stock status: - Fishing mortality considered as moderate;

- Intermediate abundance and slight growth overexploitation;

Advice : - 20% reduction of fishing by : a. reduction of time at sea; b. using a 40 mm square mesh size in the cod-end to increase length at first capture from 11 (diamond mesh size) to 15 cm, without a significant decrease in commercial yields.

**Striped red mullet (*Mullus surmuletus*)**

Stock status: - Moderate fishing mortality;

- Intermediate abundance;

- Fully exploited (Y/R very close to the maximum and Bnow is about 33.5% Bvirgin).

Advice : - Not to increase the fishing effort, especially in the trawl fishery;  
- The 40 mm square mesh should be implemented.

**GSA 06** (Northern Spain)

**Deep-water pink shrimp (*Parapenaeus longirostris*)**

Stock status: - Annual landings for 2006 (51 tons) recorded as the lowest value of the used historical series;

- Fishing mortality moderate;

- Low abundance;

- Low levels of recruitment and of the SSB;

Advice: - Improve the gear selectivity

**Red shrimp (*Aristeus antennatus*)**

Stock status : - High fishing mortality;

- Low abundance;

- Overexploited stock (exploited at above sustainable level in the long term, with no potential room for further expansion and a high risk of stock depletion/collapse);

Advice: - Reduction of 10% of the current fishing effort (8942 fishing days for a fleet of 130 vessels) to recover SSB;  
- The 40mm square mesh should be implemented.

**Hake (*Merluccius merluccius*)**

Stock status : - High fishing mortality;

- Low abundance;

- Overexploited stock (being exploited at above a sustainable level in the long term, with no potential room for further expansion and a high risk of stock depletion/collapse).

Advice: - Reduction by 20% of the fishing effort;  
- The 40 mm square mesh for bottom trawls should be implemented;  
- Not to increase the fishing effort of the small-scale fishery.

<sup>1</sup> Summaries cover only assessment for which a comment or advice has been formulated.

**Red coral (*Corallium rubrum*)**

Stock status : - High fishing mortality;  
 - Low abundance;  
 - Overexploited stock (being exploited at above a level which is believed to be sustainable in the long term, with no potential room for further expansion and a high risk of stock depletion/collapse).

Advice: - Progressive reduction of number of licenses to allow recovery within the next 5-10 years (through not issuing new licences in replacement of existing one);  
 - Review of the current allowed quota (400 kg per year/fisherman);  
 - Closure of the fishery from 15 June to 31 August (reproductive period).

**GSAs 12, 13, 14** (Northern Tunisia; Gulf of Hammamet; Gulf of Gabès)

**Striped red mullet (*Mullus surmuletus*)**

Stock status : - Fishing mortality rate of the northern and eastern stock appeared low; while it appeared moderate for the southern stock.

Advice : - Not to increase the fishing effort.

**GSAs 12, 13**

**Common dentex (*Dentex dentex*)**

Stock status : - In GSA 12, the stock seems to be under-exploited;  
 - In GSA 13, the stock seems to be in optimal conditions.

Advice : - Not to increase the fishing effort in both GSAs.

**GSA 17** (Northern Adriatic)

**Sole (*Solea solea*)**

Stock status : - Fishing pressure by rapido trawlers and set netters increased in the last ten years in terms of either fishing effort, efficiency of the gears and exploitation of new fishing grounds;  
 - Intermediate abundance;  
 - Fully exploited.

Advice : - Not to increase the fishing effort in respect to 2006 level.

**All GSAs**

In addition, the Sub-committee acknowledged with satisfaction that some joint assessments were performed during the session of the working group on demersals and recommended that a joint assessment of **hake** in each GSAs using both commercial catches and trawl survey data, be undertaken during the next session of the Working group in 2008. The Sub-Committee further endorsed the following proposals from the Working group:

- Perform analysis of sensitivity in order to test differences in the assessment results due to the different biological parameters;
- Take into account, in future assessment, new findings on growth parameters for hake, following tagging studies and otoliths new interpretation;
- Prepare, for the next session of the Working Group (using electronic communication), a list of reference points and indicators, in order to select those that are more suitable to be included in the assessment forms.

5. Management advice for small pelagics

**GSA 01** (Northern Alboran Sea)

**Anchovy (*Engraulis encrasicolus*)**

Stock status: - Low levels of biomass, recruitment and catch from 2003 to 2006.

Advice: - Not to increase the current fishing effort;  
- Shift the fishing season to protect the juveniles and/or implement closed seasons or areas.

**Sardine (*Sardina pilchardus*)**

Stock status: - Moderate fishing mortality;

- Intermediate abundance;
- Fully exploited.

Advice: - Not to increase the fishing effort beyond the current levels.

**GSA 06** (Northern Spain)

**Anchovy (*Engraulis encrasicolus*)**

Stock status: - Low levels of biomass (2006 estimates are, however, twice that of 2005).

Advice: - Not to increase the fishing effort beyond current level;  
- Maintain the current closed areas and seasons;  
- Adjust the minimum legal size (9cm) to the size at first maturity (11cm).

**Sardine (*Sardina pilchardus*)**

Stock status: - High fishing mortality;

- Fully exploited;
- Intermediate abundance.

Advice: - Not to increase the fishing effort should beyond the current levels.

**GSA 07** (Gulf of Lions)

**Anchovy (*Engraulis encrasicolus*)**

Stock status : - Intermediate abundance;

- The biomass estimate for 2006 increased as well as production in the first 6 months of 2007. The level of biomass is, however, considered not to be high.

Advice: - Follow with a great attention the gradual changes in all indicators of Stock status, including through strengthening scientific cooperation, especially joint surveys, between Spain and France to update biological data as well as catch and effort data.

**Sardine (*Sardina pilchardus*)**

Stock status: - Intermediate abundance.

Advice: - Not to increase the fishing effort;  
- Reinforce cooperation between Spain and France to update biological data as well as catch and effort data with the view to assess shared stocks.

**GSA 16** (South of Sicily)

**Anchovy (*Engraulis encrasicolus*)**

Stock status: - High fishing mortality;

- Low abundance;
- The decrease of the biomass estimate by 80% from 2005 to 2006 is noted

- with concern.
- Advice:
- Not to increase the fishing effort.
  - A warning on the fishing of larval stages (locally named *bianchetto*) is relevant, if derogation of the fishing ban, normally imposed in wintertime, would be postponed after the start of the spawning season.

**Sardine (*Sardina pilchardus*)**

- Stock status:
- moderate fishing mortality;
  - Low abundance;
  - The decrease of the biomass estimate by 74% from 2005 to 2006 is noted with concern.

- Advice:
- Not to increase the fishing effort;
  - A warning on the fishing of larval stages (*bianchetto*) is advisable, taking into account that derogation of the fishing ban which was normally imposed in wintertime during the spawning season.

**GSA 17 (Northern Adriatic)**

**Anchovy (*Engraulis encrasicolus*)** (stock is shared between Italy, Slovenia and Croatia)

- Stock status:
- Moderate exploitation rate (values in recent year are lower than 0.4 which is a precautionary reference point. The mean ratio of the last three years between catch and estimated biomass is 0.25);
  - The biomass dropped at very low level in 1987 and is recovering although with a fluctuation pattern until now.

- Advice:
- Not to increase the fishing effort.

**Sardine (*Sardina pilchardus*)**

- Stock status:
- Exploitation rate higher than 0.4 In the most recent years, while in 2006, it was estimated at 0.38, lower than the limit of 0.4 (precautionary reference point). The mean ratio of the last three years between catch and estimated biomass is 0.23;
  - Fully exploited.

- Advice:
- Not to increase the fishing effort.

**GSA 18 (Southern Adriatic)**

**Anchovy (*Engraulis encrasicolus*)** – (Western part of GSA 18)

- Stock status:
- Intermediate level of abundance.

- Advice:
- Not to increase the actual level of fishing effort on small pelagic fish.

**Sardine (*Sardina pilchardus*)** – (Western part of GSA 18)

- Stock abundance: Low level since 1998. 2006 estimated biomass at 36867 tons. The large variability in time and space is however mostly attributable to environmental factors.

- Advice:
- Not to increase the actual level of fishing effort.

**GSA 22 (Aegean Sea)**

**Anchovy (*Engraulis encrasicolus*)**- (Western part of GSA 22)

- Stock status:
- High fishing mortality;
  - Intermediate abundance (decreasing trend in the total anchovy biomass and in the SSB up to 2005 but an increase in 2006 both of total biomass and SSB, indicating signs of stock recovery, although both are still at a rather low level).

- Advice:
- Not to increase the fishing effort beyond the current levels. This should allow maintaining the current levels of fishing mortality;

- Shifting the closed period (present: mid December to end of February) towards the recruitment period of anchovy (e.g., October to December) / or the recruitment period of sardine (e.g., February to April) to allow more individuals of anchovy and sardine to enter the fishery at an older age.

**Sardine (*Sardina pilchardus*) - (Western part of GSA 22)**

Stock status: - Intermediate abundance.

Advice: - For precautionary reasons, not to increase the fishing effort on sardine and anchovy (sardine constitute with anchovy, one fishery);  
 - Shift of the closed period (present: mid December to end of February) towards the post recruitment period of anchovy (e.g. October to December) / or the post recruitment period of sardine (e.g. February to April).

**General statements on demersal and small pelagic species**

6. The Sub-Committee further expressed the following general statements on demersal and small pelagic species, for consideration by the SAC:

- a need arises for launching joint work to process the information and data resulting from the numerous trawl surveys, especially MEDITS, realized in several countries in the region;
- strengthened participation and scientific contribution of scientists from the Eastern part of the Mediterranean and from the Black Sea are called for;
- assessments should be presented using the new updated forms which contemplate information on the units of fishing effort exerted by fleet segment and OUs, including data, methods used, results, diagnosis and the management advice;
- data required notably for performing joint stock assessment during the respective session of the Working groups, should be made available at least one month in advance to the meeting. In this connection, a joint assessment session during the 2008 WG on small pelagics should be organized, lasting three days;
- acoustic surveys should be completed by catch at age data collection in order to improve related assessments;
- since change in mesh size is considered to have limited or no impact for purse seine selectivity, enhanced selectivity should be envisaged through other means such as specific windows close to the float-line (still experimental), or by sorting on the deck;
- analysis done by different methods should be crosschecked with the view to favouring harmonized conclusions;
- progress achieved by the new (European) project "SARDONE" aimed to improve assessment and management of small pelagic species in the Mediterranean Sea should be closely monitored;
- the TECHNOMED network, the establishment of which was acknowledged by the GFCM2, should be upgraded as a permanent Working Group of SAC.

**Outcome of the Workshop on Trawl Survey Based Monitoring Fishery System**

7. The SCSA reviewed and endorsed the report of the Workshop (document GFCM:SAC10/2007/Inf.12) including its conclusions and recommendations.

<sup>2</sup> Paragraph 50 of the Report of the 30<sup>th</sup> session (Istanbul 24-27 January 2006).

8. The Sub-Committee particularly supported the proposal for the establishment of a SAC permanent Working Group, the general mandate of which would be to promote the use of the surveys data for stock assessment and management purposes, including for EAF needs. The full draft terms of reference for this Working group are appended to document GFCM:SAC10/2007/4.

9. Emphasis was put on the following actions, for consideration by SAC.

- To promote the use of data from surveys at sea (trawl surveys, echo surveys, eggs-larvae) within the SAC framework, especially for stock assessment performed by the SCSA Working Group on demersal species;
- To harmonize, in the framework of the Permanent Working Group on Methodologies (PWGM), the basic methods, protocols, data format, quality control to execute demersal and pelagic surveys in the Mediterranean and the Black Seas and software to be used to undertake joint assessments with direct methods. A meeting of the PWGM was proposed to be organized for that purpose, early in 2008, back to back with the next MEDITS meeting;
- Analysis, conclusions and recommendations of assessments performed through direct methods should be presented to the SCSA Working Group on demersals, or at least to the Sub-Committee itself;
- Actions shall be launched, in parallel, within the WG-Demersal to undertake stock assessments in all GSAs where data from trawl survey have been regularly collected. Some meetings of the Working groups on demersals and on small pelagics should be dedicated to perform analysis and interpretation of the data obtained from surveys at regional level;
- The GFCM protocol on trawl survey (to be produced) should incorporate the MEDITS experience;

10. Furthermore, while acknowledging with satisfaction the efforts made by AdriaMed and MedsudMed (see document GFCM:SAC10/2007/Inf.18) to standardize different echo-surveys protocols. The SCSA expressed the need to launch cooperative action with the newly established "MEDIAS" project (EU Mediterranean Coordinated Survey on Small Pelagics) and suggested that the facilitator of the SAC Working Group in small pelagic be invited to become a member of the Steering Committee of this project.

11. Concerning the need to improve the validation of growth parameters used in stock assessments, especially in view of the usual high negative correlation between  $L_{inf}$  and  $k$ , the SCSA suggested to take the couple of values with higher  $L_{inf}$  to minimize the problems of sensitivity in the VPA's.

#### **General comments on the outcome of the transversal Workshops and Working groups**

12. The Sub-Committee reviewed the outcome of the transversal meetings held during the intersession and endorsed their conclusions and recommendations. It however expressed the following specific comments.

- Transversal Workshop on Methodology to Analyse Disaggregated Fishery Data: the different issues regarding the use of the fishing day as a measure of effort were noted. The participation of the SCESS in the preparation of the guidelines envisaged by the Workshop was highly encouraged.
- Transversal Workshop on gear Selectivity: although selectivity studies do not necessarily require a multidisciplinary team, complementary studies, especially on

socio-economic and environment impacts of the selectivity should be done in parallel to favour sound management advice.

- Transversal Workshop on the compilation of GFCM Task 1 Data : In the Task 1 tool, the wording “inshore, off shore” should be replaced by the “continental shelf, continental slope” respectively. The sheet of the assessment forms titled “SCSA reporting” could be used as the Task 1.5 contributions to the Task 1 tool.

### **Priority species and shared stocks lists**

13. Regarding the priority species list, on the basis of the works reviewed during its meeting, the SCSA recommended the production of a list of species taking into consideration: development, conservation and management issues. The Sub-Committee also suggested sorting this list by the 3 following criteria: catches, prices and revenues, by country and GSA. The Sub-Committee could not reach a conclusion regarding the criteria for updating the shared stocks list. These issues were further discussed by the Coordinating Meeting of the Sub-Committees (document GFCM:SAC10/2007/Inf.10 and GFCM:SAC10/2007/Dma.5)).

### **SAC glossary**

14. The GFCM Secretariat was invited to take over the updating of the glossary. The SAC was invited to define the language(s) to be considered.

## **III. SUB-COMMITTEE ON STATISTICS AND INFORMATION (SCSI)**

15. The SCSI focused on the GFCM Task 1 and related issues, especially on the basis of the outcomes of the Transversal Workshop on the Compilation of GFCM Task 1 Data, held in June 2007 (Document GFCM:SAC10/2007/Inf.16).

### **Transversal Workshop on the Compilation of GFCM Task 1**

16. The Workshop made appreciable effort to review and fine tune methodological and practical issues which could facilitate the implementation of Resolution GFCM/31/2007/1. The SCSI endorsed the conclusions and recommendations of the Workshop. In so doing, it emphasized that the GFCM Task 1 electronic tool was useful for compiling multidisciplinary data, identifying Operational Units and describing the operations of the fleet in accordance with the GFCM Resolution and recommended to proceed with the development of the tool whilst continuing to work and test the suggested revised version at national level.

17. The Sub-Committee also invited the SCESS and the SCSA to review notably the list and definitions of parameters in Task 1.

18. Noting that for the time being, the list and definition of parameters in Task 1 should not be altered and that there were no need at this stage to report the port of landing, the SCSI further agreed on the following actions that it should implement during the 2008 intersessional period:

- Produce guidelines on reporting catch data for target species, associated species and by-catch for inclusion in the Task 1 data entry tool.
- Use four separate fields (time; capacity; activity; gear units), following the standard fishing effort measurement provided in the Resolution.

19. The SCSI also recommended that the deadline for the submission of Task 1 data should be specified in the Resolution, as 30<sup>th</sup> of June (data of previous year is to be reported).

20. The Sub-Committee further concluded that, in 2008, its work should mainly focus on the development of the Regional fleet register together with the development and or upgrading of National fleet registers where necessary.

21. The SCSJ also adopted the following conclusions and recommendations for consideration by the SAC:

- Proceed with the compilation of Task 1 data as requested by the Resolution, noting that in future and when sufficient data are received the fleet segmentation could be reviewed.
- Organize an ad hoc meeting on the GFCM Regional Fleet Register, in early 2008.
- Implement a testing period for the proposed “GSA compatible” STATLANT37 A form.
- Further develop FEIS at regional level under the responsibility of the GFCM Secretariat.
- Implement a program of work for the further development of MEDSTAT within various countries giving priority to the fleet register.
- consider the handling of the standardization of the measurement of fishing effort, by fishing operation, as a priority, noting that the calibration of fishing effort of different gears will occur in a second step after a first round of data is collected and compiled through GFCM Task 1.

#### **IV. SUB-COMMITTEE ON ECONOMICS AND SOCIAL SCIENCES (SCESS)**

22. During the intersessional period, the SCESS concentrated its work on: the socio-economic variables for GFCM Task 1, on developing trends analyses and reference/trigger points as well as sociological indicators in fisheries monitoring, on issues related to the use of market information and other incentive mechanisms in relation to changes in fishing effort, and launched an analysis on the legislative and socio-economic status of recreational fisheries.

#### **Comments on the outcome of transversal Workshops**

23. The Sub-Committee reviewed the outcome of the transversal meetings held during the intersession and endorsed their conclusions and recommendations. It however emphasized the following:

- Transversal Workshop on Methodology to Analyse Disaggregated Fishery Data: there is a need for an inter-disciplinary team to contribute to the preparation of disaggregated data methodological guidelines. The possibility of using disaggregated information (prices by species) to analyse the effects of market forces on changes in effort should be noted.
- Transversal Workshop on Selectivity for trawl fisheries : the process toward developing a interdisciplinary understanding of the adoption 40mm square mesh size in trawl fisheries should be followed up as a first step to understanding the socio-economic impacts of any management measure and further suggested that the impacts analysis framework produced be adopted.
- Transversal Workshop on Ecosystem Approach to Fisheries: a transversal EAF working group, under the aegis of the SAC should be established to set a common framework and roadmap for the implementation of the EAF in the GFCM area.
- Transversal Workshop on Marine Protected Areas: the launching of analyses of potential socio-economic impacts (benefits of ecosystem services as well as costs) of

proposed MPAs as well as the need for integrated and participatory approaches to management plan development and implementation should be considered.

- Transversal Workshop on the Compilation of GFCM Task 1 data : the organization of a workshop on reviewing the fleet segmentations that form the basis of Task 1 should be considered.

### **Workshop on the Use of Socio-Economic Indicators in Fisheries Management and on the Legislative and Socio-Economic Status of Recreational Fisheries**

24. The SCESS endorsed with satisfaction the outcomes of the Workshop, held in Tripoli, Libya, in July 2007, including:

- a list of indicators and their definitions to be included in task 1.3, with specific comments related to these indicators;
- the use of integrated indicators in fisheries management in relation to the GFCM Task1, on the basis of the framework proposed<sup>3</sup>, especially through specific case studies;
- the elaboration of a handbook as a guideline on the use of socio-economic indicators in fisheries management supported by a software;
- the use of the Traffic Light Method, taking into consideration proposed selected reference points.
- The adoption of relevant definitions for recreational fisheries as follows:
  - Leisure/Recreational fisheries* – non-commercial (i.e. not for sale, barter, or trade) fisheries motivated by personal uses for recreation, tourism or sport. Leisure/recreational fisheries comprises three sub-categories:
    - Amateur fishing* – unorganized hobby fishing not associated with specific events or competitions. Catches from amateur fishing are either released (catch & release) or are retained for private consumption.
    - Sport fishing* – organized fishing involving free competition between fishermen to catch the largest fish of certain species, the largest number of specimens or the largest total weight depending on the rules of each particular competition.
    - Tourism fishing* – fishing conducted by commercial fishermen (“pesca-turismo”) or by recreational fishing professionals (“charter”) and can be understood as a fishing activity carried out by a third party who organizes a fishing expedition for tourists.
- The establishment of an ad hoc transversal Working group on Recreational Fisheries;
- The preparation of guidelines on recreational anglers and the collection a selected set of data on recreational fisheries.

25. The SCESS also adopted the following main suggestions and recommendations for consideration by the SAC:

- To define precisely the Task 1.3 variables, including a detailed listing of information to be included in the variable and fixed costs variables;
- To collect annually the minimal list of economic data as described in Task 1 and to collect the following minimal sociological information for commercial fisheries;
- To study the role of incentive structures and mechanisms in national fisheries;
- To apply the AdriaMed Social Information System throughout the GFCM;
- To analyse the impact of market forces on fisheries management, including to use disaggregated information (prices by species) to analyse their impacts on fishing effort;

<sup>3</sup> Annex 7 of the Report of SCESS (Doc. GFCM:SAC10/2007/Inf.7)

- To implement selectivity impact analyses in Libya, Morocco, and Tunisia;
- To organize a workshop to establish a standard method of using market data to understand changes in fishing effort for use in fisheries management;
- To include a new table for annual currency conversion in Task 1 to facilitate the comparability of monetary value data from different countries (action SCSI).
- To contribute to the drafting of the “Disaggregated data methodological guidelines”;
- To adopt the use of Traffic Light method for integrated indicators trends analyses, including the use of reference points and indicators to assist in the monitoring and evaluation of fisheries management.

## V. SUB-COMMITTEE ON MARINE ENVIRONMENT AND ECOSYSTEMS (SCMEE)

26. SCMEE reviewed the outcome of its intersessional activities. It endorsed the conclusions of the transversal Workshops and Working groups in which it was involved and formulated its main conclusions and recommendations as follows:

### Conclusions

- The review of the joint GFCM-ACCOBAMS cooperation to collect data on interactions between fisheries and cetaceans, using a questionnaire, showed that only few replies to the questionnaire were received. The participants recommended extending this initiative to marine birds, sea turtles and elasmobranchs.
- A further elaborated version of the document on “Impact des techniques de pêche en Méditerranée, solutions d’amélioration” will be prepared taking into account the comments received.
- The proposal of WWF related the new FRA covering the Cap Creus Canyon will be revised by the author and submitted to the next session of SAC for consideration.
- Limited progress has been made in developing the concept of Ecosystem Approach to Fisheries which needs to be addressed together with other relevant SAC Sub-Committees. The elaboration of case studies, where possible and appropriate, with the GEF LME Project, was encouraged.
- The need for having a clear definition of the deep sea taking into account the specific characteristics of the Mediterranean and the Black Sea was stressed. It was also suggested to take into account the results of the FAO project on deep seas.
- It was emphasized that the actual extent and significance of cetacean by-catch should be evaluated at regional level rather than at national or local scale. In this context, the need for a regional estimate of cetacean populations was encouraged.

### Recommendations<sup>4</sup>

- enlargement of the objectives agreed upon by the Commission for 2008, of the Transversal Working Group on by catch/incidental catches (in collaboration with ACCOBAMS) as follows:
  - pursue the research and development of pingers while promoting collaboration among scientists and institutes working on these topics;

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<sup>4</sup> For each issue, a working document will be prepared by the members of the SCMEE and submitted as appropriate.

- reduction of by-catch and fishing mortality for threatened species (chondrychtians, turtles, seabirds, marine mammals and elasmobranches);
  - evaluation and improvement of survival after escapement;
  - technology for avoiding by-catch of juveniles (e.g. acoustic detection, etc.);
  - implementation of mitigating measure (smart gear incentive program, etc.).
- analysis of physical impact on sensitive sea bed and habitat with a particular attention for continental slope bottom and sub-marine meadows;
  - elaboration of an evaluation report of the efficiency of fishing reserves in the Mediterranean as a tool for the management of fisheries and the conservation of biodiversity;
  - identification of sensitive habitats of interest for priority species by GSA;
  - adoption of the FRA standard framework (provided as Appendix 1 to this document)

27. Concerning the expected work on environmental indicators<sup>5</sup>, the SCMEE considered that the subject needed further consideration and guidance before launching activities.

## **VI. SUGGESTED ACTION BY THE COMMITTEE**

28. The Committee is invited to review the findings and recommendations of its Sub-Committees, ad hoc Working groups and Workshops.

29. The Committee is also invited to translate the integrated advice provided by the Sub-Committees into multidisciplinary management measures, particularly for multispecies shared fisheries, as well as to draw up consolidated future workplan as appropriate in conjunction with agenda item 6 (document GFCM:SAC10/2007/4).

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<sup>5</sup> Paragraphs 50 of the report of the 30th session of GFCM and 77 of the report of the 31st session of GFCM

**Appendix 1****STANDARD FORMAT FOR THE SUBMISSION OF PROPOSALS FOR GFCM  
FISHERIES RESTRICTED AREAS (FRA) IN THE MEDITERRANEAN****Name of the FRA:**

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**Submitted by (Institution, Scientists, GFCM members...):**

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**Date of submission:**

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**1 EXECUTIVE SUMMARY (maximum 500 words)**

Supply a summary of the information contained in sections 2 to 8, including the expected results.

**2 AREA IDENTIFICATION****2.1 GFCM GEOGRAPHICAL SUBAREA****2.2 NAME OF THE FRA****2.3 GEOGRAPHIC LOCATION****2.3.1 General location**

**2.3.2. Precise location of the proposed core area: provide geographical coordinates (latitude and longitude in degrees, minutes and seconds) for the vertex of a polygonal area.**

**2.3.3. Buffer area (if applicable), provide geographical coordinates (latitude and longitude in degrees, minutes and seconds) for the vertex of a polygonal area.**

**2.3.4. Location Map: include geographical coordinates of the core and buffer areas, bathymetry, and the boundary of international waters. Add a global reference map of the Mediterranean with the location of the site.**

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**2.3.5. Depth range (in m; specify core and buffer area, if applicable)**

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**2.4 SURFACE AREA (in ha and km<sup>2</sup>; specify core and buffer area if applicable)**

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### 3 SITE DESCRIPTION

#### 3.1 MAIN PHYSICAL FEATURES

##### 3.1.1. Geology/Geomorphology

Give a brief description of the geological aspects; processes of sedimentation and erosion observable in the area and other geomorphologic features. Geological risks. Indicate bibliographical sources.

**3.1.2. Other interesting physical or chemical features:** Such as hydrodynamics, frontal areas, upwelling, etc. than support the proposal

#### 3.2 BIOLOGICAL FEATURES

**3.2.1. Habitats:** A brief description of the dominant marine habitats including pelagic ones if applicable

##### 3.2.2. List of regionally important species

List here those marine species protected by international agreements (specify the agreement) and/or included in the GFCM priority list. If applicable, give the IUCN category. Any other species may be listed if it is clearly considered of regional importance given its high representation in the area. For each species state:

- its relative abundance as Common (C), Uncommon (U) or Occasional (O),
- Its regional status as rare (r), endemic (e) and/or threatened (t), and
- its status as an important resident population (R), or important for its breeding (B), feeding (F), wintering (W) or migratory passage (M)

SPECIES	Rel. Abundance (C) (U) (O)	Regional STATUS (r) (e) (t)	Local STATUS (R) (B) (F) (W) (M)

**3.2.3. Occurrence of biological and ecological processes relevant to fish resources (Essential fish habitats)**

**3.3 USE OF NATURAL RESOURCES**

**3.3.1. Current fishing use and development of fisheries**

a) Briefly describe the current use of the area by artisanal, industrial and recreational fishing,.

b) Enter how many of the users depend on these resources, seasonality, and assessment of the social and economic importance of their use and of the perceived impact on the conservation of the area, in a score of 0-1-2-3 (meaning null, low, medium, high).

ACTIVITY AND CATEGORY	ASSESS IMPORTANCE OF								ESTIMATED No. of USERS	SEASONALITY
	SOCIO-ECONOMIC				CONSERV. IMPACT					
<b>FISHING</b>										
Artisanal	0	1	2	3	0	1	2	3		
Industrial	0	1	2	3	0	1	2	3		
Other:										
▪ Aquaculture										
▪										

**3.3.2. Current human use and development (except for fisheries)**

a) Briefly describe the current use of the area by other economic sectors

b) Enter how many of the users depend on these resources, seasonality, and assessment of the social and economic importance of their use and of the perceived impact on the conservation of the area, in a score of 0-1-2-3 (meaning null, low, medium, high).

ACTIVITY AND CATEGORY	ASSESS IMPORTANCE OF								ESTIMATED No. of USERS	SEASONALITY
	SOCIO-ECONOMIC				CONSERV. IMPACT					
<b>OTHER ACTIVITES</b>										
Tourism	0	1	2	3						
Transport	0	1	2	3						
Mining										
-										
-										

**4 REGIONAL IMPORTANCE OF THE SITE**

This Section aims at stressing the importance of the site for conservation at the regional scale.

**4.1 PRESENCE OF ECOSYSTEMS/HABITATS OF PARTICULAR IMPORTANCE IN THE MEDITERRANEAN****4.2 PRESENCE OF HABITATS THAT ARE CRITICAL TO ENDANGERED, THREATENED OR ENDEMIC SPECIES**

Name the habitat types and the species linked to it. Give information about its status (IUCN classification, etc.).

**4.3 OTHER RELEVANT FEATURES****4.3.1. Educational Interest**

E.g. particular values for activities of environmental education or awareness

**4.3.2. Scientific Interest**

Explain if the site represents a particular value for research.

**5 IMPACTS AND ACTIVITIES AFFECTING THE AREA****5.1 IMPACTS AND ACTIVITIES WITHIN THE SITE****5.1.1. Exploitation of natural resources**

Assess if the current rates of exploitation of natural resources within the area (e.g. fishing, sand and mineral exploitation) are deemed unsustainable in quality or quantity, and try to quantify these threats, e.g. the percentage of the area under threat, or any known increase in extraction rates.

**5.1.2. Threats to habitats and species**

Mention any serious threats to the habitat (e.g. Modification, disturbance, pollution) or to species (e.g. disturbance, poaching, introduced alien species...) within the area.

**5.2 IMPACTS AND ACTIVITIES AROUND THE SITE****5.2.1. Pollution**

Name and describe sources of pollution.

**5.2.2. Other external threats, natural and/or anthropogenic**

Briefly describe any other external threat to the ecological, biological, aesthetic or cultural values of the area (such as unregulated exploitation of natural resources, serious threats on habitats or species, pollution problems) likely to influence the area in question.

**5.2.3. Sustainable development measures**

Comment whether the area is covered by a management plan or bordering upon a zone under such a plan.

**6 EXPECTED DEVELOPMENT AND TRENDS<sup>1</sup>**

This is not always easy to assess and thus, it is not obligatory to fill in this Section.

**6.1 EXPECTED DEVELOPMENT AND TRENDS OF THREATS TO AND PRESSURES UPON THE AREA**

Deal briefly with the development of economic activities within the area

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<sup>1</sup> By expected development and trends are meant the development, which is thought most likely to occur in the absence of any deliberate intervention to protect and manage the site.

**7 MANAGEMENT AND PROTECTION REGIME****7.1 LEGAL STATUS (if applicable)****7.1.1. Historical background of the management related to the area****7.1.2. Regulatory framework currently ruling the management of the site**

Mention if the area, or part of it, has been designated and on what date, with an international or regional convention.

**7.1.3. Objectives**

Name in order of importance the objectives of the area as stated in its legal declaration.

**7.2 LEGAL BACKGROUND**

Briefly mention if the area or part of it is subject to any legal claim, or to any file open in that connection within the framework of an international body.

**7.3 LEGAL PROVISIONS FOR MANAGEMENT****7.3.1. Zoning regulating the area**

Briefly state if the legal text protecting the area provides for different zones to allocate different management objectives of the area (e.g. core and scientific zones, fishing zones, etc) and in this case the surface area of these zones. Include a map as an annex.

**7.3.3. Legal competencies**

Legal competence and responsibility with regard to administration and implementation of regulatory measures.

**7.3.4. Other legal provisions**

Describe any other relevant legal provisions, such as those requiring a management plan or any other significant measures concerning the protection and management of the area.

**8 OBJECTIVES OF THE FRA AND PROPOSED MANAGEMENT MEASURES****8.1 OBJECTIVES OF THE FRA**

State the reasons that justify the designation of the FRA

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**8.2 PROPOSED PROTECTION MANAGEMENT MEASURES FOR THE FRA****8.2.1. Management measures**

Suggest management measures to be implemented in the FRA

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**8.2.2. Monitoring, Control and Surveillance measures**

Suggest measures to effectively enforce the FRA

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**8.2.3. Socioeconomic impact(s) of the FRA**

Prevision of the socioeconomic impact(s) of the proposed measures

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**8.2.3.1. Economic evaluation of the ecosystems services (not only marketable)**

Economic value of the goods and services that the ecosystem supports

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**9 OTHER RELEVANT INFORMATION**

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**10 RELEVANT ADDRESSES**

(Stakeholders (if applicable) or name(s), position(s) and contact address (es) of the person(s) that compiled the report and/or can provide further information).

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