



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



**GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN**

**SCIENTIFIC ADVISORY COMMITTEE**

**Eighth Session**

**Tirana, Albania, 25-28 October 2005**

**CONCLUSIONS AND RECOMMENDATIONS OF THE FOUR SUB-COMMITTEES**

**INTRODUCTION**

1. The four Sub-Committees met simultaneously at FAO Headquarters, Rome, 27-30 September 2005. The Working Groups, respectively on demersal and on small-pelagic species, of the Sub-committee on Stock Assessment (SCSA) met within the Sub-committee Session. The Sub-committee on Statistics and Information (SCSI) convened its Workshop on Statistical Framework and Data bases (including IUU white list) during the Session.
2. The holding of all these meetings on the same venue, in parallel or back to back, proved cost-efficient. It allowed for stronger interface between the respective activities of the subsidiary bodies of SAC as well as joint assessment of the outcomes of transversal Working groups and Workshops, thereby favouring multidisciplinary exchanges of views, and more integrated advice on issue of common interest. This applied in particular for the Workshop on Ecosystem Approach to Fisheries (see document SAC/2005/2) as well as for the SCSI Transversal Working group on Operational Units, and for the SCSI Workshop on Statistical Framework.
3. Altogether, the number of experts (and countries represented) attending at the meetings of the subsidiaries of SAC slightly decreased compared to 2004. In particular, limited attendance by scientists from the Black Sea and the Eastern sub-regions was noted with concern.
4. Progress was acknowledged on the implementation of the 2005 work programme as endorsed by the Twenty-ninth Session of the Commission, and could be summarized as follows:
  - SCSI put further emphasis on consolidating work related to the Operational Units (on the basis of true/genuine case studies undertaken by AdriaMed and CopeMed, including on the *Coryphanea* fisheries). A preliminary framework for the GFCM data bases was identified. SCSI could not, however, achieved forecasted results on the standardization of the measurement of fishing effort;

- the Sub-Committee on Economic and Social Sciences (SCESS) concentrated its work on issues related to operational units (OUs) schemes. It further enlarged the scope of socio-economic indicators (on sociological and marketing aspects) and addressed related reference points. SCESS also stressed the need to better monitor recreational fisheries;
- the Sub-Committee on Marine Environment and Ecosystem (SCMEE) followed-up on the situation of deep sea resources and protected species as well as on the impact of surface and bottom longline fisheries on non commercial species. It further concentrated on the identification of sensitive habitats. Inputs were not provided on geographical occurrence, seasonality and effect of mucilaginous algal bloom, neither on the effects of fishing gear on marine ecosystems;
- the number of stocks assessments presented to the SCSA slightly decreased compared to 2004, and proved still limited in term of shared stocks and GSAs covered. No pilot multispecies assessment in selected GSAs were acknowledged but work on ecosystem modeling is progressing; neither was the list of shared stocks or priority species updated. Length at first maturity for anchovy was further updated.

## **SUB-COMMITTEE ON STOCK ASSESSMENT**

### **Assessment of stocks**

5. The SCSA reviewed various documents, including twenty two assessments of 20 stocks (9 demersals and 11 small pelagics), including 6 shared stocks. The assessments covered 7 GSAs, mostly in the Western Mediterranean. A table on assessments reviewed by SCSA is attached as Annex 1. The GFCM table on GSAs is attached as Annex 2.

6. SCSA noted that many documents presented were not assessment *stricto sensu* and some should have been better discussed within SCMEE. The Sub-committee recalled the need to present assessments in an agreed standard format with all the data, parameters, results, conclusions and recommendations.

7. The report of SCSA (document SAC8/2005/Dma.4) provides a full description of the status of stocks and fisheries concerned, the source, and the justification for each management advice formulated. Recommendations are summarized as follows.

### **For demersal species**

#### **Blue and red shrimp (*Aristeus antennatus*)**

GSA 05 (Balearic Islands) and GSA 06 (Northern Spain)

- the fishing effort should not be increased..

#### **Red mullet (*Mullus barbatus*)**

GSA 06

- the exploitation pattern should be improved by implementing the 40 mm square mesh as well as a strict observance of the 50 m depth ban which would protect the stock from growth overfishing. Moreover a reduction of fishing effort would be advisable.

#### **Striped mullet (*Mullus surmuletus*)**

GSA 05

- fishing effort should not be increased

#### **Hake (*Merluccius merluccius*)**

GSAs 05 and 06

- selectivity should be improved. The 40 mm square mesh size is felt more effective compared to the 40 mm diamond mesh size and should be promoted.

**GSA 07 (Gulf of Lions)**

- the 40 mm square mesh size in the codend should be used;
- existing regulation on minimum landing size should be enforced.

**GSA 22 (Aegean Sea)**

- fishing effort should not be increased;
- existing regulations on mesh size and minimum landing size should be enforced.

**Picarel (*Spicara Smaris*)****GSA 22**

- Data and assessment should be updated, today into account species habitat (coastal and protected areas) prior to formulate management recommendations.

**For small pelagic species:****Anchovy (*Engraulis encrasicolus*)****GSA 01 (Northern Alboran Sea)**

- annual assessment of the stock should be undertaken;
- the fishing effort should not be increased.

**GSA 06**

- the fishing effort should not be increased;
- annual assessment of the stock should be undertaken.

**GSA 07**

- joint surveys between Spain and France should be carried out twice a year (in spring and in autumn) and should also cover the Ebro river in sprawns zone;
- the biological and CPUEs data of the Spanish purse seine fleet should be updated.

**GSA 22**

- annual assessment of the stock should be undertaken;
- the current closed period (December-February) should be shifted, either to autumn (recruitment of anchovy) or to spring (recruitment of sardine).

**Sardine (*Sardina pilchardus*)****GSA 01**

- the fishing effort should not be increased.

**GSA 03 (Morocco)**

- the fishing effort should be kept at current level;
- juveniles should be protected by establishing a seasonal closure of coastal areas during the recruitment period in spring.

**GSA 06**

- the current level of fishing effort should not be increased;
- the minimum legal size should be adjusted to the size at first maturity (13 cm).

**Anchovy (*Engraulis encrasicolus*) and Sardine (*Sardina pilchardus*)****GSA 17 (Northern Adriatic Sea)**

Two assessments for both species, based on VPA and echo survey, produced different results. SCSA noted that present discrepancies in the various assessments relates mainly to the different perception of the stock status on the two side of the Adriatic. These differences prevented the Sub-committee to reach a consensus. The two different positions are summarized as follows:

- 1) The VPA carried out on a series of 30 years (up to 2004) show a sharp declining biomass of sardine to a tenth of its maximum value in 1985 (around 70 000 tonnes in 2004). This trend is in accordance to that of the echo surveys conducted on the western side of the Adriatic from 1985, which is registering very low biomass of sardine in recent years. This declining biomass corresponds to an increasing trend of F, which has surpassed the limit reference point in recent years. The stock-recruitment relationship shows clear evidence of recruitment overfishing. The stock of anchovy appears to be in healthy state in recent years but the collapse registered in 1987 calls for a cautious approach and suggests not to increase the fishing effort, given the fact that the fishery is multispecies and effort on sardine cannot be separated from effort on anchovy.
- 2) The echo surveys carried out in Croatian waters in 2003 and 2004 show a sardine biomass greater than 200 000 tonnes. It is also considered that the variability of small pelagic biomass is high and driven mainly by environmental factors rather than fishing. Taking into account the multispecies aspect of the fishery, the fact that substantial biomass of sardine has been detected on the eastern part of the Adriatic and the fact that anchovy appear to be in healthy conditions in GSA 17, suggests room for a moderate increase of fishing effort on these resources.

#### **Anchovy length at first maturity**

8. SCSA updated the estimated lengths at first maturity as follows:
  - Catalan coast and South of Sicily: between 11 and 12 cm;
  - Ionian and Aegean seas: between 10 and 11 cm;
  - Tunisian coast and Adriatic Sea: between 7.5 and 8.2 cm.

#### **Management of the *Coryphaena* fishery**

9. SCSA jointly reviewed with SCMEP the outputs of the SCSI transversal Working group on Operational Units. It noted the request from SCSI that SCSA contributes with biological information to the Operational Unit framework.

10. It also examined the outcomes of the pilot study on the fishery of *Coryphaena hippurus*, undertaken by the CopeMed Working Group on *Coryphaena*. The Sub-committee endorsed its conclusions and related set of management measures identified (enclosed as Annex 3) which recommended that a Total Allowable Effort (TAE) regional management regime be established in accordance with the following regulations:

- FAD (Fish Aggregating Device) fisheries targeting *Coryphaena hippurus* in the Mediterranean can only operate between 15<sup>th</sup> August to 31<sup>st</sup> December;
- The number of FADs deployed within a given sub-regional fishery management zone should not exceed an average of 10 FADs per square nautical mile;
- The total number of fishing trips for each vessel operating within a given fishery management zone during a given fishing season should not exceed 72 one-day fishing trips or equivalent.

#### **Stock assessment methodologies**

11. The SCSA discussed methods used in certain assessments, including the main outputs of the trawl survey MEDITS programme were also reviewed. The Sub-committee encouraged the full coverage of the Mediterranean by MEDITS surveys and a more complete exploitation of related results. It further favoured to use MEDITS abundance indices (scientific CPUEs) for the most important stocks as a fishery independent tuning series for analytical (VPA) assessments.

12. The Sub-committee stressed once more the need to use trawl survey data together with commercial sampling data to produce more complete and reliable assessments. It further recommended to renew efforts to combine information from direct and indirect methods for small

pelagics as well as to make sensitivity analysis in view of the uncertainty of natural mortality parameters.

13. SCSA formulated draft terms of reference for the newly established Permanent Working group on stock assessment methodologies (PWGSAM) for consideration by SAC (see document SAC8/2005/2, Appendix 3) and reviewed the provisional Agenda for the first meeting of the PWGSAM scheduled to take place in Istanbul, Turkey, 14-18 November 2005.

#### **Workshop on the standardization of the selectivity methods applied to trawling**

14. The Workshop concentrated on identifying difficulties to apply adopted methodologies and related statistical analysis tools and to implement as selectivity measures by professionals. Fish behaviour, survival after escapement and experimental reliability of statistical methods were discussed.

15. The Workshop acknowledged that square meshes are more selective than diamond meshes particularly for most of the “round” species. It stressed the need to further investigate the selectivity impact of square meshes on the various species of different shapes (e.g. flatfishes) and to evaluate selectivity also in terms of economy loss for the fisheries. In this respect, it was noted that the grids do offer advantages, particularly for the survival of the escapee fish and for specific fisheries; their conception and their use must be improved, including to avoid problems of obstruction and handling for small vessels.

16. The Workshop further concluded that no experimental methods can be privileged. Alternate hauls or cover cod-end method must be chosen as a function of the experimental conditions, which must be as close as possible to the industrial fishing conditions. The selective devices must be carefully designed and more attention should be placed on the choice of materials and construction. Furthermore, the importance of taking into account the maximum of variables which are assumed to influence the effectiveness of capture (geometry of the trawl, speed of trawling, etc.) as well as the need for respecting the ISO standards of representation of the physical parameters (trawls, power, etc...) was emphasized.

17. SCSA reviewed and endorsed the conclusions of the Workshop and recommended that :

- a data base on selectivity be established, including drawing up a complete list of bibliographical information on selectivity studies and, technical data and parameters should be stored using the table proposed in Annex 5;
- a Network of Mediterranean technologists be organized to collect, share and analyse information, thereby contributing to support other scientists working on stocks assessment and ecosystem conservation;
- practical guidelines on selectivity study be produced that would include the description of the main steps required to standardize selectivity studies on Mediterranean trawls, thereby allowing for analysis of comparable result in conformity with protocols approved by the scientific community and the fisheries industry;
- the dissemination of results on, and involvement of, the fisheries industry (e.g through MEDISAMAK) in improving the feasibility and effectiveness of selectivity devices be promoted, including through participation in the proposed Network of fishing technologists.

#### **SUB-COMMITTEE ON STATISTICS AND INFORMATION**

18. The SCSI focused on the Operational Unit issue on the basis of the outcomes of the pilot experiences accrued on this topic in the Western and Central Mediterranean and in the Adriatic Sea.

#### **Working group on Operational Units, including Workshop on Fishing Effort Measurement.**

19. The Working group consolidated the Operational Unit (OU) frame, including in relation to fleet segmentation, level of data aggregation and data collection scheme, and considered its applicability and implementation strategies for the whole Mediterranean. It further identified standard minimum effort parameters for fleet segments within the OU frame, including routine fleet and catch/effort data collection requirements at national level. (See Working group report, quoted SAC8/2005/Dma.8).

20. The Sub-Committee together with the SCESS assessed in detail the results of the OU Working group. Based on the application of the OU frame, it finetuned proposal for regulating the Coryphaena fishery in the Mediterranean as referred to in paragraph 9 above.

21. The SCSi endorsed the conclusions of the Working group, and further recommended that:

- a GFCM manual on minimum data collection requirements for fishery management purposes be prepared, using available information, including literature;
- SAC invites GFCM to request Members to timely supply data on fishing fleet and its activities, to enable the identification of all OUs in the Mediterranean area. In this respect, data collection should be done according to the format presented in Annex 3 of the Report of SCSi; the MedFisis project prepares the data collection framework (including codification), based on the 4 Tables adopted jointly with SCESS ( attached as Annex 3 for consideration by SAC);
- SAC invites the Commission to consolidate work on the Operational Unit concept, while ensuring that all related regional efforts and initiatives be carried out homogeneously under the coordination of the Secretariat;
- the Secretariat and the FAO regional projects put emphasis, as a matter of priority, on fishing effort measurement and standardization, taken into consideration the work done on this issue by other entities.

22. Through its **Transversal workshop on GFCM Statistical Framework and Databases** (including IUU white list) SCSi reviewed some of the existing Mediterranean databases and evaluated their possible development and integration within the GFCM database. The Statistical schemes developed by MedStat statistical programme within the framework of the FAO regional projects was satisfactorily assessed. Major requirements for the establishment of the regional record of fishing vessels over 15 m LOA authorized to operate in the GFCM area were identified. It was noted that as suitable, the above undertaking should be structured in relation to implementing the Operational Unit concept. SCSi endorsed the conclusions of the Workshop and recommendade that:

- SAC promote the use of the Mediterranean Large Marine Elasmobranch database (MEDLEM) in view of its incorporation into the GFCM information system;
- available data on Mediterranean fisheries developed by FAO regional projects and other programmes be formatted and stored in the GFCM central database being established within the GFCM Secretariat through MedFisis;
- in order to allow the Commission to accelerate the establishment of its procedures for biological, economic, and environmental data submission by Contracting Parties, SAC should consider requiring GFCM that suffisant financial and human resources for managing the central database be made available within the Secretariat, especially through appointing a programmer/database manager;
- GFCM members should be invited to provide the Secretariat with a list of available fishery databases in their country, in order to facilitate the task of SCSi, through the MedFisis project, in submitting an inventory of data available in the Mediterranean;
- in view of the additional and unforecasted task being required to MedFisis, the strenghten of the project should be considered possibly through, but not limited to, defreezing, financing and transferring the GFCM post of fishery statistician under the aegis of MedFisisin 2006-2007, a systems expert should be recruited accordingly to develop the GFCM system framework;

- on behalf the GFCM Secretariat, MedFisis takes the lead in developing and distributing: i) a form to be filled<sup>1</sup> by Members, before the end of 2005, thereby favouring the implementation of Recommendation GFCM/2005/2 concerning the establishment of a GFCM record of vessels over 15 metres authorized to operate in the GFCM area, as well as, ii) another form for vessels equal to or smaller than 15 meters LOA.; iii) MedFisis checks the consistency of the data submitted and compiles the responses;
- GFCM members be invited to renew efforts in providing the vessel (white) list, and initiate identifying those data that they may wish to keep confidential and those which will be made publicly available.

## **SUB-COMMITTEE ON ECONOMICS AND SOCIAL SCIENCES**

23. SCESS focused on fine tuning, together with SCSI, the Operational Unit (OU) concept. Emphasis was on identifying homogeneous group of vessels encompassing the biological, economic and technical insights, and determining economic data collection scheme, using the SAC classification of fleet segments and fishing effort parameters. The Sub-committee proposed, for consideration by SAC, the OU data collection scheme at regional, sub-regional and national levels, on the basis of four tables (enclosed as Annex 4). On data requirements that respectively covers: i) fleet segment; ii) fishing activity; iii) economic parameters for each fleet segment; iv) variables calculated from the second and third tables. The full conclusions and recommendations of SCESS are provided in document SAC8/2005/Dma.3.

24. The Sub-committee also acknowledged progress made in estimating economic indicators in the Western Mediterranean and in the Adriatic. It noted the need to promote homogeneous data parameters and aggregation level in relation to the basic economic data requirement laid down in the European Regulation 1639/2001. It further endorsed the methodology used in the AdriaMed Social Survey of Albanian marine Fisheries for identifying social indicators to complement economic parameters within the OU scheme and concurred on the use of the “traffic light approach” used by the AdriaMed Working group on biological and economic indicators for demersal fisheries, for identifying reference points and values.

25. SCESS reviewed market related information in the context of fishery sustainability and noted the enormous rate of increase in demand for fish and fisheries product in the region. It expressed concern that excess demand be a major cause of the increase in prices and, accordingly, of profits registered by the fleet in most countries following a scenario whereby the industry reaction could be to increase fishing effort, either by increasing the number of fishing vessel or by increasing the level of activity at sea. Despite current decreasing trend in fleet number and landings in the EU Mediterranean countries, it was noted that, quite homogeneously, the CPUEs show a downward slope in all countries while overall landings in the non EU Mediterranean countries show an inverted trend, which suggest that landings may have started to decrease even with a larger global Mediterranean fleet.

26. SCESS also reviewed and acknowledged the importance of recreational fisheries in the GFCM area and stressed the need for undertaking further studies on the legislative, economic, policy and management aspects of this activity. More generally, the Sub-committee stressed the need for strengthening data analysis and modelling capacities throughout the Member States by increasing the level of cooperation among all countries at all levels (industry, public authorities, research and statistics), including the training and dissemination of a common data analysis framework.

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<sup>1</sup> The fields to be covered are: Name of vessel; Vessel register number; previous name (if any); previous flag (if any); previous details of deletion from other registries (if any); international radio call sign (if any); type of vessel; length; GRT/GT, name and address of owner(s); name and address of operator(s); gear used; time period authorized for fishing and/or trans-shipping.

27. Taking into account the above conclusions, SCESS formulated the following main recommendations:

- the extension of the Albanian experience with social indicators to other countries so as to define a minimal list of social indicators to be collected throughout the GFCM fisheries, and analysis of compatibility of the social indicators in the context of the Operational Unit framework;
- the use of the Traffic Light approach to analyse the trends in socio-economic indicators for use in fisheries management;
- the provision by Member States of additional information (including the enactment of any new law or regulation, or amendments of texts) to regularly update and complement the GFCM *Studies and Reviews* No. 75, entitled “Fisheries Laws and Regulation in the Mediterranean: A Comparative Study”;
- the further analysis of the impacts of national and international market forces (both demand and supply side) on the fisheries industries and on fisheries management;
- the organisation of a technical workshop on the use of socio-economic indicators in fisheries management;
- the review of the proposed EU Fleet Segmentation by Member States to ensure coherence with the GFCM-approved Fleet Segmentation, although without inducing further delay in the collection of data following the GFCM Fleet Segmentation;
- the adoption of the OU data compilation framework and related guiding principles jointly elaborated by SCSi and SCESS;
- the undertaking and analysis of further case studies on the socio-economic and biological impacts of potential effort reduction strategies affecting selected OUs, taking into consideration AdriaMed and CopeMed tested methodologies.

28. SCESS also called on technical assistance from FAO in the context of the implementation of the FAO’s International Plans of Action (IPOA), especially to favour the development of National Plans of Action for the Management of Fishing Capacity and on IUU Fishing.

## **SUB-COMMITTEE ON MARINE ENVIRONMENT AND ECOSYSTEMS**

### **MED-LEM (Large Elasmobranchs Monitoring in the Mediterranean) protocols, including the by-catch of large pelagic sharks**

29. The SCMEE reiterated that the MEDLEM data base established a suitable procedure on data collection of specimens that may have been incidentally captured, sighted or stranded. It acknowledged the usefulness of the sheets provided by the MED-LEM program to assemble a common protocol for field data collection, sampling procedures and standard morphological measures of sharks.

30. The SCMEE recommended that SAC invites the Joint GFCM/ICCAT Working Group on Large Pelagic Species to provide data on the shark by-catches of tuna fisheries to fill the MED-LEM data base.

### **Deep-sea fisheries research.**

31. The Sub-committee reviewed information on five deep sea sensitive sites, assessed as unique habitats in the Mediterranean. Taking note that for the Cap de Creus canyon basic information still need to be completed, SCMEE concluded and recommended the following:

- *Alboran Sea seamounts*<sup>2</sup>: the collection of information relevant to the diversity and peculiarities of the seamounts should be encouraged so as to initiate identifying conservation measures;
- *Lophelia reef off Capo Santa Maria di Leuca*<sup>3</sup>: available information on the fishery targeting deep-water shrimps is considered sufficient to consider banning therefore, demersal fishery practices over this zone, located in international waters;
- *The Nile delta area harbors*<sup>4</sup>: the area is characterized by an exceptionally high concentration of cold hydrocarbon seeps supporting unique living communities of presumably chemosynthetic organisms such as polychaetes and bivalves. A full protection status should be considered by avoiding demersal fishing practices in the area of concentration of cold hydrocarbon seeps;
- *The Eratosthenes Seamount* : demersal fishing practices should be banned in the area<sup>5</sup>.

### **Impacts of driftnet on, and by-catch of, protected or endangered species, and impact of surface and bottom longline fisheries on non-commercial species**

32. The SCMEE acknowledged that driftnet fishing activities targeting swordfish and tunas had been reported in the areas off the South Tyrrhenian Sea and the Pelagos sanctuary and that by-catch of sperm whales, striped dolphin and short-beaked common dolphin had been recorded. SCMEE also reviewed general information on certain fishery interactions with sea turtles. It suggested that the use of larger hooks in the international fleet of longliners may help reduce the catch of turtles and noted that smaller tuna fisheries (e.g: albacore) that use small hooks induced high turtle catch rates.

33. The Sub-committee invited SAC to share its concern on IUU fishing activities, especially using non authorized driftnet, that affect protected and endangered species. It further invited SAC to participate in the implementation of the UNEP/CMS/ACCOBAMS BYCAMS project and to further coordinate actions with ACCOBAMS.

### **SUGGESTED ACTION BY THE COMMITTEE**

34. The Committee is invited to review the conclusions and recommendations of its Sub-Committees, ad hoc Working Groups and Workshops. In doing so, SAC may wish to pay special attention to issues such as the Operational Unit framework and on possibilities to integrating advice on fishery resource into multidisciplinary based management measures, especially for multispecies shared fisheries.

35. The Committee is also invited to review the activities proposed by the Sub-Committees and decide on the opportunities and priorities concerning their respective programmes of work, taking into consideration comments provided by the CMSC and the preliminary workplan for 2006 laid down in document SAC8/2005/5.

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<sup>2</sup> off the Alboran Sea island.

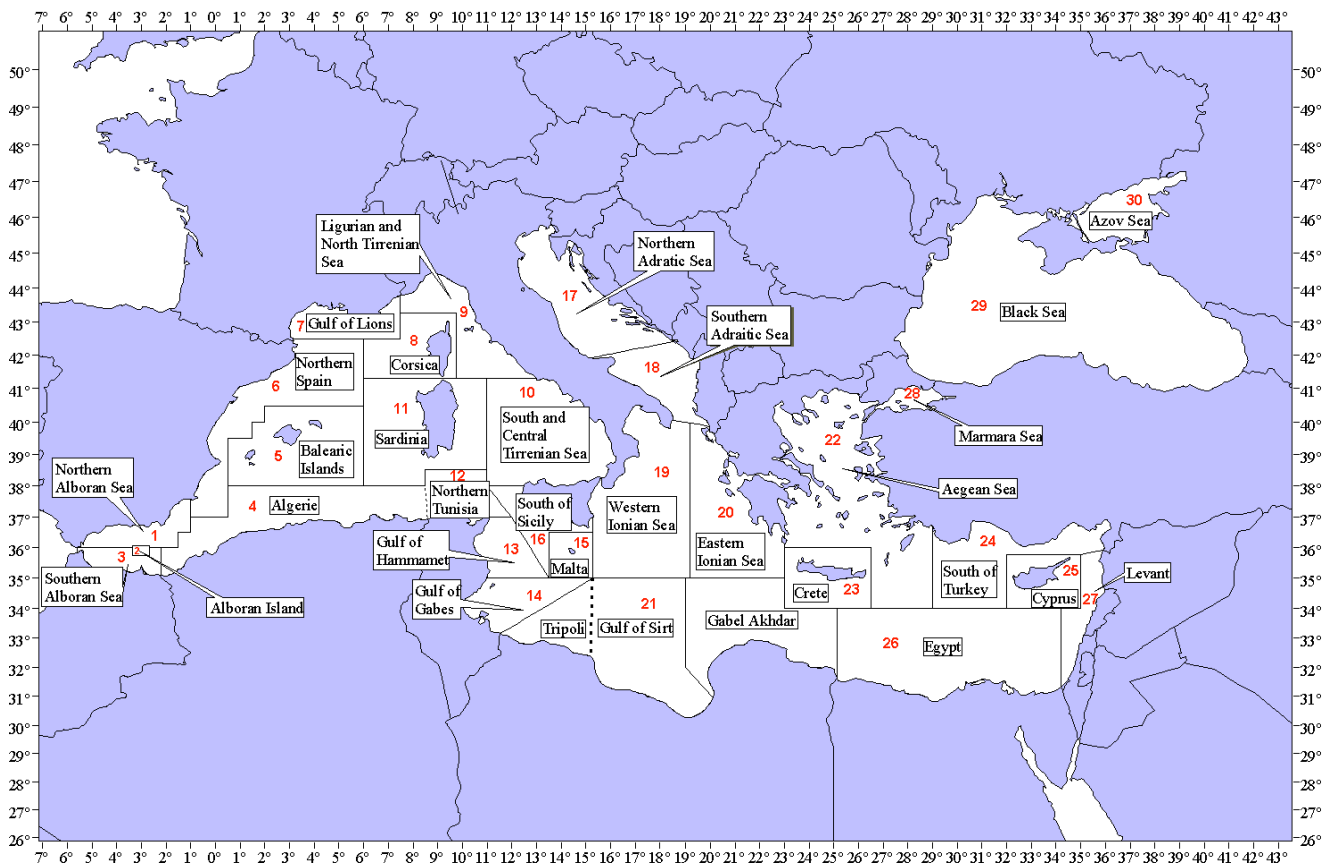
<sup>3</sup> situated: 'N39°27.72'/E18°10.74': N39°27.80'/E18°26.68': N39°11.16'/E18°04.28': N39°11.16'/E18°32.58'.

<sup>4</sup> situated on the continental slope North Sinai (Egypt) and the Palestine (31°30'-31°50'N, 33°10'-34°00' E.)

<sup>5</sup> between the Levantine Platform to the south and the Cyprus margin to the north, near the subduction zone of the African plate (33°-34°N, 32°-33° E).

## Annex 1

## GFCM Geographic Sub-areas (Athens, June 2001)



- |                                     |                           |
|-------------------------------------|---------------------------|
| 1. Northern Alboran Sea             | 16. South of Sicily       |
| 2. Alboran Island                   | 17. Northern Adriatic     |
| 3. Southern Alboran Sea             | 18. Southern Adriatic Sea |
| 4. Algeria                          | 19. Western Ionian Sea    |
| 5. Balearic Islands                 | 20. Eastern Ionian Sea    |
| 6. Northern Spain                   | 21. Libya                 |
| 7. Gulf of Lions                    | 22. Aegean Sea            |
| 8. Corsica Island                   | 23. Crete Island          |
| 9. Ligurian and North Tirrenian Sea | 24. South of Turkey       |
| 10. South Tiffenian Sean            | 25. Cyprus Island         |
| 11. Sardinia                        | 26. Egypt                 |
| 12. Northern Tunisia                | 27. Levant                |
| 13. Gulf of Hammamet                | 28. Marmara Sea           |
| 14. Gulf of Gabes                   | 29. Black Sea             |
| 15. Malta Island                    | 30. Azov Sea              |

## Annex 2

## Stocks assessed in 2005

	GSA																							
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	total
<i>Aristeus antennatus</i>					1	1																		2
<i>Mullus barbatus</i>						1																		1
<i>Mullus surmuletus</i>					1																			1
<i>Merluccius merluccius</i>					1	1	<u>1</u>															1		4
<i>Spicara smaris</i>																						1		1
<i>Engraulis encrasicolus</i>	1					1	<u>1</u>										<u>2</u>					1		6
<i>Sardina pilchardus</i>	1		1			1	<u>1</u>										<u>2</u>							6
<i>Sprattus sprattus</i>																	<u>1</u>							1
																								0
																								0
																								0
																								0
																								0
<b>total per GSA</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>5</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>20</b>

	Total	Demersals	Small pelagics
Assessments	22	9	13
Stocks (species & GSA)	20	9	11
GSA's	7	4	6
Species	8	5	3
Shared stocks	<u>6</u>	<u>1</u>	<u>5</u>

**Annex 3****Proposal for a GFCM regulation of the *Coryphaena hippurus* (L.) fishery**

Whereas *Coryphaena hippurus* has been listed as a GFCM priority species for which regular stock assessment and co-management of the Mediterranean stock is encouraged.

Whereas the GFCM has adopted a policy to manage Mediterranean fisheries through an effort control regime by Operational Units.

Whereas efforts to assess the Mediterranean *Coryphaena hippurus* stock and to study the associated fisheries have taken place through the FAO-COPEMED sub-regional project since 2000.

Whereas the Code of Conduct for Responsible Fisheries encourages a Precautionary Approach in the absence of sufficient scientific information.

AND

Considering that there is a single stock of the migratory species *Coryphaena hippurus* in the Mediterranean.

Considering that the regulations and management of the *Coryphaena hippurus* fishery varies between countries and a regional management regime is not in place.

Considering that there is an increasing interest in the capture of *Coryphaena hippurus* throughout the Mediterranean.

Considering that the fishing operation targeting *Coryphaena hippurus*, involving the use of Fish Aggregating Devices (FADs) and a surrounding net, is conducted in a similar manner in all sub-regions of the Mediterranean.

Considering that certain regions of the Mediterranean are socially, traditionally and culturally dependant on the *Coryphaena hippurus* fishery.

Considering that important parameters in the measurement of fishing effort for the *Coryphaena hippurus* fishery is the number of FADs deployed and the number of fishing trips.

Considering that no robust stock assessment exercise has been carried out to date due to the particular biological and behavioral dynamics of the species and lack of essential data.

Considering that the *Coryphaena hippurus* fishery mostly targets age 0 fish (2 and 8 months old), thus depending on the annual recruitment which is very variable.

Considering that fishing operations in July capture very small fish under 15cm in length which could give a better yield in later months.

Considering that the relationship between maturity and size is not regular for this species.

A Total Allowable Effort (TAE) regional management regime is hereby being established in accordance with the following regulations:

1. FAD fisheries targeting *Coryphaena hippurus* in the Mediterranean can only operate between 15<sup>th</sup> August to 31<sup>st</sup> December.
2. The number of FADs deployed within a given sub-regional fishery management zone should not exceed an average of 10 FADs per square nautical mile.

The total number of fishing trips for each vessel operating within a given fishery management zone during a given fishing season should not exceed 72 one-day fishing trips or equivalent.

## Fleet data requirement for Operational Units

**Table 1 - Fleet and area variables**

- **GSA:** GFCM Geographical Sub-Area
- **Country**
- **SAC Fleet segment:**
- **Vessel Number:** Number of fishing vessels belonging to the fleet segment.
- **Capacity** Gross Tonnage (GT) or Gross Registered Tonnage (GRT)
- **Operational Activity:** Open a code for each activity developed around the year. Code composed as follows:
  - First three characters indicate the United Nations country abbreviation
  - Followed by two-digit number identifying the GSA
  - Followed by the letter of the SAC fleet segment
  - Last 2-digit number indicates the specific Operational Unit number
- **Base ports:** port/s of operation of the given Operational Unit.

**Table 2 - Main resource and activity components variables per OU**

- **Operational Unit code:** as above. For each the next data on the fishing activity practiced around the year
- **Activity:** Days at sea or hours fishing
- **Fishing gear:** abbreviated (two or three characters) according to the International Standard Classification of Fishing Gear (ISSCFG).
- **Target species (FAO Code):** scientific name of the bio-economically most important target species (up to a maximum of five species).
- **FAO species code:** The FAO three-letter code based on the English common name as from the International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP).
- **Main associated exploited resources:** the species, species group or assemblage exploited in association with the target species previously indicated.
- **Fishing period:** self-explanatory (e.g. annual, June to September)
- **Relative Weight:** Percentage of total vessels included in the fleet segment that practiced this activity
- **Areas** where this activity is practiced: expressed in descriptive way

**Table 3 - Economic components variables**

- **Gross Tonnage:** Total gross tonnage of fishing vessels belonging to the given Fleet Segment.
- **Horse Power:** Total engine power of fishing vessels belonging to the given Fleet Segment.
- **Employment:** Total number of people employed on fishing vessels belonging to the given Fleet Segment. The number of crew members can be estimated on a full time equivalent (FTE) basis.
- **Salary Share %:** Percentage of the revenues after discounting commercial costs, daily costs and fuel costs that pertain to the crew. It will be distributed among the crew as salary.
- **Landing weight:** Total landings in weight.
- **Landing value:** The volume of landed fish valued against actual market prices. It equals to quantities landed multiplied by the landing average price.
- **Vessel value of total Fleet:** This is defined as total invested capital – value of hull, engine, gear and equipment. The replacement-value method can be used to estimate this parameter.
- **Fishing days/year per vessel:** Number of fishing days per year.
- **Fishing hours/day per vessel:** Number of fishing hours per day.

- **Cost of fishing/day per vessel:** These include daily expenses incurred in fishing activity, such as fuel, lubricants, etc. They are variable costs that depend on the time spent in fishing.
- **Yearly Fixed costs per vessel:** These comprise costs not directly connected with operational activity, such as non-routine maintenance, vessel insurance, taxes and dues, etc. The fixed costs are all the costs that are inevitable to pay yearly, independently from the time spent to fish.

**Table 4 – Effort variables**

**Landing weight** = as above

**Effort measure** = Capacity \* Fishing Activity

**LPUE** = Landings per Unit of Effort

Note:

**Effort** is to be expressed as a product of the Capacity and Fishing Activity for each Operational Unit, even if the landings data are available only at level of fleet segments. This information allows for the estimation of **LPUE/CPUE**: Landings/Catch per Unit of Effort.

**Standardization coefficient** could be applied for each fleet segment and activity to obtain a measure of equivalence between the fishing effort of one group of vessels (fleet segment or OU) and another.

