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Report of the CopeMed II meeting on the definition of priority topics related to shared resources (demersal and pelagic) in the subregion

Málaga, Spain, 29-30 April 2010

CopeMed II meeting on the definition of priority topics related to shared resources (demersal and small pelagic) in the subregion

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Summary minutes

Discussion of the objectives and TOR of the Subregional Demersal and Pelagic Working Groups, (SRWG's)

Long-Term objective

The objective of these SRWGs is to facilitate the development of capacity, in all the countries in the CopeMed II subregion to undertake joint assessments and research programmes on shared stocks, and a forum for holding discussions on common issues and runing these joint assessments and projects.

Linkage with GFCM bodies

The main issue in the linkage with the GFCM bodies is the relation with the SAC Stock Assessment Working Groups. It was reaffirmed that the SRWG's will not replace the SAC WG's, as they have different objectives.

The TOR's of the SRWG's will be mostly concerned with stock-related discussions and organization of scientific work. Whenever a stock assessment is carried out by one of the SRWG's, this will be presented to the corresponding (Demersal or Small Pelagic) SAC - WG by one or more of the scientists who actually carried out the assessments, together with the data used and a critical evaluation of any major changes from the previous assessments, for review and adoption.

TORs for the Sub Regional Working Groups

In general, the SRWG will mostly be a forum for discussion of stock- and fisheries-related issues at the sub-regional level, considering the GFCM Geographical Sub Areas (GSAs), the Operational Units (OUs) and other elements of the GFCM scientific framework.

Two SRWG should be created, one for Pelagic and another for Demersal species. It is envisaged that the SRWGs should be created as a permanent structure, with a time horizon of at least 5 to 10 years, so to ensure a continuity of the work. The chairs of each WG should be elected at the first meeting.

The meeting agree that the data provided for the work of the SRWGs are for the specific use during the SRWGs and that dissemination and use outside the strict contexts of the SRWGs will require explicit written permission from the data owners.

On the basis of the listing of shared stocks/fisheries prepared by the first CopeMed II shared stocks subregional meeting (Tables 1 and 2), the SRWG's should, in their first meeting:

- Compile and review all information available on the Biological and Ecological characteristics of these stocks;
- Compile and review the information available on the dynamic of the fisheries, including defining the relevant Operational Units;
- Define how the stocks are shared (e.g. movement across the regions, fleets exploring common grounds, movements of eggs and larvae etc.), and decide those that should be assessed as shared stocks;
- Identify the level of priority to be given to work on each of these shared stocks, based on their relative socio-economic importance and total landings in the countries involved, so as to develop a feasible and phased work programme;
- Define the data and information required for the assessment, and decide the units and format under which it should be submitted, according to the SAC-GFCM standards;
- Identify the gaps in the scientific knowledge necessary for carrying out joint assessments of these stocks;
- Prepare a scientific programme to address these gaps, in such a way that joint assessments of the priority stocks and fisheries can be carried out in a reasonable time-frame;
- Identify the methods that can be used for the assessment of these stocks, given the types of information currently available or to become available in the sequence of the planned scientific programme;
- Prepare an adequate report of the meeting and of the conclusions reached;

The CopeMed II project will function as the Technical Secretariat of the two sub-regional Working Groups. CopeMed II will request the countries, through the national focal points, to appoint the members to these Working Groups for the first meeting as soon as possible, before the 2010 meetings of the SAC WG's.

The meeting approved the appointment of one convener for the first meeting of each of the SRWG's. Mr. Othman Jarboui as convener of the Demersal SRWG and Mr Luis Quintanilla were appointed as convener of the Pelagic SRWG. The conveners are charged with preparing the Agenda of the first meeting of these SRWG's, with the support of CopeMed II.

The meeting agree that the first SRWG on Pelagic will be held in Malaga (Spain) organised by the IEO during the next September and that the SRWG on Demersals will take place in Mazara del Vallo (Italy) organised by the CNR in September 2010.

Identification of shared stocks for fisheries management and stock assessment purposes

Requests from the SAC and the CopeMed II Coordination Committee

Pagellus bogaraveo

The SAC proposed the establishment of a joint *ad-hoc* Working Group meeting with Spanish and Moroccan scientists on the stock and fishery of *Pagellus bogaraveo* to analyse the existing information.

CopeMed II was requested to support the organization and running of this *ad-hoc* WG meeting.
It was decided that the issue of *Pagellus bogaraveo* will be dealt with within the SRDemersal - WG.

Parapenaeus longirostris

The Coordination Committee of CopeMed II and the SAC requested CopeMed II and MedSudMed to continue the joint work that was started in the region of the Strait of Sicily in 2009.

Small Pelagic in the Alboran sea

A pilot programme on small pelagic fish in the Alboran sea is being prepared, involving Morocco and Spain. It was decided to support it under the work of the SR Pelagic WG, and it was mentioned that involvement of Algeria would be important and beneficial for the results of this programme.

Critical areas for shared stocks within the subregion

The meeting discussed in depth the importance of different particular areas for shared stocks in the sub-region. As a result of this discussion, it identified the following critical areas for shared stocks:

1. *Strait of Gibraltar and Alboran Sea;*

In general, many species may potentially be considered as shared-resources in the Alborán Sea on the basis of forming part of the Alboran basin. They are subject to common complex hydrographical features (as the exchange of water masses between the Atlantic and Mediterranean, that affect the Northern and Southern parts of the Alboran Sea) that influence the life cycle and distribution of many species that could constitute shared stocks.

2. *Straits of Sicily*

Inside the Sicilian channel area, which includes 4 countries (Italy, Libya, Malta and Tunisia), the GFCM identified 6 GSAs (12, 13, 14, 15, 16 and 21). At the first step, the meeting agrees to propose a deeper analysis on the new shared stocks in the area (included in Tables 1 and 2). Moreover, the meeting stressed that the complex bathy-morphological, oceanographic and biological characteristics of the area make necessary to study in detail the relationship between stocks distribution and spatial patterns of fisheries in the six GSAs. As an example, for the red mulled *Mullus barbatus* representative of coastal species, more than one shared stock can be likely identified inside the Sicilian Channel: a first one among GSAs 12, 13 and 16 and another stock in GSAs 14 and 21. In the case of deep-water pink shrimp, which is an offshore species, one single common shared stock can be likely identified.

3. *Gulf of Lions*

Sardine and anchovy targeted in the GSA 07 (Gulf of Lions) by the French fleet of pelagic trawlers are believed to belong to two stocks which are also exploited by Spanish fleets in the GSA 06 (Northern Spain).

The same consideration applies to several demersal species exploited on the continental shelves and slopes of GSA 06 and GSA 07 by the French and Spanish bottom trawlers, longliners and gillnetters, mainly hake, red mullets and monkfishes.

Identification of shared stocks

The meeting reviewed the list of shared stocks currently approved by the GFCM-SAC, as well as the additions to this list suggested by the expert who prepared the working document on this issue. After a thorough discussion, considering the three special areas described above, the meeting adopted the list in Tables 1 and 2. The meeting considers that this is an extensive list of the stocks for which the information available suggests them to be shared between at least two different countries. However, the presentation of this list does not imply a recommendation of the meeting to the SRWGs that joint stock assessments should be carried out for all the stocks in it. The definition of the stocks to be considered as effectively shared should be carried out by the Demersal and Pelagic SRWG's.

Due to the absence of experts from some countries of the CopeMed II Subregion, the meeting considered that certain possible shared stocks listed in Tables 1 and 2 need the confirmation by the corresponding national experts.

Besides the information sources presented by the expert, namely: i) the species accompanying the targeted resources, ii) the importance in national landing statistics and iii) the opinions of the national experts, the meeting based its suggestion on the known characteristics of the species and of the different areas, as follows:

- Morphobathymetry of the regions
- Depth range and mobility of the juvenile and adult stages of the species
- Main current patterns in the region, and their likely effect on the transport/movement of the different life-stages of the species

Table 1: Suggested demersal shared stocks

	English name	Scientific name	Area (and GSAs)	Countries
	Hake	*Merluccius merluccius*	Gulf of Lions (GSA7, 6)	France & Spain
	Hake	*Merluccius merluccius*	North Tyrrhenian and Corsica (GSA 8, 9)	Italy & France
	Hake	*Merluccius merluccius*	Sicily Channel (GSA 12,13,14,15,16,21)	Italy, Tunisia, Libya & Malta
*	Hake	*Merluccius merluccius*	Alboran sea (GSA1, 3, 4)	Spain, Morocco & Algeria
	Blue whiting	*Micromesistius poutassou*	North Tyrrhenian and Corsica (GSA 8, 9)	Italy & France
*	Blue whiting	*Micromesistius poutassou*	Alboran sea (GSA1 ,3,4)	Spain, Morocco & Algeria
	Red mullet	*Mullus barbatus*	Corsica and Sardinia (GSA 8, 11)	Italy & France
*	Red mullet	*Mullus barbatus*	Alboran sea (GSA1, 3, 4)	Spain, Morocco & Algeria
	Striped red mullet	*Mullus surmuletus*	Corsica and Sardinia (GSA 8, 11)	Italy & France
*	Striped red mullet	*Mullus surmuletus*	Alboran sea (GSA1, 3, 4)	Spain, Morocco & Algeria
*	Striped red mullet	*Mullus surmuletus*	Gulf of Lions (GSA7, 6)	France & Spain
	Black spot seabream	*Pagellus bogaraveo*	Alboran Sea & Straits of Gibraltar (GSA1, 3)	Spain & Morocco
*	Red mullet	*Mullus barbatus*	Sicily Channel (GSA 12,13,14,15,16,21)	Italy, Tunisia, Libya and Malta
*	Axillary Seabream	*Pagellus acarne*	Alboran sea (GSA 1, 3, 4)	Spain, Morocco & Algeria
*	Bogue	*Boops boops*	Alboran sea (GSA 3 , 4)	Morocco & Algeria
*	Pink shrimp	*Parapenaeus longirostris*	Sicily Channel (GSA 12,13,14,15,16,21)	Italy, Tunisia, Libya & Malta
*	pink shrimp	*Parapenaeus longirostris*	Alboran sea (GSA 1 , 3, 4)	Spain, Morocco & Algeria
*	Red shrimp	*Aristeomorpha foliacea*	Sicily Channel (GSA 13, 14, 15, 16, 21)	Italy, Tunisia and Malta
*	Violet shrimp	*Aristeus antennatus*	Alboran sea (GSA 1, 2, 3, 4)	Spain, Morocco & Algeria
*	Common octopus	*Octopus vulgaris*	Sicily Channel (GSA 13, 14, 15, 16, 21)	Italy, Tunisia, Libya & Malta
*	Common octopus	*Octopus vulgaris*	Alboran sea (GSA 3 , 4)	Morocco & Algeria
	Norway lobster	*Nephrops norvegicus*	North Tyrrhenian and Corsica (8, 9)	Italy & France

	Common spiny lobster	*Palinurus elephas*	Corsica and Sardinia (GSA 8, 11)	Italy & France
*	Common spiny lobster	*Palinurus elephas*	Alboran sea (GSA 3 , 4)	Morocco & Algeria
	Common spiny lobster	*Palinurus elephas*	Sicily Channel GSA12 , GSA13 ,GSA16	Tunisia & Italy
	Pink spiny lobster	*Palinurus. Mauritanicus*	Sicily Channel GSA12 , GSA13 ,GSA16	Tunisia & Italy

* = CopeMed II Malaga meeting new proposed shared stock in the Subregion

Table 2: Suggested pelagic shared stocks

	English name	Scientific name	Area (and GSAs)	Countries
	Dolphin fish	*Coryphaena hippurus*	Western Mediterranean	Italy, Malta, Spain & Tunisia
	Anchovy	*Engraulis encrasicolus*	Gulf of Lions (GSA7, 6)	France & Spain
*	Sardine	*Sardina pilchardus*	Gulf of Lions (GSA7, GSA 6)	France &Spain
*	Anchovy	*Engraulis encrasicolus*	Alboran sea (GSA 1, 3, 4)	Spain, Morocco & Algeria
*	Sardine	*sardina pilchardus*	Alboran sea (GSA 1, 3, 4)	Spain, Morocco & Algeria
*	Horse mackerel	*Trachurus trachurus*	Alboran sea (GSA 1, 3, 4)	Spain, Morocco & Algeria
	Porbeagle	*Lamna nassus*	All Mediterranean	All countries
	Shortfin mako	*Isurus oxyrhinchus*	All Mediterranean	All countries
	Blue shark	*Prionace glauca*	All Mediterranean	All countries
	Albacore	*Thunnus alalunga*	All Mediterranean	All countries
	Bluefin tuna	*Thunnus thynnus*	All Mediterranean	All countries
	Swordfish	*Xiphias gladius*	All Mediterranean	All countries

* = Malaga meeting new proposed shared stock in the Subregion

Finally, the meeting adopted the minutes and entrusted to CopeMed II as Secretariat of the SRWGs the finalisation and edition of the meeting report. CopeMed II compromised to incorporate in the final version the expert' document, the Agenda and the others documents discussed during the meeting and sent the final draft version for revision to all the participants before the final edition.

Annex 1

FAO-CopeMed II

Working Document

CopeMed II meeting on the definition of priority topics related to shared resources (demersal and small pelagic) in the subregion

Málaga, Spain, 29-30 April 2010

Draft Agenda

1. Opening of the meeting and election of chairperson and reporters.
2. Adoption of the Agenda.
3. Objectives of the meeting.
   - ✓ *Brief revision of the Term of Reference of the DWG and SPWG*
   - ✓ *Organizational issues for the DWG and SPWG.*
4. National reports on priority activities on shared stocks.
   - ✓ *Report on species considered shared stock that needs priority actions according the country need and Status of current knowledge on the ecology and population dynamics of main shared stock; Each country should prepare a summary report*
5. List of GFCM priority species and shared stock to be considered in the CopeMed II subregion
   - ✓ *List of target commercial species by GSA that are thought to constitute shared stock, considering the available information and knowledge on how these resources are shared between countries/fishing fleets; A document for discussion should be prepared by the project*
6. The SAC 12 session. Revision of evaluated stock within the CopeMed II subregion
   - ✓ *Stocks reviewed by the 12 SAC meeting and Recommendations. A summary of the stocks assessment presented to the SAC should be prepared by the project*
7. Identifying and defining shared demersal and small pelagic resources and related fisheries
   - ✓ *Joint identification of shared stocks and related fisheries priority to the CopeMed II subregion.*
   - ✓ *Requests from the SAC and the Coordination Committee of CopeMed II, particularly on Pagellus bogaraveo, Parapenaeus longirostris and small pelagic in the Alboran sea*
   - ✓ *Critical areas for shared stocks within the subregion. Information and documents prepared by the experts or published are welcome for discussions*
8. DWG and SPWG Work programme and schedule
   - ✓ *Proposing activities of subregional scientific cooperation to be carried out within the CopeMed II framework*
9. Other matters
10. Date and venue of the next DWG and SPWG meeting

Annex 2

FAO-CopeMed II

Working Document
ToRs for the CopeMed II Working Groups on Demersal (DWG) and Small Pelagic (SPWG)

CopeMed II meeting on the definition of priority topics related to shared resources (demersal and small pelagic) in the subregion

Málaga, Spain, 27-28 April 2010

1. Background of the Project Objective

The CopeMed II Project document establishes that "*CopeMed phase two will support the establishment and implementation of scientifically based up-dated management plans for relevant specific fisheries both in each specific countries and at sub-regional level. This will be pursued through coordinated scientific investigations and data gathering as well as joint multidisciplinary analysis*". Moreover, the 2008 SAC report (paragraph 17), "*to improve the functioning of working groups on assessments of demersal and pelagic species, SAC endorsed the proposal that the Demersal Working Group on demersal to carry out its work into four (4) thematic sub-groups on crustaceans, hake, mullets and other demersal species respectively, dealing exclusively with practical stock assessments, done on the spot at the meeting venue. The Small Pelagic Working Group will also deal with practical sessions essentially on sardines and anchovies. Other assessments undertaken with the support of FAO regional projects and/or other international initiatives, such as the Scientific, Technical and Economic Committee for Fisheries, Sub-groups of the Mediterranean (STCF-SGMED), would be presented directly to the SCSA for review*".

In line with the Project aim of strengthening joint research and subregional management of shared fishery resources, this CopeMed II meeting should mainly focus on shared resources by identifying the most relevant issues and consequently formulating specific activities to be implemented within the cooperative framework of the CopeMed II Project.

1.1 Aims

The medium term aim is the strengthening of regional scientific cooperation through the organization of a subregional Demersal Working Group (DWG) and a Small Pelagic Working Group (SPWG) of experts on the identification and definition of the CopeMed II subregión shared stocks. Many commercial species constitute or will constitute shared stocks, but sound scientific evidence is somewhat fragmentary. There seems to be the need to comprehend the pattern by which some stocks are shared between countries. Therefore, it would be desirable to produce and assemble evidence on the nature of shared stocks.

The main objectives of the DWG and SPWG are to enhance the potential of scientists community in the subregion, prepare the data sets according to needs of the GFCM-SAC Sub Committee on Stock Assessment (SCSA) and reinforce the subregional coordination, cooperation and synergy on stocks assessment by favouring subregional joint training.

1.2 Organizational approach

The 2008 SAC mandate above is an opportunity to work together on shared stocks with the support of CopeMed II in a friendly, cooperative and coordinate environment. *Ad hoc* Demersal and Small Pelagic Working Groups (DWG&SPWG) will consist of subregional experts open to external, qualified contributions. Each WG will be coordinated by an experienced scientist from the subregion assisted by the CopeMed II staff. Initially, the DWG&SPWG will consider a list of target commercial species that are thought to constitute shared stocks. Consequently, should the available scientific evidence be uncertain or insufficient, available information from each country (e.g. research data, fishery statistics, etc.) will be cooperatively used for analysis. Important gaps in the scientific knowledge of some shared stocks, which cannot be filled with the existing information, will be highlighted and research proposals drawn up.

1.3 Output

It is expected that from the DWG&SPWG activities an improved definition and assessment of commercially important shared stocks will be obtained through strengthened subregional scientific cooperation. Proposals for joint research priorities will be elaborated where needed. Technical advice for cooperative fishery management of shared resources will be formulated.

2. Description and Objectives of the CopeMed II Demersal and Small Pelagic Working Groups

2.1 Description

The DWG&SPWG are established within the Project **Immediate Objective 2:** Strengthening the fisheries scientific research and upgrade the research activity in the national and international context.

The two WGs have the practical and operative objectives of:

- Identifying and defining shared demersal/small pelagic resources and related fisheries of the subregion;
- Considering the available information and knowledge on how these resources are shared between countries/fishing fleets;
- Reviewing and highlighting the gaps in the scientific knowledge of shared stocks which are relevant for their management;
- Proposing of subregional scientific cooperation' activities to be carried out within the framework of CopeMed II.

2.2 Topics to be addressed by the Demersal and Small Pelagic Working Groups

The following topics are proposed for consideration in the Agenda First Meeting:

- Listing of target shared stocks/fisheries by CopeMed II subregión by Geographical Sub areas and Operational Units;
- Status of the available knowledge on the ecology and population dynamics of the main shared stocks also with reference to their seasonal and spatial distribution pattern by size/age, reproduction and fishery recruitment dynamics in territorial and international waters, growth and mortality rates;
- Current identification of, and available knowledge on, critical areas for spawning and recruitment of shared resources which may require the adoption of management measures;
- Dynamics of the fishery exploitation exerted by fishing fleets/gear of the countries sharing the resources;
- Preparation of a synopsis on the biology and fishery exploitation of the main shared stocks in the subregion.

3. Output and Follow-up

The DWG and the SPWG will identify the main and priority issues concerning the biological knowledge and fishery management aspects of the shared stocks of the CopeMed subregion. Consequently, practical formulation of joint activities will be elaborated by the meeting, inclusive of methodological approach, to be implemented by the countries' experts supported by CopeMed II within its resources and mandate. The work programme for the future WGs activities should be established.

4. Participants

The meeting should be attended by:

- Fisheries research managers of the national research institutions and relevant scientist from each country participating in the Project (nominated by the national Focal Point)
- FAO-CopeMed II staff
- FAO FIRF officers
- GFCM Secretariat

5. Venue

Headquarters of the Project CopeMed II in Málaga (Spain)

6. Date

29-30 April 2010

7. Working papers

Any kind of written contribution will be considered as a support paper and is welcome for discussion.

8. Organisation

The WG will be organised by the FAO–CopeMed II Project in collaboration with the CopeMed II' National Focal Points and the FAO Mediterranean Projects and in coordination the GFCM Secretariat.

Contact persons:

- For travel and accommodation: Abla Kadiri (abla.kadiri@fao.org)
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Annex 3

FAO-CopeMed II
Working Document

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CopeMed II meeting on the definition of priority topics related to shared resources (demersal and small pelagic) in the subregion

Málaga, Spain, 29-30 April 2010

ASSESSMENTS ON THE CURRENT GFCM LIST OF SHARED STOCKS IN THE COPEMED SUB REGION, AND A PROPOSAL FOR A SUB REGIONAL UPDATED LIST.

Henri Farrugio

CopeMed II – ArtFiMed Technical Documents N°14 (GCP/INT/028/SPA – GCP/INT/006/EC)

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ASSESSMENTS ON THE CURRENT GFCM LIST OF SHARED STOCKS IN THE COPEMED SUB REGION, AND A PROPOSAL FOR A SUB REGIONAL UPDATED LIST.

Henri Farrugio

April 2010

The conclusions and recommendations given in this document and in other documents in the *Co-ordination to support fisheries management in the western and central Mediterranean,* CopeMed II Project series are those considered appropriated at the time of preparation. They may be modified in the light of further knowledge gained in subsequent stages of the Project. The designation employed and the presentation of material in this publication do not imply the expression of any opinion on the part of FAO, the Government of Spain or the Commission of the EU concerning the legal status of any country, territory, city or area, or concerning the determination of its frontiers or boundaries. This document has been financed by European Union and Spain. The views expressed herein can in no way be taken to reflect the official opinion of the European Union or Spain.

Preface

The Project *Co-ordination to support fisheries management in the Western and Central Mediterranean,* (CopeMed II) is executed by the Food and Agriculture Organization of the United Nations (FAO) and funded by The Kingdom of Spain, represented by Secretaria del Mar and the European Community, represented by the Commission of the European Communities, (EC).

The objective of the project aims at maintaining the sustainability of the marine fisheries in the Central and Western Mediterranean Sea and its ecosystem, taking into consideration environmental, biological, economical, social and institutional issues. In addition the project will continue reinforcing the collaboration between the participating countries of the sub-region by supporting their participation to the activities of the Scientific Advisory Committees (SAC) of the General Fisheries Commission for the Mediterranean (GFCM).

Regions covered by CopeMed II are the Western and Central sub-regions of the Mediterranean. Countries involves are Algeria, France, Italy, Libya, Malta, Morocco, Tunisia and Spain. The main beneficiaries are the fishery policy makers, managers and Fisheries administrations in the Western and Central Mediterranean countries. In addition the project is contributing to strengthen the regional collaboration by supporting the participation of the countries in regional scientific working groups, such as the FAO General Fisheries Commission for the Mediterranean (GFCM) and the International Commission for the Conservation of Atlantic Tunas (ICCAT). Secondary beneficiaries include the national research institutes, fishers' associations, industry organizations and fishers.

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CopeMed II (GCP/INT/028/SPA – GCP/INT/006/EC) and ArtFiMed (GCP/RAB/005/SPA) Publications

CopeMed II -ArtFiMed Project Publications are issues as series of Technical Documents related to meetings, missions and research organized or conducted within the framework of the two Projects.

Comments on this document would be welcomed and should be sent to the Project headquarters:

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BAKGROUND

The CopeMed II Project document establishes that "*CopeMed phase two will support the establishment and implementation of scientifically based up-dated management plans for relevant specific fisheries both in each specific countries and at sub-regional level. This will be pursued through coordinated scientific investigations and data gathering as well as joint multidisciplinary analysis*".

According to the Terms of Reference (Annex 1), the present document has been prepared by the consultant in coordination with the project coordinator, to be used as background document for the meeting on "Definition of priority topics related to shared resources (demersal and small pelagic) in the CopeMed II subregion" to be held in Málaga, Spain, 27-28 April 2010.

The medium term aim of this meeting is the strengthening of the regional scientific cooperation through the organization of a subregional CopeMed II Demersal Working Group (DWG) and a Small Pelagic Working Group (SPWG) of experts on the identification and definition of the CopeMed II subregión shared stocks.

1. INTRODUCTION

The GFCM Scientific Advisory Committee Mandates specifies "the Committee may establish working groups to analyze data and to advise the Committee on the state of shared and straddling resources ". According to the GFCM/SAC Glossary the "shared stocks" are the *"Stocks fished by two or more countries"*.

A preliminary list of shared stocks was established during the 2001 session of the GFCM; during the 31st Session of the GFCM (Rome, January 2006), the SAC invited the Commission to adopt as Resolution a list of priority species and a list of shared stocks as updated by the Sub Committee on Stock Assessment. The resolution was not approved until the criteria for the definition of priority species and shared stocks were identified.

However a list of priority species (Annex 2) and a list of shared stocks (Annex 3) are usually updated during each session of SAC, the last being that of October 2006. For the SAC 2007 Workplan the need to identify and harmonize the criteria for the identification of shared stocks was underlined and it was recommended " *to identify criteria to update the SAC priority species and shared stocks lists, for all GSAs, including for the Black Sea"*.

Under the coordination of the FAO Project AdriaMed a working group on shared demersal fisheries resources (Rome, March 2007) proposed a series of criteria for the definition of priority species and shared stocks, and prepared a document which was presented in Kavala (Greece) at the GFCM Sub Committee meeting on Stock Assessment (September 2007) and later at the 10th GFCM SAC in Cyprus[1]. During the meeting the SAC discussed the criteria to be used in the identification of shared

[1] (Ref : Ungaro, N., Joksimovic, A., Pesic, A., Djurovic, M., Kapidani, R., Milone, N.,Ceriola, L. and Massa, F. 2008. Identification of the priority species and shared stocks in the MediterraneanGeographical sub-area 18 (Southern Adriatic Sea). GCP/RER/010/ITA/OP-29. *AdriaMed Occasional Papers,* 29: 13)

stocks, as presented in the AdriaMed contribution and further agreed on four criteria to be taken into account. These criteria which where endorsed by the GFCM SAC (FAO GFCM, 2008) to be verified to define a stock as shared are the following:

- Population: identified by genetic and/or morphometric methods;
- Exploitation: the population should be currently exploited;
- Fleet: the fleets of different GFCM countries are currently exploiting the population;
- GSA: the fishing activities are carried out and catches produced in one or more GSA(s).

Accordingly the Committee recommended to update the list of priorities species by GSAs and the list of shared stocks on the basis of the criteria agreed by the SAC and with the contribution of the regional projects.

2. THE SHARED STOCKS IN THE CopeMed II SUB REGION

The CopeMed II sub region corresponds to the western basin of the Mediterranean, including the GFCM Geographical Sub Areas (GSA's) 1 to 19 and 21 (Fig 1). During the last decade stock assessments have been done in several GSA's of the CopeMed II sub region regarding several of the demersal and small pelagic species listed in the GFCM list of priority species, some of them being considered as shared ones. These studies have been realized in the frame of the activities of the GFCM Sub Committee on Stock Assessment (SCSA) working groups and of the Sub-Regional FAO projects CopeMed I and MEDSUDMED. The detailed information on these analyses can be found in the SCSA working groups and sub committee reports and in the related assessment forms available on the GFCM website.

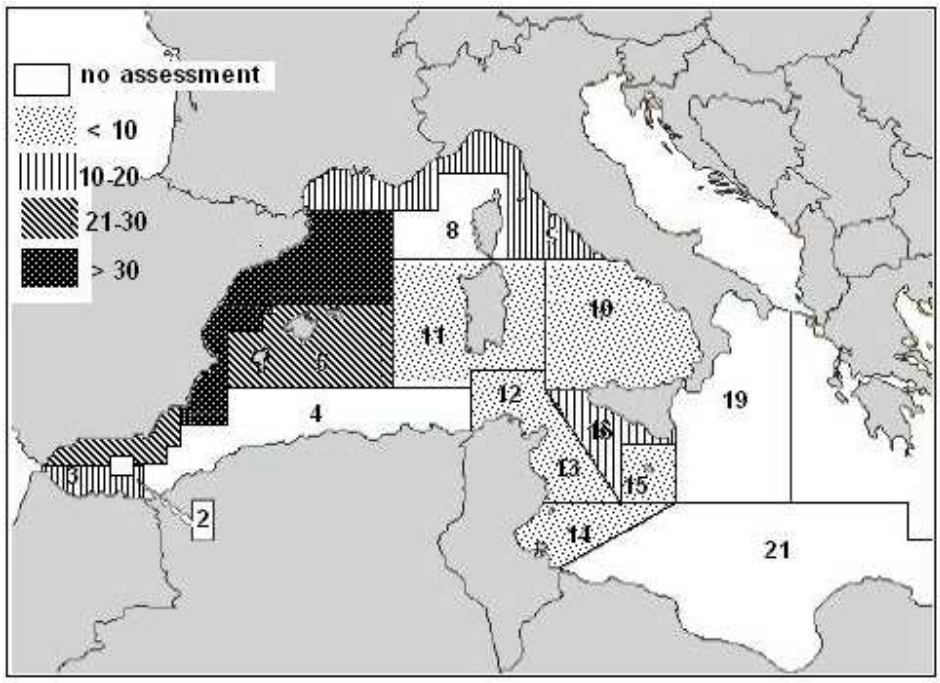


Figure 1: Map of the 18 GSA's included in the CopeMed II sub region, with the total number of assessments performed in each GSA during the last decade (1990-2009??)

Apart from 6 species of sharks, tunas and swordfish, which are highly migratory species, exploited by all the bordering countries of the Mediterranean, 10 species of the general list (Annex 2) are currently considered as shared between at least 2 countries belonging to the CopeMed II sub region. They are presented in the Table 1 below

English common name	Scientific name	Area	Exploiting Countries
Dolphin fish	*Coryphaena hippurus*	Western Mediterranean	Italy Malta Spain and Tunisia
Anchovy	*Engraulis encrasicolus*	Gulf of Lions	France and Spain
Hake	*Merluccius merluccius*	Gulf of Lions	France and Spain
Hake	*Merluccius merluccius*	North Tyrrhenian and Corsica	Italy and France
Hake	*Merluccius merluccius*	Sicily Channel	Italy Tunisia Libya and Malta
Blue whiting	*Micromesistius poutassou*	North Tyrrhenian and Corsica	Italy and France
Red mullet	*Mullus barbatus*	Western Mediterranean	Corsica and Sardinia
Striped red mullet	*Mullus surmuletus*	Western Mediterranean	Corsica and Sardinia
Black spot seabream	*Pagellus bogaraveo*	Alboran Sea and the Straits of Gibraltar	Spain and Morocco
Norway lobster	*Nephrops norvegicus*	North Tyrrhenian and Corsica	Italy and France
Common spiny lobster	*Palinurus elephas*	Western Mediterranean	Corsica and Sardinia
Common spiny lobster	*Palinurus elephas*	Sicily channel	Tunisia and Italy
Pink spiny lobster	*Palinurus. Mauritanicus*	Sicily channel	Tunisia and Italy
Porbeagle	*Lamna nassus*	All Mediterranean	All countries
Shortfin mako	*Isurus oxyrhinchus*	All Mediterranean	All countries
Blue shark	*Prionace glauca*	All Mediterranean	All countries
Albacore	*Thunnus alalunga*	All Mediterranean	All countries
Bluefin tuna	*Thunnus thynnus*	All Mediterranean	All countries
Swordfish	*Xiphias gladius*	All Mediterranean	All countries

Table 1: the 16 species exploited by at least 2 countries of the CopeMed II sub region, existing in the general GFCM current list of shared stocks.

3. SINTESIS OF THE RECENT KNOWLEDGE ON THE STATUS OF THE SHARED STOCKS

During the last five years period (2005-2009) 17 different species have been assessed in 13 GSA's belonging to the CopeMed II sub region**.** The detailed characteristics and sources of management

advice regarding these stocks are presented in the Annex 3.

It has to be noted that the coverage of the area is not homogeneous: as shown in Tables 2 and Fig 2 and 3, some species have been assessed only one time in only one GSA, while the assessments of other species have been regularly updated in several GSA's.

Table 2 shows that 14 assessments have been done on 4 "official" shared stocks in 4 GSA's. Most of these assessments have been done on Hake (8/14 = 57%), and Anchovy (4/14 = 28%). Their global ratio is low (14/93 = 15,1 %) when compared to the overall number of assessments achieved during the period (93 assessments on 16 stocks in 15 GSA's).

	GSA N°	*Merluccius merluccius*	*Sardina pilchardus*	*Engraulis encrasicolus*	*Mullus barbatus*	*Mullus surmuletus*	*Aristeus antennatus*	*Parapeneus longirostris*	*Nephrops norvegicus*	*Lophius budegassa*	*Aristeomorpha foliacea*	*Dentex dentex*	*Pagellus bogaraveo*	*Corallium rubrum*	*Boop boops*	*Raja clavata*	*Raja asterias*	N° assessments / GSA
Northern Alboran Sea	**1**		**5**	**4**														**9**
Southern Alboran Sea	**3**	**1**	**1**		**1**								**1**		**1**			**5**
Algeria	**4**		**1**															**1**
Balearic Islands	**5**	**4**			**2**	**3**	**4**		**2**									**15**
Northern Spain	**6**	**5**	**4**	**3**	**3**		**3**	**3**		**1**				**1**				**23**
Gulf of Lions	**7**	**4**	**4**	**4**	**1**													**13**
Ligurian & North Thyrrenian Sea	**9**	**3**			**1**			**1**	**1**	1						1	1	**9**
South & Central Thyrrenian Sea	**10**	**1**																**1**
Northern Tunisia	**12**					**1**						**1**						**2**
Gulf of Hammamet	**13**					**1**						**1**						**2**
Gulf of Gabes	**14**					**1**												**1**
Malta	**15**	**1**			**1**	**1**					**1**							**4**
South of Sicily	**16**	**1**	**3**	**2**				**1**			**1**							**8**
Nb of assessments / species		**20**	**18**	**13**	**9**	**7**	**7**	**5**	**3**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**93**
nb of GSA's / species		**8**	**6**	**4**	**6**	**5**	**2**	**3**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	

Table 2: Total number of assessments by GSA during the period 2005-2009 in the CopeMed II subregion: the grey color indicate the species which are "officially" considered as shared in the current GFCM list of shared stocks, and the corresponding GSA's.

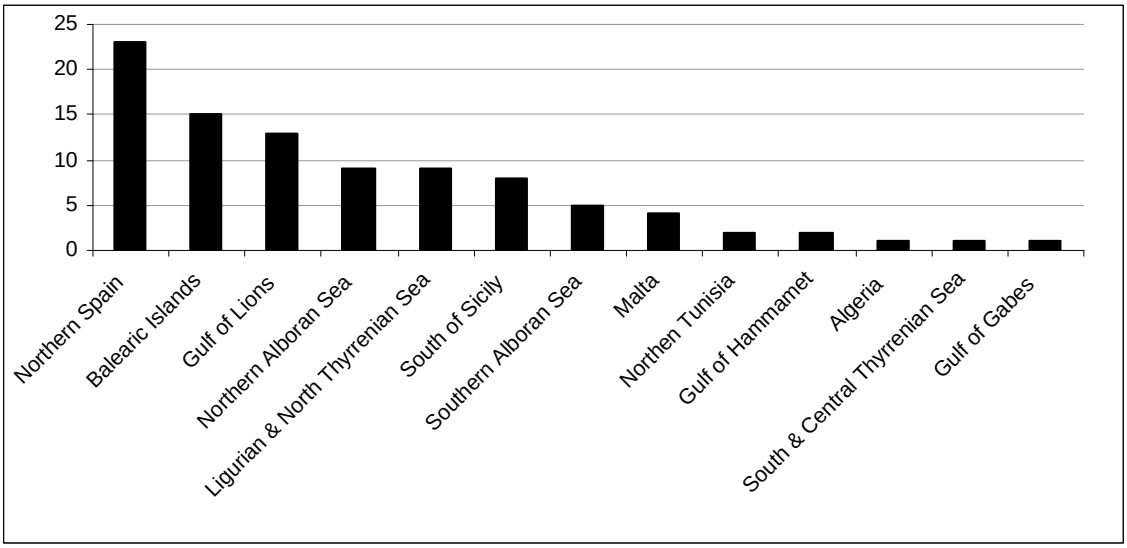


Fig 2: Total number of assessments by GSA during the period 2005-2009 in the CopeMed II subregion

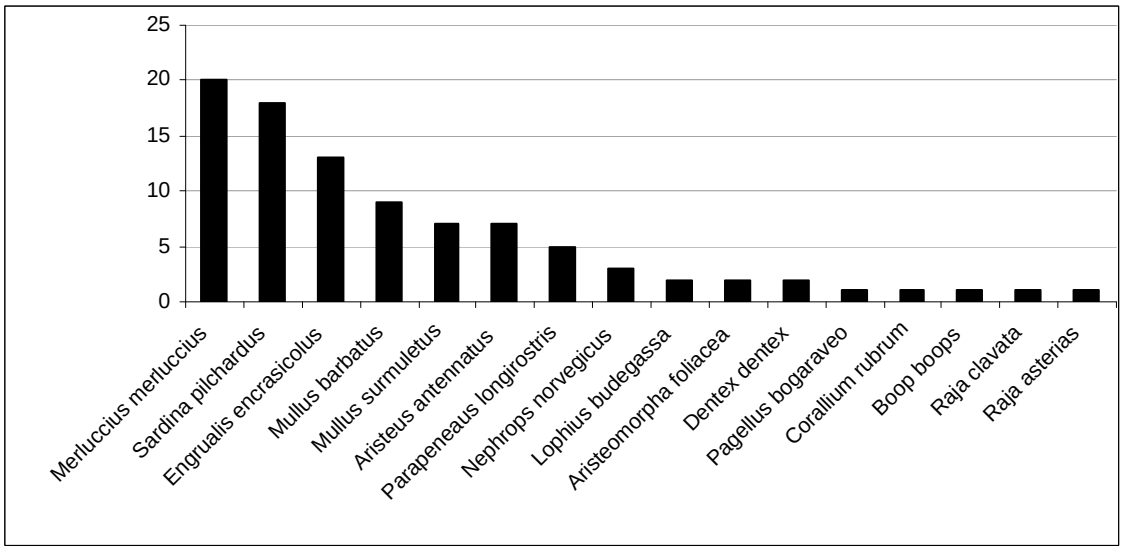


Fig 3: number of assessments by species during the period 2005-2009 in the CopeMed II subregion

4. STATUS OF RESOURCES, MANAGEMENT RECOMMENDATIONS AND COMMENTS

In 2009 ten assessments have been done on seven stocks of three demersal fishes (Hake, Striped mullet and Blackspot sea bream), one stock of Norway lobster and three Anchovy stocks exploited in the CopeMed II subregion. These assessments have been realized partly during the demersals and small pelagics working groups of the GFCM-SAC Sub-Committee on Stock Assessment (SCSA, Ancona, Italy, October 2009) while others have been elaborated independently by groups of national scientists.

In accordance with the rules of procedure of the GFCM-SAC, the results of all of these analyzes and the corresponding proposals of management recommendations have been examined and discussed during the annual meeting of the SCSA (Malaga, Spain, November 2009…). Furthermore, during the SAC plenary meeting (Budva Montenegro, January 2010) the GFCM members national delegations adopted the definitive diagnoses on the stocks status and of the management advices, associated with comments from the SAC.

A summary of these elements is presented in Table 3; they will be submitted to the Commission for consideration during its next plenary meeting to be held in Athens in April 2010.

Table 3

Species	GSA	Stock status	Management advice	Comments
ANCHOVY ***(Engraulis encrasicolus)***	**GSA 06** Northern Spain	Low levels of biomass. However 2006 estimation is twice that of 2005	Do not to increase the current level of fishing effort Maintain the current closed areas and seasons established for the small pelagic fisheries.Adjust minimum legal size (9cm) to first maturity size (11cm).	Monitoring of the stock should be continued.
	GSA 07 Gulf of Lions	Moderate fishing with Intermediate abundance.	Do not allow any increase in fishing effort. Use of adequate BRP to identify the current exploitation state of this stock.	As GSA07 is close to GSA06, common survey between Spain and France could be done with the aim of assessing anchovy spawning stock in June-July and recruitment in November-January in an area delimited by the south of Ebro and the Gulf of Lions.
	GSA 06 + GSA 07 NorthWestern Mediterr.		The anchovy stock in the North Western Mediterranean might be in a critical situation, especially in the southern area (GSA 6-Northern Spain	
HAKE (*Merluccius merluccius*)	**GSA 07** Gulf of Lions	Overexploited	Reduction of 20 % of the fishing mortality enforce at least the 40 mm square mesh cod-end;Closing nursery areas, at least temporally ;protecting spawning by closing areas at least temporally during the period of maximum spawning (winter and spring).	Reduction of F could be achieved by by reducing time at sea, number of fishing boats, engine power, Bollard pull and/or trawl size…); Provide the location of both the nursery and the spawning grounds
	GSA 09 Ligurian & North Thyrrenian Sea	Over-exploited. High fishing mortality; Low abundance	Reduction of fishing mortality by 40% in the long term.	
	GSA's 15 & 16 Malta & South of Sicily	Over-exploited	Reduction of the fishing mortality at least 40%	
	GSA 07 Gulf of Lions	Overexploited	Reduce the fishing mortality.	
STRIPED MULLET (*Mullus surmuletus*)	**GSA 05 Balearic Islands**	Fully exploited	Do not increase the fishing effort	
BLACKSPOT SEA BEAM *(Pagellus bogaraveo)*	**GSA 03** Southern Alboran Sea	Moderately exploited	Maintain fishing mortality at the current level	Due to the depletion status of the species in front of Spanish coasts and considering the uncertainty on stock unit of the species in the Alboran Sea, a joint stock assessment with GSAs 01 and 03 is recommended.

NORWAY LOBSTER (*Nephrops norvegicus*)	**GSA 09** Ligurian & North Thyrrenian Sea	Overexploited. At the current level of fishing pressure, a danger of stock collapse is not likely.	The potential size of first capture of the trawl net is too small, even though the young individuals are less vulnerable, because they remain more time than adults inside the burrows.	Fishing mortality values very fluctuating during the period 2006-2008 and Biomass has shown a clear increasing trend in almost all the sub-areas of the GSA that is not possible to explain by changes in fishing pressure

5. PROPOSAL OF NEW SHARED STOCKS

Apart from some rare exception, due to the highly multispecific characteristics of the Mediterranean fish populations it cannot be said that a fishery of the region can be considered as targeting only one single species. So it is evidence that the current list of shared specific stocks should be completed with some other species. To select the most important ones three main sources of information can be used: i) the species **accompagnying** the targeted resources, ii) the landing statistics and iii) The opinions of the scientific national experts.

5.1. species accompagnying the targeted resources

The GFCM / SCSA assessment forms include lists of **accompagnying** species that can be considered as important in the landings of the main shared species that have been assessed up to now in the CopeMed II sub region. For the 2005-2009 period, the available information on this topic is the following:

GSA 01 Hake accompagnying species: *Helicolenus dactylopterus, Lepidorhombus spp., Lophius spp., Micromesistius poutassou, Mullus barbatus, Mullus surmuletus, Octopus vulgaris, Pagellus bogaraveo, Phycis blennoides, Parapenaeus longirostris, Scyliorhinus canicula, Trisopterus minutus capelanus*

GSA 03 Hake accompagnying species: *Deep water pink shrimp , Pagellus acarne, Mullus spp, , Boops boops, Gadus poutassou, Octopus vulgari,s Sepia spp.*

GSA 06 Hake accompagnying species: *Galeus melastomus, Helicolenus dactylopterus, Lophius spp., Micromesistius poutassou, Mullus barbatus, ,Mullus surmuletus, Nephrops norvegicus, Pagellus bogaraveo, Phycis blennoides, Parapenaeus longirostris, Scyliorhinus canicula, Trisopterus minutus capelanus, Conger conger, Nephrops norvegicus, Liocarcinus depurator, Eledone cirrhosa, Octopus vulgaris*

GSA 07 Hake accompagnying species: *Sardina pilchardus, Engraulis ncrasicolus, Scomber scombrus, Trachurus trachurus), European conger (Conger conger), Fourspotted megrim (Lepidorhombus boscii), Soles (Solea spp., Mullus barbatus, Mullus surmuletus, Lophius piscatorius Lophius budegassa, Sparus aurata, Dicentrarchus labrax, Pagellus spp.. Micromesistius poutassou, Trisopterus minutus capelanus, Chelidonichtys lucerna, Trigla gurnardus), Eledone cirrhosa*

GSA 07 Anchovy accompagnying species : *Sardina pilchardus, scomber scomber*

GSA 01 Red mullet accompagnying species: *Mullus surmuletus, Pagellus acarne, Pagellus erythrinus, Merluccius merluccius, Trisopterus minutus capelanus, Trachurus trachurus, Trachurus mediterraneus,Engraulis encrasicholus, Scyliorhinus canicula, Eledone cirrhosa, Octopus vulgaris, Sepia officinalis ,Loligo vulgaris*

GSA 05 Red mullet accompagnying species: *Spicara smaris, Mullus surmuletus, Merluccius merluccius, Pagellus acarne, Pagellus erythrinus, Trachurus mediterraneus, Scyliorhinus canicula, Trachinus draco, Scorpaena notata, Trigloporus lastoviza, Scorpaena scrofa, Octopus vulgaris*

GSA 06 Red mullet accompagnying species: *Mullus surmuletus, Pagellus acarne, Pagellus erythrinus, Merluccius merluccius, Trisopterus minutus capelanus, Trachurus trachurus ,Trachurus mediterraneus, Engraulis encrasicholus, Scyliorhinus canicula Eledone cirrhosa, Octopus vulgaris, Sepia officinalis, Loligo vulgaris*

GSA 09 Red mullet accompagnying species: *Raja asterias, Arnoglossus spp ,Conger conger, Merluccius merluccius, Gobius niger, Citharus linguatula, Trigla lucerna, Solea vulgaris, Eledone spp., Sepia officinalis, Loligo vulgaris, Allateuthis spp., Squilla mantis, Penaeus kerathurus, Trisopterus minutus capelanus, Trachurus mediterraneus, Octopus vulgaris*

GSA 09 Norway lobster: accompagnying species: *Micromesistius poutassou, Parapenaus longirostris, Merluccius merluccius, Phycis blennoides, Todarospsis eblanei, Illex coindetti, Lepidopus caudatus, Eledone cirrhosa*

5.2. Landing statistics

The FAO –FISHSTAT statistical database gives informations on the specific yearly landings reported by the GFCM member countries. These data demonstrate that the one of the main characteristics of the Mediterranean fisheries is that they are highly multispecific and the landing statistics of several countries are composed of more than 100 different species. However not all of them can be considered as "target species".Iin fact when classified by decreasing weights the average specific productions of the last decade by country and FAO statistical division (see Annex 5), it appears (Table 5) that despite the mixed nature of the exploited stocks the 15 most important species landed in each area represent between 80 to 98% of the corresponding total landings. Looking in details at these "top species" lists it can be observed that 2 or 4 neighbouring countries belonging to the CopeMed II sub region are exploiting a group of 12 species (Table 6) that can be considered as possibly coming from shared stocks.

Country	Division name	Division code	Ratio
Algeria	Balearic	37.1.1	**98%**
Spain	Balearic	37.1.1	**82%**
Spain	Gulf of Lions	37.1.2	**87%**
France	Gulf of Lions	37.1.3	**90%**
France	Sardinia	37.1.3	**95%**
Italy	Ionian	37.2.2	**82%**
Italy	Sardinia	37.1.3	**83%**
Morocco	Balearic	37.1.1	**98%**
Tunisia	Ionian	37.2.2	**81%**
Tunisia	Sardinia	37.1.3	**80%**

Tab 5. Ratios of the 15 top species landed by FAO statistical division, from FISHSTAT

Common name	Scientific name	Sharing countries
Hake	*Merluccius merluccius*	SP(BAL) , MO , AL , TUN
Sardine	*Sardina pilchardus*	SP(BAL) , MO , AL , TUN

Mullets	*Mullus spp*	SP(BAL) , MO , AL , TUN
Cuttlefish	*Sepia officinalis*	SP(BAL) , MO , AL , TUN
Sardinellas	*Sardinella aurita*	SP(BAL) , MO , AL , TUN
Anchovy	*Engraulis encrasicholus*	SP(BAL), MAO, AL
Mackerel	*Scomber scombrus*	AL , TUN
Pandora	*Pagellus erythrinus*	AL , TUN
Mackerel	*Scomber scombrus*	TUN(ION), IT(ION)
Mullets	*Mullus spp*	TUN(ION), IT(ION)
Sardine	*Sardina pilchardus*	TUN(ION), IT(ION)
Cuttlefish	*Sepia officinalis*	TUN(ION), IT(ION)
Anchovy	*Engraulis encrasicholus*	SP(GL) , FR(GL)
Monkfishes	*Lophius spp*	SP(GL) , FR(GL)
poor cod	*Trisopterus minutus*	SP(GL) , FR(GL)
Mackerel	*Scomber scombrus*	SP(GL) , FR(GL)
Hake	*Merluccius merluccius*	SP(GL) , FR(GL)
Octopus	*Octopus spp*	SP(GL) , FR(GL)
Mullets	*Mullus spp*	SP(GL) , FR(GL)
Sardine	*Sardina pilchardus*	SP(GL) , FR(GL)
Anchovy	*Engraulis encrasicholus*	FR(SARD) , IT(SARD)
Sea bass	*Dicentrarchus labrax*	FR(SARD) , IT(SARD)
Hake	*Merluccius merluccius*	FR(SARD) , IT(SARD)
Mullets	*Mullus spp*	FR(SARD) , IT(SARD)
Sardine	*Sardina pilchardus*	FR(SARD) , IT(SARD)

Tab. 6. Common landed species by FAO statistical division and country, extracted from the 15 top species landed by each country, which can be considered as coming from shared stocks.
Countries : AL = Algeria, FR = France, IT = Italy, MO = Morocco, TUN = Tunisia, SP = Spain
Statistical divisions : BAL = Balearic (37.1.1), GL = Gulf of Lions (37.1.2), ION = Ionian (37.2.2), SARD = Sardinia (37.1.3)

5.3. Scientific national opinion

Apart the two previous sources of information, some proposals for adding to the GFCM list of shared stocks some species of fishes and crustaceans considered as economically important in several GSA's can be done according to the knowledge of several fisheries scientists working in the CopeMed II sub region, whose opinions have been asked in the frame of the preparation of the present document.

Finally, a preliminary revision of the 3 available sources of information presented above allow us to

build the Table 7, which can be used as a starting point for the discussion on the shared stocks list updating during the *ad hoc* CopeMed II working group (Malaga, April 2010)

	English name	Scientific name	Area (and GSAs)	Countries
	Dolphin fish	*Coryphaena hippurus*	Western Mediterranean	Italy Malta Spain and Tunisia
	Anchovy	*Engraulis encrasicolus*	Gulf of Lions (GSA7, GSA 9)	France and Spain
*	**Anchovy**	***Engraulis encrasicolus***	**Alboran sea (GSA2,3,4)**	**Morocco & Algeria (Spain?)**
*	**Sardine**	***sardina pilchardus***	**Alboran sea (GSA2, 3, GSA 4)**	**Morocco & Algeria (Spain?)**
	Hake	*Merluccius merluccius*	Gulf of Lions (GSA7, GSA 9)	France and Spain
	Hake	*Merluccius merluccius*	North Tyrrhenian and Corsica (GSA8+9)	Italy and France
	Hake	*Merluccius merluccius*	Sicily Channel (GSA12,13,14,15,16,21)	Italy Tunisia Libya and Malta
*	**Hake**	***Merluccius merluccius***	**Alboran sea (GSA~~2~~3 , GSA 4)**	**Morocco & Algeria**
	Blue whiting	*Micromesistius poutassou*	North Tyrrhenian and Corsica (GSA8+9)	Italy and France
*	**Blue whiting**	***Micromesistius poutassou***	**Alboran sea (GSA~~2~~3 , GSA 4)**	**Morocco & Algeria**
	Red mullet	*Mullus barbatus*	Corsica and Sardinia (GSA8 , GSA11)	Italy and France
*	**Red mullet**	***Mullus barbatus***	**Alboran sea (GSA~~2~~3 , GSA 4 + GSA 1?)**	**Morocco & Algeria and (? Spain)**
	Striped red mullet	*Mullus surmuletus*	Corsica and Sardinia (GSA8 , GSA11)	Italy and France
*	**Striped red mullet**	***Mullus surmuletus***	**Alboran sea (GSA~~2~~3 , GSA 4)**	**Morocco & Algeria**
	Black spot seabream	*Pagellus bogaraveo*	Alboran Sea & Straits of Gibraltar (GSA1+2)	Spain and Morocco
*	**Black spot seabream**	***Pagellus bogaraveo***	**Alboran sea (GSA~~2~~3 , GSA 4 + GSA 1?)**	**Morocco & Algeria and (? Spain)**
*	**Red mullet**	***Mullus barbatus***	**Sicily Channel (GSA12 , 13 ,15, 16)**	**Italy Malta and Tunisia**
*	**Great amberjack**	***Seriola dumerili***	**Western Mediterranean**	**Italy Malta Spain and Tunisia**
*	**Axillary Seabream**	***Pagellus acarne***	**Alboran sea (GSA~~2~~3 , GSA 4)**	**Morocco & Algeria**
*	**Horse mackerel**	***Trachurus trachurus***	**Alboran sea (GSA~~2~~3 , GSA 4)**	**Morocco & Algeria**
*	**Bogue**	***Boops boops***	**Alboran sea (GSA~~2~~3 , GSA 4)**	**Morocco & Algeria**
*	**Pink shrimp**	***Parapenaeus longirostris***	**Sicily Channel (GSA12 , 13 ,15, 16)**	**Italy Malta and Tunisia**
*	**pink shrimp**	***Parapenaeus longirostris***	**Alboran sea (GSA~~2~~3 , GSA 4 + GSA 1?)**	**Morocco & Algeria and (? Spain)**
*	**Red shrimp**	***Aristeomorpha foliacea***	**Sicily Channel (GSA12 ,13 , 16)**	**Italy and Tunisia**
*	**Common octopus**	***Octopus vulgaris***	**Sicily Channel (GSA12,13,14,15,16,21)**	**Italy Malta Tunisia and libya ?**
	Norway lobster	*Nephrops norvegicus*	North Tyrrhenian and Corsica (GSA8+9)	Italy and France
	Common spiny lobster	*Palinurus elephas*	Corsica and Sardinia (GSA8 , GSA11)	Italy and France
*	**Common spiny lobster**	***Palinurus elephas***	**Alboran sea (GSA~~2~~3 , GSA 4)**	**Morocco & Algeria**
	Common spiny lobster	*Palinurus elephas*	Sicily Channel GSA12 , GSA13 ,GSA16	Tunisia and Italy
	Pink spiny lobster	*Palinurus. Mauritanicus*	Sicily Channel GSA12 , GSA13 ,GSA16	Tunisia and Italy
	Porbeagle	*Lamna nassus*	All Mediterranean	All countries
	Shortfin mako	*Isurus oxyrhinchus*	All Mediterranean	All countries
	Blue shark	*Prionace glauca*	All Mediterranean	All countries
	Albacore	*Thunnus alalunga*	All Mediterranean	All countries
	Bluefin tuna	*Thunnus thynnus*	All Mediterranean	All countries
	Swordfish	*Xiphias gladius*	All Mediterranean	All countries

* = new proposed shared stock

Table 7: ***a proposal for an updated new list of shared stocks in the CopeMed II sub region***

ANNEXES

Annex 1. Terms of Reference for Revision of the stocks susceptible to be considered shared stocks in the CopeMed subregion

Terms of Reference

The objective of the contract is to prepare a background document for the meeting on "Definition of priority topics related to shared resources (demersal and small pelagic) in the CopeMed II subregion" to be held in Málaga, Spain, 27-28 April 2010

In coordination with the Project Coordinator the consultant will prepare a document containing:

1. *A summary table of provisional shared stocks in the CopeMed subregion, based on the SAC provisional shared stocks list (Rome, 2006)* (Appendix H - Report of the ninth session of the Scientific Advisory Committee of the GFCM, Rome, Italy, 24-27 October 2006).
2. *Complementary to the previous shared stocks table a new list of target commercial species by fishery (demersal and small pelagic) in each GSA in the whole CopeMed subregion should be provided. It should be indicated the species of this list that are thought to constitute shared stock between two or more countries, considering the available information and knowledge on how these resources are shared between countries and/or national fishing fleets.*
3. *Prepare summarised information referred to the stocks assessment presented by national scientist (single or joint assessments) to the SAC or its subsidiary Working Groups during the last years, by GSA. This information should be tabuled including the stocks status and SAC recommendations. Additionally the SCSA assessment forms for each assessed stocks should be annexed to the report.*

To carry out this activity the Consultant will review the existing information and the documents in the GFCM repertory (Working groups and SCs meeting reports) presented by CopeMed II countries' experts to the GFCM during the period 2005-2009 corresponding to the Geographical Sub Areas 1-21, excluding the 17, 18 and 20.

Annex 2. SAC priority species list (Rome, 2006)

Danube sturgeon(=Osetr) *Acipenser gueldenstaedtii*
Starry sturgeon *Acipenser stellatus*
Sturgeon *Acipenser sturio*
European eel *Anguilla anguilla*
Giant red shrimp *Aristaeomorpha foliacea*
Blue and red shrimp *Aristeus antennatus*
Bogue *Boops boops*
Common dolphinfish *Coryphaena hippurus*
Horned octopus *Eledone cirrosa*
Musky octopus *Eledone moschata*
Anchovy *Engraulis encrasicolus*
Beluga *Huso huso*
Shortfin mako *Isurus oxyrhinchus*
Porbeagle *Lamna nasus*
European squid *Loligo vulgaris*
Blackbellied angler *Lophius budegassa*
Monkfish or angler *Lophius piscatorius*
Whiting *Merlangius merlangus*
Hake *Merluccius merluccius*
Blue whiting *Micromesistius poutassou*
Red mullet *Mullus barbatus*
Striped red mullet *Mullus surmuletus*
Norway lobster *Nephrops norvegicus*
Black spot seabream *Pagellus bogaraveo*
Common pandora *Pagellus erythrinus*
Common spiny lobster *Palinurus elephas*
Pink spiny lobster *Palinurus mauritanicus*
Deepwater rose shrimp
Bluefish
Parapenaeus longirostris
Pomatomus saltatrix
Blue shark *Prionace glauca*
Turbot *Psetta maxima*
Sardine *Sardina pilchardus*
Round sardinella *Sardinella aurita*
Atlantic mackerel *Scomber scomber*
Common cuttlefish *Sepia officinalis*
Common sole *Solea vulgaris*
Sprat *Sprattus sprattus*
Albacore *Thunnus alalunga*
Bluefin tuna *Thunnus thynnus*
Mediterranean horse mackerel *Trachurus mediterraneus*
Atlantic horse mackerel *Trachurus trachurus*
Swordfish *Xiphias gladius*

Annex 3. SAC shared stocks list (Rome, 2006)

(In yellow the stocks corresponding to the CopeMed II subregion)

Dolphin fish *Coryphaena hippurus* Western Mediterranean. Italy, Malta, Spain and Tunisia
Horned octopus *Eledone cirrhosa* Adriatic Sea Albania, Croatia, Italy and Serbia-Montenegro2
Musky octopus *Eledone moschata* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Anchovy *Engraulis encrasicolus* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Anchovy *Engraulis encrasicolus* Aegean Sea Greece and Turkey
Anchovy *Engraulis encrasicolus* Gulf of Lions France and Spain
Shortfin mako *Isurus oxyrhinchus* All Mediterranean All countries
Porbeagle *Lamna nassus* All Mediterranean All countries
European squid *Loligo vulgaris* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Blackbellied angler *Lophius budegassa* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Monkfish or angler *Lophius piscatorius* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Hake *Merluccius merluccius* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Hake *Merluccius merluccius* Gulf of Lions France and Spain
Hake *Merluccius merluccius* North Tyrrhenian and Corsica Italy and France
Hake *Merluccius merluccius* Sicily Channel Italy, Tunisia, Libya and Malta
Blue whiting *Micromesistius poutassou* Adriatic Sea Albania, Croatia, Italy and Serbia-Montenegro
Blue whiting *Micromesistius poutassou* North Tyrrhenian and Corsica Italy and France
Red mullet *Mullus barbatus* Western Mediterranean Corsica and Sardinia
Red mullet *Mullus barbatus* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Striped red mullet *Mullus surmuletus* Western Mediterranean Corsica and Sardinia
Norway lobster *Nephrops norvegicus* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Norway lobster *Nephrops norvegicus* North Tyrrhenian and Corsica Italy and France
Black spot seabream *Pagellus bogaraveo* Alboran Sea and the Straits of Gibraltar Spain and Morocco
Common pandora *Pagellus erythrinus* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Common spiny lobster *Palinurus elephas* Western Mediterranean Corsica and Sardinia
Common spiny lobster *Palinurus elephas* Sicily channel Tunisia and Italy
Pink spiny lobster *Palinurus. mauritanicus* Sicily channel Tunisia and Italy
Deepwater rose shrimp *Parapenaeus longirostris* Adriatic Sea Albania, Croatia, Italy and Serbia-Montenegro
Blue shark *Prionace glauca* All Mediterranean All countries
Sardine *Sardina pilchardus* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Sardine *Sardina pilchardus* Aegean Sea Greece and Turkey

Atlantic mackerel *Scomber scomber* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Common cuttlefish *Sepia officinalis* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Common sole *Solea vulgaris* Adriatic Sea Albania, Croatia, Italy, Slovenia and Serbia-Montenegro
Sprat *Sprattus sprattus* Adriatic Sea Croatia, Italy, Slovenia
Albacore *Thunnus alalunga* All Mediterranean All countries
Bluefin tuna *Thunnus thynnus* All Mediterranean All countries
Swordfish *Xiphias gladius* All Mediterranean All countries

Annex 4. Characteristics and sources of management advice of the shared stocks assessed in the CopeMed II sub region during the period 2005-2009.

ANCHOVY (Engraulis encrasicolus)

GSA 01, Northern Alboran Sea

The current fleet in GSA 01 is composed by 135 units, characterised by small vessels. 24% of them are smaller than 12 m, 76% between 12 and 24 m and no one bigger than 24 m. The purse seine fleet has been continuously decreasing in the last two decades, from more than 230 vessels in 1980 to 135 in 2006. A strong reduction of larger vessels occurred from 1985 onwards, possibly linked to a decreasing in anchovy catches in Northern Morocco, where a part of that fleet fished under agreement between the countries. Nowadays, only a few vessels with a high GRT are working in GSA 06 and Gulf of Lions.

Sardine *(Sardina pilchardus)* and anchovy (*Engraulis encrasicolus*) are the main target species of the purse seine fleet in Northern Alboran , but other species with lower economical importance are also captured, sometimes representing a high percentage of the capture: horse mackerel (*Trachurus spp.*), mackerel (*Scomber spp.*), frigate mackerel (*Auxis rochei*), Atlantic saury (*Scomberesox saurus)* and gilt sardine *(Sardinella aurita).*Anchovy is the species with the highest economical value. The annual landings of anchovy for the last two decades ranged between 200 and 3000 tons. During the period from 1990-2006, the catches of anchovy stock in the Alborán Sea showed marked fluctuations. A successful recruitment, estimated by echo-acoustic tracking, was observed during 2001 in the Alborán Sea producing a strong increment of landings in 2002. Nevertheless, the catch dropped in 2003, continuing at low level to 2008. This decline is consistent with the echo-acoustic evaluation. Málaga Bay is the most important recruitment and fishery area. This area represents 85% of the total landings.

Up to now, only this area has been considered in the assessments

Source of management advice: Acoustic surveys, commercial landings and CPUEs.

Fishery assessment by VPA methods

GSA 06, Northern Spain

The purse seine fleet operating in GSA 06 Northern Spain is composed by 139 units: 4% are smaller than 12 m in length, 90% between 12 and 24 m and 6% bigger than 24 m. The fleet continuously decreased from more than 222 vessels in 1995 to 139 in 2006. This stronger reduction (63%) is possibly related to a decreasing in anchovy catches. The annual landings of anchovy in the Northern Spain for the last two decades ranged between 3000 and 23000 tons. The minimum values were recorded during 2006

They are two recruitment areas: one located between Barcelona and the south of the Ebro River Delta (the most important) and an other in Rosas Bay. For the Tramontana region (C. Creus-C. La Nao) the estimated total biomass for the whole area in 2006 (12000 tons) was twofold times high than 2005, but the half of 2001. There is not defined trend in calculated biomass since 1996. the recruitment was very low from 1996 to 2000; the population appeared to recover in 2001and 2003, decline for the two years and recovered in 2006. The distribution area for anchovy in 2006 year is reduced 27%. Most of resources are concentrated along Ebro River Delta where the distribution percentage of the species has increased from 2003 to 2006. This reduction in distribution areas of the species and the highest concentration in certain areas lead a stock contraction. There is a general negative trend from the beginning of the time series. Cpue in 2006 is the lowest of the historical series. For the Levantine Region (C. La Nao-C. Palos) the estimated biomass for 2006 was very low, the lowest of whole historical series and the landings showed the strongest negative trend for all the Mediterranean regions.

It is important to note that for the last five years there was a gradual increase in the estimated biomass of other

small pelagic species (mainly the three species of horse mackerel and bogue and in 2006 the *Scomber scombrus*) which are either eggs and larves anchovy predators or resources competitors. As regards 2005 and 2006, the biomass of sardine and anchovy represented 42% of the total estimated biomass, in contrast to 63% and 83% in 2004 and 2003, respectively.
Source of management advice: Acoustic surveys, commercial landings and CPUEs.

GSA 07, Gulf of Lions

In the gulf of Lions, pelagic fisheries are targeted on sardine and anchovy. Fishing effort depends on market fluctuations. A mean of 50 trawler boats in the last years are targeting these pelagic species. There are also 14 purse seiners in the south of gulf of Lion that catch also these species. Some purse seine boats from Spain come in the area to fish mainly sardine.
The annual landings of anchovy in the last years are between 2000 and 7000 tons. The landings are regulated by the market prices. When market price is low, the trawl fleet directs its activities towards demersal resources. Fifty trawlers target their activity on anchovy. The anchovy biomass in GSA 07 seems to decline, averaging 37 000 t in the period from 2003 to 2005. Mackerel biomass (*Scomber scombrus*) is increasing since 2004 and could have an effect on anchovy stock as predator of this species.
Source of Management advice: The evaluation of the resource is carried out through yearly echo-acoustic surveys (PELMED Surveys) since 1993.

GSA 06 + GSA 07, North Western Mediterranean

The biomass of North Western Mediterranean anchovy stock was estimated during 2007 and 2008 spawning seasons by means of the Daily Egg Production Method (DEPM), covering the GFCM Geographical SubAreas 6 and 7. Values of anchovy stock spawning biomass (SSB) were 20850 and t in the Gulf of Lions (GSA7) and 3047 t in the Northern Spain area (GSA6). Results show an important decline of anchovy biomass since the last evaluation made with the same method in 1994, being a 70% decrease in the Northern Spain area and around 50% in the Gulf of Lions. These results together with the poor fisheries results for the previous years allow to consider that the anchovy stock in the North Western Mediterranean might be in a critical situation, especially in the southern area (GSA 6-Northern Spain.

GSA16, South of Sicily

In GSA 16, the Sciacca port is the most important base port for the landings of small pelagic fish species along the southern Sicilian coast, explaining for about 2/3 of total landings. Two operational units are presently active, purse seiners and pelagic pair trawlers.
Average anchovy landings over the period (1997-2008) were about 1,500 metric tons, with
large interannual fluctuations. Anchovy biomass, estimated by acoustic methods, ranged from a minimum of 3,1000 tons in 2008 to a maximum of 32,000 tons in 2005.
Source of Management advice: Acoustic data for fish biomass evaluations. Biomass evaluations from echo-surveys carried out from June 1998 to August 2008.

HAKE (Merluccius merluccius)
GSA 07, Gulf of Lions

Hake is one of the most important demersal target species of the commercial fisheries in the Gulf of Lions (GFCM-GSA07). In this area, hake is exploited by French trawl, French gillnet, Spanish trawl and Spanish long-line. Around 250 boats are involved in the fishery and, according to official statistics, total annual landings for the period 1998-2008 have oscillated around a mean value of 2155 tons (2470 tons in 2008). Most fleets and catches correspond to French trawl (49 and 70%, respectively). Trawl catches range between 3 and 92 cm total length (TL), with an average size of 17-23 cm TL, followed by French gillnet (~32 and 15% respectively, ranging 13-86 cm TL and average size 38-41 cm TL), Spanish trawl (~12 and 8%, respectively, ranging 5-87 cm TL, and average size 20-29 cm TL), and

Spanish long-line (~7 and 7%, respectively, ranging 23-96 cm TL and average size 46-62 cm TL).
Source of Management advice: The information used for the assessment covering the period 1998-2007 consisted in annual size composition and official landings. Two methodologies were applied : a) the Extended Survivor Analysis (XSA) method tuned by the CPUE of French and Spanish commercial fleets and French MEDITS trawl surveys indices and b) the VIT program, an LCA and Y/R analysis on a mean pseudo-cohort. Three different periods have been considered for the mean pseudo-cohort: one considering the entire data series (1998-2008), another for 1998-2003 and a third one for 2003-2008.

GSA 09, Ligurian & North Thyrrenian Sea

Hake is the demersal species providing the highest landings and incomes for the GSA 09. About 90% of landings of hake are due to a fleet of 361 bottom trawl vessels; the remaining fraction is provided by artisanal vessels using set nets, in particular gillnets. The main part of the trawl fleet is located in the ports of Viareggio, Livorno, Porto Santo Stefano, Fiumicino, Terracina and Gaeta. The majority of bottom trawlers of GSA 09 performs daily fishing trips; only some vessels can stay out for 2-3 days, especially in summer. The total fishing days carried out by all the GSA 09 trawlers varied from about 65,000 in 2004 to about 63,000 in 2006. Hake fishing grounds consist in soft bottoms of continental shelves and the upper part of continental slope. Fishing pressure shows some geographical differences inside the GSA 09 according to the fleets size and bottom characteristics. The artisanal fleets, according to the official data account for 1309 vessels; widespread in many harbours along the continental and insular coasts. Of these about 50 vessels, located in some harbours of the GSA 09 (e.g Marina di Campo, Ponza, Porto Santo Stefano) are working especially from winter to summer with gillnets targeting medium and large sized hakes (greater than 25 cm TL)
Source of Management advice: Assessments using several methods (Y/R analysis, age-structured production model, SURBA model, non equilibrium production model) were performed with both, size structure and catches of commercial data by fishing gear for year 2006 and a time series of data on catch rates and demographic structure derived from trawl surveys conducted between 1985 and 2006.
Reference points were used for defining the adequacy of the current situation (Fcurr) regarding yields and the possibility of stock self-renewal. All the approaches suggest the need of a drastic reduction of the fishing pressure on the species also considering the very early age of first capture.

GSA's 15 & 16, Malta & South of Sicily

Data derived both from indirect (fisheries monitoring) and direct (scientific surveys) sources have been used to assess the hake stocks with different approaches in the GSA 15 and 16. The use of different assessment approaches produced similar diagnosis in terms of exploitation state in long term. Nevertheless some differences are evident on the detected level of overexploitation. Considering the analytic assessments, the overfishing condition resulted more severe when uncertainty was added in long term production curves (Yield package) and fishing mortalities were estimated by trawl surveys data (Surba and B & H estimator). Conversely overexploitation seemed less high if commercial data and deterministic model (VIT package) were used. On the other hand overexploitation is more severe with Surplus production model out equilibrium hypothesis than using Surplus Production Composite approach.

RED MULLET (Mullus barbatus)

GSA 07, Gulf of Lions (not in the current GFCM list of shared stocks)

Red mullet is exploited in the Gulf of Lions both by the French and the Spanish Trawl. Around 135 boats are involved in the fishery and, according to official statistics, total annual landings for the period 2004-2008 have oscillated around a mean value of 200 tons. Most of the vessels and catches correspond to the French trawl (78 and 84% respectively). Catches oscillated between 111 and 216 tons for the French trawl and 16-43 tons for the Spanish trawl.

Source of Management advice: The assessment of this stock has been carried out by means of virtual population analysis (VPA) and yield-per-recruit (Y/R), on a mean pseudo-cohort for the period 2004-2008, considering French and Spanish trawl. The annual size composition of French and Spanish trawlers has been

used for the assessment of the stock.

GSA 15, Malta (not in the current GFCM list of shared stocks)

The fisheries resources in GSA 15 are shared by three main member countries, namely Malta, Italy and Cyprus. 21 Maltese trawlers operate within this GSA. Only 12 of them are allowed to fish inside the Maltese 25 nautical mile Fisheries Management Zone. Five of these target red mullet on the continental shelf throughout the year, while the rest target pink and red shrimps on the continental slope. Apart from the Maltese trawling fleet a number of Sicilian trawlers fish outside the 25 nautical mile zone targeting red mullet, red shrimp and pink shrimp. 3 Cypriot vessels also fish outside the 25 nautical mile zone which target exclusively red mullet on the continental shelf.

Source of Management advice: The stock of *Mullus barbatus* was assessed using data for the years 2005-2008 from trawlers operating within the area (from Malta, Cyprus and Italy). These data were used to estimate trends in total mortality over time using the approach of Beverton and Holt. Another approach using the SURvey Based Assessment (SURBA) VPA was also tested to estimate the trend in F, using data from the MEDITS Trawl survey on a time series covering 7 years from 2002-2008.

BLACKSPOT SEABREAM (*Pagellus bogaraveo*)
GSA 03, Southern Alboran Sea

This species is caught by the longliners fishery mainly based in Tangier where are based 85 % of the total longliners in the whole Mediterranean.

Source of Management advice: Length frequencies for the years 2005-2007 from longliners landing within the port of Tangier averaged to approximate equilibrium conditions for the pseudocohort analysis were used as the basis for this assessment. The length data were derived from biological sampling of *Pagellus bogaraveo* landed in port of Tangier, and the statistics data used are the official statistics of ONP and DPM. Growth parameters were based upon those of Krug (1989) from Spain. The model of stock assessment used is the standard VPA and the yield par recruits turn by the software VIT.

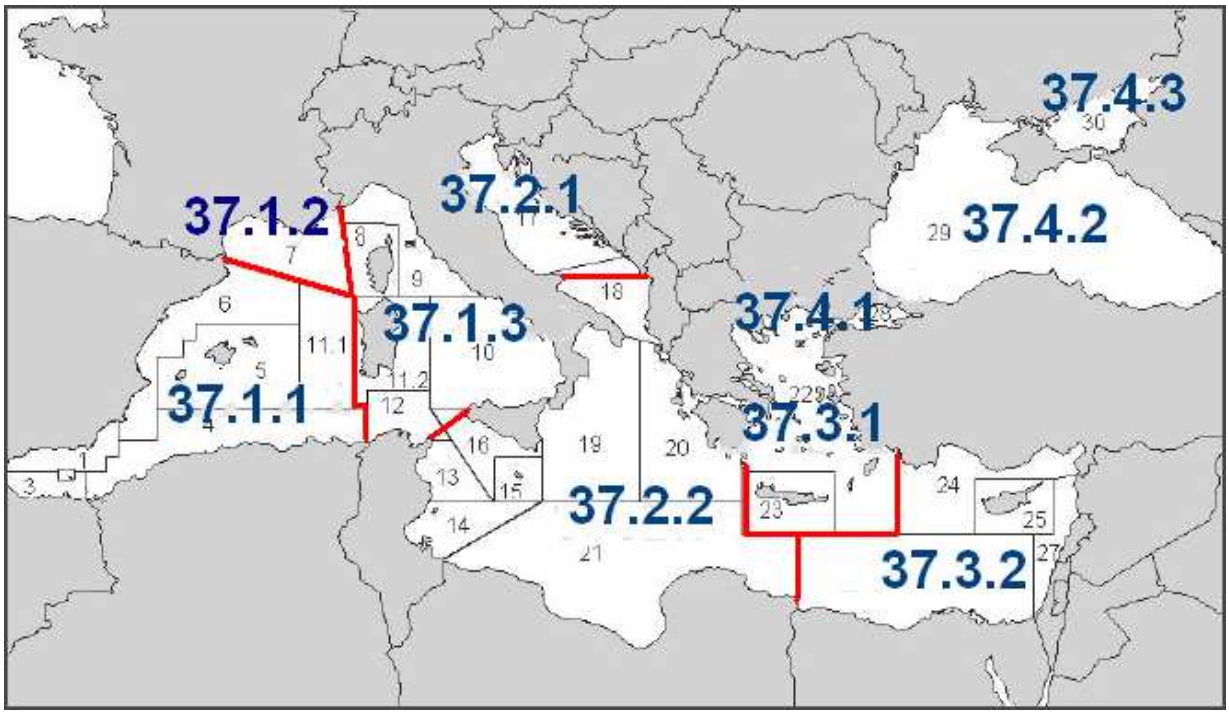
NORWAY LOBSTER (Nephrops norvegicus)
GSA 09, Ligurian & North Thyrrenian Sea

The Norway lobster is one of the most important commercial species in the GSA 09. Almost all the landings of the species are due to bottom trawl vessels exploiting slope muddy bottoms mainly between 300 and 500 m depth. Catch of vessels targeting Norway lobster is composed of a mix of both commercial (hake, deep-sea pink shrimp, horned octopus (*Eledone cirrhosa*), squids (*Todaropsis eblanae*)), and less valuable or non-commercial species (*Etmopterus spinax*, *Galeus melastomus*, *Macrouridae*).

The trawl fleet of GSA 09 mostly targeting Norway lobster is of about 60 trawlers. Mainly in the Northern portion of the area, the number of vessels increased since the end of the 90s following the increase in availability. The catch rates in the last years seem to be reduced and the fleet promptly reacted with a reduction of the number of vessels targeting the species. The catch is mainly composed by adult individuals over the size-at-maturity and discarding of small specimens is negligible. In the last five years the total landings of Norway lobster of GSA 09 fluctuated between 248 (2005) to 228 tons (2008).

Source of management advice: Estimation of mortality rates was performed using size structure of the stock derived from trawl surveys. The proxy of Fmsy F0.1 was estimated using yield-per-recruit analysis. The current fishing mortality rate was compared with the reference value F0.1 for assessing the current status of the stock. The species is considered overfished, with a current rate Fcurr/F0.1 of about 1.4. It is difficult to perform yield forecasting simulating changes in the exploitation rate of the stock due to the not well understood (but apparently important) influence in recruitment success and stock size of other causes than fishing pressure.

Annex 5. FAO statistical divisions



CopeMed II Workshop
Place: CopeMed offices, Subdelegación del Gobierno. Paseo de Sancha 64, Málaga (Spain)
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