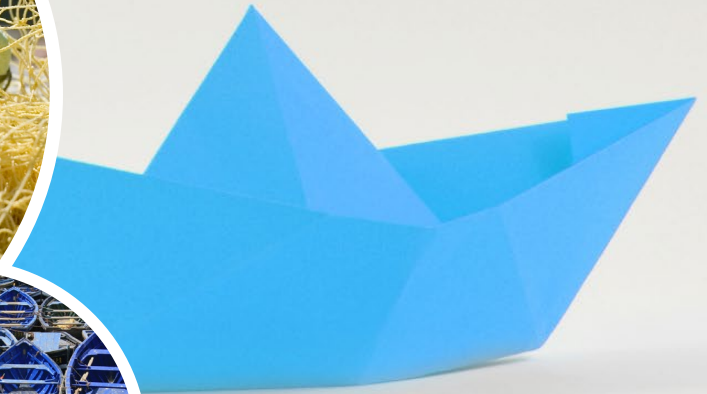




Food and Agriculture
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TECHNICAL
DOCUMENT

49



FAO CopeMed II

11th Coordination Committee Meeting

7-8 November 2018
Malaga, Spain

CopeMed II Technical Documents N°49
GCP/INT/028/SPA; GCP/INT/270/EC

**REPORT OF THE ELEVENTH MEETING OF THE
COPEMED II COORDINATION COMMITTEE**

Malaga, Spain 7–8 November 2018

November 2018

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 appropriate 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 Food and Agriculture Organization of the United Nations, FAO, the Government of Spain or the Commission of the European Union 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 the European Union and the Government of Spain. The views expressed herein can in no way be taken to reflect the official opinion of the European Union or the Government of Spain.

Preface

The CopeMed II Project on *Co-ordination to Support Fisheries Management in the Western and Central Mediterranean* is executed by the Food and Agriculture Organization of the United Nations (FAO) and funded by the Government of Spain, represented by the Secretaría General de Pesca (M^o de Agricultura, Alimentación y Medio Ambiente, MAGRAMA), and the European Union, represented by the European Commission (EC). The premises of the project at the Subdelegación del Gobierno in Málaga (Spain) are part of the Spanish contribution included in the agreement with the FAO.

The objective of the project is to maintain the sustainability of the marine fisheries in the central and western Mediterranean Sea and its ecosystem, taking into consideration environmental, biological, economic, social and institutional issues. In addition, the project will continue to reinforce the collaboration among the participating countries of the sub-region by facilitating their participation in the activities of the Scientific Advisory Committee (SAC) and in the General Fisheries Commission for the Mediterranean (GFCM).

Regions covered by CopeMed II are the western and central sub-regions of the Mediterranean. Participating countries are Algeria, France, Italy, Libya, Malta, Morocco, Tunisia and Spain. The main beneficiaries are the fishery policy-makers, managers and fishery administrations in the western and central Mediterranean countries. The project is also contributing to the strengthening of regional collaboration by supporting the participation of the countries in relevant regional scientific organizations, such as the FAO's General Fisheries Commission for the Mediterranean (GFCM). Secondary beneficiaries include the national research institutes, fishers and fishers' associations, and industrial organizations.

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CopeMed II (GCP/INT/028/SPA – GCP/INT/270/EC) Publications

CopeMed II project publications are issued in the CopeMed Technical Documents series and are related to meetings, missions and research organized or conducted within the framework of the CopeMed II Projects.

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

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Preparation of this document

This document is the final version of the report of the 11th meeting of the Coordination Committee of the FAO-Project CopeMed II held in Malaga (Spain) on 7–8 November 2018 adopted by the participants' members. The finalisation of this CopeMed Technical Document was made in collaboration with the participants and the FAO staff of CopeMed II in Malaga and Rome.

Acknowledgements

FAO-CopeMed II acknowledges the participation and contributions of all national delegates, the indispensable contributions provided by the two donors Spain and EC and the support provided by the Spanish government to maintain the CopeMed offices in Malaga.

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ABSTRACT

The eleventh meeting of the CopeMed II Coordination Committee was held in Malaga (Spain) on 7–8 November 2018. The annual meeting was attended by representatives of the Spanish Donor, the Secretaria General de Pesca and European Commission Donor, DG MARE, representatives from the countries participating in the Project (Algeria, Italy, Libya, Malta, Morocco, Spain and Tunisia), the Project Acting Coordinator, the Coordinator of AdriaMed and MedSudMed projects, as well as the fishery expert of CopeMed II. The Committee reviewed the activities implemented during the inter-sessions period, discussed and adopted a proposal of priority activities for the next period of the project until end 2019. The country representatives recognized the important contributions of CopeMed II to the development of the national and regional capacity and particularly the advances in analysing data and produce assessment of shared stocks. The regional cooperation, coordination and the key role of the project as support to increasing scientific knowledge on fishery resources and ecosystems, strengthening national expertise and regional cooperation and the valuable support to the GFCM activities was underlined.

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REPORT OF THE 10TH COORDINATION COMMITTEE MEETING OF COPEMED II

**Malaga, Spain
7–8 November 2018**

Opening of the meeting, election of the Chairperson and adoption of the Agenda

1. The Coordination Committee (CC) meeting was held in la Subdelegación del Gobierno, in Malaga on 7–8 November 2018. It was attended by representatives of the Spanish Donor (Secretaría General de Pesca) and European Commission Donor (DG MARE), delegations from the participating countries of the Project (Algeria, Italy, Libya, Malta, Morocco, Spain and Tunisia), the Marine and Inland Fisheries Branch (FIAF), the Fisheries Experts of FAO CopeMed II, AdriaMed and MedSudMed Projects. The list of participants is included in Annex 1.
2. The meeting was officially open by Ms María Gámez, Subdelegada del Gobierno de España, who welcomed participants to Malaga and wished successful deliberations during the meeting. Mr Marcelo Vasconcellos, Acting coordinator of CopeMed II, welcomed participants and expressed his gratitude to the Secretaría General de Pesca of Spain and the European Commission for continuing financing the Project and thanked the participating delegates for the efforts in implementing the CopeMed activities at national level.
3. Mr Pablo Abaunza Scientific Director of the IEO was elected chairperson of the meeting.
4. The representative of EU DG MARE thanked the FAO and the coordinator of the project, as well as Spain for hosting this meeting in such a wonderful place and venue. He congratulated the members of the project as regards the developments of the project, including at the national and local level, and supported an ever-increasing integration of the project's activities within the framework of GFCM's mid-term strategy and its sub-regional approach for the sustainable management of fisheries in the Mediterranean. Finally, he underlined that it was important for DG MARE to follow very closely the proceedings of the four FAO regional projects, not least to put faces on concrete Mediterranean cooperation in the field of fisheries.
5. The representative of the General Secretary for Fisheries Spanish Ministry for Agriculture, Fisheries and Food as one of the donors of the Project, Mrs Encarnación Benito expressed her gratitude to the Subdelegación del Gobierno in Málaga for their offer to host the meeting and kind hospitality in such a nice venue. She congratulated the Project for its 11 years of activity. Although initially foreseen for a three years period, the Project had been able to continue for eleven years thanks to the support of the donors, both Spain and EU Commission (DG MARE), but also thanks to the constant collaboration, work and support of all the people from the different administrations and research institutes of countries involved. She also recalled the important work of FAO staff and coordinators of the Project. She highlighted the goals ahead regarding fisheries management in the Mediterranean facing the bad situation of our resources, already reflected in Malta MedFish4Ever Ministerial Declaration -that takes also into consideration FAO Projects- and the Mid-term GFCM Strategy for the Sustainability of Mediterranean Fisheries. She stated that CopeMed II Project had an increasing role in this aim contributing with numerous stock assessments and works on shared stocks to the SAC of GFCM. She finalized recalling the support of the Secretariat General for Fisheries to the continuity of the Project, which has demonstrated

relevant results in the strengthening of capacities and better knowledge for a better management of our resources.

Report on the CopeMed Project's Progress

6. After adoption of the Agenda (Annex 2), CopeMed Fishery Expert, Mrs Pilar Hernández introduced item 2 based on the document FAO-CopeMed II CC11/2018/02 (Annex 3), in which the activities carried out by CopeMed II from November 2017–October 2018 were presented. She emphasized that all the activities carried out were in line with the Project objectives and the suggestions agreed during the 10th Meeting of the Coordination Committee (Algiers, 30–31 October 2018).
7. Participants congratulated the project for the extensive work carried out in the period and for the support provided in areas of data collection, capacity building and subregional cooperation towards the assessment of stocks. During discussions participants highlighted the good progress made in the development of EAF management plans for small-scale fisheries, which is serving as an important test for the operationalization of the approach at manageable spatial scales. The Committee was praised the ongoing work on stock boundaries in the Alboran Sea and discussed strategies to expand the sampling area of *P. bogaraveao* to increase statistical contrast in the analysis for the species.

Proposals on national activities in the framework of the Project.

8. National focal points were invited to comment on their proposals for priority issues in their countries needing specific support from the project.
9. The Tunisian delegate thanked the project for the activities carried out in Tunisia in 2018 and requested the continuation of the support of the project for 2019. More specifically in relation to the work being developed in El Biban lagoon, he remarked the good progress achieved last year and the satisfaction of fishers, scientists and administration with the pilot action. He remarked the importance of the continued support of the project to the implementation phase of the management plan, including in the functioning of the steering committee and the support to research activities to cover the identified information gaps. With regards to the European eel, the delegate requested the continuation of support to data collection in the coastal lagoons. The project remarked that the 42nd session of the Commission agreed to prepare a dedicated research program on the European eel which would probably also encompass support to the monitoring of the stock and fisheries at national level. While the research program is not in place, the project proposed to discuss with the GFCM strategies to ensure that the monitoring in Tunisia continues without interruptions. With regards to *Coryphaena*, the delegate requested the continuous support of the project to the collection of biological and fishing effort data, with a view to contribute to the planned assessment of the stock in 2019. He also remarked the interest of Tunisia in continue participating in the TransBoran project and proposed the expansion of the project to areas not yet covered in Tunisia. He finally thanked the FAO projects for the opportunities provided to train young scientists in methods for data analysis and stock assessment and highlighted the importance of continuing such efforts in the future.
10. In his intervention, the delegate from Morocco thanked CopeMed and GFCM for the support provided during last year, particularly in the biological monitoring of the blackspot seabream, the monitoring of bycatch/discards and the interactions between dolphins and purse seiners and between cetaceans and small-scale fisheries. He remarked the importance of the continued support to the biological monitoring of the blackspot seabream in 2019. On this regard, the committee recalled the pending recommendation regarding the minimum

conservation size of the species and the relevance of the biological monitoring in Morocco and Spain to that goal. In this regard he also remarked the importance of the ongoing work to standardize fishing effort data from Morocco and Spain and the need to obtain complementary fishery independent data for the species, for instance, through a dedicated longline survey. He also expressed the satisfaction of Morocco with the progress obtained so far with the TransBoran project and the support of the country to the planned activities for 2019. He expressed concerns about the increasing occurrence of jellyfish blooms in the Alboran Sea and the potential impacts it can have on fisheries through the predation of eggs and larvae. The Committee concurred with the potential relevance of the jellyfish blooms to fisheries and suggested the incorporation of the issue in the ongoing assessment of the vulnerability of fisheries to climate change in the subregion. He finally requested the support of the project to launch a pilot study on the application of EAF to the small-scale fisheries in M'diq Bay. The EU delegate expressed support to the development of this EAF case study in Morocco.

11. The delegate from Malta stressed the important role of the project in promoting cooperation among countries in the sub-region and expressed the continuous interest of Malta in taking part of subregional actions towards the definitions of stock boundaries (TransBoran) and the assessment of the stock of *Coryphaena*. With regards to *Coryphaena*, she informed participants that the species is currently covered by a comprehensive monitoring and management plan in Malta and that the country is ready to provide any needed data for the assessment of the stock.
12. The Libyan delegate expressed interest in joining the dolphinfish works, in particular he requested training on age reading and in general in the biology of the species. He informed the Committee of a recent national program of observers on board just launched at national level to collect data on different aspects of fisheries. Training activities would be needed for observers on board. He also showed interest to launch a case study on EAF on a recently established MPA close to the Tunisian border.
13. In his intervention, the Italian delegate highlighted the relevance for the subregion of the activities related to data collection as the only means to build a level playing field for the assessment and management of the common resources in the Mediterranean. *Coryphaena* is a species of great interest for Italy which supports the continuity of the works on this species. He agreed with the undertaking of pilot studies in the subregion for the assessment of vulnerability of fisheries to climate change. Marine litter is also an issue of increasing concern and he suggested to start addressing this question in the near future, through creating awareness among fishermen and also by using the current surveys and onboard monitoring of discards to quantitatively assess the importance of litter in the catches. He supported the third edition of the summer school in the CNR of Capo Granitola, Sicily, and suggested the development of follow up support to students. This could include, for instance, the creation of a specific web site with a discussion forum for interacting with instructors and the possibility of downloading material after the school during the year. The website would increase the visibility of the summer school. With regards to the Italian contribution to TransBoran project he informed about the possibility that scientists can provide additional samples of *P. bogaraveo* from Thyrranian and Liguran seas if needed.
14. DG MARE delegate confirmed that marine litter was a subject of growing concern at EU level and that the participation of the project and its experts in the monitoring of marine litter would be welcome.
15. The Algerian delegate thanked the project for the support in recent years and emphasized the need to continue the current actions in place such as the Data collection in Annaba-ElKala, the EAF pilot in Bejaia and their contribution to TransBoran project. He then highlighted

some activities that could be launched in the upcoming period. He informed of the importance of European eel in large lagoons in the Eastern part of Algeria, close to El Kala and requested assistance to start a pilot action as contribution to the research program launched by GFCM. They are also interested on promoting Small Scale Fisheries. He reiterated interest on starting a new fishery for *Coryphaena* based on previous experience in the neighbouring countries and always taking into account the precautionary approach to avoid possible exploitation out of safe biological limits. He informed the Committee of the recent meetings of the network of Maghreb research institutions (RimsMer) and invited CopeMed to support and participate in their activities. With regards the current surveys in place at national level, he requested assistance of some expert on acoustic surveys on board the research vessels during the next campaigns. Tunisia offered collaboration on the activities related with *Coryphaena*, and Spain offered support with the acoustic surveys.

16. The delegate from Spain welcome the increase in the number and quality of joint assessments and expressed support to the continuation of this progress, in particular, of high relevance for his country is the fishery of *P. bogaraveo* in the Gibraltar Strait. He suggested that a longline survey for this species which currently is not covered by the current surveys in place would be beneficial for the proper assessment of the status of the stock and offered assistance to promote this type of exploratory campaign between Morocco and Spain. In the same line, he informed of recent acoustic surveys being undertaken jointly by the two countries for small pelagics in the Atlantic side and of planned activity to extend this survey to the Mediterranean. He praised the work done within the framework of TransBoran and offered technical and financial support in case the project has to be extended. Concerning the proposed activity on marine litter, he reminded participants of the existing European Directives on Maritime Strategy Framework and Marine Spatial Planning, and highlighted the potential role of CopeMed to assist non-EU countries in the monitoring of marine litter, Non Indigenous Species (NIS) and other relevant factors affecting fisheries in line with the EU Directives.
17. The donors (EU DG MARE and Spain) highlighted the relevance of the requests made by countries and noted that the requests were in line with the agreed priorities at GFCM level. In his interventions, the representative from DG MARE noted the importance of finding synergies between CopeMed and other relevant EU-funded projects in the Mediterranean. In this regard, he particularly noted the ongoing SpelMed and EASME-funded stock identification studies which are planning to examine the genetic structure of priority species such as small pelagics, hake, red mullet, deep water rose shrimp and red shrimps in the different Mediterranean subregions. He therefore invited CopeMed to support the participation of non-EU experts to the abovementioned studies. The Committee agreed with the possibility of supporting the participation on non-EU countries in such studies, building on the ongoing work of TransBoran and according to the availability of funds.
18. The Committee additionally discussed the idea of addressing issues concerning VMEs and Essential Fish Habitat (EFH) in the western Mediterranean. It was noted the recent progress made in other sub-regions of the Mediterranean and that the issues are of regional importance. Reporting the experience in the Adriatic Sea, the Coordinator of the AdriaMed project noted the importance of engaging environmental and fisheries experts in the identification of EFHs. On this regard, the Committee encouraged the participation of experts from Western Mediterranean in the GFCM Permanent Working Group on VME and EFHs.
19. CopeMed thanked the participating countries for the interventions and noted that the requests were in line with the project objectives and could contribute to an enhanced knowledge and capacity needed to support fisheries decision making in the region.

Participants were reminded that the implementation of the proposed activities will depend on the availability of funds.

GFCM activities of relevance for CopeMed II

20. Mr Othman Jarboui, former SAC Chairperson, provided an overview of the GFCM activities of relevance to the Western Mediterranean based on the approved plan of the SAC for 2018-2019 and the work programme of the GFCM mid-term strategy (2017 – 2020). With regards to the SAC regular activities, he highlighted the work plan of the Working Groups on Stock Assessment of small pelagics and demersal stocks of relevance to the Western Mediterranean. For small pelagics, the plan is to advance on the assessments of sardine and anchovy stocks by addressing the problems identified in the assessments presented in previous years. For the demersal species, he highlighted the roadmap towards the benchmark for blackspot seabream, expected in first quarter 2019, and the advice for a *minimum conservation reference size for blackspot seabream in the Mediterranean* expected to be given by the SAC in 2019. He also reminded participants of the several meetings and recommendations concerning red coral, European eel and small-scale fisheries, which are also relevant for the western Mediterranean.
21. In relation to the GFCM Mid-Term Strategy (2017-2020), he noted that within the framework of adaptation to Non-indigenous Species (NIS), discussions were held on the dual effect on fisheries and ecosystems of the two species of blue crab (*Portunus segnis* and *Callinectes sapidus*) and that to enhance knowledge on the issue the Commission recently adopted a Recommendation (GFCM/42/2018/7) on a regional research programme on blue crab. He also remarked that a case study for vulnerability assessment to climate change is currently ongoing in the western Mediterranean, in collaboration with CopeMed. In relation to bycatch and discards, he informed participants that discard surveys with observers onboard were launched in Morocco and Algeria and that a programme with observers onboard to monitor incidental catches of vulnerable species in selected fisheries was initiated in Morocco. With reference to surveys at sea, he noted that a comprehensive GFCM protocol on both demersal and acoustic pelagic surveys are now available and that efforts to harmonize surveys at sea in the subregion are continuing. Regarding recreational fisheries, he noted that a draft handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea was produced and that pilot studies are to be launched to test and update the handbook. He finally reminded the Committee of the upcoming Forum on Fisheries Science in the Mediterranean and Black Sea, which will be held in FAO HQ, Rome in December 2018.
22. He presented the calendar of meetings and activities during the intersessional period 2019-2020 and encouraged CopeMed to provide support for participation of experts from the subregion.

Priority activities for the next period of CopeMed II

23. Based on the document FAO CopeMed II CC11/2018/03 and the inputs received during the meeting, CopeMed Fishery Expert presented for discussion and adoption a proposal of activities for the next annual period of the project. Some additions to the original plan as presented in document CC11/2018/03 (Annex 4) are commented here below. The adopted workplan is presented in table 1.
24. During the inter-Committee period, the project will continue working in tight coordination with the other FAO Mediterranean projects by organizing joint activities, fostering

participation of experts in the training activities organized by other projects and adjusting calendars of meetings among them and the GFCM. Taking advantage of our participation in different meetings and conferences, any occasion will be used as an opportunity to have informal meeting with donors, delegates from the member countries and experts.

25. Cooperation with the GFCM secretariat and its Subsidiary Bodies will continue through coordination meetings held in Rome, back-to-back with GFCM events and through on-line communication to ensure coordination in our respective mandate's tasks and to find synergies. CopeMed will provide direct support to the activities of the GFCM by providing scientific contributions for discussion and supporting the participation of experts in annual GFCM technical and institutional meetings
26. In the framework of FAO decentralisation, CopeMed will continue collaborating with the subregional (SNE) and regional (RNE) FAO offices in the North African and near East countries by supporting joint initiatives on fisheries and sharing information on the activities and results of the Project.
27. The CC agreed that the priorities to be implemented during the next inter-committee period (2018-2019) should be those marked with 1 in the column of priority in table 1, subject to the availability of funds. The other activities (marked with 2) should be implemented according to specific requests by the countries to the project.

Adoption of the report

28. The Committee adopted the work plan. The report will be edited and finalized together with the appendices to be finally adopted on-line after a revision by all participants before the end of 2018 and it will be published as a new CopeMed Technical Document.

Date and place of the next coordination Committee

The Committee agreed to organize the twelfth Coordination Committee meeting in the fourth quarter of 2019. Spain has kindly offered to host this meeting.

Closure

29. The delegates thanked the host country and the CopeMed Project for the organization and to the chairperson for his management of the meeting. Finally the Chairperson declared the meeting closed.

Table 1. List of activities foreseen in the next Intersession Period Dec-2018-Nov 2019

ACTIVITIES	Priority
1. Support case study for implementation of EAF management plans in Bejaia, Algeria – Stakeholder meeting(s) for Bejaia Pilot Plan on EAF	1
2. Support case study for implementation of EAF management plans in M'Diq bay in Morocco – First inception meeting – Preparation of baseline report	1
3. Support case study for implementation of EAF management plans in Farwa lagoon, Libya – First inception meeting – Preparation of baseline report	1
4. Support the second phase of the EAF Case study in El Bibane, Tunisia – Support to the Implementation and monitoring of the Management Plan – Research program for the study of the biology of species and fish migrations	1
5. Assessment of the vulnerability of fisheries to climate change and identification of adaptive measures – Finalization of small pelgics case study – Identify additional subregional case studies for demersal and small scale fisheries	1
6. Support the continuation of the pilot study on Eel data collection and assessment in Tunisia in coordination with GFCM research program	1
7. Launch a pilot study on Eel data collection and assessment in El Kala region, Algeria in coordination with GFCM research program.	1
8. CopeMed-MedSudMed workshop for data preparation of hake and sardine in GSAs 12 and 04E	1
9. On-line data preparation on <i>P. bogaraveo</i> for the standardization of CPUEs before the benchmark meeting (April 2019)	1
10. SG on stock assessment for demersal species in the Alboran sea (GSAs 01, 02, 03 and 04-W).	1
11. SG on stock assessment for the small pelagic in the Alboran sea (GSAs 01, 02, 03 and 04-W)	1
12. CopeMed-MedSudMed Workshop for follow up on stock assessment of <i>C. hippurus</i>	1
13. Perform the analytical work of the three species of TransBoran including hydrodynamic modelling	1

ACTIVITIES	Priority
14. Mid-term workshop for the follow up of the TransBoran Project and fisheries data analysis.	1
15. Final workshop of TransBoran for integration of results and simulations of populations dynamics (Possibly January 2020)	1
16. Summer School on quantitative fisheries stock assessment methods organised by FAO Regional projects- GFCM-JRC	1
17. Technical assistance for the development of <i>Coryphaena</i> fishery in Algeria	2
18. Technical assistance to acoustic surveys in Algeria	1
19. Training workshop for observers on board of commercial vessels to monitor discards and by-catch of unwanted and marine litter.	2
20. Workshop on intercalibration of otholiths readings for sardine in coordination with the GFCM	2
21. Training stay of Libyan expert for otholiths reading on <i>Coryphaena</i>	1
22. Facilitate attendance of national experts to the relevant meetings of GFCM and its subsidiary bodies	1
23. Promote publications of fishery related information produced by scientist in the CopeMed sub-region, including <ul style="list-style-type: none"> - Review of biology and fisheries of <i>Coryphaena hippurus</i> in Western-Central Mediterranean - Hard copies of recent publications 	2
24. 12th Coordination Committee meeting.	1

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10th Meeting of the CopeMed II Coordination Committee
Málaga, Spain 7-8 November 2018

Provisional annotated Agenda

WEDNESDAY 7th November, 9:00-17:30

1. Opening of the meeting, election of Chairperson and Adoption of the Agenda

2. Report of the CopeMed II Project's Progress

The main activities and the Project's outputs will be presented and reviewed. Information will be provided on the results of the CopeMed II Working Groups, research programs, training and cooperation during the current period.

Coffee break 10:45

3. Proposals on national activities in the framework of the project

The national focal points are invited to present national priorities and to propose subregional activities of common interest.

4. GFCM activities of relevance for CopeMed II

The scientific and technical activities foreseen in the FAO GFCM work plan for 2018–2019 will be summarised. Discussion on how the Project can contribute in a coordinated way to these activities during 2018–2019 will be held.

Lunch time: 13:00-14:30

5. Priority activities for the next period of CopeMed II

A work plan of the Project in the cycle 2018–2019 taking into consideration, priority needs toward the national capacity building for the assessment and management of shared resources will be outlined and discussed. The Committee will be asked to provide orientation on the program presented.

Coffee break: 16:00

6. Other matters

THURSDAY 8th November, 11:00-13:00

7. Adoption of the report

8. Date and venue of the next Coordination Committee

Report on the intersessional activities of the Project (November 2017 - October 2018)

Introduction

This document summarizes the activities carried out by the Project CopeMed phase II from November 2017 to November 2018, including workshops, training, research activities and the technical assistance provided to the countries, as well as the cooperation established with the donors, the GFCM and the SAC and Sub-Committees and other relevant regional institutions.

CopeMed II project, coordinated by FAO-FIAF with office in Málaga (Spain), started in February 2008 and is funded by DG MARE (EU) and the Spanish Government (Secretaría General de Pesca del Ministerio de Agricultura, Pesca y Alimentación).

The overall objective of the project is to maintain the sustainability of the marine resources in the Central and Western Mediterranean and their ecosystems, taking into account environmental, biological, economic, social and institutional issues, and promoting scientific cooperation among the regions. Countries involved are Algeria, Libya, Morocco, Tunisia, Malta, Italy, France and Spain. FAO-FI, GFCM, and the two donors are also members of the Coordination Committee guiding the project.

The activities conducted by CopeMed II during the current inter-Committee reporting period (November 2017 to November 2018) respond to proposals formulated by the national delegates at the 10th Coordination Committee (CC) in October 2017, are aligned with the GFCM and SAC work plans, and are consistent with the GFCM mid-term strategy (2017-2020) for the sustainability of Mediterranean and Black Sea fisheries (Resolution GFCM/40/2016/2). The activities are carried out under the close coordination of the FAO-FIAF responsible officers and comply with the methodological framework of the Project.

This report details the main outputs of the Project activities and the results achieved structured by three main objectives, consistent with the original project document and the latest grant proposal to the EU DG MARE.

Objective 1.

Strengthen national sub-regional and regional capacity (administration, stakeholders, and research institutions) in the identification of fisheries management strategies in accordance with the ecosystem approach to fisheries and aquaculture (EAF/EAA)

Objective 2.

Improve capacity for fisheries monitoring, research and the preparation of scientific advice for fisheries management

Objective 3.

Enhance regional cooperation and coordination for shared fisheries management, research, and capacity development

1. Strengthen national sub-regional and regional capacity (administration, stakeholders, research institutions) in the identification of fisheries management strategies in accordance with the ecosystem approach to fisheries and aquaculture (EAF/EAA)

Activities under this objective include meetings, analysis and case studies in support of the identification and development of management strategies and plans for priority species and fisheries, following an ecosystem approach to fisheries.

1.1. Support pilot case studies for the development and implementation of fisheries management plans, following the ecosystem approach to fisheries (EAF)

Since 2016 CopeMed has been supporting capacity development in the participating countries to put in practice the Ecosystem Approach to Fisheries (EAF) through the development of management plans in selected fisheries operating in national waters. After a first training workshop that was held in 2016, a series of pilot studies were proposed in different countries, one of which has been carried by the INSTM in 2017-2018 with the support of CopeMed in the Lagoon of El Bibane, Tunisia.

During this reporting period two more meetings with stakeholders were held, the draft management plan was finalized and presented to the national management authorities and the baseline report of the pilot study has been published as: « FAO. 2018. Implémentation de l'approche écosystémique pour l'aménagement de la pêche de la lagune de El Bibane. Rome.78 pp ». The report is available as *FAO- CopeMed II CC11/2018/Inf 06*. In September 2018 the technical coordination committee for the implementation of the plan was created and the next phase of implementation and monitoring with the support of CopeMed in 2019 was agreed upon.

In Algeria a new pilot study is being developed for the coastal area of western Bejaia, including the National Park of Gouraya. The first stakeholders meeting was held in September 2018. It was chaired by the Director of Fisheries and Fishery Resources, in the presence of twenty participants, representatives of the DPRH, the Centre National de Recherche et de développement des Pêches et de l'Aquaculture (CNRDPA), the fishermen (Chambre des pêches et association de pêcheurs), aquaculture, environment, tourism, National Park Gouraya and civil society. Participants were informed about the process involved in the elaboration of a fisheries management plan according to the EAF, which is one of the expected outputs of the pilot study.

A second meeting of stakeholders was held in Bejaia, 24 October to make a first inventory of the current situation of fisheries and other interacting maritime sectors in the area and to make a preliminary identification of the main issues related to fisheries management in an intersectoral framework. More meetings for consultation with stakeholders and the elaboration of the baseline report are foreseen in the next intersession period. The pilot study is under the LoA currently active between FAO and CNRDPA. The final aim is to support the development of a management plan for fisheries in the western Bejaia coast.

1.2. Assessment of the vulnerability of fisheries to climate change and the identification of adaptation measures to cope with climate-related impacts on fisheries

In the framework of the GFCM mid-term strategy towards the sustainability of fisheries in the Mediterranean, and with the objective to advance in the development of a regional strategy to cope with the effects of climate change on fisheries, FAO, GFCM and WWF organized the Expert meeting on Climate change implications for Mediterranean and Black Sea fisheries, Rome, 4-6 of December 2017. The expert meeting took stock of available knowledge on the potential effects of climate change on Mediterranean and Black Sea fisheries, discussed methodological approaches for the assessment of vulnerabilities, and agreed on a roadmap to provide advice on the vulnerabilities and adaptation options for fisheries in the region. The roadmap foresees the implementation of vulnerability assessment case studies in each of the Mediterranean sub-regions and the presentation

of the progress obtained in the GFCM Fish Forum, December 2018. With the endorsement of the roadmap and methodology by the 20th session of the SAC, the project is currently carrying out a test phase of the methodology to the small-pelagic fisheries in the western Mediterranean. The test phase will involve a preliminary scoping of the main drivers and expected impacts on small pelagic fisheries and the identification of the main vulnerability factors through risk assessment. The preliminary assessment is being carried out by a CopeMed II consultant, in close consultation with GFCM, and will be sent to national focal points for inputs and validation before the end of the year. The results of this test phase will be presented during the GFCM Fish Forum in December 2018.

2. Improve capacity for fisheries monitoring, research and the preparation of scientific advice for fisheries management.

This objective includes all the activities of fisheries data collection (biological and socioeconomic) as well as the research activities and stock assessment of specific fisheries resources including the priority species for the sub-region as established by the 20th SAC Session.

2.1. Technical support to countries on statistics and information related issues.

CopeMed continued to support national experts from research institutes and fisheries administrations to improve the collection of the biological and socio-economic data necessary for the monitoring of fisheries.

CopeMed II has continued providing assistance to scientists and administration of Algeria in the domains of data collection for both biological and socio-economic analysis, stock assessment and fisheries monitoring in general. More specifically the three main fields of action have been: i) Pilot Project on socio economic and biological data collection and analysis in the Eastern part of Algeria, ii) training on surveys data analysis and iii) training on stock assessment models. Agreement was also reached with the fishery authorities to continue the assessment of priority stocks in collaboration with the neighbouring countries. The work of Pilot Project in the Eastern part of Algeria has continued to complete a whole year of biological sampling and socio-economic surveys in line with the requirements of the DCRF. A workshop for the follow up of the collection and analysis of socio-economic data was held in November 2017 to assess the progress of the socio-economic surveys, to check the current status of the program and to give additional indications. The surveys were being performed monthly in three ports, Annaba, Chetaibi and EL Kala, the fleet segments are well covered and the data are being stored in a database.

CopeMed II has provided technical and financial assistance to Morocco to carry out the following activities related to sampling and data collection: Biological sampling of *Pagellus bogaraveo* in the Strait of Gibraltar with the aim to assess the state of the stock and to contribute to provide scientific advice before the adoption of a recommendation to ensure sustainability. This activity is being undertaken in the framework of the current program on the “*study on the biological cycle of blackspot seabream*” launched by both institutes, INRH and IEO during 2018.

The INRH is also contributing with the preparation of tissue samples of specimens of *Pagellus bogaraveo* for genetic analysis and otolith collection, preparation of sardine and hake samples for microchemical and parasitological analysis according to the protocol agreed with the scientific team of stock identification project in the Sea of Alboran (TransBoran). INRH scientists coordinate two of the main tasks of this transboundary project: genetics for hake and meristic characters of sardine and hake.

European Eel is also a priority species at basin level. Mediterranean countries are called to develop management plans for the conservation of Eel. A joint effort to assess the status of the stock in the

Mediterranean and Atlantic was launched by GFCM and ICES. In this regard, a pilot study has been developed by the INSTM in Tunisian Lagoons under the support of CopeMed II since July 2017. The overall objective of this study is the collection of baseline data for a preliminary assessment of the national stock of European eel in Tunisia as contribution to the Mediterranean stock assessment. The outcomes of this pilot study have been presented to the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL), in 2017 and in 2018. As well as to the GFCM Workshop on the management of European eel in Tunis, 16 April 2018.

2.2. Subregional research activities related with shared stocks

In view of the importance of dolphinfish, *Coryphaena hippurus*, to several CopeMed II countries, the project continued to support a subregional research action on the species. The Cory-WG did not meet in the intersessional period, but a study was undertaken to develop a framework for the improvement of biomass estimates as recommended by the 2017 WGSASP. A first attempt to standardize CPUEs through Generalized Linear Models has not succeed due to the lack of additional information on potential factors driving differences in annual catches. During the fishing season of 2018 a pilot survey is being carried out in 6 ports of Mallorca island, Spain to get better estimates of the fishing effort and test new CPUEs in a new attempt of using these values for stock assessment. In addition, progress have been achieved in the production of the scientific paper as an overview of the latest developments in the knowledge of this fishery in the Mediterranean.

Within the CopeMed II framework on joint evaluation of the state of exploited stocks in Alboran Sea (GSAs 01, 02, 03 and 04) the two Study Groups on demersal and on small pelagic species met in parallel on the 3-5 October 2018 in Tangiers, Morocco. Scientist from Algeria, Morocco and Spain analysed sets of the most recent data to update the assessments done the last year (hake and sardine in GSAs 01 + 03). In addition, 2017 data from the two main Algerian ports of the Alborán Sea, (Gazahouet and Beni Saf) were provided to the group which was able to perform assessment of hake, deep water pink shrimp and sardine through production models and pseudo-cohort analysis of three years for the combined sets of data in GSA 01+03+04.

The results of the first two formal assessments (GSAs 01 + 03) resulted in overexploitation status for hake and for sardine. The assessment for the three species in the three GSAs (GSAs 01 + 03 + 04) jointly reflected also overexploitation status in the sub-region. All the five assessments will be submitted to the GFCM WGSASP and WGSAD in November 2018 in Rome for further advice and recommendations.

In Collaboration with GFCM, CopeMed II organised from 1-3 October 2018 at the INRH in Tangiers, Morocco the *Data Preparation Meeting on Blackspot Seabream in the Strait of Gibraltar and adjacent waters*. This technical meeting was organized at the request of 20th Session of SAC to compile all necessary data to produce a Benchmark assessment in 2019 for this priority species. Experts from the Moroccan and Spanish research institutes (INRH and IEO) put at disposal the existing data related to this fishery which is practiced in the Strait of Gibraltar by small scale vessels of both fleets. The data were analysed and compared, a common database was created for the standardization of CPUEs with the aim to improve the assessment of the stock. In addition, several models: Gadget, VPA and Biodyn were run to update the assessment done in 2017 with one more year of data.

To continue the assessment of priority stocks in collaboration with the neighbouring countries, progress has been achieved on the preparation of data for a joint stock assessment of hake and sardine in GSAs 4 and 12 in collaboration with MedSudMed. The data from the annual cycle

gathered in the Eastern ports of Alegria will be standardized and combined with data from North Tunisia in a first attempt to perform a joint assessment in the two GSAs (04 + 12) in 2019.

With regards the **identification of stocks units of hake, sardine and Blackspot seabream and its connectivity in the Alboran Sea**, a kick-off meeting was organised short time after the approval of the program by the 10th Coordination Committee. At the premises of the IEO in Fuengirola, Spain, it was attended by 18 experts from Algeria, Italy, Morocco, Spain and Tunisia who discussed and agreed on a series of procedures for samples collection, treatment and analysis through different techniques. The program was named «*Transboundary stock structure of sardine, black spot seabream and hake in the Alboran Sea and adjacent waters*» (Acronyme **TransBoran**). The sampling sites and a detailed methodology for samples treatment were agreed upon. A total of 17 sites were selected from the Atlantic side of Gibraltar in the Western to Tunis in the most Eastern part thus encompassing not only strict Alboran area but also adjacent waters. The report has been made available as *FAO-CopeMed II CC11/2018/Inf 03*.

The second meeting of the TransBoran project (Fuengirola, 25-23 April 2018) was a Training Workshop attended by 17 participants. The objective was to test in the laboratory, with fresh material, the methodology proposed and to give indications to the samplers in charge in each country on how to treat each individual fish. Considering that the same individual fish will pass through the different techniques, during the training it was emphasized the importance of keeping track of each piece of sampled material with agreed codes also established during the meeting. The outcomes of this workshop were gathered on a booklet of sampling protocol that has been distributed among all the participants in the TransBoran Program.

As of the middle of November 2018, the progress on the TransBoran project is summarised hereby. The sampling of sardine has been completely achieved by the four institutions (CNRDPA, INRH, IEO, INSTM). Due to bad weather in some areas and scarcity of individuals in the surveys, the number of specimens of Blackspot seabream collected have been considered insufficient for statistical contrast. To overcome this difficulty, the sampling has been extended in time and geographical coverage thanks to the collaboration of scientists from adjacent areas such as: Canary Island, Portugal, Azores, Bay of Biscay, Malta, Sicily, and Greece. The sampling of Blackpool seabream will be extended until the end of the year 2018 while the sampling of hake has started in October as originally foreseen. The institutions in charge of the different analysis stand ready to receive the biological material to start the genetics, isotopes and elemental composition in otoliths and in muscle, parasites, morphometry of body and bones and meristics of fins and vertebra in 2019. Furthermore, the hydrodynamic modelling of the strait of Gibraltar is progressing by the team of the Physical Oceanography at the University of Málaga. Several simulations of particles dispersal under different conditions and depths have already been tested, in particular for eggs of sardine with spawning areas well identified and displacement of eggs being simulated at different time lapses coupled with the development of the eggs to larvae. The results are very promising and will continue in 2019 for the other two species.

3. Enhance regional cooperation and coordination for shared fisheries management, research, and capacity development

3.1. Training activities

One of the key objectives of CopeMed II is to create the optimal conditions for the cooperation among the different participating countries. With this aim, the scientific institutions have to be capable to work together and with other countries in the Mediterranean region following standard methodologies and principles.

- Training course on methodologies for the analysis and interpretation of data from acoustic surveys organized in Palma de Mallorca, on 7-23 March 2018 with the collaboration IEO. A 15-day course focusing on practical sessions with real data from national acoustic surveys provided by the participants, 5 experts from the Algerian institute CNRDPA.
- Training workshop organized by CopeMed II at the IEO (Fuengirola) on 23-25 April 2018 to standardize the protocol of sampling and the additional treatment of samples for the preparation of biological material for the different laboratory analysis that will be carried out within the TRANSBORAN project. A total of 17 Scientists from Algeria, Italy, Morocco, Spain and Tunisia were trained in the processing of biological material
- Pilot action in Algeria for the assessment, identification and reduction of discards and bycatch rates. In this respect in May 2018 the project organized a mission to prepare the ground for a training course for onboard observers for the collection of data on commercial catches, discards and bycatches, including practical sessions for the identification of elasmobranchs species and on the release of species of conservation concern. To be in line with the GFCM DCRF and the GFCM mid-term strategy (2017–2020). The course was held in July 2018, at the CNRDPA in Bou Ismail, and was delivered in collaboration with the GFCM.
- Training course on data processing for trawl surveys (ATRIS) at the CNRDPA in Bou Ismail Algeria, on 24-28 June 2018. The course focused on the analysis of the main concepts performed by ATrIS to ensure a high-quality level of data stored in the database in terms of consistency, integrity and accuracy. It also provided a GIS module to produce maps that represent the data collected and the utilities for the import / export of data for further analysis and production of specific reports.
- Summer School in Quantitative Fisheries Stock Assessment (2nd edition). Co-organised by FAO/GFCM/JRC in Mazara del Vallo, Italy from 9-20 July 2018. This two weeks course was attended by experts from Mediterranean and Black sea countries and was delivered by lecturers from the three funding institutions. The most complete series of models run in the platform R were made available to all participants who were able to work with their own data in practical sessions guided by the trainers.
- On-the-job training for the standardization of biological sampling of *P. bogaraveo* between Spain and Morocco. 4-5 October 2018, Tangiers, Morocco. Two IEO experts worked together with INRH scientists in a two days training seminar at the fisheries laboratory of INRH with the aim to standardize practices for the biological sampling. This activity was organized in the framework of the current program on the “*study on the biological cycle of blackspot seabream*” which is being undertaken by both institutes, INRH and IEO during 2018 under the FAO-CopeMed II Project. Researchers from the two centers, worked together with fresh fish to standardize the methods in which biological material is treated for the estimation of growth, reproduction and ageing.

3.2. Regional coordination, cooperation and synergy

In order to strengthen international and regional cooperation, the Project operated closely with the FAO Regional Projects AdriaMed, MedSudMed and EastMed, with the participating countries' administrations, with the GFCM and its subsidiary bodies and maintain regular informative meetings with the donors.

Coordination between the four regional FAO projects in the Mediterranean (AdriaMed, CopeMed II, MedSudMed and EastMed) is ensured through regular meetings among project's staff, through the participation on the different projects' coordination committee meetings and by the reinforcement of communication among projects by the project Lead Technical Officer and Budget Holder.

In particular cooperation with MedSudMed is continuing on the activities related with working group on *Coryphaena hippururs* and on the collection of data for stock assessment in GSAs 04 and 12 which are co-funded by both projects and organised jointly.

The cooperation with EastMed has been strengthened through the organisation of joint activities, more specifically in : i) the training for observers on board on discards and by-catch in Algeria and in Lebanon and ii) the research projects run in parallel by the two projects about transboundary population structure, for hake, sardine and blackspot seabream in Alboran Sea in the case of CopeMed II and for round sardinella in Eastern Mediterranean in the case of EastMed. A coordination meeting was held on the 23 July 2018, at the premises of COISPA Bari, Italy to share experiences about available methodologies.

The collaboration with the scientists and the administration of the participating countries has been enhanced by the CopeMed II staff visit to Algeria in January 2018 to hold meetings with the Director General of Fisheries of the Ministry of Agriculture, Rural Development and Fisheries as well as with the Director and staff of the CNRDPA for better planning the activities proposed at the 10th CC. A road map was agreed upon with the Algerian authorities for the year 2018 which include all activities related to data collection and stock assessment and identification as reported in previous paragraphs.

With the aim to rationalize financial resources coming from different sources, to avoid duplication and find synergies among the different actors cooperating in Algeria, several meetings were held during the visit of CopeMed II staff to Algiers, namely with the coordinator and staff of the EU-Project DIVECO 2, with the regional office of the Spanish Agency of Cooperation (AECID) and with the FAO office in Algeria.

Coordination and collaboration with the GFCM is established at different levels, including the participation of CopeMed II in many GFCM meetings and the participation of the GFCM Secretariat at the annual meeting of the Project Coordination Committee. Several informal meetings of coordination were held with the GFCM staff back-to-back GFCM events, which helped to strengthen the cooperation and to find synergies. In particular and as stressed by the SAC the existing synergies between the GFCM and the FAO regional projects, had been strengthened in recent years and had enabled the creation of a strong network putting Mediterranean countries in a position to address current pressing challenges towards the sustainability of fisheries. In particular, the mid-term strategy had provided an effective opportunity to reinforce existing coordination.

On this regard it is worth to mention the co-organisation between GFCM and CopeMed in four relevant activities in the framework of the Mid-Term Strategy (2017-2020): **i)** the training to observers onboard for the collection of discards and by-catch data held in Algeria and in Lebanon (also in collaboration with Eastmed), **ii)** the Summer School in quantitative stock assessment (with all regional Projects) and **iii)** Data preparation meeting for blackspot seabream held back-to-back with the CopeMed II Study Groups on stock assessment; **iv)** the assessment of the vulnerability of small pelagic fisheries to climate change in the western Mediterranean.

CopeMed II facilitated the participation of countries in regional activities, dissemination of documents, contribution of national data, knowledge and ideas of national experts in the international sphere of the GFCM.

During the reporting period, CopeMed II participated in the following GFCM activities:

- GFCM Working Groups on Stock Assessment of Demersal and small pelagic species, Rome 19-24 November 2017.
- GFCM Working Group on VMEs, including the session on essential fish habitats in Rome, Italy, 26-28 February 2018
- Meeting of experts on the mitigation of interactions between predators and vulnerable species with fisheries (WKPREPRED, Fuengirola, 20 March 2018).
- Technical meeting on blackspot seabream fisheries Fuengirola, 21 March 2018,
- Sub regional Committee for the Western Mediterranean (SRC-WM), 23 March 2018 Malaga.
- Workshop on the management of European eel. 16 April 2018 Tunis,
- Working group on Fishing Technology (WGFiT). 17-18 April 2018.
- Subregional Committee for the Central Mediterranean (SRC-CM). 20 April 2018 Tunis.
- 20th Session of SAC Tangier, Morocco, June 26-29, 2018.
- FGCM-ICES Working Group on European Eel, 5-12 September 2018 Gdansk, Poland
- GFCM-CopeMed II Data preparation meeting for blackspot seabream 1-3 October, Tangiers, Morocco
- 42nd Session of the GFCM Commission, 22-26 October 2018, Rome. Italy

3.3. Coordination with the donors

The Project has strengthened the liaison with the Donors (Secretaría General del Mar of MAPAMA and EU-DG-MARE) by increasing the coordination meetings with them. In the intersessional period. A series of meetings were held at the Ministry of Agriculture, Fisheries and Food in Madrid headquarters, out of which progress has been achieved on the way and date payments will be delivered, and on the improvement of the current agreement. Occasion was taken during the GFCM 42nd session and other GFCM Intersessional meetings to discuss project progress with representatives of DG-MARE, besides the specific meetings organised in Brussels (August 2018) and Rome (November 2018) to discuss on the operational issues related with the annual grants.

Furthermore, CopeMed staff visited the Spanish Agency of International Cooperation and Development (AECID) headquarters in January 2018 and held interviews with the Head of the Department of Multilateral Cooperation with whom discussions were initiated to consider renewal of their contribution in the future. The regional Office of AECID in Algeria was also visited during the visit held to Algiers in January 2018 to exchange information of possible ways of collaboration, although progress on this matter is being slow due to the unstable political situation in Spain.

3.4. Project communication

CopeMed II contributed to keep experts, research institutions, fisheries administrations, main fisher's organisations and other stakeholders informed on fisheries and marine-related issues by distributing information generated by the project: meeting agendas, technical documents, meeting reports and occasional papers. Furthermore, the project publishes information from other sources (courses, meeting, documents, jobs opportunities) through the mailing list and website.

To contribute to the communication of the CopeMed experts networks, further to the website, CopeMed maintains active an on-line WorkSpace for more direct exchange of information among the experts. This WorkSpace contains a series of portals (sharepoints) for each of the most regular permanent working groups such as the two Working Groups on Stock Assessment of Demersal and Small Pelagic species in Alborán Sea, Dolphinfish fisheries in Western Mediterranean, Ecosystem Approach to Fisheries as well as for the Coordination Committee meetings

In order to disseminate the activities and outputs being produced by the project, the web site is continuously updated, and technical documents are being published. CopeMed II produced eight documents during the reporting period. All reports are available in the project' Web page www.faocopemed.org and the book on egg and larvae as well as the baseline report for el Bibane lagoon are available in hard copy as a FAO publication under request.

- Book: Rodriguez, J.M., Alemany, F. and Garcia A. 2017. A guide to the eggs and larvae of 100 common Western Mediterranean Sea bony fish species. FAO, Rome, Italy, 256 pp
- Report of the Tenth Meeting of the CopeMed II Coordination Committee. Algiers, Algeria 30-31 October 2017. CopeMed II - Technical Documents N° 47
- Report of the 6th Meeting of CopeMed II Study Group on demersal and small pelagic stocks of interest to Algeria, Morocco and Spain in the Alboran Sea (GSAs 01, 02, 03 and 04). Malaga, Spain 9-11 October 2017. CopeMed II - Technical Documents N° 48
- Baseline Report: Jarboui, O.; Djabou, H.; Vasconcellos, M. and M. Bernardon. Implémentation de l'approche écosystémique pour l'aménagement de la pêche de la lagune de El Bibane. 82 pp. FAO document *CA1012FR*

Additionally, the project produced four technical reports as outputs of technical consultancies engaged within the TransBoran Project:

- Nande M. Revision of European pilchard sardine (*Sardina pilchardus* Walbaum, 1792) microsatellite markers according to bibliography and open access databases. CopeMed II Project, May 2018..
- Nande M. Technical document with a cost-effective DNA extraction protocol for future analysis of samples. CopeMed II Project, June 2018.
- Nande M. Technical document with detailed information of the protocol developed for the analysis of 12-16 microsatellite loci in *Sardina pilchardus*.
- Sánchez-Garrido JC. Technical document on progress on the "Hydrodynamic Modeling of the Alboran Sea". Simulation of the Alboran Sea (AS) circulation and adjustment of particle tracking algorithms to simulate the evolution of fish (sardine) larvae trajectories. July 2018.

In addition, as a mean of disseminating the collaborative work of FAO regional Projects among the participating countries, a promotional video has been produced in collaboration with the GFCM.

Proposal of Priority Activities for the next year of CopeMed phase II

This document aims to suggest to the Coordination Committee members elements for discussion on the Project Work Programme for the next inter-Committee period (2018-2019).

CopeMed Phase II is contributing to strengthen and improve the regional balanced cooperation among fishery actors in the participating countries. The Project supports the participation of the countries' experts in regional scientific working groups particularly those related with shared stocks. Capacity building in different techniques and disciplines related to fisheries research is one of the pillars of the Project with more than 40 scientists trained annually on topics such as: stock assessment methodology, collection of statistical data, determination of biological parameters, socio-economic indicators, technical measures for sustainable management and other more specific and tailored for specific needs of each country.

The priority actions of the project for the next inter-committee period are agreed upon within the Coordination Committee taking into account the annual program of the General Fisheries Commission for the Mediterranean (GFCM) and its Scientific Committees, its Mid-term Strategy (2017-2020) towards the sustainability of Mediterranean and Black Sea fisheries and are in line with the goals defined by the Malta MedFish4Ever Ministerial Declaration.

The final annual Workplan 2018-2019 that should be adopted by the CC of CopeMed II, will take also in consideration the proposals and recommendations of the national members during the 11th Coordination Committee meeting, in accordance with the regional priorities expressed by the countries on the main components and according to budget availability.

The project is executed by the Marine and Inland Fisheries Team (FIAF) of the Fisheries and Aquaculture Policy and Resources Division of FAO. The Acting Coordinator is based in Rome and the staff: fishery expert recruited, and office assistant are based in Málaga, Spain. The coordination and synergy in organizing joint activities and share human and financial resources with the other FIAF Projects of the different Mediterranean regions (AdriaMed, MedSudMed and EastMed) is a priority to CopeMed II.

This document provides suggestion for future activities, based on actions already in course and those that are done regularly, however it will be enriched during the meeting discussions and a more definite work plan will be agreed by all participants.

CopeMed Phase II. 2018-2019 Workplan

In order to facilitate the presentation of the Workplan, activities are grouped by the three main objectives of the Project, consistent with the original project document and the latest grant proposal to the EU DG MARE.

- 1. Strengthen national sub-regional and regional capacity (administration, stakeholders, research institutions) in the identification of fisheries management strategies in accordance with the ecosystem approach to fisheries and aquaculture (EAF/EAA)**

The Project will continue providing the necessary assistance for the implementation of management plans under the Ecosystem Approach to Fisheries in selected case studies at the proposal of the national authorities.

1.1. Support pilot case studies for the development and implementation of fisheries management plans, following the ecosystem approach to fisheries (EAF)

The pilot study being carried by the INSTM in 2017-2018 with the support of CopeMed in the Lagoon of El Bibane, Tunisia will continue. The activities foreseen during 2019, are mainly related with the implementation and monitoring of the Management Plan, which has been already adopted by the national Authorities. New meetings of the steering technical committee are foreseen to monitor the achievement. Furthermore, a research plan for the study of the fish migrations between the lagoon and the Mediterranean and their consequences on the production and seasonality of the fishery will be launched with the engagement of a Mediterranean expert as coordinator of the study.

A new Pilot Study has been launched in Algeria for the implementation of EAF in the framework of a Letter of Agreement with the CNRDPA. The study will cover the fisheries of the Bejaia region, including the National Park of Gouraya. The final goal of the case study is to strengthen the capacity of national authorities in Algeria with participatory, ecosystem-based management of fisheries. One expected outcome of the study is the development of a draft management plan for the fisheries in the Bejaia region. Two consultation meetings have already been held to identify the fisheries and the area and a Steering Committee composed by representatives of different stakeholders has been appointed by the Directorate of Fisheries and Fishery Resources (DPRH). The process during 2019 will involve several meetings with stakeholders. The final result of those stakeholder consultations will be a baseline report, a diagnosis of the actual situation of the fisheries, the main issues, the actors and the scope of the management plan according to EAF.

1.2. Support the evaluation of management measures for the blackspot seabream fishery in the Strait of Gibraltar

The blackspot seabream is a priority species for the western Mediterranean. An important fishery is shared between Spain and Morocco in the Strait of Gibraltar. In order to improve scientific advice to manage the fishery, a biological sampling program was launched by CopeMed II in Morocco in 2018 and will continue throughout 2019 to estimate biological parameters for the species. The data obtained will be used to update available stock assessments and to inform management decisions concerning technical measures to maintain fishing mortality within sustainable levels, including the definition of a minimum conservation reference size foreseen in the recently adopted management recommendation by the GFCM¹. In order to advance towards the assessment of the stock and the definition of technical management measures, a technical meeting could be organized by the project with the participation of national experts from Morocco and Spain.

1.3. Assessment of the vulnerability of fisheries to climate change and the identification of adaptation measures to cope with climate-related impacts on fisheries

In the framework of the GFCM mid-term strategy towards the sustainability of fisheries in the Mediterranean, and with the objective to advance in the development of a regional strategy to cope with the effects of climate change on fisheries, a roadmap to provide advice on the vulnerabilities and adaptation options for fisheries in the region was adopted by the 20th Session of SAC. The project will continue the current testing phase of the methodology to the small-pelagic fisheries in the western Mediterranean, which is being carried out by a CopeMed II consultant, in close consultation with GFCM. The outcomes will be sent to national focal points for inputs and validation before the end of the year and the preliminary results will be presented during the GFCM Fish

¹ Recommendation GFCM/42/2018/9 on the establishment of a minimum conservation reference size for blackspot seabream in the Mediterranean Sea

Forum in December 2018. Activities foreseen in the next inter-Committee period include capacity building to national experts through the implementation of additional case studies to assess the vulnerability of fisheries to climate change and to evaluate the types of adaptation measures to cope with its impact on fisheries.

2. Improve capacity for fisheries monitoring, research and the preparation of scientific advice for fisheries management.

The Project, will continue assisting national institutions to put in place or further develop data collection programs to fill the existing gaps. The aim of this action is to contribute with technical and financial support to comply in time and format with the data reporting obligations set at national and regional levels and to maintain complete databases and information systems owned by the relevant national institutions.

The integration of socio-economic data is also a priority. The project can support actions aiming at enhancing national capacity for the collection and processing of this type of data, necessary to produce simulation of management scenarios in view of new management plans to be set forth.

Due attention will be given to the assessment of the stock status for priority species agreed by the SAC and by the national institutions.

2.1. Technical support to countries on statistics and information related issues.

CopeMed will continue to support national experts from research institutes and fisheries administrations to improve the collection of the biological and socio-economic data necessary for the monitoring of fisheries.

The work of the Pilot Project in the Eastern part of Algeria will continue to complete two years of biological sampling and socio-economic surveys in line with the requirements of the DCRF. A workshop for analysis of socio-economic data and the production of socio-economic indicators is foreseen in the first quarter of 2019. The analysis and preparation of data for stock assessment is also foreseen in the first semester of 2019. These data will be put in common with data from GSA 12 to try a preliminary joint assessment in collaboration with the INSTM (Tunisia) and in coordination with MedSudMed.

CopeMed will continue to support the monitoring of bycatch and discards for commercial bottom trawl fisheries involving observers on board on a pilot basis in the eastern part of Algeria. This activity is in line with the GFCM Mid-term Strategy Output 1.4: reduce bycatch rates in the Mediterranean fisheries and will support GFCM-SAC Work Plan for 2018-2020 keeping a bycatch monitoring programme and related training activities, to collect representative data and facilitate the potential adoption of management measures towards the reduction of bycatch rates as well as the protection of VMEs

CopeMed II will continue providing technical and financial assistance to Morocco (INRH) to carry out the biological sampling of *Pagellus bogaraveo* in the Strait of Gibraltar in close collaboration with the IEO scientists. The objective is to be in the position to contribute with reliable updated biological parameters to the benchmark on this species that will take place back-to-back with the meeting of the Subregional Committee on Western Mediterranean in March 2019 in Sète, France. The Project will contribute in this way to the assessment of the stock and the definition of the size of first maturity in the Gibraltar Strait (see 1.2).

The data collection of European Eel will continue in Tunisia. The outputs will be presented as contribution to the Mediterranean stock assessment at the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL), in 2019. CopeMed II stands ready to support the collection of data of this regional priority species in other countries upon request.

2.2. Subregional research activities related with shared stocks

- Blackspot seabream

The project is foreseeing technical and financial support to progress with the assessment of blackspot seabream in the Strait of Gibraltar, including the data collection in Morocco and Spain in a coordinated and standardized way; the further elaboration of CPUE data through Generalized Linear Models and the update of assessments done so far in the framework of CopeMed II to be presented to the GFCM Benchmark meeting and the corresponding subregional committee and relevant working groups in 2019. Furthermore, within the framework of the Study Group on demersal species, a session will be devoted to the assessment of this stock. In parallel, the genetic and isotopic analysis of samples taken in various locations at both sides of the Gibraltar strait will be carried out within the framework of the TransBoran project for the delimitation of stock boundaries.

- CopeMed SG on stocks assessment for demersal species in the Alborán sea (GSAs 01, 02, 03 and 04 West):

The list of demersal priority species, in Western Mediterranean as decided at the 42nd Session of GFCM are: *M. merluccius*, *P. longirostris* and *P. bogaraveo*. The project will focus attention on this species in the coming year. CopeMed will organize the Study Groups of demersal species in October 2019. The assessments done at the CopeMed Study Group on Stock Assessment of demersal species recently held in Tangiers (1-5 October 2018) will be presented to the next Working Groups on stock assessment of GFCM next 19-24 November 2018. The recommendations and advice provided will be taken into account for the next assessments and will be applied during the next Session of the Study Group in the last quarter of 2019.

- CopeMed SG on stocks assessment for small pelagic species in the Alborán sea (GSAs 01, 02, 03 and 04 West):

After several years of decline in landings and in value of *Engraulis encrasicolus* the CopeMed Study Group of stock assessment decided to focus on sardine. *Sardina pilchardus* is a species of great relevance in western Mediterranean. Despite the decline in biomass and in body condition observed in many areas of the Mediterranean, in the Alboran sea, the condition is good and the range of sizes observed in landings is quite larger than in the north side of the W-Med. These facts together with the questioning about the distribution of the stock in Alboran sea (N and S) has led the CopeMed group of experts to select sardine as priority species for assessments of the stock status and for the delimitation of stock boundaries. In addition, and to progress also in the knowledge and foresee a future assessment, data available for *E. encrasicolus* will also be compiled. A new meeting of the SG for small pelagics species in the Alboran Sea will be convened for the last quarter of 2019.

- Follow up on *Coryphaena hippurus*:

The experts of the CoryWG will continue working on the species and, in particular, to develop a framework for improving estimates of abundance trends according to the recommendations of SAC. There is currently a pilot study to gather data on catch, effort and length distribution during the current fishing season in Mallorca and in Tunisia FADs fishery. The numbers of settings is being collected along with the number of fishing trips. These data will help to improve the estimates of CPUEs and to deepen on the knowledge of the biology and ecology of the species. With the information collected this year, new attempts of standardizing CPUEs by Generalized Linear Models will be done. The Standardized indices will be then used to run again production and analytical

models with the assistance of Mediterranean and external experts in this field. A meeting of the CoryWG for this assessment might be foreseen back-to-back to the SG on small pelagics last quarter of 2019. In addition, much progress has been achieved on the drafting of the overview of the latest developments in the knowledge of this fishery in the Mediterranean and the plan is to send it for publication in an international journal in the first quarter of 2019.

- Progress on the identification of stock boundaries:

With regards the identification of stocks units of hake, sardine and Blackspot seabream and its connectivity in the Alboran Sea (TransBoran project), the sampling of blackspot seabream and of hake will finalize at the end of 2018, as foreseen after the extension of blackspot seabream sampling points to farther areas (Canary Island, Portugal, Azores, Bay of Biscay, Malta, Sicily, and Greece) to get better statistical contrast. Once all samples are received in the respective coordinator laboratories, the analysis by different disciplines, *i.e.*: genetics, isotopes and elemental composition of otoliths and muscle, parasites, morphometry of body and bones and meristics of fins and vertebra will be carried out during the first half of 2019.

In parallel, the team on physical oceanography will continue the simulation of particles dispersal in the strait of Gibraltar under different conditions to replicate the trajectories of eggs and larvae of the three species.

The statistical comparisons of historical series of fishery and life history data will be performed and these results will be combined along with the outcomes of the different disciplines. A workshop will be organized in the last quarter of 2019 to put forward and discuss all these results and to perform the multivariate statistical analysis that will help to produce a detailed picture of the spatial structure of these populations in the Alborán Sea

2.3. Additional supporting actions for the GFCM mid-term strategy

Upon request of countries and in support of the GFCM Regional Survey on **Small Scale Fisheries (SSF)**, CopeMed II can assist on the collection of data on selected fishing gears and areas of SSF to contribute to the mapping of the spatial distribution of small scale fisheries at regional level.

In the same line, in order to test the proposed GFCM/SAC methodology for the assessment of **Recreational Fisheries (RFs)**, upon request of the countries, CopeMed would identify and implement pilot case studies to collect data on this unreported fishery.

With regards the standardization of methodologies in the execution and data analysis of **surveys at sea** CopeMed II stands ready to support countries, upon request, with training and data analysis, as it has been already initiated in 2018 in Algeria.

Considering the significant role and impact of **non-indigenous species (NIS)** in the Mediterranean, the GFCM and UN Environment/MAP launched a pilot monitoring programme on non-indigenous species in relation to fisheries in the eastern Mediterranean. The objective of the programme is to gather information on NIS using standardized methods and indicators to evaluate the status of the most invasive species in relation to fisheries, to assess their temporal and spatial trends and to provide scientific advice and recommendations on how to manage ecological and socio-economical related impacts. The programme will focus on seven priority fish species: *Saurida lessepsianus*, *Lagocephalus sceleratus*, *Pterois miles*, *Siganus rivulatus*, *Siganus luridus*, *Fistularia commersonii* and *Plotosus lineatus*. During the 42nd session of the commission, countries supported the extension of such monitoring program to other areas of the Mediterranean, such as the Central and Western

Mediterranean. The monitoring programme could include one or a combination of approaches, including GFCM/DCRF related data collection mechanisms, scientific surveys at sea, and surveys of local ecological knowledge of fishers (LEK). Different LEK protocols have been proposed, including the survey protocol that has been applied by the AdriaMed and MedSudMed regional projects in the Adriatic Sea and Tunisia. In order to contribute to the ongoing monitoring programme, CopeMed could support the compilation of data on the priority list of NIS species, based on ongoing fisheries data collection programs and through the application of LEK survey protocols in countries of the Western Mediterranean.

3. Enhance regional cooperation and coordination for shared fisheries management, research, and capacity development.

3.1. Training activities

The Project will continue to support the strengthening of national expertise through the implementation of specific training with the aim to build a common ground for fisheries science. Training workshops and on-the-job training activities will be organized in different topics according to the needs expressed by this Committee and trying to cover all steps in the fishery science, from sampling and processing of data to stock assessment and management options.

In particular, and not to be considered exclusive, activities foreseen for the coming period include:

- Organization of ad-hoc trainings on methodologies for stock assessment, socioeconomic data analysis and the evaluation of management strategies upon request of countries and complementary to the objectives of the Summer School in quantitative fisheries stock assessment can be planned on a case by case basis.
- Third edition of the Summer School in quantitative fisheries stock assessment in collaboration with FAO Regional Projects, GFCM and EU-JRC. The third edition of this two-weeks course is planned for July 2019 in Capo Granitola, Italy. Modifications to the previous program will be incorporated based on the two previous experiences and with the objective of better address the needs of trainees, particularly in basic concepts on population dynamics and in data treatment. A longer first module, can be envisaged to this aim.
- Training on onboard sampling for discards and by-catches. After the first experience, in 2018 in Algeria, the project stands ready to support, under request of the countries training activities for observers on board of commercial vessels to monitor discards and incidental catch of unwanted species.

3.2. Regional coordination, cooperation and synergy

During the inter-Committee period, the project will continue working in tight coordination with the other FAO Mediterranean projects by organizing joint activities, fostering participation of experts in the training activities and adjusting calendars of meetings among them and the GFCM.

In particular cooperation with MedSudMed will continue on the activities related with working group on *Coryphaena hippurus* and on the collection of data for stock assessment in GSAs 04 and 12 which are co-funded by both projects and organized jointly.

The cooperation with EastMed will be strengthened in activities related to the training for observers on board on discards and by-catch and on the research projects run in parallel by the two projects

about transboundary population structure, for hake, sardine and blackspot seabream in Alboran Sea in the case of CopeMed II and for round sardinella in Eastern Mediterranean in the case of EastMed. Coordination and transfer of knowledge will continue in these fields.

In coordination with the other FAO projects, CopeMed will prepare the annual Report of activities and main achievements for the SAC.

Cooperation with the GFCM secretariat and its Subsidiary Bodies will continue through coordination meetings held in Rome, back-to-back in GFCM events and through on-line communication to ensure coordination in our respective mandate's tasks and to find synergies.

Furthermore and, as mentioned above, several activities are planned in line and in support to GFCM work plan for 2018-2020 and the Mid-term strategy (2017-2020) towards the sustainability of Mediterranean and Black Sea fisheries. CopeMed II will facilitate the contribution of countries in accomplishing the five targets of the Strategy and to comply with their data reporting obligations. The attendance to meetings in the international sphere of the GFCM will be granted by CopeMed II in the coming year.

The communication with the scientists of the national institutes is permanent and fluid for planning and organization of the working groups, to discuss of the Project's activities, their current research projects and to find synergies and benefits to all members. In the framework of FAO decentralisation, CopeMed will continue collaborating with the subregional (SNE) and regional (RNE) FAO offices in the North African and near East countries by supporting joint initiatives on fisheries and sharing information on the activities and results of the Project.

Taking advantage of our participation in different meetings and conferences, any occasion will be used as an opportunity to have informal meeting with donors, delegates from the member countries and experts.

More in particular, to ensure the regular information to the donors, two yearly meetings will be held with DG MARE and with Secretaría General de Pesca of Spain to present progress on the implementation of activities and discuss plan of activities for the future

3.3. Project communication

In order to keep experts, research institutions, fisheries administrations, main fisher's organisations and other stakeholders informed on fisheries and marine-related issues, the website of the project will be continuously updated with the different events, documents and news. The Project also foresees participation in external meetings, conferences and seminars to disseminate our products and search for synergies with other projects and institutions working for the fisheries in the Region. Printed material is being reduced in line with the FAO policy of environmental respect, but still some relevant technical documents can be printed and distributed upon request.

To contribute to the communication of the CopeMed experts networks, further to the website, which is continuously updated, CopeMed maintains active an on-line WorkSpace for more direct exchange of information among the experts. This WorkSpace contains a series of portals (sharepoints) for each of the most regular permanent working groups and can be enlarged with new portals as needed in the future.

The Project will continue promoting publication of scientific papers produced by scientist in the CopeMed sub-region on shared stocks, assessment methodologies marine species and its ecosystems.

In particular one publication in an international journal is planned for the next inter-Committee period

- **Dolphinfish (*Coryphaena hippurus*) biology and fisheries in the Mediterranean Sea.** Current knowledge on this species in the Mediterranean mainly as result of the workshops organized by the regional projects CopeMed and MedSudMed

In addition, all the Technical Documents and Occasional Papers produced by the technical working groups and consultants engaged will be made available on the Project web site at www.faocopemed.org.



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