



MedSudMed

Report of the Sixteenth Meeting of the Coordination Committee

Rome, Italy, 13-14 February 2018

The conclusions and recommendations given in this and in other documents in the *Assessment and Monitoring of the Fishery Resources and Ecosystems in the Straits of Sicily* 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 designations employed and the presentation of material in this publication do not imply the expression of any opinion on the part of FAO or MiPAAF or EU concerning the legal status of any country, territory, city or area, or concerning the determination of its frontiers or boundaries.

Preface

The Regional Project “Assessment and Monitoring of the Fishery Resources and the Ecosystems in the Straits of Sicily” (MedSudMed) is executed by the Food and Agriculture Organization of the United Nations (FAO) and funded by the Italian Ministry of Agriculture Food and Forestry Policies (MiPAAF). Since 2012, MedSudMed is cofounded by the Directorate General for Fisheries and Maritime Affairs of the European Commission (DG Mare). The Italian Regione Siciliana funded a project aimed at strengthening MedSudMed’s effectiveness on issues related to demersal resources, namely crustaceans for 30 months, starting from April 2011.

MedSudMed promotes scientific cooperation between research institutions of the four participating countries (Italy, Libya, Malta and Tunisia), for the continuous and dynamic assessment and monitoring of the state of the fisheries resources and the ecosystems in this area of the Mediterranean.

Research and training are supported to increase and use knowledge on fisheries ecology and ecosystems, and to create a regional network of expertise. Particular attention is given to the technical coordination of the research between the countries, which should contribute to the implementation of the Ecosystem Approach to Fisheries. Consideration is also given to the development of an appropriate tool for the management and processing of data related to fisheries and their ecosystems.

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GCP/RER/010/ITA Publications

MedSudMed Project publications are issued as series of Technical Documents (GCP/RER/010/ITA/MSM-TD-00) and Scientific Reports (GCP/RER/010/ITA/MSM/SR-00) related to meetings, missions and research organized by or conducted within the framework of the Project.

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Preparation of this document

This document is the final version of the report of the Sixteenth Meeting of the Coordination Committee, organized by the FAO-MedSudMed Project (Assessment and Monitoring of the Fisheries Resources and the Ecosystems in the Straits of Sicily) held in Rome, Italy, from 13th to 14th February 2018.

Acknowledgements

The Ministry for Food, Agriculture and Forestry Policies (MiPAAF), which provided kind hospitality and assistance in the organization of the meeting, is gratefully acknowledged.

MedSudMed

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ABSTRACT

The Sixteenth meeting of the MedSudMed Coordination Committee was held in Rome, Italy, on 13th - 14th February 2018, kindly hosted by the Italian Ministry for Agriculture, Food and Forestiers Policies (MiPAAF). The Coordination Committee was attended by representatives from the countries participating in the Project (Italy, Libya, Malta and Tunisia), representatives of the Donors, the FAO Fisheries and Aquaculture Policy and Resources Division (FIA), a representative of FAO Regional Project AdriaMed, of the FAO General Fisheries Commission for the Mediterranean Secretariat (FAO GFCM), as well as the staff of the FAO MedSudMed Project. The meeting sought to present and discuss the results of the activities carried out by the Project referring to the 2017-18.

The activities followed the methodological approach used by the Project and were presented according to the Project main components. The working paper “Project Future Implementation”, in which objectives, outputs and activities proposed for 2018 was introduced and agreed by the Committee, including additional inputs coming out from the discussion.

Table of Contents

Preface.....	ii
Preparation of this document	iv
Acknowledgement	iv
Table of Contents	v
Report of the meeting.....	1
Annex A: List of Participants.....	17
Annex B: Agenda.....	19
Annex C: List of documents	20
Annex D: Report on Project's Progress	22
Annex E: Development of the Project's Programme	35

Report of the 16th Meeting of the MedSudMed Coordination Committee

Rome, Italy, 13-14 February 2018.

Opening of the meeting and election of the Chairperson (Agenda Item n. 1)

1. The 16th meeting of the Coordination Committee of the FAO Regional Project MedSudMed “Assessment and Monitoring of the Fisheries Resources and the Ecosystems in the Straits of Sicily” was held in Rome, Italy on 13th and 14th February 2018, kindly hosted by the Italian Ministry for Agriculture, Food and Forestry Policies (MiPAAF).
2. The meeting was attended by representatives of the Donors, Italian Ministry of Agriculture, Food and Forestry Policies (MiPAAF) and the Directorate General for Fisheries and Maritime Affairs of the European Commission (DG Mare), representatives from the countries participating in the Project (Italy, Libya, Malta and Tunisia), representatives of the FAO Fisheries and Aquaculture Policy and Resources Division (FIA), representatives of FAO Regional Project AdriaMed, CopeMed II and EastMed, a representative of the FAO General Fisheries Commission for the Mediterranean Secretariat (FAO GFCM), as well as the staff of the FAO MedSudMed Project.
3. The Director General of the Maritime Fisheries and Aquaculture of the MiPAAF, Mr Riccardo Rigillo, welcomed the Committee Meeting participants. Mr Rigillo acknowledged the important role played by the Project in supporting the development of cooperation and of joint activities on fisheries research. Moreover, he recalled that considering the importance given by Italy and the GFCM to the fisheries management in the South Central Mediterranean, the role of MedSudMed will become increasingly evident. Mr Rigillo referred to the Project as the perfect tool to foster changes and support discussion on management issues while ensuring continue support for scientific and administrative cooperation. The meeting was wished every success.
4. The representatives of the participating countries, Italy, Malta, Tunisia and Libya, thanked the MiPAAF for hosting the meeting and the MedSudMed Project for the support given to the countries.
5. The representative of EC-DGMARE, Mr Laurent Markovic, echoed the other participants and thanked the MedSudMed Project and MiPAAF for organising and hosting the meeting. He took the occasion for reiterating the full support of EC-DGMARE to MedSudMed and the FAO FI lead Mediterranean Projects in general.
6. The representative of the Fisheries and Aquaculture Department, Mr Marcelo Vasconcellos, welcomed the participants and expressed the gratitude of FAO FI for the support received by the Ministry of Agriculture, Food and Forestry Policies as Donor of the MedSudMed, AdriaMed and EastMed Projects.
7. The FAO MedSudMed Project Coordinator, Mr Enrico Arneri, took the floor and thanked the Italian authorities for hosting the meeting and for the continue support to the Project activity. He also thanked EC-DG Mare for attending the MedSudMed Coordination Committee and for the continuous co-funding of the Project. He welcomed the Delegations

to the city of Rome and thanked the participating countries for their strong commitment and involvement at scientific and administrative level, which has resulted in the project achievements. He also wished to welcome in particular the representatives from Libya, expressing the satisfaction to see them actively participating in the Project. He informed the Meeting that a set of documents prepared by the Project staff had been made available on line for the participants at the URL:

http://www.faomedsudmed.org/doc_temp/cc15/CC15_documents.html. A printed copy of the documents was also distributed to each delegation.

8. The FAO MedSudMed Project Fishery Monitoring Expert, Mr Luca Ceriola, thanked the Delegations and recalled that the meeting marked sixteen years of Project activities. He called the attention of the Committee to three main achievements of the past period: i) the continuous support to further develop the GFCM Management Plan for European hake and Deep water rose shrimp¹; ii) the studies launched on small scale fisheries spatial mapping; and iii) the progress made toward the publication of scientific papers based on the joint work carried out inside the Project. These achievements testify the high level of cooperation reached and of the importance given to the Project cooperative work. This in turn results in high expectations from the work of the group and to higher the level of requests. Both aspects make the incoming period challenging and this 16th Coordination Committee meeting very relevant for the future of the Project.
9. The representative of MiPAAF, Mr Mauro Colarossi, was proposed and elected as Chairperson of this MedSudMed Coordination Committee meeting.

Adoption of the Agenda (Agenda Item n. 2)

10. The Agenda was presented to the Coordination Committee. The Chairperson invited the participants to offer any comments. The Agenda was adopted with no changes.

Report on the Project's Progress (Agenda Item n.3)

11. The Project Fishery Monitoring Expert, Mr Luca Ceriola, introduced this agenda item and presented the document "Report on the Project's Progress", in which the main activities carried out by MedSudMed from March 2017 to January 2018 are described in detail. The activities correspond to the Project work programme and mandate for this phase of the Project, as well as the recommendations of the 15th Meeting of the MedSudMed Coordination Committee.
12. Where the intersessional activities are concerned, the Project presented them grouped into four main components: 1) Cooperative research programmes and working groups; 2) National capacity development; 3) Regional cooperation; 4) Project communication.
13. The Coordination Committee was informed on the progress made in the framework of the established cooperative work programmes, starting with the component on demersal resources. To progress with the assessment of stocks of the main target species for fisheries

¹Recommendation GFCM/40/2016/4 establishing a multiannual plan for the fisheries exploiting European hake and deep-water rose shrimp in the Strait of Sicily (GSAs 12 to 16).

in the Project area, the Study Group for Stock Assessment (SG-SA) met shortly before the annual meeting of the Project Working Group on Demersal Fisheries Resources (WG-DEM). The Study Group updated the stock assessment of *Parapenaeus longirostris* and *Merluccius merluccius* in the MedSudMed area exploring different approaches; in addition, assessment exercises were finalised for *Mullus barbatus* in the northern and southern sectors of the Project area.

14. The Committee was informed that the two sessions of the WG-DEM were held, the first aimed at planning and launching new standardised activities, the second aimed at reviewing the work done and planned follow up. The WG-DEM reviewed the Study Group's activities and, among other issues, discussion in support of fisheries management was held in view of the *Recommendation GFCM/40/2016/04 establishing a multiannual plan for the fisheries exploiting European hake and deep-water rose shrimp in the Strait of Sicily (GSAs 12 to 16)* and of the *Recommendation GFCM/41/2017/08 on an International Joint Inspection and Surveillance Scheme outside the waters under national jurisdiction of GSA 12, 13, 14, 15 and 16 (Strait of Sicily)*. In addition to the Study Group and Working Group meetings, during the intersessional period, the organisation of a technical meeting involving all fisheries stakeholders (fishers, fisheries administration and scientists) from the participating countries was planned. The meeting was aimed at contributing to the development process for the multi-annual management plan for fisheries targeting *P. longirostris*, *M. merluccius* in the south-central Mediterranean Sea. The meeting was postponed and will be held in 2018.
15. The Committee was informed on the Project's activities related to small scale and recreational fisheries (SSF and RF respectively). The contribution document presented to the GFCM Regional conference "*Building a future for sustainable small-scale fisheries in the Mediterranean and the Black Sea*", held in Algeria (March 2016) was finalised and published in the proceedings of the Conference. In addition, a medium term work programme aimed at the mapping the spatial distribution of some SSF in each Project country on a pilot scale was launched in 2017. The programme comprises the identification of case studies, the in-the-field data collection, a training component on the data storing and use and the preparation of a joint document for results dissemination. Moreover, discussion on Recreational Fisheries in the Project area was fostered and an overview of legislation currently regulating this activity was gathered.
16. In the framework of demersal resources, the Meeting was informed on activities related to invasive non indigenous species. As for SSF, a multi-step programme was initiated and aimed at gathering updated information on the evolution of the populations of these species through time. The programme includes the definition of a common protocol, the in-the-field data collection, the data digitalisation and their use for results dissemination.
17. In the context of activities regarding demersal fisheries resources, the Meeting was informed on socio-economic survey for fisheries exploiting *P. longirostris* and *M. merluccius* in North Tunisia. The activities were carried out as a pilot action in 2016. The work done and preliminary achievements were discussed in the framework of the WG-DEM. In 2017, the data survey was further supported in order to: i) consolidate the group of experts and the work done in 2016; ii) provide national authorities with updated information on deep water

trawl fisheries; iii) support compliance with GFCM requirements in terms of data submission; iv) provide basic information for the assessment and bio-economic evaluation of *P. longirostris* and *M. merluccius* fisheries in the south-central Mediterranean in line with the Recommendation GFCM/40/2016/04. Furthermore, in Tunisia, the Project supported actions aimed at improving knowledge on bottom trawl fisheries in terms of catch and fishing operations. A pilot action for biological sampling at landing site in north Tunisia was launched to gather updated information on the catch of deep water bottom trawl fisheries. Support was also provided to the direct monitoring of bottom trawl fisheries in the shelf area of the Gulf of Gabès, involving observers on board. The involvement of observers on board initiated in 2016 and provided new geo-referenced data on commercial catch, including discard and incidental catch, for supporting spatial base studies and fisheries management planning.

18. The Committee was made aware that the first meeting of the Working Group on Demersal Elasmobranchs (WG-DEL) was held in the reporting period. The WG-DEL focused on current knowledge and ongoing activities on elasmobranchs at national and regional level and dealt with the elasmobranchs distribution and abundance mapping in the Project area. The WG-DEL served also to consolidate a roadmap to collate all existing information on demersal elasmobranchs in the south-central Mediterranean and toward the preparation of an ATLAS.
19. Where small pelagic fisheries resources are concerned, the Coordination Committee received detailed information on the activities and the results achieved in the intersessional period. Attention was devoted to the use of existing data from experimental surveys and commercial catch for investigating all the life history of selected fisheries target species. The activities were carried out in the framework of the MedSudMed Working Group on Small Pelagic Fishery Resources (WG-SP).
20. The WG-SP met twice in the reporting period and made progress on the appraisal of overall biomass and spatial distribution of *Trachurus trachurus* in the south central Mediterranean Sea. Progresses were also made in mapping spawning areas of *Engraulis encrasicolus* and *Sardinella aurita* based on ichthyoplankton data. A medium term programme for the standardisation of age determination through otoliths reading for *T. trachurus* was defined by the WG-SP. The WG-SP also made progress towards the publication of a special issue of the scientific journal *Hydrobiologia*.
21. The Committee was also informed that the WG-SP initiated to tackle the stock assessment of *Engraulis encrasicolus* and *Sardina pilchardus* through indirect methods. The existing data set were explored, the results of preliminary exercises were debated and the way forward for further data preparation and for robust stock assessment exercises was agreed on.
22. In the intersessional period, the collaboration with CopeMed II on *Coryphaena hippurus* and related fisheries in the western-central Mediterranean continued. Progress were made toward the preparation of a review document on the bio-ecology and fisheries of this species, on its stock status in the Mediterranean Sea and on current management regimes.

23. National capacity development was transversal to all activities. Training courses were organised following specific requests by the participating institutes, these were an opportunity to strengthen scientific collaboration and to exchange competencies between Institutes. The Meeting was informed on three training courses held in the intersessional period covering several aspects of fisheries sciences, including: i) methods for basic biological research; ii) data processing for the use of geographic information systems (GIS) in view of spatial mapping of resources distribution in relation to environmental parameters; and iii) stock assessment. The courses comprised lectures and hands-on sessions for the application of specific techniques or approaches.
24. Specific emphasis was given to the Summer School in Quantitative Fisheries Stock Assessment. It was jointly organised in collaboration with the FAO Mediterranean Projects AdriaMed, CopeMed II, EastMed, the FAO General Fisheries Commission for the Mediterranean (GFCM) and the European Commission Joint Research Centre (JRC). It was the first edition of a capacity development programme meant to be a permanent forum for experts from the entire Mediterranean and Black Sea region to be held annually thus laying the basis for cooperative and harmonised stock assessment studies in the entire Mediterranean Sea.
25. Where national capacity development was concerned, the Committee was made aware that, following a specific request formulated by the National Focal Point and Director of the Institut National des sciences et Technologies de la Mer (INSTM), with the aim to cope with the priority to maintain and further enhance national capacity for in the field biological sampling from small scale (clams) and commercial fisheries, the Project provided support for the acquisition of a vehicle to be used for in the field sampling by the INSTM. Moreover the Project continued to support the process leading to allow the Tunisian R/V Hannibal to perform experimental surveys at sea for fishery independent data collection.
26. In the framework of cooperative activities, the Project strengthened liaisons with the Donors (MiPAAF and EU-DG-MARE) and intensified the communication flow with them, including coordination meetings. Cooperation was reinforced with the other FAO Regional Projects AdriaMed, CopeMed II and EastMed throughout the year to consolidate and develop common activities. In addition, in close collaboration with CopeMed II, the Project promoted bilateral discussion and provided technical assistance to Algeria and Tunisia for the identification of species of joint interest for stock assessment purposes and to plan possible joint surveys at sea. In the framework of the FAO decentralisation process, MedSudMed is reinforcing collaboration with the FAO Sub-regional office for North African (FAO SNE) and FAO Regional Office for North African and Near East (RNE). MedSudMed continued to support the activities of the GFCM by providing scientific contributions for discussion and by participating and funding the participation of experts in GFCM meetings.
27. The project issued and disseminated several technical documents, the Committee was informed on the progresses made toward the finalisation of the Hydrobiologia Special Issue focusing on the MedSudMed area: *Marine ecosystems and living resources in Central Mediterranean Sea*. The activity is ongoing and support has been provided for the finalisation and publication of 13 manuscripts.

28. The Chair welcomed the Presentation and underlined the amount of activities done, which are the achievement of work initiated and put forward through time. He then opened the discussion.
29. The representative of Libya, Mr Hisham Ghmati, took the floor and thanked the MiPAAF for hosting the meeting and for the continue support provide to the Project. Mr Ghmati also thanked the MedSudMed staff for the work carried out. He noted that in the last year experts from Libya were able to actively participate in most of the activities and meetings organised by the Project, an achievement made possible thanks to the joint efforts and strong commitment by all parties. Mr Ghmati put also the accent to the amount of items tackled by the MedSudMed WG-DEM. This aspect, while acknowledging the importance of the WG, calls for the organisation of more specific meetings, so to give experts the possibility to properly progress in each topic (e.g. the case studies on SSF and invasive non indigenous species).
30. The Committee agreed with the comment by representative from Libya and pointed out that the only limit for having more *ad hoc* meetings and study group is the time and calendar of all involved experts. Within this remit, the recommendation will be acknowledged in the coming Project work plan.
31. The representative of EC-DG Mare, Mr Laurent Markovic, thanked the MiPAAF for hosting the meeting. He also underlined the importance attached by EC to MedSudMed. He further reiterated the full support to the MedSudMed, as well as to the other FAO Projects in the Mediterranean. Mr Markovic also underlined the relevance of all the work done by the MedSudMed and put specific emphasis to some issues like the data collection, data standardisation and overall quality enhancement. He also recalled the importance of the GFCM recommendations and the considerable progresses made in fisheries management in the central Mediterranean in the last years, from national management measures up to internationally agreed management plan and control and surveillance systems. These progresses are fully in line with the MedFish4Ever Declaration and are the result of joint effort by all actors in the region, including FAO with MedSudMed and GFCM. In this respect, Mr Markovic pointed out that coordination and synergies have been instrumental to achieve these results and will be more and more relevant for future achievements.
32. The representative of Malta, Mr Benjamin Zerafa acknowledged the presentation and the amount of work done by the Project in the last year. Mr Zerafa underlined that several activities have been carried out including trainings and technical meetings, most of which have been instrumental also for setting the work flow at national level. In this view, he pointed out the interest to continue and further strengthen the existing collaboration in view of coming joint activities.
33. The representative from Tunisia, Mr Hechmi Missaoui, greeted the meeting and thanked the MiPAAF for the kind hospitality. Mr Missaoui further highlighted the importance of the MedSudMed Project in supporting joint and cooperative fisheries related activities, which contributed to make his country compliant with GFCM requirements. He stressed the relevance of the support provided by MedSudMed on shellfish appraisal and on fisheries socio-economic data collection. In addition, he personally expressed gratitude to the Project for the assistance in the reparation of the research vessel Hannibal. He wished that, with the support of the Project, joint research activities at sea could be resumed in the next future. Mr Missaoui further pointed out the results of the wide capacity development programme put

into place by the Project. He then concluded by wishing continuing support on fisheries management issues.

34. The Italian National Focal Point, Mr Fabio Fiorentino, acknowledged the efforts made by the Project in the years in terms of cooperation, and in particular on the production of scientific papers. The importance of pursuing the work initiated and supported by the Project on fueling the scientific research in a strategic area in Mediterranean like the South Central Mediterranean was also pointed out.
35. The representative of the GFCM Secretariat, Mr Miguel Bernal echoed the participants in acknowledging the work carried out by the Project. By recalling the importance that the GFCM is addressing to the South Central Mediterranean, the management plan in place and the amount of work that is required at GFCM and at country level, he pointed out the relevance of the Project support to the work of the SAC and GFCM. It contributes to the provision of scientific advice and to the discussion on the management plan. Mr Bernal stressed that the cooperative framework established by the GFCM and the FAO regional Projects is providing positive results. In this context, he underlined that the work by the Project is in line, supports and is integrated almost completely within the work plan of the SAC and then of the GFCM. Mr Bernal recalled that as FAO both the GFCM, MedSudMed, and the FAO Mediterranean Projects in general, serve the main goal of sustainability of fisheries in Mediterranean.
36. Mr Mauro Colarossi, from MiPAAF, pointed out the important support that the Project is providing in the central Mediterranean by fostering the production of scientific advice. He recalled that scientific advice and formulation of management options are closely linked, therefore the support given to the countries by the Project assumes strategic importance.
37. The MedSudMed Project Coordinator Mr Enrico Arneri pointed out the importance of regional experts in the Project activities: it is thanks to their effort if the Project capacity of delivery is very high and of high quality. The results presented are the outcomes of the work carried out, at different levels, thanks to the strong commitment of all the research institutions and administrations involved.

FAO GFCM work plan for the next intersession period (Agenda Item n.4)

38. The representative of the GFCM Secretariat, Mr Bernal, presented the activities, targets and expected outputs foreseen for 2018 under the frame of the GFCM main committees, namely the Scientific Advisory Committee on Fisheries (SAC), Scientific Advisory Committee on Aquaculture (CAQ) in line with the Mid-term *Strategy towards the sustainability of Mediterranean and Black Sea fisheries* (GFCM Resolution/40/2016/02) and the "*Strategy for the sustainable development of Mediterranean and Black Sea Aquaculture*" (GFCM Resolution/41/2017/01). The GFCM recommendations and resolutions relevant for the Project work plan were introduced: i) Recommendation GFCM/41/2017/6 on the submission of data on fishing activities in the GFCM area of application; ii) Recommendation GFCM/41/2017/5 on the establishment of a regional adaptive management plan for the exploitation of red coral in the Mediterranean Sea; iii) Resolution GFCM/41/2017/4 on permanent working group on vulnerable marine ecosystems, which will also deal with the interactions between fisheries and marine ecosystems; iv) Resolution GFCM/41/2017/5 on a network of essential fish habitats; v) Resolution GFCM/41/2017/3 on the reactivation of the Working Group on Fishing Technology; vi) Recommendation

GFCM/41/2017/7 on a regional plan of action to combat illegal, unreported and unregulated fishing in the GFCM area of application; vii) Recommendation GFCM/41/2017/8 on an international joint inspection and surveillance scheme outside the waters under national jurisdiction of geographical subareas 12, 13, 14, 15 and 16 (Strait of Sicily). In terms of specific activities, actions to enhance knowledge and strengthen advice will be pursued and will include the development of more comprehensive framework for management strategy evaluation, implement harmonized scientific surveys-at-sea, the expansion of the ongoing collection of socio-economic fisheries data, including on small-scale fisheries. Regarding the interactions between fisheries and marine environment, data compilation will be tackled on the distribution, abundance and impact of non-indigenous species on Mediterranean fisheries and ecosystems. In the context of the implementation of surveys at sea, investigate nursery areas for European hake and Deep-water rose shrimp in the Strait of Sicily. Eventually, an overview of planned SAC meetings was provided.

39. Mr Bernal acknowledged the instrumental contribution provided by the FAO Regional Projects in the implementation of the work plan of GFCM main committees and in view of the activities foreseen under the mid-term strategy. The contribution of MedSudMed in enabling central Mediterranean countries to participate and provide input to SAC technical work and align to GFCM requirements was also underlined.
40. The Chairperson welcomed the presentation and noted the amount of activities planned by the GFCM and SAC in the framework of the Mediterranean strategy and the convergences with the tasks addressed in the MedSudMed context. In this view, he pointed out the importance of continue finding synergies and setting overall coordination between GFCM and the Project. He then opened the discussion.
41. The representative of the Tunisia and Chairperson of the SAC, Mr Othman Jarboui, thanked for the presentation and stressed the importance of the work planned. The coming period, 2018 and 2019, will be critical to move toward sustainable fisheries. A wide amount of work has been planned and some of this work is tackled both by the GFCM and MedSudMed. Accordingly, he further stressed the importance of tight coordination between the Project and the GFCM to improve the work and enhance the quality of the overall achievements.
42. The representative of DG MARE thanked for the presentation and acknowledged the ambitious work plan adopted by the GFCM. In this respect, he further stressed the importance of the work planned to properly address fisheries management in the entire Mediterranean. He also recalled that DG MARE considered the adoption of the management plan for eel at GFCM level a priority for 2018.
43. The Committee, following the discussion, concurred on the importance of the series of meetings on specific topics (fishing technology, invasive species and eels) foreseen in the second week of April that will culminate in the Sub-Regional Committee of the Central Mediterranean. The presentation of the outcomes of the research activities initiated under the umbrella of MedSudMed, such meeting would be instrumental for setting the priorities of the sub region and, in turn on the definition of the SRC-CM work plan.
44. Some additional information was required following the presentation, this focused mainly on the mechanism of organization and structure of the GFCM FishForum. On this regard, Mr Bernal informed the Committee members that the call for contributions is covering three main aspects: preparation of scientific contributions, side events and workshops. In this

view, the participants were informed that several events are going to be planned in parallel during the Forum.

45. With regard to the comments raised by the Committee members on the tight calendar of activities planned in the framework of the GFCM work plan, Mr Bernal, recalled that 2018 would be an important year as the Mid-Term strategy implementation would enter in its middle year. To this extent, Mr Bernal, recalled that the goal set by the Mid-term Strategy are requiring strong efforts by the countries in a short term period. Accordingly, he pointed out the importance to focus on the priorities set by the Mid-term Strategy to optimize the resources and maximize the efficiency. He suggested to postpone the discussion on the identification and addressing of new priorities to the years after 2020. This would also help in setting the planning of the coming years, a planning that should span on a longer timeframe, rather than being only on a mid-term perspective.
46. With regards to the planned activities in support of a regional strategy for climate change and invasive species foreseen under the GFCM Mid-term strategy, the Committee was informed by Mr Vasconcellos that FAO, GFCM and WWF organized an "Expert meeting on the implication of climate change to fisheries in the Mediterranean and Black Sea", (GFCM, Rome, from 4 to 6 December 2017). The meeting took stock of the available knowledge on the impacts and implications of climate change to fisheries in the Mediterranean and Black Sea and discussed a way forward towards a regional assessment of vulnerabilities and adaptations strategies, including a methodology for vulnerability assessment. He informed the Committee that, once validated by the SAC, the methodology will be applied to sub-regional case studies which could be supported by the Regional projects.
47. The Committee pointed out the relevance of the topic and commented that a broader vision shall be adopted to address the issue of fisheries vs climate change. Mention was done to the work that the Project has initiated on reconstructing the evolution and dynamics of alien species in the South Central Mediterranean. The spreading of non-indigenous species could be seen as an example of the global alteration linked to some climate changes. Accordingly, the importance to address all the problem faced in Mediterranean (overfishing, pollution, invasive species, etc.) was reiterated as well as the importance to share the results of any activities on these topics on occasion of the upcoming GFCM and FAO climate changes related fora.

Development of the Project's Programme for the next period (Agenda Item 5)

48. The MedSudMed Project Coordinator, Mr Arneri introduced the document "Development of the Project's Programme" The meeting was thus informed that the final work plan would also give due consideration to the indications emerging from this Committee meeting. The activities described take into account the Project objectives and results achieved so far, the indications provided by the FAO External Evaluation of the Project (2012), the outcome of the intersessional working groups' meetings as well as the suggestions received from the participating countries during the informal meetings held. All the activities planned are integrated, consistent with and will contribute to the Mediterranean mid-term strategy (2017-2020) for the sustainability of Mediterranean and Black Sea fisheries (Resolution GFCM/40/2016/2); and the GFCM SAC work plan for 2017-18 including the Sub Regional Committee for the Central Mediterranean. Furthermore, the activities are also in line with the MedFish4Ever Declaration (March 2017) and are aimed to sustain countries in achieving

the target set at national level by the UN Sustainable Development Goals. Collaboration with other FAO Mediterranean projects particularly AdriaMed, CopeMed II, and EastMed will continue and all activities are subject to budget availability.

49. The Meeting was reminded that the work plan would cover the six main areas of Project intervention: demersal fisheries resources; demersal elasmobranchs, small pelagic fisheries resources; training and national capacity development; web site and communication system; regional cooperation. Where demersal fishery resources are concerned, much of the medium-term technical work will be in support of the full development of the GFCM Recommendation (GFCM/40/2016/4) *establishing a multiannual plan for the fisheries exploiting European hake and Deep-water rose shrimp in the Strait of Sicily*. The Project will organize the annual Working Group on Demersal Fisheries Resources to: review the work of the MedSudMed SG-SA; continue discussion on the integration of socio-economic data in the appraisal of fisheries status for management strategies evaluation and bio-economic modelling; foster technical discussion in support of fisheries management; explore options for the involvement, on a pilot scale, of fishers for self-sampling and self-reporting; finalise the case studies initiated on Small Scale Fisheries, Recreational Fisheries and Non Indigenous Species; explore data availability and options to take advantage of existing geo-referenced fisheries dependent and fisheries independent data for mapping fishing activities and critical areas for fisheries resources; discuss on fishing technology to enhance selectivity of bottom trawl fisheries; progress toward the preparation of a catalogue on fishing gears; and identify priorities and plan future common joint research activities.
50. The Project will continue to support socio-economic data collection activities, finalising the processing of 2016 and 2017 data and supporting a third year's survey in Tunisia. The data collection activity will regard demersal fisheries targeting *Parapenaeus longirostris* and *Merluccius merluccius*; options will be explored to further expand the coverage to a selected small-scale metier and/or to a selected sub-region. The data gathered will be key to the completion of assessment of the state of the stocks in question and will contribute to providing Tunisia with the tools for managing national capture fisheries, fostering compliance with the GFCM recommendation on data collection. Furthermore, the Meeting was informed that the Project would also explore the possibility to enhance the collection of standardised, geo-referenced fisheries independent data supporting the expansion of national surveys either in terms of area coverage or frequency of sampling. The data gathered will be instrumental to identify critical areas like nurseries for fisheries target species, which in turn will contribute to properly planning spatial based fisheries management.
51. For what concern the fisheries related data, the Project will support a pilot programme for the collection of catch data (Biological Sampling) from bottom trawl fisheries exploiting *Parapenaeus longirostris*, *Merluccius merluccius* and *Mullus barbatus* in north Tunisia. The programme will include a capacity development component and field coordination missions. The data gathered will be instrumental to improve stock assessment exercises and the resulting scientific advice for fisheries management. The activities will see close collaboration with the GFCM in view of the work planned in the framework of the Mediterranean Mid-term strategy (2017-2020).

52. In the coming period, MedSudMed will explore the possibility to continue supporting and further expanding the 2016 on-board monitoring pilot action to gather data on overall catch, bycatch, discards and accidental catch of sensitive species; moreover, the Project will explore the possible involvement of fishers in direct sampling and self-reporting actions regarding bycatch and incidental species. The Project Study Group for Stock Assessment will also continue resource appraisal activities on selected target species, i.e. *Parapenaeus longirostris*, *Merluccius merluccius*, *Mullus barbatus*. Consolidated and more advanced models for assessment and simulation will be investigated to provide the best possible advice on the state of target species stocks and to evaluate likely consequences of different management scenarios. Options to progress in the assessment of *Mullus surmuletus* stocks will also be explored by the Study Group.
53. Where technical support to fisheries management is concerned, the Committee was informed that the Project would continue providing assistance to participating countries and to the GFCM SAC concerning the provisions of Recommendation GFCM/40/2016/4 and on the newly adopted Rec. GFCM/41/2017/8, promoting multi-stakeholder discussion on this issue, including discussion on Management Strategy Evaluation. The Project could provide technical support to participating countries in the development of national/local management plan if sought.
54. Given the ecological importance of elasmobranchs and the widespread occurrence in the south-central Mediterranean, the Project will support technical discussion and joint activities on demersal elasmobranchs. The second meeting of the Working Group on Elasmobranchs will be organised. The WG will made progress toward the mapping of spatial distribution of selected elasmobranchs species, as well as toward the development of an ATLAS on demersal Elasmobranchs in the MedSudMed area and the compilation of existing publications on elasmobranchs in a common repository. The WG will also investigate the possibility to assess the stock status of selected target species.
55. Following the technical discussion on Red coral fisheries during the MedSudMed Working Group on Demersal Fisheries Resources and the adoption at the 41st GFCM session (Montenegro, October 2017) of the Recommendation GFCM/41/2017/5 “on the establishment of a regional adaptive management plan for the exploitation of red coral in the Mediterranean Sea”, MedSudMed will explore the possibility to support the countries on this issue as per request. Moreover, Activity on red coral will be carried out in cooperation with CopeMed II.
56. Joint activities would continue on small-scale fisheries and recreational fisheries. MedSudMed will support the finalisation of the case studies initiated in 2017 by promoting the finalisation of the data collection, the standardisation and merging of spatial based data and the preparation of a common document. The document will be used to fuel discussion at relevant GFCM meetings. Where recreational fisheries (RF) is concerned, the Project will foster joint discussion on occasion of the WG-DEM and explore the possibility to compile in a single review document the legislation regulating RF currently in place at national level. The review document will be meant to further progress in the characterisation of RF in the Project area.

57. To bring forward the work initiated in 2017, the Project will continue to support the case studies initiated in all participating countries on invasive non indigenous species. The collection of data will be completed and their standardisation, digitalisation and description in a common document will be initiated. Further actions toward the characterisation of the main bio-ecological features (e.g. trophic level and interactions, potential mitigation strategies) of invasive species in the Project area will also be explored and results discussed during the MedSudMed WG-DEM. The results of the case studies will be the baseline for planning future monitoring programme and for identifying potential options to reduce the negative impact of invasive species.
58. The Project will continue to support participating countries in the process of data collection, sharing, joint processing and results dissemination related to small pelagic fisheries resources. Particular attention to the appraisal of the status of small pelagic stocks will be devoted. In particular, the Project will resume the work done and explore options to plan, in the long-term, the implementation of an inter-ship comparison for acoustic surveys between the Italian (R/V Dallaporta) and Tunisian (R/V Hannibal) research vessels. In addition, the Project will explore the technical options to perform acoustic surveys covering the entire Project area upon request. Discussion will be held in the framework of the MedSudMed Working Group and/or Study Group on Small Pelagics.
59. Where fish ageing is concerned, the Project will promote a multi-step programme to standardise small pelagic fish age determination through otoliths reading. The programme will focus on *Trachurus trachurus* and will include: a capacity development component, a standardisation exercises and the exchange of otoliths for reading comparison, the definition of a common criteria of interpretation and age class determination. Once the process and methods for otoliths reading standardisation will be consolidated, the same approach could be used to other species. Moreover, MedSudMed will continue to support the joint survey data analysis on *T. trachurus* for spatial distribution and stock abundance determination.
60. In the coming period, the Project will continue to support discussion on and appraisal of *C. hippurus* stock and fisheries. Likewise, work will be done to complete the review document on *C. hippurus* and related fisheries. The activity will be carried out in cooperation with CopeMed II.
61. A new meeting of the *Study Group for the joint processing of acoustic and ichthyoplankton data* will be organized on 2018. The Study Group will contribute to progress in the analysis and comparison of national acoustic, and ichthyoplankton data. The Working Group on small pelagics will meet to overview all the activities done, to progress in joint data analysis and to foster discussion on emerging priorities. Working Group on small pelagics will meet in the second half of 2018; the organization of a further meeting in the first semester of 2018 will be explored. The possibility to invite expert/s from Algeria to the Study Group is envisaged in collaboration with CopeMed II.
62. Capacity building activities will be transversal to all areas of Project intervention and some key training activities are planned. In particular, a training programme on basic fish biology will be organized for staff of the Marine Biology Research Centre of Tajura, Libya (MBRC), as well as on-the-job trainings on fisheries socio-economic data collection and

processing and to digitalise geo-referenced data gathered through interviews with fishers. Moreover training workshop on methods to measure fish larvae morphometry of small pelagic (e.g. *Engraulis encrasicolus* and *Sardinella aurita*) and demersal (e.g. *Mullus barbatus*) species will be carried out. The second edition of the Summer School on stock assessment co-organized with the other FAO Regional Projects (AdriaMed, CopeMed II and EastMed), GFCM and JRC will be organized in July 2018.

63. Where communication is concerned, the Project, to enhance its visibility, as well as to further prize the Donor support, will implement a series of activities which include: i) the updating of the MedSudMed web site; ii) the preparation of communication material (leaflets); iii) the preparation of short videos illustrating specific aspects of the work of the Project in the countries; iv) Enhancing the presence on social media (e.g. Twitter), and disseminate as much as possible technical documents resulting from cooperative work.
64. Existing regional cooperation with other FAO Regional Projects such as AdriaMed, CopeMed II, and EastMed will continue. In particular, collaboration with CopeMed II will deal with studies on demersal and small pelagic species of common interest between Tunisia and Algeria, as well as where *Coryphaena hippurus* stock and fishery are concerned. The Project will take advantage of collaboration with the FAO Regional and sub-regional offices in the Mediterranean and Near-East, region such as the Sub-regional Office for North Africa (SNE), Regional Office for North Africa and Near East (RNE). Synergies with other international institutions and initiatives in the Central Mediterranean regarding fishery subjects of interest for the Project will be reinforced for the sake of avoiding duplication of efforts and optimizing the use of human and financial resources.
65. In line with previous decisions of the Coordination Committees and with the recommendations that emerged from the Independent Evaluation carried out in 2012, and with the recently approved GFCM Mid-term Strategy 2017-2020, the Project will continue to strengthen international and regional cooperation at Mediterranean level with the GFCM and its subsidiary bodies.
66. At the end of the presentation the Chairperson commented that, the illustrated work plan covers all the issues necessary to the countries to fulfill the requirements set by the international agendas. He therefore opened the floor for comments and discussion.
67. The representative of Libya, Mr Hisham Ghmati, acknowledged the work plan presented and noted that it reflects the discussion held through the year and the emerging priorities. Further to the activities proposed, he stressed the importance for Libya to resume some work for the direct appraisal of small pelagic biomass at sea. In this view, he wished that, the Project could explore the possibility to support an acoustic survey in Libya. In this respect, he stressed the importance to perform the survey with the same vessel used in the last survey (R/V Dallaporta in 2010).
68. The Committee welcomed the proposal to resume scientific surveys at sea in Libya waters. It was reiterated that this activity is well embedded in the mid-term strategy. The Committee concurred also that, to be effective, 2018 should be devoted to define and finalise all the organization arrangements related to the survey. The process should start with the

identification of suitable period in 2019 and with the consequent request to the vessel time of the R/V Dallaporta.

69. The representative of Tunisia, Mr Othman Jarboui, by echoing on the comment on the huge amount of work the experts and Project are called upon in the coming period, suggested that the Project should focus its priorities on joint surveys, the work with observers on board and actions on small scale fisheries. To this extent, Mr Jarboui called upon at improving synergies and coordination with the GFCM.
70. The representative of EC-DGMARE, Mr Laurent Markovic, congratulated the Project for the ambitious work plan presented. With regard to the evaluation of fisheries resources, small pelagics in particular, he further stressed that the EC considers the finalization of the work on stock assessment of *Engraulis encrasicolus* and *Sardina pilchardus* a priority. He also stressed that the provision of sound scientific advice is a pre-requisite for appropriate fisheries management and long term sustainability.
71. The representative of the GFCM Secretariat, Mr Bernal, while acknowledging the relevance of the work plan presented, pointed out some issues. With regards to the standardization of methodology, he informed the Committee members that manuals on surveys at sea and by-catch data collection are being finalized by the GFCM Secretariat. With regards to small pelagic resources, Mr Bernal recalled that for the south-central Mediterranean, only *Engraulis encrasicolus* and *Sardina pilchardus* are indicated as priority species. Accordingly, all the efforts in the next period should be put on these two species, by providing all the data available for the purpose of resources evaluation. In this light, preliminary exercises on stock assessment shall be foreseen on these species before initiating parallel exercise on other resources. Concerning the experts' contribution to the GFCM SAC Sub Regional Committee-Central Mediterranean, the Project was invited to present to the SRC-CM the outcomes achieved within its framework. Mr Bernal further to the proposal of the delegate from Libya on the acoustic survey, recalled that the joint surveys at sea is part of the Mid-term Strategy and in this line close synergies with the Project and the country shall be foreseen. Moreover, Mr Bernal called the attention of the Committee on the importance to providing support to the preparation of GFCM technical meetings. He pointed out that, as the number of activities of the GFCM is increasing, the GFCM Secretariat is not anymore in the position to provide support also on the preparation of technical documents. Accordingly he called for an increasing pro-active role of the experts of the sub-region in providing background information and actively participation in the preparation of technical events.
72. The representative of Tunisia, Mr Hechmi Missaoui, put the accent on the *ad hoc* work planned on selected species. In this respect, he called the attention of the Committee to the recent evolution of the abundance and fishery of *Lepidopus caudatus*. *L. caudatus* was regarded as important species in Tunisia for total catch. However, in recent years the total catch of this species declined suddenly. In this respect, Mr Missaoui proposed to tackle this issue in the framework of the MedSudMed Working Groups. The Committee noted the proposal and agreed that one agenda item of the next WG on demersal fisheries resources should be devoted to this species.

73. The representative of Malta, Mr Zerafa, highlighted that most of the activities illustrated during the presentation are of key importance for his country. Above all, he stressed the interest for the Malta in participating in the studies on non-indigenous species using local ecological knowledge and small scale fisheries, as well as in capacity development programmes, including on spatial analysis of geo-referenced data, socio-economics, stock assessment and fishery management.
74. The representative of Italy, Mr Fabio Fiorentino, mentioned the foreseen work on biocoenoses mapping and underlined the importance to link this activity with the identification of Vulnerable Marine Ecosystem (VME) in the central Mediterranean Sea, which is now a priority at local and Mediterranean level. In addition, by recalling the work initiated on demersal elasmobranchs, Mr Fiorentino brought to the attention of the Committee, the possibility that the Project support a tagging programme. Such activity would contribute to address several issues related to elasmobranchs, including the definition of stock boundaries and units, the migration routes and several aspects related to their biology. He concluded by pointing out the importance to include into the work on invasive species, the preparation of an inventory of the species relevant for fisheries characterising the south-central Mediterranean (invasive and native). This inventory could be the milestone for monitoring the arrival and impact of new species and the overall effects of climate changes generally. He concluded echoing the representative from Tunisia regarding the decline in the standing stock of *L. caudatus* in south Sicily.
75. The representative of Italy, Mr Angelo Bonanno, after acknowledging the presentation, pointed out some further issues to be addressed under the MedSudMed cooperative framework. Mr Bonanno reiterated the importance to further strengthen the cooperation within the Project participating countries aimed at performing surveys at sea. In particular, he pointed out the importance to continue covering the entire Sicilian and Maltese shelf through a single cooperative acoustic survey in the coming period to further expand the twelve-year existing time series. Moreover, Mr Bonanno put evidence on the relevance of the work done for the preparation of the Hydrobiologia Special Issue. The finalization of this activity will be a further tangible achievement of the established cooperation and a reference for future work of the entire pelagic community at sea. Mr Bonanno also stressed the importance that the Project could continue to support the participation of experts from Tunisia and Libya to the MEDIAS meeting, as this is a further occasion for knowledge and experience sharing. When dealing with methods standardization, He also recalled the existing exercises on the standardisation of otoliths reading in the ICES. He wished that all the experts from the MedSudMed area could join these exercises and provide their contribute to the discussion as single team. Mr Bonanno concluded by recalling the Committee that there is still considerable potential to use the data gathered during national acoustic surveys to study zooplankton and characterise the local productivity. Information on productivity, together with existing satellite data on environmental factors could contribute to provide new insights on the factors affecting abundance and distribution of small pelagic species.
76. The Committee acknowledged the comments by the Italian delegates and concurred that the activities mentioned be tackled in the framework of the Project WGs and ad hoc meetings, like e.g. the Study Group for joint processing of survey data. Regarding the involvement of experts to international meetings the support will continue to be provided like done in the previous years depending on budget availability.

77. The representative of the Fisheries and Aquaculture Department of FAO, Mr Vasconcellos, brought the Committee's attention to the activities that the Project could jointly organize with the Project CopeMed II. Where the capacity development on acoustic surveys is concerned, the Committee was informed that CopeMed II is planning a one-month training for experts from Algeria on acoustic data interpretation, with the intent to create a critical mass on the subject. He invited the committee to consider similar initiatives for experts working in the Strait of Sicily, through the support of the two projects. By continuing on capacity development, he recalled the good experience of the Summer school on stock assessment and he informed the Committee members of the proposal raised during the Coordination Committee of the AdriaMed Project to organize a similar school on fisheries management, targeting young fisheries managers. Mr Vasconcellos then mentioned the research programme that CopeMed II is implementing on stocks boundaries in the Alboran Sea, which foresees samplings also in Tunisia and Malta to characterize hake, sardine and blackspot seabream stock descriptors in adjacent waters. He suggested that the results of this project should be brought to the attention of the next coordination committee of MedSudMed, when synergies could be discussed to extend the methodology to the Strait of Sicily. Also in relation to the ongoing work on the assessment of stocks shared between Algeria (GSA4) and Tunisia (GSA12), he suggested to hold joint session of the CopeMed II and MedSudMed WGs in 2018 to have joint preliminary assessment. Similarly, when dealing with the GFCM Working Group on Fishing Technology, Mr Vasconcellos informed the participants that during the CopeMed II Coordination Committee, discussion was held on the possible compilation of studies carried out on selectivity in the Western-Central Mediterranean. The topic, of interest also for MedSudMed experts, could be jointly tackled in an effort to prepare a common contribution to the WGFiT.
78. The representative of EC-DGMARE further stressed the importance of the joint capacity development programme put in place by FAO FI, the GFCM and JRC on stock assessment and stressed the need to continue putting emphasis on such activities.
79. After thorough discussion and comment on the content of the Document CC/16/03, the Committee agreed on the programme of activities proposed and the suggestions made by the participants for the coming period. The activities will be carried out upon budget availability.

Other matters (Agenda item n.6)

80. Delegates and Meeting participants wished to express their thanks to the Italian Ministry of Agriculture, Food and Forestry Policies for the kind hospitality provided.

Date and venue of the next Coordination Committee meeting (Agenda item 7)

81. The Maltese delegation invited the Committee to consider Malta as venue for the next meeting. The Committee was also reminded about the pending invitation by Libya. The Committee welcomed the invitations and looked forward to meet in Libya as soon as the general conditions will make it possible. The date and venue of the next Coordination Committee meeting will be defined in due time by the Project.
82. The report was adopted on the 14th February 2018.

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Annotated Agenda

1. Opening of the meeting and election of the Chairperson

2. Adoption of the Agenda

3. Report on the Project's progress

The main activities and the Project's outputs will be presented and reviewed. Information will be given on the activities of the MedSudMed Working Groups, the on-going cooperative research work, the training sessions, the technical work in support to fishery management and the relationship and cooperation of the Project at Mediterranean level.

4. FAO General Fisheries Commission for the Mediterranean (GFCM) work plan and strategy for the next intersession period

An update on the GFCM activities for the period 2018-2019 and on the Mediterranean mid-term strategy (2017-2020) will be presented. Discussion will be held on how the activities foreseen by the Project are integrated and will contribute to the Mediterranean Strategy and to the work of the GFCM Sub-regional Committee for the Central Mediterranean Sea.

5. Development of the Project's Programme for the next period

The work plan of the Project will be outlined and discussed. Topics to be dealt with are those pertaining to the ongoing research programmes, the training activities, the joint activities directed toward the national capacity development and the preparatory work towards joint fishery management decisions in the project area. Particular attention will be given to the follow-up of the MedSudMed Working Groups activities and priorities, and to the technical support for the development of harmonised fishery management strategies. The international cooperation, the relationship with other projects in the south-central Mediterranean Sea, the relationship with the Donors, with the GFCM and other topics brought forth by the Committee will be discussed. The Committee will be asked to provide the Project with an appraisal and orientation of the programme presented and/or any other contribution.

6. Other matters

7. Adoption of the report

8. Date and venue of the next Coordination Committee meeting

List of Documents

FAO-MedSudMed: CC/16/01	Provisional annotated agenda
FAO-MedSudMed: CC/16/02	Report on Project's Progress (March 2017 – January 2018)
FAO-MedSudMed: CC/16/03	Development of the Project's Programme
FAO-MedSudMed: CC/16/Info 01	Provisional list of participants
FAO-MedSudMed: CC/16/Info 02	Report of the Fifteenth Meeting of the Coordination Committee. <i>MedSudMed Technical Documents N.40</i>
FAO-MedSudMed: CC/16/Info 03	MedSudMed Study Group for Stock Assessment in the south-central Mediterranean Sea (Palermo, Italy, 26-29 September 2017) – Meeting memorandum
FAO-MedSudMed: CC/16/Info 04	<ul style="list-style-type: none"> - MedSudMed Working Group on Demersal Fisheries Resources in the south-central Mediterranean Sea (Tunis, Tunisia, 08-09 May 2017) – Meeting memorandum - MedSudMed Working Group on Demersal Fisheries Resources in the south-central Mediterranean Sea (FAO HQ, Rome, 07-08 November 2017) – Meeting memorandum
FAO-MedSudMed: CC/16/Info 05	<ul style="list-style-type: none"> - Stock Assessment Forms on Demersal Fisheries Resources, namely <i>Parapenaeus longirostris</i>. Presented at the GFCM-SAC – Working Group on Stock Assessment on Demersal Species (Rome, 13-18 November 2017) - Stock Assessment Forms on Demersal Fisheries Resources, namely <i>Merluccius merluccius</i>. Presented at the GFCM-SAC – Working Group on Stock Assessment on Demersal Species (Rome, 13-18 November 2017) - Stock Assessment Forms on Demersal Fisheries Resources, namely <i>Mullus barbatus</i> GSAs 15-16. Presented at the GFCM-SAC – Working Group on Stock Assessment on Demersal Species (Rome, 13-18 November 2017) - Stock Assessment Forms on Demersal Fisheries Resources, namely <i>Mullus barbatus</i> GSAs 13-14. Presented at the GFCM-SAC – Working Group on Stock Assessment on Demersal Species (Rome, 13-18 November 2017)

FAO-MedSudMed: CC/16/Info 06	MedSudMed Working Group on Demersal Elasmobranchs in the south-central Mediterranean Sea (FAO HQ, Rome, 09-10 November 2017) – Meeting memorandum
FAO-MedSudMed: CC/16/Info 07	- MedSudMed Working Group on Small Pelagic Fishery Resources in the south-central Mediterranean Sea (Tunis, Tunisia, 05 - 06 July 2017 – Meeting memorandum) - MedSudMed Working Group on Small Pelagic Fishery Resources in the south-central Mediterranean Sea (Palermo, Italy, 23 - 26 January 2018 – Meeting memorandum)
FAO-MedSudMed: CC/16/Info 08	Capacity development component 2017
FAO-MedSudMed: CC/15/Info 09	Hydrobiologia Special Issue: Marine ecosystems and living resources in the central Mediterranean Sea
FAO-MedSudMed: CC/16/Info 10	Major activities of the FAO Regional Projects. Documents presented at the GFCM SAC 19 th (Ljubljana, Slovenia, 30 May-03 June 2016)
FAO-MedSudMed: CC/16/Info 11	List of Documents

Report on the Project's Progress (March 2017– January 2018)

Introduction

This paper provides an overview of the main activities carried out by the Project MedSudMed between March 2017 and January 2018, including meetings, training, research activities and technical assistance provided to the participating countries, as well as the cooperation with the FAO Mediterranean Projects (AdriaMed, CopeMed II, EastMed), FAO General Fisheries Commission for the Mediterranean (FAO GFCM), its Scientific Advisory Committee (SAC) and other relevant institutions. The work programme and recommendations of the 15th meeting of the MedSudMed Coordination Committee (Tunis, Tunisia, 02-03 March 2017; CC/16/Info 02) were implemented.

The activities carried out during the intersessional period comply with the methodological framework of the Project and its mandate for the current phase..

This report details the main outputs of the Project activities and the results achieved with direct reference to the following Project Objectives:

- 1) Support the scientific standardization of the methodologies applied in the relevant studies related to fishery resources and to the relationships between fishery resources and biotic and abiotic factors;
- 2) Improve the scientific knowledge on fishery resources and their ecosystem in the Project area through the finalization of the research activities program;
- 3) Strengthen the national expertise through on-the-job training and working groups, and support the national research institutions in enhancing scientific expertise;
- 4) Strengthen and support scientific cooperation between the different experts and institutions involved in the Project activities;
- 5) Strengthen the technical and scientific cooperation at Mediterranean level, among the participating countries and between the Project, the FAO General Fisheries Commission for the Mediterranean (FAO GFCM) and other FAO Regional Projects.

The activities presented are grouped according to four main components, as follows, which may cover one or more of the Project Objectives:

1. Cooperative research programmes and working groups;
2. National capacity development;
3. Regional cooperation;
4. Project communication.

1. Cooperative research programmes and Working Groups

The Project, in close cooperation with the research institutes participating, initiated to implement the work plan for the medium and long term activities identified during the 11th MedSudMed Coordination Committee (Malta, April 2013). The work plan was also in

agreement with the conclusions of the FAO independent evaluation (2012) and Project mandate.

1.1. MedSudMed Component on Demersal Resources

During the inter-committee period, the work carried out within this Project component focused on planning field work, promoting discussion on emerging issues and priorities on fisheries between national experts, joint data analysis, finalisation of technical reports and technical documents. In addition, specific work was implemented to promote discussion among all fisheries stakeholders from participating countries in support of agreed management strategies for fisheries exploiting shared resources in the Project area. This work is the follow up of the priorities emerged on occasion of several discussion meetings with participating countries and during the 40th GFCM plenary sessions (Malta, 2016). In this view, synergies are established with the GFCM, which is the final forum for discussion on fisheries management.

Under this Project component, the following activities were supported:

- Study Group for Stock Assessment (SG-SA);
- Working Group on Demersal Fisheries Resources (WG-DEM, two sessions);
- Working Group on Demersal Elasmobranchs;
- Technical discussion on small scale and recreational fisheries;
- Technical discussion on invasive non-indigenous species;
- Socio-economic data collection in fisheries exploiting *P. longirostris* and *M. merluccius* in Tunisia;
- Direct (on-board) observation of fisheries in Tunisia.

- Study Group for Stock Assessment (SG-SA)

Considerable effort was made by the Project and the research institutes in the south-central Mediterranean Sea to progress toward the appraisal of the state of main fisheries target species. The stock assessment related activity were directly embedded in the framework of the MedSudMed Working Group on Demersals (WG-DEM). However, with the increase of the stocks to be assessed and of the time necessary to complete the assessment exercises, the national experts deemed necessary to hold specific meetings on stock assessment complementary to the WG-DEM. In this view, the *MedSudMed Study Group for Stock Assessment (SG-SA)* was established in 2014 and annually organised. The latest SG-SA was held in Palermo, Italy from 25 to 29 September 2017 (CC/16/Info 03). The meeting was attended by 11 experts from all the Project participating institutions. Staff of the MedSudMed Projects also attended the meeting. During the SG-SA: i) the stock assessment of *Parapenaeus longirostris* and *Merluccius merluccius* in the MedSudMed area (south-central Mediterranean Sea) were jointly updated using traditional (Extended Survivors Analysis, XSA) and new (Statistical Catch at Age like GADGET and SS3) approaches; ii) Three stock assessment exercises for *Mullus barbatus* were carried out, one per each geographical sub-area; GSAs 15-16, GSA 12 (exploratory exercise), GSAs 13-14; iii) one session was devoted to explore trial stock assessment exercises for *Mullus barbatus* using a new model, the statistical catch at age SS3; and vi) follow up to finalise the work was planned in view of the MedSudMed WG-DEM (FAO HQ, Rome, 07-08 November 2017).

- *Working Group on Demersal Fisheries Resources (WG-DEM)*

The Project organised two sessions of the MedSudMed Working Group on Demersal Fisheries Resources (WG-DEM), the first on 08-09 May 2017 in Tunis (Tunisia), the second on 07-08 November 2017 at FAO HQ.

-- The first session of the MedSudMed WG-DEM was attended by 19 researchers from all the research institutes involved in the Project and by the Project staff. The WG-DEM i) identified case studies to be carried out on small scale fisheries at national level following the standardised procedure agreed; ii) made progress toward the identification of nurseries for demersal fisheries resources by defining sampling scheme and protocol for an ad hoc sampling (bottom trawl survey) at sea; iii) initiate discussion and identified data for the characterisation of benthic communities in the Project area to be used as preliminary step in the identification of vulnerable marine ecosystems; iv) reviewed national protocols and initiated discussion toward the harmonisation of fisheries dependent data collection in the Project area; v) explored current knowledge and planned case studies on marine invasive species to be carried out in the entire Project area based on a standardised protocol (i.e. Local Ecological Knowledge protocol, LEK) (CC/16/Info 04).

-- The second session of the MedSudMed WG-DEM was attended by 22 researchers from all the research institutes involved in the Project. A representative of the GFCM Secretariat and the Project staff also participated in the meeting. The WG-DEM: i) reviewed the appraisal of the state of demersal fisheries resources (*Parapenaeus longirostris*, *Merluccius merluccius*, and *Mullus barbatus*) and fisheries in the MedSudMed Project area as produced by the SG-SA; ii) reviewed the work done and achievement of the case studies on the SSF mapping and invasive non-native species and planned their finalisation and follow up (further details are provided hereunder in the section devoted to SSF and alien species) ; iii) promoted Technical discussion in support of fisheries management; iv) reviewed the state of MedSudMed Technical Documents and of the scientific publications on demersals to be included in the Hydrobiologia Special Issue “Marine ecosystems and living resources in the Central Mediterranean Sea”; v) formulated proposals for specific activities to be implemented in the future within MedSudMed framework (CC/16/Info 04b and CC/16/Info 05).

- *Working Group on Demersal Elasmobranches in the south-central Mediterranean Sea (WG-DEL)*

The south-central Mediterranean is one of the last refuge areas in the entire basin for elasmobranches, iconic species that play a key role in the marine ecosystem. In this region, elasmobranches are caught as bycatch species by several fisheries targeting both demersal and large pelagic species. Several activities have been and are being carried out by national institutions to gather new insights on this group of species and to understand their population dynamics. To convene all information and plan joint activities on elasmobranches under the same cooperative framework, the MedSudMed Working Group on Demersal Elasmobranches in the south-central Mediterranean Sea (WG-DEL) has been established in 2016. The first meeting of the WG-DEL was held on 09-10 November 2017 at FAO HQs, Rome. The WG-DEL was attended by 19 researchers from all the research institutes involved in the MedSudMed, as well as by a representative of the GFCM Secretariat and the Project staff. After an overview of the Terms of References as adopted by the Project Coordination

Committee, the WG-DEL: i) reviewed current knowledge and ongoing activities on elasmobranchs at national and regional level; ii) made progress in the standardisation and joint processing of survey data (selected years) for elasmobranchs distribution and abundance mapping in the entire Project area; iii) agreed on a roadmap for the preparation of an ATLAS on elasmobranchs in the south-central Mediterranean by integrating bibliographic with original scientific information; iv) agreed on a short and medium term work plan for joint activities on demersal elasmobranchs (CC/16/Info 06).

- *Technical discussion in support of fisheries management*

With the objective to promote a participatory approach and disseminate scientific data and discussion outputs, MedSudMed organised so far a series of technical meetings involving all fisheries stakeholders of all participating countries. A further meeting was organised at FAO HQ, Rome on 06-07 February 2017. Representatives of fisheries associations, fisheries administrations, non governmental organizations and scientists of Italy, Libya, Malta and Tunisia joined the meetings. The meetings were aimed at contributing to the development of an internationally agreed multi-annual management plan for fisheries targeting *P. longirostris*, *M. merluccius* in the south-central Mediterranean Sea in line with the conclusions of the recommendation adopted at the 40th session of the FAO GFCM (Malta, May-June 2016). The meetings provided an opportunity for all fishery stakeholders to share information, knowledge and expertise, to compare experience and to identify priorities among all the MedSudMed participating countries. During the meeting held in January 2017, the participants: shared information on spatial distribution of fisheries resources including on nurseries and spawning grounds and agreed on possible scenarios to be tested using simulation tools for assessing their likely consequences on fish stocks and fisheries. The scenarios were used to feed discussion during several GFCM meetings, the Workshop on management strategy evaluation (FAO HQs, Rome, 20-23 February 2017), the Sub-regional Committee for the Central Mediterranean Sea (GFCM SRC-CM, 09-10 March 2017), SAC 19th and GFCM 41st sessions (16 - 19 May, Ljubljana, Slovenia and 16 - 20 October 2017, Budva, Montenegro, respectively, CC/16/Info 10

- *Support to discussion on small scale and recreational fisheries*

Attention was devoted by the Project to small scale fisheries (SSF) in recent years. In 2013, to stimulate discussion and raise awareness on the importance of SSF at regional level, the GFCM organised the first regional symposium on SSF (Malta, December 2013) and with the support of the FAO Regional Projects AdriaMed, CopeMed II, EastMed and MedSudMed. As follow up, a second event was organised in 2016 (GFCM Regional conference “*Building a future for sustainable small-scale fisheries in the Mediterranean and the Black Sea*”, 7-9 March 2016, Algiers, Algeria). On that occasion, MedSudMed contributed to the organisation of one session. The Project also promoted the preparation of a contribution depicting multi-disciplinary information on three areas in the south-central Mediterranean Sea subject to specific management rules and in which the SSF plays a major role: the Egadi (Italy), Kerkhenna (Tunisia) and Malta Islands. A contribution document published in the

proceedings of the GFCM Regional Conference was produced². To further progress on the characterisation of SSF in the Project area, on occasion of the WG-DEM held in Tunis (Tunisia, May 2017, CC/16/Info 04a), some case studies were defined to map the spatial distribution and overall activities of selected SSF at national level. This in turn resulted in coping with emerging priorities at national and GFCM level. The case studies were planned based on the sampling protocol already applied in the Adriatic in the framework of the FAO AdriaMed Project. Data collection initiated in the second half of 2017. Data gathered and resulting distribution maps were presented and discussed on occasion of the second session of the WG-DEM (FAO HQ, November 2017, CC/16/Info 04b). Data were also shared for planning the case studies finalisation and planning joint analysis.

Recreational fisheries (RFs) has considerable socio-economic importance at local and national level and contribute to the total capture production for some high valuable species. Following the request formulated during the Project Coordination Committees, discussion was initiated on RFs in the Project area in the framework of the WG-DEM. In particular, during the second session of the WG-DEM (FAO HQ, November 2017), the legislation currently regulating RF in Tunisia was reviewed and comparison with normative framework in place in the other MedSudMed countries was carried out (CC/16/Info 04b).

- *Support to discussion on invasive non-indigenous species*

A number of species from the Atlantic and from the Red Sea/Indian Oceans have entered in the Mediterranean Sea in the last decades. Some of them remained rare or occasional, others reached relatively high level of abundance and became either a resource for local fisheries or a major issue threatening indigenous species, the ecosystem and, in turn, fisheries. Owing to its position between the western and eastern Mediterranean sub-basins, the arrival of new species in the south-central Mediterranean was due to inputs from both the Atlantic (about 40%) and the Indian Ocean through the Red Sea (about 60%). The occurrence in the area of a number of non-indigenous species that are quickly spreading interacting with native marine species and affecting fisheries, was reported on occasion of the 15th Project Coordination Committee (Tunis, Tunisia, 02-03 March, 2017, CC/16/Info 02); consequently the Project was requested to tackle this issue. As follow up, on occasion of the WG-DEM held in Tunis (Tunisia, May 2017, CC/16/Info 04a), a protocol for reconstructing the dynamic of the spreading of non-indigenous species since their first recording was presented by means of the Local Ecological Knowledge (LEK). The LEK protocol has been successfully implemented in several places in the Mediterranean, by CIESM and in the Adriatic Sea under the auspices of the FAO AdriaMed Project. Case studies to apply the LEK protocol in the Project area were defined during a dedicated session of the WGDEM and applied in the second half of 2017. Data gathered and overall achievements were presented and discussed on occasion of the second session of the WG-DEM (FAO HQ, November 2017, CC/16/Info 04b). The preliminary results were used to tailor the LEK protocol to local specificities. Collected data were shared also for planning case studies finalisation and future joint analysis.

² Vitale, S., Aquilina, M., Ben Hadj Hamida, N., Bradai, M.N., Falsone, F., Jarboui, O., Micallef, R., Scannella, D., Fiorentino, F., Arneri, E., Ceriola, L. 2017. Artisanal fishery communities in the central Mediterranean: three managed case studies in the blue growth perspective.

- *Pilot action on socio-economic data collection in fisheries exploiting P. longirostris and M. merluccius in Tunisia*

According to a request formulated by representatives of the INSTM during the 13th Coordination Committee meeting (Rome, Italy, April 2015), the Project designed and initiated a pilot action on fisheries socio-economic data collection in the fishing port of La Goulette, Tunisia, in cooperation with the INSTM. The aim of this pilot activity was to verify and test the feasibility of socioeconomic survey at national scale and to provide a description of the main socio-economic aspects for the fisheries exploiting *P. longirostris* and *M. merluccius*. After a training for data collectors and overall survey coordinator, the sampling scheme for the socio-economic survey was consolidated in collaboration with the local administrations and data collectors. The first data collection was initiated in April 2016 in the ports of Tabarka, Bizerte, La Goulette and Kelibia. Either a census or sampling approach was adopted depending on the area considered and the number of vessels operating in the area. Fishing vessels exploiting *P. longirostris* and *M. merluccius* in the winter period and based in the south or east of Tunisia were also included in the sampling. In the reporting period, new surveys were supported, involving the team of experts that successfully completed the first exercise. The surveys for gathering 2017 data is currently ongoing. The activity is functional to: i) provide to national authorities with updated data on deep water trawl fisheries socio-economic aspects; ii) improve capability of the country in being compliant with GFCM requirements in terms of data collection and submission; and iii) the collection of basic information for the proper assessment and bio-economic appraisal of *P. longirostris* and *M. merluccius* and fisheries performance in the south-central Mediterranean in view of the GFCM multi-annual management plan set by the Recommendation GFCM/40/2016/04. The information gathered will also be useful for running models for management strategy evaluation. An outline of the approach adopted and data gathered during the first socio-economic survey was presented on occasion of the session of the WG-DEM held in November (CC/16/Info 04b).

- *Direct (on-board) observation of fisheries in Tunisia*

The Project, in cooperation with the INSTM, supported a Pilot action on the direct monitoring of bottom trawl fisheries in the Gulf of Gabès (GSA 14, south Tunisia). The monitoring was carried out involving observers on board. A fishing vessel with the same characteristics of the 80% of the bottom trawl fisheries in GSA 14 was monitored during regular fishing operations 10 days per month every month in 2016. The activity was planned to address a request of the 14th Coordination Committee meeting (Rome, Italy, April 2016) to provide new geo-referenced data on commercial catch including on discard and incidental catch for supporting spatial base studies and fisheries management planning. The activity was supported for the second year in 2017. After two years of monitoring, geo-referenced data on about 500 fishing operations and catch of target and non target species (including on elasmobranchs and bottom biocoenoses) were recorded per haul per fishing trip. Samples of target and accessory species were taken, as well as samples of biocoenoses. The data were processed and maps were produced using simple spatial representation and kriging interpolation (Bray Curtis inverse distance similarity). Preliminary outputs of activities including distribution maps for some target species in the GSA 14 were presented on occasion of the second session of the MedSudMed WG-DEM (FAO HQ, November 2017, CC16/Info 04b). The activity resulted

in: i) enhanced relationship between scientific institutions and professional fisheries in Tunisia; ii) updated information on fishing grounds, fishing operations and overall catch (including discard) for bottom trawlers in the Gulf of Gabès available to national institutions; iii) improved knowledge on spatial distribution of some fisheries target species; iv) new data available for planning spatial based fisheries management.

1.2. MedSudMed Component on Small Pelagic fish

As for the previous years and following the requests formulated during the MedSudMed Coordination Committee meetings, efforts were made by the Project to pursue: i) the improvement of expertise on small pelagic fisheries resources; ii) the harmonisation of methodologies for data collection at sea; iii) the standardisation and joint processing of data gathered during surveys; and iv) the dissemination of results achieved through the publication of scientific and technical documents. In this line, two sessions of the MedSudMed Working Group on Small Pelagic Fishery Resources (WG-SP) and a Study Group for joint data processing were held.

- Working Group on Small Pelagic Fishery Resources

In the inter-committee period, particular importance was given to broaden and consolidating the group of researchers involved in studies on small pelagic fish. In particular, on small pelagics: i) efforts were put in place to progress toward the appraisal of biomass and stock status of *Trachurus trachurus* and its spatial distribution mapping; ii) progresses were made in mapping spawning areas of *Engraulis encrasicolus* and *Sardinella aurita* from ichthyoplankton studies; iii) the work to perform stock assessment exercises for *E. encrasicolus* and *Sardina pilchardus* was initiated. To put in place this programme, the Project organised two sessions of the MedSudMed Working Group on Small Pelagic Fisheries Resources (WG-SP), the first in May 2017 in Tunis, Tunisia, the second in November 2017 at FAO HQ, in Rome. On occasion of both sessions, a meeting of the Study Group for joint processing of survey data (SG) was held; the outcomes of the SG were brought at the attention of the WG- SP and discussion on achieved results and of follow up planning was held.

-- The first session of the MedSudMed WG-SP was held on 05-06 July 2017 in Tunis (Tunisia). The WG-SP was attended by 15 researchers from all the research institutes involved in the Project and by the Project staff. During the meeting: i) existing acoustic and bottom trawl survey data on *Trachurus trachurus* in the Project area were explored, and a roadmap for data merging in view of mapping spatial distribution and abundance estimation was agreed on; ii) studies carried out on *T. trachurus* age and growth were reviewed and difficulties in otoliths reading and limits of growth parameters estimates were pointed out; to overcome these limits, a an exercise for otoliths reading standardisation was planned, including otoliths sampling, and exchange for blind comparative reading; iii) a standardised set of ichthyoplankton data covering the entire Project area was developed and shared, and joint studies for the identification of spawning areas for *Sardinella aurita* in the south-central Mediterranean Sea and of connectivity among them were initiated; iv) the state of the scientific papers outlining the results of joint studies carried out within the framework of the Project was reviewed (CC/16/Info 07a).

-- The second session of the MedSudMed WG-SP was held on 23-26 January 2018 in Palermo (Italy). The WG-SP was attended by 17 researchers from the research institutes involved in the Project and by the Project staff. During the meeting, national experts made progress toward the identification of spawning areas of *Sardinella aurita* and *Engraulis encrasicolus* in the south-central Mediterranean Sea. In particular, the standardised data set developed was further expanded (two years of data were added) and a preliminary exercise was carried out to: i) produce the first qualitative map for spawning areas of both species in the entire south-central Mediterranean Sea, and ii) to carry out persistency evaluation. Moreover, the meeting served to advance in acoustic and bottom trawl survey data exploration and data merging to study *Trachurus trachurus* abundance and distribution in the Project area. In particular, main attributes and catch length frequency distribution by sampling stations per survey were compared and similitudes and differences were highlighted. The experts then initiated discussion toward the stock assessment of *Engraulis encrasicolus* and *Sardina pilchardus* in the south-central Mediterranean Sea. In this respect, the previous stock assessment exercises carried out at national level were reviewed and options for further improvement were identified. The state of the scientific papers outlining the results of joint studies carried out within the framework of the Project was also reviewed; and priorities identified for joint studies and activities on small pelagic stocks and fisheries to be carried out in the framework of MedSudMed (CC/16/Info 07b).

2. National Capacity development and training

During the intersessional period, considerable effort was devoted to support the national capacity development, mainly through on-the-job and *ad hoc* training courses following specific requests of the participating institutes. The courses were an opportunity to strengthen scientific collaboration and to exchange competencies between institutes, as they involved scientists belonging to the network that has been created and consolidated by the Project. Some of the training courses allowed for joint processing of survey data and aimed not only at enhancing capacity development but also at producing scientific information directly related to the Project activities. Moreover, MedSudMed, in cooperation with the other FAO Projects in the Mediterranean and GFCM, sought synergies on common training activities to broaden the perspective of the actions planned and provide wider group of young Mediterranean experts with the possibility to develop harmonised skills and to discuss issues of common interest.

In this context, three training courses were held during 2017. The courses covered several aspects of the fisheries sciences, including methods for basic biology investigations and data processing for use of geographic information systems (GIS) for spatial mapping and stock assessment. All the trainings comprised lectures and hands-on sessions for the application of techniques or approaches. Experts from all the MedSudMed participating institutions attended the 2017 training programme, laying the basis for the standardisation of methods used and outputs produced in joint and national studies (CC/16/Info 08).

Training activities carried out by MedSudMed in the reporting period:

- Satellite data in fishery research: linking environmental data and species distribution (Tunis, Tunisia, 08-11 May 2017);
- Growth parameters estimation for fishery resources (Palermo, Italy, 17-21 July 2017);
- Summer School in Quantitative Fisheries Stock Assessment ((IAMC-CNR of Capo Granitola, Italy, 10-21 July 2017).

Specific emphasis deserves the Summer School in Quantitative Fisheries Stock Assessment. It was jointly organised in collaboration with the FAO Mediterranean Projects *AdriaMed*, *CopeMed II*, *EastMed*, the FAO General fisheries Commission for the Mediterranean (GFCM) and the European Commission Joint Research Centre (JRC). It was the first session of a capacity development programme meant to be a permanent forum for experts from the entire Mediterranean and Black Sea region to be held annually thus laying the basis for cooperative and harmonised stock assessment studies in the entire Mediterranean Sea, 15 students were supported by the projects.

Following a specific request formulated by the National Focal Point and Director of the Institut National des Sciences et Technologies de la Mer of Tunisia (INSTM), with the aim to cope with the priority to maintain and further enhance national capacity for in the field biological sampling from small scale (clams) and commercial fisheries, the Project provided support for the acquisition of a vehicle to be used for in the field sampling by the INSTM. Moreover the Project continued to support the process leading to allow the Tunisian R/V *Hannibal* to perform experimental surveys at sea for fishery independent data collection.

3. Regional cooperation

As indicated in the last meetings of the Coordination Committee and by the FAO Independent Evaluation (2012), the Project strengthened liaisons with the Donors (MiPAAF and EU-DG-MARE) and intensified the communication flow with them. In the intersessional period, a series of coordination meetings were held at the MiPAAF Headquarters. Occasion was taken during the GFCM 40th session (May 2016), the Intersessional meeting of the GFCM on the Mid-term strategy (2017–2020) towards the sustainability of Mediterranean and Black Sea fisheries (22 September-23 September 2016), the Intersessional meeting of the Compliance Committee (CoC) of the GFCM (January 2017).

Occasion was taken during the 19th session of the GFCM SAC (May 2017), the GFCM 41st session (October 2017) to meet, discuss and coordinate with the EU-DG-MARE staff for the preparation and submission of new grant applications for additional funds in the framework of the GFCM strategy (2017-2020). Three *ad hoc* missions were organised in Brussels (Belgium) with representatives of EU-DG MARE (June; July; September 2017) to discuss new funding opportunities.

Liaison meetings were held through the year with the Ministry for Agriculture, Food and Forestry Policies of Italy (MiPAAF) to ensure continuity to the Project activities.

The Project staff took advantage of several GFCM meetings (the last being the 41st GFCM plenary session) held meetings with the Director General of the DGPA (Direction Générale de la Pêche et de l'Aquaculture) and the Director of the MBRC, with staff of the Authority for Marine Wealth of Libya, and with the newly appointed National Focal Point for Malta. Emerging priorities at national level and for the MedSudMed area in general were discussed and possible future activities were planned.

The reinforcement of regional cooperation was encouraged by the Project through support provided to regional experts for the participation in several workshops, training exercises, meetings, seminars and conferences organised in the Mediterranean area. Relations were constantly maintained with the researchers and the institutes of the MedSudMed area for the discussion of the Project's activities, planning and organization of the working groups and comments on the publications produced. Several informal meetings with national experts and focal points were held through the year to preliminarily discuss technical issues and plan possible activities. In this view, and to facilitate the participation of experts from the Marine Biology Research Centre of Tajoura (MBRC, Libya) to Project activities, considerable effort was devoted by Project staff for the issuing of a multi-entry Schengen VISA for a team of experts (5, including the Director) from the MBRC for the period April 2017-April 2018. The work resulted in the full participation of MBRC staff to MedSudMed activities and meetings organised in the reporting period.

To strengthen international and regional cooperation, the Project operated closely with the FAO Regional Projects AdriaMed, CopeMed II, and EastMed. In particular, the Project interacted closely with AdriaMed³, with support provided on technical issues and administrative matters. In this view, the Project also participated in: i) the 18th AdriaMed Coordination Committee meeting (Bosnia and Herzegovina, February 2018); ii) the AdriaMed Working Group on demersal fisheries resources (FAO HQ, Rome, on 24-25 October 2017), Working Group on fisheries socio-economics in the Adriatic Sea (FAO-HQ, Rome on the 13 – 14 December 2017) and Study Group on Inter-calibration of fish otolith reading (9-10 January 2018, FAO HQ, Rome). Additionally, cooperation was sought with AdriaMed (ASFA International Partner) for the inclusion of *Libyan Journal of Marine Science* (former *Bulletin of Marine Biology Research Centre*) issued by the Marine Biology Research Centre of Tajoura (Libya) into the ASFA, under the monitoring responsibility of AdriaMed.

Cooperation was further strengthened with the FAO Project CopeMed II and EastMed to optimise the use of human and financial resources. MedSudMed staff participated to the 10th CopeMed II Coordination Committee (Algeria, 30-31 October 2017). The Project actively cooperated with AdriaMed, CopeMed II and EastMed for the organisation of the Summer School on Quantitative Fisheries Stock Assessment (July 2017). In addition, the project, in collaboration with CopeMed II, promoted and provided technical assistance to Algeria and Tunisia bilateral discussion for the identification of species of joint interest for stock assessment purpose and for planning possible joint surveys at sea.

³ Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea

In addition, several coordination meetings were also held with the other FAO Regional Projects AdriaMed, CopeMed II and EastMed throughout the year (the last being in January 2018) to consolidate and develop common activities.

In the framework of the FAO decentralisation process, MedSudMed is reinforcing collaboration with the FAO offices for north African (FAO SNE) and Near East (RNE) by: i) liaising periodically; ii) supporting joint initiatives on fisheries; and iii) sharing information on the activities of the Project.

Cooperation was further sustained with the GFCM and the GFCM Subsidiary bodies (CC/16/Info 10). Several informal coordination meetings were held with the GFCM Secretariat during the intersessional period, also back to back to FAO GFCM events, in order to strengthen collaboration and to find synergies. In addition to those meetings, the following meetings were held:

- Coordination meeting on the mid-term strategy (FAO-HQs 31 March 2017)
- Preparatory meeting with GFCM Secretariat for the SAC (FAO HQs, April 2017)
- Coordination meeting on the summer school organization (GFCM HQs, 25 May 2017).

MedSudMed continued to support the activities of the GFCM by providing scientific contributions for discussion and by participating and funding the participation of experts in GFCM meetings. Due to the overlap in geographical areas covered by MedSudMed and CopeMed II, the two Projects coordinated the support to the participation of national scientists in the meetings organised by the GFCM. Overall, MedSudMed supported the participation of about 25 experts to the following meetings held in the intersession period (CC/16/Info 10):

- GFCM Meeting of the Sub regional Committee of the Central Mediterranean (SRC-CM) 08-09 March 2017 Tunis, Tunisia;
- GFCM Coordination meeting for the implementation of scientific surveys in the Mediterranean - Ljubljana, Slovenia, 15 May 2017;
- GFCM Scientific Advisory Committee on Fisheries (SAC) - 19th session 16 - 19 May 2017, Ljubljana, Slovenia;
- GFCM Compliance Committee (CoC) - 11th Session - 29 - 30 June 2017, FAO HQs Rome, Italy;
- GFCM Working group on small-scale and recreational fisheries (WGSSF) 12- 13 September 2017, FAO HQs Rome, Italy;
- GFCM SAC “Beginners course on “Integrated Assessments using Stock Synthesis” (2 – 6 October 2017, Rome, Italy);
- 41st session of the General Fisheries Commission for the Mediterranean 16-20 October 2017, Budva, Montenegro;
- GFCM Working Groups on stock assessment of demersal species (WGSAD) and small-pelagic species (WGSASP) 13-18 November 2017, FAO HQs Rome, Italy.

4. Project Communication

4.1. Web site (<http://www.faomedsudmed.org>)

The Project put in place a series of activities to enhance its visibility and ensure that participating countries are informed of the progress made in achieving the targets and outputs set during the Coordination Committee. These included: i) the updating of the MedSudMed web site (www.faomedsudmed.org), ii) enhancing the digital presence through GFCM and FAO websites, as well as on social media (GFCM and FAO Twitter accounts), and iii) the preparation of promotional videos illustrating specific aspects of the work of the Project in the countries. In this respect, a video is being produced in cooperation with the other FAO Mediterranean Projects (AdriaMed, CopeMed II, and EastMed) on the activities that these projects put in place over more than 20 years of cooperation in the Mediterranean.

The visibility plan put in place in turn resulted in an improved visibility of the Donors contribution in the Mediterranean Sea as well as a raise awareness on the work done by the Project outputs in supporting the target set at international level (e.g. FAO SDGs, GFCM mid-term strategy).

4.2. Technical Documents and reports

The MedSudMed Publications are issued as series of Technical Documents (GCP/RER/010/ITA/MSM-TD-00) and of Scientific Reports (GCP/RER/010/ITA/MSM-SR-00) related to meetings and research organised or conducted within the framework of the Project. The list of Technical Documents available on the Project web site has been updated and more than 30 MedSudMed Technical Documents are now available as .pdf files. The MedSudMed Technical Documents are included in the ASFA (Aquatic Sciences and Fisheries Abstracts) database. The most recent Project publications are also disseminated through the Project's mailing list. Three technical document and two scientific reports related to meetings and specific research activities promoted by the Project were finalised and circulated:

- MedSudMed Working Group on Demersal Fisheries Resources in the south-central Mediterranean Sea (Tunis, Tunisia, 08-10 May 2017). GCP/RER/010/ITA/MSM-SR-1. *MedSudMed Scientific Reports*. No 11: 19 pp.
- MedSudMed Working Group on Demersal Fisheries Resources in the south-central Mediterranean Sea (Tunis, Tunisia, 07-08 November 2017). GCP/RER/010/ITA/MSM-SR-12. *MedSudMed Scientific Reports*. No 12: 18 pp.
- MedSudMed Working Group on Small Pelagic Fishery Resources in the south-central Mediterranean Sea (Tunis, Tunisia, 05-06 July 2017). GCP/RER/010/ITA/MSM-SR-13. *MedSudMed Scientific Reports*, No 13: 17 pp.
- MedSudMed Working Group on Small Pelagic Fishery Resources in the south-central Mediterranean Sea (FAO HQ, Rome, 23-26 January 2018). GCP/RER/010/ITA/MSM-SR-14. *MedSudMed Scientific Reports*, No 14: 23 pp.
- MedSudMed. 2016. Report of the Fifteenth Meeting of the Coordination Committee. FAO-MiPAAF Assessment and Monitoring of the Fisheries Resources and Ecosystems in the Straits of Sicily. GCP/RER/010/ITA/MSM-TD-40. *MedSudMed Technical Documents*, No 40: 39 pp.

- *Special issue Hydrobiologia*

Further to the Technical Documents produced, considerable effort has been devoted by MedSudMed in supporting the dissemination of the outputs of joint studies promoted by the Project. As described in the paragraph on Small Pelagics, the Project is coordinating and supporting the preparation of a monography focused on the MedSudMed area on the scientific peer-reviewed Journal 'Hydrobiologia'. The special issue will be titled: *Marine ecosystems and living resources in Central Mediterranean sea*. Overall, 17 titles have been submitted to Hydrobiologia. The Guest Editors have been involved in the peer reviewing process for scientific papers in which they were not included as authors. A number of reviewers were contacted and fully contributed to the improvement and finalisation of the papers. After the revision, process, 13 papers have been accepted for publication and are available as early view on the Hydrobiologia Web site (www.springer.com/life+sciences/ecology/journal/10750) (CC/16/Info 09).

Development of the Project's Programme

Introduction

The aim of this document is to provide the Coordination Committee (CC) members with elements for discussion on the MedSudMed Project Work Programme for the coming year.

The MedSudMed Project has been operative since April 2001 with an initial mandate of 5 years (MedSudMed phase I). During the 5th MedSudMed Coordination Committee meeting (2006), the Committee reviewed the conclusions and recommendations made by the Project's Mid-term Review and recommended a four-year extension period from 2006 to 2010 (MedSudMed II phase). Following a technical review conducted in 2009, the Italian Donor, the Ministry of Agriculture Food and Forestry Policies (MiPAAF), confirmed the extension of its financial support to the Project activities. Additional funds were also provided to MedSudMed (2011-2013) by the Regione Siciliana (Italy) to carry out specific actions on crustaceans. Since 2012, the Project has been co-funded by the Directorate General for Fisheries and Maritime Affairs of the European Commission (EU-DG Mare). At the last Coordination Committee meeting (Tunis, Tunisia, 02nd 03rd March 2017), the Italian Donor confirmed the extension of its financial support to the Project activities for the whole 2018. Moreover, the co-Donor European Commission-DG Mare further provided the contribution for the entire 2018, up to March 2019. Therefore, this work plan covers approximately 12 months of activities. The possibility of further extension is under discussion with both Donors MiPAAF and EU-DGMARE.

Based on the above, the work plan presented in this document covers approximately 12 months of activities.

The activities proposed take into account the objectives and results achieved so far, the recommendations received during the 15th Coordination Committee meeting (02-03 March 2017, Tunis, Tunisia), the indications gathered from the countries during a series of informal meetings held with the national staff and with the National Focal Points, and indications raised from the Project's Working Groups throughout the intersessional period. Moreover, the work plan will take also into due account the indications and recommendations of the 41th session of the GFCM (Montenegro, October 2017). In addition, some of the activities take into account the indications provided by the FAO External Evaluation of the Project carried out March-June 2012 by an FAO independent team.

The cooperation established with the FAO General Fisheries Commission for the Mediterranean (GFCM) is also considered and all the activities planned are integrated, consistent and will contribute to the Mediterranean mid-term strategy (2017-2020) endorsed by the GFCM for the sustainability of Mediterranean and Black Sea fisheries (Resolution GFCM/40/2016/2); and the GFCM SAC Sub Regional Committee for the Central Mediterranean.

All the activities include collaboration with other FAO Mediterranean projects particularly AdriaMed, CopeMed II, and EastMed. The activities are also in line with the MedFish4Ever

Declaration (March 2017) and are aimed to sustain countries in achieving the target set at national level by the UN Sustainable Development Goals.

The final work plan will take into due account the recommendations of the 16th Coordination Committee meeting, in accordance with the priorities expressed by the countries on each activity and directly linked to the Project's budget availability.

WORK PLAN

For the coming period the Project, in collaboration with the participating institutions, will focus its attention on research activities in support to fisheries management, the filling of scientific gaps on fisheries, fisheries resources and the ecosystem, the finalisation of pending publications and the training and capacity development component.

In order to facilitate the presentation of the work plan for the next 12 months, all the activities are organized into five main themes:

- a. Demersal fisheries resources;
- b. Demersal elasmobranchs;
- c. Small pelagic fisheries resources;
- d. Training and national capacity development;
- e. Web site and communication system;
- f. Regional cooperation.

Moreover, in coordination with the participating countries, all the FAO Regional Projects operating in the Mediterranean and the GFCM, efforts will be made to draft a tentative common calendar of activities to avoid any overlap, to find synergies and strengthen the activities carried out.

Some of the activities included in this work plan overlap with those of the previous programme of work, as they were initiated during the intersessional period and are currently in progress.

a) Demersal fisheries resources

In the coming period, effort will be devoted by the Project to further promote and support the development of a common view on the management of demersal fisheries resources. In particular, in synergy with the GFCM, most of the technical work in the medium term shall be focused to support the fully implementation of the GFCM Recommendation GFCM/40/2016/4 establishing a multiannual plan for the fisheries exploiting European hake and Deep-water rose shrimp in the Strait of Sicily (GSAs 12 to 16). More specifically the project will support:

- Socio-economic data collection (Tunisia);
- Fisheries independent data collection;
- Fisheries dependent data collection;
- Monitoring of bycatch for bottom trawl fisheries;

- The Study Group on stock assessment;
- Technical discussion in support of fisheries management;
- The Working Group on Demersal Elasmobranchs in the south-central Mediterranean Sea;
- Joint activities on red coral;
- Joint activities on recreational and small scale fisheries and on invasive non indigenous species;
- Joint activities on invasive non indigenous species;
- The Working Group on Demersal Fisheries Resources.
- Socio-economic data collection

The Project will continue to support the collection of fisheries related data. In 2016, as follow up of the discussion held during the 2015 MedSudMed Working Groups on Demersal Fisheries Resource (WG-DEM), the priority emerged to integrate socio-economic information into fisheries appraisal. Consequently, the Project initiated a programme for fisheries socio-economic data collection in Tunisia in 2016. The programme focused on demersal fisheries targeting *Parapenaeus longirostris* and *Merluccius merluccius*. A second year of data collection was supported in 2017. For the coming period the Project, together with the Direction General de la Pêche et de l'Aquaculture (DGPA) and with the Institut National Sciences et Technologies de la Mer (INSTM), will support: i) the completion of the third year of survey; ii), the processing of the collected data; and iii) the preparation of a report outlining the approach used and the estimation of selected indicators to describe the main socio-economic features for the selected fisheries. In addition, based on the experience of the previous years, the Project will investigate the possibility to expand the data collection programme to other métier, and/or to a selected zones. The data gathered will be instrumental to complete the appraisal of the state of *Parapenaeus longirostris* and *Merluccius merluccius* and related fisheries and to model their dynamics under different management scenarios. Overall, these activities will contribute to providing Tunisia administration with the tools for managing national capture fisheries and will support the country to comply with the GFCM recommendation on data collection (Recommendation GFCM/33/2009/3 and the GFCM DCRF requirements). The activities planned will also contribute to quantify the indicators set within the context of the United Nations Sustainable Development Goals (SDGs).

- Fisheries independent data collection

The discussion on possible implications of spatial based fisheries management strategies as foreseen in the Recommendation GFCM/40/2016/4, calls for accurate information on sensitive areas for target species. In this respect, geo-referenced fisheries independent data are generally considered the baseline for planning spatial based management. A number of surveys were carried out in the last 20 years in the south-central Mediterranean Sea using different research vessels and protocols. A MedSudMed inter-calibration exercise was carried out to ensure that national survey data are standardised and ready for joint processing (2011). In recent years, the area covered by scientific bottom trawl surveys in the south-central Mediterranean has been significantly reduced, hampering the possibility to complete the mapping of fisheries resources abundance and to provide updated fisheries independent data in support of fisheries assessment and management. The Project will essay to enhance the collection of standardised fisheries independent data either in terms of area coverage or

frequency of sampling using R/V Hannibal of INSTM. The data gathered will be instrumental to identify critical areas like nurseries for fisheries target species, which in turn will contribute to properly planning spatial based fisheries management.

- Fisheries dependent data collection

Following a request formulated during the 15th Project Coordination Committee on the standardization of methods for commercial catch monitoring, the MedSudMed WG-DEM explored data collection systems in place in the Project area (CC/16/Info 04a). On that occasion, the need to further strengthen the monitoring of catch and effort for selected target species in Tunisia was pointed out. As follow up, in the coming period, the Project will support a pilot programme for the collection of catch data (Biological Sampling) for bottom trawl fisheries exploiting *Parapenaeus longirostris* and *Merluccius merluccius* and *Mullus barbatus* in north Tunisia. The programme could include a capacity development component and field coordination missions. The data gathered will be instrumental to improve stock assessment exercises and the resulting scientific advice for fisheries management. The activities will see close collaboration with the GFCM in view of the work planned in the framework of the Mediterranean Mid-term strategy (2017-2020).

- Monitoring of bycatch for bottom trawl fisheries

Recently, in the Mediterranean, specific programmes have been established at national level to estimate the discarded fraction of the catch from commercial fisheries; some of them programmes involves the direct observation on board of fishing vessels. In the south-central Mediterranean, the coverage of such programmes is only partial and further effort will be necessary to cover the entire area. On this regard, as follow up of a request of its Coordination Committee, the Project supported a pilot action in 2016. Observers on board followed fishing operations twice per month from January to December 2016 in Tunisia. A second year of observer on board monitoring was supported in 2017 and overall results have been shared and discussed on occasion of the MedSudMed Working Group on Demersal Fisheries Resources. In the coming period, MedSudMed will continue supporting and further expanding the observer on board programme. In addition, in cooperation with the INSTM and GFCM, options to further expand the programme to a wider area will be explored. In this view, following the request formulated during the WG-DEM, (Tunisia, May 2017, CC/16/Info 04a) the possibility to establish pilot actions for the involvement of fishers in self sampling and self reporting pilot programmes on bycatch will be explored. The monitoring will provide useful information and data on catch overall, bycatch, incidental and accidental catch of sensitive species.

- Study Group on stock assessment

As for previous years, the Project will continue to support the organisation of the Study Group for Stock Assessment (SG-SA). The work of the SG-SA will be instrumental to carry out stock assessment exercises for selected target species, i.e. *Parapenaeus longirostris*, *Merluccius merluccius*, *Mullus barbatus*. During the SG-SA, the Project will explore the possibility to use alternative methods for the assessment of *P longirostris* and *M. merluccius*, e.g. multi species GADGET, stock synthesis (SS3). In addition, as follow up of the work carried out in 2016-17, the SG-SA will continue progressing toward the stock assessment of

Trachurus trachurus. The SG-SA will also be called to explore simulation options to evaluate likely consequences on fish stocks and fisheries of different management scenarios. The main target will be *P. longirostris*, *M. merluccius*, *M. barbatus* stocks and related fisheries. All existing data will be used for the simulations, including socio-economic data and geo-referenced data from surveys at sea. The results of the SG-SA will be presented to the MedSudMed Working Group on Demersal Species.

- Technical discussion in support of fisheries management

Multi-stakeholder technical meetings were initiated within the Project framework and in connection with GFCM involving fishers, fisheries administrations and experts each year since 2014. On occasion of the 40th session of the GFCM (May-June 2016) the GFCM Recommendation GFCM/40/2016/4 was adopted establishing a multiannual plan for the fisheries exploiting European hake and deep-water rose shrimp in the Strait of Sicily (GSAs 12 to 16). MedSudMed contributed to address technical issues relevant for the definition of fisheries management strategies. To keep its leading role in promoting technical discussion in support of fisheries management, the Project will continue to provide assistance to participating countries and SAC to cope with the Recommendation GFCM/40/2016/4 and promote multi-stakeholder discussion on this issue. This will also include discussion on Management Strategy Evaluations. In this view, MedSudMed foresees the organisation of meetings with the involvement of both scientific community, representatives of fisheries' associations, fisheries administrations of participating countries and non governmental organizations. With the aim to cope with emerging priorities at sub-regional and national level, the Project will also explore the possibility to provide technical support to participating countries in the development of national/local management plan as per request. The project will liaise with the other relevant initiatives in the framework of fishery management planning taking place in the south-central Mediterranean Sea. In this view, cooperation will be sought with the FAO CopeMed II Projects for actions currently planned in Tunisia.

- Working Group on Demersal Elasmobranchs in the south-central Mediterranean Sea

Demersal elasmobranchs are iconic and ecologically important species that have undergone a general reduction in abundance and distribution throughout the Mediterranean Sea. They are caught accidentally by a number of fishing gears and they have in general relatively low economic value. The south-central Mediterranean Sea is probably the area with the greatest occurrence of demersal elasmobranchs. As follow up to the indications received by national experts, the Project established the Working Group on Demersal Elasmobranchs (WG-DEL). The first meeting of the WG-DEL was organized in November 2017. In the coming period, the Project will continue supporting technical discussion and joint activities on demersal elasmobranchs through the WG-DEL. The WG-DEL will focus on: i) the survey data exploration for mapping spatial distribution of selected species; ii) the development of an ATLAS on demersal Elasmobranchs in the MedSudMed area; iii) the compilation of existing publications on elasmobranchs in a common repository; iv) the stock assessment for selected species. Discussion on discards, incidental catch and gear selectivity will also be tackled by the WG-DEL. The possibility to carry out the Working Group on demersal elasmobranchs back-to-back with the Working Group on Demersal Species or with the Study Group for

Stock Assessment will be considered. Coordination with similar initiatives carried out by the other FAO Regional Projects and SAC-GFCM will be sought.

- Joint activities on red coral

Great attention was devoted to red coral fisheries at Mediterranean level in recent years. Two GFCM Recommendations were adopted in 2011 and 2012 to ensure sustainability to Red coral fisheries (GFCM/35/2011/2, GFCM/36/2012/1 and GFCM/40/2016/7) and a management plan has been developed as per Recommendation GFCM/41/2017/5 “on the establishment of a regional adaptive management plan for the exploitation of red coral in the Mediterranean Sea”. Italy and Tunisia traditionally exploit Red coral in national and international waters. The Project will support the countries in relation to this recommendation as per request. Moreover Activity on red coral will be carried out in cooperation with CopeMed II.

- Joint activities on small scale and recreational fisheries

In 2014, following a recommendation of the MedSudMed Coordination Committee and in view of contributing to discussion at Mediterranean level, the Project initiated a first joint study for the characterisation of three areas in which small scale fisheries (SSF) are the main fishing activities and are subject to specific regulations: Kerkhenna islands (Tunisia), Egadi Islands (Italy) and Maltese islands. The results of the study were presented at the GFCM Regional Conference on “*Building a future for sustainable small-scale fisheries in the Mediterranean and the Black Sea*” (Algeria, March 2015) and a technical paper describing the outputs of the joint study was included in the proceeding of the Regional Conference. Discussion on SSF continued in the Project framework during the WG-DEM (May and November 2017, CC/16/Info 04a, b). On that occasion, to further progress on the characterisation of SSF in the Project area, some case studies were defined to map the spatial distribution and overall activities of selected SSF at national level. In the coming period, the Project will support: i) the finalisation of the case studies in terms of data collection; ii) the standardisation, digitalisation and merging of spatial based data, including an on-the-job training; and iii) the preparation of a document outlining the approach adopted and overall results achieved. Regarding recreational fisheries (RF), based on the discussion held on occasion of the last WG-DEM, the Project will foster discussion and explore the possibility to compile the legislation currently in place at national level in a single document will be explored. The resulting document will be meant to further progress in the characterisation of RF in the Project area.

- Joint activities on invasive non indigenous species

The occurrence in the south-central Mediterranean of a number of non-indigenous species (NIS) that are quickly spreading interacting with native marine species and affecting fisheries, was put forward as an issue to be addressed at the 15th Project Coordination Committee (Tunis, Tunisia, 02-03 March, 2017, CC/16/Info 02). On that occasion, the Project was requested to tackle the issue of NIS. As follow up, case studies to reconstruct the historical expansion dynamics of invasive non-indigenous species in the entire Project area were supported in 2017. The preliminary outputs of the case studies were discussed during the WG-DEM (May and November 2017, CC/16/Info 04a, b). In the coming period, the Project

will support: i) the finalisation of the case studies in terms of data collection; ii) the standardisation, digitalisation and merging of spatial based data; iii) the preparation of one or more documents outlining the approach adopted and overall results achieved; and iii) further actions toward the characterisation of the main bio-ecological features (e.g. trophic level and interactions, potential mitigation strategies) of invasive species in the Project area. In this view, advantage will be taken from experiences already accrued or ongoing at Mediterranean level. The results of the case studies will be the baseline for planning future monitoring programme and for identifying potential options to reduce the negative impact of invasive species.

- MedSudMed Working Group on Demersal Fisheries Resources

The Project will organize the annual MedSudMed Working Group on Demersal Fisheries Resources. The meeting will be tentatively held in two sessions. During the meetings attention will be paid to:

- Review the work done during the MedSudMed SG-SA and finalise the appraisal of the stock status of selected demersal species *Parapenaeus longirostris*, *Merluccius merluccius*, *Mullus barbatus* and move forward in the stock assessment of *Mullus surmuletus*;
- continuing discussion on the integration of socio-economic data in the appraisal of fisheries status for management strategies evaluation and bio-economic modelling;
- the harmonisation of fisheries management in the south-central Mediterranean Sea;
- explore options for the involvement, on a pilot scale, of fishers for self-sampling and self-reporting;
- finalise the case studies initiated on small scale fisheries and invasive non indigenous species;
- explore data availability and options to take advantage of existing geo-referenced fisheries dependent and fisheries independent data (VMS, AIS, observers on board, surveys at sea) for mapping fishing activities and critical areas for fisheries resources;
- Progress toward the use of geo-referenced data on benthic species for biocoenoses mapping;
- a specific session will be devoted to the discussion on possible application of grids and other devices in order avoid the capture of undersized specimen of Deep water Rose Shrimp *Parapenaeus longirostris* and Hake *Merluccius merluccius*.
- Information in the sub-region for the preparation of a catalogue of fishing gears will be collated
- identifying priorities and plan future common joint research activities;

b) Small pelagic fisheries resources

The MedSudMed work plan comprises a series of activities to promote technical discussion in support of small pelagic fisheries. In particular, the Project will support and/or organize:

- Joint surveys at sea;
- Inter-calibration of fish age determination through otoliths reading;
- Joint use of acoustic and bottom trawl survey data for biomass and spatial distribution studies;

- *Ad hoc* activities on selected species (*Coryphaena hippurus*);
- Study Group on the joint processing of acoustic and ichthyoplankton data;
- Progress toward stock assessment of *Engraulis encrasicolus* and *Sardina pilchardus*
- Working Group on small pelagic fisheries resources.

- Joint surveys at sea

The Project will continue to pursue the standardization of data collection and processing and to provide technical assistance for the expansion of the surveys at sea coverage in the south-central Mediterranean Sea. In the coming period, the Project will resume the work done and explore options to plan, in the long-term, the implementation of an inter-ship comparison for acoustic surveys between the Italian (R/V Dallaporta) and Tunisian (R/V Hannibal) research vessels. In addition, the Project will explore the technical options to perform acoustic surveys covering the entire Project area upon request. Discussion will be held in the framework of the MedSudMed Working Group and/or Study Group on Small Pelagics. This activity will contribute to the Mediterranean mid-term strategy (2017-2020). In this respect, close cooperation is in place with the GFCM Secretariat to optimise effort and resources.

- Inter-calibration of fish age determination through otoliths reading

The Project will continue to support the standardisation of methods for fisheries and fish biology related studies. In particular, given the importance to provide information on growth and population age structure for selected target species for stock assessment, the Project will promote a multi-step programme to standardise small pelagic fish age determination through otoliths reading. The programme, defined on occasion of the Working Group on Small Pelagic Fisheries Resources (WG-SP, CC/16/Info 7a), will focus on *Trachurus trachurus* and will include: a capacity development component, a standardisation exercises and the exchange of otoliths for reading comparison, the definition of a common criteria of interpretation and age class determination. Once the process and methods for otoliths reading standardisation will be consolidated, the same approach could be used to other species.

- Joint use of acoustic and bottom trawl survey data for biomass and spatial distribution studies

The Project defined a medium-long term work plan to address some knowledge gaps on *T. trachurus* that are hampering the possibility to finalize a stock assessment on this species. In the coming period, MedSudMed will continue to support the joint survey data analysis. The discussion will be carried out on occasion of the *Study Group for the joint processing of survey data* and of the *MedSudMed Working Groups on Small Pelagic and Demersal Fisheries Resources*.

- *Ad hoc* activities on selected species (*Coryphaena hippurus*)

Dolphinfish, *C. hippurus*, is target of an *ad hoc* fisheries in the entire Mediterranean Sea and of a specific recommendation of the GFCM (GFCM/30/2006/2). Two technical workshops were carried out in March and September 2016 in collaboration with CopeMed II. The workshops aimed to summarise knowledge and activities carried out on *C. hippurus* and

related fisheries (March 2016) and to progress in the appraisal of *C. hippurus* stock status and in the preparation of a review document summarising existing knowledge on *C. hippurus* and related fisheries in the Mediterranean Sea (September 2016). The stock assessment exercise carried out during the latest workshop was presented to the GFCM Working Group on Stock Assessment in November 2016. Further to the stock assessment exercise, progresses were made in the finalisation of the review document. In the coming period, the Project will continue to support discussion on and appraisal of *C. hippurus* stock and fisheries. Likewise, work will be done to complete the review document on *C. hippurus* and related fisheries. The activity will be carried out in cooperation with CopeMed II.

- Study Group on the joint processing of acoustic and ichthyoplankton data

The Project will continue to support participating countries in the process of data sharing and joint processing. The WG SP agreed in 2014 to avail of the support of a specific study group and established the SG JDP. To further continue the process and consolidate the results achieved, a *Study Group for the joint processing of acoustic and ichthyoplankton data* (SG-JDP) was organised annually since 2014. In 2018, the Project will organise a further meeting of the SG-JDP to: i) advance in the use of eggs and larvae data to define spawning areas of selected species and connectivity among them; ii) expand the set of acoustic data used for the estimation of small pelagic fish biomass at sea and for the characterisation of small pelagic fish assemblages; and iii) integrate information from acoustic and bottom trawl surveys to describe abundance and distribution of selected species. The SG-JDP will be tentatively organized in the first half of 2018. Given the nature of small pelagic stocks and the ongoing cooperation between experts from Tunisia and Algeria for what concern the acoustic studies of small pelagic fisheries, the possibility to invite expert/s from Algeria to the Working Group will be explored in collaboration with CopeMed II. The objective would be to broaden the technical discussion on fisheries resources (target species, stock spatial distribution, eggs and larvae data) and the technical support to surveys at sea.

- Working Group on small pelagic fisheries resources

The annual MedSudMed Working Group on Small Pelagic Fishery Resources (WG-SP) is tentatively planned to take place in the second semester of 2017. According to the conclusions of the previous meetings, the WG-SP will aim to:

- Review the work carried out by the *Study Group on the joint processing of acoustic and ichthyoplankton data*;
- Progress in the standardisation of age reading;
- Continue the joint discussion on multi-disciplinary studies on *Trachurus trachurus* (mapping spatial distribution, biological parameters estimation, stock assessment);
- Promote discussion and analysis of data towards the assessment of small pelagic species;
- Explore data availability to initiate studies on eggs and larvae of *Sardina pilchardus*;
- Explore options to integrate in a single comprehensive study the information on eggs, larvae, juveniles and adults of *E. encrasicolus*, *Sardina pilchardus* and *Sardinella aurita*;
- preparation of joint technical and scientific documents;
- Definition of priorities to be addressed to progress in the monitoring and appraisal of the state of small pelagic fish and fisheries.

The WG-SP will also be an occasion to consolidate and further expand the network of experts dealing with small pelagic species. In this view, and taking into account the collaboration already established in implementing surveys at sea, the possibility to enlarge the participation to experts from Algeria through synergies with CopeMed II will be sought.

c) Training activities and national capacity development

The Project will continue to support the strengthening of national expertise through the implementation of specific activities. The Project will also continue to consider the full involvement of all the research institutes and scientists from the participating countries in the activities organised as a priority. The involvement of national administrations in the process of developing capacity and a common background/view on fisheries and marine resources will also be foreseen. The strengthening of the national capacity in terms of expertise will therefore be promoted through the support of specific research programmes that are coherent with the activities of the Project. Seminars and training activities will also be considered: i) for the implementation of research activities, ii) to standardise scientific methodology and iii) to provide scientific institutions and administrations with tools and skills to discuss possible options for managing fisheries. In particular, activities foreseen for the coming period could include:

- Ad hoc programme for training on fish biology for researchers from Libya;
- On-the-job training on fisheries socio-economic data collection and processing;
- On-the-job training to digitalise geo-referenced data gathered through interviews with fishers;
- Training workshop on methods to measure fish larvae morphometry of small pelagic (e.g. *Engraulis encrasicolus* and *Sardinella aurita*) and demersal (e.g. *Mullus barbatus*) species.

In addition, the FAO Fisheries and Aquaculture Department, in close cooperation with the FAO Mediterranean Projects (AdriaMed, EastMed, CopeMed II and MedSudMed), the GFCM and the European Commission Joint Research Centre (JRC) will organise the second edition of the “Summer School in quantitative fisheries stock assessment” (Summer school). The summer school is planned to run every year for two weeks during the summer months. In 2018 the Summer school will run in the first half of at the Institute for Marine and Coastal Environment (IAMC-CNR) in Capo Granitola, Sicily (Italy).

The organisation of *ad hoc* training programmes upon request of the participating institutes can be foreseen. Training activities, when possible, will be coordinated with the other FAO Regional Projects, in order to avoid duplication or overlapping of activities.

Wherever possible, and on the basis of budget availability, the Project will continue providing the equipment necessary to the institutes for the implementation of the Project activities.

d) Web site and communication system

The Project, to enhance its visibility in the area, as well as to improve the Donors visibility will implement a series of activities which include:

- Update of the MedSudMed web site;
- Preparation of communication material (leaflets);
- Preparation of short videos illustrating specific aspects of the work of the Project in the countries;
- Enhancing the presence on social media (e.g. Twitter).

On the MedSudMed portal (www.faomedsudmed.org), the overall structure will be updated based on the main Project components and areas of activity. Following the reorganization of the MedSudMed portal, new thematic sections will be created, which will focus on specific subjects, e.g. fishery resources; demersal crustaceans.

e) Strengthening the cooperation with the other FAO Mediterranean Projects and other initiatives in the region

The existing cooperation with other FAO Regional Projects (RP) such as AdriaMed will continue, as well as collaboration with CopeMed II and EastMed. In this context, synergies are foreseen with the other regional Projects, also taking into consideration the indications provided during the FAO FIAF internal coordination meeting (Rome, January 2018). Areas of cooperation have been indicated mainly for surveys at sea, socio-economic aspects of fisheries and training.

Training activities will be coordinated among all the Projects, to avoid duplication or overlapping. The participation of other Mediterranean Project experts in training courses organized by MedSudMed will be foreseen and vice-versa. The “Summer School in quantitative fisheries stock assessment” (reported in this document under the session “Trainings”) is an example.

The preparation of common informative material (leaflets, videos, etc.) that can improve the visibility of the FAO Regional Projects in the Mediterranean area and in the international context is foreseen.

Strong collaboration has been established with CopeMed II for supporting joint discussion on shared stocks between Tunisia and Algeria. As a further follow up, the possibility of establishing a link between this group and the relevant small pelagic and demersal WGs of MedSudMed and CopeMed II will be explored.

Synergies with other international institutions and initiatives underway in the Mediterranean regarding fishery subjects of interest for the Project region will be sought for the sake of avoiding duplication of efforts and optimizing the use of human and financial resources.

As already stated, training activities will be coordinated among all the Projects.

The Project will collaborate, where relevant FAO Regional and sub-regional offices in the Mediterranean and Near-East region such as the Sub-regional Office for North Africa (SNE), Regional Office for North Africa and Near East (RNE).

f) Strengthening the cooperation with the GFCM

In line with previous decisions of the Coordination Committee, with the recommendations that emerged from the Independent Evaluation carried out in 2012, and with the recently

approved GFCM Mid-term Strategy 2017-2020, the Project will continue to strengthen international and regional cooperation at Mediterranean level with the GFCM and its subsidiary bodies (SAC, SAC Working Groups, and SAC Sub-regional Committees). This will consist in supporting: i) the preparation of scientific contributions for GFCM events; ii) the participation of experts from the Project's participating institutes in GFCM events; and iii) countries to be compliant with the GFCM recommendations. Moreover the Project will act in synergy with the proposed work plan for the SAC Sub Regional Committee for the Central Mediterranean (SRC-CM).