



ASSESSMENT AND MONITORING OF THE FISHERY RESOURCES  
AND ECOSYSTEMS IN THE STRAITS OF SICILY

*MiPAAF*

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## MedSudMed

GCP/RER/010/ITA

### Report of the Sixth Meeting of the Coordination Committee

Salammbô, Tunisia, 4-5 February 2008

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 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).

MedSudMed promotes scientific cooperation between research institutions of the four participating countries (Italy, Libyan Arab Jamahiriya, 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) 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 Sixth 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), Salammbô, Tunisia, 4-5 February 2008.

## Acknowledgements

The Director of the Institut National des Sciences et Technologies de la Mer (INSTM), Mr Ridha M'Rabet, who provided kind hospitality and assistance in the organization of the meeting, is gratefully acknowledged.

MedSudMed

Report of the Sixth Meeting of the Coordination Committee, Salammbô, Tunisia, 4-5 February 2008.

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### **ABSTRACT**

The Sixth Meeting of the MedSudMed Coordination Committee was attended by representatives of the Donor (Italy), delegations from the countries participating in the Project (Italy, Libyan Arab Jamahiriya, Malta and Tunisia), the Chair of the Scientific Advisory Committee (SAC), and the Biostatistician of the General Fisheries Commission for the Mediterranean (GFCM), as well as the staff of the FAO MedSudMed Project. A brief remind was made on the Project objectives and activities and a presentation of the activities implemented for the four MedSudMed components during the inter-session period was made. The proposed work plan for the next period was discussed and approved. It focuses on the same priorities of standardizing approaches, increasing scientific knowledge on fishery resources and ecosystems, strengthening national expertise and regional cooperation. A positive appraisal of the MedSudMed Project for supporting all the participating countries in the assessment and monitoring of the fisheries resources and for the good job carried out since the beginning was given. The belief that continuing the Project can only bring success and be beneficial for each of the participating countries was affirmed.

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## **Report of the Sixth Meeting of the MedSudMed Coordination Committee**

Salammbô, Tunisia, 4<sup>th</sup> and 5<sup>th</sup> February 2008

### **Opening of the meeting and election of the Chairman (Agenda Item n.1)**

1. The Sixth Coordination Committee Meeting of the FAO Regional Project MedSudMed “Assessment and Monitoring of the Fishery Resources and the Ecosystems in the Strait of Sicily” was held in Salammbô, Tunisia on 4<sup>th</sup> and 5<sup>th</sup> February 2008 hosted by the Institut National des Sciences et Technologies de la Mer (INSTM).
2. The meeting was attended by representatives of the Donor, delegations from the countries participating in the Project (Italy, Libyan Arab Jamahiriya, Malta and Tunisia), the Chair of the Scientific Advisory Committee (SAC), and the Biostatistician of the General Fisheries Commission for the Mediterranean (GFCM), as well as the staff of the FAO MedSudMed Project.
3. The Director of INSTM Mr Ridha M'Rabet opened the Meeting, he welcomed the delegates and expressed his honour at having the members gathered in Tunisia in occasion of the sixth MedSudMed Coordination Committee meeting, held there for the second time, and he recalled the importance of the cooperation established in the Project area
4. Furthermore Mr M'Rabet introduced the participants to the INSTM activities and highlighted that the Institute has a long scientific history, in fact it is the oldest research institution on fisheries and marine science in Africa. He reminded the participants of the multidisciplinary nature of the activities carried out by the institute, which involve components related to aquaculture, fisheries science, resources and technologies, biotechnologies, marine biology and socio-economic studies. Research Projects carried out at INSTM are periodically evaluated by external experts. The most recent evaluation in 2006 showed that 80% of objectives were achieved. INSTM is currently in the 2007-2010 phase as defined together with scientists, professionals and national authorities.
5. The Director of the INSTM pointed out many of the aspects in which cooperation has been established between the institute and MedSudMed in the different components of Project activities and he also stressed the relevance of the cooperation established among the countries involved. He highlighted how the results achieved are essential for the scientific communities and also for fisheries management purposes, in this respect he underlined the necessity for further continuation of the Project beyond 2008 in particular concerning activities related to shared stocks. He thanked the Donor country for its support and wished every success for the meeting and a pleasant stay for the delegates in Tunis.

6. The Project Coordinator took the floor and greeted the Delegations. The INSTM was also thanked for hosting the Coordination Committee for a second time. He highlighted the valuable support given by the INSTM in the establishment of effective scientific cooperation in the area, support that has been provided both in terms of scientific contribution and also in terms of the many research facilities made available during the implementation of the various Project activities. The Project Coordinator also drew the Committee's attention to the relevance of this meeting following the discussions held and the indications given during the 5<sup>th</sup> Coordination Committee held in November 2006 in Rome. During this previous meeting the results of the Project's technical review were widely discussed and the main achievements of the Project were synthesized. Of particular importance was the request made to the Project on that occasion to consolidate aspects related to reinforcing standardization on data processing, compilation of scientific information as collected by the Project, as well as the training component.
7. The scientific cooperation established and the improvement of scientific knowledge on the demersal and small pelagic fisheries resources in the region represent important scientific assets. Emphasis was put on the fact that MedSudMed will close this phase of activities and therefore this Coordination Committee Meeting was a particularly relevant moment at which to discuss the Project, its achievements and future direction. In particular it was recalled that a significant stage has been reached concerning cooperation in the area in which the Project has been working, because the CopeMed Project will shortly be operative and every effort will be made to establish strong cooperative relations, in order to maximize the efforts made to date and take advantage of the experience gained. Some examples of such cooperation between MedSudMed and AdriaMed and the preparatory phase of EastMed were touched on especially in terms of training activities and publications. The Project coordinator thanked all the representative of the countries and institution present at the meeting for the dedicated support and assistance given to the Project.
8. The Project Coordinator drew to the attention of the Committee to the Agenda, and explained that the meeting would cover the programme of work carried out or ongoing in the intersessional period, the future work plan including the status of the MedSudMed Project itself, given that the scheduled end is drawing near. Information was also given on the organisation of the meeting, the content of the Agenda and the documents available in the folder.
9. The Representative of Italy thanked the Institute and the local Authorities for their hospitality, as well as the Project Coordinator, Fabio Massa, and all the Project staff for the excellent organization and the quality of the documentation provided. Italy, and not only as a Donor to the Project, has always believed in the MedSudMed Project, particularly for the issues that it addresses and the results it obtains both in its field of competence, in support of the national research institutions and in its support of the GFCM-SAC. The continuous efforts of the Italian administration in supporting the FAO Regional Projects (not only MedSudMed but also AdriaMed and EastMed) clearly demonstrate the endeavours to facilitate the process of cooperation in the Mediterranean. The hope was expressed that these values represent a step towards further scientific cooperation in the field.



10. The representative of Libya, on behalf of the Director of the Marine Biology Research Centre, Mr. Essarbout, expressed appreciation and gratitude to the Italian government for the financial support. He also thanked FAO which successfully manages the Project and congratulated the Project Coordinator, his staff, as well as all participating countries for their cooperation. Appreciation was expressed for the trust and confidence among the participating countries and for the effective participation in the Project's scientific activities. Such confidence has facilitated exchange of knowledge and expertise. The Project supported Libyan scientists for their participation in and their contribution to the GFCM-SAC activities. The Project was also praised for successfully organizing training courses at the MBRC and abroad to upgrade the capacity of the scientists. The Project has contributed to minimizing the differences in competence between the Institutes on some topics.
11. The Maltese Representative thanked everyone that made this Project possible. She recalled that the MCFS has gained a lot in collaboration with the MedSudMed Project, in particular regarding the improvement of research activities. The Representative thanked the Italian government for funding the Project, FAO for the management and coordination of the activities, as well as the Tunisian Authorities for hosting the meeting.
12. The Representative of the GFCM secretariat underlined the impressive amount of work that was carried out with few staff and limited time available. He recalled that change is currently taking place in the way fisheries are assessed and managed, in this he considered MedSudMed a pioneer, not only in the Mediterranean, but also globally. He insisted on the importance of the training activities that have been carried out and on the outcome of the FEIS which is now tangible. He reminded the Meeting that the expansion of FEIS at regional level will be undertaken by the GFCM who welcomed this repository of scientific information very positively in absence of a regional data base of this kind. The representative of the GFCM Secretariat recalled that, because of limited budget, the GFCM relies heavily on the success of regional Projects that carry out research, assessments and scientific studies. Scientific Cooperation established by the Project was considered fundamental as it lays the basis for cooperation at a higher level within the GFCM. Finally, he underlined that the contribution of the Italian Government with the funding of three Regional Projects is well recognized within the GFCM and hope was expressed for an extension to the Project.
13. The scientist responsible for the IAMC-CNR section of Mazara del Vallo thanked the INSTM for hosting the meeting and underlined the importance of the scientific cooperation as established within the Project framework. He recalled the enthusiasm of his Institute for the cooperative work and informed the Meeting that he would make every effort to provide input for the continuation of the Project and wished to involve any competent authority, at regional, national and international level in order to continue the Project activities.

### **Adoption of the Agenda (Agenda Item n. 2)**

14. The Director of the INSTM was appointed as Chair of the meeting.
15. The Agenda was presented to the Coordination Committee. The Chair invited the participants to offer any comments. The Agenda was adopted with no changes.

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

16. The Project Coordinator introduced this point of the Agenda and the document "Report on the Project's Progress", in which most of the activities carried out by MedSudMed from November 2006 to January 2008 are presented. These include workshops, training, research activities as well as the technical assistance given to the countries and the cooperation of the Project with the GFCM, the SAC and its Sub-Committees and other relevant institutions. The activities described concern the work programme and recommendations of the fifth Meeting of the MedSudMed Coordination Committee, held in Rome, Italy in November 2006.
17. The attention of the Committee members was drawn to the Meeting documents folder in which there was a series of documents to support the presentation on the Project's intersessional activities.
18. An overview of Project progress in terms of activities and achievements was presented to the Committee by the Project staff. This detailed presentation covered all the main areas of implementation of the Project, with particular emphasis on the transversal issue of training. The Committee was informed that, in order to further strengthen relations with the participating countries and improve the implementation of the Project activities, several further activities dealing with field work and data processing methodology were carried out, while others were finalised and reported in technical documents and guidelines. Where demersal resources are concerned, a technical review of scientific knowledge on some key species was undertaken and the data gathered on spatial distribution of these resources in the Project area was analysed and the resulting information transferred into a technical report. Particular mention was made of the pilot study carried out on the spatial pattern of demersal fisheries resources, environmental factors and fishery activities in GSA 15.
19. Where the Project activities on small pelagic resources are concerned, the meeting was informed that, as in the past, relevance was given to cooperative surveys at sea with mixed teams on board the research vessels during which, in addition to collecting data, on-the-job training was made possible. With specific reference to the intersessional activities, results obtained with the data collected during the ichthyoplankton and oceanographic surveys were reported on. Technical documents on the area's pelagic fishery resources were also finalised.

20. The Project staff described how the work being carried out on other key issues has been expanded and improved, with particular reference to the Fishery Ecosystems Information System - FEIS.
21. The Committee was informed that the Project, according to its mandate, is organising a varied range of training courses, following the indications of the participating countries. Since the last meeting in November 2006 seven training activities have been carried out.
22. The Project responded to the requests and recommendations made by the GFCM and its SAC Sub Committees, moreover Project staff and collaborating experts from the region's scientific community took part in all the key GFCM, SAC and Sub-Committee meetings.
23. The Committee members appreciated the amount of work done by the Project and emphasized that it represents the follow up to the expected outputs of the last Coordination Committee.
24. The Italian Representatives expressed their full satisfaction for the work carried out by the Project and commented on the findings that have enriched the knowledge in the Project Area on the relationships between fisheries resources and biotic and abiotic environmental factors. This information was considered essential for the management of the demersal and small pelagic fisheries resources. In addition, appreciation was expressed for the level of scientific cooperation achieved in the Central Mediterranean region and the quality and quantity of the technical documents provided, especially those regarding the different guidelines, for example: the report on the demersal fisheries resources, the review on small pelagic fisheries and the final work of the pilot study. These studies are particularly relevant for the understanding of the distribution of fisheries resources in the area providing essential information on nursery and spawning areas. Finally, the Representative from Italy underlined that all on-the-job training, besides being essential to the activities of the project, was instrumental in reinforcing the spirit of scientific cooperation in the area. Furthermore, the publications issued by the Project were considered interesting not only for the Project's scientific communities but also for other areas of the Mediterranean, for this reason it was suggested to widely divulgate these documents that represent a step forward for scientific cooperation as an essential instrument for the management of fisheries resources.
25. The Tunisian focal point made a presentation on the activities carried out by INSTM during the inter-committee period. He informed the meeting that trawl surveys were carried out in GSA 12 in spring and in late autumn, with the collection of over 70 hauls. The INSTM also carried out ichthyoplankton and acoustic surveys at sea, the latter both in winter and in summer. He recalled that INSTM scientists participated in a number of training courses organized by the Project and that MedSudMed supported the participation of Tunisian scientists in the SAC activities; he also listed the communications presented at the SAC events. The INSTM was actively involved in

the drafting of Technical Documents produced by the Project and currently participates in a joint EastMed-MedSudMed initiative under the coordination of the FAO FIMF-SIDP (Species Identification Data Program) on the drafting of tri-lingual species identification sheets (Arabic, English and French).

26. The Chairman of SAC acknowledged the work carried out by the Project and underlined the high number of activities organized and their importance for the SAC. He underlined the involvement of fishermen in actions of the INSTM and the efforts made by the Institute to constantly inform the professionals. He also recalled the importance of elaborating and producing information that is useful and comprehensible to the fishermen.
27. The importance of the results obtained within MedSudMed was highlighted. One of the significant achievements is the creation of the scientific network for the study of fisheries resources in this critical area of the Central Mediterranean. The standardization, training and data processing that were carried out have allowed for a preliminary picture to be drawn of the spatial distribution of two demersal species, with the location of the nurseries and the spawning areas. However, it would be relevant to acquire a deeper understanding of the spatial distribution of the demersal resources in relation to the environment and also to the fishing patterns, in order to provide suggestions and advice to fisheries management bodies. This could be done in the framework of standardized programs with common objectives defined on regional scale.

#### **Project Future implementation (Agenda Item 4)**

28. The document “Development of the Project’s Programme” was introduced by the MedSudMed Coordinator. It was underlined that the proposed workplan for the next period aims to consolidate the achievements of the past years and provide further technical assistance at national and regional level, according to the established long-term objectives. It was first of all underlined that in order to finalize the on-going activities and to give those involved the chance to hold more detailed discussions on the continuation of MedSudMed, an extension at no cost will be requested until January 2009.
29. The Committee was further informed that the proposed workplan is considered as dependant on the collaboration of the participating institutes, and the activities identified also rely on the availability of budget. Attention will be focused on the research activities, filling remain gaps, the finalization of the pending publications, as well as the training component. The Committee was also informed that one of the priority activities in the next months will be to establish strong cooperation with the CopeMed Project as it will be operational soon.
30. The President of the SAC highlighted that the programme presented is very realistic and is in coherence with the recent discussions in the Mediterranean scientific community, in particular he suggested that it would be useful to consider the

continuation in the future of the work initiated on Operational Units. Furthermore, as support to the planned work on the octopus, it would be relevant to start with the identification of a preliminary list of operational units in the MedSudMed area. He considered that in total coherence with the aims of the Project, it would be scientifically sound to investigate the functioning of the ecosystem in the deep waters in the area; the Meeting was reminded that within the GFCM, deep water fishing was forbidden below 1000m, and in parallel it was suggested to study the biology, ecology, dynamics of deep water species and communities. Advantage should be taken from having work carried out on deep water species to establish the benchmark related to virgin status of deep fishery stocks.

31. The delegate of the GFCM Secretariat recalled the importance of the role of the FAO Regional Projects such as in the case of the data collected on operational units by the AdriaMed scientific community, which focused attention on this important issue that in the end was translated by the SAC into its Task 1. Now the efforts by the Regional Projects, among others, should be towards supporting and facilitating the collection of information on the Operational Units (OU). He suggested that in collecting data on fisheries activities, the Projects should promote the use of the Task1 tool developed by the GFCM. There is a standard system on how these OUs are identified. Socio-economic data are also listed by fleet segment in the Task 1 tool. In addition, he suggested that FEIS be taken as a priority issue, opening it up to the Copemed area for the input of relative information.
32. The Director of the INSTM agreed with the importance of monitoring fishing effort and highlighted the relevance of the Operational Units, citing practical examples in Tunisian fisheries. In the near future, an activity dealing with the OU of Octopus fisheries in the Project area was proposed to be included among the Project activities. In addition, he recalled the impact of mesh size measurements and reminded the Meeting of activities suggested by GFCM on the comparison of square mesh and diamond mesh. As regards deep-sea fisheries, even though he recognized the need to assess the status of deep water fishery stocks, he suggested that activities planned within the Project framework be placed in a national context and take into account national priorities. The suggestion was made to organize a seminar presenting the achievements of the Project and involving representatives from Fisheries Administrations, Scientists and Fishermen's associations, which would allow for the dissemination of results obtained that may be useful to these stakeholders. Finally, it was suggested that the Project be involved in a pilot exercise on the implementation of EAF in the GSA 12, possibly by providing technical support in particular for methodological indications.
33. The scientist responsible for the IAMC-CNR section of Mazara del Vallo underlined the difficulty of comparing results of trawl surveys aiming at different objectives. He suggested that future activities deal with the organization of trawl surveys that can provide standardized biomass and demographic index together with information on fish assemblages. Despite the difficulty of organizing such surveys, an annual trawl survey covering most of the Project area would provide valuable results. In addition, he mentioned the lack of standardization in landings data collection that prevents scientists from comparing catch size structure and exploitation pattern from one country to the other.

34. The representative of the Malta Centre for Fisheries Sciences submitted the proposal to carry out two studies. The first study would deal with the mapping of benthic biocenosis and bottom types and would allow currently available information dating up to an Admiralty Chart of 1979 to be updated. The second study would focus on the mapping of spatial distribution of fishing effort using VMS data available in Malta since 2006. The mapping of fishing intensity would allow the effect of fishing on fishery resources to be understood better and would delineate fishing areas more precisely, which is of relevance when it comes to areas where there are shared stocks.
35. This proposal was supported by the representative of the IAMC-CNR who mentioned that his Institute produced a map of the bottom types and biocenosis in 2004 for part of the Strait of Sicily. He insisted on the need to transform such isolated information into synoptic review and encouraged the organization of an *ad hoc* working group given the task of investigating the best approach to manage this type of data.
36. Furthermore, the Meeting agreed on the importance of monitoring of the spatial distribution of the fishing effort and of collecting disaggregated data, thus providing and analyzing information by fishing gear or métier. The relevance of having a standardized measure of effort was recalled and some of the outputs of the section on fishing effort of the GFCM Task 1 were brought to the attention of the participants.
37. The Representative of Italy thanked the Project staff for the clear presentations of the proposed work plan for the coming period. He hoped that pending activities would be continued with the involvement of all the research institutes. Concerning a possible extension of the Project he informed the Committee that he was not in a position to provide any administrative commitment. However, he believed that the next period should be also dedicated to the preparation of a proposal of extension to be submitted to the Italian Authorities for discussion. The Proposal should be based on the same scientific cooperative framework and on the results achieved by the Project so far and based on the technical review. In any case, the Representative informed the Meeting that the Ministry could provide additional funds for the extensive publication of the main Technical Documents produced by the Project.
38. Discussion was held on the relevance of FEIS and in particular for the development and publication of the regional metadata version that could be a useful tool in response to the increasingly complex nature of environmental and fisheries assessment. The assessment of the availability of data related to the different scientific surveys (trawl surveys, echosurveys, oceanographic surveys) and to have this information in GIS-Web format is fundamental for any multiple management system and for the implementation of any field activity related to fisheries management, not only for the Project area but also for the whole region. In this context the Committee acknowledged that further development of the FEIS should be done in cooperation with the GFCM Secretariat.
39. The Committee fully agreed on the workplan presented and gave the mandate to the Project, in cooperation with the research institutes, for the implementation of the activities as presented in the document discussed.

40. Furthermore, on the basis of the discussion and the outline of the current state of MedSudMed implementation, the Committee discussed and agreed on the formulation of a number of aspects which should be further considered such as the case studies on Operational Units for Octopus in the Project area and the Project's support for the implementation of the EAF in GSA 12, moreover wherever possible the socio-economic component should be taken into consideration. While complements were received for the Pilot Study carried out in GSA 15, it was mentioned that particular attention should be given to the integration of socio-economic information.
41. Finally the Committee highlighted the necessity to prepare a document for the proposed extension of the Project which will serve as a reference document to ensure the necessary continuity. This document, to be drafted by FAO-MedSudMed with the full involvement and in consultation with the counterparts, will have to take into account the recommendations of the Committee and the suggestions of the Project technical review. This document should be ready for a deeper discussion by the end of the June 2008 in the context of a meeting attended by one person from each participating country.

**Other matters (Agenda item n.5)**

42. Delegates and Meeting participants expressed their thanks to the Institut National des Sciences et Technologies de la Mer for the hospitality provided.
43. Upon the kind invitation of the Maltese delegation, the next Meeting of the MedSudMed Coordination Committee will be held in Malta in or around December 2008. The date and venue will be proposed in due time by the Project. This suggestion was welcomed by the Meeting participants.

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**Agenda**

1. Opening of the meeting and election of Chairman
2. Adoption of the Agenda
3. Report on the Project's progress
4. Project future implementation
5. Other matters
6. Date and venue of the next coordination Committee Meeting

## List of Documents

<b>FAO-MedSudMed: CC6/01</b>	<b>Agenda</b>
<b>FAO-MedSudMed: CC6/02</b>	Report on Project's Progress (October/November 2006 –January 2008)
<b>FAO-MedSudMed: CC6/03</b>	Development of the Project's Programme
<b>FAO-MedSudMed: CC6/Inf.01</b>	List of Documents
<b>FAO-MedSudMed: CC6/Inf.02</b>	List of participants
<b>FAO-MedSudMed: CC6/Inf.03</b>	Report of the Fifth Meeting of the Coordination Committee. GCP/RER/010/ITA/MSM-TD-12.
<b>FAO-MedSudMed: CC6/Inf.04</b>	MedSudMed Training Course on Age determination of Cephalopods and crustaceans (La Goulette, Tunisia, 24-28 July 2006). GCP/RER/010/ITA/OM-M/33
<b>FAO-MedSudMed: CC6/Inf.05</b>	Bibliographic synthesis and review of information on some target species in the MedSudMed Project area (Central Mediterranean). GCP/RER/ITA/MSM-TD-15
<b>FAO-MedSudMed: CC6/Inf.06</b>	Preliminary results on spatial distribution of biomass indices, nursery and spawning areas of <i>Merluccius merluccius</i> and <i>Mullus barbatus</i> in the Central Mediterranean.
<b>FAO-MedSudMed: CC6/Inf.07</b>	Pilot study: Spatial pattern of fisheries demersal resources, environmental factors and fishery activities in GSA 15. GCP/RER/ITA/MSM-TD-13
<b>FAO-MedSudMed: CC6/Inf.08</b>	Mapping of spawning grounds and larvae distribution of <i>Engraulis encrasicolus</i> and <i>Sardinella aurita</i> in the MedSudMed project area. Preliminary results in the western part of the Libyan waters (GSA 21), Malta Island (GSA 15) and south Sicily (GSA 16).
<b>FAO-MedSudMed: CC6/Inf.09</b>	Report on training courses organized by MedSudMed on marine biotoxins
<b>FAO-MedSudMed: CC6/Inf.10</b>	Identification sheets of early life stages of bony fish (Western Libya, Summer 2006). GCP/RER/ITA/MSM-TD-18
<b>FAO-MedSudMed: CC6/Inf.11</b>	Bibliographic synthesis on small pelagic fishery resources species in the MedSudMed Project area (Central Mediterranean). GCP/RER/ITA/MSM-TD-17
<b>FAO-MedSudMed: CC6/Inf.12</b>	Sea temperature, salinity and total velocity climatological fields for the Central Mediterranean. GCP/RER/ITA/MSM-TD-14
<b>FAO-MedSudMed: CC6/Inf.13</b>	Fishery and Ecosystem Information System FEIS: update on the regional meta-database version

<b>FAO-MedSudMed: CC6/Inf.14</b>	Summary record of publications on aquatic sciences and fisheries in Tunisia (1976-2005). <i>GCP/RER/ITA/MSM-TD-16</i>
<b>FAO-MedSudMed: CC6/Inf.15</b>	Standardization of echo-surveys protocols - Outline of the work carried out in the Adriamed and MedSudMed Project areas

## **Report on Project's Progress (November 2006 – January 2008)**

### **Introduction**

This paper provides an overview of the latest activities carried out by the MedSudMed Project between November 2006 and January 2008. The activities follow an outline that was presented and approved during the 1<sup>st</sup> Coordination Committee meeting (Rome, Italy, September 2002) (GCP/RER/010/ITA/MSM-TD-1). The programme of work was fine-tuned during the successive Coordination Committee meetings (Salammbô, Tunisia, February 2004; Tajura, Libya, February 2005; St Julians, Malta, February 2006, Rome, Italy, November 2006).

The 5<sup>th</sup> session of the FAO MedSudMed Coordination Committee, (GCP/RER/010/ITA/MSM-TD 12, document CC6/Info03 refers), reviewed the achievements and outputs of the Project and examined the conclusions and recommendations of the internal technical review. The internal technical review synthesized the technical activities of the Project, assessed the relevance, effectiveness and progress of the Project and provided recommendations on the further steps to consolidate the results and ensure the successful completion of the Project's activities and the fulfillment of its objectives.

The activities during the inter-committee period represent the follow-up to the 5<sup>th</sup> Coordination Committee and were carried out with the support of the research institutions of the different countries and the regional experts. The Project also moved its head office to FAO headquarters in Rome in March 2007.

This report details the main outputs of the Project activities and the results achieved within the components on demersal fisheries resources and small pelagic fisheries resources for the following topics:

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

The Project organized technical meetings, supported regional experts' travels and answered specific requests from the participating institutes, in particular regarding training activities.

### **1. Cooperative research programmes and Working Groups**

In coherence with the activities and work-plan for 2007, the Project implemented a series of activities dealing with field work and data processing methodology. During the inter-session period, on the basis of standardized protocols that were agreed upon previously, field work continued for each component of the Project, as well as on-the-job training.

### 1.1. MedSudMed Component on Demersal Resources

As a result of the great collaborative effort of the institutes participating in MedSudMed, standardization of methodologies used for trawl survey data processing was improved in the last years. During the last period, the work carried out within this Project component focused mainly on data analysis, finalisation of technical reports on the results obtained and production of syntheses regarding the species of interest in the Project area.

Therefore, the Project has undertaken a technical **review** of the scientific knowledge currently available on the biology, ecology, reproduction patterns, legislation, management and exploitation of *Merluccius merluccius*, *Mullus barbatus*, *Octopus vulgaris* and *Parapenaeus longirostris*, in the MedSudMed area (CC6/Info05 refers).

The Project is also finalising the **technical report** summarizing the results obtained on the spatial distribution of hake and Red mullet and on the identification of areas of major concentration of juveniles and mature females (Preliminary results on spatial distribution of biomass indices, nursery and spawning areas of *Merluccius merluccius* and *Mullus barbatus* in the MedSudMed Project area (Strait of Sicily –Central Mediterranean) (CC6/Info06 refers). Moreover, data processing is being carried out to get similar information for other demersal species.

Following the finalisation of the Pilot study on “Spatial pattern of fisheries resources, environmental factors and fishery activities” that was undertaken in the GSA 15 (Malta Island), the Project is currently working on technical guidelines related to the pilot study and that will provide methodological indications for multidisciplinary studies in areas of interest for fisheries. Advice should be given on the general organisation of the work while carrying out these studies (components of the ecosystem to be taken into consideration, type of information required, disciplines involved...) and on data processing methods and possible computer packages that can be used.

**Pilot study on “Spatial pattern of fisheries demersal resources, environmental factors and fishery activities” in GSA 15.** The study describes the spatial distribution of some demersal fisheries resources species, in particular abundance and density of different life stages, localization of spawning and nursery areas, fish assemblages’ characteristics. These features are compared to the spatial pattern of fisheries activity, oceanographic factors characterizing the area, as well as the bottom characteristics in terms of sediments and benthos. The outputs of the study are expected to contribute to the enhancement of the understanding of the ecosystem structure and its functioning and can be considered as the beginning of a scoping study on Maltese fisheries and related ecosystems. An advance copy of the document was produced during a meeting held with the co-authors (Palermo, Italy, 21-24 November 2006). A presentation was made at the GFCM - Scientific Advisory Committee - Transversal Workshop on Ecosystem Approach to Fisheries (EAF) (Salammbô, Tunisia 22 - 23 May 2007) (CC6/Info07 refers). The meeting underlined the valuable work carried out and suggested that the study should be complemented with additional knowledge (for instance on vulnerable habitats and socio-economic information). The study provides important and useful background information prior to developing a management plan.

## 1.2. MedSudMed Component on Small Pelagic fish

In the recent period, the Project invested great effort in reinforcing scientific cooperation between participating institutes and stimulated the exchange of knowledge and skills between regional scientists during on-the-job work that involved mixed research teams. The Project gave support to surveys at sea and several training courses. Moreover, the Project supported the compilation of pertinent data at regional level so as to produce synthesis on particular topics that were of interest to all participating institutes.

**Data and samples processing (07-18 January and 14-24 February 2007, Mazara del Vallo, Italy).** Data that were collected during the survey at sea carried out in the Sicilian, Maltese and Libyan waters on board the R/V “Urania” (04-24 August 2006) were processed: oceanography data (CTD casts), ichthyoplankton samples, high-frequency acoustic data (zooplankton). The preliminary results were presented at the most recent meeting of the GFCM SAC Sub-Committee on Stock Assessment (Kavala, Greece, 17-21 September 2007) (CC6/Info08 refers).

The report of the survey carried out on board R/V Urania (12-24 August 2006) in the Libyan waters was finalized in close collaboration with the IAMC-CNR and the MBRC. Updated results were added in the report, as well as detailed information on a number of topics: ichthyoplankton (biological sampling and acoustic sampling), oceanography, sediments, phytoplankton, organic matters and nutrients. The report provides an interesting multi-disciplinary update of information available in the western part of GSA 21 and was produced with close cooperation between scientists of different institutes.

As for the previous year, the Project encouraged the organisation of cooperative surveys at sea with mixed teams on board the research vessels and during which, in addition to collecting data, on-the-job training was provided:

- *Cooperative ichthyoplankton surveys* (June-July 2007) were conducted along the southern coast of Sicily and in the Maltese waters on board the R/V Urania in cooperation with the Istituto per l’Ambiente Marino Costiero (IAMC-CNR) and the Malta Centre for Fisheries Sciences (MCFS). A survey planned in the eastern part of Libya had been organised in collaboration with the Istituto per l’Ambiente Marino Costiero (IAMC-CNR) and the Marine Biology Research Centre of Tajura, Libya but had to be cancelled due to unexpected events.
- *Cooperative acoustic surveys.* R/V “Dalla Porta”; covered South-Sicilian and Maltese waters in July 2007 in cooperation with the Istituto per l’Ambiente Marino Costiero (IAMC-CNR) and the Malta Centre for Fisheries Sciences (MCFS). In agreement with the Marine Biology Research Centre of Tajura, Libya and while authorisations had been delivered by the Libyan authorities, the survey planned along the Libyan coast had to be cancelled at the last moment due to unavailability of vessel and crew.

**“Identification sheets of early life stages of bony fish collected in Western Libya”.** A technical report presenting the early life stages collected in 2006 on board the R/V Urania is being prepared by the Project (CC6/Info10 refers). The report is intended to be a technical field manual, created on the basis of existing bibliography and summarizing the ecological characteristics of the different species and for different life stages. In addition, it provides

taxonomic indications for the correct identification of eggs and larvae of the species that were collected that year in Western Libya.

Samples of phytoplankton collected on board R/V Urania (12-24 August 2006) are being analysed and the quantitative analysis on coccolithophore species is on-going. The results will supplement previous work carried out in 1981 at MBRC on diatoms, silicoflagellates and dinoflagellates. Coccolithophyceae should be identified at level of genera and species. The expected output is an atlas to document morphology, taxonomy and diversity of all phytoplankton in the westernmost coast of Libya.

The technical document **“Synthesis on small pelagic fisheries resources in the MedSudMed area”** was drafted on the basis of available information at the relevant national research institutes and organisations of each country participating in the Project. It summarizes the current knowledge on ecology, population dynamics and stock assessment of *Sardina pilchardus*, *Engraulis encrasicolus* and *Sardinella aurita*. The review also lists the data sets currently available in the Project area, as well as the ongoing research, and monitoring activities related to small pelagic fish and the current fisheries legislation applied in the different countries (CC6/Info11 refers).

The technical document **“Sea temperature, salinity and total velocity climatological fields for the Central Mediterranean”** was produced by the Project in cooperation with the University of Malta (International Ocean Institute – Malta Operational Centre). The report provides a general description of the hydrodynamic characteristics of the Project area and climatological fields that were calculated in the form of monthly and seasonal averages from the output of a numerical model run over a period of five years (2000-2004). Maps were generated for salinity, temperature and currents at different depths and are relevant in areas where no or little information is available to provide an overview of the oceanographic characteristics of the area. As an answer to the interest shown by the participating institutes in getting results on oceanographic modelling at regional scale, the available information was communicated to all counterparts. This information is also accessible on the ftp site of the Project (CC6/Info12 refers).

### **1.3. Fishery and Ecosystem Information System (FEIS)**

The regional component of the MedSudMed Fishery and Ecosystem Information System (FEIS) is being updated in particular regarding the web interface (CC6/Info13 refers).

During the recent period, the spatial query tool was finalized, allowing users to carry out data research on the basis of their area of interest that can be selected manually. As recommended during the last Coordination Committee meeting, technical arrangements were made for the publication of the FEIS on a web-based platform.

Metadata gathered from the AdriaMed Trawl Information System (ATrIS) were incorporated in the FEIS.

The latest version of the FEIS was presented to the GFCM SAC Sub-Committee on Statistics and Information (Kavala, Greece, 16-21 September 2007). The Sub-Committee agreed on the need for further development of the FEIS at regional level; it was suggested that the system should be adopted on a wider geographical scale and put at the disposal of all the



national and regional scientific institutions of the GFCM. As follow up during the meeting it was proposed that further development of FEIS through testing/implementing in other sub-regions with a vision to develop the system at regional level would be carried out under the responsibility of the GFCM. The Project would therefore provide support for the handover to the GFCM.

## **2. National Capacity building and training**

During this period, much effort was dedicated to the organization of training courses, mainly upon request of the participating institutes. The courses were an occasion to strengthen scientific collaboration between institutes, as most of them involved scientists belonging to the network that was created and consolidated by the Project during recent years. Moreover, some of the training courses allowed for joint processing of data collected at sea and aimed not only at capacity building, but also at producing scientific information directly related to the Project activities. The following courses were organized during the last inter-committee period:

- **Training course on processing of oceanographic data (07-13 January 2007, Mazara del Vallo, Italy).** The training exercise intended for scientists of the MBRC was conducted by scientists of the IAMC-CNR. The main objectives were to teach basic techniques to process oceanographic data and to provide an overview of the tools and software available. The course focused on: filtering of raw data for the post processing of CTD casts, analysis of temperature, salinity, oxygen patterns (vertical and horizontal patterns), calculation of geostrophic currents. Three types of software or tools were used: SeaBird post processing package, Ocean data View, MatLab application (developed by CNR-IAMC) for the calculation of geostrophic currents.
- **Training course on processing of ichthyoplankton samples (07-18 January and 04-24 February 2007, Mazara del Vallo, Italy).** The course was conducted by scientists and technicians of the IAMC-CNR, with the objectives of: i) providing training on the identification of the eggs and larvae of main target species, ii) processing all samples collected during the survey on board R/V Urania carried out in August 2006 and iii) providing an overview of the techniques for the estimation and mapping of ichthyoplankton density. The course was intended for scientists of the MBRC who processed all the samples collected in Libyan waters for the identification, counting and weighing of larvae. The output of the course was a clear increase in the scientists' expertise, as well as a preliminary insight into the ichthyoplankton species composition and abundance in the sampled areas in Libya. The trainers also managed to prepare baseline information that will be used at a later stage during the processing of acoustic data and that will be useful to estimate the proportion of the different species that were identified.
- **Training course on processing of water samples for the analysis of nutrients and of organic matters (19-24 February 2007, Messina, Italy).** The training exercise was conducted by scientists of the IAMC-CNR of Messina and was intended for a scientist of the MBRC. The objective was to teach and familiarize the trainee with the techniques and instruments used for the measurement of nutrients and organic concentration in water samples, as indicators of water richness and quality. The trainee was already familiar with some methodologies currently used in this field, however, the output of the course was that the trainee got acquainted with innovative

methodologies and learned to use technical instrumentation for the measurement of organic matters

- **Training course on macroscopic identification of maturity stages (Tunisia, 03-05 April 2007).** The course provided a comprehensive overview of the techniques and scales used for the macroscopic identification of maturity stages of the main demersal fisheries species.
- **Training on processing of acoustic data related to zooplankton (Libya, 31 May-17 June 2007).** Methodology for the processing of acoustic data related to zooplankton was taught, including the basic techniques to process raw acoustic data and calculations to provide estimates of zooplankton biomass. During this course data collected in 2006 in Libyan waters were processed.
- **Training course for technical operators on marine biotoxins (Italy, 20-31 August 2007).** This course was a follow-up to the previous one organised in Tajura, Libya (September 2006) and consisted in laboratory work on techniques to detect lipophilic and water soluble toxins.
- **Training course on bacteriological and virological investigations for controlling bivalve mollusc safety (Italy, 5 - 9 November 2007).** The course provided exhaustive presentations of EU legislation on seafood safety, criteria for the microbiological monitoring of bivalve molluscs and theory of the relevant laboratory techniques. An overview on relevant laboratory equipment and chemical products was also given and practical work in laboratory was carried out.

<b>Meeting</b>	<b>PARTICIPANTS</b>	<b>INSTITUTIONS</b>
Training course on processing of oceanographic data (07-13 January 2007, Mazara del Vallo, Italy)	1	1
Training course on processing of ichthyoplankton samples (07-18 January and 04-24 February 2007, Mazara del Vallo, Italy)	4	1
Training course on processing of water samples for the analysis of nutrients and of organic matters (19-24 February 2007, Messina, Italy)	1	1
Training course on macroscopic identification of maturity stages (Tunisia, 03-05 April 2007)	11	1
Training processing of acoustic data related to zooplankton (Libya, 31 May-17 June 2007)	3	1
Training course for technical operators on marine biotoxins (Italy, 20-31 August 2007)	3	1
Training course on bacteriological and virological investigations for controlling bivalve molluscs safety (Italy, 5 - 9 November 2007)	3	1

### **3. Regional cooperation**

In order to strengthen international and regional cooperation, the Project sustains close interaction with the FAO Regional Project AdriaMed on information technology and Web site-building, as well as other technical issues. Furthermore a trainee from Tunisia attended the AdriaMed training course on the daily egg production method (DEPM) for the appraisal of small pelagic fisheries resources (11-15 September 2007 Kotor, Montenegro) hosted by the Institute of Marine Biology of Kotor.

Under the general coordination of the FAO Fisheries Management and Conservation Service (FIMF), the EastMed preparatory phase, MedFisis and MedSudMed Projects together with the FAO Species Identification Programme, are compiling an Arabic-English Field Guide for Fishery Species Identification in the Eastern and Southern Mediterranean.

During the last period, the Project acted to reinforce scientific cooperation between the participating Institutes. The regional scientists were invited to participate in training courses involving scientists of the network, write joint technical reports, carry out collaborative work at sea.

**Coordination meeting on R/V Urania survey report (17 January 2007, Mazara del Vallo, Italy).** Following the cooperative oceanographic and ichthyoplankton survey that was carried out in the Libyan territorial waters on board the R/V “Urania” (12-24 August 2006), a coordination meeting was held with the Istituto per l’Ambiente Marino Costiero (IAMC-CNR), Marine Biology Research Centre (MBRC) and the Project staff, in order to plan and discuss issues dealing with data and samples processing, as well as the structure of the final report of the survey.

Cooperation was further sought with the GFCM Secretariat and the GFCM Subsidiary bodies. In particular MedSudMed supported the participation of experts from the Project area in numerous SAC meetings held during the intersession period:

- GFCM - Scientific Advisory Committee - Workshop on Trawl Survey Data Based Monitoring Fishery System in the Mediterranean, Rome, Italy. 26 March 2007 - 28 March 2007
- GFCM - Scientific Advisory Committee - Transversal Workshop on Disaggregated Data Methodology Analysis, Sète, France. 12 March 2007 - 16 March 2007
- GFCM - Scientific Advisory Committee - SCSA/SCESS/SCSI Transversal Workshop on Selectivity in the Mediterranean Trawl Fisheries, Barcelona, Spain. 2 - 4 April 2007
- GFCM - Scientific Advisory Committee - Transversal Workshop on Marine Protected Areas (MPAs), Salammbô, Tunisia. 24 May 2007 - 25 May 2007
- GFCM - Scientific Advisory Committee - Transversal Workshop on Ecosystem Approach to Fisheries (EAF), Salammbô, Tunisia. 22 - 23 May 2007
- GFCM - Scientific Advisory Committee - Sub-Committee on Economic and Social Sciences (SCESS) - Workshop on the use of socio-economic indicators in the Mediterranean fisheries management, Tripoli, Libya. 3 - 5 July 2007
- GFCM - Scientific Advisory Committee - Transversal Workshop on the Compilation of the GFCM Task 1 Data, Casablanca, Morocco. 19 - 22 June 2007

- Meetings of the Sub-Committees of the GFCM – Scientific Advisory Committee, Kavala, Greece, 16-21 September 2007.

The Project also provided support for the participation of experts in the 38th CIESM Congress that was held in Istanbul, Turkey, 09-14 April 2007.

## 4. Project Communication

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

The MedSudMed Portal ([www.faomedsudmed.org](http://www.faomedsudmed.org)) is being updated and further improved with additional information on the Project. The new home page is being prepared and will be published shortly. Since its publication, the Project's website has been periodically updated, mainly to provide an overview of the recent events organized and activities carried out by the Project and to allow users download the Project's publications. Visits to the Project's web site have increased during the last months, reaching an average of 1,400 visitors per month. Visits come mainly from North America (47%), Europe (40%), Asia (7%) and Africa (5%). However, the information displayed by the web site is being re-organized so as to make the web site more attractive and provide additional information

### 4.2. Technical Documents

Several technical documents were prepared; they are related to the workshops and training courses organized by the Project. The MedSudMed Project Publications are issued as series of Technical Documents (GCP/RER/010/ITA/MSM-TD-00) or Occasional Papers (GCP/RER/010/ITA/MSM-OP-00) related to meetings and research organised or conducted within the framework of the Project.

The Project supported the compilation of bibliographic scientific references from the grey literature published in Tunisia and in particular by the Institut National des Sciences et Technologies de la Mer (INSTM) from 1976 to 2005. References of all available grey literature were edited, in view of producing a thematic compilation covering a total of eleven topics: Fisheries biology, Exotic species, Threatened species, Physical and chemical oceanography, Fish disease and parasites, Development of fishery products, fish market and marketing, Algae, Marine pollution, Fishing techniques/technology, Aquaculture (CC6/Info14 refers).

- **Publications.** Three technical documents were printed, to be distributed to regional experts and regional institutions. The documents were also published on the website of the Project:
  - MedSudMed. 2005. Report of the MedSudMed Workshop on Standardization of Trawl Surveys Protocol in the MedSudMed Project Area. GCP/RER/010/ITA/MSM-TD-04. *MedSudMed Technical Documents*, **4**: 72 pp.
  - P. Rizzo, S. Gancitano, C. Badalucco, S. Enajjar, C. Mancusi, A. Mosteiro Cabanelas, B. Saidi, L. Sion. 2005. Contribution to Guidelines for Chondrichthyes Fish Age Reading in the Mediterranean Sea. GCP/RER/010/ITA/MSM-TD-08. *MedSudMed Technical Documents*, **8**: 28 pp.

- MedSudMed. 2006. Report of the Fourth Meeting of the Coordination Committee GCP/RER/010/ITA/MSM-TD-11. *MedSudMed Technical Documents*, **11**: 41 pp.
- MedSudMed 2007. Report of the MedSudMed Expert Consultation on Marine Protected Areas and Fisheries Management. GCP/RER/010/ITA/MSM-TD-03. *MedSudMed Technical Documents*, **3**: 100 pp.
- **Drafted publications.** Eight technical documents were drafted or finalized as advance copy:
  - MedSudMed. Spatial pattern of fisheries demersal resources, environmental factors and fishery activities in GSA 15. GCP/RER/010/ITA/MSM-TD. *MedSudMed Technical Documents (advance copy available)*.
  - MedSudMed. Report of the Workshop on Standardisation of Fish Age Determination Based on Otolith Samples in the MedSudMed Area. GCP/RER/010/ITA/MSM-TD. *MedSudMed Technical Documents (advance copy available)*.
  - MedSudMed. Spatial distribution of biomass indices, nursery and spawning areas of *Merluccius merluccius* and *Mullus barbatus* in the MedSudMed Project area. GCP/RER/010/ITA/MSM-TD. *MedSudMed Technical Documents (draft available)*.
  - MedSudMed. Summary record of publications on aquatic sciences and fisheries in Tunisia 1976-2005. GCP/RER/010/ITA/MSM-TD. *MedSudMed Technical Documents (draft available)*.
  - MedSudMed. Bibliographic synthesis and review of information on some demersal target species in the MedSudMed area (Central Mediterranean). GCP/RER/010/ITA/MSM-TD. *MedSudMed Technical Documents (draft available)*.
  - MedSudMed. Identification sheets of early life stages of bony fish (Western Libya, Summer 2006). GCP/RER/010/ITA/MSM-TD. *MedSudMed Technical Documents (draft available)*.
  - MedSudMed. Bibliographic synthesis on small pelagic fisheries resources in the MedSudMed Project area (Central Mediterranean). GCP/RER/010/ITA/MSM-TD. *MedSudMed Technical Documents (draft available)*.
  - MedSudMed. Sea temperature, salinity and total velocity climatological fields for the Central Mediterranean. GCP/RER/010/ITA/MSM-TD. *MedSudMed Technical Documents (draft available)*.

## **Development of the Project's Programme: priorities identified and activities scheduled for the next period**

### **Introduction**

The aim of this paper is to provide the Coordination Committee (CC) members with information for the discussion of the MedSudMed Project work program of the coming period. During the next period the Project will finalize current activities, taking into account the recommendations of the previous Coordination Committee and the main suggestions provided by the internal technical review. Considering the timing of the Project, the program of work presented in this document refers to February-October 2008. At the moment of the preparation of this document the end of Project is considered for October 2008, however, an extension at no-cost will be requested (i.e until December 2008/January 2009) in order to finalize the on-going activities. The implementation of the Program of work will also take due account of the recommendations of this Coordination Committee.

The information presented here should put the Committee in a position to give advice to the Project on the activities to be finalized on the basis of the methodological framework that was discussed during the previous years. The first Coordination Committee meeting (GCP/RER/010/ITA/MedSudMed-TD01) identified the Project components, as well as a number of medium and long terms activities to be implemented by MedSudMed. The successive Coordination Committee meetings were regularly updated on the progress made in the execution of the work-plan of the Project.

For the coming period, the Project, in collaboration with the participating institutions, will focus the attention of the program on research activities, the filling of remaining gaps, the finalization of pending publications, as well as the training component, as indicated during the last CC meeting held in Rome (GCP/RER/010/ITA/MedSudMed-TD12). For the next period the MedSudMed Project will:

- a. continue supporting 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;
- b. continue increasing scientific knowledge on fishery resources and their ecosystem in the Project area through the finalization of the program of research activities already implemented;
- c. continue strengthening the national expertise through on-the-job training and working groups, and supporting the national research institutions in upgrading the scientists' expertise;
- d. continue strengthening and supporting scientific cooperation between the different experts and institutions involved in the Project activities, who represent the scientific network of the Project;

- e. continue strengthening cooperation at Mediterranean level, among the countries and between the MedSudMed Project, the GFCM and other FAO Regional Projects.

Some of the activities included in the present work plan overlap with those of the previous programme of work, as they were initiated during the intersession period and are currently in progress. The implementation of the activities proposed is contingent upon the Project budget availability.

#### a) Standardization of methodology

During the course of the Project, much effort was made by MedSudMed and the research institutes to achieve standardization of sampling designs and protocols used in the different survey programs. As a result, common protocols started to be used for field work (trawl surveys, echo-surveys) and whenever possible for the data processing methods. In the next future, work should continue on standardization of laboratory work and processing of samples collected at sea. Where data processing is concerned (statistical analysis, mapping procedures...), previous experience show that it is a continuous process. On the basis of the network that the Project contributed to build up, exchanges between regional experts should be favored, so that they continue interacting while processing data and producing scientific results.

In particular, the Project will undertake or continue the activities listed below per Project Component.

#### **Demersal resources**

Where demersal fishery resources component is concerned, the topics to be taken into consideration for further discussion on standardization procedures are listed below:

- The Project will continue supporting the organization and conduction of standardized trawl surveys at sea, with particular attention to areas that are currently not covered by regular programs. Upon request of the participating Institutes, the Project will provide support to the implementation of national trawl surveys program for the collection of updated data. As far as possible, the implementation of such programs will be implemented with the technical support of the scientists of the regional network, in order to favor exchange of knowledge and information.
- Wherever data processing is undertaken, the Project will support initiatives aiming at tuning common data processing methods for the production of comparable results at regional scale.
- The Project will progress in the drafting of technical guidelines describing the approach used for the pilot study conducted in GSA 15. The guidelines should include methodological indications and give advice on the general organization of the work while carrying out these studies (components of the ecosystem to be taken into consideration, type of information required, disciplines involved...) and on data processing methods and possible computer packages that can be used.

## **Small pelagic fish**

Where small pelagic fishery resources component is concerned, the topics are the following:

- The Project, in cooperation with the participating institutes, will continue supporting the organization and conduction of standardized acoustic and ichthyoplankton surveys, with particular attention to areas that are currently not covered by regular programs, upon request of the participating Institutes. In particular, as for previous years, full support will be given to the organization of surveys at sea to be carried out in Libyan waters, in order to complement information that was collected in 2006 on board R/V Urania (ichthyoplankton and oceanographic survey) and produce an estimate of the small pelagic fish spatial distribution and abundance along the Libyan coast (acoustic survey).
- Wherever possible, calendars of acoustic and ichthyoplankton surveys at sea carried out by the different participating institutes should be coordinated in order to maximize the coverage and minimize the time lag between surveys conducted by the different vessels. The protocol for the additional transects/samples to be performed in order to fill the remaining gaps should be discussed.
- Further standardization of the scientific methodological approach and tools utilized for data processing. This issue was discussed during an ad hoc meeting and participants agreed on a common approach to produce estimates of biomass spatial distribution per species, however, all data sets available (GSA 12, 13, 14, 15 and 16) were not yet processed entirely and there is a need to test the methods on real data sets and evaluate if it is appropriate and suitable to all GSAs.

### b) Increasing scientific knowledge

For the coming period the Project will concentrate on supporting the regional network of scientists for the analysis of available data and information, following indications and terms of reference already provided during past periods. The cooperative research activities described are intended not only in terms of field research, but also as studies and reviews implemented by the Project. The activities proposed for the coming period are summarized below per Project Component.

As transversal activity, the Project will provide support to those Institutes that wish to initiate activities related to the implementation of EAF. Technical support will be sought at FAO-HQ, in particular for a pioneering exercise that could be carried out on the fisheries assessment of the GSA 12. A management framework involving all the fisheries stakeholders could be discussed with the support of FAO experts.

Moreover, during the next period, the Project will progress in the compilation of data on marine capture fisheries and aquaculture in the MedSudMed area using FAO statistics, in order to produce a review on the fishing sector. Data should be compiled by country, year, species, fisheries resources group (pelagic, demersal, large pelagic), by environment (inland water, brackish water, marine water).



### **Demersal fisheries resources**

The Project will organize Working Groups aiming at continuing the data processing initiated during the previous periods and at finalizing scientific documents. The work sessions will take place during “*ad hoc*” meetings or by email; it is foreseen that they deal with the following topics:

- The Project will support data collection and processing to complement the Pilot Study carried out in GSA 15 with socio-economic information and knowledge related to the characteristics of the sea bottom in order to better describe the critical areas that were located in this study.
- As for the previous year, effort will be made to process trawl survey data in order to describe spatial distribution and location of the areas of major concentration of juveniles and mature females for those target species that were identified by the regional experts: *Mullus surmuletus*, *Trachurus trachurus*, *Pagellus erythrinus*, *Helicolenus dactylopterus*, *Parapenaeus longirostris*, *Aristaeomorpha foliacea*, *Nephrops norvegicus*, *Eledone cirrhosa*, *Sepia officinalis*, *Octopus vulgaris*, *Raja clavata*. This could be done in the framework of a workshop hosted by one of the participating Institute. Species will be chosen according to the data availability.
- The Project will support the implementation of a multidisciplinary pilot study on Operational Units related to Octopus fisheries upon a detailed organization of the programme of work.

### **Small pelagic fishery resources**

The Project will organize Working groups with the objective of processing data and produce results on the following issues:

- The remaining samples and data collected during the survey at sea carried out on board R/V Urania will be processed and results will be integrated in the survey report.
- Information that will be collected during the forthcoming acoustic and ichthyoplankton surveys (Summer 2008), will be processed jointly, as for the previous survey carried out in GSAs 15, 16 and 21. This will be done, coherently with the duration of the Project.
- Information provided by the oceanographic circulation model at regional level will be put at the disposal of the regional scientists on the Project’s website and a technical document will be published and distributed.
- Processing of acoustic data for the testing of the common protocol that was discussed and agreed upon within the Project, in order to provide a description of the spatial distribution of the main species of small pelagic fish.

### **Technical Documents.**

The Project will finalize and publish the 8 pending technical documents (as listed in the report on Project Progress, document CC6/02 refers)

#### c) Building national capacity

In the coming period, the Project will continue strengthening the national expertise through the implementation of an *ad hoc* program. The Project will continue to consider the full

involvement of all the research institutes and scientists from the participating countries as a priority, an increase in national capacity in terms of expertise will therefore continue to be promoted through the support of specific research programs that are coherent with the activities of the Project. Seminars and training activities will also be considered both for the implementation of research activities and in the efforts to standardize scientific methodology.

In particular, activities foreseen for the next period include:

- The continuation of on-the-job training during the surveys at sea (acoustic, ichthyoplankton and trawl surveys).
- The organization of ad hoc training programs upon request of the participating institutes, in particular in GSAs where numerous gaps still remain.
- Training in fisheries acoustics, as requested by the regional scientist during previous meetings organized by the Project. An advanced course will be organized in cooperation with the Adriamed Project.
- Support participating Institutes in capacity building on particular topics such as bio-economic models, monitoring plans on Posidonia meadows, monitoring plan on marine sponges, and taxonomy of chondrichthyes fish.

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

#### d) Cooperation at Mediterranean level and between the MedSudMed Project, the GFCM and other FAO Regional Projects

The Project will continue to strengthen international and regional cooperation at Mediterranean level with the GFCM and its related bodies through the participation of experts from the MedSudMed countries in the GFCM events, in function of budget availability. The existing cooperation with other FAO regional Projects such as the AdriaMed Project will continue and further collaborations with the newly established COPEMED and EASTMED, MedFisis (when it will be operative) will be sought.

In the next period, the Project will provide support for the development of the FEIS at a wider geographical scale so that it is put at the disposal of all the national and regional scientific institutions of the GFCM.

#### e) Project network

It is the aim of the Project to continue strengthening and supporting scientific cooperation among the experts and institutions involved in MedSudMed activities, these represent the scientific networks of the Project. These networks are well established and much of the work that concerns discussion of methodologies can now be carried out electronically, meetings will only be considered for highly specialized issues and where a technical output is required.

**Fishery and Ecosystem Information System**  
**FEIS: update on the regional metadatabase version**

**Abstract**

The **Fishery and Ecosystem Information System** (FEIS), is the information component of the FAO regional Project MedSudMed which operates in Geographical Sub Areas (GSAs) 12, 13, 14, 15, 16 and 21 and undertakes research activities in cooperation with four participating countries (Italy, Libya, Malta and Tunisia). FEIS, which integrates descriptive information (metadata) and data, is a system designed to capture, store, manage, and distribute information about environmental and fisheries resources as collected, developed and used by MedSudMed and its participating countries.

**Introduction**

In the area covered by the FAO Regional Project MedSudMed, which operates in Geographical Sub Areas (GSAs) 12, 13, 14, 15, 16 and 21, scientific bottom trawl surveys, acoustic surveys as well as oceanographic surveys have been carried out to monitor and assess fishery resources and abiotic parameters. For the most part survey sampling design could cover only national and international waters. Exceptions are the research activities jointly undertaken by MedSudMed in cooperation with four participating countries (Italy, Libya, Malta and Tunisia).

Since the beginning of its activities, the Project identified the need to have the large amount of data that are available in the area easily accessible for use. The creation of a regional logical databank holding all the data collected by country and for the whole region was undertaken. The idea was to design a simple system to store the available data and which would facilitate basic analysis. The proposal has been illustrated since the First Meeting of the MedSudMed Coordination Committee held in Rome 19-20 September 2002 (MedSudMed, 2003). On that occasion it was agreed that particular focus was to be given to knowledge management, Geographical Information System (GIS) and communication facilities between the national partners.

Following the agreements reached at the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Coordination Committee meetings, the Fishery and Ecosystem Information System (FEIS) was designed and created to provide a framework within which the MedSudMed Project participants could share and transfer knowledge, information and data. To this end, regional experts were involved in the development of FEIS by making them fully participative throughout the entire technical development of the system, as well as by incorporating, whenever needed, their comments and suggestions.

The FEIS was developed in two versions: national and regional. The national version was designed for the manual or automatic input of data related to different topics such as demersal

fishery resources, small pelagic fishery resources, ichthyoplankton, oceanography, and operational units. It is destined for the input and management of data collected by the national institutions. The regional version provides information at metadata<sup>1</sup> level on the content of the national versions and also includes a global data query that can provide summary information of data available in the Project area. In 2006 each institute received the prototype of FEIS in its current state for testing and reviewing for specific adaptation to national exigencies.

The FEIS (version 1.x) was developed between 2002 and 2006 as a stand-alone application with a user interface using Visual Basic and Microsoft Access as the database software (Coppola, 2003; MedSudMed, 2004, 2006).

The research institutes involved provided advice for the standardisation and the realization of a common data format. This paper focuses on the progresses made on the regional version of FEIS.

### **The regional metadatabase version**

The regional metadatabase version of FEIS is part of MedSudMed's integrated approach to the management of metadata on scientific resources produced or used by the Project. The key information concerns biological aspects of the resources, environmental parameters and fishery statistics (thematic data) in the Project area. The thematic base of data is complemented by accessory data and information obtainable from the Internet or other networks and duly structured to enable its access for pooled processing (immediate and/or future).

The efforts to prepare the metadata version focused initially on the development of environmental resource directories enabling users to find data of potential interest, and development of detailed catalogues of descriptive information that enable users to evaluate the use of data as part of some assessment activity. In FEIS's strategy, the concept of a data directory has been extended to include analysis tools, models, documents, and multimedia products to better reflect the complexity of environmental inventory and monitoring activities.

Currently FEIS includes surveys metadata (trawl surveys, acoustic surveys, ichthyoplankton surveys and oceanographic surveys) as well accessory metadata (environmental data, maps documents and other data files which may contains output results from raw data) gathered and compiled in the MedSudMed area (Table 1). Moreover due to the cooperation between the MedSudMed and the AdriaMed Project, which focuses on the Adriatic Sea region, additional metadata from the International trawl surveys carried out in the Eastern Adriatic Sea have been included into FEIS thus enlarging the "area" covered by the application.

Visualization of the geo-referenced data is possible through the mapping module. Currently, the module allows users to map station locations, species distribution and biomass by station.

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<sup>1</sup> Simply defined, metadata is "data about data." Used in the context of digital spatial data, metadata is the background information which describes the content, quality, condition, and other appropriate characteristics of the data.

The detailed technical description and documentation of the database system is given by Coppola *et al.* (2003).

Table 1. Data Structure in FEIS.

Surveys data	Trawl Surveys Acoustic Surveys Ichthyoplankton surveys Oceanographic Surveys
Accessory data	Environmental data Maps Documents

Up to date, the regional database, FEIS contains data from 2565 stations, comprising records from the partner countries and including published trawl data from Croatia, Tunisia and Italy. The data span the years from 1983 to 2007. The major fishing areas covered by 'FEIS' include GSA 12 (Northern Tunisia), 13 (Gulf of Hammamet), 14 (Gulf of Gabes), 15 (Malta Island) and 16 (South of Sicily); GSA 17 (Northern Adriatic Sea – Eastern part); GSA 18 (Southern Adriatic Sea) (2001-2007).

**Table 2.** Summary of data that were provided by the MedSudMed/AdriaMed participating institutes and stored in the FEIS.

Trawl Surveys				
Name	Period covered	Owner	Covered GSA	N stations
Medits 2002	2002	CNR-IAMC <sup>2</sup> and MCFS <sup>3</sup>	15 and 16	119
Medits 2003	2003	MCFS <sup>3</sup>	15	120
Medits 2004	2004	CNR-IAMC <sup>2</sup> and MCFS <sup>3</sup>	15 and 16	179
Trawl survey in GSA 21*	1994 (5 surveys)	MBRC <sup>1</sup>	21	180
CRV03/CRV03a	2003 (2 surveys)	INSTM <sup>4</sup>	14	47
DEMEST0	1998	INSTM <sup>4</sup>	13	29
DEMEST1	1999	INSTM <sup>4</sup>	13	37
DEMEST2	2000	INSTM <sup>4</sup>	13	50
DEMEST3	2001	INSTM <sup>4</sup>	13	25
DEMEST4	2002	INSTM <sup>4</sup>	13	25
DEMEST5	2003	INSTM <sup>4</sup>	13	30
DEMNORD1	1999	INSTM <sup>4</sup>	12	45
DEMNORD2	2000	INSTM <sup>4</sup>	12	24
DEMNORD4	2002	INSTM <sup>4</sup>	12	23
DEMNORD5	2003	INSTM <sup>4</sup>	12	15

Trawl Surveys				
Name	Period covered	Owner	Covered GSA	N stations
DEMNORD6/ DEMNORD6a	2004 (2 surveys)	INSTM <sup>4</sup>	12	41
DEMSUD2	2000	INSTM <sup>4</sup>	14	68
DEMSUD3	2001	INSTM <sup>4</sup>	14	40
DEMSUD4	2002	INSTM <sup>4</sup>	14	43
DEMSUD5/ DEMSUD5a	2003 (2 surveys)	INSTM <sup>4</sup>	14	66
DEMSUD6/ DEMSUD6a	2004 (2 surveys)	INSTM <sup>4</sup>	14	30
DEMSUD7	2005	INSTM <sup>4</sup>	14	50
Trawl survey in GSA 21* TUGGPR83	1983	INSTM <sup>4</sup>	14	26
AdriaMed 2001	2001	AdriaMed	17 and 18	132
AdriaMed 2003	2003	AdriaMed	17 and 18	171
AdriaMed 2004	2004	AdriaMed	17 and 18	199
AdriaMed 2005-2006	2006	AdriaMed	17 and 18	170
AdriaMed 2006-2007	2007	AdriaMed	17 and 18	184
<b>Total N. surveys</b>	<b>38</b>		<b>Total N. stations</b>	<b>2168</b>

\* Operated in the framework of the FAO-LibFish Project

<sup>1</sup> Marine Biology Research Centre, Tajura, Libya

<sup>2</sup> Consiglio Nazionale delle Ricerche - Istituto per l' Ambiente Marino Costiero, Mazara del Vallo, Italy

<sup>3</sup> Malta Centre for Fisheries Sciences, Malta

<sup>4</sup> National Institute of Marine Sciences and Technologies- Salammbô, Tunisia

Acoustic Surveys				
Name	Period covered	Owner	Covered GSA	N stations
JUVENILE 99	October 1999	CNR- IAMC	16	11
JUVENILE 00	September 2000	CNR- IAMC	16	20
ANCHEVA 00	July 2000	CNR- IAMC	16	13
JUVENILE 01	October 2001	CNR- IAMC	16	31
ANCHEVA 02	August 2002	CNR- IAMC	16	25
ANCHEVA 03	June 2003	CNR- IAMC	16	24
JUVENILE 04	October 2004	CNR- IAMC	16	29
<b>Total N. surveys</b>	<b>7</b>		<b>Total N. stations</b>	<b>153</b>

Oceanographic Survey				
Name	Period covered	Owner	Covered GSA	N stations
ESPOIRS1	August 2002	INSTM	12	24
ESPOIRS2	October 2002	INSTM	12	29
ESPOIRS3	February 2003	INSTM	12	29
ESPOIRS4	April 2003	INSTM	12	28
ESPOIRS5	August 2004	INSTM	13	68
ESPOIRS6	July 2005	INSTM	14	66
<b>Total N. surveys</b>	<b>6</b>		<b>Total N. stations</b>	<b>244</b>

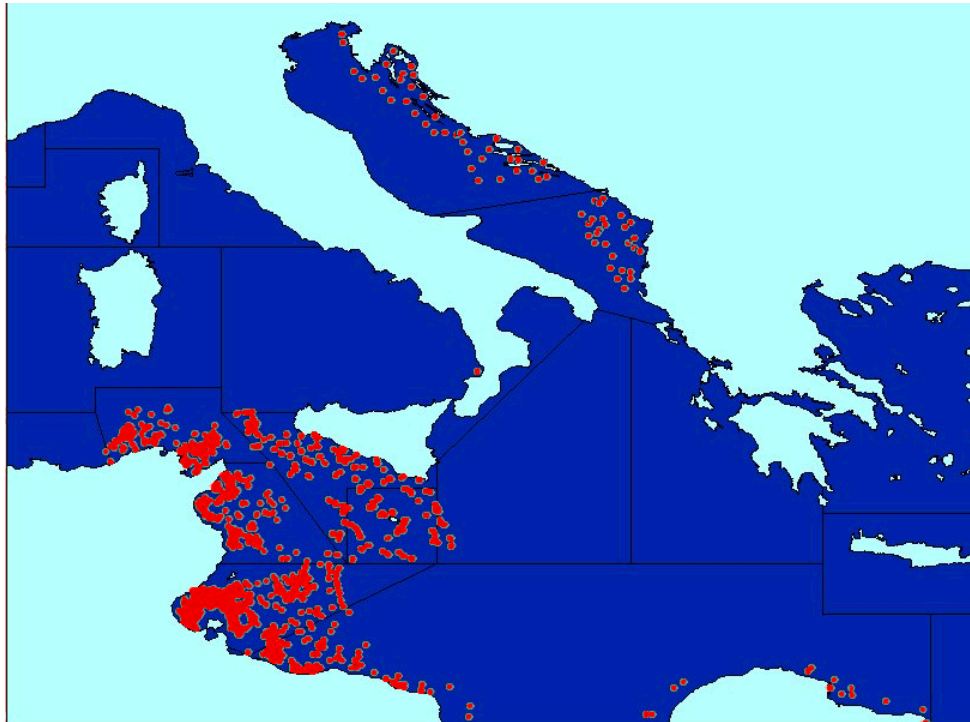


Figure 1. Geographical coverage of scientific survey data contained in FEIS.

The FEIS provides an overview of the available data and information in the Project area; it offers the possibility of exchanging and sharing data and it includes data query tools, as well as data visualisation and analysis tools. To collect data from other systems, agreed protocols and procedures have been implemented between FEIS and the national software available, e.g. with the “Sea Trim” Data Base (limited to trawl surveys recording and processing) developed by the Consiglio Nazionale delle Ricerche - Istituto per l’Ambiente Marino Costiero (CNR-IAMC) in collaboration with the Malta Centre for Fisheries Sciences (MCFS). Additional routines were created to upload data from the INSTM Institute of Tunisia. Moreover routines have been created to enable automatic uploading of the data from the regional database ATrIS (AdriaMed Information Trawl Surveys System, Gramolini *et al.* 2005, 2006) developed by the AdriaMed Project to store and analyse data coming from the trawl surveys organised by the Project in the Adriatic Sea.

### **Future developments and publication**

FEIS was developed in response to the increasingly complex nature of environmental and fisheries assessments. Today’s assessments require the integration of ecological fisheries and socio-economic data and utilize data collected on several spatial and temporal scales. The assessments typically involve multiple information management systems and numerous researchers located in different geographical work sites. Successfully completing marine ecosystem studies requires the development of shared inventories of information that support finding and evaluating the information resources for secondary use.

The Project presented an advanced release of FEIS at the 2005 GFCM Scientific Advisory Committee (SAC) session, receiving encouraging and positive comments. Moreover FEIS was presented during the 9<sup>th</sup> session of the SAC Sub-Committee on Statistics and Information (SCSI) (Kavala, Greece 17-20 September 2007). On this occasion the Committee suggested to further develop FEIS at regional level under the auspices of the GFCM Secretariat.

Further technical development of the FEIS, in cooperation with the GFCM Secretariat, foresees a web interface as well as the on-line publication of the system. A web based prototype has been created using a more flexible platform (Microsoft SQL server) as the database software. This step is foreseen and motivated by the ever-increasing amount of data and records that have to be managed. Based on the regional collaborative effort made by the participating countries the future development of FEIS is envisioned to:

- (i) increase the power and utility of the FEIS for partner countries;
- (ii) expand the coverage of the database geographically and temporally
- (iv) increase awareness of available survey data at Mediterranean level, and their utility for management, and facilitate greater sharing and collaborative analyses.

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