



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



SCIENTIFIC ADVISORY COMMITTEE (SAC)

Fourteenth Session

Sofia, Bulgaria, 20-24 February 2012

**Report of the 12th Session of the Sub-Committee on Marine Environment
and Ecosystems (SCMEE)**

FAO HQs, Rome, Italy, 23-26 January 2012

OPENING, ARRANGEMENT OF THE SUB-COMMITTEE MEETINGS

1. The Sub-Committee meetings of the Scientific Advisory Committee (SAC/GFCM), including the Transversal Session, were held at FAO HQs, Rome (Italy) from 23rd to 26th January 2012.
2. Mr Abdellah Srour, Executive Secretary of the GFCM, welcomed the participants and thanked them for their attendance acknowledging the effort deployed by their institutions in these difficult times that many countries in the Mediterranean are facing. He noted the increase in number of participants, compared to previous years evidencing the interest of the scientists on the GFCM advisory processes. He further drew the attention of the participants on the two new challenges the GFCM is facing and that will significantly empower the Commission, namely the Task force and the Framework Program. He thanked the EC for the support to the two workshops on VMS and on Elasmobranchs as well as to the FAO Regional Projects for their continuous support.
3. Mr Henri Farrugio, Chair Person of the SAC, also thanked the participants for attending the meeting and recalled the mandate of the SAC and its Sub-Committees. He acted as chair of the transversal session.

TRANSVERSAL SESSION: REVIEW OF TRANSVERSAL ISSUES

4. This session reviewed the outcome of the technical meetings held in 2011 and introduced some relevant issues such as the Small scale fisheries, Task Force and Framework Program:
 - 2nd Transversal Working Group on by-catch (in collaboration with ACCOBAMS) (by SCMEE coordinator)
 - Workshop on Red Coral (by SCMEE coordinator)
 - Follow up on Vessel Monitoring System issues (by GFCM Secretariat)
 - Specific actions for the Black Sea (by GFCM Secretariat)
 - GFCM Task Force and Framework Programme (FWP) (by GFCM Secretariat)
 - Small scale fisheries prospective (by GFCM Secretariat, FAO and FAO Regional Projects)
 - Bio-economic impact assessment of scenarios: hake fishery in the gulf of Lion (by IFREMER)

5. The meeting agreed that discussions and comments of the transversal session be included in the reports of each Sub-Committee under the agenda item corresponding to the review of the above mentioned activities. The presentations are available at: <http://151.1.154.86/GfcmWebSite/SAC/SCMEE/12/docs.html>

6. Mr Federico Alvarez opened the series of presentations with the two summaries of the workshop on By-catch and on Red Coral. He firstly, on behalf of all the Subcommittees Coordinators thanked the GFCM Secretariat staff for having completed an excellent job in the previous months, he acknowledged the effort put to have all the reports on time.

7. ACCOBAMS congratulated the initiative of the Black Sea strengthening through this first WG, and offered their available information on By-catch from the ACCOBAMS member countries.

8. Tunisian experts informed that an initiative has been launched to create a Network of Research Institutes by the Maghreb countries to address fishery issues in a more collaborative way. Mr Srou stressed that in fact other areas namely the southern countries are also being considered to be supported by the GFCM within the Framework Program.

9. After the presentation of the FAO Fisheries department, on the *FAO International guidelines on securing sustainable small-scale fisheries*, the role of fishermen on the data collection systems was highlighted. Mr Camiñas informed that under the ArtFimed experiences data collected by the fishermen, are of good quality and very reliable. Other subjects related to alien species, mammals interactions and the impact of some aggressive practices of SSF on the environment seem not to be included in the list of thematic areas of the FAO Guidelines and were suggested to be included. Mr Fuentevilla, FAO representative, insisted that a consultation process to improve the guidelines is open and they are always thanking and welcoming inputs from countries and from RFMOs.

10. After the Presentation by the Regional Projects on the sustainability of small scale fisheries Mr Farrugio stressed that the countries must continue using the tools developed by the regional projects even after those projects are finished as is the case of MedFiSiS. The issue of interactions between artisanal and industrial fishery was also highlighted as of great interest.

11. A model based on a case studies of hake fishery of the Gulf of Lion covering various management and methodological contexts (data availability in particular) at short and long term was introduce by Ms Angélique Jadaud. Two Scenarios were tested (one month stop for French trawlers and transition to MSY from 2012 to 2015 by reducing number of days at sea by vessel by fleet or number of vessels by fleet. Constant fleet structure, strategy and catchability, Constant price per commercial grade). Considering the second scenario, while biological impacts are identical whatever the adjustment variable: number of vessels or number of days at sea, economic impacts are different.

12. The meeting congratulated the authors for their excellent work and welcomed this type of initiatives in order to assess the economic impact of management measures.

INTRODUCTION AND ARRANGEMENT OF THE SCMEE MEETING

13. The 12th meeting of the Sub-Committee on Marine Environment and Ecosystems (SCMEE) of the SAC was held in Rome (Italy) from 23rd to 26th January 2012. It was attended by 29 participants as well as by 5 representatives of the GFCM Secretariat (see List of participants in Appendix A).

14. The meeting was opened by Federico Alvarez (Coordinator of the SCMEE) who welcomed the participants and reminded the main issues to be arisen and the topics discussed during the Transversal session. The Agenda was introduced and adopted (see Agenda in Appendix B).

15. Participants elected Ms Nastasi and Mr García as Rapporteurs for the meeting.
16. Participants asked about the possibility to have a session on a general review of the Recommendations included in the Reports of the 2nd Working Group on By-Catch and 2nd Transversal Workshop on Red Coral. Coordinator underlined that the reports of above mentioned meetings will be discussed during the point 9 Conclusions and Recommendations of the adopted Agenda.

PROPOSAL FOR A REGIONAL MANAGEMENT PLAN FOR RED CORAL

17. The Coordinator introduced the topic of the Proposal for a Regional Management plan for red coral. He reminded the GFCM Recommendation GFCM/35/2011/2 (On the exploitation of red coral in the GFCM competence area) and the proposals made by the 2nd Transversal Workshop held in Corsica (5-7 October, 2011).
18. Following the index presented as Appendix E of the Report of the above mentioned workshop, and under the Terms of References presented below, the SCMEE proposes to the SAC/Commission to give a mandate to the Secretariat for consultancy(ies) in order to draft the Regional Management plan.
19. The importance of red coral issues for the GFCM was reminded. Satisfaction was expressed about the progresses achieved by the GFCM in such a short time. Some difficulties were described in the issue of red coral management in the Mediterranean region where scientists have to deal with such different red coral populations.
20. Participants were informed about an ongoing research program on the use of ROV in the prospection of red coral populations funded by the Italian government (Ministry of Agricultural and Forestry Politics). Participants welcomed this initiative because it is in line with the REC. GFCM/35/2011/2.

STATUS OF REPORTING DATA ON BY-CATCH WITHIN THE FRAMEWORK OF TASK 1

21. Ms Nastasi (GFCM Secretariat) presented the Status of reporting data on by-catch within the framework of GFCM Task 1. It was underlined that even if the tool is available since 2008, Countries have never submitted any data on the yearly amount of by-catch. The SCMEE was also informed that with the REC. GFCM 33/2009/3, from reference year 2010, Task 1.4 is amended in the sense that by-catch data have to include information on the taxonomic group (ISCAAP) of the species of conservation concern.
22. Participants confirmed that Task 1.4 is a powerful tool to gather data on by-catch, but only on the “paper”. The SCMEE stressed the importance of reporting this information by CPCs. Nevertheless the SCMEE is aware of the difficulties in collecting this type of data, and recommends the use of observers on board to gather this sensitive information.
23. Ms Fortuna presented the results of the “**Monitoring incidental captures of species of conservation concern (2006-2011) under Regulation (EC) n. 812/2004 in Italy**” (see Abstracts in Appendix C).
24. The SCMEE highlighted the relevance of using turtle excluder devices (TEDs) and of using alternative pelagic gears to avoid catching also pelagic sharks and rays.
25. Participants agreed that in fisheries data collection, further type of by-catch information such as the number of specimen that are released alive after been caught and the number of dead specimen should be included in reporting.

26. Mr Sacchi presented a draft project “**Strategy on marine mammals by-catch reduction in gillnets and longlines fisheries. Assessment of main causes of bycatch. A pilot study project**” (see Abstract in Appendix C and Terms of Reference in Appendix D) that could be developed jointly by ACCOBAMS and the GFCM.

27. The SCMEE stressed the importance of the activities proposed by the project since they will contribute in increasing knowledge on the fisheries/cetacean interactions, developing national capacities and providing solutions to mitigate the negative impacts generated by such interactions.

28. The SCMEE considered the project as a good pilot study to deal with cetacean by-catch and recommended that the GFCM closely collaborates with ACCOBAMS and other relevant organizations to finalize the project according to the general objectives presented.

29. The GFCM Executive Secretary underlined that it should be possible to include this project under the umbrella of the GFCM Framework Programme (FWP) and to develop it in collaboration with ACCOBAMS.

30. Participants were informed that the European Commission has recently launched a call for tender for a study on "Adverse fisheries impacts on cetacean populations in the Black Sea". The reference is MARE/2011/16 and the terms of reference are available at: http://ec.europa.eu/dgs/maritimeaffairs_fisheries/contracts_and_funding/calls_for_tender/2011_16/index_en.htm The deadline for submitting bids is 20/02/2012.

SPECIAL SESSION ON ARTIFICIAL REEFS

31. The special session on Artificial Reefs (ARs) was moderated by Gianna Fabi who was introduced to the audience by the Coordinator. Ms Fabi introduced the topic of ARs in the Mediterranean Region underlining its importance for the GFCM area.

32. The GFCM Executive Secretary welcomed the moderator and explained the final aims of the session. He underlined the relevance to the Commission of focusing mainly on issues related to fisheries management aspects.

33. According to the Agenda of the meeting (see Appendix B) several presentations were presented (see Abstracts in Appendix C):

“Artificial reef applications in Turkey” (by Lök A.)

34. Participants highlighted that in some occasions Fishing Aggregation Devices (FADs) could be considered as ARs. However, taking into account the definition of ARs that is currently adopted, FADs are considered out of the scope of research on ARs *sensu strictu*.

35. It was underlined that so far there are no evidences of negative effects of the ARs in the areas where they are deployed.

36. Special concern was expressed by the participants on the lack of management plans, especially in the regular monitoring and control/surveillance in the sites where the ARs are in place. There was also a consensus on the need to draft regional guidelines for the aspects related to the management of ARs in the GFCM area.

37. Participants were informed about the **International conference on Artificial Reefs** that will be held in **İzmir (Turkey) in September 2013** organized by the **Ege University**. It was proposed to include, in the framework of this conference, a Round Table on ARs in the GFCM Countries

(Mediterranean and Black Sea).

“Common database on artificial habitat: possibility of expanding an Italian web site to Mediterranean and Black Sea” (by Spagnolo A.)

38. The Italian ARs database (www.habitatartificiali.it) was presented. Participants agreed on the idea of taking it as a well tested and practical reference and to expand it in order to include information from all the region; this database could be also considered to be included in the GFCM Regional Information Systems.

“Development of Artificial Reefs in Cyprus” (by Argyrou M.)

39. Participants took note of the recent initiative of Cyprus of setting ARs in coastal waters and the formulation of a relevant Strategy which defines the principles and criteria for ARs development. The 1st AR was constructed in 2009, following an environmental study for site-selection. An MPA was declared covering the area occupied by the AR structures, as well as the area occupied by an ancient harbour and the habitat of Posidonia seabeds. Furthermore, any kind of fishing activity is prohibited in the MPA. Nevertheless, one of the crucial problems which interferes with the effectiveness of the ARs is the insufficient enforcement of control measures. It was indicated that to evaluate the results of the ARs in the area it is necessary to wait at least 3 years.

40. Author and participants reminded again the importance of control/monitoring and management of the ARs because the surveillance can influence the final outcome of the ARs.

“An artificial reef near a mussel farm in the Po Delta area: characterization and monitoring” (by Sabatini L., Franceschini G. and Giovanardi O.)

41. Authors put emphasis on the fact of the absence of control in the area, as evidenced by the existence of illegal trawling fishing within the ARs area, negatively affected the assessments of results carried out. Once again the participants stressed the need of surveillance measures.

42. The moderator introduced a video developed by French scientists. The video showed a different approach by including ARs within the Integrated Coastal Zone Management (ICZM) framework of the EU. This initiative matches well with GFCM ARs approach.

43. Participants underlined that ARs once in place, constitute an ecosystem, and thus they should be approached with the EAF (Ecosystem Approach to Fishery) view, that should be also contemplated in the monitoring guidelines still to be developed.

44. The SCMEE considered ARs as a powerful tool for the protection of sensitive coastal habitats against bottom trawl fisheries and also a tool for the appropriate management of small scale fisheries.

“Attraction vs Production debate. Indirect evidences of increased biomass” (by Scarcella G., Fabi G. Spagnolo A. and Grati F.)

45. The SCMEE took note of the importance of using new monitoring techniques to assess the production of ARs (i.e. gut analysis, growth), which demonstrated that ARs do not only attract fish but that they increase the production and the carrying capacity of the area.

“Monitoring strategies and statistical approaches to study fishery resources of ARs in the Mediterranean and Black Sea” (by Scarcella G., Fabi G. and Spagnolo A.)

46. Some participants were concerned about the uncontrolled proliferation of ARs and the SCMEE highlighted that policies of installation of ARs should be in the context of a general coastal management (i.e. ICZM plan). The necessity of a common regional strategy to monitor the ARs was

also underlined.

FOLLOW UP ON:

DEEP-SEA HABITATS, SENSITIVE HABITATS AND MARINE PROTECTED AREAS (MPAS). IMPROVE THE KNOWLEDGE ON: A) THE TOPOGRAPHY OF SEAMOUNT AREAS, B) THE STRUCTURE AND FUNCTIONING OF CANYONS AND C) ON DEEP-SEA HABITATS;

47. Three studies were presented by the experts (see Abstracts in Appendix C);

“Ongoing research on Cold Water Corals, Fish and Fisheries in the Ionian Sea” (by Smith C., D’ Onghia G., Lekaditou E. and Mytilineou Ch.)

48. The SCMEE welcomed the research activity presented, carried out in the FRA of Santa Maria di Leuca (Italy) and in a newly explored area of the eastern Ionian (Greece) as a Mediterranean case-study in the framework of a EU project. It is foreseen that the results could give new quantitative information about the sensitive habitats of deep-sea cold corals.

“State of progress of the project for establishing SPAMIS in open seas, including the deep sea, and proposals for the next phase of the project” (by Ouerghi A., RAC/SPA)

49. The RAC/SPA representative underlined the importance of collaboration between RAC/SPA, ACCOBAMS and GFCM in order to establish new SPAMIS in the region.

50. Concern was expressed by the participants on political aspects that are the main obstacles faced in the process of establishing international marine protected areas in general.

“The importance of protecting seamounts in the Mediterranean basin” (by García S., OCEANA)

51. The SCMEE was informed that OCEANA is working in the characterization of seamounts in the Mediterranean Sea. In the past years OCEANA proposed to establish a FRA on the Balearic seamounts (GSA 05) and is currently undertaking actions to propose new protected areas, in particular in the Alboran Sea (GSA 01) as well as in other Mediterranean areas.

JELLYFISH BLOOMS: PREPARATION AND DISSEMINATION OF EDUCATIONAL MATERIAL (POSTERS, LEAFLETS, BROCHURES, ETC.) FOR INFORMING THE PUBLIC IN THE MEDITERRANEAN AND BLACK SEA COUNTRIES ABOUT HARMFUL SPECIES AND JELLYFISH;

52. The Coordinator informed the participants about the program undertaken by the CIESM to monitor the jellyfish blooms in the Mediterranean Sea. He underlined that the GFCM wants to help in the dissemination of this initiative and in order to avoid duplication of efforts, new initiatives on this topic will not be undertaken by the GFCM.

53. The coordinator also informed the participants that Dr. Ferdinando Boero was asked by the Secretariat to write a document on the Jellyfish blooms in the Mediterranean and Black Sea that will be published by the GFCM shortly (GFCM Studies & Reviews No. 92).

UPDATING OF THE TECHNOMED SELECTIVITY PROTOCOL AS A STANDARD DOCUMENT AND STUDIES ON IMPLEMENTING THE NEW CODEND MESHES;

54. An overview on the status of the art of the TECHNOMED activities was presented to the SCMEE by Mr Sacchi. The TECHNOMED group started its activities in 2006, to assist the SAC/GFCM in favoring the exchange of information between Mediterranean scientists involved in fishing gears technology research. A total of 66 scientists from 12 countries are involved in this task. Several workshops were held until now relating mainly with the improvement of the selectivity of bottom trawling in the region and in the elaboration of databases on trawls and static gears selectivity.

ALIEN SPECIES IN THE EASTERN MEDITERRANEAN AND THEIR IMPACT ON FISHERIES

55. Two studies were presented by the experts; the results of a recent study in Turkish waters of the Levantine basin, as well as, an overview of the alien species effects in the Fisheries of the Eastern Mediterranean and respective activities in the framework of the FAO-EastMed project (see Abstracts in Appendix C);

“Gains and losses by the lessepsian invasion in the Mediterranean Marine waters of Turkey” (by Turan C.)

“Alien species in the eastern Mediterranean and their effect on fisheries” (by Lefkaditou E., on behalf of the Network of Experts on the Effect of Lessepsian Species on Fisheries “NEELESFISH” of the EASTMED project).

56. The SCMEE continues to be informed that lessepsian species are increasing their importance (Eastern Mediterranean mainly) in fisheries, not only in catches but also from the economical point of view. Nevertheless concern was expressed about the gaps in the knowledge of lessepsian species taxonomy, biology and interaction with native species, as well as about human consumption of toxic species such as *Lagocephalus sceleratus*.

57. FAO Regional EastMed Project is actively working on the issue. The EastMed Project Technical Document n.4 includes the activities developed so far and the objectives at medium-long term.

UPDATING APPLICATION FORMS TO PROPOSE THE ESTABLISHMENT OF NEW FISHERIES RESTRICTED AREAS (FRAs)

58. The Coordinator introduced the topic. He underlined the need to ask for specific quantitative information on the *status quo* of the fishery(ies) (Operational Units, by-catch, discards) operating in the proposed FRA. If there are no fisheries activities in the area, it should be mostly investigated, by an experimental approach, the presence and the boundaries of sensitive habitats in particular for commercial species.

2012 SCMEE WORKPLAN

IMPLEMENTATION OF THE MEDIUM-TERM RESEARCH PROGRAMME ON RED CORAL;

59. A presentation on the GFCM Red coral data collection was presented by Ms Nastasi (GFCM Secretariat). As foreseen by the GFCM REC/35/2011/2 (On the exploitation of red coral in the GFCM competence area), data collection form shall be filled by countries involved in the harvesting of red coral, and submitted to the Secretariat. In the last Transversal Workshop on Red coral (Corsica 5-7 October 2011) 4 data collection forms were proposed, one of which to be considered compulsory. The GFCM Secretariat on its side will provide countries with a tool for the data submission in the next months.

PROPOSALS OF RESEARCH PROGRAMS FOR THE IMPACT OF ROV AS EXPLORATORY TOOL;

60. The study “**ROV as an exploration tool for mapping and monitoring mesophotic habitat**” (by Canese S., Rossi L., Manzueto L., Giusti M., Angiolillo M., Salvati E. and Tunesi L.) was presented by ISPRA researchers (see Abstract in Appendix C).

61. Participants agreed on the importance of using ROV in red coral populations exploration. Participants underlined the need of collaboration between scientists/institutions involved in research and scuba divers involved in the commercial exploitation of red coral.

IMPLEMENTATION OF THE MEDIUM-TERM RESEARCH PROGRAMME ON ELASMOBRANCHS;

62. The Coordinator informed participants about the successful outcomes of the GFCM Workshop on Stock Assessment of selected species of Elasmobranchs held in Brussels last December. He also announced the forthcoming **GFCM Workshop on Elasmobranchs age reading methodologies** that will be held in Turkey (tentative in June) and will be moderated by Dr Steven Campana.

63. The representative from RAC/SPA underlined the importance of the implementation of the medium-term research programme on elasmobranchs and offered the support/collaboration of RAC/SPA to promote future workshops on the topic.

64. It was reminded that there are still a lot of gaps in our knowledge of elasmobranchs taxa that do not allow to carry out adequate stock assessments. Moreover, there are problems with species misidentification, such as the confusion between *Squalus blainvillei* and *S. megalops*.

OTHER ACTIVITIES

ABOUT UPDATING THE GFCM GLOSSARY;

65. The 2nd Transversal Working Group on by-catch (7-9 December 2011, Antalya Turkey) agreed on the need to have a definition for *Associated species* which has not been provided in the GFCM Glossary so far. The WG proposed the following definition: *Commercial non-target species caught as by-catch*.

66. The SCMEE opened the discussion taking into consideration also GFCM Task 1 protocol to report catches, discards and by-catch and agreed to discuss the definition of Associated species in a further step jointly with the other GFCM Sub-Committees.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

67. All the following recommendations were adopted by the SCMEE:

RECOMMENDATIONS FROM THE 2nd TRANSVERSAL WORKSHOP ON RED CORAL (5-7 OCTOBER 2011, AJACCIO, CORSICA)

- The SCMEE endorsed the Conclusions and Recommendations as provided in the Report of the 2nd Transversal Workshop on Red Coral (5-7 October 2011, Ajaccio, Corsica) with the only exception of the Recommendation h) To National Administrations (p.12). The SCMEE expressed agreement on the first part of the recommendation regarding the minimum size of 7 mm, but it also took note of the concern expressed by some participants about the tolerance of 5% that should be further discussed during next SAC and GFCM Commission meetings.
- The SCMEE also adopted the four Data Collection Forms to be compiled by CPCs as presented in Appendix C, Report of the 2nd Transversal Workshop on Red Coral (5-7 October 2011, Ajaccio, Corsica).
- The SCMEE strongly recommends SAC to propose to the GFCM Commission to provide a mandate to the Secretariat for consultancies in order to draft the Regional Management Plan for red coral under the Terms of References provided in the SCMEE Workplan 2012 (see below).

RECOMMENDATIONS FROM THE 2nd TRANSVERSAL WORKING GROUP ON BY-CATCH (7-9 DECEMBER 2011, ANTALYA TURKEY) ORGANIZED IN COLLABORATION WITH ACCOBAMS

- The SCMEE entirely endorsed the Conclusions and Recommendations as provided in the Report of the 2nd Transversal Working Group on By-catch (7-9 December 2011, Antalya Turkey).
- The SCMEE strongly recommends SAC to urge CPCs to submit data on by-catch through Task 1 so to start evaluating the extent and the impact of by-catch on species of conservation concern.

RECOMMENDATIONS FROM THE SPECIAL SESSION ON ARTIFICIAL REEFS (ARs)

- The SCMEE recognized that there are positive outcomes in the Region in the use of ARs as a tool to avoid illegal trawling, to reduce conflicts between fisheries, and to increase productivity at the first and second level of the food chains. The SCMEE noted that the non-effectiveness of ARs mainly depends from the lack of adequate management and control measures. ARs may be mainly appropriate for the management and diversification of small-scale fisheries activities and that they may help to shift a part of the fishing effort from overexploited species towards other alternative resources. In this framework the SCMEE recommends to:
 - To encourage the exchange of information and cooperation among scientists through the development of a common database for ARs in the Mediterranean Sea and Black Sea.
 - To standardize and update monitoring procedures and statistical approach to assess effectiveness of ARs. Monitoring should also be addressed to better identify/evaluate the dimensions and scale of ARs which would be necessary in order to get appreciable benefits.
 - To draft updated guidelines for ARs monitoring in the Mediterranean and Black Sea.
 - To promote application of new methodologies (otolith readings, studies on food chains, microchemistry, stable isotope analysis, etc.) to get evidences of positive effects of ARs and to assess import/export of energy to/from ARs, as well as to encourage studies aimed at collecting proofs of positive/adverse effects on fisheries activities (e.g. CPUE, conflicts, spatial effect on effort, etc.).

- To address the problem of control and management of the ARs. The lack of surveillance can affect strongly the achievement of the objectives of the ARs.

RECOMMENDATIONS ON DEEP-SEA HABITATS, SENSITIVE HABITATS AND MARINE PROTECTED AREAS (MPAs)

- To start collecting data on fisheries and biodiversity on Mediterranean seamounts, towards further conservation and correct management of sensitive habitats found in these marine features.

RECOMMENDATIONS FROM TECHNOMED

- To follow up with the activities of the TECHNOMED network in the field of the fishing technology and to consolidate this network with appropriated means.
- To carry out training courses at regional level in collaboration with CIHEAM and FAO Regional Projects in order to strengthen the expertise capacity of the fishery technology scientists of the region.

RECOMMENDATIONS ON ALIEN SPECIES IN THE MEDITERRANEAN AND THEIR EFFECTS ON FISHERIES

- To report separately the total amount of landings/discards of alien species from native ones in order to create data series that will show the trends on the presence/abundance of alien species and will allow to assess their impact on fisheries in the Mediterranean and Black Sea.

RECOMMENDATIONS FOR UPDATING THE APPLICATION FORMS TO PROPOSE THE ESTABLISHMENT OF NEW FISHERIES RESTRICTED AREAS (FRAs)

- To include in the FRAs Proposal Forms specific quantitative information on the *status quo* of the fishery/ies (i.e. Operational Units, by-catch, discards) operating in the proposed FRA. If there are no fisheries activities in the area, it has to be investigated by an experimental approach the presence and the boundaries of sensitive habitats of commercial species in particular. In this view, the SCMEER recommends national fishery/ies agencies to provide potential FRA proponents with fishery/ies data (i.e. VMS) in conformity with the FRA Form hereby proposed.

RECOMMENDATIONS FOR UPDATING THE GFCM GLOSSARY

- To discuss the definition of *Associated species* to be included in the GFCM Glossary in a further step jointly with the other GFCM Sub-committees: SCSI, SCSEA and SCESS.
- To amend the definitions of *By-catch* and *Discards* to find a coherent way to link the concepts of *By-catch*, *Discards* and *Associated species*. This should be discussed jointly by the four GFCM Sub-committees: SCMEER, SCSI, SCSEA and SCESS.

SCMEE WORKPLAN 2012

68. The following items are proposed for the SCMEE Workplan 2012:

ON ARTIFICIAL REEFS

- To develop and/or implement the already existing databases (e.g. www.habitatartificiali.it), under the GFCM umbrella. Such common database should gather information (location, dimensions, year of deployment, type of material, etc.) on the ARs existing in the Mediterranean and Black Sea as well as on experts involved and available literature.
- To update existing guidelines on monitoring ARs in the Mediterranean and Black Sea, taking into account the possible application of the newer technologies and most recent knowledge to assess the real effectiveness of ARs in increasing marine productivity and manage fisheries.
- To develop a manual on the application of ARs in fisheries management to be used by stakeholders (e.g. policy makers). This could be implemented inside the framework of FAO regional projects (e.g. EASTMED).

ON GEARS SELECTIVITY

- To develop selectivity studies with the aim of reducing by-catches of vulnerable species on : selectivity devices as grids or sorting panels, static gears (in particular on longlining) and their effect on the survival after escapement as well as on the effects of trawling on substrate and habitat.
- To complete the different database of TECHNOMED network and to re-activate the TECHNOMED website.
- To organize regional training courses in fishing technology with the collaboration of CIHEAM and FAO projects.

ON THE IMPLEMENTATION OF THE MEDIUM-TERM ELASMOBRANCHS PROGRAMME

- To produce factsheets to facilitate the taxonomic classification of the most commonly misidentified species of elasmobranchs. To fulfill this task a consultant has been already identified.
- To carry out actions to define and map critical habitats as elasmobranchs nurseries.

ON RED CORAL

- To develop the Regional Management plan for red coral the following Terms of References provided below:
 - a) To collect and organize all scientific literature on the Red Coral in the Mediterranean covering points II and III of Appendix E of the Report of the 2nd Transversal Workshop on red coral held in Ajaccio in October 2011;
 - b) To collect information differentiating the use of ROVs for surveying and security and for scientific purposes, and also on the present research programs performed on the use of ROVs following REC.GFCM/35/2011/2.
 - c) To collect information about the socio-economic aspects of the red coral harvesting both from the fishermen and from the artisanal industry;
 - d) To propose management measures and related issues as indicated in point IV of Appendix E of the Report of the 2nd Transversal Workshop on red coral held in Ajaccio in October 2011.

NOMINATION OF SCMEE COORDINATOR

69. The GFCM Secretariat thanked the SCMEE Coordinator Mr Federico Alvarez for the work done in the last two years. Mr Bradai proposed Mr Alvarez to continue to coordinate the SCMEE for the next mandate. After the approval by the Sub-Committee, Mr. Alvarez was appointed as SCMEE Coordinator for the next two years.

DATE AND VENUE OF THE NEXT MEETING

70. To be decided.

ADOPTION OF THE REPORT

71. The Conclusions and Recommendations were adopted by the Sub-Committee on 26th of January, 2012 at 5.00 pm. The whole report was adopted after revisions and amendments by electronic correspondence within a week.

Appendix A

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Agenda

- 1. Opening and arrangement of the Sub-Committee meetings**
- 2. Transversal session: review of transversal issues (by SAC chairperson)**
- 3. Introduction to the SCMEE meeting and adoption of the agenda**
- 4. Proposal for a Regional Management plan for red coral**
- 5. Status of reporting data on by-catch within the framework of Task 1**
- 6. Special session on Artificial Reefs (Moderator: Gianna Fabi)**
 - 6.1 Opening the Workshop
 - 6.2 General information on Artificial Reefs (ARs) in the GFCM area
 - 6.3 Evidences of increased productivity and/or gathering of biomass in ARs of the Mediterranean and Black Sea
 - 6.4 Monitoring strategies and statistical approaches to study ARs in the Mediterranean and Black Sea
 - 6.5 General discussion and proposals for the future
- 7. Follow up on:**
 - 7.1 Deep-sea habitats, sensitive habitats and Marine Protected Areas (MPAs).
 - 7.2 Jellyfish blooms: preparation and dissemination of educational material (posters, leaflets, brochures, etc.) for informing the public in the Mediterranean and Black Sea countries about harmful species and jellyfish;
 - 7.3 Updating of the TECHNOMED selectivity protocol as a standard document and studies on implementing the new codend meshes;
 - 7.4 Alien species in the Eastern Mediterranean and their impact on fisheries
- 8. Updating application forms to propose the establishment of new fisheries restricted areas (FRAs)**
- 9. 2012 SCMEE Workplan**
- 10. Conclusions and recommendations**
- 11. Any other matter**
- 12. Nomination of SCMEE Coordinator**
- 13. Date and venue of the next meeting**
- 14. Adoption of the report and closure of the meeting**

Abstracts**Development of Artificial Reefs in Cyprus**

Argyrou M.

Department of Fisheries and Marine Research, Ministry of Agriculture, Natural Resources and Environment, Cyprus

The first Artificial Reef (AR) in Cyprus was developed by the Department of Fisheries and Marine Research (DFMR) within the marine zone of the Amathus area, in 2009. The objectives of the AR were the increase of biodiversity, the restoration and enhancement of fish stocks and the subsequent increase of fishery productivity in the surrounding areas, as well as the attraction of diving tourism and the public awareness on environment protection. The AR was constructed following an environmental study for site-selection, which focused on marine biodiversity of the area of interest, including identification of important species and habitats, mapping of the benthic biocoenoses, site-selection for AR placement, assessment of potential environmental impacts and elaboration of a management plan. The cement modules consisting the AR complex were deployed between the depths of 10-33 m. The area occupied by the AR itself, as well as the shallower area (0-10 m) occupied by the Ancient Harbour of Amathus and the habitat of *Posidonia oceanica* meadows has been declared as a Marine Protected Area under the provisions of the Fisheries Law in 2009. The Amathus Marine Protected Area covers an area of 175 hectares, from which the 110 are occupied by the AR itself. All fishing activities, boating and anchoring is forbidden within the protected area, while vessels may only use designated mooring sites. The entire project has been co-funded by the Cyprus Government and the European Fisheries Fund within the framework of the National Operational Fisheries Program 2007-2013. An integrated monitoring plan, including monitoring of physico-chemical parameters, ecological succession and fish visual census was set up, in order to assess the efficiency of AR in the highly oligotrophic marine environment of Cyprus. In addition, a Strategy for ARs development in Cyprus was formulated setting, *inter alia*, the maximum number of ARs (up to 4) that could be developed along the coastal waters, the criteria for site-selection and the implementation of an environmental study for ARs placement as a prerequisite.

ROV as an exploration tool for mapping and monitoring mesophotic habitat

Canese S., Rossi L., Manzueto L., Giusti M., Angiolillo M., Salvati E. and Tunesi L.

ISPRA, Italian National Institute for Environmental Protection and Research, Rome Italy

Mediterranean coralligenous assemblages and several other biogenic calcareous formations in the mesophotic zone are needing for specific studies due to their interest for fisheries (i.e. red coral banks) and because considered habitats of high conservation value. The Italian National Institute for Environmental Protection and Research, in collaboration with several national and foreign Universities and research Institutes, is actively involved in research programs focusing on biodiversity of these zone, through the use of a Remotely Operated Vehicle (ROV). In the last 5 years 34 research surveys were conducted, exploring, during 189 days at sea, 419 sites, most of them located between 80 and 200 depth. In particular, the analysis of all our ROV dive and track logs allows to calculate some general estimations: the frequency of workable days respect to unworkable days is 83%; the average working time for a day (largely dependent from environmental variables) is 3 hours; the average speed for the “working” ROV, during a transects, results to be of 230 meters/hour. High resolution images and videos, georeferenced by means of underwater acoustic position system, coupled with multibeam high resolution bathymetric data are the keystones to create biocoenotic maps and to plan monitoring programs in deep coralligenous habitats. The hard substrata of mesophotic zone represent the less explored part of Italian seas, and also thanks to the studies conducted by ISPRA in

collaboration with other relevant research institutions, it was possible to discover in the last years many rare or new species.

Monitoring incidental captures of species of conservation concern (2006-2011) under Regulation (EC) n. 812/2004

Fortuna C., Filidei E. jr., Vallini C., Mazzola A., Sala A., Canneri R., Raicevich S. and Giovanardi O. *ISPRA, Italian National Institute for Environmental Protection and Research, Italy*

Data on rates of incidental captures for species of conservation concern (cetaceans, sea turtles, elasmobranchs and other protected fish species) collected between 2006 and 2011 by ISPRA, CoNISMa, and CNR-ISMAR of Ancona as implementation of Regulation (EC) 812/2004 will be presented. Annual total estimates for selected species will also be provided.

The importance of protecting seamounts in the Mediterranean basin

García S.
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Seamounts are hotspots for marine biodiversity and marine features in urgent need of protection. Seamounts are supporting damaging fishing practices all around the world, because of the richness of species that can be found on them. Fisheries on seamounts are the existing main direct activity causing adverse impacts on these ecosystems, so there is a global urgent need of conservation measures and right-management of these areas in order to preserve important marine ecosystems and, in consequence, the marine living resources.

Alien species in the eastern Mediterranean and their effect on fisheries

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² *Network of Experts on the Effect of Lessepsian Species on Fisheries, FAO-EastMed Project*

The Lessepsian migration through the Suez Canal might be considered the largest scale biodiversity “experiment”, due to anthropogenic impact and being responsible for the major part of alien species dispersed in the eastern Mediterranean. Although, efforts towards alien species monitoring have been intensified during the last decades, the lack of wide scale studies on alien species effects on ecosystems and fisheries is generally admitted. Understanding of the inter-relationships between native and alien biota still remains limited, as disentangling of potential confounding factors (fisheries overexploitation, climate change, destruction/fragmentation of habitats, e.t.c) is difficult. Upon the urgent request by the south-eastern Mediterranean countries for scientific cooperation to confront the Lessepsian species and mainly *Lagocephalus sceleratus* impact on coastal fisheries, the FAO-EastMed Project organized in December 2010, a sub-technical meeting on “The Lessepsian migration and its impact on Eastern Mediterranean Fisheries”. According to the review of available information during the meeting, the Lessepsian migrants caught by fishing gears in the eastern Mediterranean include nowadays 77 fish and 24 invertebrate species; their numbers are increasing from year to year. Some Lessepsian species, like *Siganus* spp., *Marsupenaeus japonicus*, *Saurida undosquamis*, *Etrumeus terres*, *Upeneus* spp., have been successfully introduced into local markets, constituting important resources for fisheries in some countries. Others, like *Fistularia commersoni*, are landed or discarded depending on the demand in the local markets and require some marketing to increase their commercialisation, whereas, some venomous species, like *Lagocephalus sceleratus* and *Rhopilema nomadica*, apart from being hazardous to human health, are causing damages to fishing gears and commercial catches, particularly of some coastal fisheries in the Levant basin. The need for increase

of knowledge on Lessepsian species biology and interaction with physical environment and fisheries, was generally recognised by the participants, as well as that for presupposed regular monitoring of catches, fishing effort and biological data for Lessepsian species of fisheries concern. During the meeting the “Network of experts on Lessepsian species and their effect on Fisheries (NEELESFISH)” was established. Among its main objectives are the standardization of methodology for the collection of data aiming to the quantification of Lessepsian migrants effects on fisheries, the development of a database with relative literature and legislation and the contribution of recommendations within the framework of the FAO EastMed project towards the minimization of negative effects of Lessepsian migration and the adaptation of fisheries to this phenomenon.

Artificial reef applications in Turkey

Lök A.

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Small scale artificial reef applications in the Gulf of İzmir and İstanbul Bosphorus in 1970s are the first records on the subject. However, we don't have any document on these efforts. Subsequent artificial reef applications had become widespread after announcement of the results of scientific studies which started in 1990s. There were no legal regulations in relation to artificial reefs; it was sufficient merely to inform the Ministry of Agriculture and Rural Affairs about planned projects until October 1999. After arranging a meeting with reef stakeholders in September 1999, a “Project Guide for Artificial Reef Applications” was prepared and recommendations were put forward to establish rules for the planning and implementation of artificial reef projects. The guideline and regulations were revised in April 2011. Although there have been 38 artificial reef projects planned in Turkey, to date, only 26 of these projects have been completed. The main objectives of those projects were: (1) to support small-scale and traditional fisheries, (2) to create new sites for recreational fishing and diving, (3) to protect biodiversity, especially in the littoral zone, (4) to protect fish-spawning and nursery areas (e.g., Posidonia meadows) from illegal trawling. There is no long term monitoring / data collection studies on artificial reefs in Turkey except limited research efforts of several universities.

State of progress of the project for establishing SPAMIS in open seas, including the deep sea, and proposals for the next phase of the project

Ouerghi A.

UNEP-MAP-RAC/SPA, Tunisia

The Joint Management Action of the European Community with the United Nations Environment Programme/Mediterranean Action Plan (UNEP MAP) aims to promote through the SPAMI system the establishment of a representative network of marine protected areas in the Mediterranean open seas, including the deep seas. The action is implemented by the UNEP MAP Regional Activity Centre for Specially Protected Areas (RAC/SPA) according different phases. The first phase was completed in 2009 and included an assessment based on the available scientific knowledge to identify priority conservation areas in the open seas, including the deep seas, likely to contain sites that could be candidates for the SPAMI List.

The second phase completed in 2011 aimed to facilitate the process of designating as SPAMIs sites included in the priority conservation areas identified during the first phase by supporting the establishment of working groups between the neighboring countries concerned. On the basis of the lessons learned from the implementation of the project's second phase, it is proposed to develop the next phase of the project around two main strategic orientations:

- Contributing to improve the state of knowledge on open sea and deep sea ecosystems and their uses
- Contributing to build a framework with the countries and competent organizations to facilitate the joint establishment of SPAMIs in open seas, including the deep seas.

In this framework, and in order to support and strengthen the cooperation between GFCM and MAP organizations, some activities are proposed to be developed jointly such as the development of a socio-economic evaluation of the fishing activities carried out in pelagic ecosystems and deep benthic habitats, the organization of a joint ACCOBAMS/CBD/GFCM/MAP workshop on the EBSAs, and the development of a joint strategy with ACCOBAMS and GFCM on how to address the issues of common interest (that could be done through the preparation of a strategy paper that could be then presented for discussion to the respective national representatives).

Strategy on marine mammals by-catch reduction in gillnets and longlines fisheries. Assessment of main causes of bycatch. A pilot study project.

Sacchi J. and Rais C.
ACCOBAMS, France

This programme should aim to (a) expand and improve data collection, especially on technical characteristics and practices responsible of impacts on marine mammals, (b) increase the awareness of fishers and (c) include some case studies where mitigation measures should be urgently applied such as those of Black Sea turbot fishery, coastal static nets fisheries, drifting longlines, depredation in purse seine fisheries and other fisheries cases identified as harmful to marine mammals. This pilot study project could be considered within the GFCM Framework Program.

An artificial reef near a mussel farm in the Po Delta area: characterization and monitoring

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In Autumn 2006 and wintertime of 2010 and 2012 concrete modules were deployed near a mussel farm off the Po river's estuary in order to impede illegal trawling and possibly to increase the local fish and shellfish abundance. The site had been selected because trawling is always interdicted in proximity of mussel farms and preliminary investigations had shown the marine ground firmly sustain the sunken structures and the latter ones host many early colonizers such as sponges and others. Investigations performed in March-September 2006 showed the local sediments be silt and silty sand hosting a VTC biocenosis with rather large *Corbula gibba* and *Ampelisca diadema* pools that hinted at high carbon loads coming from the aquaculture plant and/or local rivers. Concomitant fishing trials by fixed nets demonstrated that catches were quite homogeneous throughout the area, and mainly composed of fishes known not to be attracted to hard substrates. Post-deployment monitoring of the AR started in late 2008. Hydro-acoustic surveys found tracks by trawled nets both within and out of the ground area circumscribed by the sunken modules. The benthic samples taken from the modules resulted to be poorly influenced by the different design of the underwater structures. Fishing trials performed monthly soon demonstrated that fishes usually attracted to hard substrates were caught, and yields were initially higher than during the pre-deployment period but in the following couple of years they resulted analogous to those of 2006. To some extent these findings could have been determined by the lack of any official body governing fish and shellfish collection at the artificial reef so that the local fauna was soon overexploited.

Attraction vs Production debate. Indirect evidences of increased biomass

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Despite the high number of studies on fish assemblages associated with artificial habitats, little information exists on the role of artificial reefs in enhancing fish biomass. Direct estimation of biomass increase is difficult because AHs are open-systems in connection with the open sea. However, evidence of some processes such as increased growth rate, greater food availability and, hence, minor consumption of energy to find food items, can indirectly demonstrate that AHs can contribute to increase fish biomass. The presentation will provide a few examples on the role of AHs in enhancing production in the Adriatic Sea, such as the increase of scorpionfish growth rates collected in the proximity of AHs and the feeding behavior of sparids in an AR of the northern Adriatic Sea.

Monitoring strategies and statistical approaches to study fishery resources of ARs in the Mediterranean and Black Sea

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A critical element in understanding how artificial reefs can be integrated into a more general marine resource management framework is an ability to evaluate their performance. Despite significant developments in construction and design, artificial reef projects have been criticized for a lack of planning in the development of monitoring programs that will provide fisheries scientists and managers the information required to test objective. Artificial structures, particularly in the initial phase following deployment demonstrate an ability to support greater fish abundance, diversity and biomass than similar naturally occurring habitats. Differences in the assemblage structure and recruitment patterns are further complicated by the relatively small size and isolated nature of many artificial reefs. The presentation will provide some elements that will help in opening a discussion about a Mediterranean standardization of monitoring programs for the ARs.

Ongoing research on Cold Water Corals, Fish and Fisheries in the Ionian Sea-The Coral FISH project

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The Ionian sea is the largest in volume and deepest Sea of the Mediterranean. The sedimentation of this tectonically active area, is characterized by mass gravity-driven, often triggered by earthquakes. Previous investigations at the northern most part of the Ionian slope (APLABES, HERMES and other) have explored the status of the early documented coral reef off the Italian cape of Santa Maria di Leuca (SML). Current investigation, carried out as part of EU-FP7 CoralFISH project, mainly concerns the interaction between cold water coral habitats, fish and fisheries. Two study areas were selected in the Ionian Sea, the SML area off Italian coasts (north Ionian) and a new unexploited area off the coasts of the Greek Island of Cephalonia Island (north Ionian), the exact location of which was defined after a preliminary explorative survey the eastern Ionian slope to map and document cold water corals. In both study areas oceanographic and fisheries surveys were undertaken, to improve knowledge on habitat settings, distribution and variability of CWC, as well as on deep-water fish assemblages in and out cold-water coral areas.

Common database on artificial habitat: possibility of expanding an Italian web site to Mediterranean and Black Sea

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The Italian “Artificial Habitat Group” founded in 2009 by several Researchers involved in artificial habitat studies developed a web site (www.habitatartificiali.it) having the aim of making available useful information such as: unambiguous definition of artificial habitats, current grey and scientific literature, interactive map of ARs in Italy, news about ARs etc. It also offers a list of involved Researchers, with their addresses and field of interest. In order to facilitate exchange of information and cooperation among countries and scientists at international level, it would be interesting to integrate this web site with information coming from Mediterranean and Black Sea, making some improvements. Among these, for example, the possibility to know which ARs are deployed on a certain type of sediment, to obtain a list of ARs built with a particular type of modules, to insert images, and to create a link with pdf version of papers listed in the bibliography session, etc.

Gains and losses by the lessepsian invasion in the Mediterranean Marine waters of Turkey

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Lessepsian species and their roles in the benthic and pelagic ecosystems are increasingly becoming a subject of study in marine waters of Turkey. The impacts of lessepsian species on their new environment include; restructuring established food webs, competition with native organisms for food and space and altering the gene pool when the invading species reproduce with native species. The Mediterranean coasts of Turkey is the most effected region of lessepsian invasion due to harboring the highest number of lessepsian species and having the first receiving waters of the lessepsian migrants. Biomass, catch-composition, geographic distribution, dept-distribution, habitat coverage, seasonal variation and economic importance of lessepsian fishes were examined between 2009 and 2011. Bottom trawl, purse seiner and nets were used for the collection of data from the Antalya Bay, Mersin Bay and Iskenderun Bay, comprising the entire Mediterranean coasts of Turkey. Economic importance was determined on the bases of discarded fish, occurrence on markets and market value. Native species that used to be commonly fished and now declined or lost in these regions were determined from the past and presented fisheries statistics.

Appendix D**Strategy on marine mammals by-catch reduction in gillnets and longlines fisheries. Assessment of main causes of bycatch. A pilot study project.****Terms of reference**

- a) To identify the main fisheries concerned by interaction issues with cetaceans in GFCM area;
- b) To select case studies addressing the most important identified interaction issues;
- c) To assess the main technical and practices causes of impact;
- d) To test mitigating solutions (new or already used in other parts);
- e) To evaluate biological and socio-economical consequences of the implementation of the mitigating measures;
- f) To propose a strategy to implement the most relevant mitigating solutions;