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FISHERY COMMITTEE FOR THE EASTERN CENTRAL ATLANTIC

Twentieth Session

Rabat, Morocco 14 – 16 March 2012

MAIN OUTCOMES OF THE SIXTH SESSION OF THE SCIENTIFIC SUB-COMMITTEE

SUMMARY

This document is the final report of the sixth session of the Scientific Sub-Committee of the Fisheries Committee for the Eastern Central Atlantic (CECAF), which was held in Accra Ghana, from 7 to 9 September 2011. The outcomes from the following major topics discussed are presented: the reports of the two working groups on small pelagic and demersal groups respectively; the fisheries resources management issues in the CECAF region; validation of the resources and fisheries inventories available in the Fisheries Resources Monitoring System (FIRMS), for FIRMS's publication; progress on the implementation of Ecosystem Approach to Fisheries (EAF) in the CECAF region; CECAF Capture Database – Trend, Reporting and Proposal for a Revision of the CECAF Statistical Divisions; progress of FishCode/STF Project to support improvement of fisheries data collection in the region; report of work of other projects/programmes in the CECAF region and of research institutions or scientific groups in CECAF member countries; the state of resources and future programme of work in the region.

I. OPENING OF THE SESSION

1. The sixth session of the Scientific Sub-Committee (SSC) of the Fishery Committee for the Eastern Central Atlantic (CECAF) was held in the Conference Room of the FAO Regional Office for Africa in Accra, Ghana from 7 to 9 September 2011.

2. Mr Eduardo Balguerias of Spain chaired the Session. A total of 28 delegates from 15 CECAF Members and representatives from the Swedish International Development Cooperation Agency (SIDA), the Agency for Management and Cooperation between Guinea-Bissau and Senegal (AGC), the Sub regional Fisheries Commission (SRFC), the Regional Fishery Commission for the Gulf of Guinea (COREP), Canary Current Large Marine Ecosystem (CCLME) Programme, Guinea Current Large Marine Ecosystem (GCLME) Programme, FAO Fisheries and Aquaculture Department, and FAO Regional Office for Africa respectively attended the Session. The list of participants is given in Appendix B of this report.

3. Mr Balguerias welcomed the participants and thanked the FAO for its regular support to the CECAF Scientific Sub-Committee. He also appealed to the participants to review activities realized and elect the chairperson and vice chairperson of the Scientific Sub-Committee as planned.

4. The session was opened by Mr Musa Saihou Mbenga, Deputy Regional Representative for Africa, Subregional Coordinator for West Africa and FAO Representative in Ghana, on behalf of Ms Maria Helena Semedo, Assistant Director-General and Regional Representative for Africa. In the address, the participants were reminded the origin of the Scientific Sub-Committee and its role in giving scientific advice to guide the activities of the different fisheries stakeholders in the respective member countries to improve food security for the increasing populations.

5. The FAO Regional Representative for Africa confirmed the commitment of FAO to continue to support member country food security initiatives that will contribute to sustaining the livelihoods of the people in the region and the CECAF area, in particular. Ms Semedo was convinced that the conclusions and recommendations of the Scientific Sub-Committee will contribute to FAO's effort in helping its member countries make informed decisions on the conservation, management and development of the fisheries resources in the rich fishing grounds of the CECAF zone.

II. ADOPTION OF THE AGENDA AND ARRANGEMENT FOR THE SESSION

6. The Sub-Committee adopted the Agenda, which is given in Appendix A.

7. The list of documents submitted to the Session is reproduced in Appendix C.

III. MAIN OUTCOMES OF THE WORKING GROUPS

A) SMALL PELAGICS WORKING GROUP – CECAF NORTH

8. The results of the working group, since the last session of the Sub-committee in 2007, were presented through document CECAF/SSCVI/2011/2a. The following meetings were conducted during the period: Eighth meeting in Saly, Senegal (6 to 15 May 2008), Ninth meeting in Nouakchott, Mauritania (21 to 30 April 2009), Tenth meeting in Banjul, Gambia (18 to 22 May 2010), and Eleventh meeting in Casablanca, Morocco (24 to 28 May 2011). The presentation dealt mainly with the results of the last meeting of 2011, indicating the status of the stocks for each of the species evaluated, and the recommendations concerning future management and research.

9. The sardine stock (*Sardina pilchardus*) in Zone A + B was again considered overexploited and the Working Group therefore maintained its recommendations from the previous three years that the catch should not exceed 400 000 tons. The sardine in Zone C was not yet fully exploited. However,

the stock structure and abundance should be closely monitored by fishery independent methods, and care must be taken in the management of sardine in this Zone.

10. The Working Group was concerned with the state of the stock of round sardinella (*Sardinella aurita*), which was overexploited. It reiterated the recommendation to reduce fishing effort on sardinella.

11. The Atlantic horse mackerel (*Trachurus trachurus*) and Cunene horse mackerel (*Trachurus trecae*) remain overexploited and the Working Group recommended a reduction in catch and effort to ensure sustainable catch of these stocks.

12. The mackerel (*Scomber japonicus*) and anchovy (*Engraulis encrasicolus*) are both considered fully exploited. In the case of anchovy, the Working Group recommended that the effort should not exceed the present level while for mackerel it was recommended that catches should not exceed 200 000 tons.

13. The results of the bonga evaluation (*Ethmalosa fimbriata*) indicated that this stock is not fully exploited. It was recommended to adopt precautionary measures and not to increase the fishing effort in 2011.

14. The summaries of the assessments and management recommendations for each stock are given in Appendix D.

15. In discussing the activities of the working group, concerns were raised on the age of pelagic fish and recommendations of the working group on the planning of acoustic surveys. The lack of regional initiatives on age reading over the last few years (apart from work done by the Russian scientists) was highlighted. Different recommendations of the acoustic survey planning groups were examined, with focus on the need to continue the series of acoustic abundance indicators started with the R/V Dr. Fridtjof Nansen. In this regard, the acoustic surveys should be conducted with national vessels. The constraints in recent years linked to the interruption of national surveys in the Senegal-Gambia zone by the R/V Itaf Deme of Senegal should be eliminated.

16. During the discussions, the Sub-committee raised various issues regarding the availability of figures in the summary report distributed, and the need to establish concerted management mechanisms on these pelagic stocks, particularly with the assistance of projects like CCLME, the project on small pelagics of the Sub Regional Fisheries Commission (SRFC) and the EAF-Nansen project.

17. The importance of research in ensuring a better identification of mackerel species was reaffirmed because of the similarities between the Atlantic horse mackerel and Cunene horse mackerel.

18. It was recognized that capacity for acoustic surveys exist in both Morocco and Senegal but there is need to improve capacity in this regard in the other countries. To this effect, the sub-committee was informed of a planned training course in acoustic surveys by the EAF Nansen and CCLME projects.

B) SMALL PELAGICS WORKING GROUP – CECAF SOUTH

19. The status of the small pelagic resources in the southern CECAF area from Guinea Bissau to Angola based on the results of the Small Pelagics Working Group - CECAF South held in Accra, Ghana, 19-28 October 2009, was presented as in document CECAF/SSCVI/2011/2b.

20. Datasets on catch and effort (1990-2008) were used in the assessments using the Shaefer dynamic production model on the Sardinellas (*Sardinella aurita* & *Sardinella maderensis*), Bonga

(*Ethmalosa fimbriata*), Anchovy (*Engraulis encrasicolus*) and the Carangid resources within the region. The Working Group also had access to fishery independent data through the R/V Dr. Fridtjof Nansen surveys. Length-based methods were applied in some cases, when this type of information was available.

21. The results of the assessments showed that among the sixteen analyzed stocks, the stock of round sardinella (*Sardinella aurita*) of Côte d'Ivoire, Ghana, Togo and Benin was found to be over-exploited. Five other stocks including flat sardinella (*Sardinella maderensis*) - Western stock, sardinella (*Sardinella spp.*) - Northern stock, and the Northern and Southern stocks of bonga (*Ethmalosa fimbriata*) - were considered fully exploited. One stock, *Sardinella spp*. of Gabon, Congo, Democratic Republic of Congo and Angola was found to be moderately exploited. No analysis was done on nine stocks, but management recommendations were provided based on available information on the trend of the catches or survey results.

22. The issues of limited or lack of data for stock assessment purposes and inconsistencies in reporting of such data was raised to which member countries within the CECAF region were encouraged to improve their data collection schemes for future assessments and research. However, the Working Group noted that for some species/stocks observed data deficiencies in catch and effort for some countries were linked to the relative importance of these species for the countries concerned and it recommended a careful review of the species/stocks adopted at the first meeting of the Working Group in 2006 to better focus on future assessments. Furthermore, the Working Group recommended that effort must be reduced when excessive effort was observed, whilst the Working Group recommended not to increase the catches above an indicated level for the fully and moderately exploited stocks. A precautionary approach should be applied where there are uncertainties in any stock assessment.

23. The summaries of the assessments and management recommendations for each stock are given in Appendix D.

24. In terms of overall recommendations for priority areas of future research the following were noted:

- Emphasize fisheries research for all the regions. Data collection schemes should be improved and effort should be made to collect data on species basis in the artisanal and industrial fisheries.
- Intensify biological sampling for better estimates of growth and mortality.
- Improve species identification especially the Carangidae and sardinella.
- Continue with Nansen surveys to obtain fisheries independent data and biomass estimates, and carry out surveys in shallow waters (less than 15 m depth) using appropriate methods and improve the understanding of interactions between fisheries resources and the environment.
- Initiate sampling of catches and discards on board vessels fishing horse mackerel in order to address problems related to under-declaration of catches, in particular juveniles.

C) DEMERSAL SPECIES WORKING GROUP – CECAF NORTH

25. The state of demersal stocks in the northern region was presented as in CECAF/SSCVI/2011/3a. The main objective of this working group is to contribute to the evaluation of the state of the stocks to ensure rational and sustainable exploitation of resources of CECAF member countries. The Schaefer dynamic model, the Length Cohort Analysis (LCA) and the model of Yield per Recruit were used for the assessment of the current state of the stocks as well as for the short and medium-term projections. In all, 25 stocks were analyzed.

26. The total catches of demersal resources analyzed by the working group attained 178 000 tons in 2008. The general trend is on the decline since 1999. The most important group of species in the

region is the group of cephalopods, notably the octopus (*Octopus vulgaris*) which represent on average 47% of total catches of demersal resources during the period analyzed.

27. Most of the demersal species show a decline in recent years. Among the stocks assessed, those of white grouper (*Epinephelus aeneus*) in Mauritania, Gambia and Senegal are still in a serious state of overexploitation. Twelve other stocks, including the white hake (*Merluccius merluccius*) in Morocco, the red Pandora (*Pagellus acarne*) in Morocco, blue spotted seabream (*Pagrus caeruleostictus*) in Mauritania and Senegal, the deep water rose shrimp (*Parapenaeus longirostris*) in Morocco, the southern pink shrimp (*Penaeus notialis*) in Mauritania and in Senegal-Gambia, octopus (*Octopus vulgaris*) in Dakhla, Cap Blanc and Senegal-Gambia, cuttlefish *(Sepia* spp.) in Dakhla, Cap Blanc and in Senegal-Gambia, were assessed as overexploited.

28. Three stocks (the stocks of *Merluccius* spp. in Mauritania and in Senegal-Gambia and the stock of *Parapenaeus longirostris* in Mauritania) do not seem to be fully exploited. The results obtained by the models based on available data for eight stocks (*Pagellus bellottii* in Mauritania and in Senegal-Gambia, *Pagellus* spp. in Morocco, *Dentex macrophtalmus* in Morocco, Mauritania and Senegal-Gambia, *Sparus* spp. in Morocco, Arius spp. in Senegal-Gambia, *Pseudotolithus* spp in Senegal-Gambia and *Plectorhinchus mediterraneus* in Morocco), were non-conclusive, but other information from fisheries and scientific surveys at sea indicate that many of them are fully exploited. For one stock *(Loligo vulgaris),* no status has been assigned.

29. The Working Group recommended reducing the fishing effort of 2008 for all overexploited species. For the stocks that are not fully exploited and for stocks for which reliable results cannot be obtained, the fishing effort must not exceed its present level.

30. The summaries of the assessments and management recommendations for each stock are given in Appendix D.

31. In terms of overall recommendations for priority areas of future research, the following were noted:

- Make the managers and politicians aware of the sharp decline of demersal stocks in their countries so that they can apply the recommendations made by the working group.
- Prepare all the necessary databases for the assessments so that they can be sent to all participants, the FAO and the Chairman of the Working Group at least one month before the start of the working groups.
- Present in time to the Working Group all relevant data available in the countries should (e.g. catches, corresponding fishing effort, abundance indicators, composition in size and age of catches).
- Improve the data collection system by a better identification of species and origin of catches.
- Study the effects of environmental factors on the abundance of demersal species.
- Conduct regular national and regional scientific surveys covering the entire distribution of stocks in order to obtain more reliable abundance indicators for each stock.
- Undertake inter-calibration of trawls of different research vessels in Morocco, Mauritania and Senegal.
- Urgently organize thematic regional seminars or study groups between the members of this working group (shared stocks, environmental effects, biology, identification of stocks, etc.).
- Organize a training course on stock assessment methods adapted to the species with short lifespan.

32. The Sub-Committee noted that there is a need to introduce the abundance indicator trends of scientific surveys of catches and CPUE of commercial vessels in the presentations and in the reports submitted to the Scientific Sub-Committee.

D) DEMERSAL SPECIES WORKING GROUP – CECAF SOUTH

33. The state of the demersal stocks in the Southern region of CECAF was presented as in document CECAF/SSCVI/2011/3b, based on the results of the second meeting of the Working Group, held in Freetown, Sierra Leone, from 9-18 October 2008.

34. The overall objective of the Working Group was to contribute to improved management of the demersal resources in the Southern area of the Eastern Central Atlantic through assessment of the state of the stocks and the fisheries to ensure the best sustainable use of the resources for the benefit of the coastal countries.

35. Scientists from Angola, Benin, Cameroon, Côte d'Ivoire, Democratic Republic of Congo, Gabon, Ghana, Guinea, Liberia, Nigeria, Sao Tome and Principe, Sierra Leone, Spain, Togo and FAO participated in this Working Group. In total, thirty stocks were analyzed. The Working Group was divided into five subgroups: i) demersal fish South 1, ii) demersal fish South 2, iii) demersal fish South 3, iv) shrimps South and v) cephalopods South.

36. The Working Group used the Schaefer dynamic production model for all the assessments, due to the absence of data on the size or age structure of the catch and other needed biological and population parameters (length frequencies, individual length and weight, sex, maturity, etc.). When stocks could not be assessed due to limited data, the Working Group made recommendations based on previous assessments and trends in available data. The advices for the stocks were given in relation to the agreed reference points $F_{0.1}$, F_{MSY}, $B_{0.1,}$ B_{MSY}. There was uncertainty in the assessments carried out, mostly due to deficiencies in some of the data available.

37. Three stocks were found to be fully exploited, namely the Sparidae (in Guinea, Sierra Leone and Liberia) and the southern pink shrimps (*Penaeus notialis*) (in Gabon and in Liberia).

38. Fourteen stocks were considered overexploited: *Pomadasys* spp. in Guinea, Sierra Leone and Liberia and in Gabon, Congo and Democratic Republic of Congo; *Galeoides dedactylus* in Côte d'Ivoire, Ghana, Togo, Benin and Gabon, in Congo, Democratic Republic of Congo and Angola; *Dentex* spp. in Côte d'Ivoire, Ghana, Togo and Benin; *Pagellus bellotti* in Côte d'Ivoire, Ghana, Togo and Benin; *Pseudotolithus spp* in Gabon, Congo and Democratic Republic of Congo; Cynoglossus spp. in Gabon, Congo and Democratic Republic of Congo; *Brachydeuterus* in Congo and Angola; *Arius spp*. in Gabon; *Penaeus notialis* in Guinea and *Sepia* spp. in Ghana.

39. Only two stocks are in a state of moderate exploitation: *Pseudolithus* spp. in Guinea, Sierra Leone and Liberia and *Penaeus notialis* in Ghana.

40. The Working Group recommended that fishing effort should be reduced for the overexploited stocks or not increased for the other stocks, to avoid further depletion. Where possible, recommendations on catch levels were also indicated for each stock. Given that most fisheries in the region are multi-specific, an overall reduction in fishing effort was also suggested.

41. The summaries of the assessments and management recommendations for each stock are given in Appendix D.

42. The main recommendations on areas of work that require attention were summarised as follow:

- Intensify sampling for biological parameters, length frequencies and species composition of catches including by-catch in all the main fisheries both artisanal and industrial and present to the next Working Group meeting. Priority should be given to the main species so as to obtain a complete catalogue of the basic information needed for proper assessment.
- Continue developing abundance indices on commercial fisheries (CPUE).
- Continue and strengthen the collection of data from artisanal fisheries, including effort and catch by species and gear.

43. In the discussions that followed the presentations, the format of the summary reports for the assessment working groups was brought up, as some delegates felt that these reports should be expanded with tables and figures on the assessments, to facilitate review and discussions on the assessments made. As a response, it was pointed out that in principle all the details on the assessments were provided in the working group reports and that the two documents together should provide the delegates with sufficient information. Thus, the importance of making the working group reports available prior to the Scientific Sub-committee meetings was stressed. Nevertheless, the members of the Sub-Committee agreed to review the format of the summaries and come up with a proposed new format before the next Scientific Sub-committee meeting. Also, the publication procedures for the working groups reports should be reviewed to shorten the publication period.

IV. FORMULATION OF ADVICE ON FISHERY MANAGEMENT MEASURES IN THE CECAF REGION

44. The Sub-Committee endorsed the reports of the Working Groups (CECAF/SSCVI/2011/2a, CECAF/SSCVI/2011/2b, CECAF/SSCVI/2011/3a and CECAF/SSCVI/2011/3b) to be presented to the Committee (CECAF). A summary of the recommendations is given in Appendix D.

V. RESOURCES AND FISHERIES INVENTORIES AVAILABLE IN FIRMS FOR THE CECAF REGION – VALIDATION FOR FIRMS PUBLICATION

45. The Fisheries Resources Monitoring System (FIRMS) is an information partnership aiming at disseminating authoritative information on the state of resources, fisheries and their management. CECAF has agreed through its SSC to contribute information on Regional CECAF Resources assessments as part of its regular process. Regarding fisheries, the Scientific Sub-Committee, at its fifth session, had requested national representatives to validate the inventory of fisheries.

46. Document CECAF/SSCVI/2011/4 was introduced as an overview of the process. Fifteen countries participated in a CECAF-FIRMS workshop (Accra, December 2009). This meeting enabled capacity building, enhancement of the Global Inventory guidelines and agreements on regionally shared conventions. The inventory of marine resources, which currently consists of 227 units, has been updated based on three recent CECAF assessment Working Groups reports, and the status reports published as fact sheets in FIRMS. Such an update takes care of modifications in the definition of stocks/resource units, as agreed by the CECAF assessment working groups. The inventory of fisheries currently consists of about 440 fishery units and the FIRMS Secretariat presented a regional map classifying the validation status by country according to 4 classes (see below).

47. The CECAF-FIRM workshop conducted a round table collection of national representatives' views on the validation status. As a result of interventions of the FIRMS Secretariat and national representatives during the round-table, the validation status of the fisheries inventory can be summarized as follows:

- Nine countries (Congo, DR Congo, Gabon, Gambia, Guinea, Senegal, Togo, Spain and Morocco) have fisheries inventory in a quasi-final state.

- Three countries (Angola, Benin and Mauritania) recently provided (or will soon provide) their validated versions.
- Three countries (Liberia, Ghana, Nigeria) which did participate in the Accra workshop have not followed-up until now, but promised to provide names of focal points for the final validation.
- Three countries (Cameroon, Côte d'Ivoire and Sierra Leone), which did not participate in the Accra workshop, have expressed interest in being trained and contributing through assignment of focal points.
- Three countries (Cape Verde, Equatorial Guinea and Guinea Bissau), absent, have not been involved at all.

48. The Scientific Sub-Committee agreed that another capacity building regional workshop in the short term was not necessary and that priority be given to publication of the first version of the inventory. For the 12 most advanced countries, the final validation should be completed within a month, from which date the available inventories should be published. Capacity building will be conducted on a case-by-case basis.

49. The FIRMS representatives then presented five outstanding issues on stocks and the marine resources inventory, which emerged through the Accra workshop process as well as other FIRMS parallel developments, for discussion and decision making by the meeting. These were on (i) integrating the lists of nationally identified stocks/resource units in the regional inventory; (ii) differentiating different levels of quality on the stock assessment results; (iii) data ownership and roles of countries, CECAF and sub-regional organizations; (iv) process for the maintenance of the inventory; and (v) FIRMS development of naming conventions for a standard Resource or Fishery title in French or Spanish.

50. On integrating lists of nationally identified stocks/resource units in the regional inventory in the region, the Scientific Sub-Committee decided that proposals for additional/alternate resources or stock units (including those gathered through the FIRMS inventory forms) be transmitted to the Chairperson of the relevant CECAF assessment working groups, which are mandated to identify regional resource/stock units for the inventory.

51. On differentiating different levels of quality on the stock assessment results, the Scientific Sub-Committee suggested working on a methodology on the quality of CECAF assessments. FIRMS Secretariat informed the meeting that it will provide examples of indicators, which could include elements such as an additional social variable, and a quantitative (e.g. degree of adjustment of the model to data) or qualitative (also prone to subjectivity) observation.

52. On data ownership, the Scientific Sub-Committee affirmed that countries are responsible for the content of the fisheries inventory and are therefore the primary owner of their national inventories. Countries therefore exert control on the content to be published, in the context of the regional CECAF framework which role is to set reporting norms, standards and overall consistency for the region, under the general FIRMS umbrella. Such role confers to the CECAF Scientific Sub-Committee the corporate ownership of the fisheries inventory.

53. On the process for the maintenance of the inventory, the Scientific Sub-Committee agreed that as primary owners, countries can update the content of their inventory on a routine basis. As corporate owner, the CECAF Scientific Sub-Committee will, as part of its regular procedure, review aspects of corporate interest such as the usage, rate of update, major modifications requested, distribution of responsibilities including among sub-regional bodies, and other issues related to norms, standards and adopted conventions.

54. On FIRMS developing naming conventions for a standard Resource or Fishery title in French or Spanish, the Scientific Sub-Committee decided that this question should be raised at the next CECAF meeting.

55. The Scientific Sub-Committee decided to appoint whoever is the Chairperson of the Sub-Committee as the FIRMS focal point for the CECAF region. He/she can delegate the responsibility of ensuring and representing the CECAF Corporate ownership, and keeping the Scientific Sub-Committee and the FIRMS Steering Committee informed of reciprocal developments.

56. As part of a final Outlooks discussion, satisfaction was expressed on the agreed distribution of roles, which should facilitate the updating mechanism. It was agreed that future updates of the inventory would depend on its actual usage e.g. in Ecosystem Approach to Fisheries (EAF) related initiatives or as dissemination product in national websites, and consistency with the national data collection frameworks would also facilitate updates. It was concluded that the Sub-Committee members have the responsibility to make the work (system and tool) useful to all.

VI. PROGRESS ON THE IMPLEMENTATION OF EAF IN THE CECAF REGION

57. At the 19th meeting of CECAF it was agreed that the progress in Ecosystem Approach to Fisheries (EAF) implementation should be reported back to CECAF through the Scientific Sub-Committee. The progress on the implementation of EAF in the Eastern Central Atlantic Ocean (CECAF region) was thus presented in document CECAF/SSCVI/2011/5.

58. In Africa, the main vehicle for providing support from FAO for the implementation of an EAF management is the EAF-Nansen project. Through this project, several activities have been supported and initiated in recent years in the CECAF region concerning capacity building for EAF, management planning and implementation and ecosystem surveys and assessments. In addition some activities have been initiated the last year in collaboration with the Canary Current Large Marine Ecosystem (CCLME) project.

59. Regarding EAF awareness raising and capacity building, the collaboration with the Department of Oceanography and Fisheries and the School of Research and Graduate Studies, both of the University of Ghana, Legon, to organize the first course in ecosystem approach to fisheries from 12 to 30 April 2010, was noted. The participants were made up of fisheries scientists, fisheries managers, university lecturers and representatives from the conservation community. The course contributed to bringing the concept and practice of ecosystem approach to fisheries to many fisheries scientists and managers throughout the project area in Africa. By bringing in locally based university lecturers, it is hoped that the possibility of mainstreaming EAF in relevant fisheries training at the universities in the regions would be facilitated. A similar course for francophone countries will be held at the University of Agadir in Morocco from 12 to 30 September 2011. In addition the role and responsibilities of the EAF Regional and National Task Groups were described and explained, including their respective roles in capacity building and lesson learning and project implementation.

60. A study on implementation of EAF in national legislation has been completed. In 2011, Liberia and Sierra Leone were included in the study, as the two countries were in the process of formulating new fisheries policies and Acts. The improved report (Legislating for an ecosystem approach to fisheries) is due for publication in both English and French.

61. Considerable effort has also been put into facilitating processes to develop revised fisheries management plans that include EAF considerations. Project concept notes of ten (10) countries were taken forward and developed into project documents. Considering the focus of the proposed projects and geographical distribution of the countries the 10 countries were put in four clusters, three of which are in the CECAF region, all of these countries are now executing these “baby” projects as follows:

- Sierra Leone and Liberia are developing a management plan for their respective artisanal fisheries;
- Benin, Côte d’Ivoire, Ghana and Togo are collaborating to come up with a management and monitoring plan for the beach seine fishery in the four countries;

- Cameroon, Gabon and Nigeria are working on framework for industrial shrimp fishery management in coastal Middle (Central) Africa. Nigeria was only recently added to the cluster executing this baby project.

62. The activities being undertaken in the projects include: preparation of a baseline report to be discussed and agreed by fisheries administrators and stakeholders, identification and prioritization of issues, examination of management options and the necessary interventions under the leadership of the EAF National Task Group and review of fisheries-related laws and regulations to suggest amendments to include EAF considerations. Each country is expected to share its experience in this work with other countries in the sub-region through the relevant regional fisheries body or bodies.

63. In the Canary Current Region, a regional demonstration project on the development of a management plan for the shared small pelagic fisheries is on going. This project is combining efforts of the Sub-Regional Fisheries Commission (SRFC), the CCLME and the EAF-Nansen Project to ensure sustainable management of these important resources, and relies on scientific inputs from the FAO Working group on the assessment of small pelagic fish off Northwest Africa.

64. The survey activities carried out in the period 2009-2011 by the R/V Dr Fridtjof Nansen were described, noting that in 2009 and 2010, most of the survey activities took place in the Southern part of the CECAF region. In 2011 one ecosystem survey has been carried out in the waters of Cape Verde as well as a survey of the resources and environment in the Nigeria/Sao Tome & Principe Joint Development Zone, a survey of the small pelagic resources Guinea-Senegal and a regional survey of the small pelagic resources of Angola and Namibia. A regional Ecosystem baseline survey from Guinea to Morocco will be carried out from October to December 2011. All of the surveys are carried out in collaboration with co-financing partners such as the Large Marine Ecosystem projects around Africa, amongst others.

65. The main objectives of the ecosystem surveys were also explained, highlighting the different ecosystem components assessed (hydrographic regime, plankton, benthos, pelagic and demersal species, habitat etc.). The linked training workshops on survey data analysis and the Nansis software were also noted.

66. To facilitate planning and analysis of the information originating from survey activities, a Working Group on the planning and analysis of ecosystem surveys in the CCLME region was established under the CCLME project, and two meetings held (Dakar, Senegal, October 2010 and Casablanca, Morocco, May 2011). The working group consists of scientist from countries of the region as well as scientists from countries that carry out survey activities in the region. The Working group agreed on the focus and priorities for data collection for the research surveys in the region to address identified key data gaps, and on a preliminary plan for the R/V Dr. Fridtjof Nansen surveys to be carried out under the CCLME project, as well as plans for compilation and analysis of existing and new data.

67. In the discussions following the presentation, the Scientific Sub-committee noted with appreciation the different activities undertaken to further the implementation of EAF in the CECAF region. The importance and usefulness of the University courses was noted and the continuation and expansion of this activity were encouraged. The importance of integrating EAF as part of the curriculum on fisheries at national level was also highlighted. Updates on the training of trainers programme initiated through the EAF project was also sought, and also the involvement of these trainers in the University courses and other training activities. In this respect, the Scientific Sub-committee was informed that the course material would be made available to partners, and that countries would be encouraged to use these in the preparation of fisheries courses. The participation of different EAF-focal points in various capacity building activities and baby projects were explained, but the further strengthening of this mechanism was recognized.

68. Following a request for an update on the status and timeline for the baby project on the management of shared small pelagic resources in Northwest Africa, it was noted that this activity was linked to the implementation of the CCLME project, and that after some delay, it is expected that activities will be initiated during the course of the year.

69. The importance of the survey work to strengthen the knowledge base for EAF was noted, and in this respect the lack of a comprehensive survey in the Western Gulf of Guinea region since 2006 was highlighted and clarifications sought on procedures for requesting survey time with the R/V Dr. Fridtjof Nansen. The need for co-financing and agreed partnerships for the surveys was reiterated and it was noted that at present the main partner in the Gulf of Guinea, the GCLME project, is currently in a transition phase and thus no survey is planned the upcoming year. However, it is hoped that this concern can be addressed in the next Phase of that project. The intention of UEMOA to conduct surveys in the French speaking countries of the region was brought to the attention of the Sub-Committee. At the same time it was noted that there are several survey vessels active in the region, and stressed the need to ensure that all surveys in a given region are planned and addressed in a comprehensive manner, including the analysis and exploitation of the data made available through all of various surveys to the benefit for more complete ecosystem analysis. The newly established Working Group on the planning and analysis of ecosystem surveys in the CCLME region was brought up as an example of where this concern was being addressed to ensure coordination of activities, standardisation of methods, and analysis of data in the CECAF area.

VII. CECAF CAPTURE DATABASE - TRENDS, REPORTING, AND PROPOSAL FOR A REVISION OF THE CECAF STATISTICAL DIVISIONS

70. The CECAF capture database, which is managed by the FAO Fisheries and Aquaculture Statistics and Information Service (FIPS) on behalf of the Committee, was presented as in document CECAF/SSCVI/2011/6. It includes data for four decades, from 1970 to 2009, and can be accessed at the FAO web site and consulted on line, through the FISHSTAT+ or the new FISHSTATJ software.

71. From 2000 to 2009, total capture production in the CECAF area (corresponding to the FAO Fishing Area 34–Eastern Central Atlantic) ranged between 3.2 and 4 million tons per year. Although total catches in 2008 and 2009 have resumed growth after a drop in 2006-2007, the trend line in the decade shows an overall decrease.

72. Share of total catch by Distant Water Fishing Nations (DWFNs) decreased from 30% in 2000 to 20% in 2009. The 35 DWFNs fleets for which catch statistics are available in the CECAF database for the 2000-2009 period fished predominantly tunas (43% of the whole catches in the CECAF area) and small pelagics like horse and chub mackerels in the statistical division "1.3-Sahara coastal".

73. Catch trends analysed by the ISSCAAP groups of species showed that two valuable groups "31-Flounders, halibuts, soles" and "57-Squids, cuttlefishes, octopuses" markedly decreased in the last decade, whereas the "33-Miscellaneous coastal fishes" and "43-Lobsters, spiny-rock lobsters" groups increased since 2000. Shrimp catches reached a peak around 75 000 tons per year in 2001-2003 but in 2008-2009 decreased to about 50 000 tons. The group "35-Herrings, sardines, anchovies" recovered after the drop in 2007 back to their average level at about 1.75 million tons per year.

74. In the 2009 data, the number of bordering countries that did not provide data increased and as a consequence also the quantities to be estimated by FAO grew reaching almost 14% of total catch in the CECAF area. The CECAF capture database includes catch statistics for 269 species items. For the whole area, 65.3% of the total 2007-2009 catches were at species level but about 8% are still reported as 'Marine fishes nei'.

75. Data by DWFNs are cross checked and complemented with those made available by other sources, i.e. data available from the ICCAT database and national statistical bulletins which report

foreign fleets' catches by Exclusive Economic Zone (EEZ). For example, in recent years data for DWFNs which fished in division 3.1 and had not reported their catches to FAO were derived from the bulletins published by CIPA, Guinea-Bissau.

76. The previous session of the Scientific Sub-Committee had recommended a revision of the CECAF statistical divisions. Three possible options for this revision were presented at the 19th CECAF session which requested that the proposal be evaluated at the next Scientific Sub-Committee session to provide advice on this issue to the next CECAF session.

77. The Scientific Sub-Committee discussed the three options and evaluated if the revision of the statistical division would have brought more advantages or disadvantages. It noted the following: a) the bio-geographical considerations on which the CECAF statistical divisions were established in the 1970s are still valid; b) the 40-year long data series available in the CECAF database, which were recognized to be very useful for trend analysis, would be seriously disrupted by a revision of the statistical divisions; and c) some of the reasons for which the revision was requested (e.g. separation between catches taken inside and outside EEZs and catch recording not only by flag but also by EEZ) can be addressed in different manners.

78. On the basis of these considerations, the Sub-Committee agreed to do not revise the present CECAF statistical divisions but recommended that, to incorporate more detailed catch location, all countries that fished in the CECAF area outside their own national jurisdiction should be requested to also specify the EEZ in which their catches occurred besides than reporting only data by statistical division.

VIII. FAO FISHCODE/STF TO SUPPORT IMPROVEMENT OF FISHERIES DATA COLLECTION IN THE REGION

79. The progress on the project activities in West Africa was presented through document CECAF/SSCVI/2011/7.

80. The FAO strategy for improving information on status and trends of capture fisheries was presented and discussed at the seventeenth session of CECAF in 2004. In October 2006, activities of the FishCode-STF project proposed for West Africa were discussed at the 18th session of CECAF. CECAF requested FAO to assist CECAF member states with the implementation of the FAO Strategy-STF. FAO FishCode-STF activities in West Africa were supported by the SIDA and since 2007 the following activities were implemented:

- Identification of major issues and way to improve data collection through two Sub-Regional workshops organized in collaboration with FCWC and COREP.
- Frame surveys in Benin, Togo, Liberia, Guinea, Democratic Republic of Congo, Republic of Congo and Côte d'Ivoire.
- Pilot studies on involvement of fishers in data collection and on canoe registration were carried out in Ghana and Cameroon.
- An ad hoc Working Group on fisheries statistics was established for FCWC and two meetings were supported.
- A 10-day regional training course on sample based surveys and fisheries statistics was developed in collaboration with the Department of Oceanography of the University of Ghana, Legon, Accra, and 50 participants from the region attended the course.

81. In a second phase, starting in January 2012, the project will further support the improvement of data collection in a number of countries. The activities in the second phase will focus on capacity building (training) and redesigning small-scale fisheries data collection schemes, in order to make them sustainable and statistically correct.

82. Results of the frame surveys indicated that in the COREP/FCWC area, 58% of the canoes are monovalent (using 1 single gear throughout the year); 26% of the canoes are multi gear (using two or more gear simultaneously throughout the year) and 16% are polyvalent (switching gears throughout the year). The frame surveys further indicated a significant difference in gear characteristics if used by a motorised or non-motorised canoe: gears of the same type are almost always larger, and more units are used in motorized canoes. CPUE can be expected to be different. Therefore, it is recommended that for small-scale fisheries the canoe and not the fishing gear is the entry point of data collection and analysis.

83. In this regard, FIRMS and the project will work on reflecting corrections corresponding to the inventories. These inventories seem to be gear based and in order to be coherent with the above the entry point should be a canoe. From a practical point of view the inventories can be modified easily by adding one column, indicating the canoe type and its number to which a gear/fishery is attached.

84. The Scientific Sub-Committee recommended that:

- Further support to improvement of data collection for small scale fisheries is essential and activities should be extended to include the SRFC area.
- Regional/national databases and exchange of information species should be classified according to the ASFIS List and that a vessel and gear list be prepared following the CWP classification.
- More detailed information on canoes in the fisheries inventories be included.

IX. PROGRAMME OF WORK IN THE REGION – WORKING GROUPS AND ACTIVITIES

85. Information on the future research work of the Working Groups was provided in the respective Working Group sections.

86. The Scientific Sub-Committee approved the Working Groups session proposed for the next inter-sessional period. The Demersal Species Working Group CECAF-South meeting is planned for November 2011 (venue to be confirmed). In conjunction with this meeting, the use of alternative "data-poor" methods for assessment will be explored.

87. The Small Pelagics Working Group CECAF-North is expected to meet in May 2012 in Senegal, pending confirmation of the partners to continue with the existing financing arrangements.

88. Tentatively, a meeting of the Small Pelagics Working Group CECAF-South is planned for the second half of 2012 and a meeting of the Demersal Working Group CECAF-North is expected for early 2013.

X. ANY OTHER MATTERS

A) REPORT OF WORK OF OTHER PROJECTS/PROGRAMMES IN THE CECAF REGION

i. *EAF-Nansen Project*

89. The activities of the Project "Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF Nansen, GCP/INT/003/NOR)" carried out in recent years, were presented.

90. In this respect the support of the EAF-Nansen project to global activities on EAF were highlighted, including the contribution to the development of the EAF toolbox, which is expected to become available soon through a dedicated web portal, and the work on the development of indicators for EAF addressing ecological, human and governance aspects. An expert workshop on Survey data indicators for EAF was recently organized, and the results of this meeting will provide guidance on the conduct of Ecosystem surveys.

91. The EAF-Nansen project has been the main supporter of the different CECAF working groups organised in the interim period since the last Scientific Sub-committee meeting. A training course on Stock assessment organised in collaboration with the Southwest Indian Ocean Commission (SWIOFC) and the Southwest Indian Ocean Project (SWIOFP) in 2010, and a similar course is planned for the northern CECAF region in 2011, to be organised in collaboration with the CCLME project. The EAF-Nansen project also contributes to providing support to regional research vessels and the conduct of surveys with regional vessels, with a current focus on Northwest Africa. Meetings of the Planning Group for the Coordination of Acoustic Surveys off Northwest Africa have been organised, and technical assistance provided to countries operating research vessels.

92. Furthermore, the Scientific Sub-Committee was informed that the current phase of the EAF-Nansen Project will end this year and that the project will enter a second phase with a planned 2-3 year transition period for refurbishment of the R/V Dr Fridtjof Nansen.

93. The Second phase will continue activities of the present phase, with additional emphasis on climate change, use of the survey data for management, institutional capacity building for fisheries management and sub-regional management plans.

94. Regarding the work on Survey indicators for EAF, attention was brought to the Marine Strategy Framework Directive of the European Union' and it was recommended that this should be consulted in the development of the survey indicators.

ii. *SIDA-Africa*

95. The SIDA-Africa Programme was introduced to the members of the Scientific Sub-Committee. This Programme is currently in its inception phase, with a total duration of five years, including the current 2011 inception phase. As part of the inception phase two stakeholder meetings have been held (Midrand, South Africa – May 2011 and Addis Ababa, Ethiopia – July 2011), and a third is planned for late September 2011. These consultations serve to define priorities and establish partnerships for project execution.

96. The SIDA-Africa Programme aims to strengthen regional capacities and efforts to develop and implement better governance systems, policy frameworks and instruments that enhance fishery and aquaculture contribution to economic growth, poverty reduction and food security in a sustainable and economically efficient manner. More specifically, the Programme will back the development and implementation of a Comprehensive African Fisheries Reform Strategy (CAFRS) promoted within the NEPAD/ Comprehensive Africa Agriculture Development Programme (CAADP) process and by the recent Conference of African Ministers of Fisheries and Aquaculture (CAMFA) recommendations.

97. The Programme consists of three components referring to three main outcomes:

- Enhanced multi-level governance, policy coherence and regional economic integration
- Responsible management through the Ecosystem Approach to Fisheries (EAF) and Aquaculture (EAA)

- Improved adaptation plans and policy for climate change.

98. In the discussions that followed, clarification for the approach taken for ensuring the creation of partnerships and coordination between different initiatives was given on the role of the stakeholder consultations in seeking agreement on priorities and responsibilities. In addition, the participants were informed of the linking of the project to the NEPAD Planning and Coordination Agency (NPCA), and their role in facilitating integration between the RECs and RFBs in different regions.

iii. *Canary Current Large Marine Ecosystem (CCLME)*

99. The Scientific Sub-Committee was informed of the current status of the CCLME project. The activities and progress made during the implementation phase were presented as well as the project objectives and main components.

100. The CCLME project, whose headquarters is in Dakar, officially started on 1st April 2010 and the activities were focused on the establishment of the necessary foundations to make the project operational, especially the Regional Coordination Unit, national teams of countries participating in the CCLME project, working relations with all partners and the organisation and follow up of the initial workshop of the CCLME and the first meeting of the CCLME project Steering Committee.

101. A bilingual CCLME Internet site has been created (www.canarycurrent.org). Three newsletters have been published. In 2011, the activities of the first Component (Country Processes) dealt with the initiation of the development of the Transboundary Diagnostic Analysis (TDA) through the organization of meetings of working and training groups on the TDA process and the Strategic Action Plan (SAP). At national level, the countries are establishing their National Inter-ministerial Committees (NICs) to coordinate the CCLME activities.

102. The activities relating to the second Component (Living Marine Resources) are focused on the establishment of links with the project partners, mainly concerning the demonstration projects, on the organization of ecosystem surveys with the support of the R/V Dr Fridtjof Nansen which will take place in the CCLME region in 2011, and on the start of demonstration project activities on small pelagics. An agreement specifying the activities to be implemented by IUCN-PARTAGE on behalf of the CCLME project in 2011 has been drawn up and signed.

103. The activities relating to the third component (Biodiversity, Habitat and Water Quality) dealt with the updating of the working programme on mangroves and contacts have been established with the partners to prepare joint activities of the MPAs.

iv. *Guinea Current Large Marine Ecosystem (GCLME)*

104. Recent fisheries activities of the GCLME project were presented. The first phase of the project will be ending in April 2012 and it identified key issues from observed impacts, using the International Water's Transboundary Diagnostic Analysis methodology. Subsequently the Project produced the Strategic Action Programme (SAP) which sets out an Action Plan to deal with the key issues: being pollution, coastal erosion, over exploitation of fisheries and habitat loss. The SAP is the core-planning document and has received the full political endorsement of the Member States, from Guinea Bissau in the northwest to Angola in the south. The SAP implementation Project, under preparation, envisages the involvement of the FAO as a new GEF Agency to support the implementation of the Project.

105. The participants were also informed of the project's work on fisheries management plans and ecosystem management. It was suggested that the CECAF Sub-Committee, European Commission (EC) or FAO might consider demonstrating the ECOSIM and ECOPATH ecosystem-modelling software at the next meeting so that participants can see it working properly. A publication on the production and implementation of management plans and other publications relating to fisheries access agreements in West Africa and a ship board training manual were distributed at the meeting.

v. *Agency for Management and Cooperation between Guinea-Bissau and Senegal (AGC)*

106. The Scientific Sub-committee was informed of activities of the Cooperation Agency for Management and Cooperation between Guinea-Bissau and Senegal (AGC) notably concerning the results of the coastal demersal and pelagic stock assessment project in the common maritime zone, undertaken in 2008 with financial support from the Spanish Cooperation Agency. Three assessment surveys were carried out in the hot season by scientists from the Oceanographic Research Centre of Dakar-Thiaroye (CRODT) of Senegal, of the Centro d'Investigação Pesqueira Aplicada (CIPA) of Guinea Bissau and the Instituto Espanol d'Oceanografia (IEO) of Spain on board the research vessel R/V Itaf Dème of CRODT.

107. In order to have more appropriate information on the stocks, the Scientific Sub-committee has encouraged the AGC to link the assessment surveys to the regional survey.

B) REPORT OF WORK OF RESEARCH INSTITUTIONS OR SCIENTIFIC GROUPS IN CECAF MEMBER COUNTRIES

108. It was noted that no new research activities were conducted on the management of stocks and addressing fisheries statistical data problems in the countries.

C) REVIEW OF THE STATE OF RESOURCES

109. The Scientific sub-committee was informed that FAO is currently updating the Technical Paper 457 on the "Review of the state of world marine fishery resources" which was last published in 2005, with the aim to make it available before the end of 2011. The structure of the publication and the methodology for preparing the chapters and the analysis made were introduced, and the Scientific Sub-Committee members were invited to provide comments on the draft Chapter on CECAF which had been made available to them before the end of the session.

XI. ELECTION OF THE CHAIRPERSON AND VICE-CHAIRPERSON

110. The Scientific Sub-Committee unanimously elected Mr Kossi Sedzro of the Department of Fisheries of Togo as Chairperson and Mr Said Benchoucha of the National Fisheries Research Institute of Morocco as Vice-Chairperson.

XII. DATE AND VENUE OF THE SEVENTH SESSION

111. Spain proposed to host the seventh session of the Scientific Sub-Committee in the new Oceanographic Centre of the Spanish Institute of Oceanography (IEO) in Tenerife (Canary Islands). The Director-General of FAO, in consultation with the host country, will decide on the date.

XIII. ADOPTION OF THE REPORT

112. The report of the sixth session of the CECAF Scientific Sub-Committee was adopted on 9 September 2011.