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منظمة الأغذية والزراعة للأمم المتحدة | 联合国粮食及农业组织 | Food and Agriculture Organization of the United Nations | Organisation des Nations Unies pour l'alimentation et l'agriculture | Organización de las Naciones Unidas para la Agricultura y la Alimentación

FISHERY COMMITTEE FOR THE EASTERN CENTRAL ATLANTIC

Seventeenth Session

Dakar, Senegal, 24 – 27 May 2004

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

OPENING OF THE SESSION

1. The Third Session of the Scientific Sub-Committee (SSC) of the Fishery Committee for the Eastern Central Atlantic (CECAF) was held in Lomé, Republic of Togo from 24 to 26 February, 2004, at the kind invitation of the Government of the Republic of Togo.

2. Birane Samb of Senegal chaired the Session. 33 delegates from 21 CECAF Members and an observer from the International Commission for the Conservation of the Atlantic Tuna (ICCAT) attended the Session. The list of delegates and observers is given in Appendix B of this report.

3. At the request of the Togolese Authorities, Dr. Benedict Satia, Chief International Institutions and Liaison made a short presentation on structure, objectives and achievements of the Fishery Committee for the Eastern Central Atlantic.

4. On behalf of Jacques Diouf, Director-General of FAO, Mr. Jean-Jacques Engo, FAO Representative to Togo thanked the Government of the Republic of Togo for hosting the Session and for the excellent facilities placed at the disposal of the participants. Mr. Engo reminded the participants of the important role the Sub-Committee has played and was expected to play, particularly as most fishery resources in the CECAF region were fully exploited. He assured the participants of the continued support of FAO as countries work together to improve the contribution of fisheries to food security and to their national economies.

5. The Session was opened by Mr. Komikpime Bamnante, the Togolese Minister for Agriculture, Livestock and Fisheries. The Minister expressed the satisfaction of the Government to host yet another session of CECAF in Togo. He acknowledged that research is important to inform policies contributing to sustainable fisheries and urged the Scientific Sub-Committee to make appropriate recommendations that would contribute to effective fisheries management in the region.

6. Mr. Komikpime informed the participants of Togo's strong commitment to sustainable and responsible fisheries, stressing that the Code of Conduct for Responsible Fisheries is the ''Reference Tool'' for fisheries activities undertaken in Togo.

ADOPTION OF THE AGENDA AND ARRANGEMENT FOR THE SESSION

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

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

MAIN OUTCOMES OF:

a) Artisanal Fisheries Working Group

9. This agenda item was discussed on the basis document CECAF/SSCIII/2004/3

10. The Members acknowledged the importance of ARTFISH in the collection and analysis of artisanal fisheries data. The system has been successfully tested in the processing of artisanal and semi-industrial fisheries data. The meeting strongly recommended its extension to all the CECAF member countries and requested FAO's assistance for a training on the software and its dissemination.

11. The Members acknowledged that fishermen migration has a regional nature on the West African coastline and noted that the studies conducted by IDAF are reference tools that need to be updated in light of ever evolving challenges. It was recommended that connected issues be handled within the framework of sub regional organizations.

12. The Subcommittee noted that studies on the description of gears are available for the major CECAF production areas. It also acknowledged that they can serve as a basis for country studies and pointed out that investigations should go beyond the mere description of gears to cover for each type of gear the number, targeted stocks, the area and season of use.

13. The Members were informed that a case study on the contribution of fisheries to national economies has been carried out in Benin by SFLP. The final report and methodology developed will be forwarded to the Secretariat of the Sub-Committee to serve as a basis for similar studies in CECAF member countries.

14. Noting that Ice Silos play an important part in artisanal fisheries, the Members expressed the wish that relevant documentation and technical assistance in this subject be made available as soon as possible

b) Small Pelagics Working Group

15. A summary of the State of Pelagic Stocks in the Northern Area of the Eastern Central Atlantic Ocean (CECAF), based on the report of the FAO working group for the assessment of pelagic stocks off North West Africa was presented in document CECAF/SSCII/2004/3.

16. The Subcommittee noted that:
- the total landings of pelagic stocks has fluctuated around 1.5 million tonnes through the period 1996 – 2002.

- Sardine (*S. pilchardus*) is by far the most important of the small pelagic species, constituting about 50% of the total landings. The total catch of sardine ranged between 530 000 – 780 000 tonnes over the last five years. The catch in zone A and B had increased while the landings from zone C have decreased through the last decade.

- Round sardinella (*S. aurita*) is the second most important species in the region and over the last five years the total annual catch has fluctuated between 275 000 and 460 000 with an average of about 340 000 tonnes. The annual total landings of flat sardinella (*S. maderensis*) has been significantly lower than those of round sardinella fluctuating between about 100 000 tonnes to some 140 000 tonnes with an average of about 120 000 tonnes.

- The cunene horse mackerel (*T. trecae*) are exploited with an average annual catch over the last five years of 150 000 tonnes. The corresponding figure for Atlantic horse mackerel (*T. trachurus*) is approximately 70 000 tonnes.

- The chub mackerel (*S. japonicus*) catches fluctuated between 100 000 and 200 000 tonnes, and the average catch during the last five year period is estimated at 160 000 tonnes.

17. The Subcommittee further noted that the working group used various methods to test the quality of the data and to do assessments. Biodyn was used for sardinellas and horse mackerels. In the recent years, it had been very difficult to make analytical VPA-based assessment of any pelagic stock off Northwest Africa, mainly because of poor quality of age data. The Subcommittee welcomed the information that the working group intended to make analytical assessments for all the stocks in the future and, therefore was placing greater emphasis on the level and quality of the sampling and on age reading procedures in order to obtain more reliable data sets.

18. The management recommendations for each stock are given in paragraphs 29 to 33

19. The scientific sub-committee acknowledged the positive contribution of the Dr. F. Nansen surveys to improve the knowledge of fishery resources in the region and expressed the wish for the continuation and extension of the programme. The need to establish a pelagic fish assessment working group for the CECAF area south of Senegal was emphasized.

c) Demersal Species Working Group

20. The state of the demersal stocks in the Eastern Central Atlantic Ocean (CECAF) area was presented in CECAF/SSCIII/2004/4.

21. The Subcommittee was informed that:
    - the CECAF Working Group on Demersal resources met in Conakry, Guinea from 19 to 29 September 2003. Thirty scientists from 14 different countries and FAO participated. The species groups analysed were: Hakes, other demersal fishes, cephalopods and shrimps. About 50 different stocks/units were analysed.

    - the stocks were assessed using a non-equilibrium production model. The basic data used for each stock was total annual catch estimates, and a series of commercial or survey CPUE's.

22. The Subcommittee noted the conclusion of the Working Group that most of the demersal stocks are heavily exploited and recommended not to increase fishing effort or to reduce fishing effort for those species, and that the basic data needed for the models should be

improved to ensure more reliable assessments in the future. The Subcommittee further noted that there was a general lack of biological sampling. It endorsed the recommendation that an adequate sampling programme for fish stock assessment in all fisheries covered by the Working Group should be defined.

23. The management recommendations for each stock are given in paragraphs 34 to 37

24. Several Members took note of the high number of species and stocks assessed by the group. Some Members suggested that the number of species analysed should be reduced and more time should be devoted to a selected number of species, while other Members suggested the splitting of the Working Group into two sub-groups.

25. The Subcommittee stressed the importance of having reliable data and expressed concern about the time available for checking the quality of the data within the group. It suggested that scientists should make every effort to check the quality of data before presenting it to the group.

FISHERY MANAGEMENT MEASURES IN THE CECAF REGION

26. The Subcommittee discussed the various ways to manage fish stocks and to regulate fishing activities. It noted that two of the most used methods are regulation of total allowable catch (TAC) and effort regulation. Others ways of regulating or protecting fish stocks are by closing the fishery in different periods or seasons or closing certain areas (for instance spawning grounds, nursery areas etc).

27. The Subcommittee observed that, in the management of fish stocks in the CECAF region, the CECAF Working Group for Demersal Species and the FAO Working Group for Pelagic species have proposed various regulation measures. For the demersal stocks a reduction in effort has been proposed for fish stocks that are found to be overexploited. It noted that this is one way of handling the problem, particularly if the reduction in effort is effectively represented (a real reduction in exploitation through the year).

28. The Subcommittee further noted that the Small Pelagics Working Group has proposed catch limitation for the different species. This way of regulating the harvesting of fish stocks require that the managers are able to follow the total level of exploitation throughout the year. If several countries share the stocks, it also requires that the managers find ways of handling the problem of how to share the catch.

29. The Subcommittee made the following management recommendations with regards to pelagic resources.

Small pelagics

30. Sardine *(Sardine pilchardus)*

As Zone B has been intensively exploited and Zone C was moderately exploited over the last years

- Not to exceed the sardine catch in Zone A + B above the average level for the most recent 5 years which is 530.000 tonnes.

- To exploit sardine in Zone C, taking into account the variability of the stock in this zone.

31. Sardinellas (*Sardinella aurita and S.maderensis)*
As the total abundance of *S. aurita* estimated by acoustic methods has declined in recent years. An another decline could be seen in the CPUE of the EU fishery in Mauritania, a fishery that is directed specifically at Sardinella.
    - The combined catch of both species of Sardinella in the sub-region should not exceed the mean level of the preceding three years, which is 420.000 tonnes.

32. Horse Mackerels (*Trachurus trachurus, Trachurus trecae and Caranx rhonchus*)

The results of the assessment model suggest that the stocks of the first two species are moderately exploited. However, due to the limitations of the model used, uncertainties on the stock assessment and the diverse nature of the fisheries (especially the industrial fisheries), a precautionary approach should be taken in the management of these stocks. In this regard, the Sub-Committee recommended not to exceed the level of effort equivalent to that of the average of the last five years for the three species, corresponding to an average level of 244 000 tonnes.

33. Chub Mackerel (*Scomber japonicus)*
As a precautionary approach, the Working Group recommended that the catch levels should not exceed the average recorded during the last 5 years (162 000 tonnes).

Demersals

34. The management recommendations for demersal stocks are in Appendix E.

35. The Subcommittee made a list of the overexploited stocks, given in Appendix F. The Subcommittee recommended that managers should work to ensure that all the stocks are taken off the list.

36. The Subcommittee noted that many of the fish stocks in the region are exploited in mixed fisheries and that fish stocks exploited in the same fishery may be on a different status. The same fleet may exploit fish stocks that are in a good condition and other stocks that are in a poorer state. In such situations, the necessary precautionary management measures should be taken in order not to aggravate the situation.

37. The Subcommittee recommended that each country should make a list of its various fleets, containing information of the proportion of the various fish stocks or species that the fleets catch as target species or by-catch.

SITUATION OF DATA IN THE CECAF REGION

38. The document CECAF/SCSIII/2004/5 dealing with general information on capture fishery statistics included in the CECAF database was presented at the session. The document described major standards in the collection, submission, processing and dissemination of the capture/production data for the CECAF database.

39. The Subcommittee was informed that since the First Session of the CECAF Scientific Sub-Committee (Abuja, Nigeria, 30-31 October 2000) the only agreed reporting form in the region is STATLANT 34A. This questionnaire is downloadable from the FAO web site since mid-2002 and its contents are available in the FISHSTAT+ format.

40. It was further informed that STATLANT 34A forms are sent annually in April-May. The deadline for their submission is 31 August but it has been observed that only few CECAF countries meet this deadline. As examples, for 2001 data, FAO had to estimate the capture

production of 6 bordering countries as data were not submitted and a greater number of bordering countries had not yet submitted the 2002 capture statistics. The percentage of catches reported by species in the last ten years (1992-2001) for which capture statistics are available had decreased from 66.5% to 57.2%.

41. Some members of the Scientific Sub-Committee expressed the difficulties encountered in complying with the timely submission of statistical fishery data from their fleets and in form due to logistic constraints. They also indicated that sometimes the information was lost in its way from or to the FAO statistical services. To avoid these problems it was suggested that national correspondents should contact the FAO representations in their countries to seek for help as appropriate for the submission of the requested STATLANT 34A forms.

42. The Subcommittee noted that data received from the CECAF countries were complemented by other sources such as the Las Palmas Survey, which is managed by the Centro Oceanografico de Canarias of the Instituto Español de Oceanografía (IEO) and is available in the FISHSTAT+ format, and the "Bulletin Statistique" or the database published by the Institut Mauritanien des Recherches Océanographiques et des Pêches (IMROP) that include information on Distant Water Fishing Nations (DWFNs) fishing in the Mauritanian EEZ. Catch statistics for tuna species are mostly those compiled by the International Commission for the Conservation of Atlantic Tunas (ICCAT). The ICCAT observer in the meeting pointed out that since ICCAT statistical grid does not coincide with statistical divisions in the CECAF region, the latter information corresponded to close estimates of official catches extrapolated from the ICCAT database.

43. It was pointed out that total catches in the CECAF region have remained fairly stable in the last four years (1998-2001). During this period, a decrease of catches by Distant Water Fishing Nations (DWFNs) had been balanced by an increase of quantities caught by countries bordering the area. However, preliminary estimates for 2002 show a decrease of about 500,000 tonnes in respect to the previous year, which represents more than 13% of the total capture/production reported in 2001.

44. The Subcommittee was informed that average catches of ISSCAAP group 35 ("Herrings, sardines, anchovies") over the last ten years represented more than one third of total DWFN catches. Approximately 30% of these catches were of "Miscellaneous pelagic fishes" and 17% were of "Tuna, bonitos, and billfishes".

45. The Scientific Sub-Committee acknowledged the availability and the usefulness of the CECAF statistical database that had permitted the working groups on assessment to complement their own information to derive catch time series for the main species for most countries. However, the Scientific Sub-Committee recognized that sometimes catch had to be estimated and that effort series are usually of poor quality and in some cases inexistent. Also only a few countries hold biological data on the most important species.

46. The Scientific Sub-Committee strongly recommended that comprehensive sampling programmes should be established at landing sites and onboard industrial fleets in order to obtain the proper information needed by working groups to conduct their assessments.

REVIEW OF INFORMATION ON THE STATUS OF FISH STOCKS IN THE HIGH SEAS AREA OF THE EASTERN CENTRAL ATLANTIC OCEAN AND THE LEGAL AND INSTITUTIONAL ARRANGEMENTS FOR THE CECAF REGION

47. The Sub-Committee reviewed the status of high seas stocks. Taking into account the available data on those resources, it considered three options for legal and institutional

arrangements for the monitoring and management of high seas fishery resources in the CECAF Region. The options were the immediate establishment of a commission for the management of high seas resources other than tuna; the monitoring of high seas resources within the framework of CECAF; and the adoption of an agreement alongside CECAF to provide a stronger legal basis for reporting of catches and the taking of possible management measures in the future.

48. The Sub-Committee noted that the main high seas fishery resources currently under exploitation in the region were tuna and tuna-like species, and that the management of these resources was within the mandate of ICCAT. There were few if any other high seas resources currently under exploitation, although exploratory fisheries had been undertaken on alfonsino (*Beryx splendens)* on sea mounts in the region. In view of this situation, the Sub-committee considered that there was no reason to consider the immediate establishment of a separate commission for the management of high seas resources other than tuna in the region.

49. The Subcommittee agreed that the state of high seas fishery stocks other than tuna, as well as any fisheries on those resources should be monitored within the framework of CECAF. In this connection, the Sub-Committee recommended that a draft resolution be prepared for adoption by CECAF at its next session calling on all Members of CECAF fishing in the high seas in the CECAF region for species other than tuna to provide reports on their catches to CECAF. The resolution should also call on States or fishing entities not Members of CECAF fishing in the area to similarly provide CECAF with reports on their high seas non-tuna catches in the region.

50. Given that the main fisheries on the high seas in the CECAF region are for tuna and tuna-like species, the Sub-Committee considered that it was essential that cooperation between CECAF and ICCAT, as the body responsible for the management of tuna and tuna-like species, be strengthened. In particular, Members of CECAF, even if not members of ICCAT, should be encouraged to provide information on their catches of tuna and tuna-like species. ICCAT in turn should provide CECAF and CECAF members with data on catches in the region, including catches of non-tuna species. Other ways of improving cooperation should also be explored, including the holding of joint meetings between CECAF and ICCAT bodies, the reporting of specific ICCAT recommendations to CECAF, reporting of information on ICCAT sanctions and exploring ways of facilitating the participation of CECAF members in the work of ICCAT.

REVIEW OF CECAF PROJECT PROPOSAL

51. The Subcommittee endorsed the Project proposal Assistance in the Management and development of the Eastern Central Atlantic. It requested the Secretariat to convey its appreciation to the Swedish International Development Cooperation Agency (SIDA).

FUTURE PROGRAMME OF WORK

52. The Subcommittee formulated the following recommendations for future research in the North West Africa subregion by the Working Groups:

53. Sardine
- Sampling should be carried out throughout the year and on all the fisheries.
- Otoliths should be sampled for age reading in Mauritania.
- An otolith exchange between Morocco, Mauritania and Senegal should be set up

- Make age-disaggregated acoustic estimates of Sardine from 2004 onwards

54. Sardinella
- Continue the R/V DR. FRIDTJOF NANSEN surveys and the intercalibration exercises.
- Joint surveys between the vessels of the sub region.
- Continue the otolith exchange programme for age reading.
- Carry out studies between the sessions of the Working Group aimed at solving the problems encountered particularly with fishing effort and the results obtained using the dynamic models.

55. Horse mackerel
- Establish an age reading programme for the three species
- The acoustic surveys should be continued.
- A sub regional programme for the assessment of the coastal component of the horse mackerel and other small pelagic species should be set up

56. Chub mackerel
- Increase sampling intensity and carry out studies to define appropriate CPUE
- Check and review the natural mortality applied for stock assessment.
- Extend the area of coverage of the acoustic surveys to 500 m depth in the whole region.
- Collect otoliths from the acoustic surveys

57. Hake

Merluccius merluccius
- Carry out research on the selectivity of gears
- Evaluate the hake by-catches and discards in other fisheries
- survey the hard bottoms to evaluate the abundance of fishing resources on this type of bottom
- Continue the demersal trawl surveys during the seasons previously covered
- Recommence biological sampling of commercial fish catches
- Obtain catch and fishing effort information from the joint Moroccan-Spanish fleets which began operations in Moroccan waters at the end of 2001

M. polli and M. senegalensis
- Obtain separate landings for the two hake species
- Estimate the cpue of *M.polli* and *M.senegalensis* in Senegal

58. Demersal Fish

North.
- Obtain relevant information on landings and fishing effort as well as on survey yields
- collect statistical data by vessel and gear for the demersal fisheries
- Try to find fishing effort indices that are more suitable as well as making available to the Working Group the CPUE's from the surveys
- obtain biological data (length frequency, sex ratio, age, zone and period of reproduction)

South
- Intensify the collection of all data (catch, effort, biological) from all fisheries
- as far as possible catch data should be split by species
- Improve/establish sampling programmes for species composition, length composition and other biological data of the main species

- Trawl surveys should be carried out to obtain fishery independent data
- Carry out further analysis of existing data (commercial and surveys).

59. Shrimps North and South
    - Establish biological sampling programmes for coastal trawler and industrial shrimper landings at the port level
    - Analyse the available data on shrimp catch landed in las palmas
    - Carry out an analysis of the evolution of the CPUE series for certain moroccan freezer shrimpers which have been operating since the start of the fishery
    - Find an appropriate fishing effort index
    - Improve knowledge of the biology of this species
    - Carry out selectivity studies to reduce by-catches
    - Study the relationships between environmental factor and abundance

60. Cephalopods North and South
    - prepare seasonal or monthly data for the next working group
    - continue with studies on cephalopod stock identities
    - try to find a more suitable cpue for senegal and the gambia

61. In making these recommendations, the SSC made the following comments:
    - The lack of statistical information from the Nigerian and Ghanaian fleets fishing in Benin and Togo makes difficult any proper assessment. Actions should be taken to solve this problem.

    - Some members outlined the importance of environmental factors in the abundance of certain stocks in the region and stressed the need of incorporating their effects in the assessments conducted by the working groups. The working groups at their respective meetings have already addressed this question.

    - Some members of the SSC have observed an apparent unbalance between activities of working groups regarding northern and southern stocks. The reason for this could be that there are more research programs being carried out in the northern CECAF region.

    - It has also been informed that the PMEDS is running a joint program with the FAO to sample artisanal fisheries in the Gulf of Guinea. The results of such a program could contribute to fulfill some of the recommendations made by some of the workings groups.

62. The SSC has identified the following meetings to be held during year 2004:
    - FAO Working Group on the Assessment of Small Pelagic Fish off Northwest Africa – March (Nansen Programme and Rivo Project)

    - Planning Group of acoustic surveys in North West Africa – End of October (Nansen Programme)

    - Workshop on otoliths December (Nansen Programme and RIVO Project)

    - Working Group on Pelagics (Guinea-Bissau to DRC) June/July

    - Working Group on Demersals

DATE AND PLACE OF THE FOURTH SESSION

63. The Director-General in consultation with the Chairperson of the Scientific Subcommittee will decide the date and place of the Fourth Session.

ANY OTHER MATTERS

Report by other research institutions and scientific groups of CECAF member countries

64. Some delegates informed the Subcommittee of their national research projects and activities.

Revision of the Terms of Reference of CECAF Working Groups

65. The fifth line of the tasks within the TOR of the Small Pelagics and Demersal Working Groups has been altered by deleting the word 'Acoustic'.

66. The Subcommittee suggested that the Artisanal Fisheries Working Group should review its TOR at its next session.

ADOPTION OF THE REPORT

67. The report of the Third Session of the CECAF Scientific Subcommittee was adopted on 26 February 2004.

VOTE OF THANKS

We thank the Government of Togo for accepting to host the Third session of the Scientific Subcommittee of CECAF and express our gratitude to the Togolese people for the hospitality we benefited from during our stay in Lomé.

APPENDIX E

Table 1: Recommendations Summary Sheet – Area CECAF North (Morocco – Mauritania – Senegal – The Gambia)

Sub-group/ Unit	Area	Status	Management Recommendations
NORTH **Hake** *Merluccius merluccius*	Morocco	Fully exploited	- Do not increase the current level of fishing effort until a new assessment is available - Encourage the use of separators in the trawl - Regulations concerning trawl mesh size should be strictly enforced
Merluccius polli & *Merluccius senegalensis*	Morocco	No fishery since 1999	-
	Mauritania	Fully exploited	Decrease the fishing effort both in the fleet targeting hake and in those that target other species and have a by-catch of hake
	Senegal-The Gambia	Moderately exploited	Do not increase the fishing effort given that Mauritania and Senegal-The Gambia is taken to be a single stock.

APPENDIX E

Table 2: Recommendations Summary Sheet – Area CECAF North (Morocco – Mauritania – Senegal – The Gambia)

Sub-group/ Unit	Area	Status	Management Recommendations
Demersal Fish – North *Pagellus bellottii*	Morocco and Mauritania	Fully exploited	Do not increase the current level of fishing effort
	Senegal and The Gambia	Fully exploited	Do not increase the current level of fishing effort
Dentex macrophthalmus	Morocco and Mauritania	Fully exploited	Do not increase the current level of fishing effort
Sparus spp.	Morocco and Mauritania	Fully exploited	Do not increase the current level of fishing effort
Arius spp	Senegal and The Gambia	Uncertainty in the assessment	Current fishing effort should be reduced
Pseudotolithus spp	Senegal and The Gambia	Overexploited	Current fishing effort should be reduced
Epinephelus aeneus	Mauritania, Senegal and The Gambia	Risk of extinction	Stop the fishery that targets this species

APPENDIX E

Table 3: Recommendations Summary Sheet – Area CECAF North (Morocco – Mauritania – Senegal – The Gambia)

Sub-group/ Unit	Area	Status	Management Recommendations
Shrimps North *Parapenaeus longirostris*	Morocco	Overexploited	- Reduce current levels of catch and fishing effort - Enforce the use of the regulation mesh size to relieve pressure on the juveniles - Encourage the use of separators in the trawl
	Mauritania	Fully exploited	Do not increase the current level of fishing effort
	Senegal and The Gambia	Fully exploited using data up to 1999	Do not increase the fishing effort above the 1999 until a new assessment is available with more recent data
Penaeus notialis	Mauritania	Fully exploited	Do not increase the current level of fishing effort.
	Senegal and The Gambia	Inconclusive using data up to 1999	Do not increase the fishing effort above the 1999 level until a new assessment is available with more recent data

Table 4: Recommendations Summary Sheet – Area CECAF North (Morocco – Mauritania – Senegal – The Gambia)

Sub-group/ Unit	Area	Status	Management Recommendations
Cephalopods *Octopus vulgaris*	Dakhla from Cap Boujdor to Lagouira (26°N6-21°N)	Overexploited	Current fishing effort should be reduced
	Cap Blanc (21°N-16°N)	Overexploited	Current fishing effort should be reduced
	Senegal-The Gambia	Uncertainty in the assessment	Taking into account the cuttlefish stock which is caught by the same fishery, a decrease in fishing effort is recommended
Sepia sp.	Dakhla	Fully exploited	Do not increase the current level of fishing effort.
	Cap Blanc	Inconclusive results[1]	Current fishing effort should be reduced due to the octopus stock situation which is the main species of this fishery
	Senegal-The Gambia	Overexploited	Current fishing effort should be reduced

[1] The results vary greatly depending upon the CPUE used.

APPENDIX E

Table 5: Recommendations Summary Sheet – Area CECAF South

Sub-group/ Unit	Area	Status	Management Recommendations
SOUTH **Demersal Fish**			
Arius spp	Guinea	Overexploited	Current fishing effort should be reduced
	Sierra Leone	Uncertainty in the assessment	Do not increase the current level of fishing effort
Pseudotolithus elongatus	Guinea	Uncertainty in the assessment	Do not increase the current level of fishing effort until new assessment is available (and conduct further investigations)
	Sierra Leone	Uncertainty in the assessment	Do not increase the current level of fishing effort until new assessment is available (and conduct further investigations)
Pseudotolithus spp	Guinea	Fully exploited/ In danger of overexploitation	Current fishing effort should be reduced
	Sierra Leone	Uncertainty in the assessment	Do not increase the current level of fishing effort
	Côte d'Ivoire, Ghana, Bénin, Togo	Overexploited	Current fishing effort should be reduced
	Cameroon	Uncertainty in the assessment	Do not increase fishing effort until new assessment is available
	Angola	Uncertainty in the assessment	Do not increase fishing effort until new assessment is available
Galeoides decadactylus	Guinea	Overexploited	Current fishing effort should be reduced
	Sierra Leone	Uncertainty in the assessment	Do not increase the current level of fishing effort
	Côte d'Ivoire, Ghana, Bénin, Togo	Overexploited	Current fishing effort should be reduced
	Cameroon	Uncertainty in the assessment	Do not increase fishing effort until new assessment is carried out

APPENDIX E

Table 5 (Cont.): Recommendations Summary Sheet – Area CECAF South

Sub-group/ Unit	Area	Status	Management Recommendations
Demersal Fish Cont.			
Sparidae	Guinea	Overexploited	Current fishing effort should be reduced
	Sierra Leone	Uncertainty in the assessment	Do not increase the current level of fishing effort
Dentex sp	Côte d'Ivoire, Ghana, Bénin, Togo	Overexploited	Current fishing effort should be reduced
	Angola	Uncertainty in the assessment	Do not increase fishing effort until new assessment is carried out
Pagellus bellottii	Côte d'Ivoire, Ghana, Bénin, Togo	Overexploited	Current fishing effort should be reduced
Pomadasys spp	Guinea	Overexploited	Current fishing effort should be reduced
	Sierra Leone	Uncertainty in the assessment	Do not increase the current level of fishing effort
Cynoglossus spp	Guinea	Overexploited	Current fishing effort should be reduced
	Sierra Leone	Uncertainty in the assessment	Do not increase the current level of fishing effort
	Cameroon	Uncertainty in the assessment	Do not increase fishing effort until new assessment is carried out
	Angola	Uncertainty in the assessment	Do not increase fishing effort until new assessment is carried out
Brachydeuterus auritus	Côte d'Ivoire, Ghana, Benin, Togo	Overexploited	Current fishing effort should be reduced

APPENDIX E

Table 5 (Cont.) : Recommendations Summary Sheet – Area CECAF South

Sub-group/ Unit	Area	Status	Management Recommendations
Shrimps South *Parapenaeus longirostris*	Guinea-Bissau to Angola	Not assessed due to lack of data	As a precautionary measure, fishing effort should not be increased
Penaeus notialis	Guinea	Overexploited	Current fishing effort should be reduced
	Sierra Leone	Moderately exploited	Do not increase fishing effort
	Ghana	Moderately exploited	Do not increase fishing effort above the 2000 level
	Cameroon	Overexploited	Current fishing effort should be reduced
Cephalopods *Sepia* sp.	Guinea	Overexploited	Significantly reduce fishing effort

APPENDIX F

Stock Observation list

Table 1: Demersal Fish

Sub-group/ Unit	Area	Status
Demersal Fish		
Pseudotolithus spp	Senegal and The Gambia	Overexploited
Epinephelus aeneus	Mauritania, Senegal and The Gambia	Risk of extinction
Arius spp	Guinea	Overexploited
Pseudotolithus spp	Guinea	Fully exploited/ In danger of overexploitation
	Côte d'Ivoire, Ghana, Bénin, Togo	Overexploited
Galeoides decadactylus	Guinea	Overexploited
	Côte d'Ivoire, Ghana, Bénin, Togo	Overexploited
Sparidae	Guinea	Overexploited
Dentex sp	Côte d'Ivoire, Ghana, Bénin, Togo	Overexploited
Pagellus bellottii	Côte d'Ivoire, Ghana, Bénin, Togo	Overexploited
Pomadasys spp	Guinea	Overexploited
Cynoglossus spp	Guinea	Overexploited
Brachydeuterus auritus	Côte d'Ivoire, Ghana, Benin, Togo	Overexploited

APPENDIX F

Table 2: Shrimps and cephalopods

Sub-group/ Unit	Area	Status
Cephalopods		
Octopus vulgaris	Stock Dakhla from Cap Boujdor to Lagouira (26°N6-21°N)	Overexploited
	Stock Cap Blanc (21°N-16°N)	Overexploited
Sepia spp	Senegal-Gambia	Overexploited
	Guinea	Overexploited
Shrimps		
Parapenaeus longirostris	Morocco	Overexploited
Penaeus notialis	Guinea	Overexploited
	Cameroon	Overexploited