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FISHERY COMMITTEE FOR THE EASTERN CENTRAL ATLANTIC

Scientific Sub-Committee

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PROGRESS MADE IN THE IMPLEMENTATION OF AN ECOSYSTEM APPROACH TO FISHERIES IN THE CECAF REGION

SUMMARY

The FAO Code of Conduct for Responsible Fisheries (CCRF) provides the principles and standards applicable to the conservation, management and development of all fisheries and in line with the principles of sustainable development. In order to support the practical implementation of the CCRF, FAO developed the 'ecosystem approach to fisheries' (EAF), based on the three pillars of the sustainable development framework. In the last two decades, efforts have been made to support FAO member countries to implement management policies and practices coherent with the EAF and, in turn, with the CCRF. Working with a number of countries in Africa, the EAF-Nansen project is promoting fisheries management in line with the ecosystem approach. The activities undertaken in the CECAF region and the results obtained are presented in this document. The Scientific Sub-Committee is being requested to examine these results and make recommendations to the Committee to support the implementation of the management plans that have been developed with the support of FAO and other partners with special focus on technical and scientific aspects.

Introduction

1. Sustainable use of natural resources requires a more encompassing and integrated approach that takes into consideration ecological, social, economic and governance aspects. The FAO Code of Conduct for Responsible Fisheries (CCRF) (FAO, 1995) provides principles and standards applicable to the conservation, management and development of all fisheries and following its adoption many FAO Member States took the necessary steps to align their management and national fisheries policy, legislation and other legal instruments with it. In order to support its practical implementation, FAO developed the ‘ecosystem approach to fisheries’ (EAF) and efforts have been made to support FAO member countries in its implementation.
2. This document summarises the work that has been done by some countries in the CECAF region towards EAF implementation with support of FAO.

Ecosystem Approach to Fisheries – The context

3. FAO gives the purpose of EAF as *“to plan, develop and manage fisheries in a manner that addresses the multiple needs and desires of societies without jeopardizing the options for future generations to benefit from the full range of goods and services provided by marine ecosystems”*. The key features of the framework proposed by FAO for planning and implementing the EAF (FAO, 2003) can be summarized as follows:
 - a management plan is developed for a very specific area/system with operationally defined boundaries;
 - all key components of a fishery system (ecological, social-economic and governance), are comprehensively considered while also taking into account external drivers;
 - sustainability issues that need attention are identified and prioritized through a formal process (e.g. risk assessment)
 - management objectives related to environmental and social/economic aspects are reconciled;
 - an adaptive management process is established that includes mechanisms for feed-back loops at different time scales to adjust performance based on past and present observations and experiences;
 - stakeholder participation is envisaged at all levels of the planning and implementation steps; and
 - ‘best available knowledge’ is the basis for decision-making, including both scientific and traditional knowledge.
4. The planning process involves examining the fisheries in question to identify key objectives (ecological, social and economic), priority issues to be addressed in order to move towards these objectives and the action required (FAO, 2005). EAF also entails establishing a management process with feed-back loops that are essential under an adaptive management framework.

Implementation of EAF by CECAF member countries

5. Since 2007, the EAF-Nansen Project has been assisting coastal countries in Africa to undertake activities towards the implementation of EAF. Many countries have been assisted to acquire additional knowledge on their marine ecosystems for management and in the development of national and regional EAF management systems. Regional multidisciplinary workshops and training on various aspects of research and management, implementation of national and sub-regional sub-projects to prepare fisheries management plans and to implement a process which allows the review and tracking of EAF in management, have contributed significantly to improved understanding of EAF principles. The knowledge base gained through regional surveys conducted in partnership with other projects such as the Large Marine Ecosystem projects have provided information on broader ecosystem issues in the context of fisheries that can inform the management plans.

National fisheries management plans

6. The engagement with any country for the preparation and implementation of fishery management plan starts with the establishment of a National Task Group (NTG) to lead the process and to ensure national buy-in and adaptation to local conditions. A baseline report on a fishery for which a management plan is to be developed is prepared. Through workshops with the NTG and other stakeholders, issues pertaining to the fishery are identified and prioritized. This is followed by examination of management options and formulation of the necessary management measures. When the main elements of the plan are laid out, an operational plan is then prepared together with assessment of the needs to implement the plan, including the need for specific knowledge and information. The operational plan outlines all the activities that need to be undertaken to implement the management system, identifies the roles and responsibilities for undertaking each of the required activities and establishes timelines and milestones.
7. The plans are then submitted to the competent national authorities for approval and implementation. So far sixteen (16) countries (9 in the CECAF area) have been assisted to prepare at least one national fishery management plan (Table 1). The fisheries considered range from artisanal (small-scale) to industrial and from local to shared fisheries. The countries have worked in Clusters (3 in the CECAF area) with each cluster of countries working on a similar fishery. In the CECAF area, the clusters are Sierra Leone and Liberia (CECAF Cluster 1 – small-scale sector), Côte d’Ivoire, Ghana, Togo and Benin (CECAF Cluster 2 – beach seine fishery) and Nigeria, Cameroon and Gabon (CECAF Cluster 3 – industrial shrimp fishery). The Democratic Republic of Congo and Republic of Congo have just initiated activities and will be included in CECAF Cluster 3.

Table 1: Countries and fishery for which an EAF management plan has been prepared or or its preparation initiated

CECAF Cluster	Country	EAF Management Plan For
1	Sierra Leone	Marine Small-Scale Fishery
	Liberia	Marine Small Scale Fisheries Sector Plan
2	Côte d’Ivoire	The Beach Seine Fishery
	Ghana	The Beach Seine Fishery
	Togo	The Beach Seine Fishery
	Benin	The Beach Seine Fishery
3	Nigeria	Industrial Shrimp Fishery
	Cameroon	Industrial Shrimp Fishery
	Gabon	Industrial Shrimp Fishery
	DRC	Shrimp Fishery (started only recently)
	R. Congo	
4	Morocco, Mauritania, The Gambia and Senegal	Small Pelagic Resources with support of the Canary Current Large Marine Ecosystem project

CECAF Cluster 1: Small-scale fisheries

8. Key issues identified in the Risk Assessment (ERA) workshops for the countries in one cluster are similar in nature and so are the proposed management measures. For example in the Liberia and Sierra Leone management plans (BNF, 2013; MFMRA, 2013) for the artisanal sector the key issues identified include the following:

- Reduced biomass of fishery resources and in particular demersal resources;
- Open access system for the fishery and lack of adequate management measures;
- Inadequate knowledge in the sector on responsible fisheries as well as insufficient information on the fisheries and which adversely affect the incomes and returns from the sector; this affects the livelihood of fisheries communities;
- Knowledge about the fisheries particularly biological and socio-economic information is insufficient;
- Weak or ineffective governance of small-scale fisheries sector contributing to inefficiencies and conflicts in the sector;
- Climate change effects and natural disasters and their threats to fishing communities;
- Marginalized communities living under precarious conditions with limited understanding of the values, investments as well as mechanisms of distribution of products in the sector;

- Destruction of important fish habitats (including breeding grounds) by pollution, and anthropogenic activities like the use of inappropriate fishing gear and fishing methods;
- Illiteracy and insufficient exposure to new technologies; and
- Weak institutional capacity

CECAF Cluster 2: Beachseine fishery

9. Beach seining has come under intense criticism in recent times from resource managers, policy makers and environmentalists due to its adverse effects on fisheries resources. The four countries in the western Gulf of Guinea, beach seining is mainly managed traditionally by local communities through taboos and local customs and the practice is widespread along the entire coastline of the region. In Ghana, for example, banning of this fishery would cause a lot of socio-economic problems with negative impacts on already stressed coastal communities (MFAD, 2014). In the management planning exercise it was found necessary to regulate the fishery through input and fishing effort controls, establishment of closed seasons, and other measures (MAEP, 2013a; MAEP, 2013b; MFAD, 2014; MRAH, 2014).
10. From the four management plans emerge the management and operational objectives that follow. Management objective 1 is to reduce the impact of beach seine fishery on the coastal and marine resources. This can be achieved through appropriate mesh size regulations, establishment of seasonal and area closures of the fishery and introduction and/or enforcement of shore-based MCS systems. Management Objective 2 is to improve governance of the beach seine fishery of which the related operational objectives include limiting access to the fishery, formalizing and applying traditional management systems applicable to the regulation of the sector, involving local communities in the management of the fishery and raising the profile of fisheries in government circles. Other management objectives are to improve livelihood of the beach seine fishers and addressing adverse environmental impacts on the beach seine fishery.

CECAF Cluster 3: Shrimp fisheries

11. Preliminary bio-economic modeling has shown that the industrial shrimp fishery in Nigeria, for example, is capable of generating net wealth in excess of US\$ 30 million per annum (FMARD, 2014). Therefore, the overarching goal of the Nigerian management plan is to maximise the benefits obtained from the exploitation of the Nigerian shrimp resources by the industrial fishery, subject to ecosystem sustainability and social constraints, and to ensure that such benefits are equitably distributed. To achieve this goal, the following three management objectives have been proposed: to ensure that the fishery is sustainable in relation to the target species and the ecosystem within which they occur; to ensure that the social and economic benefits from the fishery are equitably distributed among the key stakeholders; and to minimise the

ecological impacts of the activities of other sectors that may negatively affect the fishery.

12. The Operational Objectives for the Gabon management Plan include: Improving the knowledge on the fishery, Optimizing the legal framework and management tools, Minimizing the impact of the shrimp fishery on the ecology of resources, Improving bio-ecological and bio-geographic data shrimp fishery, and Stabilizing the market value of the produce (MAEPDR, 2013).
13. Management measures from the Cameroon plan (MINEPIA, 2014) include the following:
 - Limit the number of shrimp fishing licences;
 - Establish a system to monitor performance of catches;
 - Estimate total allowable catches for a future management system;
 - Formalize of a protocol for entry into and exit from Cameroonian waters;
 - Enforce rule on the use of bycatch reduction devices (BRD) and turtle excluder devices (TED); and
 - Document the impact of land-based pollution and oil-related operations at sea on the resources.

Sub-regional fisheries management framework for small pelagic species in Northwest Africa

(CECAF Cluster 4): Small pelagic fisheries

14. Four countries in North West Africa (Morocco, Mauritania, Senegal and The Gambia) have been assisted by the EAF-Nansen and CCLME projects to prepare a sub-regional management framework in support of coordinated management for small pelagic fisheries in the sub-region (Anon, 2014). The sub-regional initiative which is also supported by the Sub-Regional Fisheries Commission, is led by the EAF Regional Task Group.
15. The four countries have differing legislations and policies. The main objectives for the small pelagic fishery for the four countries have been defined as food security and poverty alleviation, species/ecosystem sustainability, flow of social and economic benefits. The existing national laws in the four countries determine the regulatory framework, specify the access conditions to the resource in the EEZ of each country and define technical management measures. Some regulations are specific to small pelagic. Morocco has a national fisheries management plan for small pelagic fisheries in place and Mauritania is developing its national plan for the fishery. Efforts to put in place rational management mechanisms for the small pelagic species of Northwest Africa to ensure the sustainability of the resources and contribute to responsible management of the resources date back to 1979 (FAO, 1979). Since then several attempts have been made by the four countries, FAO and also the sub Regional Fisheries Commission to translate this vision or wish into reality.

16. The purpose of the sub-regional framework is to ensure, through close collaboration among all relevant stakeholders in the sub-region and in partnership with development partners, the sustainable management of the transboundary small pelagic fisheries for the benefits of all stakeholders within the constraints imposed by ecological and social requirements.
17. The framework identifies the main objectives and requirements for the fisheries, as well as the management measures that will be used to achieve these objectives. The target species are the coastal small pelagics (Sardine (*Sardina pilchardus*), Sardinella (*Sardinella aurita* and *S. maderensis*), the horse mackerels, (*Trachurus trachurus*, *Trachurus trecae* and *Caranx rhonchus*), Chub-mackerel (*Scomber japonicus*), Anchovy (*Engraulis encrasicolus*) and Bonga (*Ethmalosa fimbriata*)) that are distributed along the Atlantic coast off Northwest Africa from Morocco in the North to the south of Senegal.
18. The ERA process identified 64 issues that require management action and cover ecological, socio-economic and governance dimensions. Under ecological wellbeing, the issues of greatest concern included overexploitation of the Sardines (*Sardina pilchardus*) in Morocco Zones A and B, capture of juveniles of the major species (Sardines, the Sardinellas and *Trachurus* species), high incidence of illegal, unreported and unregulated (IUU) fishing especially on the Sardinellas and *Trachurus* species, excessive fishing effort exerted on *Sardinella aurita* and *Ethmalosa fimbriata* in the Gambia and Senegal, *Sardina pilchardus* in Morocco Zone and over-exploitation of *Ethmalosa* in Mauritania. Other issues relate to insufficient knowledge and understanding biological and environmental factors affecting some of the stocks, the potential negative effects of climate change on the ecosystem, including the variability of the resources and the adverse effects of pollution.
19. Under human-wellbeing, the most important concern is the capture and distribution of the resource rents. There are also issues related to safety of fishermen at sea, absence of insurance for those in the industry/sector, limited access to credit facilities particularly for artisanal fishers, lack of alternate lucrative activity/employment, increased conflicts and insecurity as a result of migration of fishers within the sub-region, and the low consumption of fish, especially in the interior of some of the countries.
20. The main governance issues include inadequate enforcement of fisheries regulations at national level, absence of regional institutions and mechanisms for the management of the fishery, political will and mechanisms for the management of the resources, inadequacy of the regulations in force on the issues relating to shared stocks management, and absence of coherent and harmonized regional management measures for the fisheries. Other issues include lack of clarity of access rights to the

resources (*Sardinella aurita* and *Ethmalosa fimbriata*) in both the Gambia and Senegal, and the absence of national plans specific for the management of small pelagic fishery except in Morocco and to some extent Mauritania.

21. Suggested management objectives include:

1. Rebuild over-exploited stocks and sustainably manage other stocks [protect those stocks that are threatened];
2. Preserve the habitats and biodiversity of the resources;
3. Ensure the economic viability or sustainability of the small pelagic fishery sector;
4. Improve the livelihoods/conditions of living of small pelagic fishery operators and their communities;
5. Improve the contribution of small pelagic fishery to food security in the four countries;
6. Improve the safety at sea of small pelagic fishery operators;
7. Strengthen the legal and institutional frameworks for the management of the shared stocks and promote the respect of the regulations;
8. Harmonize the management measures of the fisheries in line with international instruments;
9. Create effective synergies in the interventions of the different partners in the fisheries; and
10. Combat illegal, unreported and unregulated (IUU) fishing in the EEZ of the four countries

22. The above management objectives are included in a draft logframe which also gives operational objectives, proposed management measures, indicators, data requirements, etc. The overall framework, including the logframe, still requires further work to get it finalised the EAF Regional Task Group has expressed a wish to include a consultation with CECAF in this process. The management framework will inform national management plans and will provide common objectives, management measures and actions.

Tracking the implementation of EAF

23. To meet the WSSD target on EAF implementation entails two aspects; namely the actions being taken and the effectiveness and outcomes (Paterson and Petersen, 2009). Workshops have been held to establish baselines for EAF implementation using a Tracking Tool and in partnership with regional/sub-regional fisheries bodies in Africa and in collaboration with Large Marine Ecosystem (LME) programmes. In the CECAF region the first workshop was held in Accra, Ghana in 2013 for countries in the southern CECAF region involving 13 countries from Sierra Leone to the Democratic Republic of the Congo (Johnson, et al 2004) and the second workshop was in 2014 for the 7 countries in the CECAF north area (Koranteng et al, 2015).

24. Prior to each workshop a questionnaire was sent out to the national Focal Points of the EAF-Nansen Project to gather information on the selected fisheries. Using a consultative approach involving national fishery managers, scientists and stakeholders, the national Focal Points would review progress of implementation against the following ten EAF objectives:

1. The managing authority has a good understanding of the ecosystem impacts of fisheries including target, non-target and general ecosystem impacts.
2. Ecosystem impacts of fisheries, including target, non-target and general ecosystem impacts of fisheries, are included in management advice.
3. The social well-being of those who directly or indirectly depend on fishing is accounted for in management advice.
4. The economic well-being of the fishing industry is maintained.
5. The managing authority has transparent and participatory management structures that ensure good communication and information sharing locally and regionally.
6. Management plans incorporate EAF considerations.
7. Compliance with regulations reduces ecosystem impacts of fisheries.
8. Sufficient capacity, skills, equipment and funding exist to support the implementation of an EAF.
9. Good data procedures exist to support EAF implementation.
10. External impacts of fisheries are addressed (e.g. the effect of other sectors, other industries, climate change).

25. The level of implementation for each objective and overall for each country is shown in the figures below. For the 29 countries African countries covered, an overall average for all objectives was calculated as 42 per cent. Thus it is deemed appropriate to assert that African coastal countries are 42 percent compliant with the adoption and implementation of the ecosystem approach to fisheries. Comparisons have been made between the two CECAF sub-regions and also with the other two regions in Africa – the South West Indian Ocean Fisheries Commission area (SWIOFC) and the Benguela Current Commission area (BCC) (Figures 1.1 – 3.2).

CECAF-NORTH

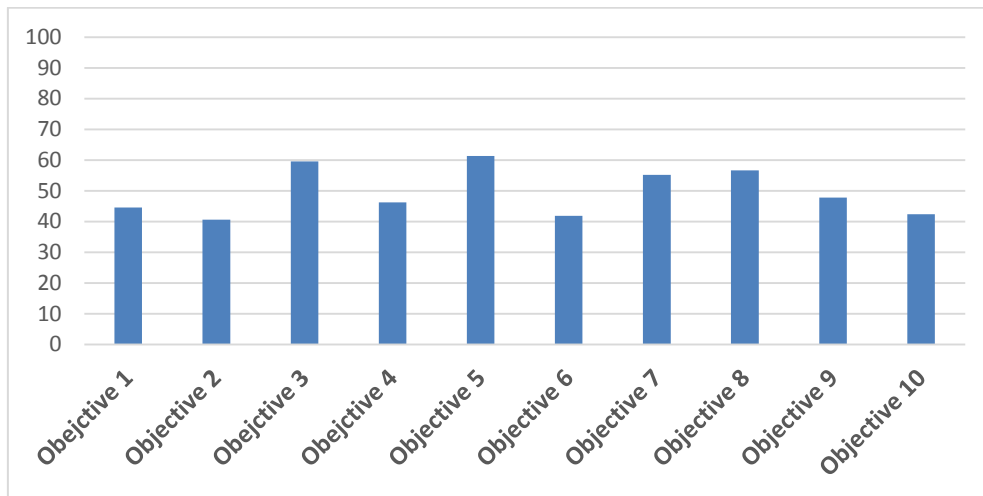


Figure 1.1: Comparison by objectives (list of the objectives is given above) in the CECAF North area

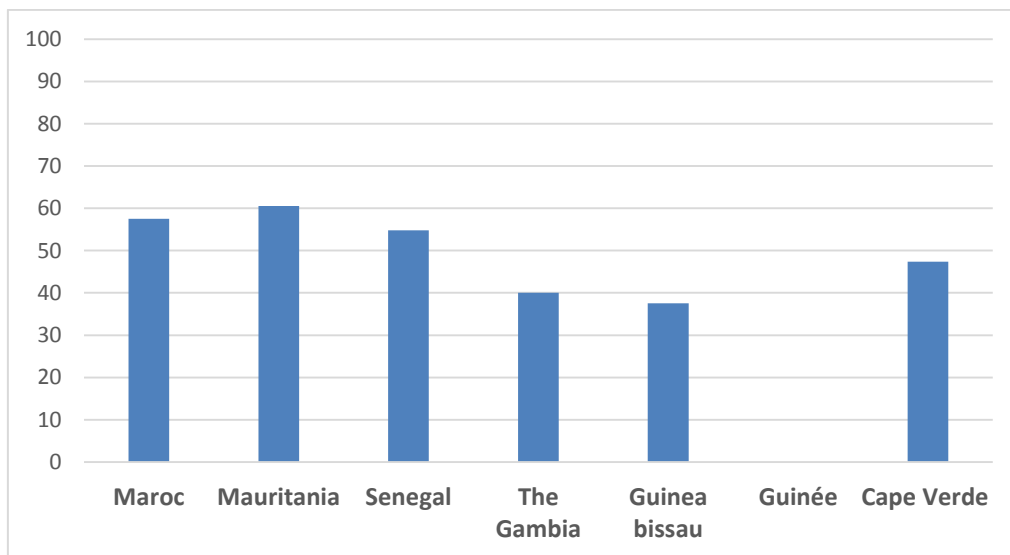


Figure 1.2: Comparison among the countries in the CECAF North area. Guinea was not included in the exercise because of the incidence of Ebola in that country at the time of the workshop.

CECAF-SOUTH

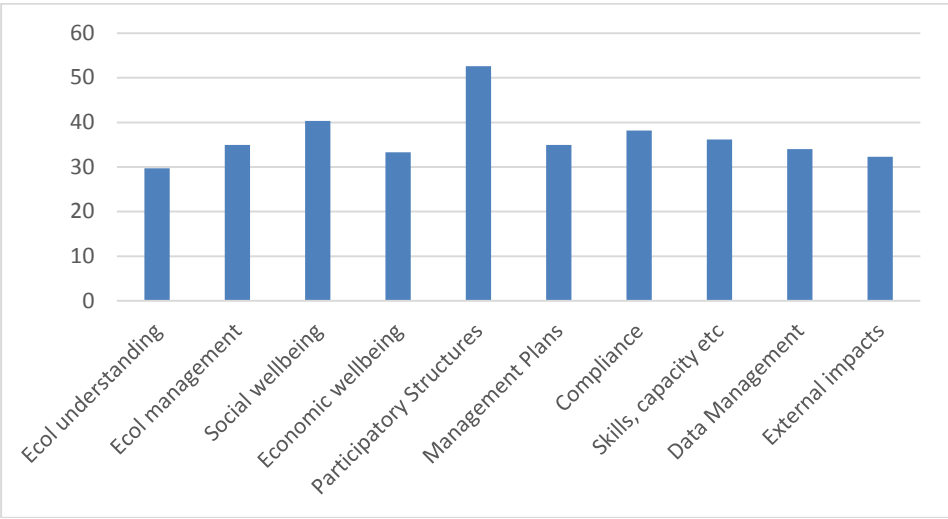


Figure 2.1: Comparison by Objectives, CECAF South area

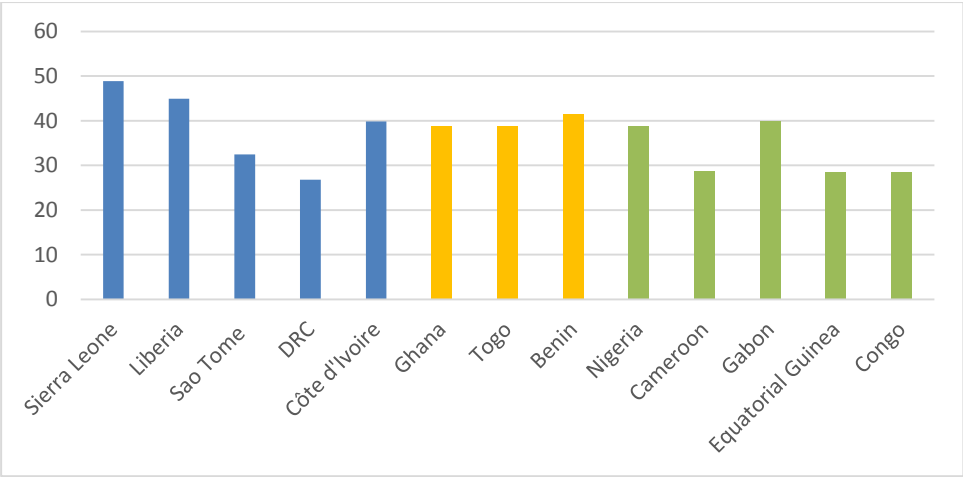


Figure 2.2: Comparison among the countries in the CECAF South area.

AFRICA (Sub-Saharan countries)

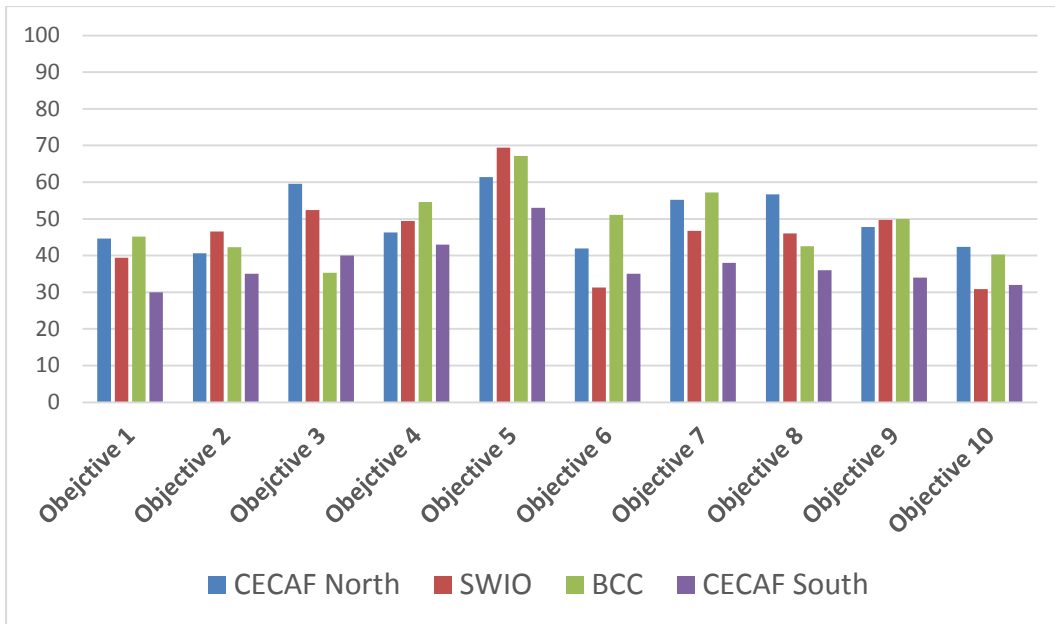


Figure 3.1: Comparison by objectives and in the four operational areas in Africa (list of the objectives is given above)

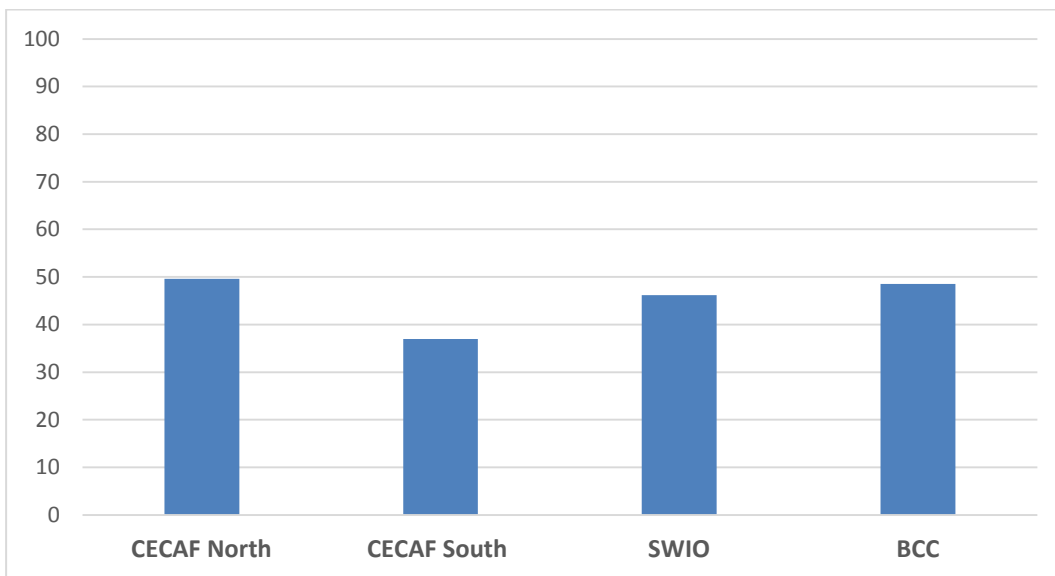


Figure 3.2: Comparison of overall level of implementation among the four operational areas in Africa

Way forward – implementation of the management plans, development of additional plans, progress

26. The EAF-Nansen Project is promoting EAF as a comprehensive management approach beyond the setting of total allowable catches and supporting processes of fishery data collection and analysis which are taken to be the main activities of fisheries management. A fisheries management plan is promoted as the interface

between policy objectives (usually set at a high level and included in fisheries sector, environmental or development policies of countries) and activities of the fishers.

27. This aspect of the work under the EAF-Nansen Project involves the establishment of a Fisheries Management Cycle (FMC) that consists of all the activities that a fisheries administration is expected to carry out annually as part of its mandate to manage the fisheries. The FMC is promoted as being at the core of fisheries management and is an example of “adaptive management” intended as a structured and iterative process of decision making under uncertainty. A key challenge of adaptive management lies in finding the correct balance between gaining knowledge to improve management in the future and achieving the best short-term outcome based on current knowledge.

Conclusion

28. In spite of the substantial guidance developed by FAO since the EAF concept emerged progress towards its understanding and adoption has been slower than expected. It is obvious that there is a need to build a common understanding of EAF in order to ensure its successful implementation. The supportive infrastructure of EAF National and Regional Task Groups established and assisted by the EAF-Nansen Project has helped to provide a forum for discussion and understanding of EAF. At the sixth session of the Scientific Sub-Committee in 2011 it was agreed that the EAF Regional Task Groups could report their results to CECAF.
29. The work in the CECAF region, as elsewhere in Africa, has indicated that the process of developing fisheries management plans (FMPs), their implementation and of monitoring and assessing the implementation is not widely understood among many of the fisheries management authorities involved in the project. The engagement with the countries has also revealed that often there are no clear objectives for the fishery. Where they exist, for example in fisheries laws and policy documents, the objectives are usually vague, too broad and very high level in nature that cannot be easily translated operationally. In addition, social and economic information is generally lacking for many of the fisheries considered under the Project.
30. The EAF implementation workshops have provided a platform for stakeholders to think through together the apparent complexity of implementing an EAF, and allowed for the sharing of information among multiple stakeholder groups. Discussions at the workshops showed that many of the countries are not starting from scratch with EAF implementation but are not aware of this effort and are either sceptical about EAF implementation or believe they do not have the capacity to implement it. The results also show that although progress has been made, a lot remains to be done before many coastal African countries would be confident with EAF. Significant challenges remain, most notably lack of funding, skills and capacity to carry out the required activities and to enforce the necessary measures.

Request to the Scientific Sub-Committee

31. The Scientific Sub-Committee is requested to:

- Examine the results of the work presented here;
- Make recommendations to the Committee to ensure immediate implementation of the national EAF management plans;
- Assess the progress made by the countries, and the region as a whole, in the adoption and implementation of EAF;
- Comment on the methodology (the use of the Tracking Tool) and suggest improvement where necessary and also recommend periodicity of the exercise.

32. The Scientific Sub-Committee is also requested to comment on technical and scientific aspects of the Sub-regional management framework for small pelagic fisheries and to bring it to the immediate attention of the Committee for endorsement and to facilitate its implementation at both national and regional levels.

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