

Fisheries Management and Law Advisory Programme

**Report of a Regional Workshop on Monitoring, Control
and Surveillance for African States
Bordering the Atlantic Ocean
(Accra, Ghana, 2-5 November 1992)**



**Food and Agriculture Organization
of the United Nations
Rome, November 1992**

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PREPARATION OF DOCUMENT

This report was prepared during the course of the Workshop in Accra, Ghana, 2-5 November 1992. It was held at the request of the Ministerial Conference on Fisheries Cooperation among African States Bordering the Atlantic Ocean. It includes the work of several authors who worked as resource persons during the Workshop. The report's recommendations were developed in working groups during the Workshop. Subsequently, the Workshop, in plenary, reviewed and endorsed the recommendations on the understanding that the Secretariat would consolidate them to avoid duplication.

This report was prepared during the course of the project identified on the title page. The conclusions and recommendations given in the report are those considered appropriate at the time of its preparation. They may be modified in the light of further knowledge gained at subsequent stages of the project.

The designations employed and the presentation of the report do not imply the expression of any opinion whatsoever on the part of the United Nations or the Food and Agriculture Organization of the United Nations concerning the legal or constitutional status of any country, territory or sea

ABSTRACT

The Regional Workshop on Monitoring, Control and Surveillance for African States Bordering the Atlantic Ocean was held in Accra from 2 to 5 November 1992. It was undertaken at the request of the Ministerial Conference on Fisheries Cooperation among African States Bordering the Atlantic Ocean and funded by the FAO/Norway Fisheries Management and Law Advisory Programme. The Workshop reviewed the status of resources and fleet operations in the West African region and identified problems and constraints associated with MCS cooperation. In working groups, Workshop participants considered issues relating to financial and economic aspects of MCS, national MCS issues and problems, the implementation and enhancement of sub-regional and regional surveillance operations, the role of the Ministerial Conference in facilitating, implementing and coordinating MCS activities, and legal and institutional frameworks for national sub-regional and regional MCS arrangements. The working groups proposed recommendations to facilitate closer MCS cooperation in the West African region and these recommendations, after review, were endorsed by the Workshop.

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OPENING OF THE WORKSHOP

1. The Regional Workshop on Monitoring, Control and Surveillance for African States Bordering the Atlantic Ocean, undertaken at the request of the Ministerial Conference on Fisheries Cooperation among African States Bordering the Atlantic Ocean, was held in Accra, Ghana, from 2 to 5 November 1992. It was funded by the FAO/Norway Fisheries Management and Law Advisory Programme. The Workshop was attended by 41 participants from 17 countries and 9 special participants from 7 donor and other organizations active in monitoring, control and surveillance (MCS) in the West African region. The list of participants is given in Appendix B.

2. Dr A. M. Laryea, Ghana's Deputy Secretary for Agriculture, officially opened the Workshop. The text of his statement is in Appendix D.

3. On behalf of FAO, Mr Robert T. N'Daw, Assistant Director-General and Regional Representative for Africa, welcomed the participants to the Workshop and noted the importance of MCS as an integral component of fisheries management. His opening statement is reproduced in Appendix E.

ELECTION OF OFFICERS

4. Dr Bernard Diop of Senegal, representative of the President of the Ministerial Conference, was elected chairman of the Workshop. Mr Marquate Armah of Ghana was elected vice-chairman.

PROGRAMME OF WORK AND OBJECTIVES

5. The Workshop's programme and timetable, as shown in Appendix A, was adopted. The documents that were distributed at the Workshop are listed in Appendix C.

6. The objectives of the Workshop were to:

- (i) review the status of national, regional and foreign fleet activity in the EEZs of African States bordering the Atlantic Ocean, including the identification of problems and constraints associated with such fishing by both licensed and unlicensed vessels;
- (ii) consider areas where States might strengthen existing MCS systems, including identification of constraints to MCS cooperation, and
- (iii) propose recommendations for strategies that might be adopted to improve MCS capacities nationally, sub-regionally and regionally.

SUMMARY OF PRESENTATIONS

Overview of the fisheries situation with respect to monitoring, control and surveillance for African States Bordering the Atlantic Ocean

7. In presenting document FI:MCS/WA/92/2 (Appendix G), the Secretariat highlighted the features in respect of resources (in particular shared stocks), fleets, conditions of access, state of the resources, management measures and procedures that discussions on MCS should address. It was noted that distant-water fishing nations (DWFNs) continue to be active in the region fishing high value demersal fish and tuna. These nations included Spain (for high-value demersal fish and tunas), France (for tunas), Republic of Korea, Italy, Greece and Portugal (for high value demersal fish) and Eastern European countries that have traditionally fished for small pelagics. Several coastal States have, in addition, participated in the industrial fisheries in the region and now extended their areas of operation in neighbouring States. Coastal fisheries and the artisanal sub-sectors, with varied gear and fishing methods, are very active in the region and supply the bulk of local fish requirements.

8. Trade in fish and fishery products (especially frozen small pelagics) has been developed substantially since the 1960s. Small pelagics often caught by former Soviet and Eastern European countries are sent from the resource rich (and low human population density) areas off Northwest and Southwest Africa to the Gulf of Guinea (high population density) countries. Demersal fishes are to lesser extent also sent to the Gulf of Guinea countries. The Workshop noted that the value of fish landed by all participants in the fisheries of the region (about 5.8 million tons) amounted to about US\$3.300 million. Several countries have adopted policies that add value to their fish and fishery products.

9. With regard to management, it was noted that most high value species were intensively fished and the necessity of applying management measures was underscored. Management measures recommended by national research institutions, international and inter-governmental organizations in the region (CECAF, ICCAT, former ICSEAF, and CSRP) and adopted by most States included reduction of the fishing effort, mesh size limitation, closed areas and seasons, gear limitation and other access controls in case of coastal lagoons, prohibition of some artisanal gears, and zonation of inshore areas for fishing purposes. It was pointed out that, although most countries now have definite positive policy towards management, implementation of management measures is difficult to achieve at the national level.

10. The Workshop noted the efforts made by several States in the region to institute MCS systems, through external assistance. None of these systems are working optimally due to the complexities of monitoring the various fisheries sub-sectors ranging from offshore to coastal lagoons and estuaries.

11. The importance of intensifying resource management with improved and reliable biostatistical data to enable timely evaluation of the state of stocks was highlighted. In this regard, participants agreed that scientific cooperation should be intensified in the region to facilitate exchange of data on the stocks with a view to obtaining enhanced fisheries management.

12. The Workshop further agreed that since MCS is an essential element in management, coastal States should accord this activity with all the importance it deserves and intensify cooperative mechanisms.

Fisheries management, monitoring, control and surveillance and economic considerations

13. Document FI:MCS/WA/92/3 (Appendix H) was introduced by the Secretariat reviewing some of the policy and financial aspects that developing coastal States might consider in formulating and implementing national sub-regional and regional MCS programmes, and discussed basic fisheries management concepts and considerations, as well as objectives, definitions and possible MCS strategies. 'Monitoring' involved the collection, measurement and analysis of fishing activity; 'control' involved the specification of the terms under which resources can be harvested; and 'surveillance' included checking that conditions of access and management measures were observed. The document noted that strategies for implementation of MCS depended on variables such as extent of local and foreign fishing, level of fishing, abundance and value of fish resources and the type of fisheries conservation and management measures adopted. Capital and recurrent costs of MCS were liable to be high, so care had to be taken that costs overall were not out of proportion relevant to the value of the fishery. Certain countries found it difficult to justify the operation of an integral aircraft, patrol boat, and shore-based MCS system, so emphasis was given to regular inspection of vessels in port and occasional patrols at sea, which were less expensive. MCS played a crucial role in the fishery management process so governments should give close attention to ensure its high efficiency.

14. In the discussion that followed, some detailed accounts of measures to control fishing effort and introduce conservation measures such as closed fishing periods were described by participants. In the artisanal fishery there were often traditionally designated non-fishing days, or sometimes the fishery was closed to allow the market to absorb a high catch. For example,

Morocco indicated that a closed season in its trawl fishery for cephalopods had been introduced, which in 1991 extended for one month. The closed fishing period allowed recuperation of stocks and growth of juveniles before capture.

15. In discussion, it was stressed that the links between research, management and MCS needed to be strengthened so as to improve information flows and to assist with the clearer definition of management problems and solutions.

16. It was also recognized that the selection of an MCS structure was a policy decision for government and that a range of options was possible. It was agreed that many MCS programmes emphasized enforcement, as opposed to surveillance activities, and that observer programmes provided important information both for MCS and research.

Legal and policy issues related to monitoring, control and surveillance

17. Document FI:MCS/WA/92/4 (Appendix I), introduced by the Secretariat, outlined the legal and institutional constraints to the development of an effective MCS system.

18. At a national level the document pointed out that two errors should be avoided. The first one is to avoid focus solely on the surveillance component and not to take into account the possible legal and institutional consequences. These may include, in particular: (i) amendments to the legislation on, inter alia, the powers of enforcement officers, the licence regime, the level and nature of sanctions, the judicial and/or administrative procedures to be followed in case of infringements to the legislation; (ii) institutional changes with respect to the supervision and coordination of fishing surveillance and, more specifically, the creation of an ad hoc administrative unit for dealing with MCS. The second error to be avoided is consideration that, by enacting a new legislation or by amending it, problems of enforcement will be simultaneously solved.

19. With respect to sub-regional and regional approaches to MCS the document, based on experiences in other parts of the world, highlighted the need to have clearly defined objectives and on the fact that different levels of cooperation may be sought. Firstly, there should be a common political and legal framework which should include a forum in which discussions may take place, an harmonization of the various fishery legislation applicable in the region or sub-region, a mechanism for collection and exchange of data on fishing vessels (possibly through the establishment of a regional register). Secondly, a more common approach toward foreign fishing should be defined, in particular through the determination of minimum terms and conditions of access for foreign fishing vessels and, as a further step, by the inclusion in future fishing agreements of provisions dealing with the so-called "flag-State responsibility". Finally, common surveillance of the resources might also be envisaged.

20. The document also presented information concerning some MCS systems in force in selected countries (examples from New Zealand, Germany and Norway were given). These show that the legal, institutional and even operational framework of MCS varies considerably from one country to another and that standard models do not exist.

21. The discussion following the presentation focused on the "flag-State responsibility" principle and on the parameters to be taken into consideration in drafting a fishery legislation.

22. Regarding "flag-State responsibility", some participants pointed out that this would be difficult to implement because of the political imbalance between DWFNs and developing coastal States and of the problems related to the standard of proof. However, it was agreed that the inclusion of such a provision in fishing agreements would help in enforcing national legislation and that this principle should also be applied between neighbouring coastal States. In this respect, it was indicated that cooperation between West African countries on the management of their shared stocks should be increased

and it was noted that some West African States were negotiating agreements on this subject.

23. The drafting of fishery legislation was also considered by the Workshop. It was unanimously agreed that the harmonization of legislation should be one of the first objectives of sub-regional and regional cooperation, and it was pointed out that, before enacting a new act on regulation, a coastal State should be adequately informed of the fishery legislations in force in neighbouring countries. It was stressed that in drafting a new piece of legislation the administration should take into consideration not only the scientific, social and economic consequences, but that its enforceability should also be carefully assessed. The views of enforcement officers should be sought on this matter.

24. Finally, the Workshop considered the institutional framework in which regional or sub-regional cooperation could operate. It was indicated that in the two regions in which such a cooperation might be considered as successful (South Pacific and the Caribbean), the cooperation was initiated in a political forum. While this does not necessarily mean that the existence of such a political forum is a precondition for effective regional cooperation, it was agreed that such a forum could enhance significantly chances of success. The Workshop was then reminded that a political forum of this kind now exists in the West African region: the Ministerial Conference.

National considerations concerning fisheries monitoring, control and surveillance for African States bordering the Atlantic Ocean

25. Document FI:MCS/WA/92/5 (Appendix J) addressed national considerations regarding MCS in the West African region. It focused on costs of MCS in the overall context of an integrated surveillance system involving sea and air components. The document also considered programmes for fisheries observers and inspection. In conclusion, it was pointed out that an MCS system was expensive, often representing a significant proportion of national revenues from fisheries. In this connection, it was noted that appropriate MCS equipment would require the use of purpose-designed craft for fisheries rather than military use. Moreover, MCS operating costs would be influenced by the duration of missions and the efficiency of MCS programmes.

26. The importance of manpower development was highlighted and the need to determine an MCS system taking into account both financial and technical requirements.

Requirements for effective sub-regional and regional cooperation in monitoring, control and surveillance: the Pacific experience

27. Document FI:MCS/WA/92/6 (Appendix K) considered requirements for effective sub-regional and regional cooperation in MCS, with particular reference to the South Pacific, where a well established regional MCS system exists. Institutional and legal arrangements were outlined together with the minimum terms and conditions (uniform vessel identification, catch and position reporting, transshipment, catch and effort logsheet, observers, appointment of an agent, foreign fishing vessels in transit, flag State or fishermen's associations responsibility) in force in the region. In addition, the regional register of fishing vessels and the newly adopted Treaty on Cooperation in Fisheries Surveillance and Law Enforcement (commonly known as the Niue Treaty) was reviewed. The importance of timely information and training as essential components of MCS, were highlighted. It was noted that South Pacific countries have assigned the development of effective and timely regional communications and manpower development as the highest priorities for MCS in the region.

28. The document pointed out that high level political commitment had in part contributed to the success of regional MCS in the South Pacific. It was also noted that regional cooperation had been achieved without any derogation of national sovereignty or erosion of the national interest in fisheries matters. Technical cooperation among developing countries (TCDC) exchanges had been encouraged in MCS activities in the region. Moreover, harmonization

of fisheries access agreements and the incorporation of regionally agreed standards did not mean that all such agreements had to be the same.

29. The document noted that the South Pacific experience might not be completely relevant to West African countries bordering the Atlantic Ocean but that measures and approaches adopted could be modified to suit circumstances in the West African region. As a starting point, it was proposed in the Workshop that all countries adopt the FAO Standard Specifications for the Marking and Identification of Fishing Vessels. The use of these specifications would significantly assist MCS in the region and could help overcome some of the problems identified by participants such as the frequent renaming and remarking of vessels to avoid penalties for fishing infringements.

30. It was also proposed that West African countries consider the appointment of agents in country to handle licensing arrangements for foreign fleets. These agents should have the authority to receive and respond to any legal process initiated against vessels for which they are responsible. It was pointed out in the Workshop that such an approach would strengthen the position of licensing coastal States in terms of flag State enforcement.

31. With respect to the establishment of a regional register for fishing vessels, there was strong support for this concept in the Workshop. It was noted that in the South Pacific such a register had been established essentially for MCS purposes because countries were small and lacked conventional surveillance means. In West Africa, such a register might initially be used for data and information purposes but could be extended if and when the need arose to include other functions.

Country experiences with monitoring, control and surveillance

32. Under this agenda item, the participants made brief presentations on their respective national experiences in the formulation and implementation of MCS systems and sought to identify national and sub-regional problems encountered. Most of the participants had contributed documents on the experiences of their respective countries, which were distributed as information documents at the Workshop (Appendix C). A summary of the verbal presentations made by participants follows on a country-by-country basis.

33. The participant of Congo informed the Workshop that the surveillance system in his country was based mainly on the activities of the navy. He indicated that an observer programme was being implemented but various difficulties were affecting adversely the efficiency of the system, such as difficulties with payment of observers, inadequate facilities for observers while on board vessels (e.g., access to communication facilities and boarding). Concern was expressed at the reported presence in Congolese waters of vessels having a record of offences in other countries. The establishment of mechanisms for the exchange of information or regional registers of fishing vessels would be of invaluable assistance to the Congo in addressing this problem.

34. The experience of Senegal is useful, as it is one of the first countries in West Africa to set up a MCS system, with the assistance of Canada. Senegal's MCS system is based on a coordinating structure within the Ministry responsible for fisheries and involves the activities of the navy, an aircraft and the centre for oceanographic research. At present, the system is entirely operated and financed by Senegal. When presenting the experience of his country the participant of Senegal drew attention to the fact that the efficiency of the MCS system was being eroded because boundaries with its four neighbouring countries, i.e., Mauritania, Cape Verde, Gambia and Guinea-Bissau, were not defined and poachers were taking advantage of this situation. He called for increased sub-regional cooperation as a means of setting up cost-effective MCS systems.

35. The participant of Mauritania described the various fishery conservation measures being implemented currently under the Code on Maritime Fishing and the provisions regarding administrative and jurisdictional procedures for the

control of fishing operations and prosecution of offences. The fisheries surveillance system is placed under the authority of the Ministry of Fisheries through its service "Commande de pêche" which is responsible for the coordination of all surveillance activities. The Ministry of Fisheries works in close cooperation with the navy and the air force. These defence units are responsible for the administration of patrol vessels and surveillance aircraft. The "Commande de pêche" operates a tight computerized system for the monitoring of MCS operations.

36. Togo has prepared recently two draft laws concerning maritime fishing zones and the management of fisheries, and it is expected that these draft laws will be adopted shortly. While these laws are under consideration, Togo has not yet set up a system of observers for industrial vessels.

37. Ghana adopted a new Fisheries Act in 1991. This adoption of this text constituted a first step towards the establishment of an adequate MCS system. Offences under the fisheries legislation are handled by the police or tribunals. The creation of a joint unit by the Ministries of Fisheries and Navy for MCS purposes is being considered.

38. The participant of Guinea informed the Workshop that a comprehensive surveillance system is to be set up shortly with financing by the Canadian International Development Agency (CIDA) and the World Bank. Substantial technical input will be provided by CIDA. The operation of the MCS system will be entrusted to an autonomous unit placed under the general supervision of the Ministry in charge of fisheries. Various preparatory measures aimed at creating the conditions for the functioning of the new system are being adopted, including the revision of legislation. In establishing this system, Guinea will benefit greatly from its past MCS experience and the experience of other countries.

39. In 1991, The Gambia adopted a new Fisheries Act and implementing regulations in order to improve the legal framework for the conduct of surveillance operations. MCS operations are carried out on behalf of the Fisheries Department by the Third Marine Company of The Gambia National Army. At present, The Gambia has two patrol vessels which conduct MCS operations on a regular basis. The activities of these vessels are supplemented by an aircraft made available by the Grand Duchy of Luxembourg. However, the MCS system faces several problems, including the difficulty in reducing the level of fishing effort in the industrial sub-sector, the fact that the patrol vessels are old and difficulties in financing surveillance operations.

40. In Morocco, the Ministry of Fisheries and Merchant Marine, through its unit for coordination of surveillance operations, is responsible for the supervision of fisheries MCS. The MCS system involves operations at sea, aerial surveillance and control of landings at ports. Surveillance at sea is conducted by patrol vessels of the Royal Navy supported, as required, by military aircraft. Control of fish landings is made mainly by officers of the regional fisheries offices but officers of the "Gendarmerie" and the customs administration are also involved in such operations. In addition, quality control of fish landed at ports is supervised by officers of a special commission.

41. With respect to its observer programme, Morocco's Ministry of Fisheries and Merchant Marine currently has 80 scientists to undertake this task. While undertaking observer functions, these scientists have officer status on fishing vessels. The observers monitor fishing operations and, in addition to reporting on these operations, they also provide information of a statistical nature based on catch samples as well as technical characteristics relative to the engine capacities, etc., of the vessels on which they are deployed. Information provided by scientific observers is transmitted to the ministry responsible for fisheries research and management in Morocco.

42. In Nigeria, the Federal Ministry in charge of fisheries is responsible for MCS. Nigeria will be adopting a new legal framework for the management of fisheries. In this connection, being aware of the need to assure the proper implementation of the law, the competent authorities plan to organize

a training workshop in MCS for law enforcement officers and the assistance of FAO will be sought. Negotiations with Cameroon with a view to defining a maritime boundary are under way. Similarly, an effort is being made to explore the possibilities of coordinating management policies and harmonizing fisheries legislation with neighbouring countries.

43. Guinea-Bissau has organized recently, with support from the USA, a sub-regional symposium on coastal surveillance which was attended by representatives of Mauritania, Cape Verde, Senegal, The Gambia and Guinea. At this symposium fisheries MCS issues were discussed in depth. The current MCS system involves the use of naval vessels. Surveillance operations are closely coordinated between the Ministries of Fisheries and the navy.

44. In Benin, there is no MCS system at the present time as most fishing is carried out by artisanal fishermen. However, illegal fishing by industrial vessels has been reported and this has become a matter of concern for the government. The government has indicated that it wishes to reconsider the legal framework for the management of fisheries in the country. In doing so, it will seek to harmonize the provisions of its law with those of neighbouring countries and to establish appropriate collaboration mechanisms.

45. The participant of Angola provided an overview of the importance of the fisheries sector in his country. As regards the MCS system, he explained that as a first step towards the improvement of the country's surveillance capacity, a new Fisheries Act has been adopted. MCS operations are entrusted to an Inspectorate Division of the Ministry of Fisheries which is supported by a legal division. That division coordinates the activities of the navy's patrol vessels. A programme for the improvement of the MCS system is under consideration.

46. Management and surveillance of fisheries in Gabon are carried out under a fisheries law of 1982. The navy and the air force are entrusted with the task of MCS at sea. Four fishing vessels were arrested for illegal fishing in 1991.

47. While Zaire has a narrow maritime coast, its authorities are concerned with the establishment of a cost-effective maritime MCS system that will serve not only fisheries but also other tasks such as enforcement of customs regulations, pollution control and safety at sea.

48. Under this item, the participant from Morocco, speaking on behalf of the Secretariat of the Ministerial Conference, informed the Workshop that the Ministerial Conference had recommended the establishment of a sub-regional register of fishing vessels for vessels operating in Northwest Africa. The Conference believed that such a register would contribute to the enhancement of MCS cooperation between States in the sub-region. Canada's International Centre for Ocean Development (ICOD) funded a feasibility study in 1992 concerning the establishment of a regional register as well as a seminar that considered the conclusions of the study. The seminar endorsed the establishment of a register that would serve as a database as well as a management tool. It would also provide for the strengthening and harmonization of existing national registers. Moreover the establishment of a sub-regional register would serve as a focal point for the collection and distribution of information relating to the operations of fishing vessels in the sub-region. CIDA has been requested to contribute to the establishment of the sub-regional register of fishing vessels for Northwest Africa.

REPORTS OF THE WORKING GROUPS

49. Five working groups were formed to consider national, sub-regional and regional MCS issues of importance to African States bordering the Atlantic Ocean. Participants in each group are shown in Appendix F. Summaries of discussions by each working group are given below.

Working Group 1: Financial and economic aspects of monitoring, control and surveillance

50. The working group on financial and economic aspects of monitoring, control and surveillance discussed the difficulties which countries face in designing, installing and implementing efficient, cost-effective systems to survey, monitor and control fishing activities within their declared zones of jurisdiction. MCS systems ranged from the sophisticated, in resource-rich countries of Northwest Africa, to rudimentary MCS systems in some Gulf of Guinea countries. Nevertheless, all countries were striving to improve MCS capabilities so that national benefits from fishery management could be maximized. It was noted that some countries had low-cost licensing arrangements for national fleets but obtained revenues from the industry through export taxes.

51. The working group considered that MCS constituted an essential component of fisheries management, and that an absence of a policy on efficient management may well lead to a disappearance of fish resources. The group noted that a not negligible part of the overall catch, caught through illegal fishing, avoids national controls, and noted that there was general inadequacy of means, and budget in particular, devoted to MCS structures. The group recognized that the costs of setting up and operating the necessary MCS systems were often beyond the possibilities of individual States in the region.

Working Group 2: National monitoring, control and surveillance issues and problems

52. The working group considered a range of issues critical to effective MCS operations, including:

53. Marking and regional registers of fishing vessels: The importance of identifying individual vessels, which are sometimes difficult to differentiate, was noted by the working group and inclusion of a photograph with the licence application is a useful requirement, and by international law the vessel call sign must be welded into the hull, providing unequivocal means of identification. Appointing a local agent a condition for issuing a licence may also help in establishing vessel identity and minimize follow-up problems in the event of violations.

54. The concept of a regional register for vessels was agreed to be important; however, such a register should actually be developed sub-regionally. The proposed regional register for Northwest African countries would be a useful pilot study which could be extended after 2-3 years to the rest of the region.

55. Definition of roles of government agencies involved in MCS: In all countries, MCS systems depend on the participation of several government agencies (minimally, the agency responsible for fisheries management and the military or police). While this approach is cost-effective, it is essential that the lead role of the fisheries agency in coordinating MCS be confirmed. Governments should (and in many countries do) clearly define the roles of the various agencies involved through formal agreements or legislation.

56. Fisheries departments should ideally initiate fisheries patrols and finance these, even if they are carried out by military agencies.

57. Several countries have commissions (made up of representatives from several ministries and chaired by fisheries) which hear prosecutions for fisheries violations. Parties can appeal to the courts if not satisfied with commission decisions but this rarely happens in countries using the commission mechanism.

58. Fishery logbooks: Not all countries have introduced catch logbooks and, where vessels operate in several smaller national zones, particular problems might be encountered with respect to attributing catches to particular areas.

59. While a need for harmonization of logbooks was voiced, it was agreed that logbook design must take into consideration the particularities of the fisheries in each subregion. The use of codes developed by FAO for the designation of gear and fish species could help in making the exchange/use of logbook information easier.

60. It was recognized that catch logbooks are a very useful source of information for the management of fisheries resources, on the condition that the data are checked through other components of the MCS system (inspections at sea, observers, etc.).

61. Remuneration of control personnel and observers: There was consensus that satisfactory remuneration for control personnel and observers is essential for achieving good results and ensuring impartiality on the side of the personnel. The form of additional remuneration for observers varies from country to country and involves such elements as sea day allowances, shares in fine moneys, higher salary ranking, etc. Some countries experience difficulties when it comes to paying additional salaries for personnel with civil service status or belonging to another branch of government, e.g., the armed forces. Obviously, contract arrangements prove to be easier to handle when it comes to incentive giving remuneration schemes.

62. Whether employed personnel are contractual or incorporated in the civil service, the possibility of making vessel owners bear the cost of control officers or observers will alleviate budgetary constraints. However, there should never be a direct remuneration link between the vessel owner and such personnel.

63. Observer programmes: Participants agreed that it was important to test and competitively recruit observers so as to ensure that observer programmes were effective and of a high standard. It was agreed that the role of observers was to collect scientific and statistical information and not to act in an enforcement capacity. Moreover, the working group stressed that whether employed on contract to the government or a civil servant, all observers should be paid by government. It was further agreed that the presence of observers on vessels was likely to reduce the incidence of fisheries violations.

64. Training programmes: The importance of observer training was noted and it was agreed that where possible existing training facilities in the region should be used. Observers should receive training in a range of topics including navigation, biological sampling methods, law, fisheries management, etc.

65. The working group acknowledged that the quality of observer programmes would reflect the quality of observers themselves and the training they had received. In this connection it was noted that observers should continue to receive in-service training. Furthermore, financial and technical support from donors to assist with observer training should be sought.

Working Group 3: Implementation and enhancement of sub-regional and regional surveillance operations

66. In opening discussions in this working group, the Chairman referred to Article V of the Regional Convention of the Ministerial Conference on Fisheries Cooperation Among African States Bordering the Atlantic Ocean which stipulates that: "Parties shall work and collaborate with all the means at their disposal, or which they may jointly acquire to ensure proper monitoring, control and surveillance, including technical control of fishing vessels operating in the Region". The chairman underlined the necessity for the group to recommend the most appropriate measure to facilitate sub-regional and regional surveillance operations.

67. After reviewing national surveillance systems in the region, including human and material means available to facilitate operations, and taking into account activities of various inter-governmental fisheries groupings in the region, recommendations were developed.

Working Group 4: Role of the Ministerial Conference in facilitating, implementing and coordinating monitoring, control and surveillance activities

68. The working group noted that the issues concerning fisheries MCS ranked high among the priorities of the Ministerial Conference on Fisheries Cooperation among African Countries Bordering the Atlantic Ocean. In this regard, it was recalled that the Regional Workshop on Monitoring, Control and Surveillance was being organized at the request of the Ministerial Conference.

69. Prior to initiating discussions on the role of the Ministerial Conference in cooperation on MCS the representatives of the Presidency and the Secretariat provided information on the establishment and activities of the Ministerial Conference. In particular, they informed the meeting that as part of its effort in promoting active and organized cooperation in the area of fisheries management and development, the Ministerial Conference adopted a Regional Convention on Fisheries Cooperation among African Countries Bordering the Atlantic Ocean in Dakar in July 1991. This presentation was followed by an exchange of views concerning the present status of the Regional Convention and the legal and institutional work being done for the establishment of the secretariat of the Convention on a permanent basis.

70. The working group noted further that Article 5 of the Regional Convention provides that the Parties "shall work and collaborate with all the means at their disposal, or which they may jointly acquire, to ensure the monitoring, surveillance and control, including technical control of fishing vessels operating in the Region". In this context, the group examined the areas in which regional or sub-regional cooperation should be enhanced in order to improve the MCS of fishing operations and possible approaches to, and methods for, that cooperation.

71. Regional and sub-regional approaches to cooperation: The working group considered that the Ministerial Conference constitutes a proper framework for the implementation of Article 5 of the Convention especially as regards exchange of information on national experiences and the promotion of cooperation among members of the Conference. The working group was apprised of various cooperation activities in MCS at the sub-regional level. It was of the opinion that such activities should be encouraged but that coordination among the sub-regions should be assured within the framework of the Ministerial Conference. This could be achieved, inter alia, through a permanent exchange of information on sub-regional experiences to be monitored by a Permanent Secretariat.

72. Harmonization of management schemes and fisheries legislation and regulations: The working group emphasized the importance of regional and sub-regional harmonization of management systems and fisheries legislation and regulations in West Africa. The working group noted that this did not mean of course that the countries should have similar laws and regulations which would both unrealistic and could be counterproductive. The harmonization of legislations and regulations aims at assuring their consistency whenever that is necessary to assure the proper management and surveillance of fisheries. The working group noted that serious discrepancies among the laws of countries had been highlighted in the course of the main meeting. These discrepancies had a negative impact on the management and the protection of the fisheries resources.

73. The working group was informed that a number of initiatives had been undertaken to assure the harmonization of legislations and regulations especially at the sub-regional level and that a draft protocol for the harmonization of access conditions had been prepared under the framework of the Sub-Regional Fisheries Commission. The working group reached the conclusion that the approach towards harmonization of management systems and fisheries legislation and regulations could be enhanced. This approach would involve, first of all, a systematic identification of existing management schemes and applicable legal and regulatory provisions in order to ascertain in a clear manner the harmonization needs in the region and the legal and institutional methods for that harmonization, i.e., harmonized laws, recommended practices, regional and sub-regional agreements, etc. The

identification of harmonization needs and methods of work should be carried preferably on a sub-regional basis.

74. The working group was of the view that it is essential that the Ministers for Fisheries be made fully aware of, and sensitized to, the need for the harmonization of management schemes and fisheries legislations. Consequently, the conclusions of the review of harmonization needs should be submitted to the Ministerial Conference and other sub-regional bodies which, in turn, would make precise recommendations as to the provisions to be harmonized and the most suitable methods for that harmonization. A process for the formulation of harmonized management schemes and fisheries legislations and regulations would be initiated on the basis of such recommendations. This process would involve a permanent dialogue with the Ministers of Fisheries.

75. The working group requested FAO to prepare an outline for a programme of work for the harmonization of management schemes and fisheries legislations in the region along the foregoing lines. This outline of a programme of work should be submitted to the forthcoming session of the Follow-Up Committee of the Ministerial Conference or, in the event that should not be possible, to the Third Session of the Ministerial Conference.

76. Sub-regional register of fishing vessels: The working group recalled the discussions that had been held in Plenary concerning the establishment and functioning of regional registers of fishing vessels in other regions of the world. The participants noted that, at the request of the Sub-Regional Fisheries Commission and the Ministerial Conference, ICOD had financed a feasibility study concerning the establishment of a sub-regional register of fishing vessels (Northwest Africa). The study was referred to a seminar which took place in April 1992 which reviewed the proposals set out in the study. The working group noted CIDA's willingness to finance the creation of a pilot sub-regional register. The working group further noted in this connection that the Secretariat of the Regional Convention would soon be endowed with a proper legal basis which would improve its ability to operate in an efficient manner. The experience gained with the pilot sub-regional register could possibly be extended to other sub-regions of West Africa.

77. Training: The working group felt that substantial effort in training of officers in MCS matters should be made. The training should be done in institutes of the region with financing from external sources.

Working Group 5: Legal and institutional frameworks for national, sub-regional and regional monitoring, control and surveillance arrangements

78. The working group opted to analyse issues at two levels, firstly at the national level and secondly, at the sub-regional and regional levels.

79. At the national level: The working group pointed out that on several occasions the absence of clearly defined maritime boundaries constituted an obstacle to bilateral sub-regional and regional cooperation and that foreign illegal fishing vessels were taking advantage of these situations. The group noted that this situation is not peculiar to West Africa and that in other parts of the world coastal States have entered into provisional arrangements pending a final settlement of the dispute. Thus Norway, which has a territorial dispute with Russia, entered into an agreement whereby Norwegian surveillance vessels can control all the vessels licensed by Norway in the whole disputed area whereas Russian surveillance vessels can similarly operate with respect to vessels licensed by Russia. Any fishing vessel without a Norwegian or a Russian licence operating in the disputed area is considered illegal and may be arrested by any surveillance vessel.

80. With respect to the fishery legislation itself, the working group noted that while most of the fishery acts in force in the region are fairly recent, these could not be considered to be generally satisfactory. Several reasons were given in this regard:

- (i) some of them are too detailed and rigid, giving little flexibility to the administration;
- (ii) several sections of these acts, like the one on sanctions and the level of fines, may become obsolete quite rapidly;
- (iii) implementing regulations have not always been enacted speedily. This causes considerable concern, particularly where the fishery act is a "framework act", thus leaving a number of issues to be dealt with by regulations. In this respect the special participant from Norway informed the working group that 100 to 150 fisheries regulations per year were enacted in his country;
- (iv) the administration of fisheries is moved too often from a ministry to another. This is particularly the case in countries in which the fisheries administration is not very strong;
- (v) drafting and adoption of the legislation is a long process.

81. With respect to this last point, the working group provided two main reasons for this situation. Firstly, the fact that the legislation might be drafted by a technical person without a legal background or, vice versa, by a lawyer with no understanding of technical issues and, secondly, that there generally is poor communication between the Ministry of Justice and the fishery department. It was therefore suggested that the Ministry of Justice be requested to designate a focal point for fishery matters who could liaise with the fishery department. The designated person should also spend a few months in the fishery department in order to understand the specific problems of the fishery administration. Indeed, if the delay in the elaboration and the adoption of legislation is a general problem in West Africa, it has dramatic consequences for the management of a renewable natural resource like fish which may call for regulatory measures at short notice.

82. The group considered the problems raised by the enforcement of the fishery legislation. It pointed out that most of these were of an operational nature (costs, means of surveillance, number of surveillance officers). However, the group also pointed out some legal and institutional constraints. It was brought to the attention of the group that people in charge of the enforcement of fishery legislation were not always adequately informed on it. The group recommended that training courses should be given on a regular basis to surveillance officers and agents and that clear and short handbooks summarizing the provisions of the legislation be prepared by the Fishery Department and the Ministry of Justice. These handbooks should also contain guidelines on how to interpret and enforce certain provisions like, inter alia, the minimum mesh size or minimum size of fish.

83. The problems raised by the judicial or administrative procedure for the determination of sanctions were also considered, together with the idea of giving financial incentives to surveillance officers. Regarding the first point, alternative procedures to a judicial settlement were mentioned and, in particular, compounding. But the working group also stressed that measures like the withdrawal of licence should be considered, specifically with respect to the national fleet. While admitting that the financial incentives to surveillance officers could increase the effectiveness of the MCS system, the group expressed some concern over the possible consequences and suggested that the instauration of this system should be considered with caution.

84. At the regional and sub-regional level: The working group noted that there are already several regional and sub-regional bodies dealing partially or exclusively with fisheries in the region. It also noted that the conventions establishing these organizations, or elaborated by them, have not generally entered into force because of the long process of signature and ratification. With regard to existing bodies, and in particular to the ones dealing exclusively with fisheries, the working group urges States to speed up the formal procedures and to actively participate in the work of these bodies. The group pointed out that, before thinking of creating new regional

or sub-regional fisheries organizations, it was necessary to ensure the functioning of existing ones.

85. The group pointed out that, with respect to future agreements, be they bilateral, sub-regional or regional, States should consider more informal procedures in conformity with Article 11 of the UN Convention on the Law of Treaties. Arrangements in simplified form (i.e., which could enter into force by signature, including gentlemen's agreements and memoranda of understanding) were indicated as possible forms of agreement to address this situation.

86. The working group invited States to explore possibilities of cooperation in MCS within the existing institutional mechanisms. In this respect the group pointed out that bilateral cooperation was also important and that fisheries matters should be considered and discussed on a more regular basis within commissions that exist. The responsibility of bringing up these matters lies with the Ministry in charge of fisheries which should liaise with the Ministry of Foreign Affairs. The designation of a focal point within the Ministry of Foreign Affairs was therefore suggested.

CONSOLIDATED RECOMMENDATIONS OF THE WORKING GROUPS AS ENDORSED BY THE WORKSHOP

87. The working groups recommended that:

Sub-regional and regional cooperation

- (i) States should continue to cooperate on MCS matters on a bilateral basis and through existing regional organizations.
- (ii) a sub-regional and regional approach to MCS cooperation should be encouraged actively and that these MCS initiatives should be coordinated within the framework of Article V of the Convention of the Ministerial Conference.
- (iii) States are encouraged to sign and ratify the conventions creating existing regional and sub-regional organizations competent on fishery matters, and to participate actively in these bodies.
- (iv) States are encouraged to consider, for future agreements, simplified procedures for the conclusion and the entry to force of treaties, memoranda of understanding and other arrangements (e.g., entry into force by signature).

Delimitation

- (i) States should initiate necessary steps for the delimitation of clearly defined maritime boundaries. However, advice on how this matter might be approached should be provided by the Ministerial Conference.
- (ii) where final settlement on delimitation cannot be reached, and pending a final decision on it, States should consider the conclusion of non-prejudicial provisional arrangements for the joint management of shared resources in order to prevent illegal fishing by third countries' vessels.

Harmonization of legislation and fisheries arrangements

- (i) a study on the harmonization of fishery legislation should be undertaken for States to identify areas where harmonization is possible. The study should also underline the main discrepancies among the national fishery legislation of States and should propose harmonized measures taking into account the particular requirements of each sub-region.
- (ii) efforts should be made to sensitize governments to the need for harmonization of fisheries management arrangements and fisheries

legislations and regulations. In this connection FAO was requested to elaborate a programme of work for the harmonization of management schemes and fisheries legislation and regulations for submission to the Ministerial Conference.

Definition of roles of government agencies

- (i) Governments should clearly define the role of each agency participating in MCS (fisheries, foreign affairs, justice, etc.) but that the fishery departments, as the lead technical agencies, should have overall responsibility for setting up and coordinating national MCS systems.
- (ii) FAO be requested to compile information on the different MCS systems in use in the region, so that all countries can learn from the experience of others.

National MCS structures and costs

- (i) an inventory should be made to highlight possible avenues for donor assistance in MCS on a country-by-country basis.
- (ii) national MCS structures take account of investment costs and recurrent costs in light of resources available. In particular, decisions to purchase or acquire aircraft or patrol vessels should take into consideration long-term operating costs.
- (iii) each State should establish an autonomous budget to allow flexible management of MCS systems.
- (iv) MCS systems should be financially supported by a proportion of the income received from licence fees and fines.
- (v) where possible, rational and coordinated use should be made of equipment, military aircraft, patrol vessels, staff, etc. that are already available in some countries for MCS and other purposes.
- (vi) MCS costs may be reduced by emphasizing inspection of fishing vessels at port, or at anchor, or by the use of observers and the establishment of coastal MCS stations equipped with radar and radio.
- (vii) the sharing of certain costs between neighbouring States for some MCS activities (e.g., use of aircraft and exchange of information) should be considered.

National and regional registers of fishing vessels

- (i) national registers of fishing vessels should be established.
- (ii) standard international identification markings for all vessels operating in the West African region (e.g., vessel and gear markings as elaborated by FAO, use of call sign, photographs) should be adopted by States and incorporated into their respective national fisheries legislation and regulations.
- (iii) taking into account the results of the pilot sub-regional register being established in the north-west of the region, consideration should be given to the establishment of a regional register of fishing vessels. This regional register should be set up on a sub-regional basis, taking into consideration the particular characteristics of fisheries and fleets in the sub-regions.

Observer programmes

- (i) the observer's role is to observe, record, and report on fishing activities and that such personnel should not have a direct enforcement role.

- (ii) observers should be assigned to both foreign and national vessels.
- (iii) MCS observers should be recruited at as high a level as possible and receive adequate remuneration in order to ensure that they are well motivated to carry out their responsibilities.
- (iv) a comparative study on legal, institutional and financial mechanisms should be undertaken to determine financial incentives paid to observers in the region and elsewhere. The study should present the various options and the merits and disadvantages of each option.
- (v) as a matter of principle and policy, the cost of observers on board fishing vessels should be borne by vessel owners.
- (vi) observers, whether they be contractual or have the status of civil servants, should be paid by the government in order to guarantee the autonomy and integrity of the observer programme from vessel owners.

Logbooks

- (i) the importance of logbooks for effective MCS systems should be stressed to governments and in training programmes.
- (ii) the creation of logbook systems should only be done when they are accompanied by verification systems, using measures such as observer or inspection programmes, to ensure the system's reliability.

Training

- (i) formal and on-the-job training should be an integral and important aspect of all MCS programmes for all MCS personnel. Such training should be broad and on-going and include training in law and control measures for MCS personnel. Sub-regional and regional MCS workshops should also be held.
- (ii) existing training institutions in the region should, wherever possible, be used for the execution of MCS training programmes.
- (iii) financial and technical support from donor agencies should be solicited for MCS training programmes.

Legal matters

- (i) legal assistance in fishery legislation should continue. The assistance should not limit itself to the Fishery Act but should also cover implementing regulations and follow-up, including assistance with the development of effective prosecution approaches.
- (ii) the Fishery Act should be a framework act and that important regulatory powers should be included in the Act. The need to re-draft and regularly amend appropriate implementing regulations was recognized.
- (iii) handbooks, including the main provisions of legislation, together with annotations on interpretation and enforcement and prosecution procedures, should be developed and distributed to governments for use by MCS personnel.

FIELD TRIP

88. A field trip to Tema was organized for participants to visit the fishing harbour. En route, participants inspected beach seining activities at Sakumono. At Tema, the in-shore, deep-sea and tuna fleet was inspected together with catches. Participants were able to measure mesh sizes. A briefing and demonstration were also provided by the Ghanaian Navy concerning MCS operations in the country's exclusive economic zone.

CLOSE OF WORKSHOP

89. After considering the recommendations developed by the five working groups, participants agreed that the report of the Workshop should be forwarded to the Secretariat of the Ministerial Conference on Fisheries Cooperation among African States Bordering the Atlantic Ocean, for information.

90. On behalf of participating African States, Mr Austin Jones of The Gambia thanked the Government of Norway for funding the Workshop under the FAO/Norway Fisheries Management and Law Advisory Programme. He also thanked the Canadian International Development Agency for permitting Mr Lauzière to participate in the Workshop in a technical capacity, FAO and the Government and people of Ghana.

91. Speaking on behalf of the Secretariat of the Ministerial Conference, Mr Abdelaziz Taleb thanked the Director-General of FAO for mounting the Workshop in response to the request from the Ministerial Conference and FAO Headquarters staff for their efforts in preparing and conducting the Workshop and the FAO Regional Office in Accra for support.

92. In his concluding remarks the Chairman, Dr Bernard Dioh, thanked participants for their contributions to the Workshop.

93. The Workshop was officially closed at 18.15 hours on 5 November 1992.

PROGRAMME AND TIMETABLE

Monday 2 November

- 0800-0900 hours Registration of workshop participants
- 0900 hours Official opening
- 1000-1015 hours Morning break
- 1015-1200 hours Election of officers and overview of the fisheries situation in West Africa, providing general information on population and GNP, the status of fisheries resources, catches and value, fleets (artisanal and industrial), trade in fisheries products, development projects and implications for monitoring, control and surveillance (MCS).
(FAO Fisheries Department)
- 1200-1330 hours Lunch
- 1330-1500 hours MCS and fisheries management, including the rationale for management, MCS as an integral component of that process and considerations for cost-effective MCS systems.
(FAO Fisheries Department)
- 1500-1515 hours Afternoon break
- 1515-1700 hours Legal and policy considerations for MCS, including delimitation, harmonization of legislation and access agreements, minimum terms and conditions of access, and the regional register.
(FAO Legal Office)

Tuesday 3 November

- 0830-1000 hours An overview of MCS issues and problems in West Africa.
(FAO Consultant)
- 1000-1015 hours Morning break
- 1015-1200 hours Country experiences with MCS, including the identification of common national, sub-regional and regional problems.
(Participants)
- 1200-1330 hours Lunch
- 1330-1500 hours Requirements for effective sub-regional and regional MCS cooperation.
(FAO Consultant)
- 1500-1515 hours Afternoon break
- 1515-1700 hours Formation of working groups and explanation of their role and importance in the workshop.
(FAO Fisheries Department)

Wednesday 4 November

| | |
|-----------------|-----------------|
| 0830-1000 hours | Working groups |
| 1000-1015 hours | Morning break |
| 1015-1200 hours | Working groups |
| 1200-1330 hours | Lunch |
| 1330-1500 hours | Working groups |
| 1500-1515 hours | Afternoon break |
| 1515-1700 hours | Working groups |

Thursday 5 November

| | |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0830-1200 hours | Field trip |
| 1200-1330 hours | Lunch |
| 1330-1500 hours | Presentation of recommendations of the working groups, discussion of recommendations, and endorsement of recommendations by the Workshop (Participants) |
| 1500-1515 hours | Afternoon break |
| 1515-1700 hours | Close of workshop |

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| FI:MCS/WA/92/Inf.4 | Regional Convention on Fisheries Cooperation among African States Bordering the Atlantic Ocean, July 1991 |
| FI:MCS/WA/92/Inf.5 | Survey and analysis of sub-regional monitoring, control and surveillance mechanisms in coastal States of West Africa |
| FI:MCS/WA/92/Inf.6 | Cooperation in fisheries in Africa: report of the Secretary-General of the United Nations to ECOSOC (Doc.No: A/47/279 dated 24 June 1992) |
| FI:MCS/WA/92/Inf.7 | South Pacific Forum Fisheries Agency Convention |
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| FI:MCS/WA/92/Inf.10 | Propositions pour un registre sous-régional des navires de pêche des pays de la sous-région nord-ouest africaine (available in French only) |
| FI:MCS/WA/92/Inf.11 | Economic and Social Council of the United Nations: Resolution concerning cooperation in fisheries, July 1992 |
| FI:MCS/WA/92/CS.1 | Exposé national sur le suivi, le contrôle et la surveillance des pêches maritimes congolaises (available in French only) |

- FI:MCS/WA/92/CS.2 Sénégal: Exposé national sur le suivi, le contrôle et la surveillance des pêches (available in French only)
- FI:MCS/WA/92/CS.3 Mauritanie: Exposé sur le suivi, le contrôle et la surveillance (available in French only)
- FI:MCS/WA/92/CS.4 Country Paper MCS for the Republic of Liberia
- FI:MCS/WA/92/CS.5 Rapport national du Togo (available in French only)
- FI:MCS/WA/92/CS.6 Country paper for Ghana
- FI:MCS/WA/92/CS.7 Rapport national du Cap-Vert (available in French only)
- FI:MCS/WA/92/CS.8 Rapport national de la Guinée (available in French only)
- FI:MCS/WA/92/CS.9 Country paper for the Gambia
- FI:MCS/WA/92/CS.10 Rapport national du Maroc (available in French only)
- FI:MCS/WA/92/CS.11 Rapport national du Maroc (available in French only)
- FI:MCS/WA/92/CS.12 Rapport national du Maroc (available in French only)
- FI:MCS/WA/92/CS.13 Rapport national du Maroc (available in French only)
- FI:MCS/WA/92/CS.14 Rapport national de la Guinée-Bissau (available in French only)
- FI:MCS/WA/92/CS.15 Country paper for Nigeria
- FI:MCS/WA/92/CS.16 Rapport national de la Guinée équatoriale (available in French only)
- FI:MCS/WA/92/DG.1 Discussion Guide: Financial and economic aspects of monitoring, control and surveillance
- FI:MCS/WA/92/DG.2 Discussion Guide: National MCS issues and problems
- FI:MCS/WA/92/DG.3 Discussion Guide: Implementation and enhancement of sub-regional and regional surveillance operations
- FI:MCS/WA/92/DG.4 Discussion Guide: Role of the Ministerial Conference in facilitating, implementing and coordinating MCS activities
- FI:MCS/WA/92/DG.5 Discussion Guide: Legal and institutional frameworks for national, sub-regional and regional MCS arrangements

SPEECH DELIVERED BY GHANA'S DEPUTY SECRETARY FOR AGRICULTURE, DR A.M. LARYEA, AT THE OPENING OF THE REGIONAL WORKSHOP ON MONITORING, CONTROL AND SURVEILLANCE FOR AFRICAN STATES BORDERING THE ATLANTIC OCEAN AT THE ACCRA INTERNATIONAL CONFERENCE CENTRE, 2 NOVEMBER 1992

Mr Chairman, colleague secretaries, His Excellency Mr R.T. N'Daw, FAO Regional Representative for Africa and FAO Representative in Ghana, your Excellencies, members of the diplomatic corps, invited guests, Workshop participants, ladies and gentlemen, it is indeed a great pleasure and honour to me to have been invited to deliver the Opening Address for this important Workshop. Mr Chairman, before I proceed, I would like to welcome all, the distinguished participants to Ghana and, I hope, in addition to their deliberations they will find time to enjoy the proverbial Ghanaian hospitality.

Mr Chairman, the fisheries sub-sector in Ghana is one of the key areas of the agricultural sector, and features prominently in our national agricultural policies, inasmuch as animal protein production and employment opportunities are concerned. Fish is an important component of the diet of the majority of Ghanaians and it is also the most significant of the non-traditional exports. Available records show that fish is the cheapest source of animal protein in the country and currently contributes about 60 percent of the animal protein intake of the average Ghanaian.

Mr Chairman, I wish to state that in view of the above, Ghana Government policy, therefore, is basically geared towards increasing fish production through the exploitation of both marine and inland waters in a more scientific and sustainable manner to meet, at least, 60 percent of our domestic demand as well as for export. Thus, rational and responsible fishing is of great importance to us.

Mr Chairman, with the adoption of the Exclusive Economic Zone concept by almost all coastal States, large areas of the ocean have come under the direct jurisdiction of those States bordering the Atlantic Ocean, and this has given rise to some problems. The first problem which has naturally surfaced is the demarcation of the sea boundaries of the Exclusive Economic Zone of each coastal State. The other problem is the competence of the coastal States to exploit the resources available in their respective extended zones. The third problem relates to the ability or capacity of the coastal States to protect and manage the resources within these areas. It is obvious that many African States bordering the Atlantic Ocean lack the financial resources and expertise to solve the problems indicated above. The result is that the unprotected resources become unbridled attraction to foreign fishing vessels which exploit them without any regard to management practices.

Mr Chairman, I believe most of us assembled here are aware of the principal effects of poaching but permit me to re-state them in this summarized form:

1. Poaching deprives the coastal States of significant amounts of their resources, the magnitude of which is unknown.
2. The extent of use of illegal mesh sizes and other unorthodox methods of fishing in these poaching ventures is also unknown.
3. This illegal practice adversely affects fish stock assessment which is very essential for fish conservation and management, and
4. Poaching negates monitoring and control of fish exploitation which surveillance seeks to prevent.

Mr Chairman, as we are all aware, monitoring, control and surveillance of the Exclusive Economic Zone of a coastal State seeks to protect the fisheries resources by warding off poachers and allowing implementation of sound management measures. It is in the light of the above that this Workshop

is very important to the African States bordering the Atlantic Ocean. Ghana, on her part, has promulgated a fisheries law, part of which makes provision for the establishment of a monitoring, control, surveillance and an enforcement unit to tackle this problem of poaching, among others.

Mr Chairman, distinguished guests, ladies and gentlemen, monitoring, control and surveillance operations are very expensive undertakings and, as you are aware, may involve the deployment of ships and aircrafts, which are both expensive to acquire and operate. It would, therefore, seem that coastal States in the region cannot carry out this service individually and, therefore, there may be the need to find areas of cooperation in this important field.

This Workshop is, therefore, being organized to work out appropriate formulae for cooperation in such areas as may be found practical and necessary, taking into consideration the national sovereignty and security of each African State bordering the Atlantic Ocean.

Mr Chairman, participants, distinguished ladies and gentlemen, the task for this Workshop is not an easy one, but I am confident that, through interactions and diligent deliberations, participants will come out with the formulae for cooperation acceptable to all.

It is with this hope that I would like, on behalf of the Government of Ghana, to declare the Regional Workshop on Monitoring, Control and Surveillance for African States Bordering the Atlantic Ocean formally open.

I wish you very fruitful deliberations.

Thank you.

APPENDIX E

STATEMENT BY MR ROBERT T. N'DAW, ASSISTANT DIRECTOR-GENERAL/REGIONAL REPRESENTATIVE FOR AFRICA

Mr Chairman, Hon. Deputy PNDC Secretary for Agriculture, Navy Commander, Air Force Commander, Distinguished Participants, Ladies and Gentlemen,

I have much pleasure to welcome you all on behalf of FAO to this Regional Workshop on Monitoring, Control and Surveillance (MCS).

It is indeed a great honour and privilege for me to convey to you the warm greetings of the Director-General of the Food and Agriculture Organization of the United Nations (FAO), Dr Edouard Saouma, as well as those of Dr W. Krone, the Assistant Director-General Ad Interim for Fisheries, and to extend to you their best wishes for a successful and fruitful Workshop.

Mr Chairman, let me also express on behalf of FAO in general, and the FAO Regional Office for Africa in particular, as well as on behalf of all participants and myself, our sincere thanks to the Government of the Republic of Ghana for accepting to hold this Workshop in Accra at this crucial moment in the political history of this country. This is a singular gesture, and a manifestation of the confidence and unparalleled stability we have enjoyed over the years in this great country. It is indeed worthy of special commendation. Mr Chairman, we are very appreciative of the warm hospitality accorded to participants since their arrival in Accra.

At this juncture, please permit me also to thank the Management of the Accra International Conference Centre for the excellent facilities they have made available and put at our disposal for this Workshop.

Mr Chairman, this Workshop is being held at a critical moment in the history of marine fisheries, especially industrial fisheries in West Africa. Ten years ago, the United Nations Convention on the Law of the Sea (UNCLOS) was signed, marking the end of the era of the freedom of the seas. The 200 nautical miles Exclusive Economic Zones (EEZs) adopted by UNCLOS provided coastal States with unprecedented opportunities as well as increased responsibilities and challenges to build up their fisheries as a valuable protein source for domestic use and for export and to take a greater share of the total world marine catch of over 80 million tons a year.

At that time, realizing that many developing coastal States could not take advantage of this new situation owing not only to lack of means but also to lack of expertise, FAO instituted a comprehensive programme of assistance to help these countries to meet the new challenges so as to benefit maximally from the increased resources in their extended national fishing limits. Mr Chairman, you may recall that the FAO programme in question covered every aspect of fisheries management, from the framing of basic policy to resource assessments and advice on legal, financial and marketing questions.

There is no doubt that through these efforts of FAO many developing coastal countries benefitted substantially from the exploitation of the fisheries resources falling within their respective EEZs. However, ten years after UNCLOS, industrial fisheries in West Africa has not shown remarkable growth, but rather seems to be experiencing difficulties in some countries. The level of indigenous participation in industrial fishing appears to be dwindling, conflicts between industrial and artisanal fisheries are common place, exports of fish are not increasing while imports show increasing trends in some countries. Besides, total domestic catches are not increasing appreciably, and some of the more economically important species are showing signs of overfishing.

On the other hand, foreign participation in the industrial fisheries of West Africa appears to be doing well; the incidence of illegal fishing in West African coastal waters is high, and foreign vessels still account for over 50 percent of the total catches.

Under these circumstances, Ladies and Gentlemen, could we claim to have benefitted maximally and taken full advantage of UNCLOS and the extended national jurisdiction over fisheries?

In full recognition of the above situation and conscious of the urgent need to cooperate in fisheries matters in the Eastern Atlantic so as to ensure sustainable development, the Ministers of Fisheries in the African States Bordering the Atlantic Ocean adopted a Regional Fisheries Cooperation Convention during their second Conference in Dakar, Senegal, from 1-5 July 1991. The Convention, which has been signed by several coastal States, and which is deposited with the Director-General of FAO stipulates *inter alia* that "Parties shall work and collaborate with all the means at their disposal, or which they may jointly acquire to ensure proper monitoring, control and surveillance, including technical control of fishing vessels operating in the Region".

Furthermore, the Dakar Conference, because of the high incidence of illegal fishing in waters of African States, passed a resolution condemning all forms of illegal fishing and mandated its Chairman to transmit it to the Secretary-General of the United Nations and the Director-General of FAO asking them to draw the attention of Governments concerned and the International Community to the harmful economic and social consequences of this activity. The Conference felt strongly that a regional Workshop should be organized to handle this problem and therefore called on FAO to do so.

The Director-General of FAO accepted to organize this Workshop in view of his commitment to ensure that fisheries resources in waters of developing countries are rationally managed and developed for the benefit of these countries and their people.

Mr Chairman, illegal fishing and the protection of the marine ecosystem and endangered species increase the need for an effective and well coordinated MCS system as part of the overall management strategy. However, the experience of the countries in the West African sub-region which have already initiated their MCS systems involving the navy, airforce and the fisheries administration has clearly shown that the establishment of an effective MCS system is expensive and can often be beyond the means of individual coastal States. Besides, when such a system is set up by coastal States individually, it can lead to political, jurisdictional and regulatory conflicts between States, especially in areas of shared resources. It is imperative, therefore, that coastal States endeavour to harmonize their policies in order to adopt a more integrated approach to MCS. In this connection, Ladies and Gentlemen, it is gratifying that the Ministerial Conference has already started to emphasize the need and encourage coastal States to cooperate in MCS activities.

I am hopeful that the Workshop will not only provide participants with the technicalities required in the operation of an effective MCS but will also give them the opportunity to evolve collaborative mechanisms, and come out with operative guidelines for the establishment of effective regional and/or sub-regional MCS systems as appropriate. I believe that donors will continue to provide the necessary assistance and support to coastal States in their efforts to conserve the resources off their coasts.

Mr Chairman, Distinguished Participants, Ladies and Gentlemen, I note that your programme is very tight and hence I will not take more of your time. However, please, permit me to conclude by reassuring you of FAO's determination to continue, within the limits of the resources available to it, to provide technical advice to coastal States in the attainment of their management aspirations.

I wish you a most successful Workshop and thank you all for your rapt attention.

COMPOSITION OF WORKING GROUPS

Working Group 1: Financial and Economic Aspects of Monitoring, Control and Surveillance

Chairperson: Issikou Ould Cheikh Elweli
(Mauritania)

Resource person: George Everett

Members: Carlos Alberto Amaral (Angola)
Félix Domba (Congo)
Adebayo Ajibola (Nigeria)
Yaoui Addra (Togo)
Flt.Ltd. (ret.) M. Tackey (Ghana)
Mamadou Doumbia (Cote d'Ivoire)

Working Group 2: National MCS Issues and Problems

Chairperson: Philip Amienheme (Nigeria)

Resource person: Jean-Louis Lauzière

Members: Comlanvi Basile Anato (Benin)
Eugène Bagamboula (Congo)
Boubacar Diallo (Guinea)
Abderraouf Ben Moussa (Morocco)
Issa Diop (Senegal)
Kossi Sedzro (Togo)
Emelia R. Amang (Ghana)
M.A. Mensah (Ghana)
Austin Jones (The Gambia)
J. Christensen (Mauritania)
Koikoi Sakou (Guinea)
Jassey Joseph (The Gambia)
Howard Powles (CIDA)
Wolfgang Scharm (GTZ)

Working Group 3: Implementation and Enhancement of Sub-Regional and Regional Surveillance Operations

Chairperson: Makane N'Diaye (Senegal)

Resource person: Michael Ansa-Emmim

Members: Jose-Bikoro Eko Ada (Equatorial Guinea)
Leon Mba-Nguema (Gabon)
Michel Batiga (Guinea-Bissau)
Mohamed El Mesbahi (Morocco)
Jose Induta Zamora (Guinea Bissau)
Sqn Ldr. V. Mamphey (Ghana)
Commander M. Tahiru (Ghana)

Working Group 4: Role of the Ministerial Conference in Facilitating, Implementing and Coordinating MCS Activities

Chairperson: Eugenio Pereira (Cape Verde)

Resource person: Antonio Tavares

Members: H. Simplicite Sogan (Benin)
Hassimiou Tall (Guinea)

Didio João Costa (Guinea-Bissau)
Enrico Paz Costa (Angola)
Abdelaziz Taleb (Ministerial
Conference)
Bernard C. Diou (Ministerial
Conference)
Nicole Côté (CIDA)
Peter Curran (EEC)
Boubakary Ndiaye (CSRP)

Working Group 5: Legal and Institutional Frameworks for National, Sub-Regional and regional MCS Arrangements

Chairperson: Koffi Kouakou (Côte d'Ivoire)

Resource person: Nicola Bonucci

Members: Clément Kinfoussia (Congo)
Henry Hanson-Hall (Ghana)
Irene Ibrionke Sosina (Nigeria)
Kalibu Mino-Kahazi (Zaire)
Truls Konow (NORAD)

OVERVIEW OF THE FISHERIES SITUATION WITH RESPECT TO
MONITORING, CONTROL AND SURVEILLANCE FOR
AFRICAN STATES BORDERING THE ATLANTIC OCEAN

by

George V. Everett
Senior Fishery Planning Officer
Fisheries Department
FAO, Rome

INTRODUCTION

1. The UN Convention on the Law of the Sea (UNCLOS) and the introduction of extended jurisdiction in the 1970s ensured that States along the western seaboard of Africa became more conscious of their responsibilities for managing all the resources off their coasts including those that often had been exploited by distant water fishing nations without reference to coastal States. A number of countries have been able to exert full control over their Exclusive Economic Zones (EEZs) although some countries have not, but the problems of governments becoming more fully involved in the local fishing, and evolution of monitoring, control and surveillance have not been small.

2. Distant water fishing nations that continue to be active in the region include Spain for high value demersal fish and tuna, France for tuna, and Korea, Italy, Greece and Portugal for high value demersal fish, and the Eastern European countries that have traditionally fished for small pelagics. Fleets from most of these and other countries have entered some form of agreement with coastal nations to fish in their respective EEZs. In addition, a number of fishing vessels from within the West Africa region now fish in waters of neighbouring countries along the coast.

3. The pressure of fishing varies according to fishing zone and value of species but, in general, the high value species are now intensively fished. In order to ensure sustainability of the resource it is essential that management measures be applied, and part of the management process is monitoring, control and surveillance (MCS). This paper gives a summary of the fisheries situation in the region, and highlights the features in respect of resources, fleets, management measures, and procedures, that any discussion of MCS should address. In view of the changing situation it has been difficult to present the most up-to-date information, particularly on type and numbers of vessels fishing in certain zones or on certain target species, and participants at this workshop may wish to contribute information on the latest situation in their country's waters with regard to fishing activity and MCS.

PHYSICAL AND OCEANOGRAPHIC BACKGROUND

4. In general, the continental shelf of the Eastern Atlantic, i.e., off West Africa, is less than 20 to 30 nautical miles wide, except in the area between latitudes 24° to 20°N (Dakla to Nouadhibou), and the areas between Dakar (16°N) and Freetown (8°N), and off Namibia, where the shelf is up to about 100 nautical miles wide (Table 1).

5. Morocco, Angola and Namibia have the most extensive coastlines of all coastal countries in West Africa, with lengths each exceeding 1 500 km. Other countries have coastlines generally exceeding only 300 km in length. Those countries which have smallest coastlines are Zaire (41 km), Togo (48 km), Gambia (70 km), Benin (120 km) and Congo (156 km). Island States are Cape Verde, Sao Tome and Principe and Equatorial Guinea. The length of coastline has implications for surveillance, and also, to some extent, on potential for development of the fishing industry.

Table 1 - Selected data on fishing areas and national economies

| Country | Coastline excl.islands (km) | Continental shelf width (to 200 m) (nautical mile) | Shelf area ('000 km ²) | Population 1990 (million) | GNP Per caput US\$ | Real growth rate (%) 1980-90 (p.a.) |
|--------------------------|-----------------------------------|----------------------------------------------------------------|---------------------------------------|---------------------------------|--------------------------|----------------------------------------------|
| Morocco | 2,850 | 6 - 50 | 115.1 | 24.5 | 950 | 1.6 |
| Mauritania | 667 | 13 - 79 | 33.9 | 2.0 | 500 | - 1.8 |
| Senegal | 718 | 8 - 50 | 23.8 | 7.4 | 710 | 0.0 |
| Gambia | 70 | 41 - 50 | 3.7 | 0.9 | 260 | - 0.3 |
| Cape Verde | . | 1 - 10 | 3.0 | 0.4 | 890 | 3.1 |
| Guinea-Bissau | 300 | 40 - 105 | 46.0 | 1.0 | 180 | 1.7 |
| Guinea | 350 | 70 - 110 | 50.2 | 5.7 | 480 | . |
| Sierra Leone | 670 | 15 - 80 | 30.0 | 4.1 | 240 | - 1.5 |
| Liberia | 637 | 10 - 35 | 18.4 | 2.6 | . | . |
| Côte d'Ivoire | 500 | 11 - 20 | 12.2 | 12.2 | 730 | - 3.7 |
| Ghana | 528 | 13 - 50 | 27.3 | 14.9 | 390 | - 0.6 |
| Togo | 48 | 8 - 15 | 1.2 | 3.6 | 410 | - 1.7 |
| Benin | 120 | 14 - 15 | 3.1 | 4.7 | 360 | - 1.0 |
| Nigeria | 669 | 18 - 35 | 37.9 | 117.5 | 270 | - 3.0 |
| Cameroon | 346 | 17 - 50 | 12.9 | 11.9 | 940 | - 0.3 |
| Equatorial Guinea | 380 | 12 - 30 | 10.5 | 0.4 | 330 | . |
| Gabon | 739 | 8 - 40 | 35.4 | 1.1 | 3 220 | - 2.6 |
| Sao Tome and Principe | . | 1 - 10 | 2.0 | 0.1 | 380 | - 4.2 |
| Congo | 156 | 27 - 35 | 8.6 | 2.3 | 1 010 | - 0.2 |
| Zaire | 41 | 27 - 54 | 1.1 | 35.6 | 230 | - 1.5 |
| Angola | 1,650 | 10 - 25 | 51.0 | 10.0 | . | . |
| Namibia | 1,600 | 20 - 100 | 100.0 | 1.8 | . | . |
| Total | 13,214 | | 643.4 | | | |

Source: FAO Fishery Country Profiles and World Bank Atlas 1991, and estimates

6. The cool ocean currents flowing southward down northwest Africa (the Canary current) and northward up from southern Africa (the Benguela current) have a major impact on promoting fish abundance in the northern and southern zones. Another zone of high fish abundance is found off the Gulf of Guinea coast (mainly Ghana) where ocean upwellings of cold nutrient rich waters lead to high biomass.

RESOURCES

7. The most frequently caught fish species in the region are the predominantly pelagic sardinella, sardine, and horse mackerel, which are the basis for fisheries yielding about 3.5 million t annually. Sardinella aurita (round sardinella) is found in the cooler upwelling areas and Sardinella eba (flat sardine or herring) is found in areas of low salinity, often near river mouths, and does not migrate as much as S. aurita. Horse mackerel (Trachurus trachurus) and T. trecae is found mainly from 25° to 19° N as well as in Angolan and Namibian waters. Trachurus species form dense concentrations which can be caught by high opening trawls in waters down to 200 metres deep. The mackerel (Scomber japonicus) is found predominantly between 28° to 15° N and undertakes limited migrations in association with horse mackerel. The two species often intermix with little tuna (Euthynnus species), bluefish (Pomatomus species), and scad (Caranx ronchus).

8. The Morocco sardine (Sardina pilchardus) is found off the southern coast of Morocco, and pilchard (Sardinops ocellata) is found off Namibia. The bonga (Ethmalosa fimbriata) occurs commonly in shallow waters and lagoons from Senegal to the Congo River. Another important pelagic stock is made up of the anchovy Engraulis encrasicolus which is found in the Gulf of Guinea, and a related species found off Angola and Namibia.

9. The demersal fish fauna (caught by inshore trawlers and by handlines) varies according to sea bed type and water temperature. In the central tropical area, where warm waters are consistently found, and in waters of less than 50 metres, a "croaker" fauna predominantly occurs over the soft sea beds and consists of croakers (Sciaenidae), grunters (Pomadasyidae), spadefish (Drepanidae), threadfins (Polynemidae), and soles (Cynoglossidae). A "snapper" fauna found over the hard sea bed principally consists of sea breams (Sparidae), snappers (Lutjanidae), groupers (Serranidae) and gurnards (Triglidae). In low salinity waters, particularly near lagoons and river mouths, the demersal fauna consists of large croakers (Pseudotolithus species) and catfish (Arius species).

10. In waters of Angola and Namibia (5° to 28° S) the most valuable demersal fishery is on hake (Merluccius merluccius), with smaller catches of snoek (Thyrsites spp.), Brachydeuterus species and Lophius species.

11. The cephalopods (squid, cuttlefish and octopus) are fished predominantly off southern Morocco and Mauritania, normally by freezer trawlers.

12. Important localised stocks of shrimp (Penaeus notialis) are found mainly in the vicinity of large river mouths or lagoon entrances to the sea, e.g. off the Senegal river, the Gambia river, southern Senegal, Guinea-Bissau, Sierra Leone, Côte d'Ivoire, Nigeria and Cameroon. Several other penaeid species are found in lagoons and shallow areas, and deep water red shrimp are found in various zones along the continental slope.

13. Tuna are captured offshore (by large purse seiners) also inshore (by pole and line and miscellaneous vessels) throughout the region, and the most frequently caught species are skipjack (Katsuwonus pelamis), albacore (Thunnus alalunga), yellowfin (Thunnus albacores) and bigeye (Thunnus obsesus). The tunas are subject to considerable changes in abundance with season, because of their migratory behavior.

14. The EEZ of Namibia is a most productive area of the coastal upwelling system, the Benguela current, and was heavily fished by distant-water fleets until the independence of Namibia in 1990. Attempts to manage the stocks were

made by participating countries through the International Commission for Southeast Atlantic Fisheries (ICSEAF).

15. In addition to the information, necessary for stock assessment and management, collected in the course of continuing national research, and internationally financed surveys, the Working Party on Resources Evaluation of the FAO Fishery Committee for the Eastern Central Atlantic (CECAF) has played a notable role in publishing the latest information on most of the major fish stocks. The International Commission for the Conservation of Atlantic Tunas (ICCAT) promotes assessment and management of tuna.

16. Figures 1 and 2 show major fishing areas in the West Africa region.

MANAGEMENT

17. The sea breams and other demersal species of high value including hake, sole, and shrimp have been intensively fished for some time. Exploitation of the cephalopods increased rapidly and these stocks are also intensively fished. CECAF has consistently advised that fishing effort on cephalopods and demersals should be stabilised or reduced.

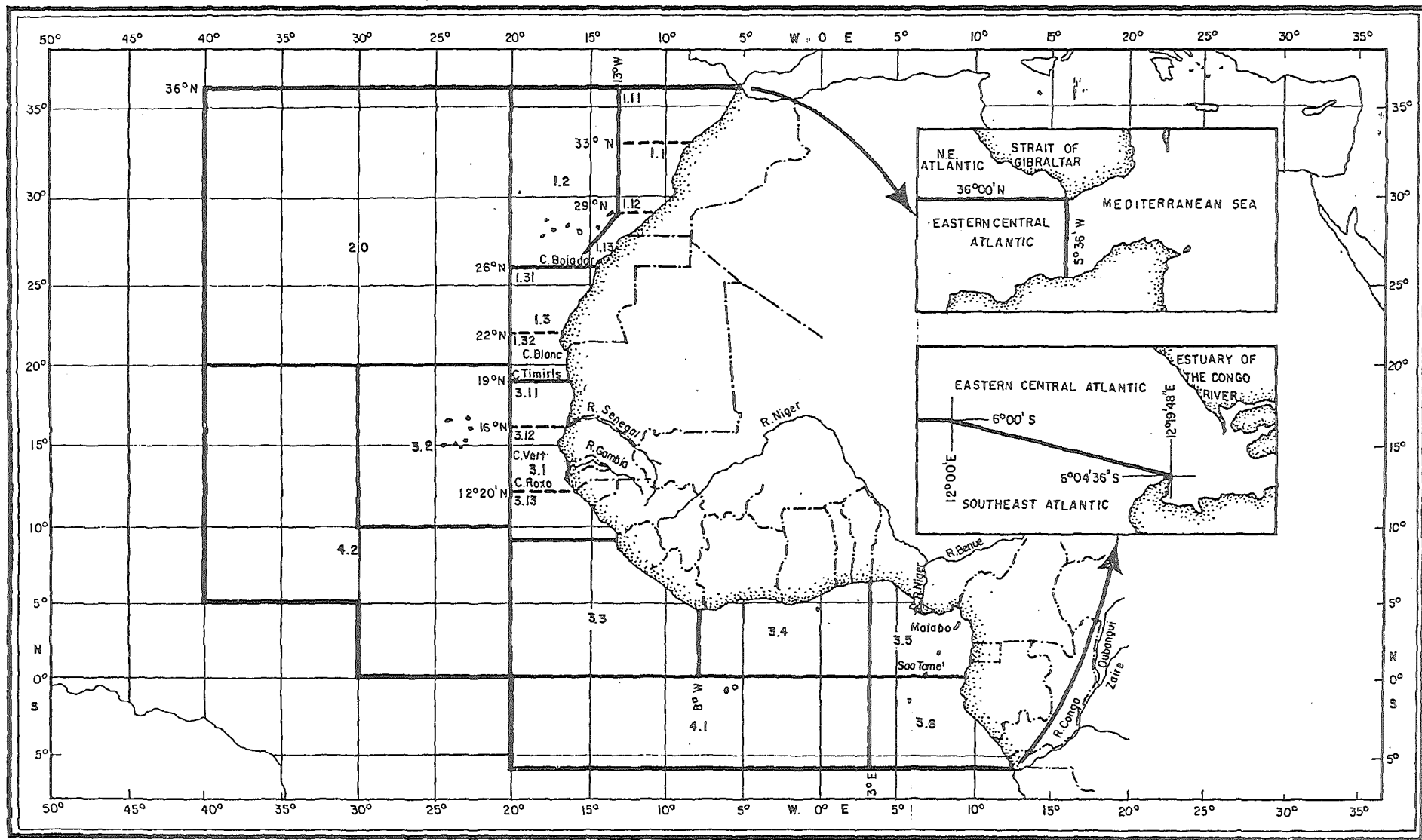
18. Stocks of small pelagics at some times have been subjected to intense effort, in particular the sardinella stocks off Côte d'Ivoire, Ghana, sardine off Agadir in Morocco, and the anchovy and sardinops off Namibia. However in 1990-92 there is evidence from the R/V Dr Fridtjof Nansen surveys that the offshore small pelagic stocks off northwest Africa, in particular sardinella species, could withstand higher fishing effort. It is understood from similar surveys that stocks of small pelagics off southwestern Africa are not yet in a position to withstand increased fishing effort. These large stocks of small pelagics are often found 10-20 nautical miles offshore, and canoes are not always the ideal craft to use to exploit such stocks.

19. Regarding the extensive lagoons along the central West African coast (Côte d'Ivoire to Cameroon) they are intensively fished by traps as well as by nets of various types; and because of the ease of access and the dense surrounding human populations, the lagoons pose special fish resource management problems partly because they are important nursery grounds for some shrimp, some demersal and some small pelagic species. Governments and local authorities attempt to manage lagoon fisheries in various ways including closed areas, limits to gear, closed seasons, and controls on access by fishermen in terms of number. Brackish water and/or marine aquaculture is not as yet practised on any significant scale in the region.

20. In order to assist conservation and management of demersal stocks by reducing the fishing mortality of juveniles a number of countries have adopted a CECAF recommendation, first made in 1979, that there be a minimum size of 60 mm (stretched mesh) in the trawl codend. For protection of juveniles in the western Gulf of Guinea (fishing zone CECAF 34.3.4) CECAF recommended a ban on the use of a mesh size of less than 25 mm in nets, including beach seines, along the coast. Beach seining has been prohibited in the Gambia, as a conservation measure.

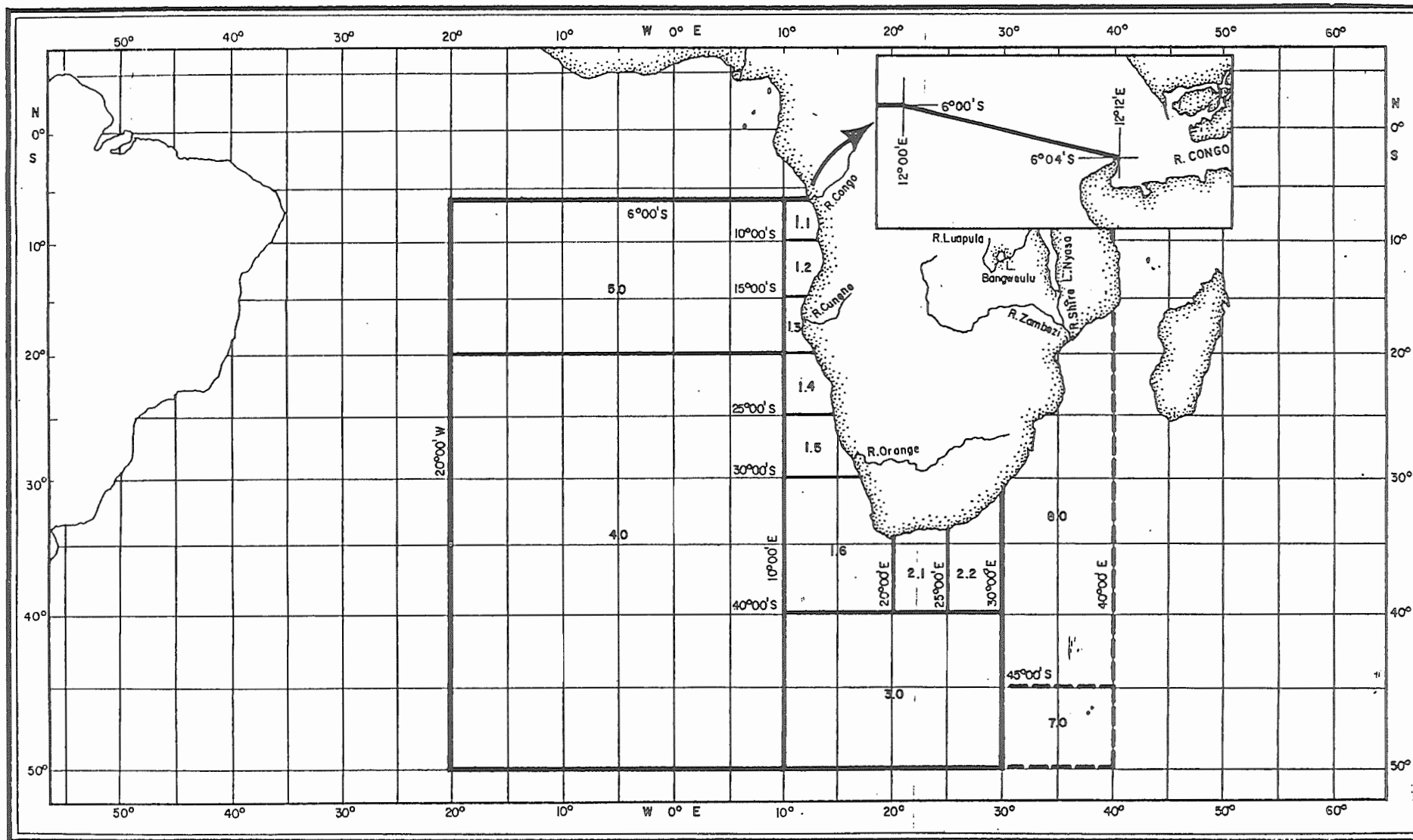
21. Most countries have a zone often extending from three to six nautical miles from the shore, inside which trawling is prohibited. Sometimes the zone is delineated by depth rather than distance from the shore. In some countries, the canoe fishery has traditionally been closed for one day per week, or on every eighth day. In Morocco there is now a closed season each year for the cephalopod fishery, to reduce fishing effort and allow stocks to recuperate.

22. All countries require industrial vessels to be licensed, and most countries require canoes to be licensed. The process of licensing normally involves payment of a fee to government. Licensed craft are subject to a number of regulations concerning fishing, which are specific to the nature of the different fisheries of the States, and their management policies.



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Fig. 1 ATLANTIC, EASTERN CENTRAL (Major Fishing Area 34)



FAO - X 1990

Fig. 2 ATLANTIC, SOUTHEAST (Major Fishing Area 47)

23. There are obvious advantages to be obtained from cooperative arrangements between neighbouring countries where stocks are shared (Table 2) but so far such cooperative MCS measures have proved difficult to put into place.

Table 2 - Main stocks subject to shared control

| EEZ concerned | Sardinellae/Mackerels | Shrimp | Tuna | Hake | Cephalopods |
|-----------------------|-----------------------|--------|------|------|-------------|
| Morocco | * | | * | | * |
| Mauritania | * | | * | | * |
| Senegal | * | * | * | | |
| Gambia | * | * | * | | |
| Guinea-Bissau | * | * | * | | * |
| Guinea | | | * | | * |
| Cape Verde | | | * | | |
| Sierra Leone | | * | * | | |
| Liberia | | * | * | | |
| Côte d'Ivoire | * | | * | | |
| Ghana | * | | * | | |
| Togo | * | | * | | |
| Benin | | | * | | |
| Nigeria | | * | * | | |
| Cameroon | | * | * | | |
| Equatorial Guinea | | | * | | |
| Sao Tome and Principe | | | * | | |
| Gabon | * | | * | | |
| Congo | * | | * | | |
| Zaire | * | | * | | |
| Angola | * | | * | * | |
| Namibia | * | | * | * | |

24. As more stocks become intensively fished there is a need to take steps to limit fishing effort. A number of countries are now introducing regulatory measures, which include stabilisation or decrease in the number of licenses for trawlers to fish, but there is often a need to ensure compliance, by the fishing industry in general.

VALUE

25. Table 3 indicates the landings (5.8 million tons) and value (US\$ 3.3 billion) of species groups by coastal country, and distant water fishing nation. The small pelagic and mackerel landings dominate the fishery by weight, but not by value. High value crustacea are caught by Spain, and tuna are caught mainly by France, Spain and Ghana. Cephalopods are caught by Morocco, Mauritania, Spain, Korea and Senegal. The high value species are exported outside the region whereas lower value species are normally consumed locally.

VESSELS

26. Small trawlers (10-30 m length) are based at all ports along the coast (Tables 4 and 5): some catch fish predominantly to supply the local market, while others catch shrimp for export.

27. Locally-owned and licensed purse seining vessels (10-20 m length) are particularly numerous along the Moroccan coast where they target sardines. The purse seiners based in Abidjan, Tema and Pointe-Noire predominantly catch

Table 3 - Eastern Atlantic Ocean: estimated landings and value

| | thousand tons | | | | | | | |
|------------------|---------------|-----------|----------|--------|----------|---------------|--------|--------|
| | Tuna | Crustacea | Demersal | Cephal | Mackerel | Small pelagic | Mixed | Total |
| Morocco | 12.1 | 4.3 | 28.0 | 60.0 | 17.3 | 331.3 | 34.9 | 487.9 |
| Mauritania | 1.1 | 6.3 | 16.9 | 34.1 | 0.5 | 2.8 | 24.9 | 86.6 |
| Senegal | 11.1 | 9.0 | 16.3 | 20.0 | 10.0 | 125.0 | 59.0 | 250.4 |
| Gambia | | 0.3 | 0.7 | | 0.2 | 4.4 | 9.3 | 14.9 |
| G. Bisseu | | 1.0 | 1.0 | | | | 1.5 | 3.5 |
| Guinea | | | 0.0 | | | 22.0 | 9.0 | 31.0 |
| Sierra Leone | | 1.0 | 6.0 | | 6.0 | 23.0 | 1.0 | 37.0 |
| Cape Verde | 4.2 | 0.1 | | | 0.2 | | 1.9 | 6.4 |
| Liberia | | 0.2 | | | 1.0 | 1.8 | 10.0 | 13.0 |
| Cote d'Ivoire | 5.0 | 2.5 | | | 1.8 | 33.0 | 26.1 | 68.4 |
| Ghana | 47.0 | 1.6 | 40.7 | 2.8 | 5.0 | 157.0 | 50.0 | 304.1 |
| Togo | 0.1 | 0.0 | | | | 10.4 | 1.5 | 12.0 |
| Benin | 0.5 | 1.0 | | | | 3.5 | 4.3 | 9.3 |
| Nigeria | 3.0 | 2.0 | | | 7.0 | 48.0 | 89.5 | 149.5 |
| Eq. Guinea | | | | | | 0.5 | 3.1 | 3.6 |
| Cameroon | | 3.0 | | | | 36.0 | 18.6 | 57.6 |
| Gabon | | | | | | 10.0 | 11.0 | 21.0 |
| Seo Tome & Congo | 0.2 | | | | | | 2.8 | 3.0 |
| Congo | 0.3 | | | | 0.8 | 12.5 | 5.5 | 19.1 |
| Zaire | | | | | 1.5 | 0.5 | | 2.0 |
| Angola | | | 10.0 | | | 25.0 | 67.9 | 102.9 |
| Namibia | | | 13.8 | | | | 6.3 | 20.1 |
| St. Helena | | | | | | | 1.0 | 1.0 |
| S. Africa | 6.5 | 5.0 | 153.5 | 12.0 | 90.0 | 525.0 | 83.0 | 875.0 |
| Sub total | 91.1 | 37.3 | 286.9 | 128.0 | 141.3 | 1371.7 | 522.1 | 2579.3 |
| Spain | 101.0 | 15.0 | 162.0 | 30.0 | | 15.0 | 45.6 | 368.6 |
| Italy | | 1.0 | 20.0 | | | | 30.9 | 51.9 |
| USSR | 6.0 | 2.0 | 125.0 | | 542.0 | 932.0 | 676.3 | 2283.3 |
| Korea | | | 18.2 | 15.0 | | | | 33.2 |
| France | 45.0 | 2.0 | 1.8 | | | | | 48.8 |
| Bulgaria | | | | | 33.0 | | 10.7 | 43.7 |
| Cuba | 5.0 | | | | 24.4 | | | 29.4 |
| Germany | | | | | 20.0 | | 8.5 | 28.5 |
| Japan | | | 35.0 | | | | 3.9 | 38.9 |
| Portugal | | | 20.0 | | | | 6.1 | 26.1 |
| Romania | | | 20.0 | | 30.0 | | 6.6 | 56.6 |
| Others | 25.0 | 4.7 | | 18.1 | 26.2 | 106.6 | 22.9 | 203.5 |
| Sub total | 182.0 | 24.7 | 402.0 | 63.1 | 675.6 | 1053.6 | 811.5 | 3212.5 |
| TOTAL | 273.1 | 62.0 | 688.9 | 192.0 | 816.9 | 2425.3 | 1333.6 | 5791.8 |

| | US\$ million | | | | | | | |
|------------------|--------------|-----------|----------|--------|----------|---------------|--------|--------|
| | Tuna | Crustacea | Demersal | Cephal | Mackerel | Small pelagic | Mixed | Total |
| Morocco | 9.7 | 25.8 | 26.0 | 120.0 | 6.9 | 33.1 | 27.9 | 251.5 |
| Mauritania | 0.9 | 37.8 | 16.9 | 68.2 | 0.2 | 0.3 | 18.9 | 144.2 |
| Senegal | 8.9 | 54.0 | 16.3 | 40.0 | 4.0 | 12.5 | 47.2 | 182.9 |
| Gambia | | 1.8 | 0.7 | | 0.1 | 0.4 | 7.4 | 10.5 |
| G. Bisseu | | 6.0 | 1.0 | | | | 1.2 | 8.2 |
| Guinea | | | | | | 2.2 | 7.2 | 9.4 |
| Sierra Leone | | 6.0 | 6.0 | | 2.4 | 2.3 | 0.8 | 17.5 |
| Cape Verde | 3.4 | 0.8 | | | 0.1 | | 1.5 | 5.6 |
| Liberia | 0.0 | 1.2 | | | 0.4 | 0.2 | 8.0 | 9.8 |
| Cote d'Ivoire | 4.0 | 15.0 | | | 0.7 | 3.3 | 20.9 | 43.9 |
| Ghana | 37.6 | 9.6 | 40.7 | 5.6 | 2.0 | 15.7 | 40.0 | 151.2 |
| Togo | 0.1 | | | | | 1.0 | 1.2 | 2.3 |
| Benin | 0.4 | 6.0 | | | | 0.4 | 3.4 | 10.2 |
| Nigeria | 2.4 | 12.0 | | | 2.8 | 4.8 | 71.6 | 93.6 |
| Eq. Guinea | | | | | | 0.1 | 2.5 | 2.5 |
| Cameroon | | 18.0 | | | | 3.6 | 14.9 | 36.5 |
| Gabon | | | | | | 1.0 | 8.8 | 9.8 |
| Seo Tome & Congo | 0.2 | | | | | | 2.2 | 2.4 |
| Congo | 0.2 | | | | | 0.3 | 1.3 | 6.2 |
| Zaire | | | | | | 0.6 | 0.1 | 0.7 |
| Angola | | | 10.0 | | | 2.5 | 54.3 | 66.8 |
| Namibia | | | 13.8 | | | | 5.0 | 18.8 |
| St. Helena | | | | | | | 0.8 | 0.8 |
| S. Africa | 5.2 | 30.0 | 153.5 | 24.0 | 36.0 | 52.5 | 66.4 | 367.6 |
| Sub total | 72.9 | 223.6 | 286.9 | 257.6 | 56.5 | 137.2 | 417.7 | 1452.8 |
| Spain | 80.8 | 90.0 | 162.0 | 60.0 | | 1.5 | 36.5 | 430.8 |
| Italy | | 6.0 | 20.0 | | | 0.0 | 24.7 | 50.7 |
| USSR | 4.8 | 12.0 | 125.0 | | 216.8 | 93.2 | 541.0 | 992.8 |
| Korea | | | 18.2 | 30.0 | | | | 48.2 |
| France | 36.0 | 12.0 | 1.8 | | | | | 49.8 |
| Bulgaria | | | | | | 13.2 | 6.6 | 21.8 |
| Cuba | 4.0 | | | | | 9.8 | | 13.8 |
| Germany | | | | | | 8.0 | 6.8 | 14.8 |
| Japan | | | 35.0 | | | | 3.1 | 38.1 |
| Portugal | | | 20.0 | | | | 4.9 | 24.9 |
| Romania | | | 20.0 | | 12.0 | | 5.3 | 37.3 |
| Others | 20.0 | 26.2 | 0.0 | 36.2 | 10.5 | 10.7 | 18.3 | 123.9 |
| Sub total | 145.6 | 148.2 | 402.0 | 126.2 | 270.2 | 105.4 | 649.2 | 1846.8 |
| TOTAL | 218.5 | 372.0 | 688.9 | 384.0 | 326.8 | 242.5 | 1068.9 | 3299.6 |
| \$/ton | 800 | 6000 | 1000 | 2000 | 400 | 100 | 800 | |

Source: 1989 estimates from FAO Yearbook of Fishery Statistics Vol. 68, CEEAF Statistical Bulletin No. 6

N.B. These data have been assigned to the country whose flag is flown by the vessels catching the fish.

Table 4 - Predominant fishing activity

| EEZ concerned | Tuna | Trawl | | Purse seine small pelagic | Canoe | Lagoon | | | |
|-----------------------|------|-----------|---------|---------------------------|-------|--------|-----|-----|-----|
| | | Off-shore | Inshore | | | | | | |
| Morocco | * | n | *** | n | *** | n | *** | . | . |
| Mauritania | * | n | *** | | *** | | . | ** | . |
| Senegal | n | ** | n | *** | n | *** | * | *** | * |
| Gambia | n | . | n | * | | ** | * | *** | . |
| Guinea-Bissau | n | ** | n | ** | | ** | . | ** | . |
| Guinea | n | ** | n | ** | | ** | . | ** | * |
| Sierra Leone | n | ** | n | ** | | ** | . | *** | * |
| Cape Verde | n | *** | | . | . | . | * | ** | . |
| Liberia | n | ** | | * | ** | . | . | ** | * |
| Côte d'Ivoire | n | *** | | * | ** | . | ** | *** | *** |
| Ghana | | *** | | ** | *** | . | ** | *** | ** |
| Togo | | ** | | * | * | . | . | *** | ** |
| Benin | | * | | * | * | . | . | *** | *** |
| Equatorial Guinea | n | ** | | * | * | . | . | ** | * |
| Nigeria | | * | | * | * | . | . | *** | *** |
| Cameroon | | * | | * | ** | . | . | *** | ** |
| Gabon | n | * | | * | ** | . | . | ** | ** |
| Sao Tome and Principe | n | ** | | . | . | . | . | ** | . |
| Congo | | * | | * | ** | . | ** | *** | * |
| Zaire | | . | | . | * | . | . | * | . |
| Angola | n | ** | n | *** | *** | . | *** | * | . |
| Namibia | | * | | *** | ** | . | *** | * | . |

** intensive activity
 ** moderate activity
 * little activity
 . negligible

n = non coastal activity, in addition to coastal activity

sardinellas. The large fleet of purse seiners based in Tema comprises mostly vessels of a small size which are part of the semi-industrial fishery of that country. Purse seiners in Angola and Namibia catch a number of small pelagic species, often for the locally-based fish meal and canning plants.

28. The industrial fisheries by the foreign-based long distance trawlers (50-100 m length) from the former USSR, Poland, former German Democratic Republic, Bulgaria, Romania and from Ghana, began in the 1960s and the catches were initially for human consumption. In 1969 fishing fleets from Norway, Bermuda and South Africa entered the fishery, operating medium-sized purse seiners (10-30 m length) fishing to supply large factory ships, on board of which the catches were reduced to fishmeal and oil. These operations took place mainly in the areas of high concentration of fish: off the Mauritanian and Moroccan coasts as well as off Namibia, and to a lesser extent off Senegal, Gambia, Guinea-Bissau, Guinea and Sierra Leone. Since the start of the offshore

extension of fishing limits, particularly by Mauritania and Senegal in 1972, the industrial fishing continued within the framework of fishing agreements, or as part of joint ventures. In the last two years there has been a considerable decrease in foreign fishing off Namibia, due to the extension of its fishing limits, and also off northwest Africa because of reduced fishing by East European nations following their special economic problems.

Table 5 - Indicative number of canoes and vessels operating in the Eastern Central Atlantic

| | Canoes/ Open boats | Seiners (1) | Trawlers (2) | Tuna boats (3) | Miscel- laneous (4) |
|--------------------------|-----------------------|----------------|-----------------|-------------------|---------------------------|
| Morocco | 8 100 | 405 | 662 | 6 | 1 517 |
| Mauritania | 740 | . | 138 | . | 3 |
| Senegal | 8 300 | 3 | 135 | 9 | . |
| Gambia | 870 | . | 5 | . | . |
| Guinea-Bissau | 600 | 2 | 8 | . | . |
| Guinea | 1 950 | . | 8 | . | . |
| Sierra Leone | 7 000 | . | 34 | . | 7 |
| Cape Verde | 1 170 | . | . | 25 | . |
| Liberia | 900 | . | 4 | . | . |
| Côte d'Ivoire | 800 | 18 | 21 | . | . |
| Ghana | 8 214 | 50 | 74 | 18 | 291 |
| Togo | 256 | . | 1 | . | . |
| Benin | 563 | . | 8 | . | . |
| Nigeria | 50 000 | . | 365 | . | . |
| Equ. Guinea | 1 130 | . | . | . | . |
| Cameroon | 6 000 | . | 40 | . | . |
| Gabon | 1 800 | . | 32 | . | 8 |
| Sao Tome and Principe | 1 500 | . | 2 | . | . |
| Congo | 410 | 7 | 10 | . | . |
| Zaire | 316 | . | 4 | . | . |
| Angola | 500 | 132 | 72 | 43 | 328 |
| Namibia | 10 | 50 | 50 | . | . |
| Spain | . | 10 | 200 | 35 | 400 |
| France | . | . | 20 | 35 | . |
| Ex USSR | . | . | 60 | 5 | . |
| Others | . | . | 100 | . | . |

Source: FAO Fishery Fleet Statistics (1991), and estimates

- (1) Coastal small pelagic seines
- (2) Includes all types of coastal and distant water trawlers
- (3) Purse seine and pole and line vessels
- (4) Mainly semi-industrial multipurpose craft

29. A fleet of large Spanish-flag trawlers (over 200) based in Spain and the Canary Islands fish along the entire seaboard of western Africa; three different types of trawlers are designed to catch deepwater shrimp (30 m length), or hake (50 m length), or cephalopods (35 m length). About 20 Spanish pole-and-line (15 m length) vessels and 20 purse-seiners (60 m length) target tuna. A fleet of inshore trawlers (15-20 m length) based in southern Spain can fish off Morocco. Some 12 French flag tuna pole-and-line vessels are based in Dakar, and the French tuna purse-seiners (each of about 60 m length) operating in the region includes between 15 and 20 vessels. Portuguese, Greek and Italian trawlers (30-50 m length) fish mainly off the northwestern coasts under agreements negotiated separately by the EEC with each coastal State. EEC

flag vessels also fish in Angola, but not presently in Namibia, for shrimp, tuna, hake and high value demersal fish.

30. Korean trawlers (30-50 m length) catch high value demersal species and cephalopods, but mainly through joint ventures, and with vessels flying the coastal State flag (China has two trawlers in Mauritania, and six trawlers in Senegal, operating under similar conditions). Foreign crews are still required for the larger vessels, and high costs involved in handling and processing, required before products can be exported, have not always allowed coastal countries to fully benefit from locally-based investment. Some 20 trawlers (of about 30-40 m length), flying the flags of convenience (Panama, Honduras, etc.), are based at Las Palmas and fish cephalopods. Ex-Soviet fleets, fishing small pelagics (with trawlers of 80-120 km length) and some shrimp (with trawlers of about 30 m) continue to fish, but activities have been reduced, and Russian, Latvian and Estonian flag vessels now operate as separate units. There may be some 60 East European (including ex-Soviet) trawlers, and perhaps five purse seiners (30-40 m length), now fishing in the region. Coastal countries do not have a joint approach to concluding agreements with non-coastal countries.

31. Note should be taken of trawlers from coastal African States fishing in nearby countries, normally for high value demersal fish: Nigerian vessels (perhaps 10) reportedly fish in waters of Gabon and Angola; Senegalese vessels (perhaps 20) fish in waters of Gambia, Guinea-Bissau and Guinea. Gambia flag vessels (about 5) can fish Senegal waters. Congolese vessels can fish in Gabonese waters. It is expected that the frequency of these intra-regional agreements will increase. At present there is no standard approach to the conclusion of these intra-regional agreements.

TRADE

32. Since the 1960s, there has developed a substantial trade in frozen fish within the region, with small pelagics being sent from the resource rich (and low human population density) areas off northwest and southwest Africa to Gulf of Guinea (high population density) countries, mainly those between Sierra Leone and Cameroon: some 0.5 million tons have been traded annually. These small pelagics have often been caught by former Soviet and East European fleets (which also sent fish outside the region), although some assorted demersal fish, from Morocco, Mauritania and Senegal is also sent to Gulf of Guinea countries. As the former Soviet and East European fleets have now been reduced there is a possibility that only small quantities of low price small pelagic fish may be available for sale to Gulf of Guinea countries, from these sources in the future.

33. Spain used to be the main exporter of cephalopods but this place has now been taken by Morocco. Exports have also increased from Mauritania. Morocco continues to dominate in the export trade of sardine, and Namibia has an important canning industry for small pelagics. Crustacea exports are dominated by Senegal. The tuna industry, both servicing foreign flag vessels, and processing, is centred on Ghana, Côte d'Ivoire and Senegal.

34. Human population distribution (Table 1) shows Nigeria to have by far the highest population (although a recent census now indicates its population to be 88 million, which is still the highest in the area). The GNP per caput varies widely from oil-rich Congo and Gabon to resource poor Guinea-Bissau. Annual growth rates of GNP per caput in the 1980s have generally been disappointing with the majority of countries showing declines, and this has implications for intra-regional trade.

APPROACHES TO MCS

35. Although the number of foreign flag vessels is significant, it should be emphasised that in terms of number the locally-licensed vessels will remain the most numerous.

36. There have been some external aided projects that have assisted MCS in countries of the region. The work of NMFS-USA in Morocco mainly involved a

training course and preparation of a Manual on MCS. Germany in Mauritania has supplied long term technical assistance and funds to improve fishery surveillance. A Canadian project in Senegal provided a plane, equipment, specialist staff, and covered some running costs of MCS. For the Gambia a small plane to assist aerial surveillance was provided by Luxembourg. The World Bank funded an Agriculture and Natural Resources project in Guinea-Bissau and part of these funds were used to train staff in MCS and support collection of fishery statistics. Canada is cooperating with the World Bank in provision of expertise and covers some surveillance costs in Guinea. In Nigeria, the World Bank is assisting in monitoring all fishing operations along the coast. Sierra Leone is working with a foreign company to intensify MCS. Namibia works with Germany to support MCS and fishery management through provision of expertise and equipment.

37. The forwarding of information derived from MCS, on catch by species or groups of species, gear, zone, and season, to scientists for resource evaluation is essential, because the introduction of regulatory measures for aiding conservation and management must depend to a large extent on resource monitoring and evaluation. This has been continuing for many years but the level of evaluation is often not of a standard to be easily translatable into advice for fishery managers. In addition, the related cooperative arrangements required between institutions (sometimes military as well as civil) in a country are realizable only with difficulty, given the current weak capacity of institutions for this job in the region.

38. Most countries now have some capacity in monitoring, control and surveillance of fisheries. Indeed this paper is based on fishing data collected and summarised by staff of technical departments of the region and involved already in MCS, supplemented by certain studies and observations by FAO staff and consultants travelling in the region. Nevertheless it is probably true to say that none of the systems are working optimally. This is perhaps inevitable because of the complexities in monitoring the (i) offshore tuna purse seiners, (ii) demersal and (iii) pelagic trawlers operating on the continental slope, trawlers operating on the shelf, both (iv) inshore and (v) at a distance from shore, (vi) inshore purse seiners and (vii) tuna pole and line vessels, (viii) canoe purse seiners, (ix) canoes using lines and static gear, and (x) beach seine and (xi) coastal lagoon fisheries.

39. Each of the procedures, ranging from the oceanic to the estuarine, require a different MCS approach (with regard to position fixing, protection of waters, procedures for boarding/inspection, verification of logbooks, training in identification of species groups and estimates of volume of catch stored in a vessel, measurement of mesh size, duties of observers, methods for marking vessels to aid aerial and maritime surveillance, port inspection, and arrangements for prosecuting offenders, etc.).

CONCLUSIONS

40. In view of the importance of fishery resources it is a priority that attempts be intensified to improve resource management. Most countries now have a definitive positive policy towards management but many are unable to be in a position to implement the activities necessary for optimal management, when measures for management are agreed on. MCS is an essential element in management, and in general there should be a greater commitment to this activity than has been prevalent in the past. In view of the situation where fish stocks are found in waters of two or more countries there is an obvious need to establish concerted action to monitor and attempt to manage jointly the shared stock(s).

FISHERIES MANAGEMENT, MONITORING, CONTROL
AND SURVEILLANCE AND ECONOMIC CONSIDERATIONS

by

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INTRODUCTION

1. Fisheries monitoring, control and surveillance (MCS) is exercised by countries in their territorial seas and adjacent exclusive economic zones (EEZs) principally to: (i) enforce sovereignty over fisheries resources under their national jurisdictions (i.e., to prevent unauthorised exploitation by citizens and/or foreigners), and (ii) ensure that information necessary for the development of fisheries management programmes is collected and that such programmes are implemented and observed.

2. The UN Convention on the Law of the Sea (UNCLOS) assigns jurisdiction to coastal States over fisheries resources within their EEZs but at the same time places obligations on them to take steps to promote rational management. By implication, this obligation requires countries to institute appropriate MCS measures to ensure that management arrangements are developed, implemented and observed. In practice this means coastal States should pursue sustainable resource use policies. This consideration is particularly important where coastal States share stocks either among themselves or with high seas areas (i.e., stocks that are straddling or are highly migratory in nature). Principally for this reason UNCLOS urges countries with common stocks to cooperate sub-regionally, regionally, and on a larger scale if need be, in order to achieve rational management.

3. Depending primarily on national needs and policies, countries may decide to undertake MCS programmes on a fisheries specific or dedicated basis (i.e., programmes that deal with fisheries MCS only) or as part of integrated or multi-tasked programmes whereby other functions of national administration and security (e.g., customs, immigration, quarantine, law enforcement etc) are concurrently monitored and enforced. The MCS approach adopted by a country is likely to reflect, to a significant extent, the economic importance of its fisheries sector. It makes little economic sense to have a large and elaborate MCS programme if its cost exceeds national revenue from the industry (e.g., fees paid by fishermen for the right to fish). Although this may appear to be an obvious conclusion, its consideration is sometimes overlooked in designing and implementing MCS programmes.

4. In addition to nationally executed MCS programmes, it is becoming increasingly common for developing coastal States to cooperate sub-regionally and regionally on MCS matters.¹ This cooperation normally involves coordination of policies and operations for cost and logistical reasons. This approach to MCS in the West African context has merit because countries have adjoining EEZs and, in some cases, common stocks and shared regional and foreign fleets. Moreover, the political commitment to regional MCS cooperation has already been established through the Ministerial Conference

¹It is quite consistent to concurrently foster sub-regional and regional approaches to fisheries cooperation provided that initiatives are generally parallel. Indeed, regional cooperation is likely to be enhanced if sub-regional groupings collaborate and work at their own pace and address issues that are of primary concern to them.

on Fisheries Cooperation Among African States Bordering the Atlantic Ocean.² In this respect Article 5 of the Regional Convention on Fisheries Cooperation Among African States Bordering the Atlantic Ocean states:

"Parties shall work and collaborate with all the means at their disposal, or which they may jointly acquire to ensure the monitoring, surveillance and control, including technical control, of fishing vessels operating in the region."

This agreement provides a firm base for West African coastal States to take concrete steps towards the coordination of MCS policies and operations.

5. The purpose of this paper is to review some of the policy and financial aspects of MCS that developing coastal States might consider in formulating and implementing national, sub-regional and regional MCS programmes. Technical and operational issues are not addressed to any significant extent. After this introduction the paper discusses basic fisheries management concepts and considerations. The next section outlines objectives, definitions and possible MCS strategies. Discussion of financial issues relating to MCS programmes follows. Policy aspects and implementation of MCS programmes are then considered before the conclusions of the paper are summarised.

FISHERIES MANAGEMENT: CONCEPTS AND CONSIDERATIONS

6. Under conditions of open-access (i.e., where there are no restrictions placed on the entry of fishermen or fishing capacity to a fishery), or if fisheries management measures are not well defined and/or enforced, a fishery will be overexploited in both biological and economic terms.³ This situation will lead to resource degradation and economic waste in the longer-run, a situation commonly referred to as "overfishing". In terms of its human dimension, the effect of overfishing is to trap fishermen, especially artisanal fishermen (including small-scale commercial operators), in a downward poverty spiral where declines in welfare result. For both artisanal and industrial fishermen, the provision of government subsidies is often required to financially prop-up fishing operations under these circumstances.⁴

²Interest in sub-regional and regional fisheries cooperation in West Africa is not new. For example, CECAF and the Secretariat Permanent de la Commission Sous-Régionale des Pêche have promoted, and continue to promote, such cooperation. However, in order to have strong and coherent cooperation, especially in matters pertaining to policy, harmonisation of legislation and fisheries access arrangements and MCS, high-level political commitment is necessary to ensure that sub-regionally and regionally agreed cooperative measures are carried out.

³According to economic theory, in an open-access fishery, the existence of resource rent will continue to call forth new entrants until the rent is completely dissipated. Only at this point will further increases in fishing effort cease. Resource rent is the difference between total revenue and total cost of operating in a fishery where total cost includes normal returns to capital and labour. An extensive literature exists on this subject including Gulland, J.A. 1974. The Management of Marine Fisheries. University of Washington Press. Seattle. 198p; Anderson, L.G. 1977. The Economics of Fisheries Management. The Johns Hopkins University Press. Baltimore. 214p; Hannesson, R. 1978. Economics of Fisheries. Universitetsforlaget. Bergen. 156p. and Cunningham, S., M.R. Dunn and D. Whitmarsh. 1985. Fisheries Economics: An Introduction. Mansell Publishing Ltd. London. 372p.

⁴Subsidies can take many forms, ranging from direct government financial transfers to fishermen (i.e., cash payments) to reduced costs for industrial inputs (e.g., commonly fuel, gear and vessels). Recently, the removal of subsidies for some industrial fleets (e.g., vessels of the former Soviet Union) has rendered them inoperable.

7. In general terms fisheries management involves the enunciation, implementation and monitoring of measures, normally by government, to regulate the exploitation of fish stocks so that they are harvested in such a way as to avoid long-term resource depletion (a physical consideration) and the employment of excessive financial inputs (an economic consideration).⁵ To redress this situation, or to prevent it from occurring in open-access fisheries, government intervention through management is both justified and necessary.

8. An important distinction is normally made between fisheries conservation and management. The adoption of conservation measures that regulate fishing activity (e.g., closed seasons and areas, restrictions on types and use of gear, etc) but not fishing effort has a singular objective of attempting to prevent resources from being physically overexploited. These measures are usually effective in preventing resource overexploitation and may be used in conjunction with effort reduction programmes. However, alone they fail to address the root cause of the management problem of removing excess capacity (i.e., too many fishermen and fishing units) from a fishery. In the absence of effort reduction, the long-term prognosis for improvement in the status of stocks and sustained welfare gains for fishermen, is poor.

9. Management approaches for artisanal and industrial fisheries will, in practice, be different but the principles upon which management arrangements are based will be similar. Moreover, the implementation of arrangements for artisanal fisheries will be more difficult to achieve than in the industrial sector principally because of the larger number of fishermen and fishing units involved. This problem is compounded by the poor socio-economic conditions characteristic of most artisanal fisheries (e.g., the lack of alternative employment opportunities and skills leading to the immobility of fishermen⁶, etc.). Steps to exclude artisanal fishermen through limited entry programmes from traditional fisheries (unrestricted access to which is often considered a birthright) must be carefully planned and implemented in order to prevent adverse social and economic consequences.⁷

10. Where industrial fisheries are unmanaged or poorly managed, overcapitalisation will occur (i.e., excessive investment in vessels and associated infrastructure). Under these circumstances capital will not receive an economic return (e.g., 10 percent on funds invested), and subsidies will often be paid to fishermen (e.g., through reductions in new vessel and gear costs, the provision of fuel below market value, etc) in order to financially support their operations. The subsidization of fleets exacerbates fisheries management problems. Most vessels continue to operate even though they are not covering costs.

11. The definition of fisheries management and description of what it involves is relatively straightforward. However, the implementation of management arrangements poses difficulties. This is because the process involves making decisions about resource allocations and in most instances, excluding some individuals already operating, or intending to operate, in a fishery. Moreover it is not possible to concurrently satisfy the interests of all groups involved in the sector (e.g., fishermen, fish traders, vessel builders,

⁵There is an extensive literature on fisheries management issues. For a concise discussion see, Troadec, J-P. 1983. "Introduction to fisheries management: advantages, difficulties and mechanisms". FAO Fisheries Technical Paper 224. Rome. 57p.

⁶For a review of this issue in Thailand, see Panayotou T. and D. Panayotou. 1986. "Occupational and geographic mobility in and out of Thai fisheries". FAO Fisheries Technical Paper 271. Rome. 77p.

⁷It is recognised that in practice it can be very difficult to exclude fishermen, and in some cases, unfeasible. Under these conditions alternative approaches might be required whereby employment in other sectors of the economy must be found.

financiers, labour unions and suppliers of fishing and marine products), and for this reason opposition to the introduction of management measures often results. It is therefore not surprising that many well-conceived fisheries management regimes fail at the implementation stage.

12. A frequently overlooked pre-requisite for the successful implementation of fisheries management is strong political commitment to management. Without this commitment, irrespective of the need for management, the structure of management plans and the best intentions of fisheries managers, implementation will flounder because it involves making unpopular and difficult decisions of a highly political nature. Therefore, the political aspects of fisheries management cannot be ignored, or assumed not to exist.

13. Where countries and high seas areas have common fish stocks, international cooperation among coastal States and those countries that fish the high seas is required. While the need for international cooperation in fisheries management has been acknowledged for the past 70 years (e.g., in the North Pacific halibut fishery), attempts to achieve the level of cooperation necessary for effective management have been often disappointing. However, renewed international interest in high seas fishing issues, stemming initially from the controversy over the use of large-scale pelagic driftnets, has led to calls to secure a legal framework to govern the exploitation of high seas resources. Concern about this issue has been expressed by many countries, especially in connection with straddling stocks and high migratory species. International cooperation for these and other migratory species (e.g., salmon), adds a further complicating dimension to the fisheries management equation.

14. MCS programmes are required for fisheries both under national jurisdictions and on the high seas.⁸ As an integral component of management, MCS is required to ensure that management arrangements, once in place, are observed and not undermined by non-compliance (i.e., failure of fishermen to abide by national laws, sub-regional or regional conventions, licensing terms and conditions and management requirements).

OBJECTIVES, DEFINITIONS AND MCS STRATEGIES

15. In undertaking MCS activities, governments either individually or as part of sub-regional or regional groups, seek to gather fisheries and related information necessary for resource management.⁹ Normally the supply of this information by fishermen is a requirement under the terms and conditions of their licence. However, the efficiency with which these data are collected, analyzed and used to develop management arrangements varies widely between countries.¹⁰

16. Although coastal States normally cater for MCS in their domestic fisheries legislation, most States also seek to secure a high degree of voluntary compliance by fishermen. This approach is beneficial in many respects and, as a matter of policy, efforts to foster sound working relations with industry,

⁸Management of high seas fisheries is currently not well developed and UNCLOS provides little guidance. To redress this situation international efforts are in train to strengthen the legal framework for the management of these fisheries.

⁹The implementation of MCS programmes presupposes that countries have, in accordance with the provisions of UNCLOS, either provisionally or formally delimited their EEZs. While it is recognised that delimitation is a highly technical, time-consuming and often sensitive matter, delimitation is necessary in order for countries to have an agreed and unambiguous definition of their EEZs.

¹⁰The capacity to do this is functionally related to the size of the national fisheries administration, the extent of fishing activity, and the level of competence with which the administration operates.

as a means of encouraging compliance and of reducing the financial and operational burden of MCS, should be pursued.¹¹ Nonetheless, when violations do occur a country should have the demonstrated capacity to arrest, investigate, bring to court and prosecute offenders.¹²

17. MCS should be seen as an ongoing activity that is undertaken routinely, but in a random manner, within a country's area of national jurisdiction. The three components of MCS can be described as follows:¹³

(i) monitoring involves the collection, measurement and analysis of fishing activity including, but not limited to, catches, species composition, fishing effort, discards, area of operation, etc. This information is primary data that fisheries managers use to arrive at management decisions. If this information is unavailable, inaccurate or incomplete, managers will be handicapped in developing and implementing management measures.

(ii) control involves the specification of the terms and conditions under which resources can be harvested. These specifications are normally contained in national fisheries legislation and other arrangements that might be nationally, sub-regionally or regionally agreed. The legislation provides the basis for which fisheries management arrangements, via MCS, are enforced. For maximum effect legislation should be flexible (to cater for different and changing circumstances) and easily enforceable.

(iii) surveillance involves the checking and supervision of fishing activity to ensure that national legislation and terms, conditions of access, and management measures are observed. This activity is critical to ensure that resources are not overexploited, poaching is minimized and management arrangements are implemented.

18. Strategies for the implementation of fisheries MCS programmes are likely to be based on considerations relating to the (i) national and regional importance of fisheries resources; (ii) extent to which resources are exploited; (iii) level of fishing activity by both domestic and foreign fleets, (iv) value of production from the fisheries sector and its contribution to government revenue and the national economy; (v) extent to which MCS programmes are fisheries specific or involve integrated programmes; (vi) level of financial support for MCS programmes, (vii) sub-regional and regional MCS and fishing agreements in force, and (viii) the type of fisheries conservation and management measures adopted.

19. Conventional MCS programmes normally involve the deployment of surface craft and fixed-wing aircraft, individually, or in support of each other. These programmes are costly and are difficult to justify on fisheries grounds

¹¹In some countries the fishing industry is consulted closely on matters pertaining to fisheries management so as to elicit compliance with measures adopted.

¹²In some developing countries, particularly those with a legal system based on English Common Law, MCS professionals are demoralised by the high failure rate (sometimes in excess of 90 percent) in securing convictions for violations committed by fishing vessels. The problem seems to stem from (i) poor training for, and inexperience by, investigating personnel; (ii) lack of preparation for prosecution and poor in court performance, and (iii) political interference. Enhanced training programmes and the use of experienced court lawyers to handle prosecutions should reduce the incidence of violators having charges brought against them dismissed on technical grounds.

¹³These descriptions draw on definitions developed in 1981 in Dakar at the FAO consultation on monitoring, control and surveillance. See FAO. 1981. Report of the consultation on monitoring, control and surveillance. (CECAF/TECH/81/35). Dakar. 30p.

for many developing coastal States. Where surface and air craft are jointly tasked in MCS activities, it is common for the aircraft to play a surveillance role and to provide information to surface craft capable of checking and apprehending vessels suspected of violating national laws and/or terms and conditions of their fishing licence.¹⁴

20. In the 1980s countries in the South Pacific and Caribbean, and more recently countries in North-West Africa, embarked upon the implementation of cooperative, "no force" arrangements (i.e., arrangements aimed at minimising the need for conventional MCS arrangements.¹⁵ This was done principally for cost and logistical reasons, and in the case of the South Pacific, to deal more effectively from a management and enforcement point of view with the large fleet of distant-water fishing nation (DWFN) tuna vessels (e.g., from Japan, the United States, Korea and Taiwan (Province of China)) operating under access arrangements in the EEZs of countries in the region.

21. Strategies pursued in connection with the deployment of "no force" measures have centred primarily around the development of two MCS tools. These are the: (i) regional registers of fishing vessels, and (ii) application of minimum terms and conditions of access (i.e., licensing terms and conditions for fishing vessels). However, for such measures to be implemented successfully there should be solid regional agreement.

22. Although conventional and "no force" MCS strategies are not completely interchangeable, they can be mixed to serve a country's needs. To some extent a country will need a conventional MCS capacity, despite cost and logistic constraints. However, to optimise national benefits from conventional MCS operations (i.e., to maximise encounters with vessels and the probability of intercepting vessels infringements that will generate national revenue, while concurrently minimising operating costs for MCS craft), sorties must be carefully planned, especially if a country has a large EEZ and a small MCS capacity. Such planning should be predicated on a thorough understanding of the fishery, seasonal resource movements (if these are predictable) and fleet operations. This type of planning can be largely based on analysis of historical catch and effort data, provided that they are complete and reliable. For this and other management reasons, national fisheries administrations and sub-regional and regional fisheries organisations should place particular emphasis on the timely acquisition and analysis of fisheries data. Indeed, the timely supply of comprehensive and accurate catch and effort data should be a minimum requirement for permission to operate in a fishery because they are fundamental for management.

23. Conventional MCS activities require effective national coordination, especially if different government agencies (e.g., fisheries, administration, navy and police) are involved. Many countries have established national MCS centres involving, for example, civilian and military units. However, for these centres to operate effectively it is frequently necessary for traditional chains of command and responsibility to be modified. In practice, achieving a harmonious and effective working relationship under these conditions where different units are responsible for surface, air and

¹⁴In this connection it should be noted that aerial MCS is in itself not a sufficient condition to provide a credible level of deterrence for fishing fleets operating in an EEZ. In the context of sub-regional and regional cooperation in West Africa, R. J. Allain (in 1981 for FAO) considered this aspect of MCS in a CECAF report entitled Study of Aerial Fisheries Surveillance as part of MCS System in certain West African Coastal States of the CECAF Region. (Project GCP/INT/370/NOR). Dakar.

¹⁵Island countries in the South-West Indian Ocean, similarly placed to those in the South Pacific, are also considering cooperative regional MCS arrangements.

fisheries operations, may be difficult because this type of cooperation is new.¹⁶

24. In order to implement an effective regionally-based "no force" MCS programme, a centralised, capable and responsive regional administration is a prerequisite. Countries involved in regional fisheries arrangements need to be able to access information from the administration (e.g., from a databank by direct computer link) quickly and regularly, often on a real-time, or near real-time, basis. Moreover, as part of sub-regional and regional MCS initiatives, countries should also consider sharing training facilities, personnel exchange programmes, and if possible, regional tasking of surveillance craft.¹⁷ Such an approach will generate economies of scale that would not be feasible for one country.

25. As an aid to cost-effective MCS countries should also consider the fitting of transponders on vessels.¹⁸ These devices reduce costs as it is possible to remotely monitor vessels via satellite.¹⁹ At least two systems are available and are being used in different parts of the world to monitor and surveil fleet operations and movements and to transmit fisheries information on a real time basis to fisheries managers. The devices are relatively inexpensive (less than US \$10 000 per vessel), are virtually maintenance free, and are particularly appropriate for those countries licensing regional and DWFN fleets.

26. Other low-cost, "no force" MCS policies might be adopted to facilitate fisheries compliance, particularly by DWFN or regional fleets. For example, coastal States licensing such vessels might require their citizens to be employed as fishing crew and for port visits to be made (either for provisioning or transshipment of catches) as a condition of licensing. Having nationals of the licensing country employed encourages vessel operators to adhere more closely to their licensing terms and conditions, and port calls facilitate ready catch and effort verification by shore-based fisheries inspectors.²⁰

27. While the effectiveness of employment and port visits as MCS tools are likely to be highly variable depending on national conditions and circumstances, they do generate economic benefits for the licensing country. Apart from MCS considerations, it has been shown in many developing and

¹⁶Partly in recognition of this consideration, some countries provide temporary transfers for staff--for example--from the military to civilian postings, when they are working primarily on fisheries MCS. This approach appears to work well.

¹⁷Regional tasking of MCS craft to permit them to operate in or over the EEZs of non-flag States requires formal agreement concerning terms and conditions of operation among cooperating countries.

¹⁸The effective use of information gathered by these devices, and indeed all information collected as part of MCS activities, presupposes that data are analyzed systematically and routinely for MCS purposes.

¹⁹Installation and maintenance costs for transponders should be the responsibility of the vessels owner. Their installation could be made a precondition for operating in a fishery. While vessel owners are likely to oppose the installation of such devices because owners believe that the devices will limit their freedom of operation, it is a legitimate and reasonable requirement in view of Coastal States' UNCLOS obligations to promote rational resource management within their respective EEZs. Moreover, the use of transponders should not disadvantage fishermen engaged in legitimate fishing operations. On the contrary, fishermen should benefit from enhanced management.

²⁰For some countries this might be the only way in which such verification is possible.

developed countries that subsidiary port and employment activities exceed, often by a substantial margin, the direct financial benefits generated from fishing activity itself. For this reason employment and port visits should be encouraged.

28. In designing and implementing MCS programmes, governments should be aware that fisheries conditions and MCS needs vary greatly between countries, and although they may face similar fisheries management and MCS problems, there is no correct or unique MCS solution. Unfortunately, this point is not always understood by consultants advising on national and regional MCS strategies or by policy makers responsible for designing MCS programmes.

FINANCIAL CONSIDERATIONS FOR MCS PROGRAMMES

29. All MCS programmes have direct financial costs that must be borne by the government agency responsible for developing, implementing and administering them. This is the case irrespective of whether programmes are undertaken by the military or civilian authorities. Two categories of costs are normally involved: (i) capital costs of purchasing and replacing equipment (e.g., patrol boats, aircraft, computers etc), and (ii) recurrent or operating costs of maintaining equipment and programmes (e.g., purchase of fuel for patrol craft, salaries and allowances for MCS personnel, training, etc). A careful assessment of both capital and recurrent costs for alternative MCS programmes should be made prior to the selection of a programme.

30. Simple calculations using a cost-benefit analysis approach might be used to help evaluate appropriate MCS programmes. Having undertaken such an evaluation countries would not normally implement MCS programmes that lead to financial loss for government (i.e., a situation where the direct cost to government of undertaking MCS exceeds the financial returns from fees etc from national, regional and foreign operators).

31. Careful financial assessment of MCS programmes is critical, even if capital assets are provided free of charge by a foreign donor because of high operating costs. For this reason, even if assets are offered free of charge, it may be advisable to decline them. Indeed, some developing coastal States have found that after receiving MCS craft under aid programmes they have been unable to finance their maintenance and operation and foreign donors have been unable to assist because their development assistance policies preclude the provision of funds to cover operating costs. This situation has meant that patrol vessels, for example, provided by foreign donors, have had to be tied up.²¹

32. In considering the financial aspects of MCS programmes, countries should consider novel means of financing them and involving fishermen as a means of reducing costs. One approach could be to provide incentives to encourage fishermen to report infringements by other vessels. This approach might be employed where there are foreign vessels from different flag States operating in a fishery. If a report of an infringement leads to the successful prosecution of a violator, the collection of a fine or similar payment (e.g., a voluntary payment as compensation as a consequence of a threat to invoke sanctions of say, a regional register), the vessel reporting the infringement could be given free access to the fishery for a specific period of time (e.g., three months).

POLICY ASPECTS AND IMPLEMENTATION OF MCS PROGRAMMES

33. In determining national MCS policy there should be a clear and precise understanding of its objectives, inter-agency roles in implementation and evaluation of programmes to determine their effectiveness. The evaluation component of the process is important because fisheries are dynamic and periodic adjustment of MCS policy is often necessary to match these changes.

²¹A similar situation has also occurred with fisheries research vessels in some developing countries where they have remained idle owing to the lack of funds to operate them.

34. The development of MCS policy and its administration should always be an unambiguous national government function because it involves issues relating to national sovereignty, accountability for resource management and international relations. Within government, the development of national MCS policy is usually a shared responsibility with the fisheries administration being responsible for technical and scientific aspects; foreign affairs being responsible for international relations and the military being responsible for enforcements aspects. Consequently, it should be recognised that fisheries MCS is not the sole domain of any one government agency, though the fisheries administration should play a pivotal and leading role.

35. Implementation of MCS programmes can be done by either civilian or military authorities. In some countries MCS activities are undertaken entirely by civilians, normally by fisheries and merchant marine government employees. Under these circumstances MCS activities tend to be fisheries specific. However, the flexibility and effectiveness of such programmes is often constrained by lack of experience and public service employment conditions (e.g., requirements to work a designated number of hours per week, lack of work overtime approvals, etc).

36. Where the military are responsible for carrying out MCS programmes, its focus is likely to be on broader MCS activities (e.g., national security, drug trafficking etc.) and enforcement of jurisdictional sovereignty.²² Often programmes executed in this manner are not very effective from a fisheries MCS point of view because (i) military personnel have not received specialised fisheries training and they do not appreciate the need for, and importance of, fisheries management, and (ii) fisheries MCS is often not accorded a high priority vis-a-vis other activities. If it is possible to blend fisheries and military personnel in either fisheries specific or integrated surveillance operations, the efficiency of these programmes, might from a fisheries point of view, be improved.

37. The cost of implementing MCS programmes through civil or military administration is not likely to be the same. In general, programmes costs for those undertaken by the military will be higher than for those executed by civilian administration. This in part stems from the fact that the military do not usually have purpose built fisheries MCS vessels but rather vessels designed to protect national security. The operating cost of these vessels is higher than for purpose built MCS vessels principally because of their higher performance capabilities. Other considerations relating to the crewing etc. of military vessels also significantly impact cost.

38. The need to provide fisheries management related training for all personnel involved in MCS activities is an important consideration and one that should be highlighted. Such training, although sometimes overlooked, can be highly productive in that it gives personnel, especially those with no specific fisheries background, a greater appreciation and understanding of the role and need for MCS in fisheries management. Even where personnel have had a fisheries training, it is important that they receive specialised training if they are to be employed as observers on vessels and be able to prepare and present²³ competent technical MCS reports capable of withstanding court scrutiny.

²²This situation will vary from country to country with circumstances and policies in individual countries determining the precise focus of MCS programmes.

²³Many developing and developed countries conduct such training courses on a regular basis. In addition, regional training programmes for observers are also held. Observers can be direct employees of government or work for companies that are contracted by government to provide these services. In this connection a clear distinction should be made between fishing vessel crew (i.e., fishermen) and observers. It is unrealistic to employ individuals in both crew and observer capacities and expect that the responsibilities of the latter occupation will be undertaken effectively. Moreover, observers should

39. In developing MCS programmes it is important that where necessary either fisheries or military personnel who will act as boarding officers to check fishing vessels are properly designated to have powers of detention and arrest under national laws. If personnel are not so designated it will not be possible for vessels to be legally detained and brought to port for investigation. In cases where interceptions have been made by MCS personnel not having properly documented powers of detention and arrest, courts have usually released violators even when they have been clearly in default of national legislation and terms and conditions of their fishing licences.

40. As an alternative to MCS being undertaken directly by government, it is possible that government could contract a private company to provide MCS services (i.e., the company acting as an agent of government). This approach has been pursued in some countries with different degrees of success. On cost and efficiency grounds the possibility of privatising MCS activities might be considered, particularly where countries have seasonal fisheries or face other operational constraints. However, it is stressed that if a decision is made to privatise MCS operations, policy aspects should remain firmly in the hands of government.²⁴

41. Regional MCS cooperation should be considered as a means of reinforcing national MCS initiatives. Such cooperation is especially important for developing countries having limited financial resources. By grouping together and adopting common MCS approaches and harmonisation of legislation and other fisheries policies, it is possible for countries to realise significant cost-effective gains. The level of cooperation can range from ad hoc consultative arrangements and information exchanges to measures that permit close MCS collaboration through such as programmes as joint and reciprocal enforcement of national laws and terms and conditions of fishing agreements.

42. An important aspect of regional MCS cooperation is the establishment of a regional register of fishing vessels.²⁵ The possibility of having sanctions (e.g., deregistration) placed on a vessel for infringement of national laws and license terms and conditions, even when the threat of physical apprehension is small, has become an important deterrent in encouraging compliance. This "no force" approach to MCS greatly reduces its cost and is therefore of particular significance to developing coastal States that have limited financial resources and enforcement capacity.

43. The inclusion of flag State responsibility provisions in fisheries agreements for regional and foreign fleets will enhance the effectiveness of MCS programmes. Where these UNCLOS provisions are agreed and adopted the flag State essentially takes responsibility for the investigation and prosecution of infringements committed by its flag vessels in the EEZs of licensing countries. The use of these provisions fosters a greater degree of compliance by fleets and reduces MCS costs for coastal States.

CONCLUSION

44. The importance of the relationship between fisheries management and MCS is often not fully understood or appreciated, even by fisheries professionals. However, failure to comprehend this relationship can result in poor programme development and misdirection at the implementation stage.

be government employees or work on contract to government.

²⁴Privatisation of MCS activities needs to be carefully balanced against country needs. While it has been demonstrated that privatisation works very effectively in some cases, this might not be so in all cases.

²⁵Such registers are likely to function most effectively where countries have common fish stocks and shared regional and foreign fleets.

45. Depending on their particular circumstances, countries have different MCS requirements. In evaluating options for MCS programmes financial considerations need to be taken into account. In this respect MCS proposals should be realistically structured, financially sound and logistically achievable. Moreover, even where capital assets are provided by foreign donors as part of MCS assistance programmes care should be exercised in assessing options because of recurrent costs that many countries might find prohibitive and financially unsupportable beyond initial operating periods.

46. Well managed MCS programmes require an efficient national fisheries administration, the capacity to receive, assess and analyze data and related fisheries information together with a high degree of personal and professional integrity among MCS officers. Furthermore, an MCS programme will benefit from (i) legislation backing that clearly reflects government policy with respect to fisheries management and MCS, (ii) strong political commitment to national fisheries management, (iii) capacity to apply MCS measures and sanctions, and (iv) commitment to apply measures and sanctions fairly and in accordance with the law.

47. The success or failure of an MCS programme is frequently determined by the commitment of personnel to their duties. Unfortunately, these personnel are often demoralised and perform poorly and act unprofessionally because of inequality in the application of policies and penalties or through political interference. Commitment to duty should be stressed and training provided for personnel in order to keep them abreast of fisheries and technological developments. The human element in MCS is critical and this consideration should be explicitly recognised in developing and implementing MCS programmes.

LEGAL AND POLICY ISSUES RELATED TO
MONITORING, CONTROL AND SURVEILLANCE

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INTRODUCTION

1. After having been overlooked for a numbers of years, monitoring, control and surveillance (MCS) has become a critical issue in recent times in West Africa. The establishment of Exclusive Economic Zones (EEZs) by most of the West African Coastal States, the importance of foreign fishing - both in terms of the number of vessels operating and the revenue generated for coastal States - and the attention being given by donor countries and aid agencies to this issue, explain this situation.

2. Consequently several West African countries have benefitted, are benefiting or will benefit from significant technical assistance in this area¹. Whereas the necessity of such an assistance is not questionable one should also point out some dangers and possible misunderstandings which may undermine the effectiveness of an MCS system.

3. One of the most common errors and one of greatest importance is to focus MCS on the S. More specifically there is a general belief (not only in public opinion and in the media but also, sometimes, at a Ministerial level) that problems will be solved by the acquisition of very costly and sophisticated equipment for naval and air surveillance. Naturally MCS includes surveillance and a satisfactory enforcement is the best deterrent against violations to the legislation relating to fisheries; however, this aspect should not be overemphasized.

4. The best definition of MCS may be found in the FAO expert consultation of 1981 devoted to this particular aspect of fisheries management. According to the experts (i) monitoring involves the "continuing requirement for the measurement of fishing effort characteristics and catches", (ii) control concerns the "legal framework within which the resource may be exploited, i.e, management schemes" and (iii) surveillance "describes those measures required to ensure compliance with the regulations formulated under (ii)".²

5. It should be noted that, with respect to the above mentioned definitions, the major relevance of policy and legal considerations is evident. In order to use the MCS concept as an effective management tool one needs to have:

- (i) a clear policy based on the objectives to be achieved i.e., is MCS a priority for the country? If this is the case will the country put emphasis on the collection of data and scientific knowledge and/or on enforcement aspects? Should the country focus its efforts on foreign fishing only or on foreign and national fishing? Should the administration be required to survey exclusively, or in priority, the activities of the industrial vessels or will artisanal fishing also be covered?

¹For references to those projects please see paper MCS/WA/92/2 "Overview of the fisheries situation with respect to monitoring, control and surveillance for African countries bordering the Atlantic Ocean" distributed at this workshop.

²FAO. 1981. Report of the Consultation on Monitoring, Control and Surveillance. CECAF/TECH/81/35. Dakar, 39 p.

Should MCS be submitted to a cost/benefit analysis? Will it be undertaken at a national level or will the country look for a possible regional and/or sub-regional collaboration?

- (ii) a legal and institutional framework that will favour its implementation. Naturally the first role of the legal framework will be to translate the policy into legal terms. Nonetheless, this is a necessary but insufficient requirement in itself. The legal and institutional framework will also have to take into account the inputs provided by the various bodies involved (scientists, enforcement bodies, fishermen and vessel owners, representatives of foreign fishing fleets, other administrative bodies concerned etc.). Activities of some administrative bodies may need to be integrated and coordinated be it at a national or at a regional level; legislation and regulations should be designed and drafted in order to be easy to understand and easy to enforce and should be, if not identical, at least compatible with the existing legislation in the region; speedy procedures to facilitate the work of the surveillance people and also of the fishermen, should be put in place.

6. The objective of this paper is to provide a basis for discussion of these different issues. The first section will focus on some general questions related to the legal and policy aspects of MCS. Then some examples of how MCS is understood and implemented in other parts of the world will briefly be given. Finally the document will attempt a closer look on the legal and policy constraints proper to the West African region.

LEGAL AND POLICY CONSIDERATIONS FOR MCS

7. As it has been said in the introduction, MCS cannot be reduced to the simple deployment of naval and air surveillance. In fact, as we will see later on, there may be a number of different approaches and, even between developed countries, the differences are striking. There are however some legal and policy considerations that any State having to establish an MCS system should take into account.

8. The primary question that a country might try to answer is: is there a need to establish an MCS system? There certainly is the temptation to automatically answer yes and there are obviously a number of reasons that may lead to this conclusion. Nonetheless, the question remains a valid one, even in the case of West Africa. What may be the reasons justifying the setting up of an MCS system in a country in which fishing does not bring in hard currency, is mainly done at a traditional level and involves relatively few people and fish does not represent a major nutrient? The question becomes dramatically important if the fishing administration takes into due consideration the cost/benefit theory. According to it "a regulation program cannot be justified unless the present value of gains is greater than any implementation costs" and in this case "the important point to note is that there are many types of enforcement-related costs, and these costs will vary with the type of policy instrument and how it is used. That is, although the net benefit of an unregulated fishery may be the difference between the value of the output and the cost of the fishing effort, the net benefits of a regulated fishery must take into account all costs that follow as a direct result of the regulation program"³.

9. In making a policy decision the government should be aware of the reasoning illustrated in the previous paragraph. Thus, "if the regulation is similar to other Government programs (i.e., quotas for a newly managed fishery when quotas are used in many other fisheries) and existing organizations or agencies can perform the task, these costs could range from little more than assigning tasks to existing staff to hiring and training new personnel. If the regulation is radically different, however, these costs can be quite high

³From Enforcement issues in selecting fisheries management policy, by L.G Anderson, in Marine Resources Economics, vol. 6, pp. 261-277, 1989.

as new agencies or branches are established, personnel are hired, standard operating procedures are established, etc."⁴. Indeed, the selection of a national policy should not be entirely based on economic considerations. There are other factors that a State has to take into account, like the desire to assert its national sovereignty over waters under its national jurisdiction, the need to protect and manage a source belonging to the whole nation, the necessity to prevent conflicts between different fishermen and/or sea users, etc. Furthermore, the benefits of a good management system are not always easy to quantify. In fact, the establishment of an adequate MCS policy will also depend on legal and policy considerations and may have legal and policy effects.

10. At a national level, as there may be reasons for not declaring an EEZ, there may be reasons for not implementing an MCS system or for partly implementing it only. The absence of clear maritime boundaries and the political tensions with neighbouring States may prevent any surveillance on large portions of the sea. Any MCS system will have to comply with international law as far as it applies to the EEZ (e.g., the United Nations Convention on the Law of the Sea (UNCLOS) prohibits imprisonment for violations to the fisheries legislation within the EEZ) together with any specific international agreement to which the State is a party. The failure to take into account existing customary rules may also cause some legal and policy problems. Sometimes the Constitution itself may be an obstacle to an effective MCS. In Chile the Constitution strictly protects individual rights, in particular the right to acquire property whilst the Civil Code declares fish to be *res nullius*, therefore not belonging to anybody before they are caught. This was used by a group of local industrial fishermen to declare that the State had no right to control or regulate the fisheries; the dispute is still pending. If the setting up of an MCS system involves changes in the distribution of responsibilities within various administrations this could provoke the resistance of those administrations losing certain powers.

11. A new MCS organization will also have important legal, institutional and political consequences. As far as the national legislation governing fishing is concerned the changes required may be quite numerous and may include, inter alia:

- amendments to the basic act with respect to the (i) powers of enforcement officers; (ii) level and nature of sanctions; (iii) judicial and/or administrative procedures to be followed in case of infringements to the legislation; (iv) possible incentives to be provided to surveillance officers; (v) minimal reporting requirements for all fishing vessels; (vi) requirements on entry and exit to and from the EEZ.
- modifications to the implementing regulations. Some management measures might be repealed whereas others will have to be drafted in light of the policy chosen and with due regard to their enforceability. It is very difficult to generalize about what legal instruments will have to be modified but it can be said that the first objective of an effective MCS is to know who is fishing what and where. Therefore regulations on reporting requirements, marking and registration of vessels, landing of catches, etc., might need to be reviewed or to be enacted altogether. The enforceability of the existing legislation should also be assessed; thus the new Senegalese regulation establishing fishing zones, while being based on sound scientific data, is very difficult to enforce because of its complexity and the number of zones it creates. The degree of compliance should also be examined; no regulation will be complied with if the fishermen are convinced that it is unfair and/or inappropriate. In Madagascar nobody, starting with the administration, complies with a regulation fixing a closed period for lobsters because the period indicated in the regulation does not correspond at all with the reproduction cycle.

⁴ibid

12. The institutional constraints should also be taken into consideration. Giving the three elements composing MCS a number of bodies and administrations may have a role to play. In addition to the fisheries department, the ports authority, the navy, the air force, the police, the local administration, the customs, universities and research institutes might be required to contribute at one stage or another. Consequently it might be appropriate for the legal framework to be modified in order to ensure the coordination of activities and to clearly indicate the leading agency. In Mauritania, as part of an MCS project, an ad hoc institution with specific duties and responsibilities, has been created ('Commande de Pêche'). A similar approach is now being implemented in Guinée Conakry. The risks of not clarifying the institutional framework consist in a possible overlapping of competence and activities or, on the contrary, in a certain inertia. It is also in this context that a Government may have to decide if the fisheries surveillance should be under military or civilian supervision.

13. A last element to be considered when establishing an MCS system is the regional cooperation that might already exist in this area or that could be developed. The reasons for dealing with MCS on a regional basis are well known. Gathering of information, surveillance and physical enforcement at a national level is costly and not always effective in view of the fact that stocks do not follow maritime boundaries and that fishing vessels follow the stocks.

14. The difficulty in establishing a regional MCS system lies in the fact that MCS covers, by nature, various elements of collaboration which will all be needed. There are at least three distinct levels of cooperation.

15. The first condition is that there must be a common political and legal framework which would include the following points amongst others:

- to meet regularly and be able to take decisions through technical and political fora. This constitutes the basic requirement for any regional collaboration and it should be noted in this respect that, West African countries, with very few exception, have failed to create such fora.
- to harmonize national fishery legislations. In order to envisage any concrete cooperation within the region or with respect to third parties there must be a harmonization of fishery legislations in the area. Harmonization does not mean to have an identical legislation altogether but to have identical or at least similar provisions in the domains in which regional cooperation is sought.
- to collect and exchange data. This can be done, in particular, by establishing a regional register of fishing vessels operating in the region. Such a register appears to be a step of major importance and could constitute (i) a clear sign of cooperation towards third countries, (ii) a statistical instrument, (iii) a management tool. The magnitude of the register will depend on the vessels it is intended to apply to (foreign and/or national, industrial and/or artisanal), on the kind of data that will be inscribed and on the use that will be made of this data, on the mandatory character of the registration and on the legal consequences in case of non-compliance.

16. After having created a minimal framework of cooperation the coastal states should define a common policy toward foreign fishing which represent the most important common interest. Such a common policy should have two applications of interest in a regional MCS system.

- the definition of minimum terms and conditions of access for foreign fishing vessels. In order to be in a strong position towards foreign vessels and distant waters fishing nations (DWFN) it is suggested that a common scheme for the operation of those vessels in the waters under the jurisdiction of the coastal states of the region be set up. What is to be included in the minimum term and conditions for access will depend on the degree of cooperation, but may deal, inter alia,

with the following: licensing form, reporting requirements, catch logs, observers and control in the ports, rules on transit and transshipment of catches, powers of inspection at sea. Such a scheme, be it an international agreement or only an agreed document of work, will probably have to be enacted in each national legislation which shows again the importance of the harmonization of the legislation

- the joint negotiation of fishing agreements and the inclusion of legal responsibilities on the flag state. The negotiation of common fishing agreements with DWFN may give a strong bargaining power to coastal states and may lead to better conditions. A principle of major importance which may more easily be included in a fishing agreement negotiated at a regional level is the responsibility of the flag state. The base of this principle may be found in the general obligation of due diligence under public international law, according to which, States are legally responsible for the acts committed by their citizens. There are several treaties in the world that incorporate this principle but the most famous one is the 1987 Treaty between the USA and Certain Pacific Island States. Art.4 of the Treaty, "Flag State Responsibility", sets up very strict requirements upon the USA including the imposition of judicial and administrative sanctions on U.S. vessels having infringed the fishery legislation of a Pacific Island State. The product of the penalties is then passed over to the coastal State.

17. Finally the common surveillance of resources should be envisaged. Cooperation in fisheries surveillance and enforcement is a sensitive issue and requires that cooperation is already well advanced in the other aspects mentioned above. This is particularly true for enforcement and the two aspects may be dissociated if needed. As far as surveillance is concerned cooperation may include joint operations of naval and/or air surveillance and the exchange of any relevant information. Concerning enforcement one may envisage the granting of power to an authorized officer to take enforcement actions in the waters of another state of the region, possibly including the territorial sea. It may also be envisaged to ensure the reciprocal enforcement of judgements and the possibility to initiate a prosecution at a regional level. However any agreement on those matters should comply with general international law and with any agreement already in force (for example regarding extradition). The conformity with national legislation and with the rights of the individual will also need to be carefully assessed.

MCS IN OTHER REGIONS

18. Some of the ideas presented in the first part of the paper might sound overambitious, but, in fact have all been tried in other areas of the world where MCS is particularly well advanced. This part of the paper will try to present how MCS is viewed and implemented in other parts of the world. Firstly we will give some examples of the characteristics and the means of MCS in developed countries at a national level. This will be followed by a brief illustration of regional collaboration on these matters.

19. Norway has a maritime area of 2.2 million km² under its national jurisdiction. For the purpose of enforcing the legislation the Directorate of Fisheries and the Coast guard are the main bodies. Both institutions have a self governing responsibility for verification, even if they work in very close cooperation. The Directorate of Fisheries shall ensure compliance with the fishery legislation of the country and may request the assistance of the Police in this respect. The Norwegians put the accent on dockside control by having 80 inspectors placed in the most important ports along the coast. In addition, since 1986, Norway has established a new controlling system with 11 inspectors. Their mission is specifically to identify the areas where the by catches of fry and young fish are so high that the fishery needs to be closed for a period of time to be defined. The Coast Guard also has, according to section 47 of the Sea Fisheries Act, the right to inspect vessels. Inspectors may be placed on board to carry out inspection assignments. The Coast Guard is an integrated part of the Norwegian Defence Organization and its main duties are (i) general surveillance and supervision in areas under Norwegian

Jurisdiction and (ii) surveillance of the fishery borders, the trawl-free zones, gear protection and auxiliary services for Norwegian fishermen at sea. To carry out these functions the Coast Guard has at its disposal a number of specialized vessels, two long range maritime patrol aircraft and six naval helicopters. The total budget of the surveillance system including Coast-Guard operations described above, is of over 600 million Norwegian kroner a year⁵.

20. In Germany there are three levels of MCS. The general rule, as defined by the Maritime Tasks Act, is that surveillance of fishing within the territorial sea is carried out by the states (Lander) whereas outside this area it is the task of the federal government. However there may be exceptions in both ways to this distribution of jurisdiction. Checks at sea are made by fishery protection vessels of the Federal Ministry of Food, Agriculture and Forestry, revenue cutters of the Federal Ministry of Finance and fishery supervisory vessels of the Landers. An air surveillance system does not exist in Germany. In addition to this dual competence the EEC Commission supports national fishery surveillance in their inspections at sea and in harbours. The Commission has its own inspection service for this purpose. The EC inspectors are entitled to check vessels in fishing harbours of the member states and to take part in the inspections at sea carried out by the national officers although they have no authority to give instructions to them. The national officers ensure the observance of the Community fishery law as well as of the German Maritime Fisheries Act. Verification takes place on the basis of the ship's log, the log book and all other documents concerning fishery operations. To improve the reliability of verification the Commission introduced a standard fishery log-book and a landing declaration. For the species for which a Total Allowable Catch (TAC) has been fixed quantity of catch, date and place of fishing as well as type of fishing gear used have to be entered. Meanwhile each fishing vessel 10 m. long or more is obliged to report data on landings and relandings and on catches to the competent agency of its country of origin.

21. The MCS system in force in New Zealand is adapted to the management measures adopted by that country in the recent years and in particular to the introduction of individual transferable quotas (ITQ) as set up by the Fisheries Act 1983 and its subsequent amendments and subsidiary regulations. MCS is under the control of the Ministry of Agriculture and Fisheries (MAF). In the surveillance area the New Zealand Police Force and the Ministry of Defence may assist on some rare occasions. This is particularly the case of use of aircraft for routine patrolling over the EEZ and, on some occasions, by the provision of Navy vessels for patrols in one or two deep-water fisheries. All these operations, however, are under the control of MAF. The management system based on TAC and ITQ is extensively monitored through the provision of monthly reports. Consequently the surveillance system is aimed specifically at managing this output based system therefore not having a large number of surveillance officers at sea. They are generally land based and check the fish product flow once it lands. Furthermore, following the introduction of the new system, MAF has also ceased to operate its own vessels. Nowadays the surveillance system consists of approximately 100 individuals broken into: (i) surveillance officers to undertake routine surveillance activities, (ii) investigators, having skills in compliance investigations, to put together cases for court action and, (iii) auditors who are involved in doing investigative audit of fishing companies and individuals in terms of their compliance with the provisions of the Fisheries Act as they relate to quota. In addition MAF has a team of between 50 and 80 observers who are contracted to undertake observation trips on the deep water fleet for the purpose of verifying catch and effort information and providing for some specific surveillance activities such as supervision of transshipment at sea. Decisions on management measures are either made by the Minister of Fisheries or, in some cases, by the Director-General of Agriculture and Fisheries, or, in many cases by delegated officers within MAF. The scientific ground is covered by the Marine Research Section of MAF. This group consisting of nearly 300 people is almost entirely tuned towards providing stock assessment

⁵600 million Norwegian kroner equals just over US\$ 100 million

advice for the setting of TAC for major commercial fish species in the New Zealand zone. The opinion of the people involved with surveillance is also taken into account in any decision. The total annual budget of MCS is approximately NZ\$ 16 million. All the costs are provided directly by Government appropriation. The average salary of a surveillance officer is NZ\$ 38 000, investigators NZ\$ 50 000, auditors NZ\$ 60 000⁶. Recruitment is undertaken by way of general public advertisement.

22. There are several examples of regional cooperation in MCS that could be provided but very few are really successful. Areas like the North Sea have been jointly managed for decades with disappointing results. The EEC, which set up a common policy on fisheries 10 years ago, is now entirely reconsidering the system. The cases of regional cooperation between developing countries are even more sporadic. There are however two regions in which this is now done or at least seriously taken into consideration; the South Pacific and the Caribbean. The framework in the South Pacific is now well known and advanced whereas cooperation in the Caribbean is still in the setting-up stage. Even if the two cases should not be strictly compared there are a certain number of similarities that may be noted in particular with respect to the requirements pointed out in the first part of this document. In both cases cooperation started in a political forum and in each region the harmonization of national legislation was undertaken first.

23. After these examples of the functioning national and regional MCS in the world some general observations may be made: (i) there are no models and each system is adapted to the cultural, geographical, political and legal framework of the country/region; (ii) the operational character of the system will depend on management decisions made; (iii) the legal and policy considerations are always taken into account when establishing an MCS system; (iv) the decision making power is always in the hand of the civilians even on surveillance matters; (v) the national and regional MCS are complementary to each other.

Selected legal and policy constraints of West Africa

24. This last section will try to briefly present some of the legal and policy issues that might hinder the birth of effective MCS in West Africa, in particular in a regional perspective. Naturally that does not mean that no MCS is possible in West Africa as it should not be assumed that the reasons hereunder are the only ones or are limited to West Africa. Further, the order of presentation is not an indication of any classification by importance or any other 'objective' criteria.

25. The cultural, linguistic and geographical differences should not be underestimated. The Caribbean is a relatively homogenous and well defined area with a common history and a lingua franca (English). West Africa on the contrary is a region divided in countries using different languages, having different traditions and a different political, institutional and legal framework. This, in addition to the various political problems it may lead to, is also the source of day-to-day difficulties. Thus a donor agency is assisting a group of countries from North West Africa to establish a sub-regional register for fishing vessels. This will involve the development of a software which will be produced in French only; now it remains to be seen how non-French speaking countries will be incorporated in the project.

26. The principle of sovereignty of States and more general political considerations are particularly important in the region. No regional cooperation may be envisaged without the relinquishment of some elements of national sovereignty. This is a point on which all the systems of regional cooperation in any part of the world and on any area are often endangered. In West Africa because of the recent history of colonization such an issue is still very sensitive. Political and territorial disputes are not unusual and

⁶NZ\$ 16 million equals approx. US\$ 9 million; NZ\$ 50 000 equals approx. US\$ 28 000; NZ\$ 38 000 equals approx. US\$ 21 000; NZ\$ 60 000 equals approx. US\$ 34 000

may block any development. In recent times a dispute between two member countries of the Sub-regional Commission on Fisheries had virtually stopped the work of the Commission for almost three years.

27. The existence of several disputed and/or undefined maritime zones is also a problem. This point has two aspects. Firstly the situation in respect to the extent of the maritime zones under national jurisdiction is still, ten years after the signature of UNCLOS, far from being settled. If a majority of countries, in particular in the North West, have declared a 12 miles territorial sea and an EEZ up to 200 miles, others are in a different condition. Benin and Sierra Leone maintain a territorial sea of 200 miles, Nigeria invokes a territorial sea of more than 12 miles while Cameroon claims 50 miles of territorial sea but like Zaire, has not declared an EEZ. Such a variety of situations together with the fact that very few maritime boundaries have been delimited have provoked and are still the cause of international disputes or may constitute grey areas which are used by foreign fishing vessels. They will fish in those areas and, taking advantage of the unsettled legal regime, will claim that most of the catches come from the grey areas.

28. The priorities and the interests with respect to fisheries are not always common. If we make a comparison with the South Pacific we may observe that the economic conditions, the type of resources and the state of the fishing fleet are quite different. In West Africa the fisheries are multi-species, the artisanal fleet is generally important, some countries have a real national industrial fleet and foreign fishing is really active in the North and the South only. The economic dependence on fish is quite different from one country to the other. In those circumstances it is not always easy to define a common position based on the general interest.

29. In fact one should also note a general weakness of regional cooperation in Africa. In spite of the fact that Africa is the continent with the largest number of regional and sub-regional organizations in the world, very few are effectively functioning and most of them have only a symbolic role. The reasons for this situation cannot be analyzed here but it must be observed that the limited success of regional cooperation is not confined to the fisheries sector only.

30. Furthermore it should be taken into account that regional MCS is built from national systems and at this stage very few in West Africa are even satisfactory in spite of a certain improvement in the last few years. In the paragraphs hereunder we will attempt to give some reasons for the relative failure of national MCS schemes.

31. The misunderstandings over the role and function of MCS provide a basic explanation of this state of affairs. As said before, and as this document has tried to demonstrate, MCS should not and cannot be reduced to the single surveillance component. In fact, effective surveillance is not proportionate to the number of vessels and planes that are used for it nor with the number of vessels arrested. From a legal point of view illegal fishing cannot be assimilated to piracy and should not be considered as the only danger for resources. The choice of an MCS system is not regularly assessed by a cost and benefit analysis.

32. A tendency to import models from developed countries in West Africa is noticeable. In fact, in most cases, this is done in absolute good faith. One tends to reproduce what he knows and what has apparently worked in other countries and/or regions. However the consequences of delivering inadequate material, not suited to the particular needs or geographical situation of the country, has often ended up in high costs of operations and very little effectiveness. It may also be argued that the reproduction of models is one of the reasons explaining the failure of certain projects of assistance in

⁷For an analysis of some of the issues see Moore, G., "Enforcement without force: new concepts in compliance control for foreign fishing operations", In The Law and the Sea, FAO, Rome, 1987, pp. 159-171.

this matter. In fact inadequacies of the enforcement system (operational and judicial) are frequent and might endanger the credibility of the whole MCS organisation.

33. The incompleteness of the rule of law and the arbitrary character of some sanctions might provoke some doubts on the fairness of the legal system. The certainty of law is a basic principle of all legal systems. In order to be a satisfactory deterrent the legislation should be clear and equitable, in particular when it relates to penalties. The latest tendency in violations to fishery legislation is to have heavy fines and to use the option to compound whenever possible. A number of West African countries have incorporated this possibility in their legislation and some have even created ad hoc bodies to deal with the procedure. This movement should certainly be encouraged in so far as it provides a speedy procedure to the advantage of both parties. Nonetheless there must be a strong supervision on it in view of the possible abuses and the risk of having a double standard system of sanctions.

34. Finally the practical consequences of some provisions of fishery legislation are not always duly considered. This is certainly the case with respect to the enactment of management measures and to the operational aspects of MCS but legislation may also have other unexpected implications. In order to ensure the payment of a fine in case of illegal fishing a number of countries have a legislation providing for the detention of the crew. This measure while being generally effective might become counter-productive. Thus FAO recently received a request for assistance from the Somali Government who arrested two Taiwanese vessels illegally fishing and detained the crew without any attempt from the vessel owners and the Taiwanese authorities to secure the release of the vessels and the crew. In Australia the number of illegal Indonesian vessels apprehended by the Australian authorities rose from 7 in 1987 to 41 in 1991. The increase does not result from an improvement in surveillance but only "from the fact that Australian jail terms are considered to be an annual vacation by many Indonesian fishermen; they are paid more in Australian jails than they could earn from fishing"⁸.

CONCLUSION

35. The setting up of an effective MCS may be very costly. The decision making authority should give due account to legal and policy considerations in deciding the implementation of the system and in selecting it. However, the legal and policy aspects being closely interrelated with the economic factors and management needs should not be analyzed separately.

⁸News reported in Globefish n. 2/92, FAO Rome, p. 18

NATIONAL CONSIDERATIONS CONCERNING MCS IN AFRICAN STATES
BORDERING THE ATLANTIC OCEAN

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INTRODUCTION

1. The purpose of this presentation is to outline the major cost components of the fisheries surveillance and protection (FSP) system. This paper considers an integrated FSP system including, in particular, a naval and aerial component, an observer programme to monitor the fishing effort, and an inspection programme to enforce regulations.

2. The cost of surveillance is influenced by several parameters, such as:

- the size of the EEZ
- the size of the national and foreign fleet
- the types of fishing
- fishing agreements
- coastal morphology
- landing sites
- transshipments at sea, etc.

3. In addition to the latter, other major factors concern the type and choice of gear, the (civilian or military) status of the programme, manpower and origin (whether permanent or contract staff), and manpower development.

4. Most of these scenarios are found along the West African coast, and so we shall take a brief look at some of these parameters to get a better idea of the cost of an integrated surveillance and protection system. The point of the exercise is to examine the possibility of improving FSP operations and making them more cost-effective.

THE EXCLUSIVE ECONOMIC ZONE

5. The implementation of the United Nations Convention on the Law of the Sea allowed coastal States to extend their exclusive economic zone to 200 miles. All countries have adapted their fishery legislation in accordance with the main principles of this Convention. The national borders of these countries are not always clearly defined, a question we shall not discuss here but do mention, because this can be crucial to the system's efficiency. An ill-defined or disputed border can reduce the effectiveness of naval and aerial patrols. This becomes important when one considers the right of hot pursuit.

Maritime area

6. A country with less than 200 km of coast doesn't need the same surveillance system as a country with a 1 000-kilometre coastline. Another factor to consider is the extent of the continental shelf (the longer the shelf the easier the trawling). But even if the maritime area of most coastal countries is relatively small compared to Canada's, for example, it is still a sizeable area in which to enforce law, given the available means of enforcement.

7. Problems of communication and the geographical location of the capital and/or seaport are often per se a handicap to effective surveillance. If we consider the additional factor of solidarity among fishermen, it can often be difficult to surprise a vessel once surveillance has begun.

Industrial versus artisanal fisheries

8. Artisanal fisheries are important in all the coastal countries, supplanting industrial fisheries in some. Artisanal fisheries are profitable for the country from every standpoint, but the interface between the two is often a source of conflict between industrial and artisanal fishermen.

9. Generally speaking, artisanal fishermen tend to be unaware of the regulations on maritime fishing. They believe that infringements of the law concern solely the larger vessels. Relatively speaking, industrial fisheries constitute the greater threat to the habitat, but artisanal fishermen can also threaten fishery resources and the environment.

10. Among other things, artisanal fishermen often do not report their gear or their craft, navigate without safety equipment, fish anywhere, and sometimes get lost at sea. The use of some specific gear, and their number, can also constitute a threat to fishery resources: particularly ring nets, beach seines, gillnets, and the use of explosives and poisons. So far, little control has been applied to artisanal fisheries. In the general interest of fisheries and fishery resources, the matter will have to be taken up at some point.

Fishing agreements

11. Most of the countries sign fishing agreements with foreign countries. The content of these agreements sometimes contradicts specific provisions of the fisheries law and its enforcement. Foreign vessels may well be in a privileged position with respect to the local fleet. This situation exists because the negotiating team does not include a surveillance expert. Transshipment arrangements granted to foreigners can stand in the way of means to control the fishing effort. The observer programme's failure to monitor rules out any real knowledge about the catch. Fishing agreements do not sufficiently detail the powers of inspectors and observers. The importance of the agreements increases the pressure on stocks.

Coastal morphology and fishing zones

12. The geography of the coastline is another element which can influence the cost and effectiveness of the surveillance system. A very uneven coastline offers natural shelter and hinders radar surveillance. The reference to low water mark or straight baseline may in some cases complicate the verification of fishing zones. It should also be remembered that surveillance vessels are not equipped to quickly fix the position of a fishing vessel. This, plus the growing number of fishing zones, constitutes a major handicap, making the system less effective. The reference to low water mark is generally more favourable to the control of the zones.

Landing and transshipment

13. The increasing number of landing sites (harbour or beach) means that surveillance agents must boost their control efforts. Transshipments at sea also favour the failure to monitor the fishing effort and lack of control activities. Every effort should be made to limit transshipments at sea. The transfer of the load to collection vessels may be more or less obligatory. The fishing vessel may take on fuel, food and other goods at the time of transshipment. Laws concerning the import of goods into a country are generally the province of the Ministry of Finance. Customs agents and police are generally responsible for import controls.

NAVAL SURVEILLANCE

14. Naval surveillance, due to the nature and size of the surveillance units, is the most expensive component of the FSP system. Some data are hard to pinpoint as vessel types vary greatly; we have therefore concentrated on unit operating cost.

15. In approximating costs, the following must be considered:

- vessel type
- light and working displacement
- surveillance strategy (speed, anchorage)
- duration of the period at sea
- distance to be covered
- crew, etc.

16. Generally speaking, surveillance unit operating costs run from \$2 000/day for a 20-metre vessel to \$ 4 000/day for a 55-metre vessel. This figure includes fuel, lubricants, food, maritime bonuses, normal maintenance and annual careenage. Neither major repairs nor regular staff salaries are taken into account. (N.B: The figures are those generally observed in all countries, but they may vary in accordance with input prices.)

Vessel type

17. The maintenance of maritime territorial integrity is a Naval responsibility in most African countries. Most of these naval units consist of warships. This means relatively large patrol vessels, 25-55 m, equipped with very powerful engines, and with substantial displacement (armour, munitions). Moreover, the number of surveillance vessels is limited and upkeep is often a problem. Vessel origin depends on the historical background of the country: often enough surveillance vessels come from the shipyards of different countries, with their own technologies, and so spare parts are even more of a problem.

18. These warships are equipped with very powerful engines which can hit speeds of more than 20 knots. At this speed, with engines bigger than 3 000 hp, oil and diesel consumption is so high as to have a marked effect on operating costs. A 55-m patrol boat usually has autonomy enough to remain at sea from 10 days to two weeks. Missions often last fewer than 10 days, however, and sometimes fewer than five.

19. The number of men on board corresponds more to a military than a civilian mission. A warship consumes more food and drinking water than a civilian vessel. This reduces the number of hours and days in the surveillance area, making surveillance operations considerably less cost-effective. Figures of under 100 fishery surveillance days at sea are not uncommon, whereas 250 days are required to ensure a real deterrent effect.

Displacement and speed

20. There is a great difference in weight between a warship and a civilian ship. A warship's superstructure with its armour-plating, artillery and munitions adds several tons to the displacement weight of the vessel. The purchase price of a warship can easily be three times as high as that of a civilian vessel, mainly because of the firepower. There is no need for high-calibre firepower to board a fishing vessel. Firing exercises also increase the vessel running costs. A warship consumes much more diesel than a civilian vessel of the same size.

21. Surveillance vessel speed is very fast when a target is identified. During normal operations it is better to proceed slowly to avoid being spotted by fishing vessels, which trawl at a speed of 4 knots.

The surveillance strategy

22. Another cost determinant is the strategy put into practice once the vessel leaves the port.

23. A surveillance mission based on fisheries information has to consider several parameters such as the number of vessels licensed to fish, the definition of fishing zones and seasons, the importance of fishing agreements, the reports of observers and inspectors, the declaration of entry or exit from the fishing zone, etc. The coastal geography (northern or southern zone) also influences the surveillance strategy, as does the definition of borders with neighbouring countries.

24. The most directly influential factor in surveillance costs, however, is the decision by the patrol vessel captain to speed towards a potential pirate zone in order to surprise an unlicensed fishing vessel. Where this is the choice made, other fishing vessels or coastal fishing zones are only controlled on the way back, which can easily make the mission less effective. Everyone knows that the passage of a surveillance vessel in a given fishing zone causes other vessels to flee. By the time the patrol vessel comes back, then, any potential offenders will have left the area. This is a very delicate question, as the overall objective of the FSP programme can easily get lost in the shuffle where surveillance concentrates solely on pirate vessels. Moreover, since a fishing vessel operates at 4 knots, a radar screen can easily detect the displacement of a patrol vessel going over 15 knots, and alert illegal fishing vessels to either flee or change fishing zone. The speed of the patrol vessel and the time spent at anchorage are directly connected with the strategy and planning of the mission. Understandably, if the patrol vessel is constantly active, less time will be spent at sea than if a specific number of hours at anchorage are planned in advance. A vessel outfitted with two or three 3 000-hp engines consumes roughly 50 litres of diesel per hour. If the speed is kept up for a long time fuel consumption will be very high. In order to save fuel, the engine must be run at slower speeds. Going back and forth from the port to the border is not a money-saving technique.

25. For surveillance, the important thing is to remain at sea.

The length of time at sea

26. The length of time at sea has a great bearing on the mission's cost and effectiveness. Trips which are too short will simply consume fuel in order to get to a surveillance zone and back to port. A 20-metre vessel has to be out for about four to five days, on the average, whereas a 55-m patrol vessel should aim at 10 to 15 days. To achieve this objective, it is necessary to reduce the speed, increase the time at anchorage, reduce the size of the crew and improve coordination and communications with other surveillance units and systems. When a surveillance vessel remains at anchor, it is concealed from other vessels newly arrived in the fishing zone. The detection instruments on board the anchored vessel can then maintain a minimum of control over the fishing zone. The presence of a patrol vessel near a coast inhabited by artisanal fishermen gives the impression of surveillance, keeping industrial vessels away.

The crew

27. With military-type surveillance, the tendency is to take on board as large a crew as possible. On a 20-m patrol vessel, for example, there will be 10 to 15 sailors and on a 55-m patrol vessel, there may be more than 35 people. A 55-m civilian patrol vessel in Canada carries a crew of about 10, and one or two fisheries inspectors. Though salaries may be low in Africa, any figure multiplied by 30 or 35 is big. The consumption of food and drinking water is also directly proportional to the size of the crew. The food in the mess should be of a quality and quantity designed to ensure mission success. Not uncommonly, surveillance agents return ill from a mission plagued by food poisoning or blocked-up toilets. The cost/effectiveness of an aborted mission is reduced and the quality of the FSP programme is poorer.

28. Another very delicate question in Africa is the presence of civilian FSP inspectors on board. Delicate because it concerns the definition of the programme. In most African countries, the fisheries administration is civilian and surveillance is military. Quite apart from the oft-noted competitiveness between the two branches, there is often a mutual lack of trust which may go so far as the withholding of information. How often have civilians or military personnel been said to leak information? Unquestionably, great discretion in planning a surveillance mission is necessary and even basic. In Africa, it is difficult to keep a secret for long. The best answer is to have a unit at sea every day, in which case the departure of any one unit will no longer be shrouded in mystery.

29. Likewise, civilian and military personnel do not share the same FSP objective. Military staff generally tend to stress the monitoring of fishing licences and zones, whereas civilian inspectors are also concerned with monitoring catches and gear. This apparently very simple matter makes all the difference in the cost-effectiveness of the programme. Indeed, it only makes sense to speak of effectively controlling fishing operations when you take into account all parameters: e.g. fishing licences and zones, mesh size and net protection arrangements, protected species, catch size, the by-catch and discards.

30. Countries just starting out in FSP have more problems with pillage and pirating than those with a good programme already under way. The latter need to stress fishing gear and discards. It is hard to reconcile the two, but the presence of fisheries department inspectors is often necessary to evaluate infringements of mesh size, and particularly infringements of protection and retention mechanisms. Discards are one reason for the slump in stocks, and not an easy one to pinpoint. To assess stocks in a given zone fished with a specific gear requires solid experience and a good knowledge of biology. Civilian inspectors are generally better trained to do this.

Maritime and boarding bonuses

31. An issue as delicate and basic as maritime and boarding bonuses is not a simple matter. Without a maritime bonus, the crew will not be motivated to go out and perform its mission correctly.

32. Maritime bonuses are usually quite low, and are not a decisive factor in spurring enthusiasm and ensuring the optimum commitment of surveillance personnel. And from the financial standpoint, more bonuses and more staff drive up the cost of the mission.

33. Attempted bribery is not uncommon in the fisheries sector, and the integrity of surveillance staff must be preserved. If the staff know that they will receive a certain portion of the fine, there is less likelihood of direct negotiations, and the system will be protected. Most authorities in the coastal States have therefore opted for boarding bonuses, based on the penalties imposed on law-breakers.

34. There are a number of share schemes, the best one being that which meets the needs of the country. However, the total amount of the share may have a negative impact on the MCS programme. If the objective is to offer the maximum incentive to surveillance staff, while still taking all necessary precautions, an overly large bonus may detract from the initial objective. Fines are higher for an unlicensed vessel than for an illegal mesh size. While there is no upper limit to the percentage of the share, there may be a danger of systematically looking for violations, which can work to the detriment of the objective of the MSC programme.

35. Clearly, it is more attractive to board a pirate vessel than to do a routine inspection on a vessel flying the flag of the coastal state.

Remarks

36. Naval surveillance is the most important, but also the most expensive component of FSP: Fishing takes place at sea, which is where one must be to ensure the control of fishing activities.

37. Programme cost is heavily dependent on the choice of units, nature of the programme and strategy developed. A well-balanced selection of vessels and vessel sizes can cut fuel consumption. The use of big warships to carry out an operation whose goal is civilian and economic, is not a cost-limiting factor. The civilian/military ratio and judicious use of the hands on board will have a great bearing on how many vessels are controlled and inspected at sea. A combination strategy (control of fishing zones, anchorage, duration) will facilitate a greater and more effective presence at sea. Coordinating all surveillance resources can make the difference between an efficient system and a non-efficient one.

38. Lastly, the fisheries law, together with fair and reasonable boarding bonuses, can help to make the surveillance system more effective.

AERIAL SURVEILLANCE

39. Aerial surveillance is the second operational component of fisheries surveillance. Aerial surveillance has developed substantially throughout the world and now covers a vast maritime area. The use of aircraft to observe fishing activities offers many advantages in a country such as Canada. With a territory several thousand kilometres in area and considering the number of vessels operating, quota management of fisheries, fishing periods and seasons, the use of an aeroplane for FSP clearly has its attractions. In African coastal countries, the use of aircraft is another matter. But first, a quick look at the costs of aerial surveillance.

The type of craft

40. As at sea, the type of craft is crucial to cost. There is a considerable difference between a multiengine, turbo prop craft like the Twin Otter, a Briton Islander, a Dornier, and a push-and-pull Cessna. (N.B: These three models are presumably in use in the sub-region).

41. First of all, the purchase price of such a craft varies considerably, from several hundred thousand dollars to over three million dollars. The impact on the cost of the surveillance programme is already substantial. The depreciation costs for such a craft are very high: if grounded for technical or tactical reasons, the cost will be hard to bear.

Running costs

42. Fuel is a major item with a Twin Otter-type craft, which consumes 300 l/h. A Cessna consumes about 100 l/h but uses superfuel (Av-Gas) which is very expensive and hard to supply, transport and store, and may easily be used for other purposes. Plane insurance is another high-cost item. Civil insurance may well be compulsory, but the State may be willing to assume bodily risk, which costs several thousand dollars. Given the high cost of insurance, which may exceed \$ 30 000, a grounded craft is very expensive. Turbo-prop maintenance costs are very high and require great expertise. The piston motor is much simpler to maintain but it is less reliable at sea. In addition to these substantial basic costs, there are periodic inspections, hourly and scheduled checks, service bulletins, etc. Both the navigability certificate and insurance make constant monitoring of the craft compulsory. A navigability certificate costs some \$ 10 000/yr, a considerable expense. If major repairs are required, the craft must be re-inspected, raising costs even higher.

43. Salary costs for flight and technical support personnel are a major operating cost item. The crew must be trained in fishery surveillance. Lastly, depending on the legislation in force, airstrip costs can be a substantial additional expense. It is generally acknowledged that a Twin

Otter-type craft costs some \$ 2 000/hr, an Islander \$ 1 400/hr and a Cessna \$ 500/hr. An airplane is only cost-effective after hundreds or even thousands of hours. This can mean a cost of more than one million dollars per year for an aerial surveillance programme. Briefly, with a \$ 2 000/hr airplane, a programme of 1 000 flying hours will cost \$ 2 million for a Twin Otter. The figure will be \$ 1 400 million for an Islander, and \$ 500 000 for a Cessna.

44. The surface area of most African coastal countries is too small to make a large plane cost-effective, and so the only reasonable approach to aerial surveillance would be a regional approach.

Missions

45. Like maritime surveillance, the type of mission (coastal or high seas surveillance) influences the cost-effectiveness ratio. Several patrols along the coastal strip with successive take-offs, for example, will not produce the same results as a joint mission. The flight programme and frequency of flights must be determined with reference to the fishing plan. The number of vessels observed and controlled can vary considerably from one mission to the next. With an airplane, one can survey the surface situation in a few hours. If these data are sent and analysed immediately, naval surveillance can be made more effective. Other factors such as the area to cover, the definition of fishing zones, the number of vessels, and licence categories condition the effectiveness of aerial surveillance. If there are many fishing zones, for example, the craft will have to comb the area and verify each category of vessel observed. The percentage of coverage is of course a decisive factor. This percentage is determined in accordance with the area to be covered, the fishing effort, the season, fishing zones, etc. A coast 1 000 km long with about 200 fishing vessels will require some 500 to 1 000 hours of aerial surveillance per year.

46. The type of craft and the equipment on board influence the number of hours required. The overall total of the number of vessels observed and controlled is what will validate or invalidate the surveillance plan.

Problems

47. There are many problems in connection with aerial surveillance. Apart from the high purchase cost of an aeroplane, and the maintenance and running costs, there are still other factors which complicate the effectiveness of an aerial surveillance programme. One potential problem is legislation ill-adapted to the search for violators. Unless the law is very specific, there will be endless disputes. The size of the national fleet, the lack of a disciplined respect for fishing zones, the age and size of the fishing vessels, the financial capacity of the shipowners, the political relations of the traders: these are all factors which can complicate the processing of aerial surveillance boarding dossiers. Night surveillance is also a constant problem in places where fishing activities take place at night. At present, aerial surveillance in Africa has yet to prove its effectiveness.

48. Another problem of the aerial patrol is its impotence in the face of unregistered pirate vessels. And the aeroplane can act only as a deterrent where this type of violation is concerned. Sometimes the overflight of the plane makes a vessel flee preventing the arrest of the offender by a surveillance vessel at sea.

Remarks

49. Aerial surveillance is necessary for an integrated FSP programme. An aeroplane can cover large areas in a short time and observe a great many vessels.

50. The use of an aeroplane combined with naval surveillance can make a programme more effective, but not all countries can afford an efficient aerial component.

51. The best guarantee of efficiency at the lowest cost is to use an aeroplane for a regional programme. It is not easy to set up such a programme in the political context of African nations, but it is the only viable and rational alternative when operating a surveillance aeroplane.

THE OBSERVER PROGRAMME

52. The observer programme is the least costly and potentially the most effective programme within the fisheries protection and surveillance system. The observer's salary and the programme's management costs are generally billed to the shipowner. If the system is carefully defined and well coordinated, it offers the possibility of a permanent presence at sea on almost all vessels, at the same time providing constant monitoring of vessels' activities. The observer is above all responsible for collecting statistical and scientific data so that the fishing effort will be better monitored. The observer, on board 24 hours a day for the entire journey, is in a privileged position to report on the vessel's real fishing effort.

53. The observer should not be considered as a surveillance agent who spies on the vessel's action and reports to the department of fisheries. The observer's role on board fishing vessels is first of all scientific and secondly, technical. His function is to observe, record and report. While the observer's scientific role is widely acknowledged, his technical role can be a problem. Understanding of the purpose of the programme is vital if the system is to work well, and it is important for the FPS authorities to give out the right information. Information transmitted by an observer should not always and inevitably elicit a reaction. The information may be groundless, and the captain of the fishing vessel can then easily misinterpret the role of the agent, whose situation on board can then become critical.

54. It is not uncommon for an observer to try to accuse a vessel with the excuse that he is poorly fed or poorly housed on board. If surveillance is prompted simply because an observer gets seasick, both money and credibility will be lost. The important thing in the case of violations is for the observer to note them in writing on his daily report. If a surveillance vessel stops the fishing vessel, he can then testify to what he has seen and noted. Thus, when he notes an irregularity, he notifies the captain of the vessel that this irregularity constitutes an infringement of the fisheries law and a threat to stocks.

55. The observer does not have the power of an inspector. This is what gives rise to most of the conflict. When an observer tries to intervene directly in the behaviour of the crew, he puts himself in a difficult position. An observer is there to record all fishing irregularities and to brief the captain of the vessel on the specific provisions of the legislation in force. He is not empowered to oppose the behaviour of the fishing vessel. This is how the programme was defined at the outset, and this is the spirit in which it works best. In the interest of the programme, conflict situations must be avoided.

56. The observer programme is managed differently from one country to the next. Given the inherent difficulties of the observer's duties, it is important to clearly pinpoint the final objective. If the programme produces more problems than success, the objective needs to be overhauled and programme management reviewed.

Remarks

57. The observer programme is still a new one in Africa, and so there is room for improvement. Much has been said about living conditions and status on board. Observers' salaries vary from one country to the next and may be relatively high compared to the salary of government agents responsible for programme coordination. More time and energy need to be devoted to pre- and post-departure briefings, and less to food and accommodation. Those responsible for training observers must have carefully mastered all elements of the programme. It would seem important to standardize the terms of payment

of observers, if possible, and to exchange the information obtained by these agents.

THE INSPECTION PROGRAMME

58. The surveillance system relies on the quality of the inspection programme. It is up to the inspectors to ensure compliance with the fishing code regulations. The inspection programme does not represent a major cost item for the system. Inspectors should be well-remunerated if they are to perform their mission properly. Inspectors are government agents and should be on oath. Their hours should be set out in the fishing code. In carrying out their mission, inspectors should be identified, and if possible in uniform.

59. It is important for inspectors to receive additional training in inspection techniques. An inspector needs to have the same background as a technical fisheries agent. He must be able to produce an inspection report and write up a ticket for a violation. He needs to be well-versed in the following: the major fish species, fishing techniques, and navigation and communication techniques. He will be trained in emergencies at sea and qualified to serve on board surveillance vessels.

60. An inspector must be honest, serious and hard-working. He must be tactful and able to work in collaboration with military personnel of the operational components.

CONCLUSION

61. With the establishment of the 200-mile Exclusive Economic Zone, the coastal countries were given significant powers. Rights and duties of rational management remain attached to this power. The development of a fisheries protection and surveillance programme is an insurance policy which governments take out to ensure optimum exploitation of fishery resources. Like all insurance, it is costly, must be paid immediately, and is not sure to produce dividends.

62. An integrated FSP system can cost several million dollars. This represents a major share of the income from fishing. As we have seen, a number of factors can increase the operating costs of surveillance. The optimum level of surveillance must be determined so as to provide sufficient coverage in terms of the fishing effort. The greater the percentage of coverage, the higher the cost and the lower the yield. The necessary level must be evaluated in accordance with the physical and financial resources available. Lastly, a good manpower development programme will also be necessary.

**REQUIREMENTS FOR EFFECTIVE SUB-REGIONAL AND REGIONAL
COOPERATION IN MONITORING, CONTROL AND SURVEILLANCE:
THE PACIFIC EXPERIENCE**

by

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INTRODUCTION

1. Regional cooperation in fisheries management is intended to enhance the prospect for coastal States to maximise the benefits accruing to them from the exploitation of fisheries resources under their jurisdiction. In the area of fisheries surveillance, there are definite advantages in such cooperation particularly where there is a paucity of resources to monitor, control and conduct surveillance (MCS), and where neighbouring countries have common fisheries resources that are fished by the same fleets. Given this situation, having a common, cooperative approach to MCS should mean that national MCS becomes more efficient and effective.

2. The purpose of this paper is to consider elements essential for an effective sub-regional or regional MCS operations. This consideration is based on developments in regional fisheries management in the South Pacific and in particular the efforts of the South Pacific Forum Fisheries Agency (FFA) to monitor and control the activities of foreign fishing vessels operating in the region. From the South Pacific experience it is clear that elements such as national and intraregional coordination and cooperation, accurate and timely information and harmonised rules and procedures, are fundamental to effective regional MCS. Effective MCS also requires surface and aerial patrol capability that is responsive. This responsiveness is dependent upon an informed and appropriately trained human resource component. This is perhaps the key issue to the establishment and maintenance of long term effective MCS systems in any region.

3. Recognising the potential to export some of the initiatives developed in the South Pacific to other regions where developing coastal States face similar issues with respect to monitoring and regulating foreign fleet activity, FFA member countries have been encouraged to share regionally developed fishing fleet management initiatives with other regions. These management initiatives, including the Regional Register of Foreign Fishing Vessels, minimum terms and conditions of fishing access (MTCs) as well as the Treaty on Cooperation in Surveillance and Law Enforcement, will be discussed during the course of this paper. Problems and constraints to further enhancement of regional MCS activities are also briefly considered.

INSTITUTIONAL AND LEGAL ESTABLISHMENT

4. A primary requirement for effective regional or sub-regional MCS is the establishment of a coordinating mechanism with well defined objectives and a clear workplan. The regional effort however depends greatly on the existence of strong national MCS programmes.

5. The regional fisheries surveillance programme was established at FFA in 1986 in order to promote intra-regional coordination and cooperation in fisheries surveillance and enforcement. The objectives at both the national and regional levels have been to:

- (i) provide technical assistance to governments on request covering areas such as the provision of information on alternative

surveillance equipment, systems and arrangements; the evaluation of fisheries surveillance requirements; evaluation of technical, legal and economic aspects of fisheries surveillance capacity and efficiency; and the preparation of manuals for fisheries surveillance and enforcement staff;

- (ii) promote the co-ordination of fisheries surveillance and enforcement operations;
- (iii) collate reports and information on vessel activities and other appropriate information for distribution to member governments; and
- (iv) establish a programme to provide training for fisheries surveillance and enforcement officials.

6. FFA uses a combination of consultants, its own professional staff, and fellowships for member countries in an endeavour to carry out these objectives. The latter is particularly encouraged to promote the development of expertise within the region. In this manner, knowledge and skills can be exchanged directly between countries .

7. The programme itself is coordinated by the Surveillance Officer at FFA with assistance from a Data Control Officer. Funding for the programme has been provided by Canada.

8. The programme convenes an annual meeting of fisheries surveillance and enforcement personnel to review the past year's activity and approve a work plan for future activities. The meeting also provides the opportunity for fisheries and enforcement officials to exchange ideas and to keep abreast of developments taking place not only around the region but also globally.

9. At the operational level there exist two regional fisheries surveillance programmes to which FFA provides coordinating assistance. These are the Pacific Patrol Boat Programme and the aerial surveillance patrols provided by the Australian and New Zealand armed forces. The Patrol Boat Programme is an Australian initiative involving the supply of 15 vessels to island member countries. Island nationals have been trained to operate and maintain the craft. Support facilities provided include spare parts, a fuel component and national surveillance centres. The centres are purpose built buildings provided at dockside to house personnel, a communications and computer centre, a workshop and training facility. FFA assists with the provision of surveillance and enforcement training, legal and computer expertise, liaison between defence institutions and fisheries administrations and the development of standard operating procedures. With regard to aerial patrols, FFA assists with patrol planning, monitors each patrol and assists member countries with any follow-up action deemed necessary.

10. It should be noted that the Regional Fisheries Surveillance Programme is only one component of the fisheries management activities of the Forum Fisheries Agency. The Agency takes direction from member governments through the Forum Fisheries Committee (FFC) which meets annually to review the previous years work and approve a budget and work programme for the following year. FFC's decisions are subsequently reviewed by the Heads of Government at the annual meeting of the South Pacific Forum (SPF). In this way the political leaders are kept well briefed on FFA activities and the major fisheries issues and problems confronting the region.

11. As a fisheries organisation, the FFA is unique in having only coastal States as members. This means that the entire membership has a common fisheries purpose and compromises do not have to be reached among the members to accommodate distant-water fishing nations (DWFNs). The common thrust of the agency's activities and its singular focus has greatly contributed to FFA success as a regional fisheries body. Moreover, the FFA members have demonstrated that small and economically vulnerable countries that take a united and coordinated stand on fisheries issues can effectively counteract pressures and demands from large and economically powerful DWFNs.

12. FFA has several features that clearly distinguishes it from conventionally structured fisheries management bodies. These features, which have contributed substantially to the Agency's success, include:

- (i) an emphasis on economic and legal issues of management and not a preoccupation with biological aspects of management alone;
- (ii) no DWFN membership;
- (iii) a concern to respond quickly to the needs of member countries and to react to directions given by them;
- (iv) unambiguous policy direction provided by the FFC which is dominated by fisheries practitioners and policy makers and not by scientists;
- (v) the philosophical position taken by FFA that it exists only to serve the needs of its 16 member countries; and
- (vi) the maintenance of close contact with the SPF.

13. FFA's services include computer, communications and data development, economic analysis including assistance with access negotiations, storage and provision of industry and resource information, legal services, delimitation assistance, fisheries development and research assistance and surveillance support.

Minimum Terms and Conditions

14. On the legal front the implementation of appropriate legislation and access arrangements is the first step in control over the activity of fishing vessels. The management capability of a country should determine what specific requirements are included in access agreements and/or fishing licences. For example, management by quota is probably not an option where the management authority lacks the necessary monitoring capability.

15. In the South Pacific a harmonised approach has been taken with respect to terms and conditions for fishing access and in 1982 a set of non-negotiable minimum terms were adopted. MTCs have been incorporated into all access arrangements. When incorporated into national legislation (most countries are in the process of doing this), the MTCs no longer become an issue on which DWFNs can attempt to persuade the coastal States to bargain and negotiate. The MTCs include:

Uniform Vessel Identification

16. All vessels operating in the region are required to be marked according to the FAO Standard Specifications for the Marking and Identification of Fishing Vessels. Basically this means that the vessel callsign should be painted amidship and all gear including other associated craft should be clearly marked. This is to ensure that each vessel licensed is uniquely marked and can be easily identified during aerial and surface patrols. It also serves to make licence swapping more difficult.

Catch and Position Reporting

17. Foreign fishing vessels (FFVs) are required to provide to the licensing country or its representative information relating to the vessel position, and catch on board, at least every Wednesday while in the zone and prior to entry and departure. As with all other MTCs, countries are free to impose more stringent requirements and vessels are often required to report daily to the licensing authority.

Transshipment

18. Full reporting on transshipping, including 24 hours notice of the intention to do so, must take place and only vessels listed in the Regional

Register can take part. The licensing country should determine the time and place and may also observe the operation.

Catch and Effort Logsheets

19. Standard logsheets have been adopted for purse-seine, longline and pole-and-line fishing and these must be completed daily and returned to the licensing country within 45 days of trip completion. A preliminary report is required within 14 days of trip completion. Information on activities within the zone, as well as adjacent high seas areas, is required.

20. As far as MCS is concerned, the logsheets are useful for determining historical fishing patterns and for cross-checking with weekly/daily telex reports. FFA member countries are now successfully collecting high seas catch data from FFVs which also fish within an EEZ during a trip in the region.

Observers

21. The licensing country has the freedom to place observers on board FFVs for scientific, compliance, monitoring and other functions. The observer is entitled to officer-level accommodation and the vessel operator is responsible for observer travel, salary and related costs. Consistent with the high seas data issue, observers placed on board FFVs can now continue their observation duties during a trip which extends beyond national jurisdiction into high seas areas.

Appointment of an Agent

22. The flag State government and/or fishermen's association and/or vessel operator is required to nominate, appoint and maintain an agent. The agent must be resident in the licensing country and have authority to receive and respond to any legal process. The flag State government and/or fishermen's association and/or vessel operator is required to notify the licensing country of the name and address of such agent.

Foreign Fishing Vessels in Transit

23. FFVs navigating through ("transitting") the fisheries zone in the region are required to have all fishing equipment on board stowed or secured in such a manner that it is not readily available to use for fishing.

Flag State or Fishermen's Associations Responsibility

24. Flag States or, in the absence of access arrangements with flag States, the appropriate fishermen's associations, are required in agreements to take measures to ensure compliance by their fishing vessels with coastal State laws. This requirement is a central feature of the multilateral fishing treaty between FFA members and the United States Government. Under the treaty, the US government is responsible for the activities of all US flag vessels including those not licensed to fish. The government is required to respond to any formal notice regarding alleged illegal fishing activity by US vessels. Flag State responsibility also underpins the Regional Register of Foreign Fishing Vessels.

25. Among FFA member countries standardisation has taken place with respect to the definition of fishing, fishing vessel and other terms and some standardisation is taking place with respect to penalties for fisheries related offences.

26. The treaty between FFA member countries and the United States Government to allow US purse seiners fishing access to the region incorporates the MTCs. The treaty has the additional advantage of being administered by the Director of FFA. This makes regional MCS easier since licensing and observation are the responsibility of the administrator and activity reports are accurate and received regularly. In addition, because the US vessels have paid for the right to fish, they are keen to report other vessels suspected of illegal

fishing. Similar multilateral arrangements are expected to be implemented for Taiwan and European Community operations.

Regional Register

27. The Regional Register is a compliance mechanism comprising comprehensive details for foreign fishing vessels that are able to apply for licences to fish in the region. At present there are approximately 700 tuna longliners, purse-seiners, pole-and-liners and other support craft listed. The Regional Register database holds information on vessel owners, operators, masters and provides a history of any changes in that information occurring over the years. The general intention behind this mechanism is to shift some of the responsibility for compliance to the flag State or fishing association.

28. The fundamental requirement of the Register is that, before any vessel may be licensed to fish in the region, it must be in good standing on the Regional Register. Vessels apply on an annual basis and must provide information relating to the vessels physical characteristics as well as that relating to base port, fishing master, vessel master and owner. A recent photograph of the vessel, with the vessel name and callsign clearly displayed, must accompany the application. Good standing is a status which is automatically conferred on a vessel upon registration. The status may be withdrawn in certain circumstances, including where the vessel has committed a serious fisheries offence. Once good standing is withdrawn, the vessel is effectively prevented from fishing in the region. Recently, a procedure of suspension of good standing was introduced.

29. The removal of good standing, or "black listing" as it is commonly termed, has never taken place, but the threat of instituting the procedure has been used to good effect on a number of occasions.

30. One of the major difficulties with the Regional Register has been the procedure for registration. From the outset the practice has been to permit applications to be submitted either by the vessel operator in person, or by the licensing State. In the case of those countries which license on a per vessel per trip system, when individual licences may be issued within 24 hours of the application, the application for registration is submitted simultaneously with the application for a fishing permit. Since applications for registration inevitably take time to process, this means that vessels are occasionally licensed to fish before they receive good standing on the Regional Register. To a great extent, this negates the effect and demeans the status of the Regional Register.

31. Efforts to insist that applications for registration are submitted direct to the Director of FFA have not met with total success. Some DWFNs, notably Japan, generally refuse to submit applications to FFA, though they are prepared to submit substantially similar information in a similar form to the licensing country for onward transmission to FFA. The reason for this is that Japan does not recognise FFA as a legitimate international organisation¹. Given the fundamental basis upon which good standing is accorded and acceptance of it by DWFNs and the rights of coastal States to impose reasonable laws and regulations under Article 62(4) of UNCLOS, it would seem anomalous to allow this situation to continue. Acceptance of the laws and regulations implies an acceptance of the practical requirements, and to allow vessel operators to circumvent these procedures seriously undermines the concept of good standing.

Treaty on Cooperation in Fisheries Surveillance and Law Enforcement

32. In an effort to enhance their control over FFVs operating in the region, FFA member countries have recently signed a Treaty on Cooperation in Surveillance and Law Enforcement (Attachment 1). The original regional surveillance concept envisaged a centrally controlled unit of patrol craft

¹This is principally because the Convention of the organisation does not permit distant-water fishing nations outside the region to be members.

that would be tasked around the region according to where fishing activity occurred or was expected to occur. The regional control centre would be FFA and the project would be financed first out of member country contributions and then out of a proportion of fines secured.

33. The treaty is a far reaching concept with provisions based on general principles flowing from the United Nations Convention on the Law of the Sea, particularly Article 73. The treaty is a head agreement intended to provide flexible arrangements for cooperation. It defines the general principles upon which parties may enter into more detailed subsidiary agreements. It is proposed that bilateral or subsidiary agreements will contain clauses facilitating closer cooperation in more concrete ways such as the physical sharing of surveillance and enforcement equipment, the empowerment of each other's officers to perform enforcement duties, enhancement of extradition procedures and evidentiary provisions (Attachment 2).

34. Many of the MTCs relating to cooperation in the exchange of information, minimum vessel markings, good standing on the regional register, flag State responsibility, FFV reporting procedures have been included in the treaty and thus parties will be bound to implement them.

35. At the operational level a party to the treaty may, by way of provisions in a Subsidiary Agreement, permit another party to extend its fisheries surveillance and law enforcement activities to the territorial sea and archipelagic waters of that party. In such circumstances, the conditions and method of stopping, inspecting, detaining, directing to port and seizing vessels will be governed by the national laws and regulations applicable in the State in whose territorial sea or archipelagic waters the fisheries surveillance or law enforcement activity was carried out. Parties will be required to cooperate to develop regionally agreed procedures for the conduct of fisheries surveillance and law enforcement. Standard procedures for boarding, inspection and evidence gathering have already been implemented along with procedures for prosecutions. At present a regional policy on the use of force is under development.

36. Parties to a Subsidiary Agreement may also agree on procedures for the extradition of persons charged with offences against the fisheries laws of either party. They may also agree on procedures whereby persons permitted to appear as advocates or expert witnesses in the courts of one party are, for the purposes of judicial proceedings involving offences against fisheries laws, entitled to perform similar functions in the courts of another party. The treaty provides too that parties may agree for a penalty imposed by one party to be enforced by another party.

37. To some extent the physical sharing of surveillance assets has been in effect for some years through the provision of aerial surveillance by the Australian and New Zealand armed forces. These services provide periodic patrols which are based on information supplied by FFA as well as individual member countries. Sightings are reported both to member countries concerned and FFA with follow-up action coordinated by the Agency. To assist in the subsequent development of any case against a vessel, all contacts are photographed by the aircraft and when possible surface platforms may also be involved. Any necessary enforcement action may be taken directly by the affected nation. However due to the lack of surface capacity, enforcement action is usually undertaken through the Regional Register.

INFORMATION

38. Central to any effective surveillance and enforcement operation is accurate and timely information. At present, information available to surveillance platforms operating in the FFA region includes: the Regional Register (supplied monthly and as required), historical fishing catch and effort charts, vessel licence information and any reported position and catch information from FFVs operating in a zone (on a weekly or daily basis). Vessel sightings may also be reported from observers or other vessels.

39. To enhance the ability of member countries to exchange information, a regional Maritime Surveillance Communications Network (MSCN) has been established. The system is satellite based with each member country being connected to the central database resident at FFA, through an Inmarsat A terminal. Voice and hard copy messaging is also possible. Member countries thus have the ability to supply information to and extract information from the database. Under the project the FFA, as the regional surveillance centre, is linked to the fisheries administrations responsible for licensing vessels as well as national surveillance centres responsible for conducting surveillance. The maintenance of this link serves to ensure that there is coordination at the national level.

40. To enhance the quality of information, it is proposed that by mid-1993 the region will have in operation a vessel position and data acquisition system. Under the system all vessels intending to operate in the region will be required to carry integrated Inmarsat C and Global Positioning System (GPS) equipment that will be hooked to a computer for the transfer of position and catch data to a central collection point (i.e., at FFA). Position information will be provided automatically by the GPS but catch information will need to be keyed in. The frequency of reports will be subject to control from the centre and all remote terminals will be able to be interrogated. The system also ensures security. When the system is fully operational, it is expected that the time lapse between data sent from the FFV then received at the regional centre (FFA) and finally disseminated through MSCN to national centres will be in the order of two minutes. Time delays of up to nine months for catch logs will disappear but data accuracy must still be in question. To some extent this can be guarded against through an active observer programme and periodic inspections either at sea or in port. It has been proven also that through multilateral licensing arrangements, such as the fishing treaty between FFA member countries and United States purse seiners, the accuracy of catch data is high because the incentive to misreport is removed.

41. As far as surveillance patrols are concerned, real-time data will allow more efficient and effective deployment of assets. The regional nature of the project also lends itself to joint surveillance operations between neighbouring countries since the capacity to share FFV position information will be significantly enhanced.

TRAINING

42. Manpower development is a key factor in any MCS system. FFA member countries have identified this element, along with the development of effective regional communications, as of highest priority in the MCS programme. Three levels of training have been undertaken: individual attachments to MCS operational agencies including FFA headquarters; specific in-country training ranging from use of computer to aspects of fisheries management; and sub-regional or regional workshops on boarding and prosecutions procedures.

43. The training of observers for scientific and compliance purposes will assume more importance as the region moves towards more widespread implementation of observer programmes. The boarding and prosecutions courses have been aimed at two groups: those surveillance and enforcement personnel involved in boarding, evidence gathering and evidence presentation as well as prosecutors. The exchange of personnel between member countries is also actively pursued to promote and facilitate their regional effort.

44. The training of personnel responsible for the operation of patrol craft is currently the responsibility of the Australian and New Zealand armed forces and this is on-going. Australia and New Zealand also provide patrol boat technicians and project advisers to assist with the development of patrol boat and surveillance centre personnel.

PROBLEMS AND CONSTRAINTS TO FURTHER ENHANCEMENT

45. Problem areas that serve to constrain the regional effort include the cost of MCS, the pace of development at the national level and the continuing

efforts of DWFNs to "play-off" one country against another. The costs associated with MCS programmes are real at both the regional and national levels. Hardware is not only expensive to purchase but also expensive to operate. The decision at the national level on how much to spend should take into consideration expected benefits which might include increased access fee payments, fines and forfeitures, as well as the issue of sovereignty. Commitment at the national level is a determining factor in the success of the regional effort.

46. Financial consideration of the regional programme is a matter with which FFA member countries will need to contend. Since its inception, support for the programme has been provided by Canada. The communications project is funded by Australia and it is envisaged that European Community funds will be available to initiate the vessel tracking project. One option, apart from direct member country contributions, is to make monitoring and surveillance costs the responsibility of DWFNs as is the case with observer programme costs. This is probably more likely under region-wide multilateral arrangements administered by FFA.

47. A further problem area is the continuing efforts of DWFNs in playing one coastal state off against another. South Pacific countries are particularly susceptible to this because fisheries, for most countries, is the only resource available for exploitation and the need for budgetary funds is immediate. Again, this area may become fully resolved through the implementation of multilateral access arrangements.

CONCLUSION

48. In summary, what the paper has outlined are the requirements identified for regional cooperation in monitoring, control and surveillance based on the South Pacific experience. The South Pacific programme incorporates the following elements:

- (i) a regional coordinating mechanism;
- (ii) the development of skilled manpower;
- (iii) the development of an effective data collection system;
- (iv) the establishment of a dedicated regional communications network linking national MCS centres;
- (v) legal mechanisms establishing a framework for sub-regional cooperation in surveillance and enforcement as well as uniform minimum standards for fishing access and a centrally administered compliance mechanism, the Regional Register;
- (vi) dedicated aerial and surface capability;
- (vii) the development of coordinated operations at the national level.

49. Consolidation of the regional approach will take place as member countries develop and implement subsidiary arrangements under the Treaty on Cooperation in Surveillance and Law Enforcement. MCS will also be enhanced greatly as more multilateral access arrangements are negotiated and the responsibility for their implementation is centralised at FFA.

50. Developments in the Pacific's regional approach to MCS have occurred over 12 years and it will be some years yet before all elements are fully implemented and integrated. Although these initiatives have taken place in a particular geo/political environment, it is likely that other coastal States may be able to reshape mechanisms such as the Regional Register and MTCs to fit their own particular set of circumstances and thus help to ensure proper management of marine resources.

**TREATY ON COOPERATION IN FISHERIES SURVEILLANCE
AND LAW ENFORCEMENT IN THE SOUTH PACIFIC REGION**

The Parties to this Treaty:

GIVEN that in accordance with international law as expressed in the United Nations Convention on the Law of the Sea, coastal States have sovereign rights for the purposes of exploring and exploiting, conserving and managing the fisheries resources of their exclusive economic zones and fisheries zones;

TAKING INTO ACCOUNT Article 73 of the United Nations Convention on the Law of the Sea;

NOTING that the Parties to the South Pacific Forum Fisheries Agency Convention, 1979 have agreed under Article 5 of that Convention that the Forum Fisheries Committee shall promote intra-regional coordination and cooperation in fisheries surveillance and law enforcement;

CONSIDERING the vast areas of ocean covered by the exclusive economic zones and fisheries zones of coastal States in the South Pacific region and the vital economic significance of such zones to the economic development of South Pacific coastal States;

WISHING THEREFORE to enhance their ability to enforce effectively their fisheries laws, and deter breaches of such laws;

HAVE AGREED AS FOLLOWS:

ARTICLE I - DEFINITIONS

In this Treaty:

(a) 'fishing' means:

- (i) searching for, catching, taking or harvesting fish;
- (ii) attempting to search for, catch, take or harvest fish;
- (iii) engaging in any other activity which can reasonably be expected to result in the locating, catching, taking or harvesting of fish;
- (iv) placing, searching for or recovering fish aggregating devices or associated electronic equipment such as radio beacons;
- (v) any operations at sea directly in support of, or in preparation for any activity described in this paragraph;
- (vi) use of any craft, air or sea borne, for any activity described in this paragraph except for emergencies involving the health and safety of the crew or the safety of a vessel;
- (vii) the processing, carrying or transshipping of fish that have been taken.

(b) 'fishing vessel' means any boat, ship or other craft which is used for, equipped to be used for, or of a type normally used for fishing;

- (c) 'foreign fishing agreement' means an agreement or arrangement authorizing or permitting foreign fishing vessels to fish in the exclusive economic zone or fisheries zone of any Party;
- (d) 'foreign fishing vessel' in relation to a Party means a fishing vessel which is not part of the domestic fleet of that Party;
- (e) 'South Pacific Forum Fisheries Agency' means the Agency of that name established by the South Pacific Forum Fisheries Agency Convention, 1979; and
- (f) 'Subsidiary Agreement' means an agreement or an arrangement entered into by any two or more Parties in accordance with this Treaty.

ARTICLE II - RELATIONSHIP WITH OTHER TREATIES

1. Rights and obligations under this Treaty shall apply as between the Parties in addition to any right or obligation concerning a similar matter applicable to a Party under any other Treaty.
2. A Subsidiary Agreement may expand upon rights and obligations under this Treaty in their application between the Parties to the Subsidiary Agreement.

ARTICLE III - GENERAL COOPERATION

1. The Parties shall cooperate in the enforcement of their fisheries laws and regulations in accordance with this Treaty and may agree on forms of assistance for that purpose.
2. The Parties shall cooperate to develop regionally agreed procedures for the conduct of fisheries surveillance and law enforcement. Where appropriate, fisheries surveillance and law enforcement will be conducted in accordance with such regionally agreed procedures.

ARTICLE IV - COOPERATION IN THE IMPLEMENTATION OF HARMONIZED MINIMUM TERMS AND CONDITIONS OF FISHERIES ACCESS

1. The Parties shall cooperate in the implementation of harmonized minimum terms and conditions of fisheries access as may be agreed upon from time to time.
2. The Parties shall ensure that no foreign fishing vessel shall be licensed for fishing unless the vessel has good standing on the Regional Register of Foreign Fishing Vessels maintained by the South Pacific Forum Fisheries Agency.
3. The Parties shall ensure that foreign fishing vessels licensed to fish under foreign fishing agreements are, as a minimum, required to provide reports in accordance with the standard forms of reporting as set out in the harmonised minimum terms and conditions of fisheries access from time to time.
4. The Parties shall ensure that fishing vessels licensed to fish under foreign fishing agreements are required to be readily identifiable from the sea and the air by way of distinctive markings.
5. The Parties shall, as far as possible, ensure that foreign fishing agreements with flag States require the flag State to take responsibility for the compliance by its flag vessels with the terms of any such agreement and applicable laws.
6. The Parties shall, as far as possible, ensure that foreign fishing arrangements with foreign parties, including Fishing Associations, require the foreign party to take responsibility for the compliance by its vessels with the terms of any such arrangement and applicable laws.

ARTICLE V - EXCHANGE OF INFORMATION

1. Each Party shall, to the extent permitted by its national laws and regulations, provide to the South Pacific Forum Fisheries Agency, or to any other Party directly, information relevant to the purposes of this Treaty, including but not limited to information about:

- (a) the location and movement of foreign fishing vessels;
- (b) foreign fishing vessel licensing; and
- (c) fisheries surveillance and law enforcement activities.

2. The Parties shall develop standard forms and procedures for reporting information provided under paragraph 1 of this Article and effective methods for communicating such information.

ARTICLE VI - COOPERATION IN FISHERIES SURVEILLANCE AND LAW ENFORCEMENT

1. A Party may, by way of provisions in a Subsidiary Agreement or otherwise, permit another Party to extend its fisheries surveillance and law enforcement activities to the territorial sea and archipelagic waters of that Party. In such circumstances, the conditions and method of stopping, inspecting, detaining, directing to port and seizing vessels shall be governed by the national laws and regulations applicable in the State in whose territorial sea or archipelagic waters the fisheries surveillance or law enforcement activity was carried out.

2. Vessels seized by another Party pursuant to an agreement under paragraph 1 of this Article in the territorial sea or archipelagic waters of a Party shall, together with the persons on board, be handed over as soon as possible to the authorities of that Party.

3. Any two or more Parties may enter into a Subsidiary Agreement under which they would cooperate in the provision of personnel and the use of vessels, aircraft or other items of equipment for fisheries surveillance and law enforcement purposes. Vessels and aircraft shall be identified as set out in Annex 1.

4. Any Party wishing to authorize its officers to perform fisheries surveillance and law enforcement functions on its behalf while on board a vessel or aircraft of another Party shall by instrument in writing designate the officers accordingly and such officers shall be identified as set out in Annex 2.

5. Any Party wishing to authorise the officers of another Party to perform fisheries surveillance and law enforcement functions on its behalf while on board a vessel of that other Party shall by instrument in writing designate such officers accordingly. Officers carrying out enforcement functions shall be identified by a card in the form set out in Annex 2 with such variations as may be agreed to in a Subsidiary Agreement or otherwise.

ARTICLE VII - COOPERATION IN PROSECUTIONS

1. The Parties may, by way of provisions in a Subsidiary Agreement or otherwise, agree on procedures for the extradition to a Party of persons charged with offences against the fisheries laws of that Party.

2. A Party may request another Party which is holding a person or any equipment (including a vessel) in custody for an offence against the laws of the holding Party to assist the requesting Party to enforce its fisheries laws in respect of that person or equipment. The holding Party shall provide such assistance upon completion of its legal processes and to the extent permitted by its national laws and regulations. Such assistance shall be provided on

conditions as to cost recovery or other matters as the Parties agree in each case.

3. The Parties may agree on procedures whereby persons permitted to appear as advocates or expert witnesses in the courts of one Party are, for the purposes of judicial proceedings involving offences against fisheries laws, entitled to perform the same or substantially similar functions in the courts of another Party.

4. Where there are waters over which more than one Party claims to have jurisdiction for the purposes of the application of fisheries laws, the Parties concerned shall for the purposes of the application of this Agreement seek to adopt the provisional lines used for the distribution of revenue received under the Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States of America done at Port Moresby on 2 April 1987.

ARTICLE VIII - COOPERATION IN ENFORCEMENT OF PENALTIES

1. Should two or more Parties wish to provide that a penalty imposed by one Party under its fisheries laws be enforced by another Party, they may, by way of provisions in a Subsidiary Agreement or otherwise, agree on procedures for that purpose consistent with their national laws.

ARTICLE IX - CONSULTATIONS

1. The Director of the South Pacific Forum Fisheries Agency, at the request of any three or more Parties, shall convene a meeting to discuss any matter arising out of the application of this Treaty. The meeting shall be held at such time and place as the Parties may agree, but shall be held not more than 90 days after the request is notified to the Director.

ARTICLE X - NOTIFICATION

1. Each Party shall notify the Director of the South Pacific Forum Fisheries Agency of the current postal, cable, telex and facsimile addresses which it wishes to be used for the receipt of notices given pursuant to this Treaty, and of any changes to a notified address. The Director of the South Pacific Forum Fisheries Agency shall inform all Parties of the notified addresses.

2. Any notice given under this Treaty shall be in writing and may be served by hand, post, cable, telex or facsimile to the notified address.

ARTICLE XI - DEPOSITARY

1. The depositary for this Treaty shall be Niue.

ARTICLE XII - AMENDMENTS

1. Any Party may propose to the depositary an amendment to this Treaty, which shall be considered by the Parties at a meeting arranged in accordance with Article IX.

2. The text of any amendments shall be adopted by unanimous decision of the Parties to the Treaty.

3. Any amendment to this Treaty which is adopted by the Parties shall enter into force upon the receipt by the depositary of the instruments of ratification, acceptance or approval by all of the Parties, or on such later date as may be specified in the amendment.

4. The depositary shall notify all of the Parties of the entry into force of an amendment.

ARTICLE XIII - FINAL CLAUSES

1. This Treaty shall be open for signature by:
 - (a) any member of the South Pacific Forum Fisheries Agency;
 - (b) any Territory of a Member of the South Pacific Forum Fisheries Agency which has been authorized to sign the Treaty and to assume rights and obligations under it by the Government of the State which is internationally responsible for it.
2. This Treaty is subject to ratification by members of the South Pacific Forum Fisheries Agency and the Territories referred to in paragraph 1 of this Article. The instruments of ratification shall be deposited with the depositary.
3. This Treaty shall enter into force on the date of deposit of the fourth instrument of ratification.
4. This Treaty shall remain open for accession by the members of the South Pacific Forum Fisheries Agency and the Territories referred to in paragraph 1 of this Article. The instruments of accession shall be deposited with the depositary.
5. If all of the Parties agree, a State which is not a Party to the South Pacific Forum Fisheries Agency Convention may accede to this Treaty.
6. For any member of the South Pacific Forum Fisheries Agency or a State or Territory which ratifies or accedes to the Treaty after the date of deposit of the fourth instrument of ratification, the Treaty shall enter into force on the date of deposit of its instrument of ratification or accession.

ARTICLE XIV - CERTIFICATION AND REGISTRATION

1. The original of the Treaty shall be deposited with the depositary, which shall transmit certified copies to all States and Territories eligible to become party to this Treaty.
2. The depositary shall register this Treaty in accordance with Article 102 of the Charter of the United Nations.

IN WITNESS WHEREOF the undersigned, being duly authorised by their respective Governments, have signed this Treaty.

DONE at _____ on the _____ day of _____, 1992

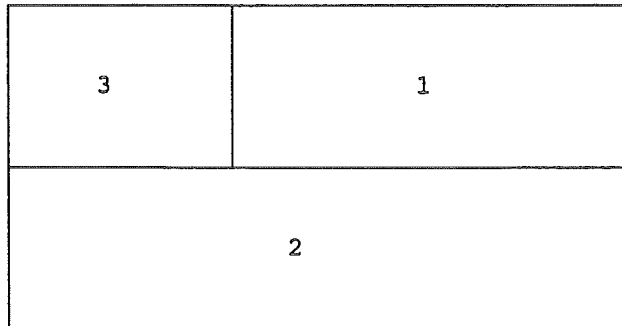
REPRESENTATIVES OF THE GOVERNMENTS OF:

- | | |
|--------------------------------|------------------|
| AUSTRALIA | NIUE |
| COOK ISLANDS | PALAU |
| FEDERATED STATES OF MICRONESIA | PAPUA NEW GUINEA |
| FIJI | SOLOMON ISLANDS |
| KIRIBATI | TONGA |
| MARSHALL ISLANDS | TUVALU |
| NAURU | VANUATU |
| NEW ZEALAND | WESTERN SAMOA |

ANNEX 1

FISHERIES SURVEILLANCE AND LAW ENFORCEMENT FLAG AND MARKINGS

Regional Fisheries Surveillance and Law Enforcement Flag:



- 1. light blue
- 2. dark blue
- 3. red and yellow

The Regional Fisheries Surveillance and Law Enforcement Flag is authorized for use by vessels during fisheries surveillance patrols. It should be flown at the same times as the national or ensign flag with the national or ensign flag superior.

Aircraft Markings:

Aircraft shall be clearly marked and identifiable in a manner agreed between the Parties to subsidiary agreements.

ANNEX 2

IDENTIFICATION CARD

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <p>CREST</p> | <p>TREATY ON COOPERATION IN FISHERIES SURVEILLANCE AND LAW ENFORCEMENT IN THE SOUTH PACIFIC REGION</p> |
| <p>THE HOLDER OF THIS CARD IS AUTHORISED TO ENFORCE THE FISHERIES LAWS OF THE COUNTRIES LISTED BELOW WHILE ON BOARD THIS CRAFT.</p> | |

| | |
|-------------------------------------------------------------|-------------------|
| <p>NAME OF HOLDER: _____</p> | <p>photograph</p> |
| <p>SIGNATURE: _____</p> | |
| <p>ISSUED BY: [name of issuing officer] _____</p> | |
| <p>SIGNATURE: _____</p> | |
| <p>DATE: _____</p> | |
| <p>THIS AUTHORISATION IS VALID UNTIL _____</p> | |

MODEL SUBSIDIARY AGREEMENT BETWEEN [],
[] AND [] ON COOPERATION
IN FISHERIES SURVEILLANCE AND ENFORCEMENT
IN THE PACIFIC ISLANDS REGION

The Parties to this Agreement:

BEING PARTIES to the Treaty on Cooperation in Fisheries Surveillance and Enforcement in the Pacific Islands Region;

WISHING to enhance further their ability to enforce effectively their fisheries laws, and deter breaches of such laws, and to cooperate closely with each other for that purpose;

HAVE AGREED AS FOLLOWS:

ARTICLE I - DEFINITIONS

1. In this Agreement, words have the same meaning as in the Head Treaty unless otherwise defined in this Agreement.

2. In this Agreement:

(a) 'designated', in relation to an officer, means an officer designated by a party in accordance with Article V of the Head Treaty;

(b) 'Head Treaty' means the Treaty on Cooperation in Fisheries Surveillance and Enforcement In The Pacific Islands Region, done at, on

(c) 'principal operator', in relation to a shared vessel, aircraft or other item of equipment means the State or other entity which owns it, or, if it is not owned by a Party or by the South Pacific Forum Fisheries Agency, the Party which has entered into an agreement with the owner under which the Party is permitted to control its use or the South Pacific Forum Fisheries Agency, if that body has entered into such an agreement;

(d) 'shared', in relation to a shared vessel, aircraft or other item of equipment means that the parties have agreed under Article 3 to cooperate in the use of the equipment;

(e) 'sharing Party', in relation to a shared vessel, aircraft or other item of equipment means a Party other than the principal operator of that equipment; and,

(f) 'this Agreement' includes Annexes to this Agreement.

ARTICLE II - RELATIONSHIP WITH OTHER TREATIES

1. Rights and obligations under this Agreement shall apply as between the Parties in addition to any other right or obligation concerning a similar matter applicable to a Party under any other Treaty, including the Head Treaty.

ARTICLE III -SHARED USE OF SURVEILLANCE
AND ENFORCEMENT EQUIPMENT

1. The Parties agree to share the use of the vessels, aircraft and other items of equipment identified in the Annexes in accordance with the terms and conditions set out in this Article and any conditions as may be set out in the relevant Annex. Such conditions may include but are not limited to:

- (a) the use of a regional flag or markings or other method of identification;
- (b) the establishment of provisional fisheries surveillance and enforcement limits;
- (c) the establishment of a communications network and procedures;
- (d) the conduct of law enforcement operations;
- (e) the establishment of or the designation of an already established operations centre to receive reports from law enforcement officers;
- (f) the determination of a training centre for specific operations;
- (g) the determination of risk or cost sharing obligations;
- (h) the use of force;
- (i) the determination of jurisdiction over personnel on board.

2. The principal operator of any vessel, aircraft or other item of equipment shall permit officers designated by each sharing Party to board, enter or use the equipment at times and places agreed between them, and while on board, to perform the duties specified in the officer's instrument of designation and shall:

- (a) in the case of a shared vessel, permit the vessel to enter the waters or ports of each sharing Party in accordance with agreed voyage plans or to meet surveillance or enforcement needs arising during the course of a voyage;
- (b) in the case of a shared aircraft, permit the aircraft to enter the airspace, or land in the territory, of each sharing Party in accordance with agreed flight plans or to meet surveillance or enforcement needs arising during the course of a flight;
- (c) ensure that any applicable regional fisheries law enforcement manual is available for use; and
- (d) accept full responsibility for all risks incurred in the operation of the equipment, except as may be agreed with the sharing Parties in the relevant Annex.

3. For each item of shared equipment, each sharing Party shall:

- (a) ensure that its designated officers comply with the applicable terms and conditions and any relevant laws of the principal operator; and,
- (b) pay the principal operator its share of the costs as set forth in the relevant Annex.

4. All officers while performing fisheries law enforcement duties on behalf of a party while on board a shared vessel, aircraft or other item of equipment shall be designated by that party in accordance with Article V of the Head Treaty.

ARTICLE IV - CONSULTATIONS

1. The depositary shall, upon request by any Party, request the Director of the South Pacific Forum Fisheries Agency to convene a meeting to discuss any matter arising from the application of this Agreement. The meeting shall be held at such place as the Director and the parties agree. The meeting shall be held on the days the Director and the parties agree, not being more than 60 days after the request is notified to the depositary.

ARTICLE V - NOTIFICATION

1. Any notice given under this Agreement shall be in writing and may be served by hand, post, cable, telex or facsimile to the address notified in accordance with Article X of the Head Treaty.

ARTICLE VI - AMENDMENTS

1. Any Party may propose to the depositary an amendment to this Agreement, which shall be considered by the Parties at a meeting arranged in accordance with Article IV.

2. Any amendment of this Agreement which is agreed by the Parties shall enter into force upon the receipt by the depositary of instruments of ratification, acceptance or approval by all of the Parties, or on such later date as may be specified in the amendment.

3. An Annex may be amended by the signature of the Parties.

4. The depositary shall promptly notify all of the Parties of the entry into force of an amendment.

ARTICLE VII - FINAL CLAUSES

1. This Agreement shall enter into force upon receipt by the depositary of instruments signifying ratification by the signatories.

2. If all of the Parties agree, a party to the Head Treaty may accede to this Agreement.

3. This Agreement shall enter into force for any acceding Party on the day that the instrument of accession is received by the depositary, or from such later date as may be specified in the instrument.

ANNEX 1

(ANNEX TO SUBSIDIARY AGREEMENT)

SURVEILLANCE AND ENFORCEMENT OPERATIONAL CONSIDERATIONS

The use of a regional flag, markings or other methods of identification:

- Flag provided for in Annex 1 of Head Treaty. Authorized for use during fisheries surveillance patrols. The regional flag should be flown at same times as for national flags but with national flags superior;
- Identification : initially, clip-on identification card as set out in Annex 2 of the Head Treaty. More sophisticated identifiers may be introduced at a later stage (eg. sew-on patches, wallet badges).

The establishment of provisional fisheries surveillance and enforcement limits:

- coordinates, charts and any special instructions should be made available to all regional fisheries surveillance operations and law enforcement authorities;

The establishment of a communications network and procedures:

- this will involve standard operating procedures for ship to shore and international communications between member states;

The conduct of law enforcement operations:

- accurate information on fishing activity;
- manual of standard operating procedures. The existing boarding procedures manual would form the basis of the manual;
- relevant fisheries legislation and current fishing access agreements should be made available to authorities and units.

The establishment of or the designation of an already established operations centre to receive reports from law officers and units:

- National Operations Centres (NOC's) networked with FFA as central information clearing house.

Determination of training for specific operations:

- determination of a training authority to coordinate and standardize training;
- maintenance of standards and skills of both individuals and units;
- regular operational readiness evaluation.

Determination of risk or cost sharing obligations:

- personal and property.

The use of force:

- development of a regional policy covering self defence and the use of weapons to stop vessels. The approval process should also be addressed.

The determination of jurisdiction over personnel on board:

- the captain is responsible for the safety of crew and vessel.

Diplomatic procedures should be put in place to facilitate surveillance and enforcement operations. Requests for assistance may require immediate action:

- FFA to coordinate operations with appropriate agencies including the Australian and New Zealand defence forces.

M/U9078/E/1/1.93/300