

**Report of the**

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**SUB-REGIONAL FISHERIES COMMISSION WORKSHOP ON VESSEL  
MONITORING SYSTEMS**

**Saly, Senegal, 14-17 October 2002**



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## PREPARATION OF THIS DOCUMENT

At the request of the Sub-Regional Fisheries Commission (SRFC), the Food and Agriculture Organization of the United Nations arranged a workshop on vessel monitoring systems (VMS) in Saly, Senegal, over 14-17 October 2002. The Workshop was funded by the FAO FishCode Programme, under project GCP/INT/849/USA (“Support for Implementation of the International Plan of Action on Illegal, Unregulated and Unreported (IUU) Fishing”) and by the FAO Regular Programme. Participants included representatives of all the SRFC Member States – Cape Verde, Gambia, Guinea, Guinea-Bissau, Mauritania and Senegal – as well as the SRFC Associated Country of Sierra Leone.

This report was assembled by Messrs Kieran Kelleher and Eric Reynolds. The cooperation and contributions of Mr Germain DaSylva, Project Manager of FAO/GCP/INT/722/LUX, “Advisory Services for Fisheries Monitoring, Control and Surveillance,” and of his project staff, were essential to the successful outcome of the Workshop and are thankfully acknowledged. Thanks are also due to Messrs Jeremy Turner (FIIT), Andrew Smith (FIIT), and George Everett (FIPP), and to Ms Tania Abdirizzak, FishCode Programme Assistant, for their help in organizing the meeting. The assistance of Ms Françoise Schatto and Ms Graciela Segura with preparation of the report for publication is also gratefully acknowledged.

The Workshop Report is published as a contribution of the IUU Fishing Project (GCP/INT/849/USA), a component of the FAO Fisheries Department’s FishCode Programme, the “Interregional Programme of Assistance to Developing Countries for the Implementation of the Code of Conduct for Responsible Fisheries.”

J. Eric Reynolds  
Programme Coordinator, FishCode  
Fishery Policy and Planning Division  
FAO Fisheries Department, Rome  
[www.fao.org/fi/fishcode](http://www.fao.org/fi/fishcode)

### **Distribution:**

Participants in the Workshop  
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Report of the Sub-Regional Fisheries Commission Workshop on Vessel Monitoring Systems. Saly, Senegal, 14-17 October 2002.

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### ABSTRACT

This document contains the report of the Sub-Regional Fisheries Commission (SRFC) Workshop on Vessel Monitoring Systems (VMS) which was held in Saly, Senegal, from 14 to 17 October 2002. The Workshop was arranged by FAO at the request of the Sub-Regional Fisheries Commission, as part of FAO's cooperative work with States and regional fisheries organizations to implement the International Plan of Action (IPOA) to Prevent, Deter or Eliminate Illegal, Unreported and Unregulated (IUU) Fishing, and to promote the use of VMS as an additional instrument for monitoring, control and surveillance (MCS) of fisheries.

The objectives of the Workshop were: a) to sensitize the SRFC Member States on the potential of VMS as a complement to their other MCS activities; and b) to foster discussions at a technical level leading to the formulation of a subregional strategy for cooperation on VMS. FAO technical officers and invited experts presented several reports to the Workshop that covered topics including the history of MCS, the IPOA/IUU Fishing, recent experiences with MCS and IUU fishing in the Subregion, VMS infrastructure and procedures, institutional options for VMS within the Subregion, legal aspects of VMS, and putting VMS into practice. Members of the SRFC and Sierra Leone (SRFC Associate) briefed the Workshop on the status of MCS and VMS in their respective countries. The Workshop then reviewed a range of VMS options that could be considered in the Subregion. Participants divided themselves into three working groups, each to consider the following three questions: a) Is VMS cooperation necessary in the Subregion, and if so for what reasons? b) What is the nature of the cooperation required? and c) What actions should be taken at national level and at subregional level to achieve this cooperation? The Workshop endorsed the conclusions of the working groups and suggested that the following actions could be considered by the Coordinating Committee of the SRFC:

- a) recommend to the Council of Ministers that the key elements of the report be accepted as a Subregional VMS strategy;
- b) instruct the Permanent Secretary regarding future actions; and
- c) prepare a suitable information document for potential donors and financiers.

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## OPENING SESSION

1. As part of FAO's activities to implement the International Plan of Action (IPOA) to Prevent, Deter or Eliminate Illegal, Unreported and Unregulated (IUU) Fishing the Fisheries Department has developed a strategy to promote the use of vessel monitoring systems (VMS) as an additional instrument for monitoring, control and surveillance (MCS) of fisheries both at a national level and in particular in cooperation with regional fisheries organizations. The Sub-Regional Fisheries Commission (SRFC) Workshop on VMS is part of this cooperative endeavour with regional fisheries organizations, and was organized at the Commission's request.
2. The Workshop was held at the Hotel Neptune in Saly Portudal, Senegal, from 14 to 17 October 2002.
3. The VMS Strategy is supported by the 'Interregional Programme of Assistance to Developing Countries for the Implementation of the Code of Conduct for Responsible Fisheries' (FishCode), and in particular the FishCode Project 'Support for the Implementation of the IPOA/IUU Fishing' (GCP/INT/849/USA).
4. The objectives of the Workshop were:
  - a) to sensitize the SRFC Member States on the potential of VMS as a complement to their other MCS activities; and
  - b) to foster discussions at a technical level leading to the formulation of a subregional strategy for cooperation on VMS.
5. The Workshop was attended by representatives of all the SRFC Member States – Cape Verde, Gambia, Guinea, Guinea-Bissau, Mauritania and Senegal – as well as the SRFC Associated Country of Sierra Leone. Workshop participants also included the SRFC Secretariat and technical officers from the FAO Fisheries Department and Development Law Service. Representatives of commercial companies providing VMS-related equipment and services were also invited to provide briefings to workshop participants.
6. Mr N.S. Bangoura, Permanent Secretary of the Sub-Regional Fisheries Commission set the context of the workshop and thanked the FAO and all who contributed to the holding of the workshop. On behalf of the participants, Mr Bangoura expressed condolences to the people of Senegal regarding the tragic loss of the ferry "*Joola*". The participants observed a minute's silence in memory of the tragedy.
7. Mr E. Tapsoba, Resident Representative of the FAO in Senegal, stressed the importance of the theme and noted that the Workshop is supported by the 'Assistance to Developing Countries for the Implementation of the Code of Conduct for Responsible Fishing Programme (FishCode), and in particular the FishCode project 'Support for the Implementation of the IPOA/IUU' (GCP/INT/849/USA), financed by a contribution from the USA.
8. His Excellency the Hon. Cheikh Sadibou Fall, Minister of Fisheries, opened the Workshop and assured the Permanent Secretary that he would transmit his condolences to the authorities and people of Senegal.

9. Texts of the opening session addresses are attached as Annex 1. The Workshop Agenda and Timetable is shown as Annex 2, and the List of Workshop Participants as Annex 3. Annex 4 provides a list of documents and presentations for the Workshop.

## **ADOPTION OF AGENDA**

10. The draft agenda was discussed and adopted without substantive change (see Annex 2).

## **PRESENTATION OF TECHNICAL PAPERS**

11. Summary print copies of all the technical presentations are provided in Annex 5. The complete presentations may be viewed on the FishCode Programme website, <http://www.fao.org/fi/projects/fishcode/default.htm>

12. Mr Andrew R. Smith (FAO, Rome) made a presentation of the “*History and Future of Monitoring, Control and Surveillance*”. The presentation focussed on the development and use of VMS as an MCS tool. The traditional MCS tools are of obvious importance but it is recognized that new and additional tools need to be developed. The cost of operating surveillance vessels and aircraft is substantial, and the traditional tools may be inappropriate in some fisheries. Emerging 15 years ago as a spin off of the Global Maritime Safety and Distress System (GMDSS) the technology of combining positioning systems with communication systems has been recognized as a useful tool for tracking fishing vessels. During the last 6-7 years, this technology, generally known in fisheries as Vessel Monitoring Systems (VMS), has been widely adopted all over the world.

13. VMS is relatively inexpensive and its synergy with other tools in the MCS toolbox greatly adds to the cost effectiveness of the other MCS activities. It assists flag states to control their vessels and provides improved distress and safety communication. The potential for transmission of operational information is a significant benefit for vessel crews and operators. Its use in detecting fishing vessels not equipped for VMS was questioned and Mr Smith underscored the importance of using VMS together with the traditional MCS tools, e.g., land radar, air and surface patrols, and emphasized that VMS be considered as a complement to, rather than replacement for the traditional MCS tools.

14. Mr Smith went on to present “*The International Plan of Action on Illegal, Unreported and Unregulated Fishing*” (IPOA/IUU Fishing). The IPOA/IUU Fishing<sup>1</sup> was developed as a response to concerns that such illegal fishing activities are increasing. The IPOA provides a definition of what constitutes IUU fishing and suggests actions that should be taken by Flag States, Coastal States and Port States. Improved MCS is one of the answers to this increasing problem, and VMS has an important role among the MCS tools. A further potent measure in combating IUU fishing is the use of trade documents to trace fish products from their origin till their destination, thus enabling the exposure of unreported fish. The importance of cooperation between countries and the vital place of Regional Fisheries Organizations (RFOs) in the IPOA was also highlighted.

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<sup>1</sup> FAO, 2001. *International plan of action to prevent, deter and eliminate illegal, unreported and unregulated fishing*. Rome, FAO. 24p.

15. Questions were raised concerning who pays for the installation and operation of VMS. Mr Smith indicated that there was a wide range of solutions. Governments have funded, or subsidized VMS, industry has borne the full costs, as is the case in Senegal. In a pilot project in Portugal in the early 1990s the service providers covered some of the costs and are actively involved in pilot projects in the Subregion. The issue of flags of convenience was also raised and Mr Smith advised that as a consequence of the successful introduction of trade documents and their use by ICCAT, some of the most important flag of convenience states have started to equip their vessels with VMS. Coastal states may require vessels of distant water fishing nations (DWFN) to be equipped with transceivers and to transmit positions when inside the EEZ of the coastal state.

16. Mr Kieran Kelleher (FAO Consultant) gave a summary of a recent review of MCS and IUU fishing in the Subregion<sup>2</sup>. Copies of the full report were made available. Among the principal fisheries violations identified for the Subregion were: falsification of vessel characteristics; closed area violations; and trawl net violations. The important financial and biological losses incurred as a result of false vessel characteristics were noted. Discussion ranged over a variety of topics, including: the need for an economic link between vessels and flag states; registration of vessels; the need to link vessel characteristics to their impact on the fish resources; clarification of the role and potential for electronic logbooks; the need to control artisanal fishing; and the operations of fish processing plants.

17. Mr Robert Gallagher (FAO Consultant) presented a technical overview of VMS (*"Fishing vessel monitoring: the what, why and how"*) that emphasized the need for accurate functional specifications which meet the requirements of the fisheries administration. He outlined the shipboard, transmission and fisheries monitoring centre (FMC) requirements, data analysis and confidentiality, and the use of VMS data for control, resource management, commercial purposes and safety at sea. Additional information was provided in response to questions on confidentiality, financing of VMS, sharing of data, equipment breakdown

18. Mr Kelleher presented the *"Institutional options for VMS in the Sub-Region"* that reviewed the criteria for selection of fisheries for VMS and described VMS arrangements in a range of countries, including at a regional level in the Forum Fisheries Agency (FFA) in the South Pacific and the European Union (EU)/Common Fisheries Policy (CFP). Examples of the use of VMS for control, resource management, and protection of endangered species were given and an emphasis placed on VMS as part of a suite of MCS tools used within the context of a coherent fisheries management plan. Questions focused primarily on the differences between the 'FFA model' and the 'EU/ CFP model', in particular the provisions on information exchange and responsibility for VMS operations.

19. Mr Henning O. Teigene (FAO, Rome) made a presentation on *"Legal issues related to VMS"*. International, regional and national aspects were addressed. The main international legal basis for the use of VMS is the 1982 UN Convention on the Law of the Sea (UNCLOS). The Convention includes Articles relating to the competence of the Coastal State to require the use of VMS equipment in its territorial waters and in the EEZ. Based on a question following the presentation a clarification was provided regarding the legal regime of the EEZ. The Coastal State exercises certain sovereign rights in the EEZ, which is something less than sovereignty. One consequence is the rule of Article 73 that corporal punishment, e.g.,

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<sup>2</sup> Kelleher, K., 2002. *Robbers, Reefers and Ramasseurs. A review of selected aspects of fisheries MCS in seven West African countries*. Sub-Regional Fisheries Commission. Project FAO/GCP/INT/722/LUX (AFR/013).

imprisonment, may not be used as a sanction for the master of a foreign fishing vessel operating in the EEZ.

20. The question arose as to whether vessels transshipping fish (reefers) and support vessels (e.g., bunker) could be required to be equipped with transceivers. This subject raises complex issues in international law. In case of the reefers the answer is probably “yes”, as the vessels could be considered to be “fishing” vessels. On the other hand bunker vessels could possibly claim the right of freedom of navigation as set out in the LOS Convention. Participants queried the use of VMS as evidence and expressed concerns regarding the confidentiality of VMS information. The use of VMS information as evidence depends on the judicial proceedings applicable in case of violations of fisheries legislation in each country, and in particular on whether a civil or criminal proceeding applies and on the nature of the rules on evidence. A recent US Decision used VMS as evidence that a fishing vessel was inside a closed area, but corroborating evidence was used to prove that the vessel had been fishing. VMS information is may not necessarily constitute proof of fishing activity in the absence of corroborating evidence.

21. The participants were made aware of the possibility of requesting legal technical assistance from FAO with regard to VMS regulations.

22. Mr Gallagher showed how a VMS system is designed and built in a presentation entitled “*Putting VMS into practice: the devil is in the details*”. The presentation emphasized the need for careful research and planning to ensure the VMS system meets the precise needs of the fisheries administration and other users, such as the vessel operators themselves. He stressed the wide range of technical options and compared the relative merits of Argos and Inmarsat systems. In response to questions he confirmed that both systems could readily co-exist in a national VMS system, and that in the case of the countries in the Subregion, where foreign vessels deploy both types of transceivers, a national FMC is likely to require the capability to process both types of signal.

## **COUNTRY STATEMENTS**

23. In alphabetical order the Member Countries of the SRFC and Sierra Leone briefed the Workshop on the status of MCS and VMS in their respective countries. The country statements are attached in their original versions as Annex 6. Of particular interest to the participants was the existence of approximately 100 vessels equipped with Argos transceivers in Senegal. These VMS systems are owned by the private fleet operators and used to check the activities of their vessels, and to serve as evidence in the event of gear conflicts with artisanal fishers and accusations of closed area violations.

## **TOWARDS A SUBREGIONAL VMS STRATEGY**

24. Mr Kelleher described a range of VMS options that could be considered in the subregion. His presentation “*Towards a Sub-Regional VMS strategy*” illustrated these options as four models – namely:

- a) the client-server “FFA model”, which has as its nucleus the Surveillance Operations Coordination Unit (also commonly known by its French acronym UCOS);

- b) the peer-to-peer “EU/CFP model” applied as a secure wide area network controlled by a common protocol agreed between the Member States;
- c) a fishery specific model; and
- d) a bilateral model in which two (or more) member countries cooperate.

25. A number of variations on these models were discussed. Mr Kelleher stressed that the “FFA model” is supported by international agreements, while the “EU model” is enforced by EU legislation. In response to questions, he suggested that priority concerns should be: the EU fleet, which is already equipped with VMS; the development of an agreement between the Senegalese administration and private sector vessel operators who have already installed VMS; and the fleet of over 80 reefers and bunker vessels supporting the ‘offshore fishery economy’.

### **PARALLEL PROGRAMME: COMMERCIAL BRIEFINGS**

26. Representatives of Inmarsat and Argos provided comprehensive briefings on their products and services (see Annex 7), including technical performance, prices and institutional support, and responded to a range of queries from the participants.

### **REPORT OF THE WORKING GROUPS**

27. Three working were formed with identical terms of reference – namely, to address the following three questions:

Question 1. Is VMS cooperation necessary in the Subregion, and if so for what reasons?

Question 2. What is the nature of the cooperation required? [A list of types of cooperation was required from each group].

Question 3. What actions should be taken (a) at national level and (b) at subregional level to achieve this cooperation? [A list of actions was required from each group].

28. Each group presented the results of its deliberations in plenary session. The conclusions are summarised below and include a number of points raised in the working groups but not included in the provisional reports given in the plenary.

#### **Question 1. Is VMS cooperation necessary in the Subregion, and if so for what reasons?**

29. The unanimous consensus was that cooperation on VMS is necessary for several reasons including:

- a) no one country can fully monitor the fleets operating in its own waters;
- b) VMS provides improved monitoring of the movement of vessels in the sub-region;
- c) VMS can help reduce IUU fishing in the Subregion;
- d) VMS may provide more accurate evidence in the case of contested violations and conflicts between fishers;

- e) VMS may make the use of surveillance assets more effective, reduce surveillance costs and improve the cost-effectiveness of surveillance;
- f) the presence of shared, straddling and highly migratory stocks makes cooperation essential in all domains of fisheries management;
- g) individual vessels, in particular foreign flag vessels, operate in two or more countries in the Subregion and VMS can assist in tracking such vessels;
- h) the general weakness or inexistence of surveillance assets in the countries; and
- i) VMS can assist in search and rescue operations.

**Question 2. What is the nature of the cooperation required?**

30. This question was interpreted in two different ways. The first interpretation pivoted on a choice between two types of Subregional VMS information sharing networks described in the presentation on institutional options. These were: the FFA model, with a centralised ‘client-server’ type configuration; and the CFP type model – a decentralized, or ‘peer to peer’ configuration in which each member country has its own VMS system and each member state shares VMS information with the others based on subregional, bilateral, or multi-lateral agreements. The groups were unanimously in favour of the CFP model, wherein each country would have its own VMS system. In this manner each country could proceed at its own pace with a gradual development of a secure data exchange network between member countries. A sub-regional protocol on information exchange could be considered, and the need for further work on the proposed sub-regional vessel register was noted.

31. The second interpretation involved identification of a set of subject areas in which cooperation was considered necessary which included the following:

- a) information exchange;
- b) standardization of equipment (in so far as practical);
- c) harmonization of legislation; and
- d) training.

32. There was consensus that VMS should target industrial vessel, while monitoring development of suitable technical solutions for artisanal vessels.

**Question 3. What actions should be taken (a) at national level and (b) at Subregional level to achieve this cooperation?**

*National level*

33. The actions to be considered at national level include:

- a) the VMS support systems (software, and/or equipment) installed in national FMCs must ensure inter-operability and compatibility with other national VMS systems and an ability to accept and interpret VMS signals from different satellite service suppliers;
- b) inform the SRFC, and SOCU in particular concerning the choices of systems and results of pilot VMS schemes;
- c) seek financing for VMS;
- d) prepare suitable VMS regulations;
- e) finalize national vessel registers;

- f) inform vessel operators of the merits of VMS and seek their active cooperation in the design and establishment of such systems;
- g) train VMS operators; and
- h) conduct pilot VMS projects, feasibility and cost benefit studies in all countries.

### ***Subregional level***

34. The actions to be considered at national level include:

- a) VMS to be considered as an integral part of sub-regional strategy;
- b) harmonise VMS legislation (SRFC Permanent Secretary to request the FAO Legal Office for such assistance bearing in mind that a request for 'regional project assistance' requires requests from at least three countries);
- c) seek financial assistance for UCOS and enable the SRFC to fulfil its role;
- d) prepare a draft protocol on the exchange of VMS information and a 'roadmap' for future development of VMS in the subregion;
- e) put the subregional vessel register in place; and
- f) transfer of technologies and skills between countries.

## **CLOSING SESSION**

35. The workshop endorsed the conclusions of the working groups and agreed that the Permanent Secretary should request the next meeting of Coordinating Committee of the SRFC to consider the report. The workshop suggested that the following actions could be considered by the Coordinating Committee of the SRFC:

- a) recommend to the Council of Ministers that the key elements of the report be accepted as a Subregional VMS strategy;
- b) instruct the Permanent Secretary regarding future actions; and
- c) preparation of a suitable information document for potential donors and financiers.

## **ANNEX 1. OPENING ADDRESSES**

**Opening remarks by Mr N. S. Bangoura,  
Permanent Secretary of the Sub-Regional Fisheries Commission (SFRC)  
Secrétaire Permanent de la Commission sous-régionale des pêches (CSRFP)**

**Allocution introductive à l'occasion de la cérémonie d'ouverture de l'atelier sur le système de  
suivi des navires (SSN)  
Hôtel NEPTUNE (Saly Portudal) du 14 au 17 octobre 2002**

Monsieur le Représentant de la FAO,  
Mesdames et Messieurs les Experts,

Dans la nuit du 26 au 27 septembre 2002, un navire sénégalais, le « JOOLA » qui relie la région méridionale à la Capitale Dakar, a chaviré. Ce drame, cette tragédie a endeuillé le Sénégal et la sousrégion. Dans son échouement, il a emporté voyageurs et marchandises. Parmi les voyageurs, quelques centaines de morts et une soixantaine de rescapés.

En cette douloureuse circonstance, je voudrais en votre nom et à mon nom propre demander à Son Excellence Monsieur Cheikh Sadibou FALL, Ministre de la Pêche de la République du Sénégal de recevoir nos condoléances sincères et des plus attristées et d'accepter de les transmettre au peuple sénégalais, à son gouvernement et au Président de la République, Son Excellence Maître Abdoulaye WADE.

Les participants ici présents s'inclinent devant la mémoire des disparus et vous demandent d'être leur interlocuteur auprès des rescapés pour leur exprimer leur compassion et leur vive sympathie.

Messieurs, Mesdames les Experts, je vous invite donc à vous lever et à observer une minute de silence à la mémoire de tous les disparus...

Puisse Dieu absoudre leurs péchés, leur ouvrir les portes de Son Paradis et accorder prompt rétablissement aux rescapés.

Mesdames et Messieurs, c'est pour moi un privilège de m'adresser à vous au nom de la CSRFP pour exprimer notre gratitude à Son Excellence Monsieur le Ministre de la Pêche du Sénégal et au Représentant de la FAO qui ont bien voulu rehausser par leur présence la présente cérémonie. Leur participation à l'ouverture de cette rencontre est appréciée comme une marque d'intérêt du Sénégal en faveur du raffermissement de la coopération halieutique sous-régionale et de la disponibilité de la FAO à accompagner, comme par le passé, la CSRFP dans la réalisation de ses objectifs.

La durabilité de la coopération dans le domaine de la pêche dépend également de l'implication du secteur privé dans la réalisation des actions relevant des Etats et par-delà la CSRFP. A cet égard, je voudrais saluer la réaction positive du secteur privé à l'invitation à participer à cette rencontre.

Monsieur le Ministre, Monsieur le Représentant de la FAO, Mesdames et Messieurs,

L'atelier sur le SSN qui se tient à partir de ce matin et pour quatre jours est organisé par la CSRP et la FAO – partenaires traditionnels. Il s'inscrit dans une logique : à engager dans des actions concrètes la Déclaration sur la pêche illicite, non déclarée et non réglementée adoptée par les six Etats membres de la CSRP et la Sierra Leone le 20 septembre 2001 à Nouakchott et, au-delà, le Plan d'Action International portant sur la même cause.

La CSRP regroupe six Etats côtiers de l'Afrique de l'Ouest à savoir, le Cap-Vert, la Gambie, la Guinée, la Guinée-Bissau, la Mauritanie et le Sénégal. La Sierra Leone est membre associé. Elle a été créée le 29 mars 1985 à Dakar, ville qui abrite son Secrétariat Permanent. Elle a pour objectif général l'harmonisation des ressources halieutiques de ses membres pour faire de la pêche un élément catalyseur du processus de développement économique et social de la sous-région et ce, en conformité avec les dispositions de la Convention des Nations Unies sur le Droit de la Mer, les objectifs et les principes du code de conduite pour une pêche responsable.

De sa création à ce jour, la CSRP a accompli plusieurs réalisations grâce à l'appui de ses partenaires parmi lesquels est en bonne place, la FAO.

La zone maritime de la sous-région est commune aux Etats. Elle recèle des stocks communs. La CSRP a adopté des instruments visant à prévenir, à contrecarrer et à éliminer la pêche illicite, non déclarée et non réglementée à l'intérieur de sa zone de juridiction. Il s'agit de la Convention sur l'exercice du droit de poursuite maritime et d'un protocole relatif aux modalités pratiques de coordination des opérations de surveillance dans les Etats membres qui, à leur tour, ont conclu entre eux, d'autres protocoles bilatéraux en matière de suivi, de contrôle et de surveillance et des règlements pour leur bonne application.

Dans le cadre de la mise en œuvre des dispositions juridiques sous-régionales dans le domaine du SCS, la CSRP a institué en 1999 un service de déconcentré rattaché au Secrétariat Permanent et dénommé Unité de Coordination des Opérations de Surveillance (UCOS) basée à Banjul, en Gambie. Cette unité dispose d'un projet financé par le Grand-Duché de Luxembourg au moyen duquel des opérations de contrôle et de surveillance des pêches à caractère transnational sont conduites dans la zone d'exercice de la CSRP et de la Sierra Leone.

La FAO, à travers le même projet, apporte un appui à la CSRP consistant au renforcement du Secrétariat Permanent dans sa mission de coordination, de formation, de planification et de renforcement des acquis dans le domaine du SCS.

Monsieur le Ministre, Monsieur le Représentant de la FAO, Mesdames, Messieurs les Experts, comme vous le savez, les mesures adoptées par les Etats et consistant à délimiter les zones ont un rôle ambivalent. D'une part, elles protègent les frayères et les nourriceries côtières. D'autre part, elles dissocient deux activités de pêche : l'artisanale et l'industrielle. Et le SSN, en tant qu'instrument de localisation des navires, peut être perçu comme un moyen de contrôle indirect de l'effort de pêche. Il contribue à la réduction des coûts des opérations de suivi et de surveillance des pêches et il devrait être intégré dans l'arsenal mis en place par les Etats et la CSRP destiné à prévenir, à contrecarrer et à éliminer la pêche illicite, non déclarée et non réglementée.

Mesdames, Messieurs, avant de conclure, je voudrais vous faire noter que l'atelier bénéficiera d'une série de présentations de la part des Experts sous-régionaux et internationaux et de quelques études de cas sur l'appropriation du SSN dans certaines régions.

Le point sera fait sur le rôle du SSN à l'intérieur du SCS, sa situation dans la sous-région et les perspectives de son développement.

Les participants identifieront les meilleurs moyens d'appui aux Etats et à la CSRP en vue de l'appropriation du SSN. Les actes de l'atelier seront produits, la FAO et la CSRP les feront circuler.

Pour terminer, j'exprime mes remerciements et ma sincère reconnaissance à tous ceux qui ont contribué à donner vie au présent atelier.

Je formule le vœu que les débats soient productifs. Je souhaite un agréable séjour au Sénégal à nos invités.

Je vous remercie de l'attention que vous avez bien voulu m'accorder.

**Opening remarks by Mr E. Tapsoba,  
Resident Representative of the Food and Agriculture Organization, Senegal**

Your Excellency, Ladies and Gentlemen

It is my pleasure to welcome you, on behalf of the Food and Agriculture Organization to this Sub-Regional Fisheries Commission Workshop on Vessel Monitoring Systems. The Workshop has been funded by the FAO FishCode Programme, under the project "Support for Implementation of the International Plan of Action on IUU Fishing" as well as by the FAO Regular Programme.

At a global level, the issue of illegal unreported and unregulated (IUU) Fishing in world fisheries is of serious and increasing concern. IUU Fishing undermines efforts to conserve and manage fish stocks in all capture fisheries. When confronted with IUU fishing, national and regional fisheries management organizations can fail to achieve management goals. This situation leads to both the loss of both short and long term social and economic opportunities and to negative effects on food security and environmental protection. The FAO Committee on Fisheries at its 24<sup>th</sup> Session adopted the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA/IUU Fishing). On 23 June 2001, at its 120<sup>th</sup> Session, the FAO Council endorsed the IPOA-IUU. The FAO Fisheries Department has prepared and finalised Guidelines to assist FAO members, regional fisheries management organizations and other interested parties in the implementation of the IPOA.

IUU Fishing is manifest in the growing incidence of fishing activity that does not respect applicable laws and regulations, including the standards set forth in recent international instruments. Examples of such activity include reflagging of fishing vessels to evade controls, fishing in areas of national jurisdiction without authorization by the coastal state, failure to report (or misreporting) catches etc. Such irresponsible fishing activity directly undermines efforts to manage marine fisheries properly and impedes progress toward the goal of sustainable fisheries. It is particularly prevalent off the coast of the SRFC and was highlighted as a very serious problem at the FAO Regional Conference in Cairo.

Ladies and Gentlemen,

IUU Fishing might appear to be a new concept developed in the last few years, however IUU Fishing is the problem, the other side of the coin is the apparent answer to the problem - Monitoring Control and Surveillance (MCS), a concept that we have been aware of for two decades. We are also aware of the difficulties of implementing MCS in developing countries and action has been taken to try and strengthen MCS in the region. The costs of MCS are prohibitive as the running of vessels and aircraft require specialised personnel and expensive equipment. Even the running costs, in the terms of fuel, becomes prohibitive even to developed countries, who have cut back significantly in their MCS provisions in recent years. If the developed countries are having difficulties in this respect, how can the developing countries cope?

The regional project for MCS of industrial fisheries in the countries of the Sub-Regional Fisheries Commission has the objective of contributing to the protection and conservation of fishery resources through reduction of illegal fishing and its effects on the

marine environment, so as to improve the food security and attain economic benefits for the countries concerned. The whole project is financed by funds of the Grand Duchy of Luxembourg. One component is executed by the company LUXDEV and is based in Banjul, The Gambia. This component has the responsibility for supporting the Surveillance Operations Coordinating Unit (SOCU), which assists aerial and maritime surveys to assess and discourage illegal fishing. The second component is executed by FAO (project GCP/INT/722/LUX). Activities of the FAO component started with arrival of the regional adviser in July 1999. This component has the responsibility to support the secretariat of the Sub Regional Fisheries Commission and in particular the work of SOCU. Indeed in the fisheries sphere the countries of the region have much to thank the contribution that Luxembourg has made to combating IUU Fishing. Recently, proposals have been made to extend the project to allow the countries of the build up their own resources and to eventually take over the MSC on their own account.

FAO is also participating in assisting the SRFC to manage its fisheries resources through several programmes in fisheries from the assessment of Fish Stocks through to the management of these stocks. The EU funded project on Fisheries Information and Analysis System which has as its direct beneficiaries the research and management institutions in the six countries of the SRFC.

Turning to the specific topic of this Workshop, which is funded by the FishCode Programme through Project GCP/INT/849/USA and the FAO Regular Programme, new communication technologies have given MCS a new tool, which has been termed Vessel Monitoring Systems or VMS. As you will hear in the Workshop, or are possibly already aware, VMS has greatly increased the efficiency of MCS in many countries. However, in the countries, in which VMS has been implemented there has been clear justification in terms of the size of the fishery or in the economics of the country for VMS, both in terms of the industry and of the government. There are some countries where such justifications are difficult to make funds difficult to obtain. The SRFC provides several examples of such countries.

The Director General of FAO, Dr Jacques Diouf, has taken a personal interest in the implementation of VMS in developing countries, and this workshop, to take place in his home country is just part of the FAO strategy for the implementation of VMS. However we should not lose sight of the fact that VMS is only one of the tools in the MCS toolbox. There is still a requirement, and there will continue to be a requirement for the current tools for MCS that consist mainly of marine and aerial patrols. I have the greatest confidence that your combined knowledge of the local situation with regard to fisheries and of MCS operation in the region combined with the internationally recruited experts and FAO staff will result in a good technical agreement upon which to base future actions

In conclusion, I would wish to express my thanks to the staff of the SFRC and the staff of the FAO project for their assistance in the preparation of this Workshop.

I thank you for your attention.

**Opening address by His Excellency the Hon. Cheikh Sadibou Fall,  
Minister for Fisheries of the Republic of Senegal**

**DISCOURS DU MINISTRE DE LA PECHE DU SENEGAL**

**Saly Portudal, du 14 au 17 octobre 2002**

**Monsieur le Représentant de la FAO,**

**Monsieur le Secrétaire Permanent de la Commission Sous-régionale des Pêches,**

**Mesdames, Messieurs les Représentants des Etats membres de la Commission Sous-régionale des Pêches,**

**Honorables invités,**

Mon Collègue et Frère, Monsieur Ahmedou Ould AHMEDOU, Ministre des pêches et de l'économie maritime de la République Islamique de Mauritanie et Président en Exercice de la Conférence des Ministres des Etats membres de la Commission Sous-régionale des Pêches, m'a demandé de vous transmettre son sentiment de regret de ne pouvoir lui-même être avec vous ce matin pour présider cette rencontre.

C'est donc avec beaucoup de plaisir que je viens, en son nom, présider l'ouverture de l'atelier régional sur le système de suivi des navires.

Cet atelier qui est conjointement organisé par la Commission Sous-régionale des Pêches (CSRP) et l'Organisation des Nations Unies pour l'Alimentation et l'Agriculture (FAO), se fixe comme objectif de sensibiliser les Etats membres sur le système de suivi des navires, en tant qu'instrument de contrôle des activités de pêche.

Cet atelier trouve sa justification dans les efforts déployés sans cesse par la FAO pour mettre en œuvre un Plan d'Action International pour prévenir, contrecarrer et éliminer la pêche illícite, non déclarée et non réglementée.

C'est dans ce cadre que le Département des Pêches de la FAO a initié une stratégie visant à promouvoir l'utilisation du Système de Suivi des Navires.

A cet effet, la Conférence des Ministres des Etats Membres de la Commission Sous-régionale des pêches a adopté le 20 septembre 2001, la Déclaration dite de Nouakchott sur la pêche illícite, non déclarée et non réglementée.

En outre, le Plan d'action Stratégique de la Commission Sous-régionale, qui accorde une grande priorité aux activités de Suivi, de Contrôle et de Surveillance des Pêches a été adopté.

Grâce à l'appui du Grand Duché de Luxembourg, des avancées significatives ont été réalisées dans ce domaine avec les opérations conjointes de surveillance qui sont régulièrement menées au niveau de nos Etats.

D'autres réalisations à inscrire à l'actif de la CSRP concernent :

- les initiatives prises pour établir un registre sous-régional des pêches et pour parvenir à des accords d'accès harmonisés ;
- les études comparatives en Suivi, Contrôle et Surveillance des pêches ;
- l'élaboration d'un Compendium sous-régional sur les législations des pêches ;
- l'élaboration avec l'appui de la FAO, d'un Plan Sous-régional d'Action pour la conservation et la gestion des requins.

Mesdames, Messieurs,

L'atelier qui vous réunit actuellement revêt une importance particulière, en ce sens qu'il vise à renforcer les capacités des experts nationaux dans le domaine de la formulation d'une stratégie sous -régionale de coopération en matière de suivi des navires de pêche.

Il s'agira précisément au terme de vos travaux, de formuler des recommandations pour la mise en œuvre d'une stratégie sous-régionale de coopération en matière de système de suivi des navires ;

Les résultats de vos réflexions seront ensuite examinés, lors des prochaines sessions de coordination de la Commission Sous-régionale des Pêches, avant d'être présentés à la rencontre des organes régionaux de pêche.

Je demeure convaincu qu'à l'issue des discussions, vous ne manquerez pas de passer en revue les opportunités que pourrait offrir un tel système comme moyen de suivi pour la régulation de l'effort de pêche.

Pour terminer, je voudrais souhaiter la bienvenue à tous nos hôtes et remercier les organisateurs, en particulier la FAO et la Commission Sous-régionale des Pêches pour l'organisation de cet atelier.

Je voudrais leur dire que la Conférence des Ministres apprécie cette initiative qui sans nul doute, va favoriser un échange d'idées et d'expériences entre les experts de nos pays.

En souhaitant plein succès à vos travaux, je déclare ouvert l'atelier sur le Système de Suivi des Navires.

Je vous remercie de votre attention.

**ANNEX 2. AGENDA AND TIMETABLE**

**SUB-REGIONAL FISHERIES COMMISSION  
FAO FISHCODE PROGRAMME**



**SUB-REGIONAL VMS WORKSHOP  
Saly, Senegal, 14-17 October, 2002**

**Monday 14 October, 2002****Opening Ceremony**

- 09: 30 Welcome and registration of participants  
 09: 45 Introductory remarks by the Permanent Secretary of the SRFC  
 10: 00 Opening statement by the Representative of FAO in Senegal  
 10: 10 Opening statement by the Minister in charge of fisheries of the Republic of Senegal

*Coffee break*

- 10: 30 Discussion and adoption of the Agenda and Timetable

**Presentation of technical papers**

- 11: 00 The role of VMS in Monitoring, Control and fisheries Surveillance (SCS) and in implementation of the International Plan of Action (IPOA) with the view to preventing, deterring and eliminating Illegal, Unreported and Unregulated fishing (IUU) in global and regional levels.

12: 00 *Lunch*

- 13: 30 MCS and IUU fishing in the SRFC area (M. KELLEHER, Consultant and Austin JONES, UCOS)  
 14: 30 Overview of the technical aspects of VMS

15: 40 *Coffee break*

- 16: 00 Institutional options for VMS in the sub-region (M. KELLEHER, Consultant)  
 17: 30 Closing of the session

20: 00

***Dinner*****Tuesday 15 October, 2002**

08: 30 Legal issues associated with VMS (FAO Legal Office)

09: 30 Technical and Administrative issues in creating a national, or regional VMS capability (M. Robert GALLAGHER, Consultant)

***Coffee break***

11: 00 Presentation of documents of the SRFC member States (approximately 20 minutes per country) Cape Verde, Gambia, Guinea

12: 00

***Lunch***

14: 00 Presentation of documents of SRFC member States and of Sierra Leone (approximately 20 minutes per country) Guinea-Bissau, Mauritania, Senegal and Sierra Leone)

***Coffee break***Towards a sub-regional VMS strategy for SRFC member States and Sierra Leone (M. KELLEHER, Consultant, M. Austin JONES, SOCU)  
Discussion of proposed strategy**Wednesday 16 October 2002**

08: 30 Discussion of proposed strategy – continued (creation of working groups)

***Coffee break***

10: 00 Parallel programme : presentation of VMS and satellite systems by commercial service providers (ARGOS, INMARSAT)

12: 00

***Lunch***

14: 00 Parallel programme (continued and end)

15: 00 Discussion and elaboration of technical recommendations

**Thursday 17 October 2002**

08: 30 Presentation of the draft report of the workshop

11: 00 Adoption of the report and closing of the workshop

15: 00 Departure from Saly to Dakar

**ANNEX 3. LIST OF PARTICIPANTS****LISTE DES PARTICIPANTS/LIST OF PARTICIPANTS****1. ÉTATS MEMBRES DE LA CSRP/ MEMBER STATES OF THE SRFC*****CAP-VERT/CAPE VERDE*****Mme Maria Edelmira Moniz CARVALHO**

Directrice Générale des Pêches  
 BP : 206 Praia  
 Tél : 238 61 57 16 - Fax : 238 61 40 54  
 E-mail : mariac@ma.gov.cv

**Mme Patricia ALFAMA**

Directrice Service Qualité et Surveillance  
 BP : 206 - Praia  
 Tél : 238 61 57 16 - Fax : 238 61 40 54  
 E-mail : palfama@hotmail.com

**M Alexandre CRISOSTOMO BAPTISTA**

CC (Major) Director De Operações  
 Guarda Costeira - BP : 29 - Praia  
 Tel : 238 61 34 22, Mobile: 238 93 65 37  
 Fax :238 61 53 58  
 E.mail : alexcbaptista@hotmail.com

***GAMBIE/ THE GAMBIA*****Mr Joseph GABBIDON**

Principal Fisheries Field Assistant (IC)  
 Fisheries Department (MCS Unit)  
 6, Mummah Ghadaffi, Avenue, Banjul  
 Tel : 220 33 73/20 15 15  
 Fax : 220 22 45 41  
 E.mail : gamfish@gamtel.gm

**Mr Adiatou NJAI**

Executive Secretary  
 Association of Gambian Fishing Companies  
 P.O. Box : 618, Banjul  
 Tel: 220 46 14 22/78 16 86/22 53 62  
 Fax : 220 39 57 16  
 E-mail : [adja-a-njai@hotmail.com](mailto:adja-a-njai@hotmail.com)

**Lt Cdr Sajor FOFANA**

Executive Officer  
 Gambia Navy, Banjul  
 Tel : 220 20 17 54/22 35 61  
 Fax :220 22 35 61  
 E-mail : sarjokoner@hotmail.com

***GUINÉE/ GUINEA*****M Mohamed SIDIBE**

Directeur Général Adjoint du Centre National de  
 Surveillance et des Pêches  
 BP : 3167 Conakry  
 Tél : 224 25 43 07 - Fax : 224  
 E-mail :  
 md\_sidibe@yahoo.fr/msidibe@cnsnp.gov.gn

**Cdt Facirman TRAORE**

Commandant Bureau des Opérations et Instructions  
 de la Marine Nationale  
 Etat Major Armée de la Mer  
 BP : 1000 Conakry  
 Tél : 224 21 37 39/45 22 44  
 E-mail : mid\_sidibe@yahoo.fr

**GUINÉE-BISSAU/ GUINEA-BISSAU****M Pedro Perreira BARRETO**

Presidente  
Alta Autoridade Para Fiscalizaçau Maritima  
Rua 13 - Bissau  
Tél : 245 20 51 14 - Fax : 245 20 51 13

**M Sanha CLUSSE**

Chef Pescal Navigante  
Marinha Nacional  
CP : 110 - Bissau  
Tel : 245 20 44 21 - Fax : 245 21 25 13

**M Cirilo VIEIRA**

Conseiller Technique Principal du Ministre des  
Pêches  
BP : 102 Guinée- Bissau  
Tél : 245 20 16 99  
E-mail : cirilovieira@hotmail.com

**MAURITANIE/ MAURITANIA****M Sidi El Moctar Mohamed ABDELLAHI**

Chef de Service Aménagement des Ressources  
Halieutiques - Direction des Etudes et de  
l' Aménagement  
des Ressources Halieutiques, BP : 137 Nouakchott  
Tél : 222 29 08 64 - Fax : 222 29 13 39  
E-mail : sidel.dearh@mpem.mr

**M Zakaria THIAM**

Représentant/Chargé de Mission  
Fédération Nationale de Pêche  
BP : 222 - Nouakchott  
Tél : 222 525 26 52 - Fax : 222 525 45 60  
E-mail : limam@mauritel.mr

**M Ahmed Ould Ben AOUF**

Chef de Services des Opérations de la  
Délégation à la Surveillance des Pêches  
et au Contrôle en Mer, Nouadhibou  
BP : 260 Nouadhibou  
Tél : 222 574 626 Fax : 222 574 63 12  
E-mail : dspcm@topotechnology.mr

**SENEGAL/ SENEGAL****M Ndiaga GUEYE**

Directeur  
Direction des pêches Maritimes du Sénégal  
BP : 289 Dakar – SENEGAL  
Tél. : (221) 821 65 78  
Fax : (221) 821 47 58  
E-mail : [ngueye@sentoo.sn](mailto:ngueye@sentoo.sn) / [dopm@sentoo.sn](mailto:dopm@sentoo.sn)

**M Makhtar NDIA YE**

Officier Chef du Bureau Emploi E.M. Marine  
BP : 349 – Dakar  
Tél + 221 558 63 87 - Fax : 221 821 73 05  
E-mail : makhtarnd@yahoo.fr

**M Yérim THIOUB**

Directeur de la Protection et de la  
Surveillance des Pêches, BP : 3656 Dakar  
Tél : 221 864 05 88/89 - Fax + 221 860 31 19

**M Eric LEBRUN**

Conseiller Technique  
 Ministère de la Pêche du Sénégal / Coopération  
 française  
 BP 4050 Dakar – SENEGAL  
 Tél. : (221) 822 62 45  
 Fax : (221) 823 87 20  
 E-mail : [e\\_lebrun@yahoo.fr](mailto:e_lebrun@yahoo.fr)

**Mme Marième Talla DIAGNE**

Juriste à la Direction de l'Océanographie  
 et des Pêches Maritimes, BP : 289 – Dakar  
 Tél : 221 821 65 78 - Fax : 221 821 48 67  
 E-mail : [dopm@sentoo.sn](mailto:dopm@sentoo.sn)

**M Dougoutigui COULIBALY**

Secrétaire Général  
 Groupements des Armateurs et Industriels de la  
 pêche (GAIPES), BP : 2138 - Dakar  
 Tél : 221 821 49 81 - Fax : 221 821 95 06  
 E-mail : [gaipes@sentoo.sn](mailto:gaipes@sentoo.sn)

**2. PAYS ASSOCIÉ/ ASSOCIATED COUNTRY*****SIERRA LÉONE/SIERRA LEONE*****Mr Arthur B. C. JONES**

Director of Fisheries - Ministry of Fisheries  
 and Marine Resources - Marine Housse, 11 Old  
 Railways Line  
 GrookFields, Freetown, Sierra Leone  
 Tel : 232 22 240 828 -  
 Fax : 232 22 235 135/235 035  
 E-mail :  
[abcjones@yahoo.com/fishmare@sierratel.sl](mailto:abcjones@yahoo.com/fishmare@sierratel.sl)

**Mr Tomy D. K. TAYLOR**

Senior Fisheries Officer (Surveillance)  
 Ministry of Fisheries and Marine Resources  
 Sierra-Leone 11, Old Railway Line Brookfields  
**Freetown – Sierra Leone**  
 Tel. : 232 22 24 04 85

**Mr Daniel MANSARAY**

RSLAF Naval WING  
 Tel : 232 22 223 991/233 289/222 284

**3. INVITÉS/ GUESTS*****FAO*****Mr Andrew R. SMITH**

Fisheries Industries Officer  
 FAO Fisheries Department,  
 Terme Di Caracalla  
 Rome - Italy  
 Tel. : (3906) 51056483  
 Fax : (3906) 51055188  
 E-mail : [andrew.smith@fao.org](mailto:andrew.smith@fao.org)

**Mr Henning TEIGENE**

Legal Officer  
 FAO TERME de CARACALLA 00100  
 Rome - Italy  
 Tél. : (3906) 570 56897  
 Fax : (3906) 57056844  
 E-mail : [henning.teigene@fao.org](mailto:henning.teigene@fao.org)

**Mr Robert GALLAHER**

Consultant  
 La Mestairie Neuve, 81700 Appelle France  
 Tél. : (33) 563 70 48 70  
 Fax : (33) 563 70 82 33  
 E-mail : [Robgal@imagnet.fr](mailto:Robgal@imagnet.fr)

**Mr Kieran KELLEHER**

Fisheries Consultant  
 25 Highlands, Passage West,  
 Co. Cork, Ireland  
 Co. Cork - Ireland  
 Tél. /Fax : 353-214863060  
 E-mail : fishybiz@indigo.ie

***INMARSAT*****Mr Thierry CLADART**

Channel Development Manager  
 Europe, Africa - France  
 Tel. : 33 (0) 231 94 83 21  
 M. : 33 (0) 7764 33 80 91

*E-mail : thierry\_cladart@inmarsat.com*

**M. Jean-Pierre JENNEQUIN**

Responsable régional – Afrique  
 France Telecom Mobile Satellite Com  
 (INMARSAT)  
 16, Bld. du Mont d'Est 93160 Noisy le GD - France  
 Tél. : (33) 1 48 15 73 56  
 Fax : (33) 1 48 15 7358  
 E-mail : [jeanpierre.jennequin@francetelecom.com](mailto:jeanpierre.jennequin@francetelecom.com)

***ARGOS*****M Jean-Pascal CHABAUD**

ARGOS  
 Chef du Département Pêches  
 810, Rue Hernès Parc Technologique du Canal  
 31526 Ramonville, Cedex, France  
 Tél. : 0033 56 1393721  
 Fax : 0033561393721  
 E-mail : [jchabaud@cls.fr](mailto:jchabaud@cls.fr)

**M Mustafa DIOP**

Directeur Général BSA  
 140, Rue Mousse Diop  
 CLS ARGOS / BSA  
 BP 1564, Dakar – Sénégal  
 Tél. : (221) 822 16 43 / 638 17 00  
 Fax : (221) 822 97 26  
 E-mail : [tafa.diop@sentoo.sn](mailto:tafa.diop@sentoo.sn)

**M Philippe COMBES**

ARGOS Technico-commercial  
 810, Rue Hernès  
 31526 Ramonville, Cedex, France  
 Tél. : 00561394776  
 Fax : 00561394785  
 E-mail : [combes@cls.fr](mailto:combes@cls.fr)

#### 4. SECRÉTARIAT PERMANENT DE LA CSRP/ PERMANENT SECRETARIAT OF THE SRFC

##### **M Nabi Souleymane BANGOURA**

Commission Sous-régionale des Pêches - CSRP  
Secrétaire Permanent  
BP 20 505 Dakar, Sénégal  
Tél : 221 834 55 80 / 854 03 06  
Fax : 221 834 44 13 / 854 05 50  
E-mail [csrp@sentoo.sn](mailto:csrp@sentoo.sn)

##### **M Austin Joko JONES**

Directeur de l'Unité de Coordination des  
Opérations de Surveillance des Pêches (UCOS)  
P.O. Box 1210, Banjul  
Tél : 220 22 32 38 - Fax : 220 22 32 34  
E-mail :  
[luxdev@gamtel.gm/austinjoko@yahoo.com](mailto:luxdev@gamtel.gm/austinjoko@yahoo.com)

##### **M Moctar BA**

Directeur ACP du Projet « Système d'Information  
et d'Analyse Des Pêches, BP : 3739, Conakry -  
Guinée  
Tél : (224) 013 40 73 54  
Fax : (224 ) 013 40 92 16  
E-mail : [siap@cnsnb.org.gn](mailto:siap@cnsnb.org.gn)

##### **M Mamadou Amadou BALL**

Officier de Contrôle Maritime  
Unité de Coordination des  
Opérations de Surveillance des Pêches (UCOS)  
P.O. Box 1210, Banjul  
Tél : 220 22 32 38 - Fax : 220 22 32 34  
E-mail [luxdev@gamtel.gm](mailto:luxdev@gamtel.gm)

##### **M Namory KONE**

Statisticien - Unité de Coordination des Opérations  
de Surveillance des Pêches (UCOS)  
P.O. Box 1210, Banjul  
Tél : 220 22 32 38- Fax : 220 22 32 34  
E-mail [luxdev@gamtel.gm](mailto:luxdev@gamtel.gm)

##### **M Germain DASYLVA**

Conseiller technique régional CSRP/FAO  
Projet GCP/INT/722/LUX  
BP 3300 Dakar, Sénégal  
Tél : 221 854 03 06 - Fax : 221 854 05 50  
E-mail [dasyuva.fao@sentoo.sn](mailto:dasyuva.fao@sentoo.sn)

##### **M Bernard Codou DIOH**

Consultant  
Projet FAO-GCP/INT/722/LUX  
BP 19576 Dakar – Senegal  
Tél : (221) 685 34 58  
E-mail : [bernard@sentoo.sn](mailto:bernard@sentoo.sn) /  
[bcdioh@hotmail.com](mailto:bcdioh@hotmail.com)

##### **Mme Yacine DIOP**

Secrétaire de Direction  
Tél: 221 834 55 80  
Fax: 221 834 44 13  
E-mail [csrp@sentoo.sn](mailto:csrp@sentoo.sn)

##### **Mlle Adeline DIATTA**

Secrétaire de Direction  
Projet FAO-GCP/INT/722/LUX  
BP 3300 Dakar, Sénégal  
Tél. : (221) 854 03 06  
Fax : (221) 854 05 50  
E-mail : [dasyuva.fao@sentoo.sn](mailto:dasyuva.fao@sentoo.sn) /  
[diatta.adeline@caramail.com](mailto:diatta.adeline@caramail.com)

## ANNEX 4. LIST OF DOCUMENTS

### Opening statements

- Doc. 1.1. Opening statement by Permanent Secretary of SRFC
- Doc. 1.2. Opening statement by FAO Representative
- Doc. 1.3. Opening statement by the Representative of the President of the SRFC  
(*Minister for Fisheries of Sénégal,*)

### Presentations

- Doc. 2.1. Overview of VMS and its role in MCS and in implementation of the IPOA/IUU at a global and regional level. (*Mr Andrew Smith FIIT*)
- Doc. 2.2. IPOA/IUU booklet
- Doc. 2.3. FAO Technical Guidelines for Responsible Fisheries No. 9. Implementation of the IPOA/IUU
- Doc. 2.4. FAO Technical Guidelines for Responsible Fisheries No. 1, Supplement 1. Fishing Operations.
- Doc. 2.5. Vessel Monitoring Systems.
- Doc. 2.6. FAO Strategy on VMS.
- Doc. 2.7. The international plan of action on IUU Fishing
- Doc. 3.1. Overview of MCS and IUU in the sub-region and the potential contribution of VMS. (*Mr K. Kelleher, Consultant*)
- Doc. 3.2. Robbers, Reefers and Ramasseurs. . A review of selected aspects of fisheries MCS in seven West African countries. (*Mr K. Kelleher, Consultant*)
- Doc. 4. Fishing vessel monitoring (*Mr Robert Gallagher, Consultant*)
- Doc. 5. Institutional options for VMS in the sub-region (*Mr K. Kelleher, Consultant*)
- Doc. 6. Legal issues associated with VMS with particular reference to the sub-region (*FAO Legal office*)
- Doc. 6.1. Port State Control of Foreign Fishing Vessels (*T. Lobach*)
- Doc. 6.2. Flags of Convenience and Fleet Statistics (*Mr Andrew Smith FIIT*)
- Doc. 7. Putting WMS into practice (*Mr Robert Gallagher, Consultant*)
- Doc. 8. Towards a Sub-Regional VMS strategy. (*Mr K. Kelleher, Consultant*)
  
- Doc. 9. Country Statements on VMS
  - Doc. 9.1. Cape Verde
  - Doc. 9.2. Gambia
  - Doc. 9.3. Guinea
  - Doc. 9.4. Guinea-Bissau
  - Doc. 9.5. Mauritania
  - Doc. 9.6. Senegal
  - Doc. 9.7. Sierra Leone

Doc. 10. Commercial Presentations

Doc. 10.1. Argos presentation

Doc. 10.2. Inmarsat presentation

## ANNEX 5. TECHNICAL PRESENTATIONS

### Annex 5.1 History and Future of MCS

#### Slide 1

**History and Future of  
Monitoring Control and  
Surveillance**

Andrew R Smith  
Fisheries Industries Officer  
FAO, Rome

#### Slide 2

**Summary**

- History of Fisheries Policing
- The Law of the Sea and how it changed the Rules of the Game
- Changes in the World's Fleets
- The Emergence of VMS
- The Effectiveness of the Tools of MCS
- Satellite Surveillance
- VMS in Fisheries Management

#### Slide 3

**ORIGINAL NATIONAL LIMITS**

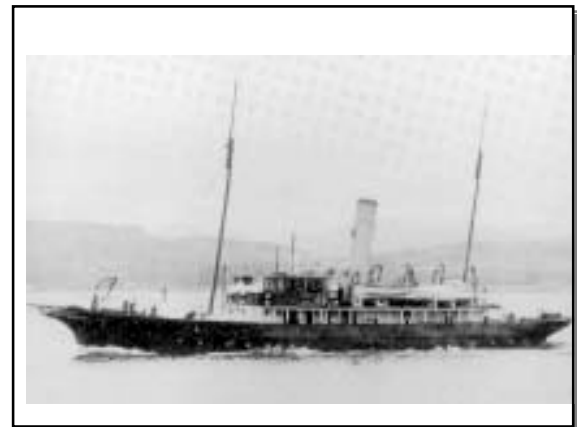
- Up until 1982, most territorial sea limits were 3 nautical miles to 12 nautical miles
- Therefore States could only control the activities of their own vessels outside these limits
- This was reflected in the name given to the policing activity (In the UK "Fisheries Protection")

#### Slide 4

**ORIGINAL LIMITS (cont)**

- These restricted limits allowed visual location of vessels from the shore.
- Many countries entered into Multilateral Agreements to "manage" fisheries (i.e. Minimum mesh sizes, minimum landing sizes in the North Sea etc)
- Never limited the amount of fish landed
- Led to the moratorium on the herring fishery in the North Sea in 1980

#### Slide 5



#### Slide 6



Slide 7

### The Law of the Sea

- Three Conferences led to the formulation of the Law of the Sea Convention in 1982 (LOSC)
- Exclusive Economic Zones established at 200 nautical Miles. (not only for fisheries but for mineral rights)
- However many countries have not declared EEZs (i.e. Mediterranean, Yellow Sea, Caspian Sea)

Slide 8

### Exclusive Economic Zones

- EEZs extended the areas of some fisheries jurisdictions hundred fold and in particular created a new requirement in developing countries.
- Greatest increases in area were off Small Islands such as in the South Pacific and led to the development of the South Pacific Fisheries Forum Agency (includes Australia and New Zealand)

### Monitoring Control and Surveillance (MCS)

- In 1982 FAO held an Expert Consultation on Monitoring Control and Surveillance
- The definition of MCS was given as follows
- Monitoring – the continuous requirement for the measurement of fishing effort characteristics and resource yields.

Slide 9

### Monitoring Control and Surveillance (MCS) cont

- Control - the regulatory conditions under which the exploitation of the resource may be conducted
- Surveillance - the degree and types of observations required to maintain compliance with the regulatory controls imposed on fishing activities.
- Broad Definition

Slide 10

Slide 11

### Development of MCS

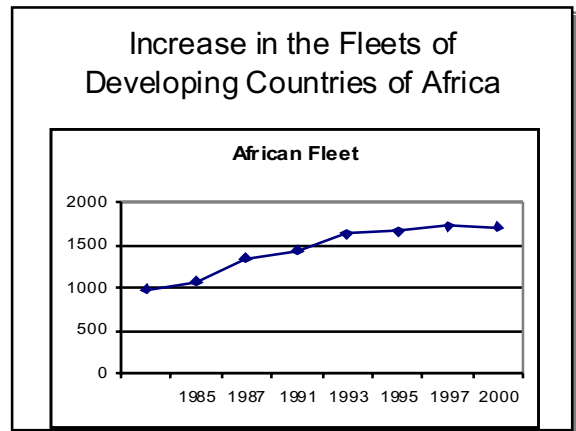
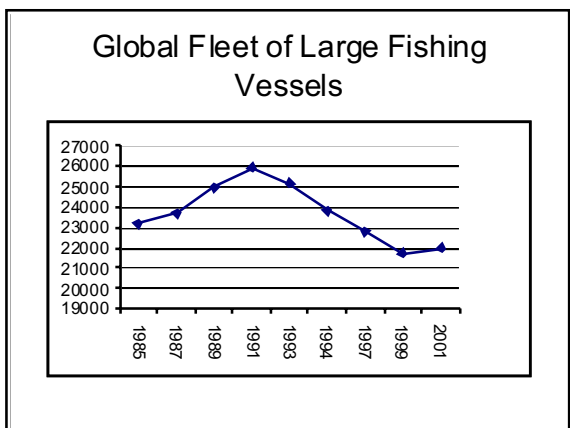
- Some developed countries already had the capacity with a Navy for military duties and Coastguard for civil duties.
- Many countries rely on their Navy for the implementation of MCS
- However since the end of the Cold War funding of military vessels has been reduced drastically and some are even limited by the cost of fuel

Slide 12

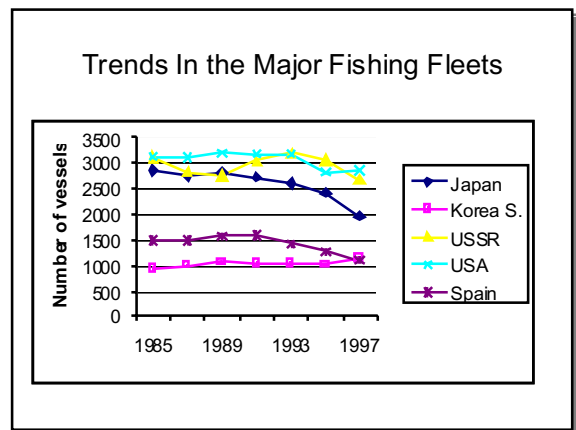
### Development of MCS (cont)

- Many countries who had established large EEZs found that the obligations probably exceeded the opportunities gained.
- The adjustments that were expected in the fleets, with a decrease in the fleets of Distant Water Fishing Nations (DWFNs) and an increase of the fleets in developing countries has been very slow.

Slide 13

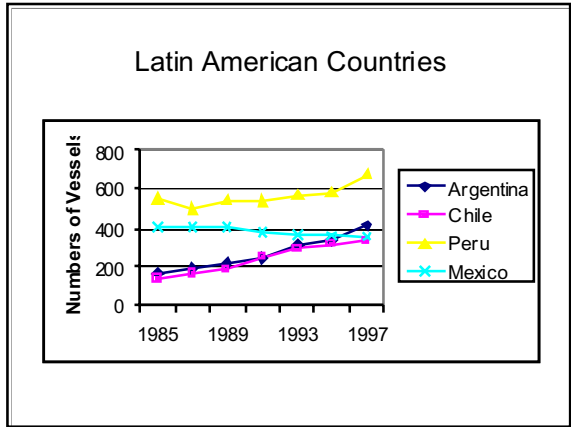


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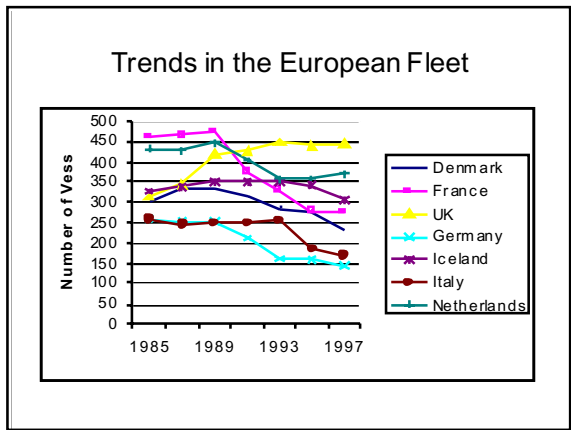


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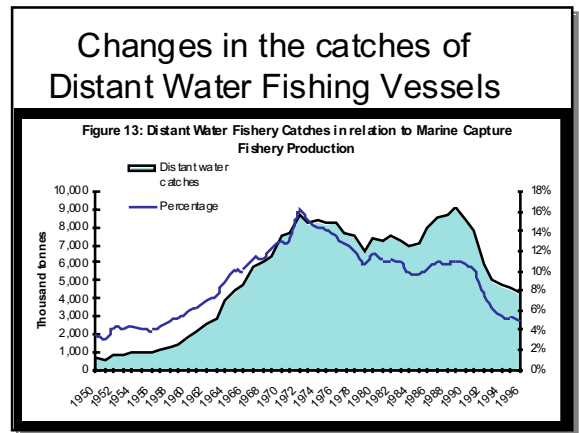
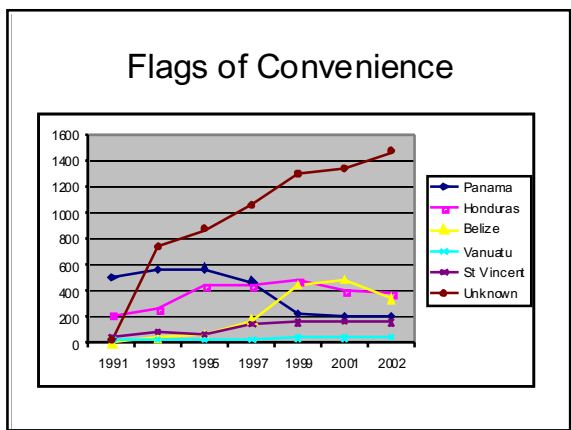
Slide 16



Slide 17



Slide 18



Slide 19

### Code of Conduct for Responsible Fisheries

- In the early 1990s it was realised that there were major problems in fisheries
- High Seas Fisheries were totally unregulated
- Call for a Code of Conduct for Responsible Fisheries with a Reflagging Agreement to be put on the fast track
- FAO High Seas Compliance Agreement (1993)
- Code of Conduct agreed (1995)

Slide 20

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### International Plans of Action

- Reducing Incidental Catch of Seabirds in Longline Fisheries
- The conservation and Management of Sharks.
- The Management of Fishing Capacity
- On Combating Illegal Unreported and Unregulated Fishing (IUU Fishing)

### Slide 24

### FAO Statistical Areas



### Slide 22

### Emergence of VMS

- First use of VMS was for USA to track Korean vessels
- Australia and New Zealand start to monitor Japanese longliners and eventually their own trawlers
- Portugal starts tracking vessels as pilot study for European Union
- Now all vessels over 20 metres have to report by VMS (6,000 vessels)

### Slide 25

### What VMS can do

- Monitor vessels so that they do not enter closed areas.
- Monitor vessels so that inspections can be targeted. (i.e. patrol vessel does not need to search)
- Gives warning of when a vessel is going to land.
- Gives an indication of the activities of a vessel.
- Allow a country to exercise "control" over its fishing vessels wherever they are as required by International Agreements.

### Slide 23

### Emergence of VMS (Cont)

- USA slow to adopt blanket coverage such as EU and other countries because of legal issues
- Most countries with significant fishing interests have already adopted VMS for at least part of their fishing fleets.

### Slide 26

### VMS seen within the overall context of MCS

- VMS cannot arrest a vessel
- Cannot measure mesh size
- Cannot examine documents
- Cannot monitor an unauthorised vessel
- Cannot monitor transshipments
- Hence – VMS is just one tool in the MCS toolbox.

Slide 27

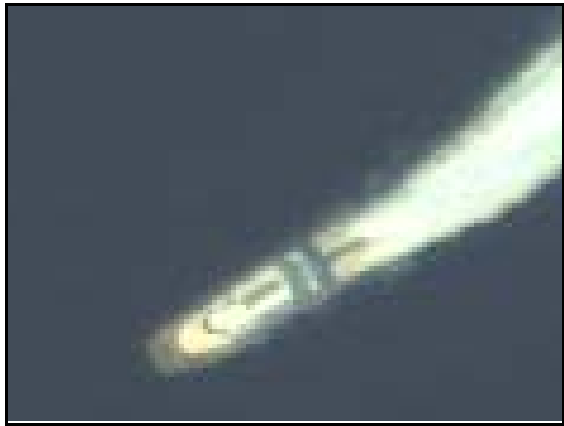


**Changes caused to MCS by VMS and Satellite Surveillance**

- MCS will become more cost-effective.
- Increase in cost-effectiveness will reduce costs or increase effectiveness.
- Increases in effectiveness will be difficult to measure.
- Synergies of MCS components will have to be reviewed continually.
- Property rights will impinge on decisions and on "Who pays?" - "Who says!".

Slide 30

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Slide 29

**Looking to the Future**

- Satellite Surveillance by SLAR
- Comparison with VMS data
- Satellite Surveillance by in Visual Spectrum
- Interdiction by Surface Vessel
- If Necessary. Arrest and escort to port

Slide 31

APPENDIX I  
EFFECTIVENESS OF DIFFERENT TYPES OF VESSEL MONITORING

Type of MCS	Description of Monitoring	No of Vessels Inspected	Effectiveness of Monitoring of				Amount of Time Observed	Effectiveness of Detection of Unlicensed Vessels	Coverage at Sea	Cost (US\$)
			Position	Fishing Gear	Catch Quotas	Days at Sea				
By Vessel	Identification by sight and boarding for inspection	12/dy	High	High	Medium	Low	Low	High	300 sq. miles per hr	\$0-140,000 per day
By Air	Limited to daylight and identification	60/dy	High	Low	None	None	Low	High	3000 sq. miles per hr	\$400-3000 per hr
Shore Based	Inspection of catch and fishing gear. Coastal Surveillance	15/dy	None	High	High	High	Medium	Low	None	\$150/d
Observers on Vessels	Continual observation of activities	1	High	High	High	High	High	Medium	High	\$200/d
Vessel Monitoring System	Periodic Monitoring of Vessels Position	All Vessels Fitted	High	None	None	High	High	None	Complete for Vessels Fitted	\$100,000-\$8,000,000/Vessel

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APPENDIX II  
MCS RECOMMENDATIONS AND COSTS FOR VARIOUS TYPES OF FISHING FLEET

Type of Fishery	Type of MCS Recommended	Amount of MCS Recommended	Capital Cost US\$	Running Costs/vessel/month or day
Artisanal Fleet (vessels <12m)	Shore based	1 Fishery Officer per 100 boats	None	2
	By vessel	1 Small Patrol Boat (4 crew)/500 boats	50,000	2
Domestic Industrial Fleet (12m<vessels<24m)	Shore based	1 Fishery Officer per 40 vessels	None	5
	By Vessel	1 Medium Patrol Boat (10 crew)/500 boats	2 million	6
	By Air	1 small aircraft/1000 vessels	1 million	5
Large Domestic Vessels (Vessels >24m)	Shore Based	1 Fishery Officer/20 vessels	None	10
	By Vessel	1 Large Patrol Vessel (30 crew)/100 vessels	10 million	20
	By Air	1 Medium Aircraft/500 vessels	10 million	25
	Observer	2 Observers per Vessel (if necessary)	None	400
	VMS	Recommended for all fleets >50 vessels	10,000	20
Foreign Fleet	Shore Based	1 FO/10 Vessels for Port State Control	None	20
	By vessel	1 Large Patrol Vessel (30 crew)/50 vessels	10 million	40
	By Air	1 medium aircraft/100 vessels	10 million	25
	Observer	2 Observers per vessel	None	400
	VMS	Recommended for all fleets >20 vessels	10,000	20

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HYPOTHETICAL ESTIMATION OF MCS REQUIREMENT (From APPENDIX II)

No and Category of vessels	Fishery <sup>1</sup> Officers	Vessels	Aircraft	Observers	VMS
2,000 Artisanal	20	4 inshore			
500 Medium Domestic	15	1 medium	1 Small		
200 Large Domestic	10	2 Large	1 medium	400 (if necessary <sup>2</sup> )	Recommended
50 Foreign Vessels	5			100	Recommended

<u>Capital Cost</u>		<u>Running Costs</u>	
4 Inshore Vessels	2 million	100 Fishery Officers	7 million
1 Medium Vessel	2 million	4 Inshore Vessels	1 million
2 Large Vessels	20 million	1 Medium Vessel	1 million
1 Small Aircraft	1 million	2 Large Vessels	20 million
1 Medium aircraft	10 million	2 Aircraft	6 million
1 VMS	0.1 million	Total	35 million
Total	35 million		

<sup>1</sup> This is only for inspection and the total establishment or data collection, administration should be doubled

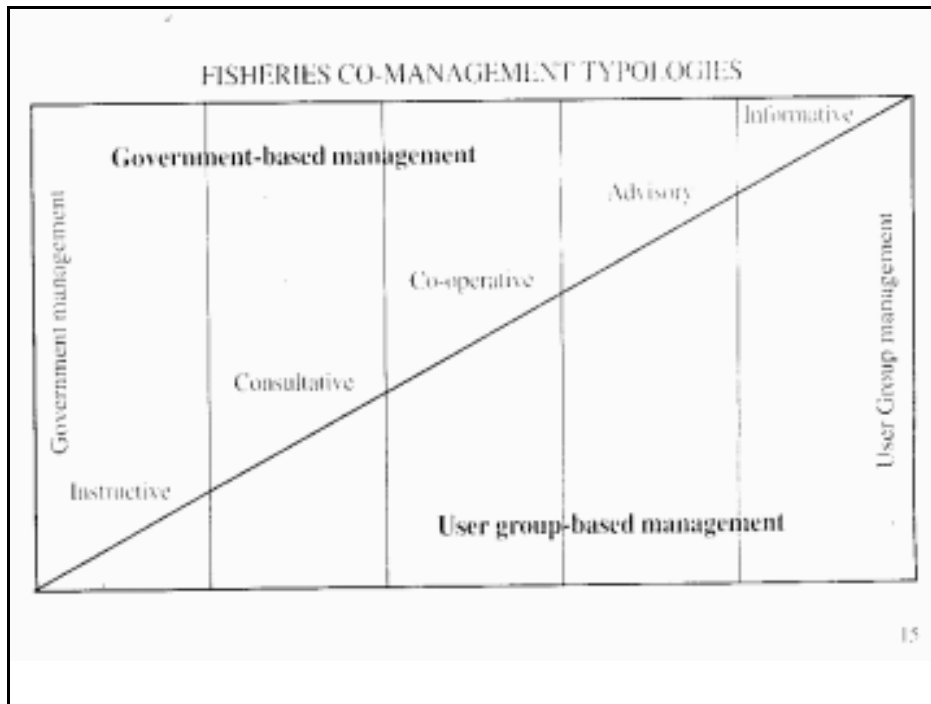
<sup>2</sup> Observers should only be considered for domestic vessels if considered necessary for environmental reasons or in cases where there is a high probability of non-compliance

Slide 34

APPENDIX IV  
ADVANTAGES AND DISADVANTAGES OF THE VARIOUS MCS SYSTEMS

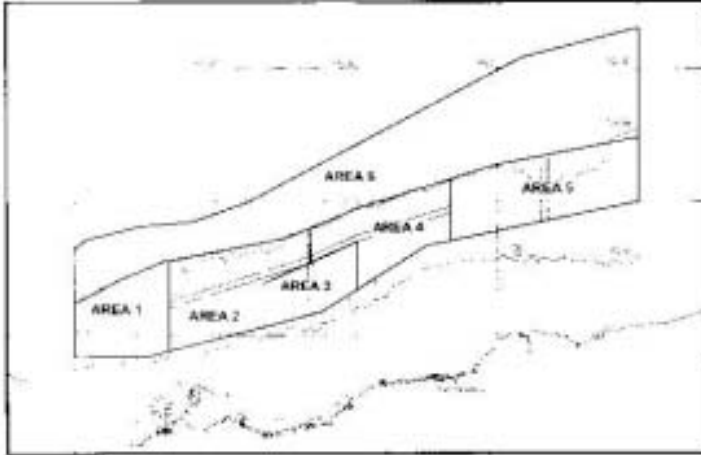
Type of MCS	ADVANTAGES	DISADVANTAGES
By Vessel	Provides at sea verification that fishing gear and catch is legal. Most important to control transshipment and areas particularly of foreign vessels.	Very costly.
By Air	Can provide the best coverage for identification of illegal incursion of unlicensed vessels and also of observation of boxes.	Very costly. No ability to arrest. No ability to inspect the catch or fishing gear.
Shore based	Lowest running costs and low capital costs. Can monitor landed catch and quotas. Only power of arrest in port.	No possibility of monitoring foreign vessels that do not call port. No possibility of monitoring transshipment.
Observers	Can observe all operations.	High cost. Only viable on larger vessels.
Vessel Monitoring System	Provides almost real time monitoring of position for fitted vessels and can reduce interception times for enforcement craft. Relatively low capital cost and running costs borne by fishing vessel.	No coverage for vessels not fitted with the system. Involves cost of 10,000 for the fishing vessel. No detection of unlicensed vessels.

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# Pilbara Trawl Fishery Area



## Slide 37

### Use of VMS as a tool for Fisheries Management (Pilbara Trawl Fishery)

- Problem of Multi-species Trawl Fisheries
- Mesh sizes and minimum landing sizes based on size of species at maturity. Hence cod-end mesh size is a compromise
- Problem occurs because larger sized fish are overfished smaller fish are underfished
- However if the distribution of fish species are slightly different, the amount of fishing can be regulated in each zone to obtain an optimal harvest from each of the species

## Slide 40

### Use of VMS as a tool for Fisheries management (cont)

- Research vessels cannot cover the entire area
- Fishing fleet is allowed to start fishing, but report by VMS the size of shrimp caught.
- If the size of shrimp is OK the the fleet carries on fishing. If shrimp are too small then the opening of the fishery is postponed.

## Slide 38

### USE of VMS as a tool for Fisheries management (cont)

- Clearwater scallop fishery in Canada
- The Company has a monopoly on the scallop fishery
- It can collect data on the size and abundance of scallop from the different sectors.
- The company can then decide on the optimal strategy for optimisation of the harvest.

## Slide 39

### Use of VMS as a tool for Fisheries management (cont)

- Gulf of Carpentaria Prawn Fishery
- Shrimp grow rapidly after the floods washing them out of the juvenile areas into salt water.
- Fishing too early results in small shrimp
- Fishing too late and the shrimp are dispersed with low catches

## Annex 5.2 The International Plan of Action on IUU Fishing

Slide 1

**The International Plan of  
Action on IUU Fishing**

Andrew R Smith  
Fisheries Industries Officer  
FAO, Rome

Slide 4

**Definitions of IUU Fishing**

- Illegal Fishing refers to fishing activities
  - Conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations
  - Conducted by vessels flying the flag of States that are party to a relevant regional fisheries management organisation but operate in contravention of the conservation and management measures adopted by that organisation and by which the States are bound, or relevant provisions of the applicable international law: or
  - In violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organisation.

Slide 2

**Background**

- The term IUU Fishing first used by the Commission for the Conservation of the Antarctic Living Marine Resources (CCAMLR)
- It is believed that IUU Fishing is increasing
- In 1999 the FAO Committee on Fisheries (COFI) recommended the elaboration of an International Plan of Action

Slide 5

**Definitions of IUU Fishing**

- Unreported fishing refers to fishing activities
  - Which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or
  - Undertaken in the area of competence of a relevant regional fisheries management organisation which have not been reported or have been misreported, in contravention of the reporting procedures of that organisation.

Slide 3

**Background (cont)**

- This was backed by the FAO Ministerial meeting on Fisheries in March 1999
- Expert Consultation held in Australia in May 2000
- Technical Consultation held in Rome Oct 2000
- Finally adopted by COFI in March 2001 and FAO Council subsequently

Slide 6

**Definitions of IUU Fishing**

- Unregulated fishing refers to fishing activities
  - In the area of application of a relevant regional fisheries management organisation that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organisation, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organisation; or
  - In areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.

Slide 7

### IUU Fishing and MCS

- IUU Fishing is the problem
- MCS is one of the answers to the problem
- MCS has a very wide definition but tends to concentrate of the “Policing” of fisheries at sea

Slide 10

### Flag State Responsibilities (cont)

- Registration
  - Registration of a vessel is the means whereby the vessel acquires nationality and the right to fly the States flag
  - However the “Register” is also a register of property containing the names of owners, shares and also details of mortgages or liens.
  - Usually this is the responsibility of the maritime administration.

Slide 8

### All States Responsibilities

- Observance of International Standards
  - Areas Under National Jurisdiction
  - High seas
- National Laws, Regulations and Practices
- Review of Pertinent Laws
- State Control over Nationals
- Vessels Without Nationality

Slide 11

### Flag State Responsibilities (cont)

- Record of Fishing Vessels
- Authorisations to Fish (including authorisations to fish on the high seas)
- Control over transport and support vessels

Slide 9

### Flag State Responsibilities

- Flag State has exclusive jurisdiction when the vessel is fishing in the flag State waters (subject to bilateral agreements)
- On the high seas, again the Flag State has exclusive jurisdiction (subject to international agreements)
- In the waters of another State, that State has the right or obligation to manage the fisheries and regulate the fishing activities of the vessel but the flag State still retains jurisdiction over the vessel.

Slide 12

### Coastal State Measures

- This is the section that corresponds to MCS as it takes into account all vessels fishing in the coastal State and the activities take place within its jurisdictional limits.

## Slide 13

### Port State Measures

- Port State Control has been in existence for many years for merchant ships (Environment, Safety and Working Conditions – IMO and ILO)
- Port State Measures is a new concept for fisheries management and is just being developed.
- Two weeks time an Expert Consultation will be held in Rome (the background document for the meeting has been provided)

## Slide 16

### Internationally Agreed Market Related Measures (cont)

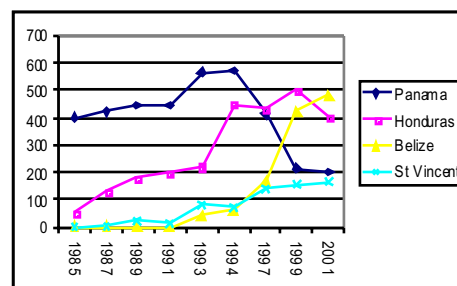
- These measures were the most contentious of all the measures in the IPOA, because they related to WTO and CITES.
- WTO has now given the opinion that Trade Documentation is a good example of environment measure undertaken by a multi-lateral agreement.
- Trade in fish products now accounts for \$51 billion, of which developing countries receive \$17 billion.

## Slide 14

### Internationally Agreed Market Related Measures

- Trade Documents were introduced by ICCAT in 1994 and 1995
- Originally called Statistical Document, the original purpose was to check the amount of bluefin tuna being imported into Japan and Europe
- It was found that 30% of the catch of bluefin tuna was not being reported.

### Changes caused by ICCAT Measures



## Slide 17

## Slide 15

### Internationally Agreed Market Related Measures (cont)

- The Trade Document was then used to implement a ban on bluefin tuna imported by ICCAT countries from Panama, Honduras, Belize and St. Vincent.
- These countries subsequently joined ICCAT and took measures to control their vessels
- The scheme now includes swordfish and big-eye tuna
- Similar schemes have been adopted by IOTC, CCSBT and CCAMLR.

### Role of RFMOs

- Meetings of Regional Fisheries Management Organisations now held before and after COFI (every two years)
- Some of the RFMOs have been very effective in the fight against "flags of convenience" and IUU Fishing (i.e. ICCAT, IOTC, CCAMLR, I-ATTC, FFA, CCSBT)
- Databases of vessels, inspection and enforcement, port and transshipment inspections, trade measures and cooperation with non-members.

## Slide 18

## Slide 19

**Possibilities for Further Action**

- Institutional Strengthening
- Additional Compliance Measures
- Better Collection and Exchange of Information
- Improved Monitoring and Surveillance
- Comprehensive Port Regimes


## Slide 20

**Possibilities for Further Action  
(cont)**

- Certification and Documentation Schemes
- Controls on Chartering
- Actions in Response to remaining Non-Member Countries
- Cooperation among RFMOs and other International Organizations
- Finally – National Plans of Action

## Annex 5.3 MCS and IUU in the SRFC Areas

Slide 1



**MCS and IUU in the SRFC area**

Kieran Kelleher  
Sub-Regional VMS Workshop  
Saly, Sénégal, 14-17 October, 2002

1

Slide 2

**Content of the Presentation**

1. Overview of MCS, IUU and related fisheries management issues:
  - the FAO/LUX/012 study on MCS in the sub-region
  - the AFD/ DPSP study on MCS in Senegal undertaken by Oceanic Development
  - UCOS (SOCU) databases
2. What is the place of VMS in a national, or sub-regional suite of MCS activities?

2

Slide 3

**MCS / IUU overview**

1. MCS institutions
2. Fishing fleets in the sub-region
3. Fishing activities and key fisheries management measures
4. IUU in the sub-region
5. Key enforcement issues

3

Slide 4

**MCS institutions**

- Civil authority (DPSP, DSPCM, Fisheries Ministry or Department)
- Defence forces (Guarda Costeira, Navy Wing)
- SAR, Merchant Marine, Port / navigation authorities
- Communications (Ministry of Telecommunications)
- Fishermen's organisations / associations
- UCOS/ SOCU and SRFC conventions

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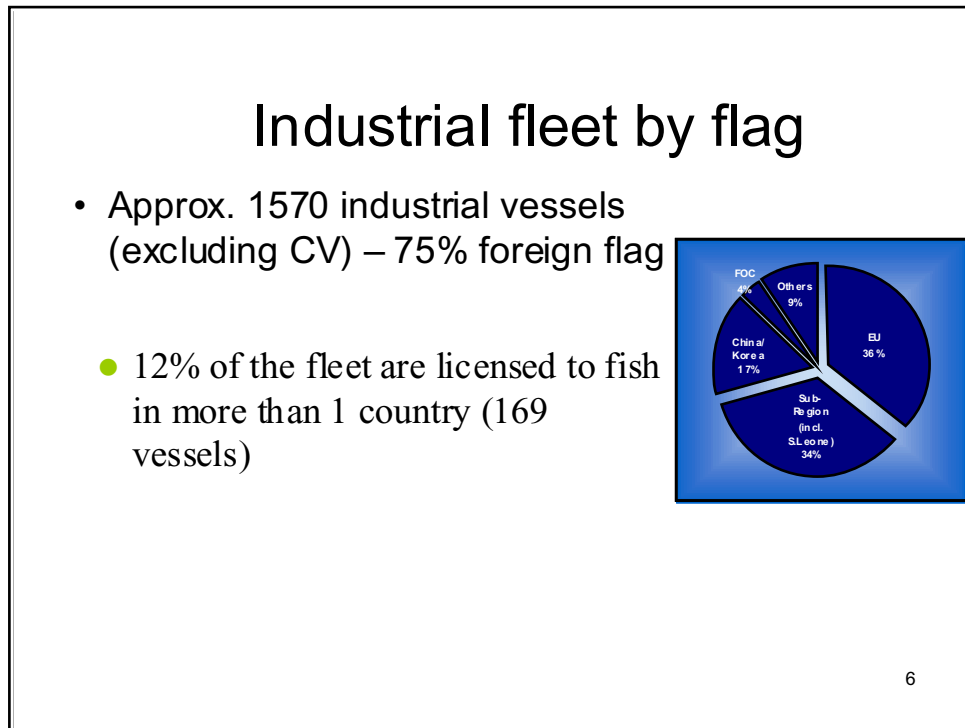
Slide 5

**Sub-Regional Fleets**

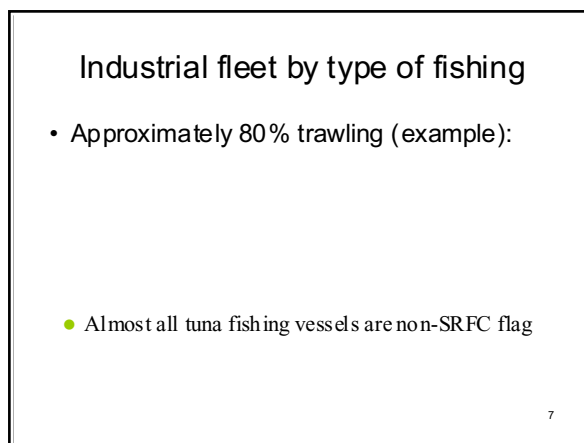
- Industrial fleets (approx. 1570 vessels)
  - National – mainly trawlers
  - Foreign licenced and high seas (trawlers, tuna vessels)
  - Flags of Convenience (FOCs)
  - Unlicensed / 'pirate'
- Artisanal (approx. 35,000 pirogues/ canoes)
  - Increasing
  - National and international fishing activities
  - Safety

5

## Slide 6



## Slide 7



## Slide 8



## Slide 9

### IUU in the SRFC area

- Most common and important violations by industrial vessels
- Specific examples from countries
- Possible role for VMS in combatting violations

9

## Slide 10

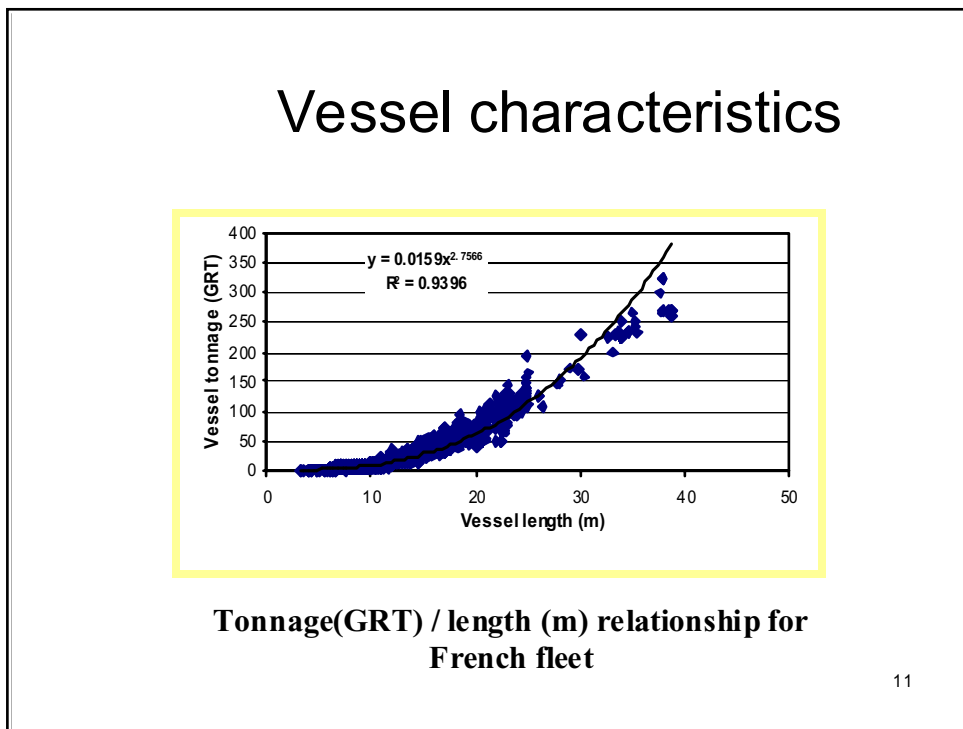
### Violations (industrial fisheries)

- Reported vs total violations
- Vessel characteristics
- Zones, or closed areas
- Trawl mesh
- Catch reporting
- 'Pirate' or unlicensed fishing

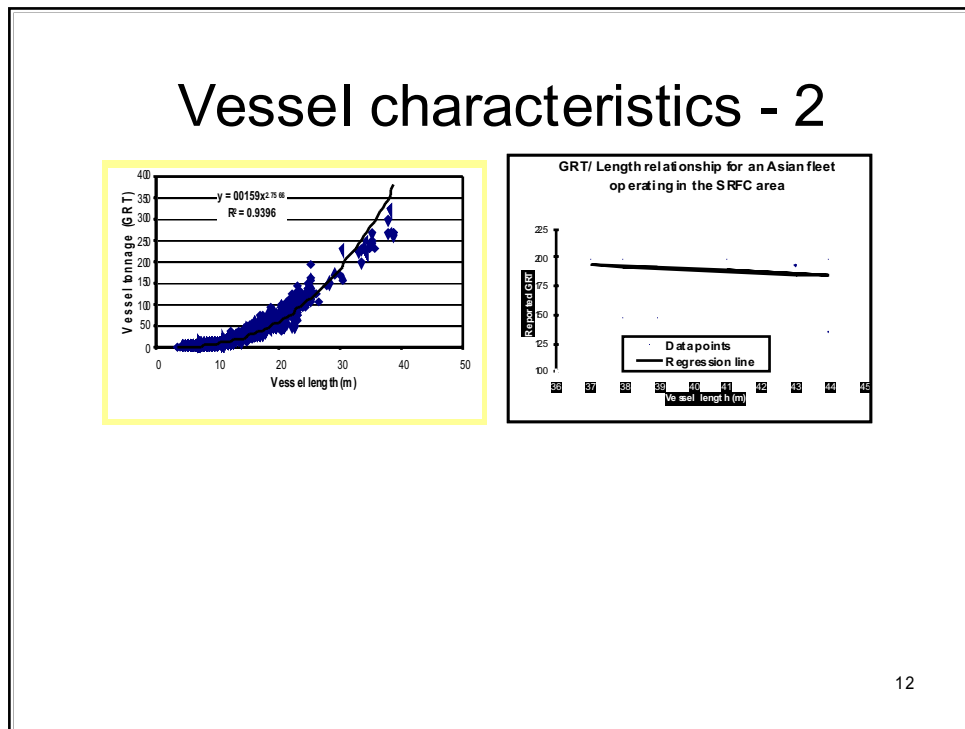
} 60-80% of violations

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## Slide 11



## Slide 12



## Slide 13

### Zone violations

- Zones are essential for protection of:
  - artisanal fishing grounds
  - juveniles and
  - conservation areas
- Up to 20% of detected violations are zone violations (CV, GA, GU, SL)
- Most frequent non-administrative violation in Mauritania (1988-2002)
- 51% of violations (PVs) in Senegal
- Conclusion: Zone regulations very poorly enforced

13

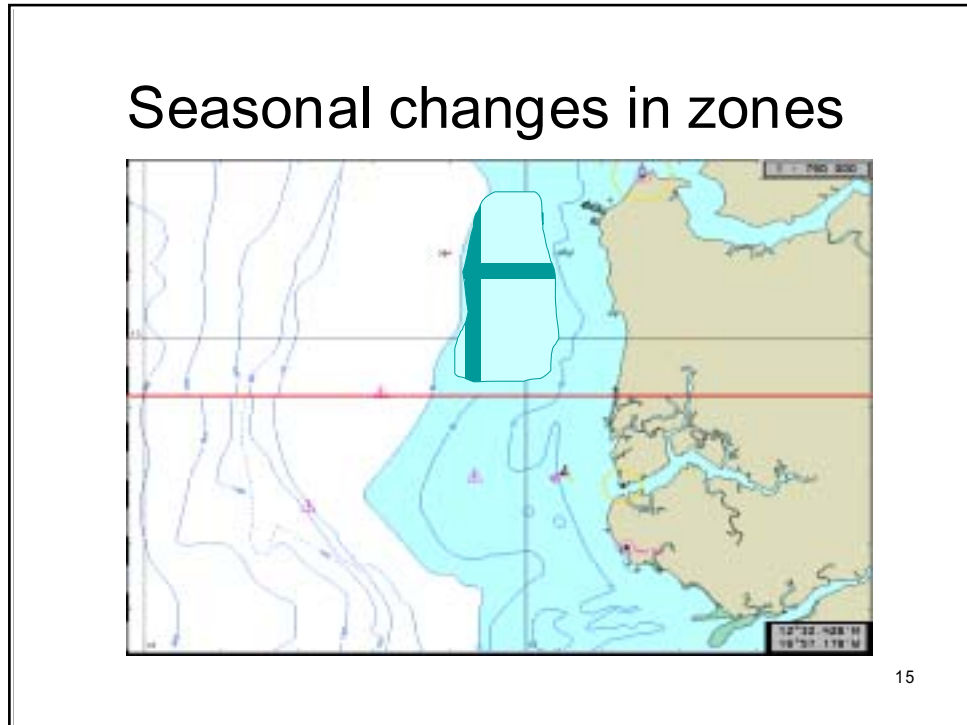
## Slide 14

### Can VMS help enforce zone controls?

- Electronic definition of zones
- Violation definition
  - Entry to the closed zone, or
  - Fishing in the closed zone
- Legal nature of the zone offence
  - civil, or
  - criminal
  - presumption and burden of proof

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## Slide 15



## Slide 16

### Mesh, gear and by-catch violations

- Mesh: second most frequent type of violation in Senegal (23% of total PVs)
- 92% of vessels in Guinea (observers)
- Shrimp vs finfish mesh
- VMS: near real time catch reporting

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## Slide 17

### Catch reporting


- EU: 15-25% mis-reporting in certain fisheries
- ICES stock assessments dependent on catch information
- Near real time catch reports / secure electronic logs
- Combined with at-sea and port checks

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## Slide 18

## ‘Pirate’ (unlicensed) fishing

- Detection level ?
- Role of VMS
  - Incursions by known vessels
  - licence conditions
  - International initiatives



Longliner detected fishing illegally  
130nm off Freetown

18

## Slide 19

### Selected institutional issues

- Financing MCS
- Qualified personnel
- Coordination at national level
- National vs sub-regional interest

19

## Slide 20

### Selected operational issues

- A focus on the licensed industrial vessels
- Vessels operating under fishing agreements
- Effective enforcement of fishing zones
- Solutions for monitoring and safety of artisanal vessels
- In the longer term - use of VMS for effort control

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## Slide 21

### In summary:

- VMS
  - is part of a suite of MCS activities,
  - guided by and
  - serving and enforcing a fishery management plan
- National priorities and constraints
- Sub-regional – bilateral and sub-regional initiatives – prerequisites
- Regional and global initiatives

21