

Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies

IOC Regional Committee for the Central Eastern Atlantic

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In this Series

Languages

Reports of Governing and Major Subsidiary Bodies, which was initiated at the beginning of 1984, the reports of the following meetings have already been issued:

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21. Second Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean E, F
22. Fourth Session of the IOC Regional Committee for the Western Pacific English only
23. Twenty-first Session of the Executive Council E, F, S, R
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26. Third Session of the IOC Committee on Ocean Processes and Climate E, F, S, R
27. Twelfth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific E, F, S, R
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IOCEA-III/3
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1. OPENING

- 1 The Chairman of the Regional Committee for the Central Eastern Atlantic (IOCEA), Professor Sekou Konate, opened the Session. Opening addresses were also received from M. Mbaye Diouf, Minister of the Sea (Chargé de la Mer), the Director of the UNESCO Regional Office for Education for Africa, the Director of Oceanography and Fisheries, and the Secretary IOC.

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

- 2 The Provisional Agenda (Document IOCEA-III/1 prov.) was adopted as circulated. It was noted that the item on living resources would be considered following the deliberations on the Workshop on OSLR.

2.2 DESIGNATION OF THE RAPPORTEUR

- 3 The Technical Secretary invited nominations for one English- and one French-speaking rapporteur. The Delegate of Ghana nominated Mr. Reynold Johnson (Sierra Leone) as the English-speaking rapporteur which was seconded by the Delegate of Senegal, and the Delegate of Morocco nominated Mr. Y. Diatta (Senegal) as the French-speaking rapporteur which was seconded by the Delegate of France. These Rapporteurs were unanimously elected, congratulated by the Chairman and invited to join the podium.

2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

- 4 The Technical Secretary, reviewed the documentation (Document IOCEA-III/4 prov.) and explained that some additions had been made in the form of the proposal for a regional communications network (RECOSCIX), and Chapter 17 of Agenda 21 of UNCED. This will be made available in French with the kind help of the Delegate of Senegal.
- 5 The Regional Committee would work in plenary, although sessional *ad hoc* working groups may be formed. This was done following the Workshop on OSLR. The Working Group would report its results under Agenda Item 7: Future Programme of Work.
- 6 The Technical Secretary reviewed the indicative time schedule for the Session, noting that each sessional period will be three hours with a coffee break.

3. REPORT OF THE SECRETARY ON INTERSESSIONAL ACTIVITIES

- 7 The Technical Secretary reviewed the intersessional activities (Document IOCEA-III/6). He emphasized the activities in the regional OSNLR programme, ocean mapping and regional systematic ocean observations, especially the sea-level observation network. He also referred to the proposal for the establishment of a regional despatch centre and related network of participating institutions. He recalled that lack of sufficient financial resources had unfortunately limited the rate of regional programme implementation.
- 8 The Secretary IOC re-emphasized the need for an active regional programme based on identified problems of regional or sub-regional perspective and priority. This is now especially pertinent in relation to the follow-up of UNCED so as to enhance the ability of the region to

participate in such a follow-up and benefit from it. He also emphasized that financial resources are not everything, and that what was also needed was the active involvement of Member States of the region. He informed the Regional Committee that attempts made to obtain additional financial resources from multilateral donors such as the EEC, or individual country donors, had not yet been successful.

- 9 He recalled that a priority responsibility of IOC was in relation to the follow-up to UNCED related to the establishment of a Global Ocean Observing System (GOOS), which includes e.g., GLOSS, IGOSS, observations from ships. He invited the Regional Committee to review its programme in the light of UNCED's results, especially Agenda 21, Chapter 17 and adjust them as required. Finally, the Secretary IOC recalled the Medium-Term Plan adopted at IOCEA-II and invited the Regional Committee to bear it in mind during its deliberations, in order to maintain some level of continuity.
- 10 The Regional Committee took note of the Report on Intersessional Activities and endorsed it, noting, at the same time with regret, that several activities which had been identified as priorities at the Second Session, had not been initiated due to financial constraints.
- 11 Several Delegates commented on the overall philosophy and need for regional co-operation.
- 12 The Delegate of Nigeria identified the communication gap as an important issue, noting the delay in communication between Member States and the lack of information on what is going on in different nations, as well as within various programmes, frameworks or networks. He stressed that the communication and information issue be addressed as one programme activity of the Regional Committee. He also stressed the need to focus on priorities and to be selective, in view of the very limited resources.
- 13 The Delegate of Nigeria also recalled his experience when visiting many institutions in the region, within the context of regional co-operation. These visits had brought out the strong need for such programmes also to provide the resources needed for consumables, such as petrol, fuel, chemicals and batteries. Institutions were not yet able to obtain these consumables in sufficient quantities with national support. Thus such small additional contributions must also be included.
- 14 The Delegate of Mauritania emphasized that an organization is required for the orderly implementation of an agreed regional co-operation programme. Member States would then feel an ownership of such an organization and an intersessional involvement and commitment would then perhaps be ascertained. At the same time, the Governing Bodies of IOC must take their responsibilities and respond positively and conscientiously to the programme requirements identified by the Regional Committee, so that a strong backing was secured for efforts to obtain additional resources.
- 15 Stronger involvement of the appropriate institutions and personalities at the national level on a continuing basis were also essential to success. The work of the Regional Committee and IOC should support the national institutions through regional co-operation and their participation therein. A regional co-ordination centre must also work bottom-up. Member States must identify their problems and related programmes, so as to form a basis for regional co-operation. It was up to the Regional Committee to identify what it wanted to achieve through its regional co-operation and programme, on the basis of real problems. It should focus on one or two problems of the highest priority. The Delegate of Mauritania concluded by noting that financial resources are not the only requirement, objectives must first be identified - and in this region concerns living resources. In order to proceed with useful work in this field, regional co-operation is necessary. Bilateral work alone would not achieve this goal.

- 16 The Delegate of Morocco emphasized the contact base generated through IOC and the Regional Committee. Co-operation tends to proceed best between neighbouring countries, and this mechanism should also be used to put together regional co-operation. Such co-operation must be based on identified problems of priority which can only be solved through regional co-operation. One such problem concerns fisheries. The communication and information network is a basic priority, since it will serve all projects. The approach to sustained regional co-operation should be systematic, orderly and step-wise. Hence the need for an organization and involvement of national institutions working together according to an agreed plan. The Regional Committee should therefore now proceed according to the agreed Agenda for this Session, and should, in so doing, pay much attention to the needs of UNCED Agenda 21 requirements and follow-up.
- 17 The Delegate of Senegal concurred fully with the preceding statements, in particular referring to the statement of the Delegate of Mauritania. He emphasized that there was on-going co-operation in the region in relation to fisheries through the sub-regional Fisheries Commission. He noted the important role of a co-ordinator, and the establishment of direct contacts through such a co-ordinator who could visit the Member States and their participating institutions. The Delegate also emphasized the pooling of resources through regional co-operation, and that an orderly, agreed regional co-operation would lead to the sharing of responsibilities, the use of each others' specific expertise, and the pooling of other infrastructure resources. The similarity of problems was also an important driving factor for regional co-operation.
- 18 The Delegate of Senegal proposed that the Regional Committee now prepare a solid regional co-operation programme which addressed problems common to the interests of all countries in the region. Links between national programmes could then be established through the glue of such a regional programme. However, the Regional Committee may be unable to conclude all the pertinent formulations at this Session, but should try to identify problems of common interest, and the mechanism for addressing them through the work of the Regional Committee. The *ad hoc* sessional Working Group on Marine Living Resources would play an important role here.
- 19 The Delegate of France stressed the need for stronger regional co-operation, addressing common problems, and concurred with others that such a dominating regional concern was fisheries, in view of the great importance of marine produce to all Member States of the region. The regional programme should be based on national programmes, plans or needs so as to ensure proper and active participation of national institutions. Such a regional co-operation programme would also be attractive to potential donors to whom it would be more convincing than individual national programmes working in isolation from each other.
- 20 The Delegate of Spain agreed with the previous speakers on the need for a regional co-operation programme on those premises. He offered the institutions in the Canary Islands, including a department of oceanography and a satellite data receiving station as participating and supporting national institutions to be used in such a regional programme within the framework of the Regional Committee.
- 21 The Delegate of Côte d'Ivoire noted that the regional co-operation programme should be concentrated and limited to some priority areas, so that the Regional Committee does not spread itself too wide. The completion of one programme should be achieved before starting a new one. He emphasized the need for improved circulation of information between Member States and welcomed the plans to establish a regional dispatch and communication centre.
- 22 The Chairman referred to the regional programme of COMARAF and related problems in that context. He also stressed the need for regional co-operation programmes on the basis of identified problems. He recalled the development of COMARAF on the basis of that approach (mangroves, lagoons), and the support of UNDP. The Regional Committee should draw on that experience and

also use the related network. The Regional Committee's objective should be to set up a sustainable regional programme as a contribution to the follow-up to UNCED.

- 23 The Representative of UNEP recalled experiences within the Regional Seas Programme, WACAF and the priorities identified therein through the Abidjan Convention. He stressed the aim of UNEP and the Convention to establish a regional co-ordinating unit and informed the Regional Committee that France had declared its willingness to provide support to the establishment of a regional communications network, such as the one proposed here, to be established in Côte d'Ivoire. The pooling of efforts between organizations (UNEP, IOC and regional ones) is also an example of the benefit of regional co-operation.

- 24 At the conclusion of the debate, the Secretary IOC expressed his great appreciation for the sentiments and comments provided by the Delegations, which, he said, suggested that the Regional Committee was entering a new phase of its development. He recalled that IOC is working through global subject area programmes such as OSLR, OSNLR, GIPME, IODE, and that it was, of course, the aim for regional co-operation programmes to make appropriate use of global scientific developments. However, regional scientific developments should not be a only a mirror of global ones, but should focus on regional problems and priorities, if possible be based on national programmes, and involve national institutions so as to pool resources. Partnership with national institutions outside the region could also be useful if sustained. He stressed the importance of the added value of regional co-operation to national efforts. A national programme became much more valuable to a nation if it could also draw on other programmes in the region with regional co-operation.

- 25 All the Delegations provided information on national programmes, as well as activities within other bodies working in the region.

4. PROGRAMME MATTERS

4.1 OCEAN SCIENCES

4.1.1 Ocean Dynamics and Climate

- 26 The Secretary IOC introduced this Item referring to the Intersessional Report (IOCEA-III/6), the Annotated Agenda (Document IOCEA-III/2), and to the Report of the Second Session of the Regional Committee (Document IOCEA-II/3). He mentioned, in particular, activities (TOGA and WOCE) within the World Climate Research Programme (WCRP), which is now co-sponsored by WMO, IOC and ICSU. He recalled the important practical results from TOGA concerning seasonal changes, El Nino and related variations in fisheries and rainfall which could be used for national economic planning. It is important that the Regional Committee helps establish a mechanism so that countries in the region may also be able to benefit from the results of the climate research programme and the entire World Climate Programme. This also concerned the impact assessments and evaluations being made through the IPCC on a global and regional scale, and by other groups focusing, in particular, on coastal systems which have been established by the co-operation of UNEP, IOC, UNESCO and IUCN.

- 27 Related observations are being developed, as parts of the Global Ocean Observing System and the Global Climate Observing System, both co-sponsored by WMO, UNEP, IOC and ICSU. These will be discussed under Item 4.2. The Secretary IOC referred to the importance of observations made in the region, including sea-level, SST, temperature and salinity sections and currents, being made available on a regional basis and being used for regional and partly global assessments. The Regional Committee could play an important role in this matter.

28 In the subsequent debate, several Delegations provided information on activities within their national programmes and in co-operation projects involving three or more countries of the region. This information is summarized in Document IOC/INF-920 which provides the national reports.

29 Some aspects to be mentioned here are:

- (i) the development of a tropical oceanographic model by France, covering 20°N-20°S of the Atlantic, being used on an experimental basis by ORSTOM to make hindcasts of ocean conditions. The Representative of ORSTOM presented some results of this and a project proposal for a co-operative effort involving France and Senegal. The project aims at the application of new technologies for current measurements (ADCP) to cover the area located between Cape Verde Island and the coast of Senegal. As a further step, modelling of the circulation will provide applications on larvae drift studies. The modelling applications are developed in Dakar, Senegal. Comparisons are being made between satellite-derived pictures of ocean conditions and the model output.
- (ii) The Delegate of Côte d'Ivoire informed the Regional Committee that his institution in Abidjan also participates in physical oceanography studies with ORSTOM and is also engaged in relevant parts of WOCE.
- (iii) The Delegate of Nigeria emphasized the need for provision of information so that all countries of the region would be made aware of on-going activities in this field. The proposed centre for information and dispatch is therefore a very important initiative. He proposed that the Regional Committee try to organize an exchange of scientists in the region in order to make better use of available human resources in the region. He stated that Nigeria fully supported the establishment of the dispatch centre in Abidjan and the data centre in Rabat. However, he emphasized that national oceanographic data centres also need to be established.
- (iv) The Delegate of Spain also suggested that information on international projects and experiences could be provided through a dispatch centre. The Delegate of Senegal requested that terms of reference for data centres be made available. There was a need to ensure no overlapping with other data centres. He also informed the Regional Committee that the Universidad de Las Palmas de Gran Canaria (Canary Islands) is engaged in research on the Canary Current System, looking at surface and thermocline circulation and mesoscale eddies, and on coastal upwelling.
- (v) The Secretary IOC informed the meeting that this was developed within the IOC-ICSU global programme on IODE, and that the data centre organization was part of that IODE programme. Information would be made available in the light of the results of the IODE-XIV Session (Paris, November 1992). The Secretary IOC confirmed that the regional dispatch centre was entirely different from a regional data centre. The dispatch centre could be used for sending out information on data, and also possibly data if available in suitable form as done from RECOSCIX-WIO in Mombasa, Kenya for East Africa (IOCINCWIO).
- (vi) Information was provided from the Delegations of Senegal and France concerning existing long-term data series and data collected for many decades. These data could be available to the Regional Committee and Member States in the region for their use. However, a working mechanism must be established to facilitate this, and the relevant infrastructure must be available. The Representative of ORSTOM informed the Regional Committee of the 'RIO' system, and invited the possibility of using this system.
- (vii) Reference was made to the existing infrastructure and facilities in the region which could and should be utilized, also for regional co-operation, and programmes. An example is the satellite remote sensing data facility in Dakar.

- 30 The Chairman summarized the discussion, noting that the Regional Committee had identified needs for the establishment of a regional dispatch centre, data centres and data exchange; a workshop could be organized on data accessibility for national institutions, on the use of applications of satellite remote sensing data, possibly in Dakar; a workshop on the use of data and information resulting from global-regional activities in WCRP (TOGA, WOCE in particular).

4.1.2 Ocean Science and Living Marine Resources

- 31 Directly after the Opening Session of the Regional Committee, it organized itself into a workshop form to discuss the regional programme concerning living marine resources, constituting the regional component of OSLR.

- 32 The Technical Secretary informed the meeting of intersessional developments within the joint IOC-FAO programme - Ocean Science in Relation to Living Resources (OSLR). He mentioned the development of the Harmful Algal Blooms component, the associated IOC-FAO Intergovernmental Panel (Document IOC/IPHAB-I/3), and the development of the Global Ecosystem Dynamics (GLOBEC) component, together with SCOR and ICES. He also recalled the establishment of the international Continuous Plankton Recorder (CPR) programme, extending observations beyond the Atlantic, and also supported by IOC as part of OSLR.

- 33 He recalled the decision of the Second Session of the Regional Committee concerning the regional OSLR, including the establishment of a regional group of experts on OSLR, the organization of workshops and cruises, and studies and evaluations of prawn recruitment on a sub-regional basis (Document IOCEA-II/3, section 7:F). He and the Secretary IOC regretted that this ambitious programme had not yet been initiated due to lack of funds. He confirmed that the expert presently in charge of the OSLR programme at the IOC Secretariat (Dr. G. Laurence), had found the proposals of the Regional Committee highly relevant and appropriate to OSLR, and he had the intention of pursuing the provision of support for the regional programme, with the full backing of the Secretary IOC.

- 34 The Secretary IOC drew attention to plans within other regional frameworks, *inter alia*: the Sub-regional Commission on Fisheries (Commission Sous-régionale des Pêches) based in Senegal which includes research on stock assessment; the Large Marine Ecosystem project proposal for the Gulf of Guinea made to the Global Environment Facility, with the participation of Nigeria, Côte d'Ivoire, and Ghana, and with UNIDO as the lead implementing Agency; he suggested that the Representatives of WMO, FAO and UNEP be invited to inform the meeting on the relevant activities in their Organizations. He recalled the very considerable discussions during the preparations for UNCED on marine living resources, and the related parts of Agenda 21, Chapter 17, as well as the relevance of the Convention on Biological Diversity. He finally referred to the draft Action Plan for IOC's follow-up to UNCED and the implementation of Agenda 21: Overall Strategy and Goals (Document IOC-XVII/8 Annex I).

- 35 In the ensuing debate, the Regional Committee expressed its great concern that the OSLR regional programme had not yet been started. The delay was most regrettable and the IOC Secretariat was called upon to do its utmost to remedy the situation. The Regional Committee also called upon IOC as an Organization, and in particular the up-coming Seventeenth Session of the IOC Assembly, to respond to regional needs and to identify required resources.

- 36 All Delegations made statements on national programmes and activities in other regional co-operation frameworks.

- 37 Several common themes were noted, including:

- (i) Rational management of fisheries - new fisheries strategies
- (ii) Lobsters
Cephalopods
Artisanal fisheries techniques/statistics;
- (iii) Climatology, current measurements, larval survival, population dynamics, ocean dynamics, effects of pollution/contamination impacts;
- (iv) aquaculture, site potential;
- (v) satellite data, new technology, information, maps;
- (vi) Norwegian ship survey of whole region, and possibly a renewal of this;
- (vii) creation of data and information basis, exchange;
- (viii) creation of contacts with others, RECOSCIX;
- (ix) legislation/measures for protection of marine environment;
- (x) capacity building needs.

38 The Secretary IOC noted that some common concerns not referred to were also:

- (i) Assessment of inventories of critical habitats;
- (ii) Formulation of measures to stimulate protection of living resources;
- (iii) Taxonomy and plankton identification;
- (iv) Living resources management with integrated coastal zone management;

39 On the basis of this very considerable discussion and exchange of views, the **Regional Committee** established a sessional *ad hoc* working group to consider *inter alia*:

- (i) existing plans and proposal for a regional or sub-regional cruise on the basis of offer of ship-time from Morocco;
- (ii) co-operation and co-ordination, for instance, with respect to some of the common themes identified above, including capacity building; assessment, larval drift, climatology, regional data base, and data exchange, communications; use of new technology, satellite data applications/uses;
- (iii) the need for an increasing dialogue with Governments and decision-makers/legislators;
- (iv) the setting-up of a regional Group of Experts on OSLR and its Terms of Reference (see IOCEA-I and II, reproduced here as Annex IV).

40 The proposals of IOCEA-II should also be borne in mind. The Delegate of Mauritania, Dr M. Ba, was invited, and concurred to serve as Chairman of the *ad hoc* working group, which was asked to report its proposals for a regional co-operative programme under Agenda Item 7.

4.1.3 Ocean Science and Non-Living Marine Resources

- 41 The Technical Secretary introduced the Item referring to the Annotated Agenda (Document IOCEA-III/2) and the Report on Intersessional Activities (Document IOCEA-III/6). He recalled the activities within the regional component of OSNLR concerning the problems related to coastal erosion: Sedimentary Budgets along the Western African Coast; and the formulation of a regional activity within COMEMIR: Continental Margin Environments and Mineral Resources. Several activities had been implemented towards the completion of the indicated programme agreed upon at the Second Session of the Regional Committee.
- 42 The Delegate of Nigeria provided further information on the analysis of samples obtained during the first IOCEA cruise (October 1989), noting that some parts had been done in the region, some in the UK and some analyses are presently being carried out in France (Bordeaux). He also informed the Regional Committee that the results so far obtained from the cruise had been presented at the Geological Congress in Tokyo, Japan, August 1992, and had excited considerable interest there, including that of the Japanese scientific community. He referred to the agreements reached at the meeting in Abidjan in 1990 for the follow-up to the cruise. Regrettably it had not been possible to obtain much information from the participating Member States as regards their relevant existing data, information and related on-going activities. This Session would help remedy the situation to some extent. He had been able to collect some additional information and stimulate further activities as regards work with the samples during a mission to most of the participating institutions organized by IOC in 1992.
- 43 The Delegate of Nigeria proposed, and the Regional Committee agreed that a seminar be arranged in 1993/94 to present and review the results of the first cruise, additional national information, and also endeavour to interpret these results for applications and advice to Governments. The seminar would also prepare a plan, with a time schedule and cost estimate for the second phase of the project. This should endeavour to include the second regional cruise in the 1994/95 time period.
- 44 The Delegate of Côte d'Ivoire expressed his appreciation to the IOC, the Regional Committee and Nigerian for having organized the first regional cruise, addressing a regional priority problem. Now it was very essential that the results be properly collected and interpreted for the benefit of all participants, and the work of the Regional Committee. Additional existing data from each country should also be provided and brought with participants to the planned seminar 1993/94. He also mentioned the need to collect information on major river inputs, and the Regional Committee endorsed this and agreed that the co-ordinator for this project should try to make an inventory of on-going work as regards river transport. This is associated with other organizations, and proper contacts must be established, possibly also with other programmes.
- 45 The Delegate of Gambia stressed that the first regional cruise had been of great interest to his country and he strongly recommended the continuation of the project and the organization of the second cruise in accordance with original plans. He recalled the offer of Morocco to provide ship-time for the second cruise and hoped this would materialize when practical. In view of funding problems, he emphasized that it was also necessary for the Delegates of the Regional Committee to help convince their Governments of the importance of providing support to the programme of IOC-IOCEA. The dialogue with governments must increase so that awareness is improved. In response to this the Regional Committee agreed that the report of this Regional Committee Session should be provided, from the Delegates to the important national ministries with a suitable covering letter from the delegate concerned.
- 46 The Delegate of Morocco confirmed that the offer of ship-time, in principle, stands, with the provision that an agreed regional programme is at hand, with national commitments of institutions to

participate actively in all phases. He confirmed the offer to use the new research vessel of Morocco. The Delegate of Nigeria confirmed his willingness to help supplement resources for the impressive offer of Morocco if required. The Delegates of Mauritania and Senegal likewise confirmed that their research vessels could and should also be used for regional or sub-regional co-operative programmes, and related projects.

47 The Delegate of Ghana expressed a great interest for Ghana in participating in the regional sedimentary budget project, although they were unable to participate in the first regional cruise. He requested support for an expert from Ghana to visit NIOMR, Lagos, Nigeria to extract the data and information which the cruise had collected from off the Ghana coastline. The Regional Committee endorsed this, emphasizing that the visit be organized before the seminar 1993/94.

48 The Delegate of Mauritania re-confirmed the interest of his country in participating in the regional COMEMIR and delivered the project proposal accordingly.

49 The Delegate of Senegal likewise confirmed the importance of the regional COMEMIR to Senegal and emphasized the need to follow-up the meeting held in Rabat, Morocco in 1991. The countries concerned should join forces to implement the project (Senegal, Morocco, Mauritania) perhaps with the participation of Cape Verde and the Canary Islands. He emphasized the need to solicit funding from the EEC with the help of IOC.

50 The Delegate of Morocco reconfirmed the interest of Morocco in participating in the sub-regional COMEMIR project. She suggested various mechanisms for funding through the EEC, for Mauritania and Morocco, with Cape Verde and the Canary Islands, and through the ACP for Senegal. She stressed the fact that the project is part of OSNLR and that IOC must follow-up it up and take on the responsibility for it.

51 The Regional Committee proposed to take national priorities into account within the framework of the COMEMIR project, in particular, knowledge of oceanic circulation of the North-east Atlantic (Canary Current System). This knowledge was closely related to living resources and to the protection of the marine environment.

52 The Delegate of France recalled the project of Senegal-ORSTOM on current measurements, which is certainly also relevant to the case for marine geology problems.

53 The Regional Committee concluded that the activities within the regional OSNLR component should be pursued as discussed. A regional seminar should be organized in 1993/94 to follow-up the first regional cruise with interpretation of the results and with specification of plans for the second cruise on sedimentary budgets and erosion problems.

54 The COMEMIR project should be pursued through fund-raising attempts through Delegates attending this Session, as well as the IOC Secretariat. In order to facilitate this, an *ad hoc* working group was established chaired by Mme. Snoussi with the charge of preparing a succinct summary clearly explaining how the project is linked, and relevant to other regional priority problems. The *ad hoc* working group will report under item 7.

4.1.4 Ocean Mapping - International Bathymetric Chart of the Central Eastern Atlantic (IBCEA)

55 The Technical Secretary introduced this item referring to the decisions taken by the Editorial Board for IBCEA to prepare the Chart consisting of twelve sheets on a scale of 1:1,000,000 (cf. Document IOC-IB/IBCEA-I/3), the scheme of which was adopted in 1990. At the Third Conference

of the Eastern Atlantic Hydrographic Commission (Lagos, Nigeria, March 1990) the responsibility for publication of the different sheets was decided.

- 56 The Delegate of France provided the Regional Committee with updated information on the progress of the implementation of the IBCEA project. The following countries will publish the relevant sheets:

Portugal (sheets 1, 2, 3 and 7)

Spain (sheets 4, 5)

France (sheets 6, 8, 9, 10, 11 and 12).

Geographical distribution is indicated in Annex V. Sheet No.1 will be finished by the end of the first semester of 1993, and No.3 is in preparation and its publication is foreseen for mid-1994. Regarding sheets Nos. 8 and 9, the bathymetric data was gathered and these will be prepared and finished during 1993.

- 57 The Regional Committee noted that work on the bathymetric chart is progressing satisfactorily and requested the Editorial Board to keep Member States of the region informed of the progress made on a more regular basis.

- 58 The Regional Committee requested IOC to provide the necessary funding for the organization of the next Session of the Editorial Board.

- 59 The Regional Committee thanked France, Portugal and Spain for the assistance being provided in the production of the chart.

4.1.5 Marine Pollution Research and Monitoring

- 60 The Secretary IOC introduced the Item referring to the Annotated Agenda and the Intersessional Report (Documents IOCEA-III/2 and IOCEA-III/6 respectively). He recalled that the programme on Global Investigation of Pollution in the Marine Environment (GIPME), with the three groups of experts, is jointly sponsored by IOC and UNEP. The Groups of Experts on Methods, Standards and Intercalibration (GEMSI) on Effects (biological) of Pollution (GEEP), and on Standards and Reference Materials (GESREM) are working in a co-ordinated parallel fashion. The IAEA is also participating in the programme, formalized through a tripartite Memorandum of Understanding between IOC, UNEP and IAEA. The IMO is participating in certain parts of the programme.

- 61 The regional component in the IOCEA region is mainly implemented through the WACAF programme (WACAF/2).

- 62 The Secretary IOC informed the Regional Committee that regional co-operation programmes on marine pollution assessment monitoring and research, are also taking place in other regions, including the Wider Caribbean and the Western Indian Ocean (IOCINCWIO) regions.

- 63 He also informed the Regional Committee that the first field phase of the International Mussel Watch programme of IOC and UNEP is being implemented in the Wider Caribbean and South and North America. Results are expected to come out this year. IOCINCWIO had agreed at its meeting in December 1992, to investigate the possibility of establishing a mussel (sentinel organisms) watch programme in its region, using oysters. This was considered important, also in view of the aquaculture of oysters there.

- 64 The Representative of UNEP provided additional information on the state of development of the WACAF/2 programme. The first phase had been concluded in 1989. The second phase is now

initiated, concentrating on priority problems of the region identified in the first phase and by the Contracting Parties to the Abidjan Convention. A recent interagency consultation had agreed on programme actions for 1993/94.

65 The Delegate of Nigeria informed the Regional Committee of a recent expert mission conducted by him for IOC and UNEP in the region and the resulting project proposal which had been submitted to IOC and UNEP.

66 The Delegate of Mauritania informed the Regional Committee that Mauritania had developed a national emergency plan for marine pollution emergencies. This was first initiated at the sub-regional level, also involving Senegal and Morocco. However, lack of equipment prevented its implementation, and the project was submitted to the Secretary IOC.

67 The Representative of WMO informed the Regional Committee of a new global marine pollution incident support system with responsibilities for dissemination of information of a meteorological and oceanographic nature, in areas of marine pollution emergencies, based upon the WMO regional area division. The IOC and UNEP are co-operating with WMO in this initiative.

68 The Delegate of Morocco welcomed this information. The Delegate further proposed, and the Regional Committee agreed that the marine pollution parts of the national reports prepared for UNCED could be submitted to the IOC Secretariat.

69 This would then be put into a regional information base, through the IOC Secretariat, and made available to the region. It would serve as a regional assessment report to be updated and completed through on-going regional efforts in WACAF, as well as other projects. This idea was strongly supported by the Regional Committee who urged Delegates to carry out the submission of the relevant parts to the IOC Secretariat.

70 The Delegate of Côte d'Ivoire informed the Regional Committee of major problems of marine pollution in lagoons and the national observation programme initiated which is providing the basis for preparation of control measures.

71 The Delegate of Senegal strongly recommended that the WACAF/2 phase II programme be continued and implemented. Senegal has also now established a data base on physical, chemical, bacteriological conditions in selected bays, to be used for the formulation of control measures.

72 The Delegate of the Ukraine informed the Committee of observations obtained within COMARAF, suggesting important biological effects on plankton and larval of marine pollution.

73 Information was provided by the Delegate of Nigeria concerning the International Coastal Zone Conference in Baltimore, USA, July 1993, at which a special session will be devoted to West Africa, with over 40 presentations. The IOC will endeavour to provide some support.

74 The Secretary IOC informed the Committee about the Global Coastal Area Conference to take place in November 1993 in Holland under the auspices of IPCC and a follow-up to UNCED, which IOC is also co-sponsoring.

75 The Secretary IOC informed the Regional Committee of actions agreed in the IOCINCWIO region concerning inventories of special, critical habitats and vulnerable areas, as well as the establishment of national baseline stations for observation of the conditions in the marine environment on a regular basis, for nutrients, salinity, temperature and selected contaminants.

- 76 The Chairman concluded that the Regional Committee strongly recommended the implementation of WACAF, and that other initiatives proposed should also be pursued, including the regional data base and the possible establishment of a network of 'baseline stations' building on those already existing in Senegal and Côte d'Ivoire. This would be further considered under Item 7.

4.2 OCEAN SERVICES AND GOOS

4.2.1 The Global Ocean Observing System (GOOS)

- 77 The Secretary IOC introduced the Item referring to the Annotated Agenda (Document IOCEA-III/2), which provides information on the legal background for IOC's role in this development. He recalled that the need for a GOOS had been identified at the Second World Climate Conference in 1990, and had then been agreed to be developed together with the Global Climate Observing System (GCOS), and that GOOS was also included in the UNCED discussions in Chapter 17 of Agenda 21 as a specific IOC responsibility in co-operation with WMO, UNEP and ICSU, and possibly other organizations. He recalled the actions of the Twenty-fifth Session of the IOC Executive Council in establishing an international planning mechanism through an IOC Committee for GOOS and a Scientific and Technical Committee. The latter is expected to be co-sponsored by IOC, WMO, UNEP and ICSU. He finally stressed that GOOS development should not be regarded as a new programme. It should rather be regarded as a glue trying to put together, in an orderly fashion, various existing components, strengthening them and introducing new technology as required. An adequate ocean observing system is required for the climate problem, living resources, marine pollution, coastal zone problems, marine transportation, emergencies and improved weather forecasting.
- 78 The Secretary IOC invited the Regional Committee to identify regional priority needs and propose implementation mechanisms. He stressed that much is going on: a regional sea-level network as part of GLOSS; satellite observations; current measurements; marine pollution observations, etc. These should be regarded as inputs to the regional GOOS.
- 79 Several Delegations took the floor, confirming their interest in and support for GOOS.
- 80 Several Delegates referred to national sea-level observations and the need to install and maintain tide gauges. Several new sites have been identified (e.g., Morocco, Senegal, Nigeria, Mauritania and Côte d'Ivoire). The maintenance aspect was emphasized and IOC was asked, through GLOSS, to provide support. IOC was likewise asked to help approach donors for further equipment, and to provide information to the region on potential donors.
- 81 Some Delegations referred to the possibility of making adequate tide gauges in the region, and installing them at a low cost. The Delegate of Nigeria confirmed that they had looked into this and had produced a very cheap, but well functioning tide gauge which could certainly be used as 'satellite' stations to more sophisticated equipment at major stations. The Regional Committee took note of this and invited Delegates to approach the Delegate of Nigeria for further information.
- 82 Several Delegations addressed the question of accessibility or attainability of satellite remote sensing data, through ESA or other organizations. There is coverage of the West African coast, the data of which are unavailable; in the near future access may be restricted via direct receiving stations.
- 83 The IOC Secretariat was requested to approach ESA so as to facilitate a solution to data provision to the region. Several Member States have the required infrastructure. IOC should also approach WMO in this context to help facilitate the provision of data free of charge to oceanographic researchers in the region. Research applications are free of charge.

84 Several Delegations referred to the Las Palomas station and raised the possibility of obtaining data or pictures through that source. The Delegate of Spain confirmed that data and pictures can be obtained through the Las Palomes station, but one has to approach the EEC for this. Alternatively, members of the Regional Committee could approach the University of the Canary Islands to request the provision of data and pictures. The IOC Secretariat was requested to act as an intermediary in this effort and to establish regional contacts. The Chairman confirmed that visits had been received in Conakry after the meeting in Las Palomas, and that requests he had made had been responded to. Hence this was probably a viable route to be further explored.

85 The Representative of WMO provided some further information on GOOS and the importance which WMO attaches to its climate module, which corresponds to the ocean module of the Global Climate Observing System.

86 The Delegate of Morocco informed the Regional Committee of a training course for French-speaking countries on satellite remote sensing data being organized in Italy in mid-1993. Delegations were invited to contact her for further information.

87 The possibility of using drifting or moored buoys to attain sustained ocean observations was referred to by the Delegate of Ghana. Information on the implementation of the activities of the Drifting (Data) Buoy Co-operation Panel of IOC-WMO was provided by the Representative of WMO and the Secretary IOC. The latter stated that a report of the last meeting of the Panel would be sent to Delegations from the IOC Secretariat. The importance of establishing contacts between the national ocean, fisheries and other marine services, and national meteorological services was stressed by both the WMO Representative and the Secretary IOC. The Regional Committee agreed and urged Delegates to pursue this at national levels.

88 The Regional Committee stressed the need to pursue the establishment of the regional GLOSS network and appointed Dr. L. Awosika (Nigeria) as the regional GLOSS Co-ordinator for the subsequent intersessional period.

89 The Regional Committee re-emphasized the need to organize a workshop, possibly in Dakar, with the support of ORSTOM, France, on applications of satellite data, coupling to sea-satellite data, and the accessibility of satellite data. This would also aim at establishing a working mechanism for regional uses of the remote sensing centre in Dakar.

90 The Regional Committee agreed that an inventory of sea observations like S, T, currents, nutrients, others, should be made on a regional scale as far as possible, and urged Delegates to submit relevant information to the IOC Secretariat and the Centre in Conakry (Prof. Sekou Konate, Directeur, Centre de Recherche Scientifique de Conakry-Rogbane, BP 561, Rogbane, Conakry, Tlx: 22331 MDEC GE). Such a regional compilation would be valuable to all sectors and would facilitate communication with the space agencies in obtaining satellite data.

4.2.2 IODE and Regional Marine Information Management

91 The Secretary IOC referred to the Annotated Agenda (Document IOCEA-III/2) in which the background to the project proposal for the establishment of a regional dispatch centre as a follow-up to the Recommendation from IOCEA-II is presented. The proposal is based on a feasibility study through an expert mission and has been prepared by a task team of experts.

92 The Delegate of Côte d'Ivoire introduced the project proposal (Document: Projet de Création d'un Réseau Documentaire pour les Sciences Aquatiques et les Pêches des Pays Côtiers de la Mauritanie à l'Angola). He stressed the application of the ASFA approach and that the proposal was for a pilot phase of two to three years. The project will be submitted to ORSTOM and IFREMER,

France, for technical and financial support, and IOC was also requested to follow this up and facilitate relevant contacts with these Organizations. Several Delegations expressed their support for the project and the Regional Committee endorsed the project for the initial pilot phase. At the same time, the Regional Committee stressed that information on this project and its further development must be properly circulated to all relevant institutions in the region and proper consultations made, as required. The Regional Committee expected to review a progress report at the next Session.

- 93 The Regional Committee emphasized that regional experts and relevant national institutions should form the network, and urged the Delegates to identify the national participating institutions accordingly and transmit the information for the attention of Mr. J. Abe, Chef de Département de Physique et Géologie Marine, Centre de Recherches Océanologiques, 29 rue des Pêcheurs, BP V 18, Abidjan, Côte d'Ivoire, Tel: (225) 35 50 14/43 09 24, Fax: (225) 24 65 04, who is the Delegate from Côte d'Ivoire attending this Session.

- 94 The Chairman recalled the discussions during other items on the need for data exchange, the related discussions of the Region Committee at its Second Session, and stated that this should be reflected in Agenda Item 7 (Future Programme of Work).

4.3 UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (UNCED) AGENDA 21

- 95 The Secretary IOC introduced the Item, referring to the Annotated Agenda (Document IOCEA-III/2) and the available Chapter 17 of Agenda 21. He emphasized the great importance of the results of UNCED in the form of the two new Conventions as legal instruments, and Agenda 21 addressed to Governments as a framework for action over the coming decades. The role of the United Nations system in implementation and co-ordination was stressed. UNCED had emphasized capacity building and recognized the importance of research and a scientific information basis for management, decision-making and development. UNCED had also emphasized that the marine environment should be considered in an holistic way and that the coastal zone problems were of great significance in view of growing population pressure in that zone.

- 96 The Representative of FAO and UNEP made additional statements on the particular interests and roles of their organizations - fisheries and integrated coastal area management in particular, and in the present context.

- 97 The discussion of this item was combined with Agenda Item 5.

5. CAPACITY BUILDING IN MARINE SCIENCES AND OCEAN SERVICES AND RELATED IMPLEMENTATION OF UNCED AND ITS AGENDA 21

- 98 The Secretary IOC introduced Item 5 referring to the Annotated Agenda (Document IOCEA-III/2); he stressed in particular the need to link capacity building in the subject area programmes and their defined needs to the follow-up of Agenda 21, Chapter 17 in particular. He also emphasized the need for infrastructure building and maintenance and strengthening of national institutions and cross-sectoral co-ordination and reporting mechanisms. In this context, the importance of regional co-operation was highlighted, since it is through such co-operation that the complementarity of institutions and pooling of resources could be used to support each other. The Secretary IOC referred to marine science country profiles as a possible national means to create better awareness of the role of these for national developments at governmental political levels. He also made specific reference to the UNESCO Participation Programme as a means of obtaining support from UNESCO.

- 99 There followed a most interesting debate in which all Delegations and represented Organizations participated. A summary is provided here.
- 100 The Representative of WMO informed the Regional Committee of the regional course on marine meteorology-physical oceanography, jointly sponsored by IOC and WMO at the University of Nairobi, starting in 1994/95, open to all African countries.
- 101 The Delegate of Spain invited participants to consider using the degree courses at the University of Las Palmas. This would require a fellowship of about US\$ 8,000 per year and student for course materials, fees, and living expenses.
- 102 Many Delegates referred to the absolute need for regional co-operation to achieve common goals, by pooling resources, infrastructure, such as research vessels and laboratory capacity, as well as human resources. It was stressed that the level of development in the subjects is not the same across the region. There were about five countries which lack the minimum structure and resources to participate in co-operation. The Regional Committee requested IOC to pay particular attention to those five countries.
- 103 The Delegates of Benin, Cap Vert and Ghana made specific reference to developments in their countries and the related need for external support. The Regional Committee agreed that a sub-regional course should be designed for presentation at relevant institutions so as to enhance human resources by providing education to young scientists. This activity could be modelled on the similar action now taking place in East Africa with support from Belgium, Spain and IOC. The Regional Committee invited the Delegates of Nigeria, Spain (Canary Islands), Ghana and Mauritania national channels, to bring programmes and regional co-operation projects to the attention of governments, to help increase awareness, and obtain sufficient priority for the projects to obtain support from donors.
- 104 The Regional Committee noted the need to differentiate between immediate short- to medium-term needs and actions on projects to be implemented soonest, and the longer term establishment of infrastructures.

6. CO-OPERATION WITH OTHER BODIES, PROGRAMMES, DONOR AGENCIES AND REGIONAL ORGANIZATIONS

- 105 Dr. Diop presented the main activities and results during the past year of the COMAR, PROMAR and TREDMAR programmes.
- 106 In 1992 the UNDP-funded African Coastal Project COMARAF (RAF/87/038) continued its operations at a more modest level due to financial limitations. However, the second phase (1993-1996) has been prepared and has received strong support from all participating countries, as well as several new ones. It will become operational as soon as extra-budgetary funds are allocated. Negotiations are also underway with CEC on the co-operation and financing of this project.
- 107 Some highlights of the 1992 activities are:
- (i) Ichthyoplankton studies at a sub-regional level in West Africa were continued with field surveys in the coastal waters of Guinea and Senegal. Most of the work was conducted by CERESCOR (Guinea), Dakar University (Senegal) in co-operation with IBSS (Ukraine) and ORSTOM (France), resulting in what is probably the first data available on the abundance and distribution of fish larvae and juveniles in these coastal and estuarine waters.

- (ii) Preliminary field studies of the Togo Lagoon (geomorphology, sediments, benthos) were undertaken with the participation of 23 specialists and technicians. Results of the benthic studies have been published as COMARAF Document No.9.
- (iii) A field workshop on the consequences of river damming was convened in Senegal and attended by 21 scientists from Africa.
- (iv) A sub-regional marine remote-sensing training course, applied to the marine and coastal environment, was organized in Senegal (February), with the support of ESA, IFREMER, METEO-FRANCE, CEC and UCAD. Attended by 56 participants, it also produced the first African lesson for the TREDMAR Module project.

108 Links had been sought and established with other important programmes such as:

- (i) Global Change/ICSU Programme, in particular, the START programme and the Land-Ocean Interactions in the Coastal Zone (Niamey, Niger, November 1992);
- (ii) UNESCO Task Team on Impacts of Climate Changes on Mangrove Areas (Rio de Janeiro meeting, June 1992) - West Africa has been selected as a key area; and
- (iii) With ITTO and ISME, COMARAF is developing a first initial project on the Conservation and Sustainable Utilization of Mangrove Forests, a project which is jointly implemented with Latin America. In this respect, Dr. Diop added that experts from the Africa coastal countries (East, Central and West) would meet to prepare the African component (20-22 January, BREDA, Dakar). The expected output is the publication of two exhaustive reports (in English, and French). All the above-mentioned activities have essentially used the COMARAF network of scientists.

109 Regarding the future of the COMARAF programme, Dr. Diop informed the Regional Committee that two project documents concerning the second phase of the programme have been submitted for funding - one to UNDP and the other to the EEC. Evoking the difficulties of obtaining this funding, he encouraged participating countries to show the potential donors their interest in this regional project. He added that in order to ensure the continuation of these activities, diversification of fund raising is of the utmost importance; co-operation was sought with ITTO and ISME who are interested in activities related to the mangrove ecosystem. Meanwhile, COMARAF publications will continue to be issued.

110 The Secretary IOC stated that the use of the of the COMARAF network should be recommended in the context of the implementation of the IOCEA programme.

111 The Chairman informed the Regional Committee that five countries had already expressed their support to the project related to the second phase of COMARAF.

112 Some Delegates expressed the need to receive information on the progress of matters related to COMARAF - Second Phase on a regular basis.

113 The Representative of UNEP (OCA/PAC) stressed the importance of the study of Mangroves to the integrated management of coastal areas and that UNEP envisaged the development of such studies.

114 The Delegate of Nigeria stated that COMARAF should be complimented for the good work carried out during the first phase.

115 The Representative of UNEP (OCA/PAC), referring to WACAF, evoked the difficulties UNEP is facing to ensure programme implementation due to lack of financial contributions from Member States. He informed the Regional Committee that the Steering Committee of the WACAF Action Plan and the Conference of Contracting Parties to the Abidjan Convention will meet 6-7 May 1993 in Nairobi, and that other UN organizations could be associated, such as ECA, UNDP, UNESCO, IOC and BREDIA. This meeting will be preceded by the Steering Committee Bureau meeting scheduled to be held in February 1993 which will make recommendations on WACAF-II: relaunching of co-operation between the countries of the region and UNEP, is of the utmost importance.

116 The Representative of FAO drew the attention of the Regional Committee to the problem of the co-ordination of activities at the regional level; it happens that the follow-up of policy and decisions made at high level has not been effective due to insufficient regional co-operation. He added that in order for international co-operation to be effective, it was essential for each country to make the necessary effort. Referring to fisheries in the region, he indicated the existence of two zones: (i) the northern zone disposing of relatively well developed structures, and (ii) a southern zone lacking technical structures. A question to be considered is the assistance to southern countries, in particular to help them implement programmes.

117 The Delegate of Cape Verde said that marine resources were a very important sector for her country, fisheries being considered as a strategic sector. With an EEZ of the order of 700,000 km² compared to the archipelago surface (4,300 km²). The surrounding area can be considered as an extension of the archipelago. Cape Verde could benefit from participation in programmes developed by international organizations, but the weakness of existing national structures, and also the financial contributions requested, do not facilitate its participation. She added that, in fact, Cape Verde should be included in the second group of countries suggested by the Representative of FAO.

118 The Representative of UNEP (OCA/PAC) explained that in the case of UNEP, one part of the contribution was devoted to the country, and the remaining amount was allocated to the global collective project. It was the country which decided the level and modalities of its financial contribution.

7. FUTURE PROGRAMME OF WORK: REGIONAL ACTION PLAN FOR THE IMPLEMENTATION OF AGENDA 21: PROGRAMME OF WORK 1993-1994

119 The Secretary IOC recommended to the Regional Committee that it prepare an indicative programme for the period 1993-96 on the basis of deliberations in previous Agenda Items, taking into account the work programme prepared at the Second Session of the Regional Committee and its implementation, as appropriate. The work programme should, as far as possible, include cost estimates, time schedule priorities and required commitments.

120 The Secretary IOC suggested, and the Regional Committee concurred that programme actions should be identified in three categories: (i) projects or actions which are to be supported for implementation, mainly through IOC; (ii) projects which should be targeted toward bilateral or multilateral donors; and (iii) projects which are of great importance, but for which funds are not available and for which a process needs to be initiated to make governments aware of the needs and requirements for financing. This concerns, for instance, development of infrastructures and provision of major equipment.

121 The Secretary IOC emphasized that the Regional Committee should not only look to IOC for funding, but also to donor agencies (national and international).

The Chairperson of the *ad hoc* sessional groups for OSLR and OSNLR presented their reports (Annexes IV and VI, respectively). The Regional Committee reviewed them in the light of the overall discussions and adopted the programme actions as specified in the programme of work.

- 122 The Regional Committee re-emphasized the importance to the Delegates of bringing programmes and regional co-operation projects to the attention of governments through the appropriate channels, to help increase awareness and obtain sufficient priority for these projects to obtain support from donors.
- 123 The Regional Committee noted the need to differentiate between immediate short-to medium-term needs and actions on projects to be implemented as soon as possible, and the longer term establishment of infrastructures.
- 124 The Regional Committee considered the programme actions in the light of the follow-up to UNCED and indicated their relation to UNCED.
- 125 The Regional Committee reviewed its discussions under each subject area item, and identified the actions which are provided in the attached list to Recommendation IOCEA-III.1, which it adopted. It endeavours to identify responsibilities, priorities and required funding.

8. NATIONAL LIAISON ARRANGEMENTS WITH IOC AND FOR IOCEA

- 126 The Technical Secretary introduced this subject and invited the Regional Committee to review the situation regarding the improvement of communications between Member States and the IOC Secretariat, and also with respect to the national liaison arrangements in marine scientific affairs. He referred to the endorsement by the Regional Committee at its First Session, of the concept of a National Oceanographic Committee at a high level for the co-ordination of marine scientific affairs and for liaison with the IOC Secretariat.
- 127 Several Delegates informed the Regional Committee that their countries have already established national committees, or similar structures, in certain cases within the UNESCO National Commissions; certain of these are facing difficulties due to lack of the appropriate means to ensure co-ordination.
- 128 The Representative of WMO expressed the view that the national committees should play a co-ordinating role in co-operation between meteorological services and oceanographic institutions. The Delegate of Ghana informed the Regional Committee that in his country the meteorologists were represented at the National Committee.
- 129 The Regional Committee encouraged the countries of the region to establish national committees with similar national co-ordinating structures and to inform the IOC Secretariat of the name and address of the Chairman.
- 130 Regarding correspondence and documentation, some Delegates referred to the difficulties posed by the absence of translations and also mentioned the fact that sometimes information did not reach the appropriate person as the national focal points did not know them. They suggested that the scientists should communicate their names and addresses to national focal points or committees.
- 131 The Delegate of Togo expressed the view and the Regional Committee agreed that a directory of regional marine scientists should be prepared in order to facilitate communication and co-operation between them.

- 132 The Chairman suggested a certain pragmatism when considering correspondence between the IOC Secretariat and Member States of the region; copies of correspondence to Action Addresses should be sent to the relevant person or institution.

9. ELECTION OF OFFICERS

- 133 The Technical Secretary invited proposals for the posts of Chairman and Vice-Chairman, reminding the Committee that the Chairman and Vice-Chairman should be elected for the intersessional period and the Fourth Session of the Regional Committee.
- 134 The Delegate of Côte d'Ivoire proposed Dr. Ndiaga Gueye (Sénégal) as Chairman. This motion was seconded by the Delegates of Mauritania, Spain, France, Congo, Cape Verde, Togo, Gambia, Morocco, Benin and Ghana. Dr. Gueye was elected with acclamation.
- 135 Regarding the post of Vice-Chairman, three different proposals were put forward: (i) the Delegate of Mauritania proposed Mr. K. Ben Bouchaid (Morocco); (ii) the Delegate of Côte d'Ivoire proposed Mr. Wellens-Mensah (Ghana); and (iii) the Delegate of Sierra Leone proposed Mr. Malang Barrow (Gambia). After consultations conducted by an *ad hoc* group, and in order to seek a consensus, the Delegate of Sierra Leone informed the Regional Committee that an agreement had been obtained. The *ad hoc* group agreed that Mr. Wellens-Mensah should serve as the new Vice-Chairman, this not meaning of course that the other candidates were less valid. This proposal was seconded by the Delegates of France and Sierra Leone. Mr. Wellens-Mensah was elected with acclamation.

10. DATES AND PLACE OF FOURTH SESSION

- 136 The Regional Committee agreed that the next Session should be held in about three years' time. The Technical Secretary informed the Regional Committee that the Secretary IOC had received a letter from the Delegation of Spain informing him that the Canary Islands had offered to host the Fourth Session.
- 137 The Delegate of Morocco indicated that he would investigate the possibility of his country hosting the next Session and would inform the IOC Secretariat in due course.
- 138 The Regional Committee took note with thanks of these two offers and invited the IOC Secretariat to consult with the Chairman and interested countries in order to take the most appropriate decision.

11. ADOPTION OF THE DRAFT SUMMARY REPORT OF THE SESSION

- 139 The Regional Committee adopted the Draft Summary Report of the Session and its Recommendation.

12. CLOSURE

- 140 On behalf of the Regional Committee, the Chairman thanked the Government of Senegal, the IOC Secretariat, in particular, the local organizing committee, BREDA, supporting staff, the interpreters and participants for efforts to ensure the success of the Session. His speech is included in Annex III.

ANNEX I

AGENDA

- 1. OPENING**
- 2. ADMINISTRATIVE ARRANGEMENTS**
 - 2.1 ADOPTION OF THE AGENDA**
 - 2.2 DESIGNATION OF THE RAPPORTEUR**
 - 2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION**
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- 4. PROGRAMME MATTERS**
 - 4.1 OCEAN SCIENCES**
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 - 4.3 UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (UNCED) AGENDA 21**
- 5. CAPACITY BUILDING IN MARINE SCIENCES AND OCEAN SERVICES**
- 6. CO-OPERATION WITH OTHER BODIES, PROGRAMMES, DONOR AGENCIES AND REGIONAL ORGANIZATIONS**
- 7. FUTURE PROGRAMME OF WORK: REGIONAL ACTION PLAN FOR IMPLEMENTATION OF AGENDA 21; PROGRAMME OF WORK 1993-1994**
- 8. NATIONAL LIAISON ARRANGEMENTS WITH IOC AND FOR IOCEA**
- 9. ELECTION OF OFFICERS**
- 10. DATES AND PLACE OF FOURTH SESSION**
- 11. ADOPTION OF SUMMARY REPORT**
- 12. CLOSURE**

ANNEX II

Recommendation IOCEA-III.1

PROGRAMME OF WORK 1993-96

The Regional Committee,

Recalling the implementation of its programme during the intersessional period,

Noting that a considerable amount of training has been carried out in the region through various mechanisms,

Noting further that competent human resources are available in the region,

Emphasizes that the future regional co-operative programme should be more geared towards active research projects and practical applications than so far;

Stresses the need for an increasing dialogue between the marine science-related institutions and the national decision-making and related governmental institutions so as to increase the awareness of the role of marine science-related activities for environment and development;

Recognizes the need for upgrading of national institutions in the region in many cases;

Urges Member States to proceed with such upgrading, taking into account the regional perspectives and co-operation;

Noting and taking into account the results of UNCED and the importance of a proper response and follow-up on a regional and national level;

Decides to adopt the programme of work for the regional co-operation over the period 1993-1996 as indicated in the annex to this Recommendation;

Urges further the IOC, other organizations and donor agencies to support programme implementation with an increasing budget allocation.

ANNEX TO RECOMMENDATION IOCEA-III.1

PROGRAMME OF WORK 1993-1996

	SUBJECT AND ACTIVITY	ESTIMATED COST	IMPLEMENTATION BY WHOM, PARTICIPANTS	RELATION TO UNCED
1.	Ocean Dynamics and Climate (4.1.1):			
(i)	Workshop on use of satellite data, accessibility and network of national institutions (1,2)	US\$ 20,000 in Dakar. High priority	IOC and Centre in Dakar; interested Member States 1994/95	Ch. 17 FCCC
(ii)	Workshop on use of results from TOGA, WOCE for climate change forecasting (1,2)	US\$ 20,000 ... Medium priority	IOC, WMO; interested Member States 1995/96	Ch.17 FCCC
(iii)	Establishment of regional dispatch centre for information (see also under IODE) (1,2,3)	US\$ much High priority pilot phase	IOC, Member States donors Centre Abidjan	All Ch.17
2.	OSLR (4.1.2):			
(i)	Creation of regional Group of Experts and organize its first meeting (1,3)	US\$ 15,000 Very high priority Selected experts	IOC, Member States mid-1993	Ch. 17 and Conventions
3.	OSNLR (4.1.3)			
(i)	Continuation of the sedimentary budget study, following Abidjan 1991 and IOCEA-II (3) Organization of Seminar for work-up and plan cruise (1,2) Organization of mission (1) Implementation of effects of damming (3) Collection information on river inputs (3)	High priority US\$20,000 US\$ 4,000 National work	Participating Member States IOC and Co-ordinator IOC/Ghana Participating Member States	All of Ch.17
	Organization of Second Cruise (1,2,3)	National efforts US\$??	Participating Member States, IOC, donors, 1994/96	Ch.17
(ii)	Coupling of sub-regional COMEMIR with "Canary Current Project" (1,2,3) Organization of expert meeting (1,2) (see Annex VI)	National efforts US\$?? US\$ 10,000	Member States 1993 ... IOC and Co-ordinator (Las Palmas) mid-1993	Ch.17
(iii)	Coastal area management workshop (for erosion and EIA new ICAM) (1,2)	US\$ 20,000	IOC, UNEP and FAO, all interested Member States, Regional Co-ordinator 1994/95	Ch. 17
(iv)	Coastal erosion project (1,3)	IOC-UN National		
4.	Bathymetric Mapping, (4.1.4)			
(i)	Continuation of regional project according to plan of Editorial Board (2,3)		Member States, Donors	Ch.17 Conventions

(ii)	Meeting of Editorial Board (1,2)	US\$ 15,000	IOC and Chief Editor	
5.	Marine Pollution (4.1.5)			
(i)	Continue WACAF/2, phase II including strengthening of laboratories (3)	National efforts ---	FAO, UNEP, IOC, ... Participating Member States 1993	Ch.17
(ii)	Organization of workshop on WACAF/2 results (2,3)	US\$30,000	Agencies, Co-operating Member States (1994/95)	Ch. 17
(iii)	Co-ordination with other elements of WACAF - WACAF/3, WACAF/1 (for action items in 3 etc.) (3)	National efforts	Agencies and Participating Member States	
(iv)	Support to participation from the region in Coastal Zone 93 (July '93, Baltimore) and in The Hague, Holland, November '93) (1,2)	US\$??	Agencies and donors Member States	
(v)	Establishment of a network of baseline stations (3)	---	National efforts, IOC donors, Regional Co-ordinators	Ch.17
6.	Ocean Observations (4.2.1)			
	Support to establishment of regional GOOS			
(i)	Establishment of more tide gauges using modern equipment (NOAA type, etc) (GLOSS network following IOCEA-I) (1,2,3)	--- High priority	Donors and national efforts; catalyzing through IOC-GLOSS	
(ii)	Maintenance of tide gauges (1,3)	---	National efforts and IOC, WMO	
(iii)	Regional training course in use and collection of sea-level data (1,2)	US\$ 25,000 High priority	IOC and donors. All Member States 1994/96	
(iv)	Preparation of regional inventory of on-going ocean observations (including coastal) (3)	---	National action Regional data centre	
(v)	Establish increased contact with space agencies ESA, for obtaining satellite data (1,3)		National and IOC	
7.	IODE, (4.2.2)			
(i)	Establishment of regional dispatch centre, pilot phase, following project proposal (Annex ...) (1,2,3)	---	National efforts, IOC Co-operating Agencies Donors 1993 ...	
(ii)	Assistance to establishment of regional data centre in Conakry (CERESCOR) (1,2)	---	IOC, donors, and national and centre 1993 ...	
(iii)	Assistance to establishment of national data centres (1,2)	---	IOC, donors, National efforts	

8. UNCED and Capacity Building (4.3 and 5)				
(i)	Follow-up to this Session to sensitize governments (1,3)	---	Delegates and possibly high-level IOC mission	Ch.17 Conventions
(ii)	Organization of plan and project proposal for regional or sub-regional training courses for BSc, MSc, to be carried out mainly in the region, using East Africa programme as a model (1,3)	---	Task Team: Ghana, Nigeria, Spain, Mauritania and IOC Secretariat 1993 ...	
(iv)	Preparation of an inventory of courses available in training centres in the region for regional use and updating (1,3)	---	Dispatch Centre (Abidjan) and respective training centres, IOC Secretariat 1993	
(v)	Preparation of an inventory of existing institutions and equipment etc. (1,3)	---	National institutions, regional dispatch centre, IOC Secretariat 1993 ...	
	Communication to Organization Intersessional Meeting of Officers (1,3)	US\$ 10,000	IOC Secretariat and Chairman, 1994/95	
	Organization of IOCEA-IV (1,3)	US\$ 20,000	IOC Secretariat, Officers, host country and Member States	

Note: The categories 1,2,3 (shown underlined) are in accordance with discussions which considered the actions in different categories of responsibility, as follows:

- (1) mainly on IOC Secretariat supported action
- (2) mainly depending upon support from donor(s)
- (3) mainly depending upon national efforts and provision of expertise and support from national institutions.

In many cases, the actions will depend upon more than one of these main contributors.

ANNEX III

ADDRESSES

**A. Address by M. le Ministre Mbaye Diouf
Ministre Délégué chargé de la Mer, Sénégal**

Monsieur le Secrétaire de la Commission océanographique intergouvernementale,
Messieurs les Représentants des institutions spécialisées du système des Nations Unies,
Messieurs les Représentants des organisations internationales,
Monsieur le Chef d'Etat Major de la Marine Nationale,
Messieurs les Doyens de Faculté,
Messieurs les Directeurs Généraux et Directeurs,
Mesdames, Messieurs les Experts,
Chers invités,

Je voudrais tout d'abord vous remercier d'avoir bien voulu accepter d'honorer de votre présence la cérémonie d'ouverture de la troisième session du Comité Régional de la Commission océanographique intergouvernementale pour l'Atlantique du Centre-Est.

Au nom du Chef de l'Etat, du gouvernement et du peuple sénégalais, je souhaite la bienvenue à l'ensemble des délégations représentées ici à Dakar.

En acceptant, à l'issue de la deuxième réunion du Comité Régional tenue en février 1990 à Lagos, d'abriter la présente Session, le Sénégal manifestait, à nouveau, l'intérêt particulier qu'il a toujours accordé aux activités de l'UNESCO et singulièrement dans le domaine des sciences de la mer.

En effet, le Sénégal participe activement et régulièrement aux travaux de la COI dont il a été membre du Conseil exécutif pendant plusieurs années.

Cet intérêt se justifie par la vocation maritime affirmée de notre pays.

Il s'y ajoute que nous reconnaissons le rôle particulièrement important que notre organe subsidiaire régional peut jouer non seulement pour promouvoir les sciences marines et favoriser la réalisation de projets régionaux, mais également venir en appui à toutes les autres structures d'intégration économique, notamment la Conférence Ministérielle sur la Coopération Halieutique entre les Etats Africains Riverains de l'Océan Atlantique.

Messieurs les Représentants des organismes scientifiques et internationaux, honorables Délégués, la mer et les ressources vivantes et non vivantes qu'elle recèle constitue pour nous tous un patrimoine considérable qu'il importe de bien gérer. Cependant pour bien gérer, il faut d'abord bien connaître ce qui doit l'être. Et c'est, sans nul doute, là où réside le principal intérêt des activités de la COI.

Toutefois, les programmes de recherche doivent répondre aux attentes des politiques de développement et bénéficier d'un suivi continu qui, à notre avis, doit être assuré au plus haut niveau par la COI.

Fort heureusement, en parcourant l'ordre du jour annoté de la présente session, j'ai été rassuré en constatant que des thèmes aussi préoccupants que la connaissance approfondie des ressources vivantes et non vivantes de la mer, la surveillance de la pollution marine, l'étude de la dynamique des océans et des processus climatiques, l'éducation et la formation, etc., seront abordés par les experts.

Je voudrais donc conclure en renouvelant l'intérêt et tout l'honneur que le Sénégal se fait d'abriter cette réunion.

Je souhaite à nos hôtes un agréable séjour.

Plein succès à vos travaux et merci de votre aimable attention.

B. Address by M. Abdoul Hamid Diop
Directeur de l'Océanographie et des Pêches, Sénégal

Monsieur le Ministre,
Monsieur le Secrétaire de la Commission Océanographique Intergouvernementale,
Messieurs les Représentants des organisations internationales et scientifiques,
Honorables Délégués,
Chers invités,

Toute à l'heure, une voix plus autorisée que la mienne vous dira très certainement, au nom du Sénégal, merci d'avoir bien voulu accepter d'honorer de votre présence la cérémonie d'ouverture de la troisième session du Comité Régional de la Commission Océanographique Intergouvernementale pour l'Atlantique Centre-Est.

Pour ma part, vous constaterez que c'est avec difficulté que je dissimule le plaisir et la joie que m'offre l'honneur de m'adresser à une si auguste assemblée.

Je voudrais tout d'abord souhaiter la bienvenue à toutes les Délégations étrangères et leur souhaiter un agréable séjour au Sénégal.

Ensuite rappeler que la Session qui va nous réunir pendant cinq jours constitue la troisième du genre après celles de Praia et celle de Lagos.

Elle devrait marquer une étape importante pour le devenir des activités de la COI dans notre région.

Pour cela, il importe d'abord que nous fassions objectivement le point sur la réalisation des activités envisagées à l'issue de la réunion de Lagos.

Je ne doute pas que les thèmes inscrits à notre ordre du jour retiendront toute l'attention des experts, mais nous devons également réfléchir sur les voies et moyens nécessaires pour donner un poids plus considérable au Comité Régional et, pourquoi pas, renforcer sa représentativité au sein de la COI.

Je souhaite également que des recommandations concrètes ressortent de notre réunion et qu'elles puissent bénéficier de tout l'appui nécessaire à leur réalisation auprès du Secrétariat.

Monsieur le Ministre, Messieurs les représentants des organismes scientifiques et internationaux, honorables Délégués, je vous remercie de votre aimable attention.

**C. Address by Dr. L. Awosika
Delegate of Nigeria
Nigerian Institute for Oceanography and Marine Research,
Lagos, Nigeria**

The Chairman of IOCEA, Dr. Konate,
Secretary IOC, Dr. Kullenberg,
IOCEA Technical Secretary, Dr. Soares,
Delegates from the IOCEA region,
Ladies and Gentlemen,

It is now almost three years since the last regional meeting of IOCEA in Lagos. Looking back over these three years, many events have taken place in the sub-region. During the IOCEA-II meeting in Lagos in 1990, many recommendations were made. The Third Session of IOCEA is another golden opportunity to examine our achievements in the sub-region over the past years.

One of the greatest achievements in the IOCEA region was the first IOCEA cruise in the Gulf of Guinea (10-25 October 1989) on board Nigeria's Research Vessel SARKIM BAKA. The first report of the analysis of data collected during the cruise was presented to IOC. The report stressed the need for the provision of funds and equipment for further analysis of other data not yet analyzed. Though the report contained analysis done mainly by scientists from the Nigerian Institute for Oceanography and Marine Research, Lagos (NIOMR), we have extended invitations to scientists who desire to use the data. NIOMR has, since the IOCEA-II meeting, hosted some scientists from the region to work on the data sets collected during the cruise.

A meeting in Abidjan in 1991 examined the progress made so far after the cruise. The meeting came up with recommendations for further implementation of the project "Sediment budget in the Gulf of Guinea". Some of the recommendations included the hosting of a regional seminar during which the results of the cruise and other data and information on the region will be presented. Another very important recommendation at the Abidjan meeting was the pursuance of the other phase of the OSNLR project involving the study of river fluxes. Since the Abidjan meeting, action on nearly all of the recommendations has not been implemented. The reasons for this should be the subject of discussion during this meeting.

The issue of a second cruise in the region was adopted during the IOCEA-II meeting in Lagos. The offer made by Morocco for the provision of a vessel for this second cruise, I understand, is still alive. We should, at this meeting, set up a committee to come up with plans and schedules for this second cruise. Nigeria will, as ever, be ready to contribute positively to the achievement of this second cruise.

Beach erosion is very prevalent along the West and Central African coastline. Many coastal infrastructures put in place for the economic development of the region have been adversely affected by beach erosion. Many coastal settlements have been uprooted, increasing the suffering of local settlers and destabilizing the socio-economic activities of the sub-region. Flooding of coastal areas, decimation of coastal vegetation, especially mangroves and the pollution of coastal waters, are also causing great environmental problems in the sub-region. Global climate change and the resulting sea-level rise will definitely exacerbate this coastal degradation. Nigeria recognizes the problems faced by countries in the sub-region in the implementation of measures to at least decrease the adverse effects of global climate change and sea-level rise on the environment. The UNCED meeting in Rio, Brazil in 1992 was the hope of many developing nations in finding solutions to environmental degradation resulting from natural and human activities. Nigeria hopes that the spirit with which the

UNCED meeting was conceived will not die. The need for a continued monitoring of coastal and marine processes in the region will greatly enhance the capabilities of the different countries in the region to put in place strategies for combating the adverse effects of global climate change and sea-level rise. It is hoped that IOC and other relevant UN agencies, as well as Non-Governmental Organizations will ensure that the region is not left out in any programme emanating from the resolutions of the UNCED meeting.

The WACAF projects in the sub-region need some re-examination. This is because many institutions in the region have not been able to participate effectively in several aspects of the project. The WACAF/2 Phase II project which addresses the aspects of the physical/geological parameters affecting transport, dispersion and deposition of pollutants in the coastal environments is supposed to lead to the understanding of pollution rates and trends in the sub-region. However, many institutions still lack funds to purchase some consumables. The assistance from IOC in the past, though small, has been greatly appreciated.

The aspect of Ocean Science in Relation to Living Resources (OSLR) is another issue that needs discussion during this meeting. It is gratifying to note that a one-day workshop is to be held to discuss this project.

The issue of living resources in the Nigeria marine environment has been a priority for the Government of Nigeria as well as the NIOMR. NIOMR, as you are aware, has one of the leading Marine Fisheries Research Divisions in the sub-region. NIOMR has assessed the abundance of several fish species and has studied the biology of several fish species in our territorial waters. NIOMR has also done extensive research in the fishing methods and fish utilization. We have a well equipped canning section for the canning of some fish species, especially tuna. Our fisheries research personnel are involved in many international projects, as well as the World Bank project assessing coastal fisheries in Nigeria. Nigeria is very well poised then to take part in the discussion on living resources.

NIOMR would also like to renew a pledge made in Lagos during IOCEA-II to make available its resources for a regional assessment of the fisheries resources in the Gulf of Guinea. The need for the formulation of regional projects on OSLR cannot be over stressed. A regional project will ensure the participation of all scientists in the region, as well as having a regional perspective to fisheries resources in the Gulf of Guinea - the waters shared by all countries in the IOCEA region.

Nigeria would like to use this opportunity to thank the Secretary of IOC, Dr. Kullenberg, for past assistance to NIOMR, as well as to the entire region.

**D. Closing Address by the Outgoing Chairman,
Professor Sekou Konaté, Guinea**

Il est un agréable honneur pour moi en ma qualité de Président sortant de remercier l'ensemble des participants à la session de IOCEA-III pour la qualité des contributions de chaque délégation, d'une part, mais aussi pour l'esprit de compréhension, d'objectivité et, surtout, de pragmatisme qui a dominé tout au long des débats.

Je crois pouvoir affirmer sans conteste que IOCEA-III est un nouveau jalon dans la vie de notre organe subsidiaire.

Mes remerciements vont aux organisateurs de la Session, je parle tout d'abord des autorités sénégalaises, des cadres du Secrétariat de la COI, de ceux au BREDA qui n'ont rien ménagé pour conférer à cette rencontre le succès qu'elle a connu.

Les remerciements vont aussi aux collègues du Centre Oceanographique de Dakar Thiaroye qui nous ont fait visiter leur centre, véritable outil de développement du pays frère du Sénégal mais aussi instrument privilégiée de coopération au niveau sous-régional, régional et international. Nous les remercions particulièrement.

Nos remerciements vont enfin aux interprètes et à tous ceux, acteurs apparents ou anonymes dont l'action a convergé au succès enregistré.

A titre personnel, je reste profondément redevable envers chacune des délégations de notre sous-région pour m'avoir à deux reprises comblé de leur confiance en me confiant la présidence du Comité. Qu'elles trouvent, à travers ces modestes mots, l'expression renouvelée de ma sincère gratitude.

Je voudrais enfin souhaiter à notre nouveau bureau beaucoup d'entrain et une étroite collaboration avec le secrétariat dans la mise en oeuvre des actions que nous venons de dégager.

Que la période intersessionnelle à venir puisse se caractériser par une plus grande disponibilité du secrétariat, des bailleurs de fonds, mais aussi et surtout de nos décideurs.

Tout en souhaitant un bon retour à chacun des participants, je déclare clos les travaux de la Session IOCEA-III.

Merci.

ANNEX IV

**REPORT OF THE MEETING OF AN AD HOC WORKING GROUP
ON MARINE LIVING RESOURCES**

The *ad hoc* group adopted the following agenda:

1. Examination of existing projects
2. Topics to be established and proposed to the future Regional Group of Experts
3. Co-operation
4. Establishment of a Regional Group of Experts.

1. CONSIDERATION OF EXISTING PROJECTS

The following projects which have been fully worked out/completed were presented:

- (a) A project of the Sub-Regional Commission for Fisheries (Mauritania, Gambia, Guinea-Bissau, Guinea, Cape Verde and Senegal). Establishment of a data base on the one hand and of direct and indirect assessments on the other.
- (b) A project on cephalopods (Morocco, Mauritania, Senegal) - a study of all aspects of the development of octopus-fishing in the sub-region.
- (c) a project concerning the influence of currents on small coastal pelagic larval distribution (Senegal, Cape Verde). This project has been submitted to Morocco and Guinea for their consideration.

The presentation of these projects interested several countries who expressed their wish to participate:

- | | |
|-------------|---|
| Project (a) | Benin, Ghana, Nigeria, Sierra Leone |
| Project (b) | Cape Verde, Ghana, Nigeria, Canary Islands (University of Las Palmas) |
| Project (c) | Ghana, Morocco, Nigeria. |

Interested countries are requested to contact the project co-ordinator:

- Projects (a) and (c) Mr. Birane SAMB, Centre de Recherches Océanographiques, Sénégal
Project (b) Mr. Cheikh OULD Naji, CNROP, Mauritania.

2. TOPICS TO BE TENTATIVELY CONSIDERED AND PROPOSED TO THE FUTURE REGIONAL GROUP OF EXPERTS

The group was informed of a project to establish a system worked out/created by NOAA and ORSTOM to manage data collected by merchant ships which could be of great potential interest for living resources.

It was suggested that the actions foreseen in the workplan and in the Recommendation adopted by the Second Session of the Regional Committee (Recommendation IOCEA-II.1) be included in the topics to be tentatively considered.

As far as the project on cephalopods is concerned, the study of the impact of this kind of fishing on other fish was mentioned - the effect on the ecosystem (deterioration of fish stocks). The Delegate of Spain (University of Las Palmas) expressed his interest in the study and said that they would be prepared to collaborate with institutions and scientists in the region. The impact of pollution on larvae (a project presented by the Delegate of the Ukraine) should also be considered.

In addition to sub-regional research programmes already identified, the *ad hoc* group considered potential research topics on living resources which could be of interest to the whole region. Such large programmes could only be considered within a wide institutional framework.

The following four potential themes for research were considered:

(i) **Environment and fisheries resources**

Research aimed at a better understanding of forecasting the influence of environmental conditions of variability (seasonal, yearly tendencies) on marine resources exploited in the coastal zones of West Africa

(ii) **Relations between coastal zones and the continental shelf**

Regional research aimed at determining within West Africa the relationship between the biotopes of the coastal zones (lagoons, estuaries, mangroves) and those of the adjacent continental shelf usually exploited by fisheries. A number of locations where case studies could be undertaken could be selected in this respect. The results expected of such a programme, apart from their scientific interest, could prove useful to the integrated development of the coastal zones.

(iii) **Small-scale fisheries and resource management**

Research on assessment methods of the possibilities of small-scale fisheries, and the rational management of this kind of fishing. This type of fishing is, by its nature, very difficult to analyze and to manage, and its potential difficult to estimate. These important factors could be the subject of co-ordinated research at the regional level, taking into account the diversity and specificity of halieutic conditions in the region.

(iv) **Guinea trawling survey No.2**

Implementation of two scientific trawling campaigns within the Morocco-Angola zone following a layout similar to the one which was implemented, with full success nearly 30 years ago during the Guinea Trawling survey campaigns. These campaigns were carried out (from Senegal to Congo) on stocks which had been moderately exploited in coastal areas which had not yet been greatly altered by anthropogenic activities. The comparison between ecosystems presently existing with "historical" observations would be interesting both from the halieutic and ecological viewpoints.

These large research topics concerning living resources in the region could, among others, be the subject of important research programmes useful to development. They can only be contemplated on a wide geographic scale, and requesting efficient international co-operation (regional and north/south).

The *ad hoc* group recommended that scientists in the region and the regional group of experts study the feasibility, regional interest, implementation and the cost of such potential research topics, without necessarily confining these considerations only to the aforementioned research topics.

In order to support such activities, training should be considered, particularly with regard to acoustic techniques and data processing. It was recommended that participants in the campaigns also participate in the processing and analysis of data. The use of data buoys should also be envisaged.

The Representative of UNEP presented the activities foreseen for the WACAF programme for the 1993-1994 period (see Appendix I).

3. CO-OPERATION

The group considered that co-operation was mandatory to undertaking these actions at the regional level. It was also felt important that contacts between scientific institutions, as well as between scientists of different countries be followed up and strengthened. This co-operation should take into account the existence of the various stages of development from one country to another, and aim at strengthening (or establishing) structures, where deemed necessary in the framework of solidarity and mutual assistance. It was considered vital to identify common interests. Co-operation and development of a state of mind favourable to the identification of common interests, as well as understanding, are facilitated by the exchange of information and by meetings of scientists working on the same subject. The availability of scientific equipment and the possibility of other partnerships should be encouraged.

Priority should be given to information exchange - the establishment of a future network of information exchange would make this more effective. 'Co-operation' also includes interaction between the various United Nations agencies. The possibility of North-South co-operation should be investigated.

4. ESTABLISHMENT OF A REGIONAL GROUP OF EXPERTS

The group proposed the establishment of a Regional Group of Experts (see Terms of Reference adopted at IOCEA-I in Appendix II hereafter), to be composed of eight members, with the first meeting to be held in June 1993. The agenda submitted to the Group of Experts should consider finalized projects, analyze suggested topics, work out and finalize projects. A workplan should be prepared and include the organization of oceanographic cruises.

The report of the meeting, as well as the file prepared, should reach the Secretary IOC by September 1993.

It was tentatively proposed that the Group of Experts be composed of experts from the largest scientific institutions of countries within the region. The group advised that these experts be drawn from the following institutions:

Côte d'Ivoire - Centre de Recherches Océanographiques
Cape Verde - Institut National pour le Développement de la Pêche
Gambia - Fisheries Department, Ministry of Natural Resources and Environment
Mauritania - Centre National pour la Recherche Océanographique et la Pêche
Morocco - Institut Scientifique des Pêches Maritimes
Nigeria - Nigerian Institute for Oceanography and Marine Research
Sierra Leone - Institute of Marine Biology, University of Sierra Leone
Senegal - Centre de Recherches Océanographiques de Dakar
Guinea - Centre de Recherches Scientifique de Conakry-Rogbane

5. LIST OF PARTICIPANTS

Mr. Moctar Ba (Chairman)	Mauritania
Mr. Kamal Ben Bouchaib	Morocco
Mr. B. Samb	Senegal
Mrs. Catherine Isebor	Nigeria
Prof. Carlos Bas	Spain
Mr. A. Fonteneau	CRODT (Dakar)
Mr. Wellens-Mensah	Ghana
Mr. Raymond Johnson	Sierra Leone
Mr. Etienne Ossinga	FAO
Mr. Richard Congar	UNEP
Mr. M. Tamoikin	Ukraine
Mme. Maria Helena Vieira	Cape Verde
Mr. Roger Djiman	Benin
Mr. Malang Barrow	Gambia
Mr. Gualter Soares	IOC Secretariat

APPENDIX I

SUMMARY OF ACTIVITIES FOR THE WACAF REGION 1993-1994

ACTIVITIES COMPLETED OR UNDERWAY

UNEP training workshop on marine mammal conservation in the Western African region (Achimota, Ghana, April 1992).

Memorandum of Understanding with the Institute of Aquatic Biology, Achimota, Ghana.

Total budget: us\$ 25,000

Status: signed march 1992, completed.

Support to network of cetacean observers in North-west Africa.

Memorandum of Understanding with the cetacean specialist group/IUCN (including other projects)

Total budget: us\$ 5,000

Output: report of activities pertaining to the North-west african network

Status: signed December 1991, network report by February 1993.

PLANNED ACTIVITIES

Survey of national legislation on the protection of marine mammals for the region (possible compilation by OCA/PAC).

Production of field guide to the identification of marine mammals in the region (possible consultancy).

First symposium on the biology and conservation of marine mammals in east and west africa.

**** Marine mammal fisheries interactions in Mauritania, Senegal and Gambia. Memorandum of Understanding with Centre National d'Elevage et de Recherches Vétérinaires, Sénégal?.**
Total budget: US\$ 10,000.

**** Exploitation and status of marine mammals in Côte d'Ivoire.**
Memorandum of understanding with Centre de Recherches Océanologiques?
Total budget: us\$5,000

**** Fisheries interactions and status of marine mammals in Cameroon, Congo, Gabon and Equatorial Guinea.**
Memorandum of Understanding Institute of Animal and Veterinary Research, Cameroon?
Total budget: US\$ 10,000.

**** Activity with report as an output which may be published as UNEP's RSRS.**

APPENDIX II

TERMS OF REFERENCE OF THE GROUP OF EXPERTS ON OCEAN SCIENCE IN RELATION TO LIVING RESOURCES IN THE CENTRAL EASTERN ATLANTIC

The Group of Experts on Ocean Science in Relation to Living Resources in the Central Eastern Atlantic shall:

1. BASIC FUNCTION

Assist in the IOC Regional Committee for the Central Eastern Atlantic in the implementation of co-operative regional and/or sub-regional studies in the framework of the IOC-FAO Programme of Ocean Science in Relation to Living Resources.

2. PROGRAMME DEVELOPMENT

2.1 Planning

Prepare a detailed plan of action for carrying out the projects and activities adopted or approved by the Regional Committee for IOCEA in this field.

2.2 Promotion

Promote in the Member States of the IOC Regional Committee for IOCEA and in their marine scientific communities the agreed projects or activities.

2.3 Co-ordination

Identify the participating entities (institutions, individual scientists, as the case may be), inform them of the actions each is expected to undertake in the implementation of the agreed projects and activities, and generally inform each participating entity of the actions being taken by the other participating entities, so as to avoid unnecessary duplication of effort.

2.4 Scientific and technical advice

Advise the Regional Committee on the methods and procedures to be preferred in carrying out the work relating to the agreed projects and activities.

Advise the participating entities, as appropriate, of such methods and procedures, and on any methodological question falling within the Group of Experts' sphere of competence.

Advise the Regional Committee on the requirements for Training, Education and Mutual Assistance in the Marine Sciences (TEMA) relative to OSLR in the region.

2.5 Collaboration

Collaborate with the IOC-FAO Guiding Groups of Experts on OSLR, in the implementation of activities relevant to OSLR in the region, and, when appropriate, with similar expert groups active in the field of ocean science in relation to living resources.

2.6 Evaluation

Evaluate progress in the implementation of agreed projects and activities with a view to proposing new approaches or new directions in the light of results achieved.

3. OTHER FUNCTIONS

3.1 Technical policy

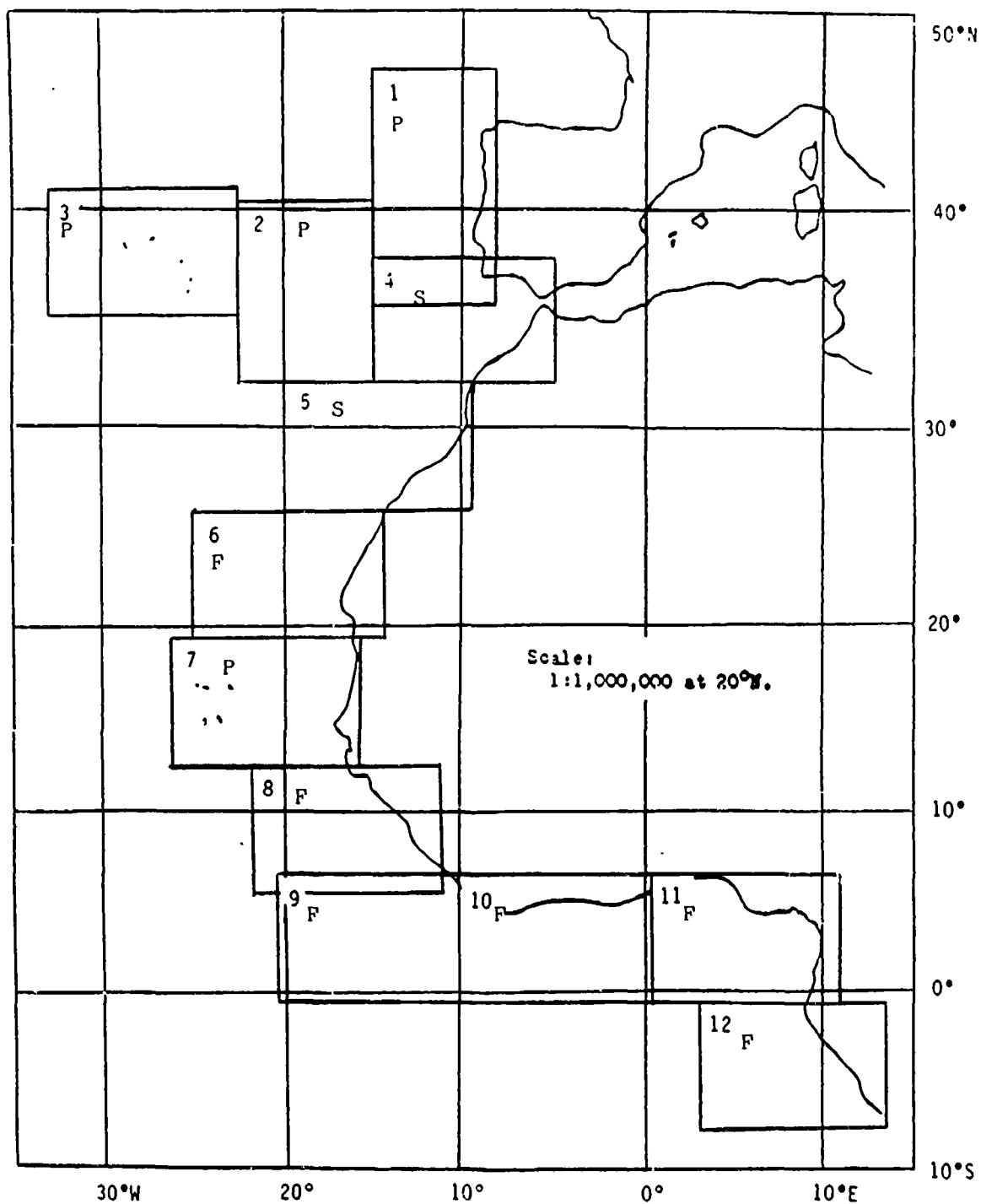
Advise the Regional Committee for the Central Eastern Atlantic on the technical requirements for the effective implementation of agreed projects and activities and for the achievement of the Regional Committee's objectives in this field.

3.2 Reporting

Report to the Regional Committee for the Central Eastern Atlantic at each Session of the Committee; and to the IOC-FAO Guiding Group of Experts on OSLR, on the scientific and technical aspects of its activities.

ANNEX V

ASSEMBLY DIAGRAM FOR THE INTERNATIONAL BATHYMETRIC CHART
OF THE CENTRAL EASTERN ATLANTIC



Key F = France
P = Portugal
S = Spain

ANNEX VI

OUTLINE FOR A STUDY OF THE CANARY CURRENT SYSTEM (CCS)

BACKGROUND

The countries of north-west Africa (Morocco, Mauritania, Senegal ...) were invited to participate in establishing an outline on the environment and mineral resources of the continental shelf (COMEMIR, SEMAUMAR, etc.).

The presentation of the COMEMIR project, which has already been endorsed by IOC, had shown the necessity to take into account certain national priorities of the adjoining countries of the north-west Atlantic.

This fact decided Dr. Kullenberg, Secretary IOC, to request the different parties present in Dakar to harmonize and reformulate the project on the basis of further reflection. The following observations and recommendations resulted from the meeting held on 20 January 1993.

OBSERVATIONS

The West African coastal region between 10°N and 30° N and the longitudes of the Canary Islands and Cape Verde belong to the Canary Current System from the hydrodynamical viewpoint.

There have been many oceanographic cruises in the region (RV METEOR, the CINECA cruises), but the information is insufficient to permit a detailed description of the ocean circulation and its variability.

The termination of the North Equatorial Counter Current (NECC) in the southern part of the region, makes it possible to observe the difference between two types of circulation - the formation of the dome of Guinea.

The fluctuations of this current which have been observed around the Canary Islands, have made a considerable impact on larval distribution on a regular basis.

Measurements are rare and, until recently, the difficulty of obtaining precise measurements has proved a very limiting factor. The present Session of IOCEA presents an opportunity to fill this gap.

JUSTIFICATION FOR A REGIONAL PROJECT ON KNOWLEDGE OF THE OCEANIC CIRCULATION

Fishery resources

The main resource of this region linked to upwelling is the fishing of various species (sardine, mackerel, tuna, cephalopod, etc.), whose quantities depend on ocean circulation.

In contrast to more adult forms, larvae are incapable of moving by themselves, and are totally dependent on ocean circulation (the impact of current circulation on larval distribution). Taking into account their birth in various ecological niches, the present project aims to follow the larval drift.

Geological component

This project will allow the refinement of knowledge of the sedimentary bottom deposits along the coast of North-west Africa (see also project proposal relevant to COMEMIR).

Item of UNCED's Agenda 21 of particular relevance to the project

Regarding accidental pollution (for example, the petrol carrying vessel KHARG off Morocco in 1989), the present project offers a very useful basis knowledge of the behaviour and dispersal of oil pollutants.

Links with existing programmes

The WOCE project, which mobilized the scientific community, could benefit from the proposed project of data of SCC variability and evaluation of meridian heat transfer between the temperate latitudes (Tangier) and that of the south of Senegal (the limit of the branch of the Northern Equatorial Counter Current (NECC)).

PROPOSED METHODOLOGY

At sea

Development of advanced technology regarding current measurement to obtain such measurements, at a lower cost, from modern ocean vessels from neighbouring coastal states (Senegal, Morocco, Spain, etc.).

The Acoustic Doppler Current Profiler (ADCP) - used with success on ORSTOM cruises in the Pacific and Atlantic - could also be used in this kind of programme.

Techniques of echo integration used on oceanographic vessels available in neighbouring coastal states (Canary Islands - RV TALIAERTE, Morocco - RV CHARIF AL IDRISI, Senegal - RV LOUIS SAUGER) would make possible the linkage of such data (Echo integration and current meter). Some deep moorings placed at regular intervals between the Canary Islands, Cape Verde and the continent would complete the system.

Remote sensing

ERS-1 data (altimeter) will be used for knowledge of general ocean circulation.

Wind data and surface thermography data will be obtained from METEOSAT and NOAA satellites (available in Dakar, Maspaloms, etc.) will be essential to the monitoring of the dynamics of upwelling, mainly linked to the wind.

On a regional basis different countries possess different levels of expertise: Spain (Centre d'Etudes Spatiales, Maspalomas), Morocco (Centre Royal de Télédétection Spatiale), Senegal (Unité de Traitement d'Images Satellites).

Modelling

Data acquired will permit the validation of data obtained from existing 3-D models (LODYC model used by METEO FRANCE) and the completion of a coastal model.

The Faculty of Ocean Sciences (Las Palmas) also has a certain level of expertise in coastal modelling.

Training component

The development of training will allow countries to the south to familiarize themselves with new techniques (ADCP, ERS-1).

It is proposed that this outline be used as a basis for a discussion during the coming months, for example in the Canary Islands, between the different participating parties present in Dakar, or others who may be interested (Portugal, etc.).

CALENDAR

Meeting to be arranged in March-April 1993. Completion 1996.

LIST OF PARTICIPANTS (PRESENT OR REPRESENTED)

See List of Participants for IOCEA-III (Annex VII) for the following countries: Cape Verde, Spain, France, Morocco, Mauritania, Senegal.

ANNEX VII

LIST OF PARTICIPANTS

I. PARTICIPANTS FROM MEMBER STATES

Benin

Mr. R. Djiman
Chef, Division Océanographique
Secrétaire du Comité National Océanographique
Centre Béninois de la Recherche
Scientifique et Technique (CBRST)
BP 03-1665
Cotonou

Tel: (229) 32 12 63
Fax: (229) 30 14 66
Tlx: 5329 ITABEN

Cape Verde

Mme. Maria Helena Vieira
Institut National pour le Développement de la
Pêche (INDP)
BP 206
Praia - Cabo Verde
Tel: 611 742
Fax: 611 770

Congo

M. L.G. Yoba
ORSTOM
BP 1286
Pointe Noire
Tel: 94 02 38
Fax: (242) 94 39 81
Tlx: SAMDAR 8325 KG

Côte d'Ivoire

Mr. J. Abe
Chef de Département de Physique et
Géologie Marine
Centre de Recherches Océanologiques (CRO)
29 rue des Pêcheurs
BP V 18
Abidjan
Tel: (225) 35 50 14/43 09 24
Fax: (225) 24 65 04

France

M. Joel Poitevin
Chef de la Prévision Marine
METEO FRANCE - SCEM
42 avenue Gustave Coriolis
31057 Toulouse Cedex
Tel: (33) 61 07 82 90
Fax: (33) 61 07 82 32
Tlx: 531229 F
(also representing WMO)

M. A. Fonteneau
Chercheur
Centre de recherche océanographique de
Dakar (CRODT)
BP 2241
Dakar
Sénégal
Tel: (221) 34 05 34/36
Fax: (221) 34 27 92

M. J. Citeau
Responsable télédétection, ORSTOM/ISRA
Centre de recherche océanographique de Dakar
(CRODT)
BP 2441
Dakar
Sénégal
Tel: (221) 34 21 36
Fax: (221) 32 43 07

Gambia

Mr. Malang Barrow
Senior Environment Officer
Ministry of Natural Resources and Environment
5 Marina Parade
Banjul
Tel: (220) 28056/29701
Fax: (220) 29701
Tlx: 2204 PRESOF GV

Ghana

Mr. J. Wellens-Mensah
Hydrology Division
Architectural and Engineering Services
Corporation (AESC)
PO Box 3969
Accra
Tel: (233-21) 662296
Tlx: MINOWH 2806 GH

Guinea

Prof. Sekou KONATE (Chairman IOCEA)
Directeur
Centre de Recherche Scientifique
de Conakry-Rogbane
BP 561
Rogbane, Conakry
Tlx: 22331 MDEC GE

Mauritania/Mauritanie

Mr. Moutar BA
Centre National de Recherches
Oceanographiques et des Pêches
BP 22
Nouadhibou
Tel: 45124
Fax: 49 050/035
Tlx: 415 MTN

M. Ahmedou Ba Gatta
Direction des Mines et de la
Géologie
BP 199
Nouakchott
Tel: (222) 2 532 25
Fax: (222) 2 532 25

Morocco/Maroc

Professor Maria Snoussi
Université Mohamed V
Faculté des Sciences
Département de Géologie
BP 1014
Rabat
Tel: (7) 7719 57
Tlx: FACSIENS 36607
Fax: 77 42 61

M. K. Ben Bouhaib
Ingénieur chercheur
Institut Scientifique des Pêches Maritimes
rue de Tiznit 2
Casablanca
Tel: 22 20 90/26 81 92
Fax: 26 69 67
Tlx: IPEMAR 23823 M

Prof. Badia Bouab
Université Mohamed V
Faculté des Sciences
Département de Géologie
BP 1014
Rabat
Tel: (7) 7719 57
Tlx: FACSIENS 36607
Fax: 77 42 61

Nigeria/Nigéria

Mr. L. Awosika
Nigerian Institute for Oceanography
and Marine Research (NIOMR)
PMB 12729
Victoria Island, Lagos
Tel: (234-1) 6197 517
Tlg: OCEANOGRAPH

Mr. E.A. Ajao
Nigerian Institute for Oceanography
and Marine Research (NIOMR)
PMB 12729
Victoria Island, Lagos
Tel: (234-1) 9 617 540
Tlg: OCEANOGRAPH

Mr. J. Adegbehin
NAERLS
Abu
PMB 1067
Zaria

Ms. Catherine Ekaete Isebor
Nigerian Institute for Oceanography
and Marine Research (NIOMR)
PMB 12729
Victoria Island, Lagos
Tel: (234-1) 9 617 540
Tlg: OCEANOGRAPH

Senegal/Sénégal

Mr. Ndiaga Gueye
Adjoint au Directeur
Direction d'Océanographie
et des Pêches Maritimes
1 rue Joris
Dakar
Tél: (221) 21 27 75
Fax: (221) 22 88 76

M. Boubacar Ba
Building Administratif
Dakar
Tel: 23 13 49

Mme. Mariama Barry-Gerard
CRODT
BP 2241
Dakar
Tel: 340 534/36

M. Tahirou Bodian
Chef Division Crédit
Direction des Pêches Maritimes
BP 289
Dakar
Tel: 21 27 75

M. Abou Adama Diallo
Ingénieur géologue
Ministère de l'Industrie
Direction des Mines et Géologie
Dakar
Tel: 32 07 26

M. Youssouph Diatta (Co-rapporteur)
Responsable de la Coopération
scientifique Internationale
Ministère de la Modernisation de l'Etat
et de la Technologie
3 rue Calmette
BP 218
Dakar
Tel: 213 260/229 970

M. Bassirou Diaw
CRODT
BP 2241
Dakar
Tel: 340 536

M. Mamadou Saliou Diouf
Dakar
Tel: 23 62 71

M. Bachir Diouf
Département de Géologie
Faculté des Sciences
Université C.A. Diop
Dakar-Fann
Tel: 25 04 48

M. Cheikh Fofana
Chef, Bureau Education/Information
Direction Environnement
23 rue Calmette
BP 4049
Dakar
Tel: 21 07 25/21 11 26
Fax: 22 94 13

Mme. Itaf Gningue
CRODT
IBP 2241
Dakar
Tel: 34 05 34

Mme. Nafissatou Ndiaye
Conseiller Technique
Ministère Délégué chargé de la Mer
Dakar
Tel: 23 13 49

M. A. Ndiaye
Documentaliste
DOPM
1 rue Joris
BP 289
Dakar

Tel: 21 65 78

M. Sidi Mohamed Ndour
Conseiller technique
MDCM
Dakar

Tel: 23 12 05

Mme. Ly Sall Racky
National Commission for UNESCO
Ministère de l'Education Nationale
Dakar

Tel: 22 57 30

M. Birane Samb
Chercheur
CRODT
BP 2241
Dakar

Tel: 34 05 34

M. Cheikh Samba Sene
Conseiller technique
Délégué charge de la Mer
Dakar

Tel: 23 13 49

M. Ndiaye Cheikh Sylla
Ingénieur-Chimiste
Direction Environnement
23 rue Calmette
BP 4049
Dakar

Tel: 21 07 25/21 11 26

Fax: (221) 22 94 13

M. Mamadou Thioub
Ingénieur
Adjoint au Chef des Phares et Balises
Boulevard Félix Eboué
BP 3195 P.A.D
Dakar

Tel: 32 58 71

M. Diafara Touré
Centre de Recherches Océanographiques
BP 2241
Dakar

Tel: 34 05 34

Sierra Leone

Mr. Raymond Johnson (Co-rapporteur)
Institute of Marine Biology and
Oceanography

Fourah Bay College

Mount Aureol

University of Sierra Leone

Freetown

Tlx: 3624 MAERD SL

Mr. Reynold Johnson
Department of Geography
Fourah Bay College
Mount Aureol
University of Sierra Leone
Freetown

Tlx: 3624 MAERD SL

Spain/Espagne

Prof. A. Luque
Facultad de Ciencias del Mar
Universidad de Las Palmas de Gran Canaria
Las Palmas
35010 Spain

Tel: 34 28 452 912

Fax: 34 28 452 922

Prof. Carlos Bas
Facultad de Ciencias del Mar
Universit  de Las Palmas de Gran Canaria
Spain

Tel: 34 28 452 903

Fax: 34 28 452 922

M. J.L. Pelegri
Universidad de Las Palmas de Gran
Canaria
Facultad de Ciencias del Mar
Campus Universitario de Tafira
35017 Las Palmas
Canary Islands

Tel: 34 28 452 901

Fax: 34 28 452 922

Togo

Mr. Adoté Blivi
Université de Bénin
BP 1515
Lomé
Tel: (228) 21 25 46
Fax: (228) 25 87 84

ou:

BP 60047
Lomé

Ukraine

Mr. M. Tamoikin
Ichthyologist
Institute of Biology of the Southern Seas
Marine Hydrophysical Institute
2 Nachimova Avenue
Sevastopol
335000 Crimea
Tel: 52 53 68/52 41 10
Tlx: 187 124 IBSS SU
Cbl: OCEAN SU
Fax: (69-0) 59 28 13

II. REPRESENTATIVES OF ORGANIZATIONS

Food and Agriculture Organization of the United Nations (FAO)

Mr. Etienne Ossinga
Regional Fisheries Officer
Regional Office for Africa
FAO
PO Box 1623
Accra
GHANA
Tel: (233-21) 666 851
Tlx: 239 GH
Fax: (233-21) 66 84 27

M. Mbodj Mahawa
FAO
BP 3300
Dakar
Sénégal

United Nations Development Programme (UNDP)

Mr. B. Nielsen
Chargé de Programme
UNDP
BP 154
Dakar
Sénégal

United Nations Educational, Scientific and Cultural Organization (UNESCO)

Mr. E.S. Diop
Regional Co-ordinator
COMARAF
c/o UNESCO
12 avenue Roume
Dakar
Sénégal
Tel: (221) 235 082

United Nations Environment Programme (UNEP)

Mr. Richard Congar
Senior Programme Officer, OCA/PAC
UNEP
PO Box 30020
Nairobi
Kenya
Tel: (254-2) 520 600 ext. 6977
Fax: (254-2) 230 127/direct:226890
Tlx : 25164 UNEPRS

United Nations Industrial Development Organization (UNIDO)

Mr. Morike Konare
ONUDI
BP 154
Dakar
Sénégal
Tel: 23 32 44
Tlx: 235 500

World Meteorological Organization (WMO)

M. Joel Poitevin
Chef de la Prévision Marine
METEO FRANCE - SCEM
42 avenue Gustave Coriolis
31057 Toulouse Cedex
Tel: (33) 61 07 82 90
Fax: (33) 61 07 82 32
Tlx: 531229 F
(also representing France)

III. SECRETARIAT

Dr. Gunnar Kullenberg
Secretary IOC
Intergovernmental Oceanographic Commission
UNESCO
7 place de Fontenoy
75732 Paris cedex 15
France
Tel: 45 68 39 83
Tlx: 204461
Fax: (33-1) 40 56 93 16

Mr. Gualter Soares
Technical Secretary for IOCEA
Intergovernmental Oceanographic Commission
UNESCO
7 place de Fontenoy
75732 Paris cedex 15
France
Tel: 45 68 39 91
Tlx: 204461
Fax: (33-1) 40 56 93 16

ANNEX VIII

LIST OF DOCUMENTS *

IOCEA-III/1 prov	Revised Provisional Agenda
IOCEA-III/1 Add. prov.	Provisional Timetable
IOCEA-III/2	Annotated Provisional Agenda
IOCEA-III/3	Draft Summary Report (to be issued during the Session)
IOCEA-III/4 prov.	Provisional List of Documents
IOCEA-III/5 prov.	Provisional List of Participants
IOCEA-III/6	Report of the Secretary on Intersessional Activities
IOCEA-III/7	Chapter 17 of UNCED Agenda 21: Protection of the oceans, all kinds of seas including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources

* This list is for reference only. No stocks of these documents are maintained, except for the Summary Report.

ANNEX IX

ACRONYMS

ACP	African, Caribbean and Pacific Group of States (ACP Group)
ADCP	Acoustic Doppler Current Profile
ASFA	Aquatic Sciences and Fisheries Abstracts (FAO-IOC-UN)
BREDA	Bureau Régional pour l'Education pour l'Afrique (UNESCO) Regional Office for Education for Africa (UNESCO)
CCS	Canaries Current System
COMAR	Interregional Project on Research and Training Leading to the Integrated Management and Coastal Systems (UNESCO)
COMEMIR	Continental Margin Environments and Mineral Resources
CRODT	Centre de Recherches Océanographiques de Dakar (Sénégal)
ECA	Economic Commission for Africa
EEC	European Economic Community
EEZ	Exclusive Economic Zone
ESA	European Space Agency
ERS-1	Earth Resources Satellite-1
FAO	Food and Agriculture Organization (United Nations)
FCCC	Framework Convention on Climate Change
GCOS	Global Climate Observing System
GEEP	Group of Experts on Effects of Pollutants (IOC-IMO-UNEP)
GEMSI	Group of Experts on Methods, Standards and Intercalibration (IOC-UNEP)
GESREM	Group of Experts on Standards and Reference Materials (IOC-IAEA-UNEP)
GIPME	Global Investigation of Pollution in the Marine Environment (IOC)
GLOBEC	Global Ocean Ecosystem Dynamics
GOOS	Global Ocean Observing System
HAB	Harmful Algal Blooms
IAEA	International Atomic Energy Agency
IBCEA	International Bathymetric Chart of the Central Eastern Atlantic
ICSU	International Council of Scientific Unions
IFREMER	Institut français
IGOSS	Integrated Global Ocean Services System (IOC-WMO)
IMO	International Maritime Organization (UN)
IOCEA	IOC Regional Committee for the Central Eastern Atlantic
IOCINCWIO	IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean

IODE	International Oceanographic Data and Information Exchange (IOC)
IPCC	Intergovernmental Panel on Climate Change (UNEP-WMO)
ISME	International Society for Mangrove Ecosystems
ISRA	Institut Sénégalais de Recherches Agricoles
ITTO	International Tropical Timber Organization
IUCN	World Conservation Union
NIOMR	Nigerian Institute for Oceanography and Marine Research
NOAA	National Oceanic and Atmospheric Administration (USA)
OCA/PAC	Oceans and Coastal Areas Programme Activity Centre (UNEP)
ORSTOM	Institut français de recherche scientifique pour le développement en coopération
OSLR	Ocean Science in Relation to Living Resources
OSNLR	Ocean Science in Relation to Non-living Resources
PROMAR	Promotion of Marine Science Programmes (UNESCO)
RECOSCIX-WIO	Regional Co-operation for Scientific Information Exchange - Western Indian Ocean
ROSTA	Regional Office for Science and Technology for Africa (UNESCO)
SCOR	Scientific Committee on Oceanic Research (ICSU)
TREDMAR	Training and Education in Marine Science Programmes (UNESCO)
UNCED	1992 United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations International Development Organization
WACAF	Project on Monitoring of Pollution in the Marine Environment of the West and Central African Region
WCRP	World Climate Research Programme
WMO	World Meteorological Organization (United Nations)
WOCE	World Ocean Circulation Experiment